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Five-Year Review Report

Third Five-Year Review
for
Laurel Park Landfill Superfund Site
Borough of Naugatuck, Connecticut

September 2008

Prepared by:

The United States Environmental Protection Agency
Region 1, New England
Boston, Massachusetts

Superfund Records Center
SITE: Laurel Park
BREAK: 8.3
OTHER:

EPA
New England

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9/29/08

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U.S. EPA, New England

TABLE OF CONTENTS
THIRD FIVE-YEAR REVIEW REPORT
LAUREL PARK LANDFILL SUPERFUND SITE
BOROUGH OF NAUGATUCK, CONNECTICUT

SECTION **PAGE**

ACRONYMS **1**

EXECUTIVE SUMMARY **1**

1.0 INTRODUCTION **1**

2.0 SITE CHRONOLOGY **2**

3.0 BACKGROUND **2**
- 3.1 Physical Characteristics 3
- 3.2 Land and Resource Use 3
- 3.3 History of Contamination 3
- 3.4 Initial Response 4
- 3.5 Basis for Taking Action 5

4.0 REMEDIAL ACTIONS **5**
- 4.1 Remedy Selection 5
- 4.2 Remedy Implementation 6
- 4.3 Operation and Maintenance 7

5.0 PROGRESS SINCE LAST REVIEW **8**

6.0 FIVE-YEAR REVIEW PROCESS **9**
- 6.1 Administrative Components 9
- 6.2 Community Involvement 10
- 6.3 Document Review 10
- 6.4 Data Review 10
- 6.5 Site Inspection 13
- 6.6 Interviews 15

7.0 TECHNICAL ASSESMENT **16**
- 7.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents? 16
- 7.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives Used at the Time of the Remedy Selection Still Valid? 19
- 7.3 Question C: Has Any Other Information Come to Light that Could Call into Question the Protectiveness of the Remedy? 23
- 7.4 Technical Assessment Summary 24

8.0 ISSUES **25**

9.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS **25**

10.0 PROTECTIVENESS STATEMENT(S) **27**

TABLE OF CONTENTS (cont.)
THIRD FIVE-YEAR REVIEW
LAUREL PARK LANDFILL SUPERFUND SITE
NAUGATUCK, CONNECTICUT

11.0 NEXT REVIEW **27**

TABLES

NUMBER **PAGE**

1 Chronology of Site Events 2
2 Issues 2
3 Recommendations/Follow-up Actions 26

APPENDICES

Appendix A Site Figures
Appendix B Document Review List/References
Appendix C Site Inspection Checklist and Interviews

ACRONYMS

1,2-DCA	1,2-Dichloroethane
ARAR	Applicable or Relevant and Appropriate Requirement
bgs	below ground surface
COC	Contaminant of Concern
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CTDEP	Connecticut Department of Environmental Protection
EPA	Environmental Protection Agency
FSP	Field Sampling Plan
GES	Groundwater Extraction System
GPC	Groundwater Protection Criteria
gpm	gallons per minute
LCS	Leachate Collection System
LFR	Levine Fricke, LLC
LPC	Laurel Park Coalition
LTMP	Long-Term Monitoring Plan
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
NPL	National Priorities List
NWPCF	Naugatuck Water Pollution Control Facility
O&M	Operations and Maintenance
OSWER	Office of Solid Waste and Emergency Response
POC	Point of Compliance
ppb	parts per billion
PPL	Priority Pollutant List
RA	Remedial Action
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
TCE	Trichloroethene
TCL	Target Compound List
TDS	Total Dissolved Solids
µg/L	micrograms per liter
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

This is the third five-year review for the Laurel Park Landfill Superfund Site (the Site) located in the Borough of Naugatuck, Connecticut. The review was conducted in accordance with EPA Office of Solid Waste and Emergency Response (OSWER) Guidance No. 9355.7-03B-P. This statutory five-year review is required because hazardous contamination remains at the Site above levels that allow for unlimited use and unrestricted exposure. The triggering action for this statutory five-year review is based on the completion of the last five-year review in September 2003.

The remedy specified in the June 30, 1988 Record of Decision (ROD) Site included: construction of a cap over the landfill area in accordance with Resource Conservation and Recovery Act (RCRA), construction of a leachate collection/groundwater extraction system, off-site treatment of leachate and contaminated groundwater at the Naugatuck Water Pollution Control Facility (NWPCF), long-term monitoring, and institutional controls. Only institutional controls (e.g., deed restrictions prohibiting use of groundwater) have not been implemented.

The components of the remedy have achieved some of the Remedial Actions Objectives specified in the ROD. Site inspections performed since the completion of the last five-year review indicate that the landfill components are in good condition and functioning as intended in the ROD. Ongoing operations and maintenance of the landfill cap and the leachate collection/groundwater extraction system, plus the provision of public water to the majority of nearby residences, are helping to maintain the current protectiveness of the remedy.

However, this five-year review has identified several issues which may bear on future protectiveness. A new development is contemplated to the immediate south of the Site. Discussions between the Potentially Responsible Party and the developer are ongoing to provide municipal water, implement groundwater use restrictions, and possibly the installation of passive foundation vent systems. Reevaluation of groundwater elevation data indicates that hydraulic containment of contaminated groundwater is less comprehensive than previously determined, and more contaminated groundwater may be migrating offsite. Should contaminants migrate off site, new and existing nearby residents may be at risk through vapor intrusion, an exposure pathway that was not evaluated previously. Contaminated bedrock groundwater may also be discharging into the Unnamed Stream, possibly degrading surface

water quality. Although a waterline had been installed to provide potable water to nearby residences, some residents declined to the opportunity to connect. Additional residential development in the vicinity of the Site has occurred since the ROD, and some of the newer residences may not be connected to a public water supply.

Based on changes identified after the second five-year review, evaluation of the future protectiveness of the remedy is deferred until additional information can be acquired and evaluated. It is expected that these additional actions will require approximately 18 months to complete.

The next five-year review is scheduled for completion in 2013.

Five-Year Review Summary Form

FIVE-YEAR REVIEW SUMMARY FORM		
SITE IDENTIFICATION		
Site name *(from WasteLAN)*: Laurel Park Landfill Superfund Site		
EPA ID *(from WasteLAN)*: CTD980521165		
Region: 1	**State:** CT	**City/County:** Borough of Naugatuck / New Haven
SITE STATUS		
NPL Status: ☒ **Final**	☐ **Deleted**	☐ **Other (Specify)**
Remediation Status (choose all that apply):	☐ **Under Construction**	☐ **Operating** ☒ **Complete**
Multiple OUs? ☐ **YES** ☒ **NO**	**Construction completion date:** 09/11/1998	
Has site been put into reuse?	☐ **YES**	☒ **NO**
REVIEW STATUS		
Lead agency: ☒ **EPA**	☐ **State**	☐ **Tribe** ☐ **Other Federal Agency:**
Author name: Leslie McVickar		
Author title: Remedial Project Manager	**Author Affiliation:** U.S. Environmental Protection Agency	
Review period: May – September 2008		
Date(s) of site inspection: NA		
Type of review:	☒ Post-SARA ☐ Non-NPL Remedial Action Site ☐ Regional Discretion	☐ Pre-SARA ☐ NPL-Removal only ☐ NPL State/Tribe-lead
Review number	☐ 1 (first) ☐ 2 (second)	☒ 3 (third) ☐ Other (specify)
Triggering action		
☐ Actual RA Onsite Construction at OU # ☐ Construction Completion ☐ Other (specify)	☐ Actual RA Start at OU# ☒ Previous Five-Year Review Report	
Triggering action date (from WasteLAN): September 30, 2003		
Due date (five years after triggering action date): September 30, 2008		

Five-Year Review Summary Form, Cont'd

Issues:

- A new 200-unit residential development is planned to be constructed abutting the Site.
- Based on a reassessment, the leachate collection/groundwater extraction system was found to capture less groundwater than previously estimated. More contaminated groundwater may be migrating beyond the point of compliance. It also cannot be determined based on available data whether capped waste has been fully dewatered.
- If contaminated groundwater is migrating downgradient in the overburden unit, it potentially could affect downgradient residences through vapor intrusion.
- Contaminated groundwater may be discharging into a surface water body, the Unnamed Stream.
- Institutional controls (e.g., deed restrictions to prohibit use of bedrock groundwater in the vicinity of the Site) have not been implemented.
- Several private residences had previously declined to be connected to the public water supply. Additional residences has been identified that may not have connected to the public water supply.

Recommendations and Follow-up Actions:

- Continue dialog with the developer to address use of a waterline and use restrictions.
- Evaluate whether improvements can be made to the groundwater extraction system to increase capture of contaminated groundwater.
- Monitor and evaluate overburden groundwater downgradient of the landfill. Determine whether downgradient residences may be at potential risk from vapor intrusion, if contaminated overburden groundwater is migrating to those properties.
- Monitor the discharge of groundwater to surface water and evaluate potential effects.
- Implement effective institutional controls.
- Identify nearby residents that are not connected to a public water supply and evaluate potential for exposure to site-related contaminated groundwater.

Protectiveness Statement(s):

The remedy at the Laurel Park Landfill Superfund Site currently protects human health and the environment because the cap and leachate collection/groundwater extraction systems are containing the majority of groundwater contaminants on site, and the waterline installed along Hunters Mountain Road helps to ensure that nearby residents are not exposed to contaminants that may remain in the groundwater. However, additional information is needed to evaluate the future (long-term) protectiveness of the remedy. Specifically, contaminated groundwater that bypasses the leachate collection/groundwater extraction systems may pose potential long-term threats to downgradient residences through the vapor intrusion pathway or those not connected to a public water supply, and/or may affect a nearby stream.

Additional sampling and monitoring are required to assess the potential for migration by contaminated groundwater. The long-term protectiveness of the remedy will be verified through continued groundwater monitoring and routine site inspections, which are included as part of the Site's operation and maintenance activities. The future protectiveness determination of the remedy cannot be made until further information is obtained.

Other Comments: None.

1.0 INTRODUCTION

As requested by the Environmental Protection Agency (EPA), a five-year review was conducted of the remedial actions selected for the Laurel Park Landfill, in Naugatuck, Connecticut.

The purpose of the five-year review is to determine whether the remedy being implemented at the Site remains protective of human health and the environment. The methods, findings, and conclusions of the five-year review are documented in this Five-Year Review Report. In addition, this report presents issues identified during the review and provides recommendations to address them.

