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North Stamford Concerned Citizens for the Environment, Inc.
c/o Bruce A. Hubbard, P. C.
730 Third Avenue, 25th Floor
New York, New York 10017

Attention: Joanna Manley-Moore, President

Subject: Proposal for Environmental Consulting Services
Scofieldtown Area
North Stamford, Connecticut

Gentlemen:

ALTA Environmental Corporation (ALTA) is pleased to provide our comments on the proposal from Dr. Gary Robbins of the University of Connecticut (UCONN), entitled "Deciphering the Source of Pesticide Contamination and Bedrock Hydrogeology in the Scofieldtown Road Park Area in Stamford, CT", dated 28 March 2010, herein referred to as the "UCONN Study". The purpose of this correspondence is to document our review of and recommendations regarding the proposed UCONN Study with respect to the concerns expressed to us by the North Stamford Concerned Citizens for the Environment, Inc. (NSCCE).

We understand that the primary objectives of NSCCE are to ensure the protection of human health and the environment in the area surrounding the Scofieldtown Landfill, and to determine the source(s) of pesticide impacts and potential presence of other contaminants in water supply wells in this area. ALTA is aware that Stamford has extended a public water supply line to the area most impacted by pesticides east of the landfill; commissioned a Phase I Environmental Site Assessment (ESA) of the Bartlett Arboretum on Brookdale Road; recently completed investigations at the Scofieldtown Landfill; and has proposed to complete additional water supply testing at 50 randomly selected homes in the area. The City of Stamford has made this information available to the public. ALTA is also aware that Stamford and the Connecticut Department of Environmental Protection (DEP) are in the process of negotiating a Consent Order governing closure of the Scofieldtown Landfill. In addition, Stamford has sought a proposal from UCONN to evaluate the sources of documented pesticide impacts to area water supply wells, which is the primary subject of this correspondence.

Background

There have been a number of historic detections of chlorinated pesticides, predominantly chlordane and dieldrin, in water supply wells in the area surrounding the landfill. The most impacted area appears to be the Very Merry/Alma Rock Road area to the east of the landfill, where public water supply has now been provided. However, there have also been several detections of pesticides in water supply wells in the area to the south and west of the landfill,

although only limited testing for pesticides has been completed to date in these areas. ALTA is aware that some of the pesticide impacted water supplies have been equipped with point-of-use treatment systems designed to remove the pesticide contaminants. In addition to the detected pesticides, the initial investigations completed by TRC Environmental Corporation (TRC) at the landfill (discussed below) revealed the presence of other contaminants of concern (COCs) in groundwater in and around the landfill. The additional contaminants include but are not limited to sodium (likely associated with salt storage at the landfill) and volatile organic compounds (VOCs), including benzene and vinyl chloride which were detected above drinking water standards and are more mobile than the pesticides that have thus far been the focus of concern. The VOC 1,1,1,2-tetrachloroethane was additionally detected above drinking water standards in two shallow bedrock monitoring wells in the Very Merry/Alma Rock Road area. ALTA is not aware if any testing of area water supply wells has been completed for these additional COCs, although ALTA has not had the opportunity to review all of the historic testing results for the area. The source(s) of the pesticides and other contaminants are not known at this time, although several potential sources have been identified.

ALTA has completed limited Phase I research into potential sources of the pesticide and other contaminant impacts in the area of the landfill, including the Very Merry/Alma Rock Road area. This research has indicated several potential pesticide contaminant sources in the area, including the Bartlett Arboretum and area-wide locations presently/historically utilized by the Bartlett Arboretum; the Scofieldtown Landfill; Scofield Manor (a former home for indigents that reportedly used pesticides for laundering); a former cattle farm on Larkspur Road near the easterly end of Very Merry Road; the presence of an unknown dark rectangular feature (possibly a lagoon) in the area of 24 Hannahs Road that is visible on a 1934 historic aerial photograph; and area-wide pesticide application around individual homes or for agricultural purposes. There is limited information currently available concerning the majority of these potential sources. However, the Very Merry/Alma Rock Road area represents the most likely area where the source of the pesticide impacts in the bedrock aquifer will be found based on:

- proximity to the most pesticide impacted drinking water wells;
- location at or near the groundwater divide running north-south to the just to the west of Larkspur Road;
- the shallow depth to bedrock; and
- the historic activities in this area which likely involved pesticide handling (e.g., the cattle farm).

