

UCONN

Update

Landfill Remediation Project

INTRODUCTION

The University of Connecticut will submit the **Draft Comprehensive Hydrogeologic Investigation Report and Remedial Action Plan** for the UConn Landfill for regulatory and Town of Mansfield review on October 31, 2002. The Comprehensive Report will summarize the results of the three-year investigation and recommend remedies for abating sediment, soil, surface water and groundwater contamination emanating from the study area. This Update includes the second article describing the remedies the University of Connecticut will propose for the project. This one focuses on the former chemical pits and F Lot (the Summer 2002 Update described the proposed cap for the landfill.) See the lead article, which begins below.

The Public Involvement Plan set up in October 1998 has involved Mansfield residents and UConn faculty and students in the progress of the UConn Landfill Project. The article on page 4 reminds readers how they can participate in the review process. Elsie Patton, Assistant Director for Permitting, Enforcement and Remediation for DEP, welcomes citizen participation in a column on page 4.

The **Action Update** on page 6 provides information on Round 9 of the Interim Monitoring Program and UConn's new Environmental Manager.

The Comprehensive Landfill Report and Remedial Action Plan: Part II

On October 31, 2002, the University of Connecticut will submit the *Draft Comprehensive Hydrogeologic Investigation Report and Remedial Action Plan for the UConn Landfill* (Comprehensive Report) to the CT Department of Environmental Protection (DEP), and the other key parties to the investigation. Reviewers will include the U.S. Environmental Protection Agency, Region 1 (EPA); the Town of Mansfield and its consultants and the CT Department of Public Health (DPH), as well as DEP. After a 45-day review and comment period and edits to prepare the final draft, the Comprehensive Report will be released for public review in January 2003.

An article in the Summer 2002 *UConn Update* outlined the elements of the Comprehensive Report and provided details on a key part of the remedial action plan, capping the landfill. This article will address remediation of the

former chemical pits and an ash disposal site known as F Lot, which is now a parking lot, and introduce a Long-Term Monitoring Plan to replace the Interim Monitoring Plan.

The Comprehensive Hydrogeologic Report

The Comprehensive Report will summarize the results of the preliminary and supplemental hydrogeological investigations. It will lay out the Remedial Action Plan, which will include a proposed schedule for permitting, design and construction of the elements of the plan. It will also propose a Long-Term Monitoring Plan. The Comprehensive Report will recognize that additional connections of private residences to the public water supply may be determined by DEP.

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WHAT IS THE UCONN LANDFILL PROJECT?

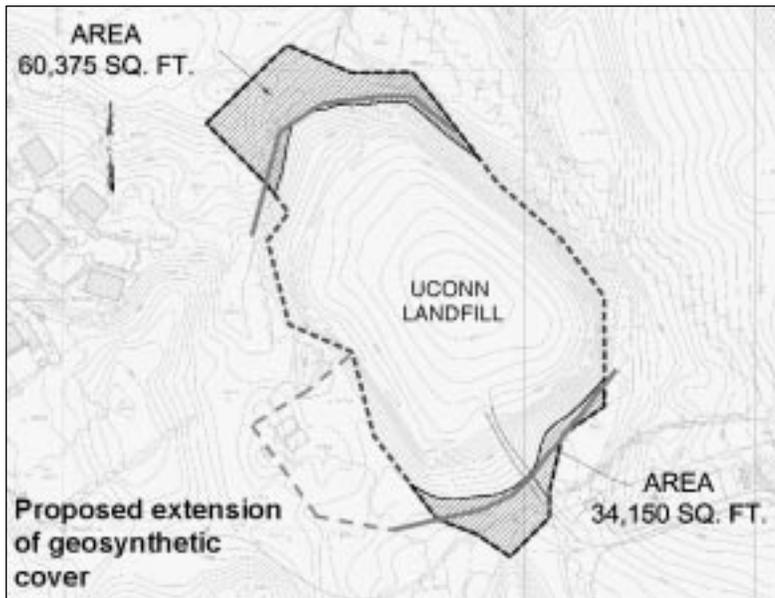
On June 26, 1998 the Department of Environmental Protection issued a Consent Order to the University of Connecticut. The order requires UConn to thoroughly evaluate the nature and extent of soil, surface water and groundwater pollution emanating from the university landfill, former chemical pits and an ash disposal site known as F Lot. The order also requires UConn to propose and implement remedial actions necessary to abate the pollution. The UConn Landfill Remediation Project is the process that UConn is undertaking to comply with the order.