This Five-Year Review Report was prepared pursuant to CERCLA §121 and the National Contingency Plan. CERCLA § 121(c) states:

> *"If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that the action is appropriate at such site in accordance with section [104] or [106], the president shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews and any actions taken as a result of such reviews."*

The Agency interpreted this requirement further in the National Contingency Plan (NCP); 40 CFR § 300.430 (f)(4)(ii) states:

> *"If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action. "*

This is the third five-year review for the Site. The triggering action for this statutory review is the completion of the last five-year review in 2003. The five-year review is required because contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure.

2.0 SITE CHRONOLOGY

Table 1
Chronology of Site Events
Laurel Park Landfill Superfund Site
Borough of Naugatuck, Connecticut

DATE	EVENT
9/8/83	Site listed on the National Priorities List (NPL)
2/87	Remedial Investigation (RI) completed.
5/88	Feasibility Study (FS) completed.
6/30/88	EPA issued a Record of Decision (ROD) for the Site.
4/89	The public water supply line is completed.
1989	A locked gate, warning signs, and fencing to restrict access into the Site were installed.
12/89	Leachate transportation line to the Naugatuck Publicly Owned Treatment Works (POTW) sanitary interceptor sewer completed.
7/29/96	Remedial Design completed.
7/96	Construction of the remedial action (i.e., landfill cap, leachate collection and transfer systems, groundwater extraction system) initiated.
9/11/98	Construction activities specified in the ROD are complete. EPA issues the first Five-Year Review Report for the Site.
9/19/03	EPA issues the second Five-Year Review Report for the Site.
2/26/04	EPA approves revisions to the Long-Term Monitoring Plan (LTMP) that were recommended in the 2002 Annual Report and the Second Five-Year Review Report of the Site.
3/04	LPC performs evaluation of low-flow sampling methodology during the first of the triennial sampling events.
8/9/04	LPC develops and submits a Groundwater Monitoring Field Sampling Plan (FSP) to the EPA.
2/7/06	LPC completes a revision of the FSP, which is subsequently approved by the EPA.
2/26/07	EPA requests draft institutional controls for the Site associated with the development of land adjacent to the Site. Discussions with LPC are ongoing.
5/08	Initiation of third Five-Year Review.
9/08	Completion of third Five-Year Review.

3.0 BACKGROUND

The Laurel Park Landfill Superfund Site (the Site) is located in the Borough of Naugatuck, Connecticut, approximately 1 mile west of the Naugatuck River and Connecticut Route 8. The actual landfill area covers approximately 19 acres of a 35-acre property. A map depicting the location of the Site is presented as Figure 1 (Appendix A).

3.1 Physical Characteristics

The Laurel Park landfill lies on the upper northern and western slopes of Huntington Hill. Chain-link fencing is located around the perimeter of the landfill cap area. Twenty-one groundwater extraction wells, of which fifteen are active, are located along the northern and eastern edge of the landfill cap. The landfill cap consists of a multi-barrier cover system with a vegetative grass cover as the top layer. A leachate collection system consisting of perforated pipe and drainage media surround the landfill cap. Most of the area immediately bordering the Site is forested. About 50 homes are located within one-half mile radius of the Site, primarily to the north, east, and southeast of the landfill, with the closest residents located approximately 1,000 feet to the north and southeast of the Site.

The Site is located within the Naugatuck River drainage area. Surface water from the landfill flows to two tributaries of the Naugatuck River, Spruce Brook and Long Meadow Pond Brook, which are located one-half mile west and one mile north of the landfill, respectively. Groundwater in the vicinity of the Site flows predominately within the shallow bedrock toward the northwest, northeast and southeast. The shallow bedrock is fairly weathered and was found to vary from a depth of 0 to approximately 70 feet below the land surface around the perimeter of the landfill. A map depicting the site features is presented Figure 2 (Appendix A)

3.2 Land and Resource Use

From the late 1930s until 1987, the Site was used as an active landfill. The Site is currently a closed landfill and will likely remain as such due to the need to protect the integrity of the landfill cap and because the Site is privately owned. Adjacent land use is dominated by residential development. Groundwater in the area is generally no longer used as a drinking water supply as a result of the completion of the public water supply line in the Spring of 1989. However, three residences declined to be connected to the supply line at that time. It is uncertain whether residential developments in the vicinity of the Site after 1989 were all connected to the public water supply. The Naugatuck River, which ultimately receives the surface water runoff from the Site, is classified as restricted recreational use water with a goal of becoming recreational use water.

3.3 History of Contamination

The Site consists of an active landfill that was active from the 1930s until 1987. The landfill is classified primarily as a sanitary landfill, but does contain approximately 20 percent industrial

waste. Operational problems at the landfill were reported in the early 1960s. Complaints included chemical spills on roads leading to the landfill, large quantities of black acid smoke, odor, and blowing litter. The complaints culminated in a lawsuit filed in 1961 (Lanoette et al. v. Harold Murtha et al.) which alleged in part that the operation of the waste dumps created a nuisance. Judgment in the case was handed down in 1964 and the landfill owner was ordered to cease open burning of certain wastes, except at certain times, and to pay several thousand dollars in damages. However, the judgment did not require that the landfill stop accepting wastes. Consequently, Laurel Park, Inc. (LPI) was incorporated in 1966 and continued to operate the Site as a landfill until 1987.

3.4 Initial Response

On April 16, 1987, LPI informed the Connecticut Department of Environmental Protection (CTDEP) that they had ceased accepting wastes. Prior to this, the Connecticut Superior Court in Hartford issued a judgment on February 1, 1983, ordering LPI to take the following steps as conditions for allowing it to continue disposing of solid waste:

- Immediately prepare a proposal for groundwater monitoring and implement the proposal upon approval by CTDEP.
- Install and maintain a leachate collection and treatment system, upon approval of plans by CTDEP, by October 31, 1983.
- Submit to CTDEP a performance bond covering the cost of installing and maintaining the leachate system for five years.
- Supply potable (i.e., bottled water) to certain specifically identified neighboring residents.
- Provide a municipal water system to those residents if LPI applies for and receives permission for horizontal expansion of the landfill.

As a result of the judgment, the LPI completed the construction of a leachate collection and treatment system in 1984 and provided bottled water to area residents whose private water supply was affected by the Site. Subsequently, in May 1987, EPA entered into an Administrative Order on Consent (AOC) with the State of Connecticut, the Borough of Naugatuck and the Uniroyal Chemical Company (the largest generator of waste at the Site) to design and install the waterline referenced in the 1983 judgment described above. The waterline was completed in the Spring of 1989 and residents whose private water supply was at

risk from contamination were allowed to connect. Three residents declined the offer to connect to the waterline.

3.5 Basis for Taking Action

The Remedial Investigation/Feasibility Study (RI/FS) was conducted from 1985 to 1987. The RI/FS concluded that the existing leachate collection system was only partially effective in capturing leachate. Consequently, leachate continued to contaminate soil, surface water, and groundwater in the vicinity of the Site.

Based on the RI sampling results, EPA determined that the consumption of groundwater from monitoring wells on the property and residential wells in the vicinity of the Site represented the most significant risk to human health. Volatile organic compounds (VOCs), organics, and metals were detected in groundwater at concentrations well above levels considered to be protective. Moreover, because the landfill did not have a barrier to prevent precipitation from coming into contact with the landfill wastes, the generation of leachate would continue and the potential existed for further degradation of groundwater quality to levels that would endanger public health, if consumed.

4.0 REMEDIAL ACTIONS

4.1 Remedy Selection

The remedial action objectives (RAOs) specified in the 1988 ROD included measures to mitigate existing and future threats to public health and the environment and include:

<u>Source Control Response Objectives</u>

1. Preventing or minimizing the further release of contaminants in groundwater, surface water, sediments, soil and air.
2. Eliminating the threats posed to human health and the environment from the source area itself.

Management of Migration Response Objectives

1. Preventing or minimizing further migration of contaminants in groundwater, surface water, sediments, soil and air.
2. Eliminating or minimizing the threats posed to human health and the environment from the current extent of contamination.

The selected remedy for the Site included the following source control and management of migration (or groundwater control) components:

- grading and placement of a multi-layer cap consistent with RCRA Subtitle C over the entire landfill;
- construction of a leachate collection/groundwater extraction system;
- treatment of the captured leachate and the contaminated groundwater at the Naugatuck Water Pollution Control Facility (NWPCF);
- long-term monitoring; and
- institutional controls.

With the exception of institutional controls, all other components of the source control and management of migration response actions have been implemented. Institutional controls recommended in the ROD include regulations, ordinances, deed and land use restrictions, or other effective means of land use control to prevent the use of the bedrock aquifer to supply private wells to protect human health, have not been implemented.

4.2 Remedy Implementation

In a Consent Decree (CD) signed with EPA on August 13, 1992, the Potentially Responsible Parties, now known as the Laurel Park Coalition (LPC), agreed to perform the remedial design/remedial action (RD/RA) specified in the 1988 ROD. Prior to the effective date of the CD, the LPC completed the installation of a dedicated sewer line in December 1989 to provide leachate discharge to and treatment at the NWPCF in accordance with the 1988 ROD. On July 29, 1996 EPA approved the Remedial Design (RD) for the remaining items specified in the 1988 ROD.

Construction activities commenced in 1996 and included the construction of the RCRA cap over the landfill wastes and the construction of the new leachate collection/groundwater extraction system. Construction of the leachate collection system and installation of the groundwater extraction wells was completed during the 1996 construction season. The leachate collection system was cleaned and video-inspected and the groundwater extraction system completed (including pumps and associated appurtenances) during the 1997 construction season. Construction of a RCRA cap over the entire landfill was completed in 1998 and environmental monitoring commenced.

The Site achieved construction completion status when the Preliminary Closeout Report was signed on September 11, 1998.

4.3 Operation and Maintenance

The LPC conducts routine operations and maintenance activities in accordance with the Operation and Maintenance (O&M) plan that was approved by EPA on December 7, 1998. Long-term monitoring (LTM) of groundwater is conducted in accordance with the Long-term Monitoring Plan (LTMP), approved by EPA on November 25, 1998, and the Revised Field Sampling Plan, which was approved by EPA in December, 2005. The primary activities associated with O&M and long-term monitoring include:

- Monthly inspections of the landfill cap, leachate collection/groundwater extraction systems, and other components of the remedy;
- Triennial groundwater sampling events, and
- Documentation of O&M and LTM activities on a semi-annual and annual basis.

In 2004, the LPC requested modifications to the LTMP, which were subsequently approved by EPA in February 2004. The modifications implemented during the 2004 monitoring program included:

- Reduced EPA's independent inspections from twice to once per year;
- Eliminated general chemistry parameters and total dissolved solids (TDS) from the groundwater monitoring program;
- Reduced the reporting requirements for metals by changing the Target Compound List (TCL) of 26 metals to the Priority Pollutant List (PPL) of 13 metals;

- Delayed formal implementation of the low-flow sampling technique until the LPC has had the opportunity to perform a comparison of this method to the groundwater sampling procedure currently in place; and
- Eliminated remote monitoring wells MP-11A and MP-2B from the groundwater-sampling program.