Pertinent information concerning the recent TRC investigations completed at the Scofieldtown Landfill and the Bartlett Arboretum property on Brookdale Road are summarized below. ALTA has completed an initial review of the March 2010 TRC report summarizing its investigations of the Scofieldtown Landfill, in which TRC concludes that the landfill is not the source of the area pesticide contamination. TRC installed and tested a total of 3 overburden and 6 shallow bedrock monitoring wells in the area of the landfill, an additional overburden and shallow bedrock well pair immediately to the east of landfill, and two additional shallow bedrock monitoring wells in the Very Merry/Alma Rock Road area. The TRC report indicates the presence of a number of COCs in overburden and/or bedrock groundwater including VOCs, arsenic, and total petroleum hydrocarbons. Dieldrin and chlordane were not found in the water samples collected from the monitoring wells installed by TRC around the landfill. These compounds (and

1,1,1,2-tetrachloroethane and sodium) were detected in the two shallow bedrock wells installed by TRC in the Very Merry/Alma Rock Road area. The TRC report indicates that dieldrin and chlordane (and a number of other pesticides) have been historically detected in soil and sediment samples in the area of the landfill, although ALTA has not had the opportunity to review this information. ALTA does not believe that there is sufficient information to support TRC's conclusion that the landfill is not the source of pesticides based on the following: limited overburden groundwater testing; relatively shallow bedrock monitoring well testing relative to the depth of impacted water supply wells; a hypothesized hydrogeologic divide beneath Poorhouse Brook; a different historical bedrock groundwater regime when water supply wells in this area were active; near absence of soil testing (3 samples); and the presence of elevated sodium in shallow bedrock wells both at the landfill and in the Very Merry/Alma Rock Road area. While the TRC study does not rule out the possibility of the landfill being the source of the pesticide contamination in the Very Merry/Alma Rock Road area, it does not appear to be the most likely source at this time.

ALTA is aware that a Phase I Environmental Site Assessment (ESA) is currently planned for the Bartlett Arboretum. Please note that Phase I ESAs generally evaluate the potential for releases of hazardous substances to the environment based on a review of available records and site reconnaissance, but do not include soil or groundwater testing to evaluate if a release of such substances has occurred. These investigations are typically done during completion of a Phase II investigations, and the degree and extent of impacts from identified release areas is addressed by Phase III investigations. The only testing completed at this property that ALTA is aware of was near-surface soil testing in the localized area of a proposed building construction project, as summarized in the 24 May 2010 letter titled "Soil Sampling Report, Bartlett Arboretum" by TRC. This testing was prompted by the anticipated generation of 800 cubic yards of soil as part of the construction project. TRC's testing results indicated the presence of chlordane at a maximum concentration of 8,700 µg/kg in surficial soil in this area, although the degree and extent of this contamination in soil and the potential impacts to groundwater have not been evaluated. The level of chlordane detected is significantly above the Connecticut Remediation Standard Regulation (RSRs) Residential Direct Exposure Criterion for chlordane of 490 µg/kg. The soil sample was not leached for comparison to the RSR Pollutant Mobility Criteria pertinent to evaluating the potential for chlordane (or other pesticides) to leach into groundwater and the possible characterization of the soil as a RCRA hazardous waste upon generation as a waste.

