DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)
Migration of Contaminated Groundwater Under Control

Facility Name: **Wallingford Landfill**
Facility Address: **Pent Road, Wallingford, CT 06492**
Facility EPA ID #: **CTD991288960**

1. Has **all** available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

   Y If yes - check here and continue with #2 below **or with page 1a.**
   _ If no - re-evaluate existing data, or
   _ if data are not available, skip to #8 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

**** ACRONYMS and ABBREVIATIONS used in responses on this form are given at the end of the form.**

SITE BACKGROUND INFORMATION (Refer to Fig. 1 and 2, area and site maps)

Site Location / Environmental Setting

The Wallingford Landfill (WL) is situated on a 82-acre parcel of land. The site is bounded by the Quinnipiac River to the west, the Wallingford Sewage Treatment Plant to the north, South Cherry Street and Pent Road to the east and undeveloped land the south. The undeveloped land, formerly known as Barbarino Property , reportedly has been recently purchased by Connecticut Resources Recovery Authority (CRRA). Henry's Trailer Park which for several decades had been located in the southeastern corner of the Barbarino Property, 1,000 feet south of the landfill, is currently abandoned.
The groundwater underlying the landfill is classified by CT DEP as GC; surrounding areas are classified as GB. This indicates that the groundwater is known or assumed to be unsuitable for direct human consumption. Residential and commercial properties within 2500 ft of the landfill are served by public water supply.
The Quinnipiac River in this area is rated as C/B. This indicates that water in the river presently is not meeting the water quality criteria for a B classification. The goal is to upgrade the quality of water to Class B, which allows recreational use, fish and wildlife habitat, agricultural and industrial water supply, and navigation.

Landfill Description

WL is a municipal landfill being managed by CRRA under lease from the Town of Wallingford since 1988. It is currently not receiving waste. WL is divided into 4 parts (Fig. 2):

1. The Municipal Solid Waste (MSW) Landfill area is located in the central portion of the site on approximately 30 acres. The most part of MSW is under final cover (clean fill and topsoil) and presently vegetated. A 1989 western extension of MSW, which was used until recently (2001) for non-processibles and emergency by-pass of solid waste from the CRRA Wallinfgord Waste to Energy Facility, is covered by clean fill only. The final closure of this area including grading, covering with topsoil and vegetation is expected in 2002.
2. The Ash Residue Disposal Landfill is located in the southern portion of the WL on approximately 12 acres. This part was permitted in 1989 for ash residue derived from combusting waste and was closed in 1996 with a final cover that included a synthetic membrane.
3. The Bulky Waste Landfill located in the northeastern portion of the WL on approximately 8 acres. This part was permitted in 1975 and closed with the final cover in 1992.
4. The Metal Hydroxide Sludge Landfill ("Cell") is located in the northwestern portion of the landfill. The cell was in operation since the middle 1960s until 1984. On November 19, 1980, the hydroxides were regulated under RCRA. The RCRA regulated area was approximately 1 acre. The "unregulated" sludges, those disposed of prior to November 19, 1980, occupied from 2 to 3 acres. Both the regulated and unregulated areas were closed in 1986. A RCRA cap, which includes a 20-mil synthetic membrane, was installed above the regulated sludges only.

Hydrogeologic Site Characterization

Unconsolidated sediments beneath the site include 3 units overlying sedimentary bedrock or glacial till:

- The uppermost unit (the upper aquifer), consists of sands, fine gravels and silts and varies from 12 to 75 ft in thickness. The unit exhibits moderate to high permeability.
- A silt and clay unit which is laterally continuous across the site and considered a local aquiclude with a thickness from 40 to 140 ft.
- The lower unit (the lower aquifer) consists of fine/medium sand with clay and silt and varies between 10 and 70 ft in thickness. The unit exhibits high to very high permeability.

The thickness or lateral continuity of till has not been delineated.
The bedrock is from 150 to 225 ft below the grade and consists of the New Haven Arkose (a mixture of arkosic conglomerate, sandstone and siltstone).

Hydrogeology The site is located on a flood plain of the Quinnipiac River, which flows southerly immediately west of the site. The groundwater table ranges from 3 to 35 feet below the ground surface. Most of the groundwater from the upper unit discharges into the river and an adjacent wetland. A confining clay unit seems to be an effective barrier to vertical migration of groundwater and the leachate contaminants from the upper unit to lower unit in the vicinity of the landfill. Groundwater flow in the lower aquifer is generally to the southwest and is influenced by pumping of the production wells on neighboring properties (Cytec).

Groundwater Monitoring Program

Groundwater study at the site was initiated in 1981. Currently, groundwater monitoring has been conducted in compliance with both landfill permitting requirements and post-closure requirements for the RCRA metal hydroxide cell. The current monitoring program was implemented in the first quarter of 1989.
22 wells have been included in quarterly groundwater monitoring: 15 wells are screened in the upper aquifer from 5-15 ft to 65-75 ft below grade; 7 wells are screened in the lower aquifer from 60-70 ft to 190-200 ft below grade. Well completion details are summarized in Table 1; the locations of the wells are on Figure 2. The monitoring parameters are provided in Table 2. The current network of wells seems to be adequate to provide sufficient data on local groundwater flow and chemical characteristics for all parts of the landfill.