5.0 PROGRESS SINCE LAST REVIEW

This is the third five-year review for the Site. The last five-year review was completed in September 2003. All issues identified in that review have been addressed. Significant activities completed since the last five-year review included:

- As recommended in the previous five-year review, pumps were installed in groundwater extraction wells EW-16 and EW-20 in January 2004 to further increase the capture of leachate-contaminated groundwater in the vicinity of monitoring well OW-1 (where elevated VOC concentrations have been detected historically). Based on well gauging activities completed since the installation of these pumps, an additional drawdown of approximately 20 feet has been observed in OW-1, and approximately 2 feet in OW-5. Therefore, the additional pumps appear to be enhancing the capture of groundwater in this area.

- Development of a Revised Field Sampling Plan (FSP) by LPC and submittal to EPA on August 9, 2004. The Revised FSP was approved by EPA in February 2006;

- Reinstallation of leachate monitoring well MW-1 in September 2004 because the monitoring well collapsed during 2003;

- Implementation of the modifications to the LTMP as described in Section 4.3;

- Change of groundwater sampling methodology to low-stress sampling beginning with the first triennial sampling event of 2004;

- Modifications to the O&M program, as presented in Section 6.6 of this Five-Year Review Report;

- A meeting was held between the EPA and the LPC in October 2007 to discuss the request by EPA for institutional controls for the Site associated with development of land adjacent to the Site; and

- In January 2008, the LPC met with Primrose Companies, Inc., the development company that is planning to construct a residential development on two parcels that abut the Site to the south. The LPC discussed the possibility that the developer consider groundwater use restrictions on the entire subdivision and the use of passive foundation venting systems on some of the proposed house locations. Primrose Companies, Inc. is evaluating the proposal.

6.0 FIVE-YEAR REVIEW PROCESS

6.1 Administrative Components

EPA, the lead agency for this five-year review, notified CTDEP and the PRPs in early 2008 that the five-year review would be completed. The five-year review Team was led by Leslie McVickar of EPA, Remedial Project Manger, for the Laurel Park Landfill Superfund Site, and included staff from Nobis Engineering, Inc., EPA's technical support contractor. Sheila Gleason, of the CTDEP, was also part of the review team.

From May 2008, the review team established a schedule to review components that included:

- Community Involvement;
- Document Review;
- Data Review;
- Site Inspections and Observations;
- Local Interviews; and
- Five-Year Review Report Development and Review.

The five-year review was concluded in September 2008.

6.2 Community Involvement

EPA notified the community in a public notice that was published on June 19, 2008 in a local newspaper that a review of the progress of the Laurel Park Landfill Site was being conducted.

6.3 Document Review

This Five-Year Review consisted of a review of relevant documents including decision documents and monitoring reports. The documents reviewed are listed in Appendix B.

6.4 Data Review

As part of the review, the data collected by the LPC were evaluated to assess whether contaminants within the landfill are being contained by the cap and leachate collection system, and whether the contaminant concentrations have achieved the ROD cleanup goals. A summary of the data review is provided below.

Groundwater Monitoring

Groundwater monitoring is used to assess whether contaminated leachate continues to migrate from the landfill, whether concentrations of detected constituents are increasing or decreasing, and whether hydraulic containment is being achieved. Monitoring wells are gauged to assess the leachate level and whether the water table has been lowered below the landfill materials. Bedrock groundwater is sampled and analyzed triennially for VOCs via EPA Method 8260, Total Priority Pollutant List (PPL) of 13 Metals via EPA Methods 200.7, 7474 (mercury), and 6010 (zinc), total iron and manganese via EPA Method 6010, and Total Kjeldahl Nitrogen (TKN) via Method SM420A. Overburden groundwater is not monitored.

a) Leachate Level - Although MW-1 had been replaced for the second time in 2004, it appears to have been damaged again by 2006, probably due to stresses caused by surrounding landfill materials as they subside. MW-1 may not be functioning properly. Available prior data indicate that the leachate level has been declining. However, it is unknown whether the water table has been depressed below the landfill materials. The data suggest that a portion of the landfill materials remain saturated, which will promote contaminant migration from the waste into underlying groundwater.

b) Chemical Trends - Based on analytical data collected between 2004 through 2007, compliance with groundwater cleanup standards at the Point of Compliance (POC) wells have not yet been attained. POC wells are hydraulically downgradient from the capped landfill limits and are used to assess the effectiveness of the Leachate Collection System (LCS) and the Groundwater Extraction System (GES) in minimizing the off-site migration of landfill-generated contaminants. The primary contaminants of concern (COCs) at the Site continue to consist of benzene, and to a lesser degree, antimony, arsenic, chlorobenzene, trichloroethene (TCE), and 1,2-dichloroethane (1,2-DCA). OW-1, OW-5, PW-1, MW-3, BH-7, and BH-8.

Analytical results from POC monitoring wells situated in the vicinity the LCS and GES indicated benzene concentrations above the Maximum Contaminant Level (MCL) and the Connecticut GA Groundwater Protection Criteria (GPC). Benzene was detected above the applicable criteria in the following wells, all of which are bedrock wells (there are no overburden wells downgradient of the capped landfill): OW-1, OW-5, PW-1, MW-3, BH-7, and BH-8. The MCL for benzene is 5 µg/L; the highest detection in 2007 was 690 µg/Lin the OW-1 well during the April sampling event.. At OW-1, where the highest benzene concentrations were detected at the Site, benzene concentrations decreased sharply between 2004 and 2007. Benzene concentrations have remained stable or have decreased slightly in the other POC monitoring wells. At POC monitoring wells further downgradient of the LCS and GES, low concentrations of VOCs have been detected sporadically.

As part of the five-year review, groundwater data between 2004 and 2007 were reviewed and a statistical analysis was performed to evaluate chemical concentration trends in select monitoring wells and background wells. The analyses indicated downward trends in benzene for some of the wells (BH-2, MW-3, OW-1, and PW-1) and an upward chlorobenzene trend in OW-1. However, benzene in most of the POC wells and 1,2-DCA and TCE in a few wells were statistically significantly higher than in background monitoring wells.

Iron and manganese are monitored as they are indicators of anaerobic degradation of landfill contents where oxidation-reduction reactions result in the mobilization of these and other metals. Statistical analysis indicates that iron in BH-7, BH-8, MW-3, OW-1,

and OW-5 and manganese in BH-8, MW-10, MW-11, MW-13, MW-4, and OW-4 remain statistically above background. As the landfill ages, anaerobic degradation of contents will occur in different portions of the landfill resulting in continuing dissolution and mobilization of metals. Therefore, the continued monitoring of these metals will provide indications of degradation of landfill materials and whether other metals may be subject to mobilization.

c) Hydraulic Containment – In 2007, EPA requested the reevaluation of potentiometric surface interpretations for the GES wells. Based on the new assessment, the revised interpretations indicated the zone of influence attributed to the GES wells were less than previously assessed. Additional assessments by EPA concluded that more groundwater may be migrating beyond the capture zone of the GES. While the ROD states that "the complex hydrogeology makes it impossible to ensure complete capture of all contaminated groundwater and leachate migrating from the Site or to extract contaminated groundwater for deep bedrock", the new evaluations indicate additional monitoring should be conducted to reassess the effectiveness of the GES. EPA's assessment indicates that groundwater in both overburden and bedrock units may be migrating downgradient of the landfill. Currently, there are no monitoring wells in the overburden aquifer unit downgradient of the capped landfill. Additional wells installed in the overburden unit may be required to assess whether contaminated groundwater may be migrating beyond the capped landfill and to downgradient areas where residences are located. The closest home is located approximately 1000 feet to the north.

Surface Water Monitoring

The long-term monitoring program does not include this environmental medium. The ROD selected construction of the landfill cap and the collection and discharge of leachate to the Naugatuck Sewage Treatment Facility to eliminate discharge of contaminants to the Unnamed Stream and surface water receptors. While continued maintenance of the landfill cap and leachate collection system have reduced contaminated groundwater discharge, it is possible that contaminated overburden groundwater may be discharging to the Unnamed Stream and may be migrating off site. Additional monitoring may be required to ensure that surface water and sediments are being protected.

Air Monitoring

The analytical data for landfill gas samples collected by the LPC in August 2008 are forthcoming. The data will be evaluated and compared with applicable air regulations. During the previous sampling, the reported releases of contaminates were very low, and applicable state and federal air regulations did not require any actions at this Site.

6.5 Site Inspection

During April 2005 and 2006, formal annual inspections of the landfill and the landfill components were conducted. A site-specific checklist was used to document the observations made during those inspections. During 2007 and 2008, additional observations were made of the landfill and its components including the LCS and GES in conjunction with oversight of groundwater sampling activities. A summary of the observations made between 2005 and 2008 is provided below: A Site Inspection Checklist is included as Appendix C.

- **Landfill surface** - The landfill surface was generally in good condition with healthy vegetation that appeared to be well maintained and no obvious signs of settlement, erosion, bulges, or cracks. A low point in the cover system near MW-1, which was previously noted during the 2004 inspection, was observed during the 2005 inspection. It was recommended that the area continue to be monitored. No significant changes to the settlement area were observed during the 2006 inspection. Animal burrows were noted along the eastern slope of the landfill during the 2006 inspection. The EPA recommended the continued use of animal control measures and the repair of holes in the landfill cap. During October 2007, a small area of minor settlement was noted near monitoring well MW-4C. The area was observed to have been repaired during the April 2008 site walk.

- **Benches** - The benches appeared in good condition with only minor vegetation and sedimentation. During the Spring 2004 inspection, a flow bypass condition on the downslope wall of slope Bench #3A was observed where it intersects with Downchute #3. The cause of the bypass was the deformation of a plastic sheet that was installed to repair a previously observed bypass condition. During the 2005 inspection, the deformation appeared to have been corrected and no evidence of flow bypass was observed in Bench #3A. During the 2006 inspection, a small amount of ponded water

was observed within Bench 4B, and minor sedimentation was observed in Bench 1D, south of Downchute #1. The EPA recommended continued regular removal of sediments accumulated in benches, perimeter ditches, and culverts as part of O&M at the Site.

- **Letdown Channels (downchutes) -** The four downchutes were observed to be in good condition. In April 2006, the repaired area at the top of Downchute #3 was observed to be in good condition and functioning as intended. LFR reported that sediment removal at the base of Downchute #3 had been ongoing. The settlement feature in Downchute #3 was surveyed by LFR in June, September, and December of 2006, and in March, June, September, and December of 2007. No significant elevation changes were recorded. During 2007 and 2008, no substantial sediment buildup was observed in the downchute areas. The EPA recommended continued monitoring of the sediment source and sediment removal as necessary.