UCONN Study

In general, the UCONN Study is proposing to complete an evaluation of the source(s) of pesticide contamination in the area most impacted by pesticides based on existing data (i.e., the Very Merry/Alma Rock Road area to the east of the landfill), with a strong focus on potential sources in that neighborhood. The UCONN Study is proposing to complete a three-dimensional evaluation of the distribution of pesticide impacts (and other parameters) in bedrock groundwater using available existing and new bedrock wells and a variety of hydrogeologic testing methods. This evaluation is intended to gain an understanding of potential sources based on the distribution of pesticides and other constituents in bedrock groundwater, combined with contaminant fate and transport mechanisms. The study includes completion of research into area pesticide usage, and soil testing and shallow overburden groundwater monitoring in the Very Merry/Alma Rock Road area to evaluate potential pesticide source(s) in this neighborhood.

The three-dimensional distribution of pesticides in bedrock groundwater may only suggest and certainly not determine the actual source within or outside the Very Merry/Alma Rock Road area in the absence of the UCONN Study finding an overburden pesticide source within this area. An actual source within (or outside) the Very Merry/Alma Rock Road is most readily discovered through appropriately focused overburden groundwater and soil testing within and downgradient of plausible source areas, followed up by the appropriately focused soil testing within the most upgradient portions of overburden plume(s). Potential source areas should be determined by a combination of hydrogeologic setting, Phase I research and the contaminant distribution in the bedrock aquifer. Importantly, the contaminant distribution in bedrock as presently mapped in the Very Merry/Alma Rock Road, combined with appropriate Phase I research, is sufficient to guide the location of shallow overburden monitoring wells and possible soil testing (only where warranted based on overburden groundwater findings) to be able to best evaluate source(s) in this area at far less expense.

The study does not propose to directly evaluate any other potential pesticide sources, or assess impacts to sensitive receptors (e.g., untreated water supply wells), in the broader area surrounding the landfill. The study includes an evaluation of the March 2010 report prepared by TRC entitled "Environmental Investigation Report, Scofieldtown Park Area, Stamford, Connecticut". The UCONN proposal indicates that UCONN may make recommendations for additional work to evaluate the landfill as the source of pesticide contamination, but does not include the completion of any such work in its proposal. In addition, the UCONN Study also reportedly includes a synthesis of available information related to potential contaminant sources "…in the area of interest and surrounding properties", although the work description is focused on the Very Merry/Alma Rock Road area and does not indicate any of the other known potential pesticide sources in the surrounding area.

UCONN Study Objectives

The introduction of the Objective Section generally states that groundwater flow, contaminant fate and transport, and determining contaminant sources in bedrock regimes are complex and poorly understood. ALTA agrees with this statement. The stated objective of the UCONN Study is to address these complex bedrock issues through completion of research in the area of the Scofieldtown Road Park and Landfill, and to use such research to assist the City of Stamford in evaluating potential sources and in making decisions regarding contaminant monitoring and remediation. It is further stated that the study will concentrate on the area of homes east of the Scofieldtown Landfill (referred to herein as the Very Merry/Alma Rock Road area) where public water has already been extended.

To better meet the NSCCE's goals, the objectives of the study should be to assess pesticide and contaminant impacts to water supply wells and other sensitive receptors, and evaluate potential sources of these impacts, in the broader area of pesticide detections surrounding the Scofieldtown Landfill. To meet these objectives, the scope and nature of subsurface investigations in the UCONN Study should ideally be developed following completion of additional representative water supply well testing and Phase I research of the area to identify the scope of the affected area and all potential contaminant sources and for further evaluation. The initial research portion of the study is of paramount importance in developing an appropriately

focused subsurface investigative scope of work that will successfully evaluate these impacts and ultimately identify the source(s) of such impacts.

UCONN Study Recommendations

Following is a review of the proposed UCONN Study and recommendations for improving the proposed study to better evaluate impacts to area-wide water supply wells and the potential source(s) of these impacts. ALTA believes that its recommendations will significantly enhance and focus the UCONN Study at limited additional cost to the City of Stamford. Note that ALTA has substituted the Phase 1 through Phase 4 referred to in the UCONN Study with Part 1 through Part 4 to avoid confusion with Phase I, II, and III Environmental Site Assessments.

