

Report Name: *Supplemental Investigation Work Plan: Non-Public Properties Study Area, Hamden, Connecticut*

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Prepared for: Olin Corporation

What Is This Work Plan For?

Olin Corporation has been ordered by the Connecticut Department of Environmental Protection (DEP) to investigate and remediate (clean up) the non-public (mostly residential) properties around the Hamden Middle School within the DEP-identified Newhall Street Study Area. In the summer of 2002, before Olin and DEP reached a settlement, Olin voluntarily conducted an initial investigation of some of the residential properties. That study was reported in the "Initial Investigation Findings Report, Newhall Street Residential Area, Hamden, Connecticut", dated December 2002. After reviewing that report, the DEP asked Olin to expand the study area and investigate the properties more fully, to better understand the contamination. This Work Plan explains how Olin proposes to conduct the additional (supplemental) investigation. The Work Plan describes plans for more testing but does not have any new test results because the additional work has not yet been done. The findings from the Initial Investigation are summarized in this Work Plan.

What Studies Does The Work Plan Describe?

The DEP identified four types of information they wanted Olin to investigate. The Work Plan describes how Olin proposes to collect this information. The four studies DEP asked for were:

1. To better determine the exact location of the former known fill areas;
2. To find any bare spots of soil within the fill areas and determine if contamination is present near the surface;
3. To find any other fill outside the current known fill areas, but within the Newhall Street Study Area; and
4. To better identify how soil contamination is affecting the groundwater, and to determine if groundwater contamination is affecting surface water.

How Will Olin Conduct The Additional Investigations?

Olin will use a comprehensive (using all available information) approach called a Conceptual Site Model to identify areas where they need more information to

better understand all the fill areas and the contamination that may be present. This Conceptual Site Model will help Olin decide where and how to look for all the fill areas that may be present. Olin will then use the information gained from the Conceptual Site Model to go out and do the additional testing requested by the DEP.

The Work Plan describes the type of testing Olin wants to do for each of the four studies required by DEP. In all cases, damage to any property that may occur during this investigation would be repaired by Olin.

1. **To better determine where the boundaries of the known former landfill areas are:** The Work Plan proposes to investigate every property along the known edge of fill. Shallow borings (holes) will be dug in a line that is perpendicular (at a right angle, or 90°) to the suspected edge of the fill area. These borings will be characterized as fill material or native soil. This characterization will identify the edge of the fill in a location. This investigation will be repeated every 50 feet along the suspected edge of fill until the exact edge of fill for each area has been identified. Soil samples will be collected from some of these borings for laboratory testing.
2. **To find any bare spots of soil within the known former landfill areas and determine if contamination is present:** The Work Plan proposes to do a visual inspection at every property that is within or borders the known fill areas. Any bare spots of soil will be mapped and the surface soil (0-6 inches) will be tested for contamination.
3. **To find other fill areas outside the known former landfill areas:** The Work Plan proposes to look at all the residential properties not already known to have fill beneath them to identify any isolated areas of fill. Visual signs will be looked for that may indicate fill is buried beneath these properties. In addition to this visual inspection of all the properties, soil borings will be dug on approximately 49 properties. These properties were selected based on the following criteria:
 - Property owners reported the presence of debris or other possible indications of fill.
 - Properties next to six properties where CTDEP soil sampling has identified isolated fill.
 - Properties next to other areas where CTDEP soil sampling identified fill beneath the sidewalks.
 - Additional properties at locations that will make sure sampling is evenly spread out over the entire study area.

Based on the findings of the visual inspections and soil borings, additional investigations may be necessary to fully identify these isolated fill areas.

4. **To better identify how soil contamination is affecting the groundwater:** The Work Plan proposes the installation of permanent groundwater test wells throughout the residential fill areas. Wells would be located in and around each of the five areas of fill identified in the Initial Investigation. The wells would be positioned along the direction of flow of the groundwater in each area. In general, wells would be located:
- “uphill” of the fill area (before the groundwater enters the fill area); one or more wells
 - near the center of the fill area; one or more wells
 - “downhill” of the fill area (to pick up groundwater after it has left the fill); one or more wells.
 - Some wells may be used for more than one thing. (For example: one well may be the “downhill” well for one area and the “uphill” well for another.
 - Some wells will be located in areas that are apart from the known fill areas. These wells will help Olin understand the groundwater quality in these areas.

The Work Plan proposes to test the water from these wells once every three months for one year. The results would help explain how much contamination is getting into the groundwater from the fill areas. Information from test wells outside the non-public study area (the Middle School, Rochford Field and Mill Rock Park) will also be used to provide a better understanding of how the groundwater moves and how the soil contamination is affecting the groundwater.

The Work Plan proposes that, based on what Olin learns from the results of the testing of the groundwater, surface water sampling may need to be done on the two nearby surface water bodies. These surface water bodies are the unnamed stream and wetland area located west of Augur Street, and the Beaver Ponds located one-half mile southwest of the study area.

How Long Would The Work Plan Take?

Once Olin gets approval from DEP to carry out the additional studies in the Work Plan, they believe it would take 14 months to do the testing and complete a written report of the findings.