- **Cover penetrations -** There did not appear to be any problems with the cover penetrations, which include leachate collection system manholes, passive gas vent structures and monitoring wells.

- **Cover drainage layer -** The riprap outlet for the drainage layer appeared to be in good condition.

- **Leachate collection and groundwater extraction systems -** The above ground portions of the systems were in good condition. No obvious signs of damage or cracks were observed at any of the manhole vaults, and the manholes appeared to be in good condition structurally. During April 2008, a small amount of sediment buildup was observed in the manholes. According to LFR, the leachate lines were flushed in May 2008 to address this issue.

- **Perimeter road, ditches and off-site discharge –** The perimeter roads appeared to be in good condition with no signs of erosion. The perimeter ditches appeared to be operating as designed and were in good condition with the exception of minor sedimentation.

Recommendations of corrective actions based on the inspections included the continued monitoring of potential settlement, erosion and sediment areas and the continuation of existing O&M programs, including sediment removal, rodent control, and the regular flushing of the groundwater extraction system discharge lines. The overall conclusion based on the site inspection is that the components of the landfill cover system are in good condition and are working as designed.

6.6 Interviews

As part of the preparation of this five-year review, interviews were conducted with local town officials and persons with knowledge of the Site. Refer to Appendix C for an Interview List of the individuals contacted.

Mr. Russ Dirienzo, a Senior Associate of LFR, the LPC's operation and maintenance contractor, was interviewed on July 2, 2008, to identify any current issues at the Site. Mr. Dirienzo indicated that the Site is in excellent condition, that the Site is operating as designed, and it is being maintained in accordance with the O&M Plan. Mr. Dirienzo identified several changes to Site O&M activities to improve performance including the following:

- The landfill is mowed twice per year instead of once to facilitate easier inspections;
- All extraction well pumps are routinely pulled and cleaned every quarter;
- The sampling methodology for groundwater was changed to low-flow sampling; and
- Additional pumps were voluntarily added to extraction wells EW-16 and EW-20.

According to Mr. Dirienzo, in the last five years the most significant change is the planned development of two parcels that abut the Site. Primrose Companies, Inc., a development firm, is planning to build a 200 home subdivision with access from Hunter's Mountain Road, and has already received local approvals. The developer has met with LFR concerning the Site. New homes will be serviced by public water and have deed restrictions not to use the groundwater. The issue of vapor intrusion has been discussed between the developer, LFR, and LPC. The developer is currently evaluating the proposed installation of passive venting systems in the new homes. Mr. Dirienzo indicated that it is LFR's intention to contact the EPA regarding the vapor intrusion issue at the planned development.

Mr. Mike Bronko, Mayor of the Borough of Naugatuck, was interviewed on July 3, 2008. Mr. Bronko was not aware of any issues at the Site, and he indicated that to the best of his knowledge, the Site is functioning as planned. According to Mr. Bronko, the proposed housing development abutting the Site has been approved by the local planning and zoning boards. However, construction of the development has not yet begun.

The Borough of Naugatuck Water Pollution Control Board was contacted on July 24, 2008. The Borough Engineer, Mr. Jim Stewart, P.E., indicated that as far as he knows, the Site is in good condition and the remedy is functioning as intended. Mr. Stewart was aware of the planned development next to the Site.

Ms. Sheila Gleason, Remedial Project Manager at the Connecticut Department of Environmental Protection (CTDEP) was interviewed on July 9, 2008. Ms. Gleason indicated that her involvement with the Site is minimal, but to the best of her knowledge, the Site is in good condition and functioning as planned. Ms. Gleason was aware of the planned development next to the Site.

7.0 TECHNICAL ASSESSMENT

7.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?

No. Review of documents, evaluation of compiled data, and the site inspection results indicate that the remedy is functioning as intended in the ROD with certain exceptions. First, effective institutional controls (e.g., deed restrictions) have not been implemented. In addition, although the GES and LCS are functioning to reduce contaminant concentrations as required under the ROD, optimizations of these systems should be evaluated to confirm long-term protectiveness. Specifically, more monitoring data is needed to confirm that the waste below the cap has been completely dewatered, and the degree to which the GES is reducing migration of contaminants off site. These issues are discussed in the course of the following review of the remedy's performance.

The cap and the leachate collection and groundwater extraction system have reduced the release or migration of contaminants to other environmental media, and have prevented direct contact with or ingestion of contaminants. In general, the various components of the landfill

cover system and leachate collection and groundwater extraction systems are working as designed.

The multi-layer cap has achieved the specific objectives for reducing infiltration into the landfill so that landfill leachate generation has been decreased. The leachate collection and groundwater extraction system has been effective in capturing large quantities of contaminated overburden and bedrock groundwater.

However, the specific ROD objectives of achieving the RCRA Ground Water Protection Standard (MCLs) at the RCRA point of compliance and of achieving the concentration standard (stabilizing concentration of contaminants in groundwater) have not yet been attained. Review of records indicates that groundwater contaminant concentrations have been declining. Some contaminated groundwater is still migrating past the LCS and GES as evidenced by benzene detections in downgradient monitoring wells (OW-2, OW-3, and PW-1) located north of the landfill at concentrations that exceed the ROD cleanup goals. It is unknown whether contaminants are migrating downgradient and possibly off site in the overburden aquifer unit.

It is also unclear whether the remedy has attained the ROD's hydraulic standard of dewatering the waste. (Although the remedy acknowledges that it is impossible to completely eliminate contaminant migration, one of the remedy's specific objectives is to dewater the waste below the waste, so as to minimize leachate generation.) The monitoring well MW-1 has been designed to verify that the waste has been dewatered, but it is currently capable of sampling only to a depth of 112.6 feet – which is almost five feet too shallow to establish conclusively that the bottom of the waste (measured to reach a depth a 117.27 feet) has been dewatered. The data indicate that the cap is functioning as intended, as discussed below, but the specific objective of dewatering the waste should be conclusively established by sampling to the depth of the last few feet of waste.

The LPC has been performing environmental monitoring and routine site inspections as required by the remedy. The results of these activities have been documented and reviewed by EPA and its technical consultant. Review of the records and site observation indicate that the cap and LCS and GES have been well maintained and required repairs are made in a timely manner. Issues identified during the routine site inspections have been corrected or are continuing to be monitored.

The systems that offer the potential for optimization are the LCS and GES. The LPC has instituted routine flushing of the leachate collection system lines and periodic servicing of the pneumatic pumps so that both systems would be subject to less down time and have more efficient operations. Installation of pumps within extraction wells EW-16 and EW-20 have increased the capture of contaminated groundwater near these wells. Currently, 6 of the 21 extraction wells do not have pumps. Installation of pumps in some of these wells should be considered in the future to ensure greater capture of contaminated groundwater, thereby limiting contaminant migration from the landfill, based on the reassessment of potentiometric data (see next paragraph).

One potential issue is that reassessment of potentiometric data has shown that the zones of influence of the extraction wells are less than previously estimated. More contaminated groundwater may be migrating away from the landfill in the overburden and bedrock than previously interpreted. The bedrock surface slopes more steeply with relation to the ground surface with increasing distance from the landfill, resulting in greater overburden thickness to the north. Possible upward vertical gradient between the bedrock and overburden aquifer units may result in the discharge of bedrock groundwater into the overburden unit. While contaminants are migrating beyond the LCS and GES, it is likely that through attenuation the groundwater VOC concentrations will be diminished to some degree by the time they reach affected potential downgradient receptors. However, additional monitoring in the bedrock and overburden units is required to collect information to assess potential risks at private residences situated downgradient of the Site.

Current institutional controls include the ownership of the land to the east of the landfill to provide a buffer zone, the public supply of water to nearby residents, and the fencing of the Site to prevent unauthorized access. Notwithstanding these steps, institutional controls are clearly not functioning as intended. Institutional controls in the form of deed restrictions, recommended by the ROD and contemplated as part of the work required under the consent decree implementing the ROD, are under discussion between EPA and the LPC but have not yet been implemented. These restrictions are particularly salient in light of the issues concerning the extent of groundwater capture and the fact that some nearby residences are not on public water. As discussed in more detail elsewhere, based on a limited search of available records, it appears that some residences may not be connected to a public water supply. If private supply

wells are in use, contaminated groundwater could be drawn to the residences and may pose potential threats through ingestion, dermal contact, inhalation of vapors during household water use, or vapor intrusion.

7.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels, and Remedial Action Objectives Used at the Time of the Remedy Selection Still Valid?

No, the exposure assumptions and toxicity data used at the time of the remedy selection are no longer valid. Toxicity values, exposure assumptions, exposure pathways to be considered, and methods of evaluating risk have all changed since the time of the remedy selection. Potential dermal contact with groundwater used as a household water source, inhalation of VOCs during household water use, and the vapor intrusion pathway have not previously been evaluated. The ROD established groundwater clean-up criteria based on the MCLs. The RAOs used at the time of the remedy selection are still valid. However, institutional controls prohibiting groundwater use as drinking water at neighboring properties are not in place, some neighboring property owners have not hooked up to the public water supply system, and bedrock groundwater concentrations along the perimeter of the capped landfill exceed drinking water standards. Accordingly, the potential for human exposure is greater than was assumed at the time of the remedy.

Changes in Standards or TBCs

The 1988 ROD, page 29, identifies the following laws, regulations and guidance as applicable to the remedy. Changes in standards since the 1988 ROD do not appear to change the protectiveness of the remedy:

- Resource Conservation and Recovery Act (RCRA) Part 264. The landfill cap and all subsequent repairs and modifications to the cap were designed in accordance with applicable RCRA requirements. EPA approved the cap on July 24, 1998, and the LPC continues to perform O&M as necessary. Groundwater monitoring is performed in accordance with the RCRA Groundwater Protection Standard specified in 40 CFR 264.97.

- Clean Water Act. Leachate from the landfill is transported to Town of Naugatuck Publicly Owned Treatment Works (POTW) where it is commingled with other wastes, then treated in accordance with regulatory criteria (i.e., NPDES permit).

- Clean Air Act. Landfill gas emissions at the Site continue to be well below concentrations that would trigger requirements under the federal Clean Air Act.

- Safe Drinking Water Act; EPA Groundwater Protection Strategy. New applicable or relevant and appropriate requirements (ARARs) have been promulgated since the 1988 ROD include Maximum Contaminant Levels (MCLs) and non-zero Maximum Contaminant Level Goals (MCLGs). Changes in MCLs do not affect the protectiveness of the remedy because the remedy relies on providing an alternate safe drinking water source, and institutional controls.