ALTA's first recommendation is that the UCONN Study/or other Stamford study being conducted be revised to develop and implement a representative residential water supply well testing program, instead of the 50 randomly selected locations currently proposed. The number and locations of residences proposed for testing should be determined based on an evaluation of which wells are most-likely to be impacted, by considering such factors at a minimum: proximity to potential contaminant source areas and other impacted drinking water wells (with shallower wells being more susceptible to pollution); and geographic location with respect to preferential contaminant migration pathways. The UCONN Study should also include the analysis of VOCs (due to their mobility and detection in groundwater at the landfill) and landfill leachate and other diagnostic parameters to better characterize the nature of the impacts and potential source(s) of contaminants if present. Initial completion of this work item would provide much greater assurance of being protective of human health in the area, and a much better understanding of the necessary scope of the UCONN Study to meet the NSCCE's objectives.

The Part 1 portion of the study indicates completion of a peer review of the TRC study of the Scofieldtown Landfill, and that this review may include recommendations for further work to evaluate whether the landfill is the source of the pesticide contamination. ALTA recommends that following UCONN's proposed review of the TRC report and additional Phase I research regarding the landfill, that additional recommended work items be incorporated into the subsurface investigation portion of the UCONN study as warranted to achieve the goals of the study. ALTA recommends consideration of using existing in-use and/or abandoned water supply wells (e.g., at Scofield Manor, the Scofield Magnet School, Smith House), selected monitoring wells in the area of the landfill, and deeper bedrock monitoring wells between the landfill and the Very Merry/Alma Rock Road area (e.g., on the northern portions of the Scofield Magnet School property) for hydrogeologic and water quality monitoring as part of a revised, subsequent bedrock portion of the UCONN study if warranted (e.g., to gain a better understanding of the bedrock hydrogeology and contaminant distribution in the wider area).

The Part 2 portion of the study indicates completion of Phase I research of available information regarding hydrogeologic setting and potential contaminant sources "in the area of interest and surrounding properties". However, it appears that this portion of the study is focused on potential sources within the Very Merry/Alma Rock Road area. The UCONN Study does not specify how this Phase I research will be incorporated into the Phase II/III subsurface investigations with respect to drilling locations; development of a COC list; development of a

Conceptual Site Model, etc. It also does not appear that evaluation of other sources surrounding this area have been given due consideration. For instance, the need for additional soil and groundwater testing at the Bartlett Arboretum is highlighted by the recent detection of chlordane at a concentration of 8,700 µg/kg in surficial soil at this location. However, the Bartlett Arboretum, which borders the Very Merry/Alma Rock Road area immediately to the south, is not mentioned in the UCONN Study. ALTA recommends that the UCONN Study identify which surrounding properties will be included in Phase I research portion of the study, and the rational for such selection, with such selection flexible to the results of the residential drinking water testing program. ALTA recommends inclusion of at least the following properties be included in the Phase I research portion of the study: the cattle farm; the Bartlett Arboretum; area properties presently/historically utilized by the Bartlett Arboretum; the Scofieldtown Landfill (as noted above); and the Scofield Manor based on the limited Phase I research completed by ALTA. The UCONN Study should then focus on completing subsurface investigations (i.e., overburden groundwater and soil testing) to evaluate releases at areas of concern associated with these locations (i.e., Phase II testing) to assess potential sources of the groundwater impacts in the Scofieldtown area. UCONN may consider utilizing existing bedrock water supply wells at these and other pertinent properties for hydrogeologic and water quality monitoring as part of a revised and subsequent bedrock portion of the UCONN study if warranted.