Your ideas are welcome...

If you have agenda items or questions you would like addressed in the next *Update*, please contact DEP's Site Project Manager, Ray Frigon, either by phone, fax or in writing:

- Phone him at 860-424-3797
- Fax him at 860-424-4057
- Write to Mr. Frigon at the Department of Environmental Protection, 79 Elm St., Hartford, CT 06106-5127.

DEP will determine if requests are relevant to the project and how they should be addressed. Mr. Frigon is also interested in your suggestions for future project fact sheets. And, if you are a member of an organization that would like a presentation on the project, please contact Mr. Frigon.



The dashed area to the left of the landfill depicts the location of the former chemical pits, to be capped.



The open area behind the rip rap will be included under a cap to cover the former chemical pits.

Remedial Action Plan: Part II / *cont.*

Capping the Chemical Pits

The Comprehensive Report will recommend extending the proposed cap on the landfill to include the area of the former chemical pits. The former chemical pits are located on the southwest side of the landfill. The area was first used to dispose of waste chemicals from the University in 1966.

The chemical pits were closed in 1982 and a plan was developed to remove contaminated soil down to the bedrock. UConn contracted with Clean Harbors, a licensed environmental firm, to excavate and remove contaminated material. Two phases of excavation took place and more than 5,000 cubic yards of soil were excavated and removed from the site.

During the Preliminary Hydrogeologic Investigation, the chemical pits area was again identified as one of the primary sources of contaminants detected in groundwater. The technical team undertook a test trenching program that resulted in the removal of an additional 223 tons of contaminated materials.

Based on the investigation to date, UConn's technical team identified the following contaminated media in the chemical pits area that are the subject of the Remedial Action Plan:

- Soil gas contaminated by **volatile organic compounds (VOCs)** within this source area and immediately downgradient of the area
- Groundwater, contaminated by VOCs and probably including **DNAPL** (dense nonaqueous phase liquid)

The remaining contaminated soil was removed from the former chemical pits in Fall 2000 as a result of the test trenching. Six inches of clean loam were brought in to cover the site.

The Next Steps in Remediation

Although removing the soil in the former chemical pits area addressed near-surface contamination, the investigation indicated that contaminants remain in soil gases and groundwater in the bedrock. Based on the team's knowledge of the materials that were disposed of in the chemical pits, it is probable that DNAPL is present in the bedrock. DNAPL is a liquid that is denser than water and doesn't mix easily with water. While DNAPL was not found in the sampling, it may be present in the bedrock in the immediate area of the former chemical pits. There are no current technologies available to successfully remove DNAPL from fractured bedrock and restore the groundwater to drinking water quality.

The remediation proposed for the former chemical pits area must address these contaminants. UConn's team will make the following recommendations:

- **Extend the cap to cover the area of the former chemical pits.** Although clean soil was placed here, rain or other precipitation falling on the area filters through the soil into the bedrock. The hydrogeologic team has estimated that the former chemical pits area receives over 350,000 gallons of infiltration per year. Because DNAPL or residual contaminants are probably in the bedrock, the cap will serve as a barrier to rain water that could leach through the site. The cap will prevent recharge of the groundwater beneath the source area, ensuring that any plume of contaminated groundwater will not be enlarged.
- **Place a restriction on development at the site.** Known as an Environmental Land Use Restriction, or ELUR, this limits any future use or development in the source area.
- **Purchase property adjacent to the site.** The University will offer to buy the undeveloped property adjacent to the former chemical pits and place an ELUR on the property to prevent any development there.
- **Provide alternate water supply.** Homes to the west of the former chemical pits on Hunting Lodge Road are already connected to University water due to historic well contamination. Seven homes on North Eagleville Road were

Continued on next page

Remedial Action Plan: Part II / cont.

connected to University water in 2001 after contaminants that are the signature chemicals in the chemical pits were detected in one domestic well. The University will consult with DEP and local and state health officials on the need for additional connections in this area.