Newly Promulgated Standards

- Connecticut Remediation Standard Regulations (RSRs) (Section 22a-133k-1 through 22a-133k-3 of the Regulations of Connecticut State Agencies). The RSRs were promulgated in 1996 and contain numeric and narrative standards for soil and groundwater remediation, and take into consideration factors that include land use, groundwater classification, and proximity to sensitive receptors. The Groundwater Protection Criteria (GPC) of the RSRs identifies the numeric chemical concentrations to be attained for groundwater plume remediation in GA and GB aquifers. Bedrock groundwater is sampled, analyzed, and evaluated against the RSR GPC under the Site's long-term monitoring program.

  For a groundwater plume that discharges to a surface water body, the plume will need to attain the numerical limits established under the Surface Water Protection Criteria (SWPC). Because groundwater discharges to the Unnamed Stream in the vicinity of the landfill, it is possible some groundwater contaminants are migrating into this surface water body. Evaluation of groundwater with respect to the SWPC should be performed. If groundwater concentrations exceed the GWPC in the vicinity of the groundwater discharge, then the Unnamed Stream should be sampled to assess potential impacts from the groundwater discharge.

Groundwater containing VOCs within 30 feet of the ground surface or an occupied industrial or residential structure will need to comply with the RSRs' Volatilization Criteria (VC). If contaminated overburden groundwater is determined to be migrating off site and may be affecting downgradient residences, then these regulations (including the revisions proposed in 2003 by CTDEP) will be applicable.

Changes in Exposure Pathways

The exposure pathways considered in the endangerment assessment performed during the 1987 RI included: (1) ingestion of groundwater; (2) ingestion of soil by small children; and (3) direct exposures to sediment and surface water. With the completion of the landfill cap, leachate collection system, and security fence, each of these pathways except the ingestion of groundwater pathway is no longer applicable. Potential dermal contact with groundwater used as a household water source and inhalation of volatiles during household water use have not previously been evaluated. Despite the expansion of the public water supply in 1989, the potential ingestion of contaminated groundwater remains a concern and dermal contact and inhalation of volatiles from groundwater used as a household water source present additional concerns because of the lack of institutional controls prohibiting groundwater use as drinking water at neighboring properties and the refusal of some neighboring property owners to hook up to the public water supply system.

The vapor intrusion pathway was not evaluated in the original public health and environmental assessment. Overburden groundwater near the top of the water table and directly below occupied buildings is most likely to impact potential indoor air conditions resulting from vapor intrusion. If contaminated overburden groundwater is migrating off site, it could migrate downgradient to residential properties. There is currently no overburden groundwater data beyond the perimeter of the landfill cap to evaluate this pathway. An appropriate evaluation would be to compare groundwater data from overburden wells situated between the landfill and existing or proposed homes to the Connecticut RSR volatilization criteria and the EPA's Office of Solid Waste and Emergency Response (OSWER) *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils* Table 2c, target groundwater concentrations, (EPA, 2002) for protection of indoor air. Note that these comparison values are quite low and, therefore, low detection limits are needed to assure a valid comparison.

Overburden groundwater concentrations greater than the comparison values at the perimeter of the Site would indicate potential vapor intrusion concerns at downgradient residences. Further evaluation closer to residential properties would then be advisable. Concentrations below the comparison values would assure that the vapor intrusion pathway is not of concern. Currently, the closest residences are approximately 1,000 feet to the north and southeast of the Site.

Changes in Toxicity and Other Contaminant Characteristics

Since the time of the original endangerment assessment performed as part of the RI, EPA has re-examined and updated toxicity factors for each of the indicator contaminants evaluated. In addition, since the 1988 ROD, toxicity factors used in developing MCLs and MCLGs, which were set as groundwater clean-up goals in the 1992 Consent Decree, have been updated for several of the contaminants. Changes in these toxicity factors do not affect the remedy because of its reliance on an alternate safe drinking water source and institutional controls.

Changes in Risk Assessment Methods

Since the endangerment assessment performed during the 1987 RI and the 1988 ROD, changes have occurred in the formulas used to calculate risks from exposures to soil and groundwater and the methods for evaluating the vapor intrusion pathway. However, changes in risk assessment methods do not affect the remedy because of its reliance on an alternate safe drinking water source, institutional controls, and prevention of direct contact with soil.

New Contaminants and/or Contaminant Sources

No new contaminants or contaminant sources have been identified since startup of the remedy. The contaminants detected at highest concentrations in groundwater samples are those identified in the ROD as contaminants of concern. No new contaminants of concern have been identified. No toxic byproducts of the remedy were identified during the review.

Expected Progress Towards Meeting RAOs

The landfill cap, leachate collection system, and shallow groundwater extraction system have reduced the release of contaminants from the landfill to groundwater, surface water, sediments,

soils, and air. Capping and fencing are preventing potential direct human contact with contaminated soils in the source area. The provision of the public water distribution system in 1989 to nearby homes has reduced exposures to groundwater as the primary drinking water source at the majority of homes in the area.

However, some issues remain unresolved. Although the water table underlying the landfill has been dropping, it is unclear whether groundwater level has been lowered to below the landfill waste to prevent further release of leachate to groundwater. While contaminated groundwater migrating from the landfill has been captured by the leachate collection system and the extraction wells, some contaminated groundwater is still migrating downgradient beyond the influence of the LCS and the GES. Based on available data, it is uncertain whether the current systems are capable of achieving the RCRA GWPS at the point of compliance and of stabilizing the concentration of contaminants to achieve the ROD's concentration standard. It is also uncertain whether contaminated groundwater may be discharging into the overburden unit, and may pose potential vapor intrusion threats to downgradient residences. The vapor intrusion pathway has not been evaluated and, therefore, the remedy may not be protective of human health via that pathway over the long term. MCLs and the provision of a safe drinking water supply for area residents are not designed to be protective of the vapor intrusion pathway. The possibility exists of public exposures to contaminants in groundwater through this pathway, which was not evaluated in the ROD. Once additional data are collected for overburden groundwater, the data would be compared with Connecticut RSR Groundwater Protection Criteria and the Volatilization Criteria to assess whether contaminated groundwater may be migrating off site.

Institutional controls prohibiting groundwater use as drinking water at neighboring properties are not yet in place. Some area residents may still use private wells as their drinking water and household water source and new residents may not be aware of the potential risks.

7.3 Question C: Has Any Other Information Come to Light that Could Call into Question the Protectiveness of the Remedy?

Yes. The proposed construction of residential developments on parcels that abut the Site to the south have the potential to affect the protectiveness of the remedy. If supply wells are installed in the new developments, contaminated groundwater could be drawn to these residential units and pose potential health risks through ingestion, dermal contact, or inhalation of contaminants

or vapor intrusion threats due to volatilization of VOCs in inhabited structures. While the planned developments have been approved by the town's Zoning and Planning Boards, permits to construct have not yet been obtained. Based on discussions with the developer, reportedly the housing developments will obtain their potable water supply from a public water supply. Groundwater use restrictions and the use of passive vapor foundation vent systems are being considered by the developer. The vapor intrusion pathway was not evaluated in the original environmental assessment.

7.4 Technical Assessment Summary

According to the data reviewed, the site inspection, and interviews, the remedy is not currently functioning as intended by the ROD because of the failure to implement deed restrictions. There have been no changes in the physical conditions of the constructed components that would affect the protectiveness of the remedy. While there have been changes to the ARARs cited in the ROD, updates in toxicity factors and chemical characteristics, and updated risk assessment methods, capping and provision of the waterline prevent potential exposure to contaminated landfill materials and ingestion of groundwater contaminants by the majority of potentially impacted individuals.

Though there is no data from the overburden aquifer downgradient of the landfill, there is data from the downgradient bedrock aquifer showing exceedances of drinking water standards (i.e., benzene concentrations of 87 µg/L, which is above the MCL of 5 µg/L).

Recent reassessment of the groundwater elevation data has indicated that the zone of influence the LCS and GES is less than previously interpreted. More contaminated groundwater may be bypassing the LCS and GES and may be migrating off site. If contaminated groundwater is migrating downgradient into residential properties, occupants of these residences may be at potential risk for vapor intrusion. The vapor intrusion pathway was not part of the original risk assessment and there is insufficient data to evaluate the long-term protectiveness of the remedy based on the vapor intrusion pathway. Contaminated groundwater may also be discharging to a surface water body. Institutional controls to prohibit the use of bedrock groundwater in the vicinity of the Site have not been implemented. Based on a limited search of available records, several residences were identified as not being connected to a public water supply.

8.0 ISSUES

Based on the activities conducted during this five-year review, the issues identified in Table 2 have been noted.

Table 2
Issues
Laurel Park Landfill Superfund Site
Borough of Naugatuck, Connecticut

Issues	Affects Current Protectiveness	Affects Future Protectiveness
Proposed construction of residential developments parcels that abut the Site	No	Deferred[1]
Reevaluation of hydraulic data indicates smaller zones of influence for the GES extraction wells than previously estimated, indicating more contaminated groundwater may be migrating downgradient.	No	Deferred[1]
Contaminated overburden groundwater may be discharging downgradient and may pose potential threats to nearby residential properties via the vapor intrusion pathway.	No	Deferred[1]
Contaminated groundwater may be discharging to the Unnamed Stream.	No	Deferred[1]
Institutional controls to prevent use of bedrock groundwater in the vicinity of the Site have not been enacted.	No	Deferred[1]
Several private residences had previously declined to be connected to the public water supply. Additional nearby residences may have been constructed and may not be connected to the public water supply.	No	Deferred[1]

Note: 1. Assessment of future protectiveness is deferred because there is insufficient information to complete this evaluation. Once additional information is acquired, the determination of protectiveness will be made.