The Part 2 portion of the study also includes compilation of a bedrock well database in the Very Merry/Alma Rock Road area. ALTA recommends that this database be expanded to encompass the area generally to the south and west of the landfill as part of the development of a representative residential water testing program in light of the detection of pesticides impacts above drinking water standards in these areas. In addition, ALTA recommends that all of the water quality testing results from former and existing public/private water supply wells in this broader area be compiled as part of this effort.

The Part 3 portion of the UCONN Study appears to be focused predominantly on determining whether or not termite treatments, or residential or other surficial use of pesticides (including the cattle farm), in the Very Merry/Alma Rock Road area may have caused the bedrock pesticide contamination in this area, and to better understand the interaction between the overburden and bedrock aquifers. The study seeks access to residential properties to complete such items as soil sampling and testing, property reconnaissance/inspections, installation of monitoring wells and collection and testing of water samples, and measurements of bedrock outcrops, as detailed in Exhibit B to the UCONN Study, entitled "Access and License Agreement". Access for such work is important to achieving the goals of the UCONN Study, to determining the contaminant distribution in bedrock and the bedrock hydrogeology, and to evaluating potential sources in the Very Merry/Alma Rock Road area.

ALTA recommends that access be granted to complete the proposed work scope, although residents should consider consultation with legal counsel regarding potential liability issues associated with the findings of such work. ALTA notes that the collection of shallow groundwater samples and soil samples should be governed by Phase I ESA research and the distribution of contaminants in bedrock, and the proposed testing should be much better defined prior to granting access for such work. ALTA recommends that the testing of shallow groundwater be strictly limited in the Access and License Agreement to the actual COCs documented to be present in bedrock groundwater in the immediate area (e.g., chlordane and

dieldrin) to mitigate potential liability issues associated with the detection of other constituents that are not the subject of this study (e.g., naturally occurring arsenic in bedrock groundwater). Soil testing should be completed only if shown to be warranted based on overburden groundwater quality data, and such soil testing should be subject to separate approval. For example, the chlorinated pesticides DDT and DDE are frequently found in organic topsoil from historic farming, and their discovery through a general chlorinated pesticide analysis could impose undue liability on a homeowner despite these compounds not being the subject of the bedrock groundwater impacts. It is important to note that the Connecticut Department of Environmental Protection (DEP) has an upgradient groundwater policy indicating that it will not hold a property owner responsible for cleaning up groundwater contamination flowing onto one's property, although no such policy exists for impacted soil.

The Part 4 portion of the study entails the bedrock study in the area of the Very Merry/Alma Rock Road area. The possible locations include 8 wells that have not been abandoned; the two shallow bedrock wells installed in the neighborhood by TRC, and seven additional wells that could be drilled in area streets, with additional wells possible pending access to residential wells. As previously noted, the bedrock portion of the study should provide the three-dimensional distribution of pesticides and other sought-after parameters in bedrock and improve the understanding of the interaction between the overburden and bedrock aquifers in the Very Merry/Alma Rock Road area. The three-dimensional distribution of pesticide (and other parameters) in bedrock groundwater may or may not point to a source outside the neighborhood.

The contaminant distribution in bedrock as presently mapped in the Very Merry/Alma Rock Road, combined with appropriate Phase I ESA research, is sufficient to guide the location of shallow overburden monitoring wells and soil sampling to be able to best evaluate source(s) in this area at far less expense than this portion of the UCONN Study. ALTA recommends that the UCONN Study include completion of the residential water supply well sampling and Phase I ESA research portions of the work scope first, followed by focused subsurface groundwater investigations in the overburden in and downgradient of identified potential source areas, mindful of the location of subsurface sanitary septic systems with subsequent soil testing in th most upgradient portions of overburden plume(s). The UCONN Study could then develop a more representative bedrock study (using many of the same techniques proposed in the present UCONN study) to the extent warranted by the findings of this initial work scope.