- **Continue a long-term monitoring program.** The University will propose a long-term monitoring program that will include sampling of soil gas, surface water, shallow and bedrock groundwater, including active residential wells. The multi-year program will be supervised by DEP and the key parties and the results will be reported to the public.
- **Request a technical impracticability variance** for bedrock groundwater beneath and south of the former chemical pits. Using current technologies, it is not possible to remove DNAPL and other contaminants from the fractured bedrock below the former chemical pits to restore the groundwater to drinking water quality in the immediate source area. Because the Consent Order with DEP requires remediation of the site in accordance with DEP cleanup regulations, the University will request a variance due to technical impracticability for groundwater remediation in the fractured bedrock below the former chemical pits. This is an accepted variance in the regulations where there are no alternatives for achieving remedial goals. If the variance is granted, state regulations require long-term stewardship of the groundwater pollution.

F Lot Proposed Remediation

F Lot is an area located southeast of the former landfill. In the 1950s and 1960s, the land was used for disposal of ash from incinerators located to the north of the site. The University first built a parking lot over the area between 1965 and 1970. (The site gets its name from the University's policy of assigning letters of the alphabet to parking lots.)

In the late 1990s, while testing the site for a planned building, consultants for the University found a mix of ash and other debris on the site along with fill. Based on this finding, UConn determined not to build on the site. Instead, the University took an interim remedial action and designed and built a cap above the F Lot waste. The cap included

a multi-layer cover for the ash disposal area with a venting layer, geomembrane liner, an 18-inch protective cover, a drainage layer and an asphalt layer. The cover was designed so that the site could be used as a parking lot.

Because F Lot is part of the current Consent Order, UConn's technical team included an assessment of groundwater, soil, sediment and surface water quality as well as methane gas quantity and other parameters as part of the hydrogeologic investigation.

The results of the investigation show that F Lot is not a potential source of contaminants that will move in soil, ground water, or surface water beyond the boundaries of the capped material. This conclusion is based on several factors: (1) the cap, which is already in place, prevents rainwater and other precipitation from reaching or mixing with the ash below F Lot; (2) the ash fill materials beneath F Lot are not in contact with groundwater, so there is little potential for leaching off site; and (3) no soil gases were observed in the screening that took place and the cap limits any chance of gas migration. There is some evidence of contaminants in surface water, but that appears to be coming from stormwater runoff, which includes incidental contaminants such as petroleum compounds (from vehicle traffic) and deicing chemicals used for removal of snow and ice in parking areas and roadways. In addition, leaks have been identified in a storm drain near the entrance to F Lot. These leaks will be repaired so that the drain does not serve as a potential migration pathway for groundwater beneath F Lot and surface water monitoring will be performed to evaluate the effectiveness of the drain repairs.

The Comprehensive Report will recommend additional strategies to maintain F Lot. The University believes that the cap meets the requirements of the Consent Order and the DEP Remediation Standard Regulations. Long-term monitoring will also be proposed to ensure that contaminants are not migrating off-site from F Lot. Post-remediation work will include a long-term operation and



The asphalt parking lot is the top layer of the cap covering F Lot.

DEFINING THE TERMS

Volatile Organic Compounds (VOCs) –

A group of organic compounds that evaporate easily. VOCs are present in common consumer products such as gasoline, paints and paint thinners as well as in solvents used for dry cleaning and metal degreasing. Certain VOCs have been found to be characteristic of the former chemical pits at UConn, including benzene, trichloroethylene (TCE) and tetrachloroethylene (PCE).