9.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

In response to the issues noted above, it is recommended that the actions listed in Table 3 be taken:

Table 3
Recommendations and Follow-up Actions
Laurel Park Landfill Superfund Site
Borough of Naugatuck, Connecticut

Issue	Recommendation and Follow-up Action	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness	
					Current	Future
Proposed residential development	Continue dialog with the developer to ensure that the water line is installed and that supply wells are not in the new development. Continue discussion regarding groundwater use restrictions.	PRP (LPC)	EPA & CTDEP	No later than 1 year after all permits to start construction have been obtained.	No	Deferred[1]
More contaminated groundwater may be bypassing hydraulic containment	Evaluate whether the GES performance can be improved to increase the capture of contaminated groundwater in the vicinity of the GES.	PRP (LPC)	EPA & CTDEP	18 months	No	Deferred[1]
Potential contaminated groundwater migration may pose vapor intrusion threats to nearby residences.	Determine whether contaminated groundwater is migrating off site in overburden unit (i.e., new wells). If offsite migration is occurring, assess potential for vapor intrusion risks for nearby residential properties	PRP (LPC)	EPA & CTDEP	18 months	No	Deferred[1]
Contaminated groundwater may be discharging to the Unnamed Stream.	Evaluate new overburden (to be acquired) groundwater data against SWPC and, as appropriate, sample surface water to assess potential impacts.	PRP (LPC)	EPA & CTDEP	18 months	No	Deferred[1]
Institutional controls not implemented	Identify properties that may need institutional controls and implement institutional controls.	PRP (LPC)	EPA & CTDEP	18 months	No	Deferred[1]
Several private residences may not be connected to public water supply	Assess whether residences situated near the Site are connected to the public water supply; sample any private wells.	PRP (LPC)	EPA & CTDEP	6 months	No	Deferred[1]

Note: 1. Assessment of future protectiveness is deferred because there is insufficient information to complete this evaluation. Once additional information is acquired, the determination of protectiveness will be made.

10.0 PROTECTIVENESS STATEMENT(S)

The remedy at the Laurel Park Landfill Superfund Site currently protects human health and the environment because the cap and leachate collection/groundwater extraction systems are containing the majority of groundwater contaminants on site, and the waterline installed along Hunters Mountain Road helps to ensure that most nearby residents are not exposed to contaminants that may remain in the groundwater. Additional information is needed to evaluate the future (long-term) protectiveness of the remedy with respect to, among other identified concerns, potential vapor intrusion and residences that are not connected to the waterline.

Contaminated groundwater that bypasses the leachate collection/groundwater extraction systems may pose potential threats to downgradient residences through the vapor intrusion pathway or those not connected to a public water supply, or may affect a nearby stream. The future protectiveness determination of the remedy cannot be made at this time until further information is obtained. Additional information will be obtained by the following actions:

- Continuing discussions with the developer and ensuring that nearby residential developments will be connected to a public water supply, and that use restrictions are evaluated and implemented, as necessary.
- Evaluating whether the hydraulic containment of contaminated groundwater at the landfill can be improved.
- Evaluating whether contaminated groundwater is migrating off site through the overburden unit, which may pose potential threats to downgradient residential parcels and surface water quality in the stream.
- Identifying properties that may require institutional controls and implementing the controls.
- Identifying whether nearby residences are connected to the public water supply and whether any private wells are contaminated, and assessing potential threat to the residences on private wells.

It is expected that these actions will take no more than approximately 18 months to complete, at which time a determination of future protectiveness will be made.

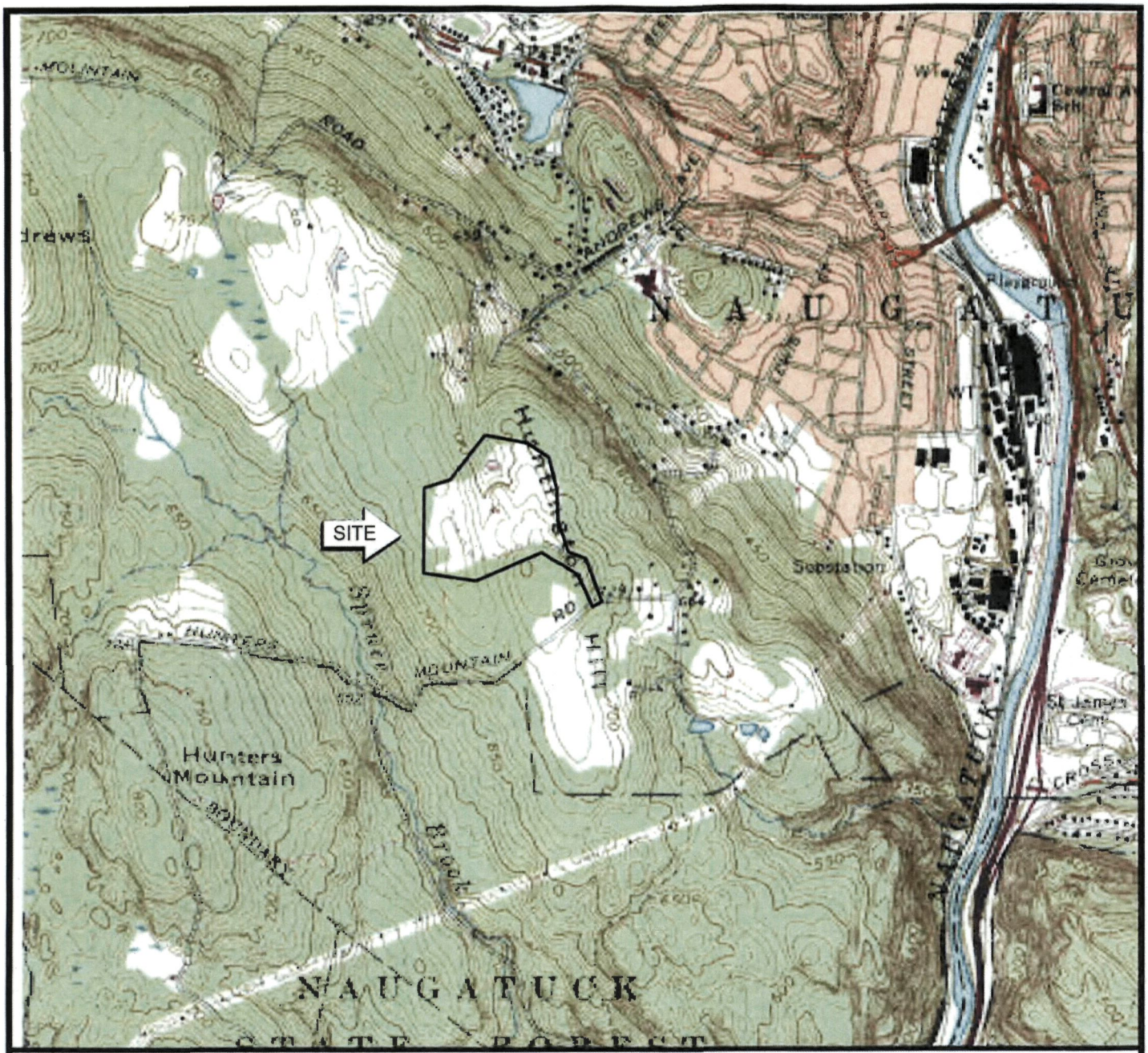
11.0 NEXT REVIEW

The next five-year review will be conducted by September 2013.

APPENDIX A

FIGURES

DWG. NAME: LOCUS



NORTH

USGS TOPOGRAPHIC MAP

NAUGATUCK, CONNECTICUT

1984

APPROXIMATE SCALE
1 INCH = 1,500 FEET

Nobis Engineering, Inc.
439 South Union Street
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Lawrence, MA 01843-2800
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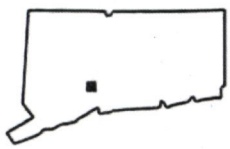


QUADRANGLE LOCATION

FIGURE 1

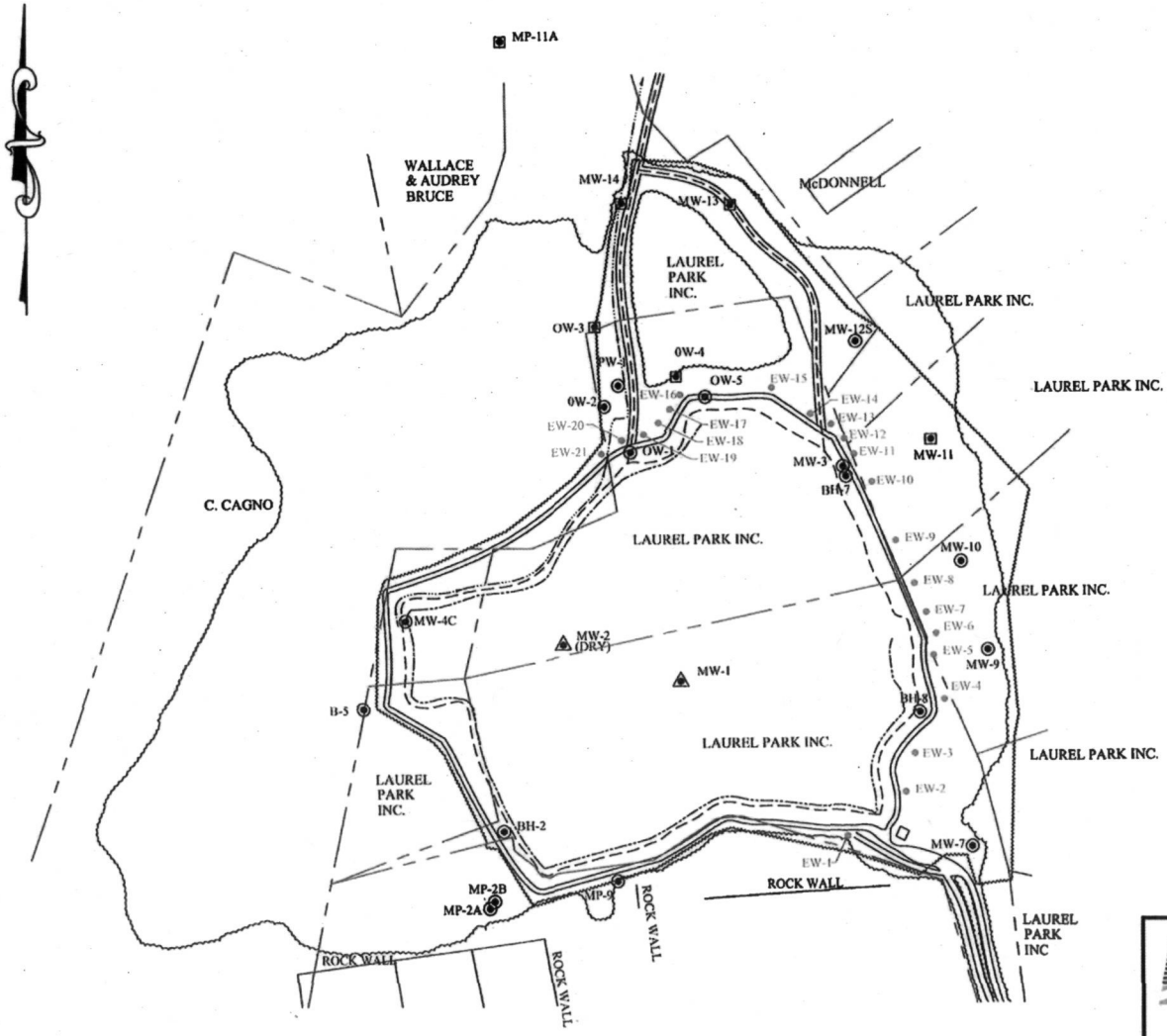
LOCUS PLAN

LAUREL PARK LANDFILL
HUNTERS MOUNTAIN ROAD
NAUGATUCK, CONNECTICUT

PROJECT 80032

AUGUST 2008

DWG. NAME: SITE PLAN



LEGEND

- PROPERTY BOUNDARY
- EXTENT OF LANDFILL
- FENCE
- ACCESS ROAD
- LIMIT OF VEGETATIVE COVER
- DRAINAGE PATH
- LEACHATE COLLECTION SYSTEM
- MW-1 LANDFILL MONITORING WELL
- MW-13 REMOTE MONITORING WELL
- MW-3 PERFORMANCE AND COMPLIANCE MONITORING WELLS
- EW-3 EXTRACTION WELL
- EQUIPMENT AND STORAGE BUILDING

NOTES

1. BASED ON A SITE PLAN INCLUDED IN THE FIELD SAMPLING PLAN, LAUREL PARK LANDFILL SITE, NAUGATUCK, CONNECTICUT, REVISED FEBRUARY 2006, LEVINE FRICKE, LLC.