Summary

The UCONN Study proposal states in the Anticipated Results and Benefits section: "On a site-specific basis, we anticipate resolving the source(s) of pesticide contamination to the residential wells." ALTA contends that this statement could be true only if the source(s) are documented in the Very Merry/Alma Rock Road area. In the absence of such a finding, the results of the UCONN Study may only point to other potential source(s) based a much improved understanding of the hydrogeologic setting and contaminant distribution.

In ALTA's opinion, the scope of the proposed UCONN study is too narrowly focused on finding a source in the Very Merry/Alma Rock Road area to the detriment of protecting human health and the environment in the broader area of pesticide impacted wells in North Stamford, and gaining an area-wide understanding of the degree and extent of impacted drinking water supply

wells, other potential contaminant sources, overburden groundwater contaminant distribution, and hydrogeology in the area of all such impacted wells. Completion of a representative drinking water supply testing program, area-wide Phase I research, and a review of the TRC reports concerning the landfill and the Bartlett Arboretum should form the basis for a more comprehensive approach to evaluating impacts and potential sources in the broader area of the Scofieldtown Landfill. Furthermore, the subsequent investigations should be strategically focused first on evaluating overburden groundwater quality and flow directions in potential source areas, followed by soil testing in specific areas determined through overburden groundwater quality findings, flow directions and Phase I research regarding potential sources. Lastly, completion of a revised bedrock study should be considered to the extent warranted by the findings of the above work scope.

In summary, ALTA recommends the following for incorporation into the proposed UCONN Study:

1. Develop and implement a representative residential water supply well testing program, based on an evaluation of which wells are most-likely to be impacted, by considering such factors at a minimum: proximity to potential contaminant source areas and other impacted drinking water wells (with shallower wells being more susceptible to pollution); and geographic location with respect to preferential contaminant migration pathways. The well testing should be focused on a COC list that is protective of human health and diagnostic of potential contaminant sources;

2. Complete a peer review of the TRC study of the Scofieldtown Landfill, and incorporate additional recommended work items into the subsurface investigation portion of the UCONN Study as warranted to achieve the goals of the study;

3. Complete Phase I research of available information regarding hydrogeologic setting and potential contaminant sources in the areas the Very Merry/Alma Rock Road area, and area south and west of the landfill, with the bounds of that area to be determined based on the findings of the residential water testing program and review of the TRC reports on the landfill and the Bartlett Arboretum. ALTA notes that NSCCE has gathered Phase I research information from some of the area, and has indicated they would happy to provide such to UCONN;

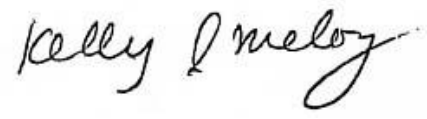
4. Develop a Phase II/III subsurface investigation work scope based on the findings of Work Items 1 through 3 (the initial work scope). These investigations should be focused on evaluation of overburden and/or shallow bedrock (where no overburden water exists) groundwater quality and flow directions, with subsequent soil testing in potential contaminant source areas consistent with the findings of the shallow groundwater testing results, groundwater flow directions, as well as Phase I research regarding potential source areas; and,

5. Complete the bedrock portion of the UCONN Study to the extent warranted, expanding or revising the study area boundaries based on the findings of the above work items to address contaminant distribution, fate and transport mechanisms, and potential contaminant sources impacting area water supply wells.

Incorporation of the above work elements into the UCONN Study, and completion of such work items in a step-wise manner, should be protective of human health and the environment, cost-effective and allow for a conclusive determination of the source of pesticide and other impacts to water supply wells in the expanded study area of the Scofieldtown Landfill. ALTA would encourage UCONN and the City of Stamford to continue to allow NSCCE to comment on the proposed revisions and at key milestones during the course of the study. At the discretion of the NSCCE, ALTA would agree to assist in future phases of the proposed study.

Thank you for considerations of these recommendations.

Sincerely yours,
ALTA Environmental Corporation



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