DNAPL, dense nonaqueous phase liquid –

A liquid that is denser than water and does not mix easily with water. Chlorinated solvents, such as trichloroethylene (TCE), are DNAPLs. DNAPL sinks if it enters the groundwater until it reaches a barrier to its flow. DNAPL then slowly dissolves as groundwater moves past.

Interim Monitoring Program (IMP) –

A quarterly well sampling program to monitor shallow groundwater and surface water in the project Study Area and active residential wells around its perimeter. The results are reviewed by CT DEP and the key parties to ensure that water in residential wells continues to be safe to drink during the site investigation. The IMP will be replaced by a Long-Term Monitoring Plan after agency and public review of the Comprehensive Report.

Long-Term Monitoring Plan –

A multi-year plan to continue sampling of soil gas, and surface water, shallow monitoring wells, and bedrock wells in the UConn landfill Study Area and several adjacent properties to monitor water quality to protect human health and the environment. The Comprehensive Plan will propose specific sites to be included in the program, which will be evaluated by DEP and the key parties.

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PROJECT TIMELINE

2002

Oct. 31

- Draft Comprehensive Hydrologic Report and Remedial Action Plan Submitted to DEP and key parties

Dec.

- Agency review of draft report completed

2003

Jan.

- Public Availability Session on Comprehensive Report and Remedial Action Plan

Feb.

- Public Meeting on Comprehensive Report
- Begin Remedial Actions Design

Spring 2003

- Public Availability Session on Design

Mar. – May

- Implement Remedial Action Plan: Competitive bidding process and contractor selection

June

- Mobilize Contractor(s) (contingent on construction timetable)

Nov.

- Comprehensive Final As-built Drawings and Closure Report for the Landfill & Chem Pits Areas

2004

Jan.

- Begin Post-Remediation Monitoring

Meeting Schedule

Dates for the January and February 2003 meetings will be announced in the next UConn Update, in letters to everyone on the mailing list and in the Chronicle. Residents of Mansfield and the University community can contact DEP's Project Site Manager, Ray Frigon, at 860-424-3797, with any requests for information to be included in the Public Availability Session (January '03). DEP will host the Public Meeting (February '03), where interested parties will be invited to comment on the Comprehensive Report.

How to Review the Final Comprehensive Report

There are several opportunities for residents of Mansfield and the University community to be involved in reviewing the *Draft Comprehensive Hydrogeologic Comprehensive Report and Remedial Action Plan* for the UConn Landfill, which will be submitted to the Connecticut Department of Environmental Protection (DEP) on October 31, 2002. This article offers details on the review process. Readers can cut out the project timeline (in the left column) to remind them of upcoming events.

The key parties will review the draft version of the document first. These reviewers include representatives of Region I of the U.S. Environmental Protection Agency (EPA), the Town of Mansfield and its consultants, the Eastern Highland Health District (EHHD) and the CT Department of Public Health (DPH), as well as DEP. The reviewers will submit comments to DEP, and after 45 days, DEP will provide comments to the University's technical team that will be addressed in a draft final version of the document.

Based on this schedule, UConn will produce a draft final version of the Comprehensive Report for release to the public by the second week of January. This document will be available in the Mansfield Public Library, at UConn Communications, in the Mansfield Town Manager's office and at DEP in Hartford. A fact sheet summarizing the key conclusions and information in the document will be sent to everyone on the project's mailing list and will be available in town hall.

There will be a UConn Landfill Public Availability Session two weeks after the document becomes available, at the end of January. This session will include

(1) an open house segment, where people can come and ask questions about the Comprehensive Report by speaking with any of the key parties, and (2) a presentation on the Comprehensive Report. The meeting dates will be announced by mail and in local media.

One month after the Public Availability Session, there will be a Public Meeting at the Audrey B. Beck Building. The purpose of the meeting will be for DEP to collect comments from the public on the Comprehensive Report and Remedial Action Plan. DEP staff and the key parties will be on hand to hear from residents and members of the University community. Summary minutes of the comments will be prepared for everyone on the mailing list.