2. LOCATIONS AND SITE FEATURES DEPICTED HEREON ARE APPROXIMATE AND GIVEN FOR ILLUSTRATIVE PURPOSES ONLY.

APPROXIMATE SCALE

0' 150' 300' 600'

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FIGURE 2

SITE PLAN

LAUREL PARK LANDFILL
HUNTERS MOUNTAIN ROAD
NAUGATUCK, CONNECTICUT

PROJECT 80032 | AUGUST 2008

APPENDIX B

DOCUMENT REVIEW LIST/REFERENCES

DOCUMENTS REVIEWED/REFERENCES CITED

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EPA, 2002. *OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils.* Environmental Protection Agency. November 2002.

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LFR, 2004. *2003 Annual Monitoring Report.* Levine Fricke, May 14, 2004.

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TRC, 2006. *Annual Inspection Report, Spring 2006.* TRC, May 15, 2006.

APPENDIX C

SITE INSPECTION CHECKLIST AND INTERVIEWS

Site Inspection Checklist

I. SITE INFORMATION	
Site name: Laurel Park Landfill Superfund Site	**Date of inspection:** N/A
Location and Region: Borough of Naugatuck, CT – Region 1	**EPA ID:** CTD980521165
Agency, office, or company leading the five-year review: EPA	**Weather/temperature:** N/A

Remedy Includes: (Check all that apply)

- ☑ Landfill cover/containment
- ☑ Access controls
- ☑ Institutional controls
- ☑ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Other _____
- ☐ Monitored natural attenuation
- ☑ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Russ DiRienzo, P.G., LEP (Name) Senior Associate (Title) 7/2/2008 (Date)
   Interviewed ☐ at site ☐ at office ☑ by phone Phone no. (203) 364-9700
   Problems, suggestions; ☐ Report attached Indicated that institutional controls for the Site have not yet been put in place. There are plans to build a 200 home subdivision on a property that abuts the Site. The vapor intrusion pathway at the Site has not been evaluated.

2. **O&M staff** _____ (Name) _____ (Title) _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency CTDEP
Contact Sheila Gleason | Remedial Project Manager | 5/1/2008 | 860-424-3767
Name | Title | Date | Phone no.
Problems; suggestions; ☐ Report attached No problems identified.

Agency _____
Contact _____ | _____ | _____ | _____
Name | Title | Date | Phone no.
Problems; suggestions; ☐Report attached _____

Agency _____
Contact _____ | _____ | _____ | _____
Name | Title | Date | Phone no.
Problems; suggestions; ☐Report attached _____

Agency _____
Contact _____ | _____ | _____ | _____
Name | Title | Date | Phone no.
Problems; suggestions; ☐ Report attached _____

4. **Other interviews** (optional) ☐ Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	**O&M Documents**			
	☐ O&M manual	☐ Readily available	☐ Up to date	☑ N/A
	☐ As-built drawings	☐ Readily available	☐ Up to date	☑ N/A
	☐ Maintenance logs	☐ Readily available	☐ Up to date	☑ N/A
	Remarks			
2.	**Site-Specific Health and Safety Plan**	☐ Readily available	☐ Up to date	☑ N/A
	☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	☑ N/A
	Remarks			
3.	**O&M and OSHA Training Records**	☐ Readily available	☐ Up to date	☑ N/A
	Remarks			
4.	**Permits and Service Agreements**			
	☐Air discharge permit	☐ Readily available	☐ Up to date	☑ N/A
	☐ Effluent discharge	☐ Readily available	☐ Up to date	☑ N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☑ N/A
	☐ Other permits	☐ Readily available	☐ Up to date	☑ N/A
	Remarks			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	☑ N/A
	Remarks			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	☑ N/A
	Remarks			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	☑ N/A
	Remarks			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	☑ N/A
	Remarks			
9.	**Discharge Compliance Records**			
	☑ Air	☐ Readily available	☐ Up to date	☑ N/A
	☑ Water (effluent)	☐ Readily available	☐ Up to date	☑ N/A
	Remarks			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	☑ N/A
	Remarks			

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
☐ PRP in-house ☑ Contractor for PRP
☐ Federal Facility in-house ☐ Contractor for Federal Facility
☐ Other_____

2. **O&M Cost Records**

☐ Readily available ☐ Up to date
☐ Funding mechanism/agreement in place
Original O&M cost estimate_____ ☐ Breakdown attached

Total annual cost by year for review period if available

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☑ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured ☑ N/A

Remarks: _____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☑ N/A

Remarks: _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☐ No ☑ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☐ No ☑ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date ☐ Yes ☐ No ☑ N/A
Reports are verified by the lead agency ☐ Yes ☐ No ☑ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No ☑ N/A
Violations have been reported ☐ Yes ☐ No ☑ N/A
Other problems or suggestions: ☐ Report attached
Institutional controls for the Site are included in the Record of Decision (ROD). Institutional controls at the Site have not yet been implemented.

2. **Adequacy** ☐ ICs are adequate ☐ ICs are inadequate ☑ N/A
Remarks

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☑ No vandalism evident
Remarks

2. **Land use changes on site** ☑ N/A
Remarks

3. **Land use changes off site** ☐ N/A
Remarks A 200 home subdivision is planned on a property that abuts the Site.

VI. GENERAL SITE CONDITIONS

A. Roads ☑ Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map ☑ Roads adequate ☐ N/A
Remarks

B. Other Site Conditions

Remarks _____

VII. LANDFILL COVERS ☑ Applicable ☐ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident
Areal extent_____ Depth_____
Remarks Areas of settlement were noted MW-1 in 2004 and near MW-4C during 2007. The settlement near MW-1 continues to be monitored, and the settlement observed in 2007 was observed to have been repaired during the April 2008 site walk.

2. **Cracks** ☐ Location shown on site map ☑ Cracking not evident
Lengths_____ Widths_____ Depths_____
Remarks_____

3. **Erosion** ☐ Location shown on site map ☑ Erosion not evident
Areal extent_____ Depth_____
Remarks_____

4. **Holes** ☐ Location shown on site map ☑ Holes not evident
Areal extent_____ Depth_____
Remarks_____

5. **Vegetative Cover** ☑ Grass ☑ Cover properly established ☑ No signs of stress
☐ Trees/Shrubs (indicate size and locations on a diagram)
Remarks_____

6. **Alternative Cover (armored rock, concrete, etc.)** ☑ N/A
Remarks_____

7. **Bulges** ☐ Location shown on site map ☑ Bulges not evident
Areal extent_____ Height_____
Remarks_____

8.	**Wet Areas/Water Damage**	☑ Wet areas/water damage not evident	
	☐ Wet areas	☐ Location shown on site map	Areal extent_____
	☐ Ponding	☐ Location shown on site map	Areal extent_____
	☐ Seeps	☐ Location shown on site map	Areal extent_____
	☐ Soft subgrade	☐ Location shown on site map	Areal extent_____
	Remarks_____		
9.	**Slope Instability** ☐ Slides	☐ Location shown on site map	☑ No evidence of slope instability
	Areal extent_____		
	Remarks_____		
B. Benches	☑ Applicable ☐ N/A		
	(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)		
1.	**Flows Bypass Bench**	☐ Location shown on site map	☑ N/A or okay
	Remarks_____		
2.	**Bench Breached**	☐ Location shown on site map	☑ N/A or okay
	Remarks_____		
3.	**Bench Overtopped**	☐ Location shown on site map	☑ N/A or okay
	Remarks_____		
C. Letdown Channels	☑ Applicable ☐ N/A		
	(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)		
1.	**Settlement**	☐ Location shown on site map	☐ No evidence of settlement
	Areal extent_____	Depth_____	
	Remarks Settlement noted in Downchute #3. Sediment removal has been on-going.		
2.	**Material Degradation**	☐ Location shown on site map	☑ No evidence of degradation
	Material type_____	Areal extent_____	
	Remarks_____		
3.	**Erosion**	☐ Location shown on site map	☑ No evidence of erosion
	Areal extent_____	Depth_____	
	Remarks_____		

4. **Undercutting** ☐ Location shown on site map ☑ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____
☑ No obstructions
☐ Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
☑ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations ☑ Applicable ☐ N/A

1. **Gas Vents** ☐ Active ☑ Passive
☑ Properly secured/locked ☑ Functioning ☑ Routinely sampled ☑ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance
☐ N/A
Remarks_____

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☑ N/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
☑ Properly secured/locked ☑ Functioning ☑ Routinely sampled ☑ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

4. **Leachate Extraction Wells**
☑ Properly secured/locked ☑ Functioning ☐ Routinely sampled ☑ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

5. **Settlement Monuments** ☑ Located ☐ Routinely surveyed ☐ N/A
Remarks_____

E. Gas Collection and Treatment	☐ Applicable	☑ N/A	
1.	**Gas Treatment Facilities** ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse ☐ Good condition ☐ Needs Maintenance Remarks_____		
2.	**Gas Collection Wells, Manifolds and Piping** ☐ Good condition ☐ Needs Maintenance Remarks_____		
3.	**Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings) ☐ Good condition ☐ Needs Maintenance ☑ N/A Remarks_____		
F. Cover Drainage Layer	☑ Applicable	☐ N/A	
1.	**Outlet Pipes Inspected** ☑ Functioning ☐ N/A Remarks_____		
2.	**Outlet Rock Inspected** ☑ Functioning ☐ N/A Remarks_____		
G. Detention/Sedimentation Ponds	☐ Applicable	☑ N/A	
1.	**Siltation** Areal extent_____ Depth_____ ☑ N/A ☐ Siltation not evident Remarks_____		
2.	**Erosion** Areal extent_____ Depth_____ ☐ Erosion not evident Remarks_____		
3.	**Outlet Works** ☐ Functioning ☑ N/A Remarks_____		
4.	**Dam** ☐ Functioning ☑ N/A Remarks_____		

H. Retaining Walls	☐ Applicable ☑ N/A	
1.	**Deformations** ☐ Location shown on site map ☐ Deformation not evident Horizontal displacement_____ Vertical displacement_____ Rotational displacement_____ Remarks_____	
2.	**Degradation** ☐ Location shown on site map ☐ Degradation not evident Remarks_____	
I. Perimeter Ditches/Off-Site Discharge	☑ Applicable ☐ N/A	
1.	**Siltation** ☐ Location shown on site map ☑ Siltation not evident Areal extent_____ Depth_____ Remarks_____	
2.	**Vegetative Growth** ☐ Location shown on site map ☐ N/A ☑ Vegetation does not impede flow Areal extent_____ Type_____ Remarks_____	
3.	**Erosion** ☐ Location shown on site map ☑ Erosion not evident Areal extent_____ Depth_____ Remarks_____	
4.	**Discharge Structure** ☑ Functioning ☐ N/A Remarks_____	
VIII. VERTICAL BARRIER WALLS	☐ Applicable ☑ N/A	
1.	**Settlement** ☐ Location shown on site map ☐ Settlement not evident Areal extent_____ Depth_____ Remarks_____	
2.	**Performance Monitoring** Type of monitoring_____ ☐ Performance not monitored Frequency_____ ☐ Evidence of breaching Head differential_____ Remarks_____	

C. Treatment System ☐ Applicable ☑ N/A

1. **Treatment Train** (Check components that apply)
   ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   ☐ Air stripping ☐ Carbon adsorbers
   ☐ Filters_____
   ☐ Additive (*e.g.*, chelation agent, flocculent)_____
   ☐ Others_____
   ☐ Good condition ☐ Needs Maintenance
   ☐ Sampling ports properly marked and functional
   ☐ Sampling/maintenance log displayed and up to date
   ☐Equipment properly identified
   ☐ Quantity of groundwater treated annually_____
   ☐ Quantity of surface water treated annually_____
   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☐ N/A ☑ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   ☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
   Remarks_____

4. **Discharge Structure and Appurtenances**
   ☐ N/A ☐ Good condition ☐ Needs Maintenance
   Remarks_____

5. **Treatment Building(s)**
   ☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
   ☐Chemicals and equipment properly stored
   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ All required wells located ☐ Needs Maintenance ☐ N/A
   Remarks_____

D. Monitoring Data

1. Monitoring Data
   ☑ Is routinely submitted on time ☑ Is of acceptable quality

2. Monitoring data suggests:
   ☐ Groundwater plume is effectively contained ☑ Contaminant concentrations are declining

Remarks_____

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ All required wells located ☐ Needs Maintenance ☑ N/A
Remarks

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).
The remedy is designed to prevent of minimize further release of contaminants in groundwater, surface water, sediments, soil and air. The landfill cover system, leachate collection system, and groundwater extraction system are all in good condition and functioning as designed, therefore accomplished the goal of the remedy.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.
No issues.

C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future. None.

D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. None.

INTERVIEW RECORD

Site Name: Laurel Park Landfill Superfund Site	**EPA ID No.:** CTD980521165	
Subject: Third Five-Year Review (2008)	**Time:** 1530	**Date:** 7/2/2008
Type: ☒ Telephone ☐ Visit ☐ Other **Location of Visit:**	☐ Incoming ☒ Outgoing	

Contact Made By:

Name: Liyang Chu and Danielle Gray	**Title:** Senior Project Manager and Staff Scientist	**Organization:** Nobis Eng., Inc.

Individual Contacted:

Name: Russ Dirienzo, P.G., LEP	**Title:** Senior Associate	**Organization:** LFR
Telephone No: (203) 364-9700 **Fax No:** (203) 364-9800 **E-Mail Address:** russ.dirienzo@lfr.com	**Street Address:** 75 Glen Road, Suite 305 **City, State, Zip:** Sandy Hook, CT 06482	

Summary Of Conversation

Q1: What is your overall impression of the project and site?
A1: The site is in excellent condition and is being maintained in accordance with the O&M Plan. The site is operating as designed.

Q2: Are you aware of any issues the five-year review should focus on?
A2: Institutional controls need to be filed. Land use restrictions are called for in the ROD.

Q3: Whom should Nobis Engineering, Inc. speak to in the community to solicit local input?
A3: The mayor of Naugatuck, and a local resident active during the construction phase. [note – in further inquiries, the local resident could not be identified]

Q4: Is the remedy functioning as expected?
A4: Yes.

Q5: Has there been any significant changes in the O&M activities or a chance to optimize the O&M?
A5: The landfill is being mowed twice per year to facilitate inspections. The sampling methodology for groundwater was changed to low-flow sampling. All extraction well pumps are routinely pulled and cleaned every quarter. Additional pumps were voluntarily added to extraction wells EW-16 and EW-20.

Q6: Is the Town actively involved in the site?
A6: No. Keys to the site have been provided to the fire and police departments. An incident of vandalism occurred last summer. The police is now doing routine security checks of the site. The Laurel Park Coalition [LPC] is considering installing video surveillance cameras at the site.

Q7: Do you feel that information related to the site is readily available?
A7: Site reports are available at the local library. In the past there were problems with the reports being made available, but the issue has since been resolved with the librarian.

Q8: Have there been any changes in the site or surrounding property in the last 5 years, or are changes planned?
A8: There are plans to build a 200 home subdivision next to the Site. Access to the proposed development will

be from Hunter's Mountain Road. The developer has spoken with LFR, and new homes will be serviced by public water and deed restrictions not to use the groundwater. The issue of vapor intrusion has been discussed by the developer, LFR, and the LPC. It is currently under negotiation whether or not the houses will have passive venting systems installed. LFR plans to contact the EPA regarding the vapor intrusion issue at the planned development.

Q9: Are you aware of any changes in the state ARARs, groundwater quality standards, etc., since 2003?
A9: Volatilization criteria are currently being amended.

Q10: Are you aware of any pending or future water needs or any change in water usage in the area?
A10: The LPC wants to put deed restrictions on the abutting properties. More testing and sampling may be needed to determine if a threat is present. Also, at the planned development, Connecticut state laws will prevent the installation of groundwater extraction wells within 200 feet of a public water supply, further protecting residents from potential contact with contaminated groundwater.

INTERVIEW RECORD

Site Name: Laurel Park Landfill Superfund Site	**EPA ID No.:** CTD980521165	
Subject: Third Five-Year Review (2008)	**Time:** 1400	**Date:** 7/3/2008
Type: ☒ Telephone ☐ Visit ☐ Other **Location of Visit:**	☐ Incoming ☒ Outgoing	

Contact Made By:

Name: Danielle Gray	**Title:** Staff Scientist	**Organization:** Nobis Eng., Inc.

Individual Contacted:

Name: Mike Bronko	**Title:** Mayor	**Organization:** Borough of Naugatuck
Telephone No: (203) 720-7009 **Fax No:** Unknown **E-Mail Address:** Unknown	**Street Address:** 229 Church Street, 4th Floor **City, State, Zip:** Naugatuck, CT 06770	

Summary Of Conversation

Q1: What is your overall impression of the project and site?
A1: The site is very quiet. According to Jim Stewart, Engineer for the Borough of Naugatuck, the site is functioning as planned.

Q2: Are you aware of any issues the five-year review should focus on?
A2: No.

Q3: Whom should Nobis Engineering, Inc. speak to in the community to solicit local input?
A3: The Water Pollution Control Board.

Q4: Is the remedy functioning as expected?
A4: From the best of his understanding, yes.

Q5: Has there been any significant changes in the O&M activities or a chance to optimize the O&M?
A5: No.

Q6: Is the Town actively involved in the site?
A6: There has been no active participation by the Town.

Q7: Do you feel that information related to the site is readily available?
A7: Yes.

Q8: Have there been any changes in the site or surrounding property in the last 5 years, or are changes planned?
A8: A proposed development abutting the landfill site has been approved by the local planning and zoning boards. Construction has not yet started.

Q9: Are you aware of any changes in the state ARARs, groundwater quality standards, etc., since 2003?
A9: No.

Q10: Are you aware of any pending or future water needs or any change in water usage in the area?
A10: The proposed housing development will be on the public water supply.

INTERVIEW RECORD

Site Name: Laurel Park Landfill Superfund Site	**EPA ID No.:** CTD980521165	
Subject: Third Five-Year Review (2008)	**Time:** 1530	**Date:** 7/9/2008
Type: ☒ Telephone ☐ Visit ☐ Other **Location of Visit:**	☐ Incoming ☒ Outgoing	

Contact Made By:

Name: Danielle Gray	**Title:** Staff Scientist	**Organization:** Nobis Eng., Inc.

Individual Contacted:

Name: Sheila Gleason	**Title:** Remedial Project Manager	**Organization:** Connecticut Department of Environmental Protection

Telephone No: 860-424-3767 **Fax No:** Unknown **E-Mail Address:** sheila.gleason@ct.gov	**Street Address:** 79 Elm Street **City, State, Zip:** Hartford, CT 06106

Summary Of Conversation

Q1: What is your overall impression of the project and site?
A1: Ms. Gleason receives copies of the Annual Monitoring Reports for the Site. She has very little involvement with the Site.

Q2: Are you aware of any issues the five-year review should focus on?
A2: Other than issues identified by the EPA, no.

Q3: Whom should Nobis Engineering, Inc. speak to in the community to solicit local input?
A3: Ms. Gleason does not know anyone in the community that should be contacted.

Q4: Is the remedy functioning as expected?
A4: Based on her review of the Annual Monitoring reports, yes.

Q5: Has there been any significant changes in the O&M activities or a chance to optimize the O&M?
A5: Ms. Gleason does not have enough involvement with the site to know.

Q6: Is the Town actively involved in the site?
A6: Yes. Ms. Gleason receives calls from the local residents a few times per year.

Q7: Do you feel that information related to the site is readily available?
A7: Yes.

Q8: Have there been any changes in the site or surrounding property in the last 5 years, or are changes planned?
A8: There are plans for a subdivision to be built next to the Site.

Q9: Are you aware of any changes in the state ARARs, groundwater quality standards, etc., since 2003?
A9: Not that Ms. Gleason is aware of.

Q10: Are you aware of any pending or future water needs or any change in water usage in the area?
A10: No. The proposed subdivision will be connected to the public water supply.