Civic and community groups are welcome to request a briefing on the Comprehensive Report during this review period. One or two team members will arrange to attend your meeting to outline the main conclusions of the Comprehensive Report and remedies. To request this type of briefing, please contact DEP's Site Manager, Ray Frigon, at 860-424-3797, or Public Involvement Manager Nancy Farrell at 617-357-5772 (or NFarrell@ReginaVilla.com).

After reviewing the comments and any letters or other materials from the public, DEP will issue a final determination on the Comprehensive Report and the proposed remedies. DEP will share its decisions with the community, noting its responses to technical and public comments.

If you have questions or suggestions about this process, please contact one of the project contacts listed on page 6.

DEP Wants to Hear from You

In January 2003 the University will submit to DEP for our approval a report that describes the results of the past three years of investigating the UConn Landfill and proposes a course of action to remediate the environmental effects of the landfill. We at DEP want to take this opportunity to encourage the Mansfield and Storrs community to learn about the investigation and the remedial actions contemplated by the University and to

share your concerns and comments with us. Only with your input can we properly review the proposal and take into consideration your concerns when we make a decision about whether to approve the proposed remedial actions.

Over the last three years, a number of citizens have participated in public availability sessions and public meetings.

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Left: Lower F Lot
Looking East
Right: Upper F Lot
North Slope

Remedial Action Plan: Part II / *cont.*

maintenance (O&M) plan to maintain the integrity of the parking lot/cover and an ELUR to limit the uses of this site.

Long-Term Monitoring

Currently, the University performs quarterly sampling of domestic and other wells as part of an Interim Monitoring Program (IMP). The IMP monitors shallow groundwater, surface water and a number of residential wells in locations around the landfill and former chemical pits. The goal of the program is to monitor water quality in residential wells in the study area and its vicinity to ensure that groundwater remains safe to drink while the investigation is underway.

The program has been successful: CT DEP has ordered connections to public water supplied by the University when the results showed that wells were or had the potential to be affected by groundwater pollution from the University's property. Seven homes in the North Eagleville/Hunting Lodge Road area have been connected over the past three years. The concentrations of contaminants found were at a low level of detection.

The Comprehensive Report will recommend continued monitoring and sampling of selected wells in and around the Study Area in 2003. In addition, the Comprehensive Report will propose a Long-Term Monitoring Plan to replace the IMP. The plan will propose to continue the use of some sampling sites and expand to include others. The proposal suggests:

- Six surface water locations, one of them new
- Five shallow monitoring wells, three new
- Twelve bedrock monitoring wells: one would be a new (300 ft. deep) well and six are active domestic wells

- Abandonment * of the monitoring wells and unused domestic wells
- Reconditioning of two bedrock wells with temporary removable systems that allow monitoring of discrete fracture intervals while preventing cross-contamination between those intervals. The temporary systems will be replaced with permanent ones.
- Addition of four new soil gas monitoring points

The University's consultants used the following criteria to select the elements of the long-term plan. The sites to be sampled will:

- assess the effectiveness of the remediation
- monitor groundwater and surface water quality and trends
- act as sentinel wells to protect human health and the environment

DEP, the Department of Public Health, Eastern Highlands Health District and consultants for the Town of Mansfield will be reviewing the sampling sites and commenting on them as part of the review of the Draft Comprehensive Report. In addition, the University expects to connect additional homes to its water supply based on an assessment of need by the key parties.

Results of the Long-Term Monitoring Plan will be reported to DEP and the key parties. Members of the public and the University community will have access to the Comprehensive Report at the Mansfield Public Library, in the Town Manager's office and on a project web

site, which is under development. Domestic well owners will be notified individually, with the general results shared with the public.

Redevelopment

In conjunction with the Remedial Action Plan, the University will propose long-term redevelopment of the Study Area sites. The Comprehensive Report will propose to continue to use F Lot as a parking lot. It will also recommend using the capped landfill area as a parking lot in support of UConn's Master Plan. These uses will be subject to DEP's approval, along with review of the design and long-term maintenance plans for the site. These plans will also be part of the public involvement review process.

The University is also coordinating its plans for the landfill area remediation with other development underway as part of its Master Plan.

Summary

The Comprehensive Report will include detailed information about the proposed cap for the former chemical pits area and landfill, formal closure of F Lot, redevelopment of the sites and implementation of the Long-Term Monitoring Plan. See the article on page 4 for information on how to review the Comprehensive Report and participate in public comment activities. The schedule on page 4 lists the Comprehensive Report submittal and review dates.

* *Abandonment is the process of closing a well by pulling the casing and filling it with concrete, bentonite clay or grout, or by simply filling the casing.*

For more information . . .

You can visit web sites that present information on hydrogeology, contaminants, and remediation technologies. The U.S. Geological Survey Toxic Substance Hydrology Program describes DNAPL and other terms and links to other USGS fact sheets. Go to: <http://toxics.usgs.gov/definitions/index.html>. The Environmental Protection Agency web site offers citizen's guides to capping and other remediation technologies: www.clu-in.org/products/citguide.

ACTION Update

- The University of Connecticut has hired a Director of Environmental Policy. Richard Miller, an attorney with 18 years of experience as an environmental professional and manager in Connecticut, will work to ensure that the University continues to strengthen its environmental performance at Storrs and other campuses across the state. Among his responsibilities, Mr. Miller will work with the teams who are planning and constructing the \$2.3 billion UConn 2000 and 21st Century building programs to continue the program in an environmentally responsible way. Mr. Miller has been a member of Connecticut's Council on Environmental Quality since 1997 and has served on Simsbury's Inland Wetlands & Conservation Commission for 12 years. Previously, he was an appointed member of several CTDEP advisory committees to develop regulatory programs, including the state remediation standards, water quality standards and aquifer protection regulations. He will participate in public meetings and presentations for the Comprehensive Report.
- Sampling is underway for Round 9 of the Interim Monitoring Program (IMP) for the Landfill Project. Samples are collected from 13 active residential wells four times a year. The results are shared first with the CT Department of Environmental Protection (DEP), key parties and the homeowners, then shared with the public in the UConn *Update*.

DEP Wants to Hear from You / cont.

Their concerns have significantly shaped the nature and scope of the investigation of the UConn landfill, the former chemical pits and the F-Lot landfill. Now, when the Comprehensive Report and Remedial Action Plan is ready for agency and technical review, it's vital for anyone with an interest in the site and its remediation to take a role in the review process. We know that the issues are complex and it's difficult to find the time to look at and understand a technical document. But citizens can participate in the Public Availability Sessions, ask questions, learn about the topics and remediation proposals of interest to them and write or call DEP or make a comment at the Public Meeting.

We appreciate the time and interest members of the community have already invested in the landfill project. We look forward to your continued input and we welcome the ideas and comments of newcomers to the project as well. In the next few months, your input could help us to shape an even more effective and successful future for the Study Area sites. We hope to hear from you.

Elsie Patton, *CT Department of Environmental Protection*
Assistant Director, *Permitting, Enforcement and Remediation*

UPDATE REVIEWERS

The following parties reviewed the copy for this edition of the UConn Update: Elsie Patton and Ray Frigon, CT DEP; Chuck Franks, US EPA; Marion Cox, ReSource Associates; Martin Berliner, Mansfield; Rob Miller, EHHD; and members of the UConn consultant team.

COMING NEXT TIME

- **Details: The Comprehensive Report: Under Review**
- **The Review Schedule: Reminder**
- **Interim Monitoring Program Results**

WHERE WILL I FIND THE DOCUMENTS?

Copies of all project documents are available at:

Town Manager's Office

Audrey P. Beck Bldg.
4 South Eagleville Rd.
Mansfield, CT 06268
(860) 429-3336

Mansfield Public Library

54 Warrenville Rd.
Mansfield Center, CT 06250
(860) 423-2501

CT Dept. of Environmental Protection

Contact: Ray Frigon
79 Elm St.
Hartford, CT 06106-5127
(860) 424-3797

UConn at Storrs

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