Groundwater Quality

The groundwater quality evaluation is based on analytical results of monitoring from 1981 to 2002. Historically, analysis of groundwater quality data in the reports has been performed for different parts of the landfill by grouping well data according to the purpose/location of well. The findings made in this determination are in general agreement with the results of the analysis presented in the 1999-2001 annual reports and in the 2002 quarterly reports (Ref. 2-5). Specifically, this reviewer refers readers to Tables 4 and 6 of the latest 2001 report (Ref. 3) which summarize the analytical data, including the constituents which have exceeded "comparative standards". Origin of comparative water standards can be seen in Table 7 from the same report. Table 2 attached to this determination is a copy of Table 4 from Ref. 3. The data from this table will be analyzed and discussed below.

2. Is **groundwater** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

Y If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

_ If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

_ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

1) **Risk-based levels for groundwater are promulgated by Connecticut Remediation Standard Regulations (CT RSR) are presented in Appendix (Table D). As the subject site is classified as a GB area, the following CT RSR criteria are applicable: (a) Surface Water Protection Criteria (SWPC); (b) Volatilization Criteria (VC); (c) the groundwater must be contaminated in a manner that interferes with any existing use of the groundwater.**
Although the groundwater at the subject site is not classified as potable, the other appropriate standards to identify contaminants are referenced as follows:
-Federal Drinking Water Standards (DWS) -Maximum Contaminant Levels (MCL);
-Secondary Drinking Water Standards(SDWS) -Maximum Contaminant Levels (SMCL);
-Standards determined by the CT Department of Health Services (DOHS).

2) **Based on 1981-2002 groundwater monitoring data, the contaminants at the site are:**
Leachate indicator parameters: total dissolved solids (TDS), specific conductance, alkalinity, ammonia, hardness, turbidity.
Inorganic: barium, chloride, cyanide, iron, manganese, sodium.
Volatile organic compounds (VOCs): benzene, trichloroethylene (TCE), vinyl chloride (VC).

3) **Groundwater quality data observed in 2001 are presented in Table 4 (Ref. 3). Based on the data, this reviewer has noted the following:**
The constituents that regularly exceeded standards were:
-In the upper aquifer:
barium (most wells; up to 4.01 mg/l in well MW-200 compared with standard of 1 mg/l);
chloride (wells MW-5, MW-10, MW-10A, MW-12, MW-200; up to 2,300 mg/l in well MW-10 compared with standard of 250 mg/l);
iron (most wells; up to 89.6 mg/l in well MW-2A compared with standard of 0.3 mg/l);
manganese (all wells; up to 14.4 mg/l in well MW-10 compared with standard of 0.05 mg/l);
sodium (most wells; up to 526 mg/l in well MW-10 compared with standard of 28 mg/l);
turbidity (most wells, up to 44.3 NTU in well MW-11 compared with standard of 5 NTU);
-In the lower aquifer: trichloroethene (wells MW-3A, MW-11A, MW-100A; up to 25 ug/l in well MW-11A compared with standard of 5 ug/l)).
The contaminants that exceeded standards in the upper aquifer sporadically were: zinc, benzene, trichloroethylene and vinyl chloride.

4) **No significant levels of any Appendix IX metals were observed downgradient of the metal hydroxide cell. The contaminants and their distribution allow the conclusion that the municipal landfill, not the cell, Is the major source of contamination to groundwater at the site.**

Footnotes:

[1]"Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"[2] as defined by the monitoring locations designated at the time of this determination)?

Y If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"[2]).

_ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"[2]) - skip to #8 and enter "NO" status code, after providing an explanation.

- If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

The down-gradient extent of the plume in the shallow groundwater is beyond the landfill area. It appears that the plume is at steady state.
Groundwater flow in the lower aquifer is generally to the southwest and is influenced by pumping of the production wells on neighboring properties (Cytec).

Groundwater contamination within the upper aquifer appears not to have affected water quality within the lower aquifer due to a confining layer between two aquifer units. The confining clay unit seems to be an effective barrier to vertical migration of groundwater and leachate contaminants from the upper unit to lower unit in the vicinity of the landfill. The monitoring data from the water well screened in the lower aquifer at Henry's Trailer Park support this conclusion.

Elevated concentrations of organic compounds were found in the deep wells located on the northwest edge of the landfill, sidegradient of the groundwater flow in the lower aquifer, but downgradient of the groundwater flow in the upper aquifer. Concentrations of organic compounds in the shallow wells are much lower than in the deep wells. These contaminant distributions indicate that sources of VOC contamination may exists northeast of the site and not from the landfill.

[2] "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

Y If yes - continue after identifying potentially affected surface water bodies.

_ If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

_ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

Most of the groundwater from the upper unit discharges into the Quinnipiac River and an adjacent wetland northwest, west and southwest of the landfill.

5. Is the **discharge** of "contaminated" groundwater into surface water likely to be **"insignificant"** (i.e., the maximum concentration[3] of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

- If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration[3] of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

NO If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration[3] of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations[3] greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

- If unknown - enter "IN" status code in #8.

Rationale and Reference(s):
Connecticut Public Act 98-134 (effective since October 1, 1998) identifies specific environmental hazards that require notification to the CTDEP. These include groundwater contamination discharging into a surface water body or wetland detected at levels 10 times the acute aquatic life criteria or a calculated criteria based upon site specific dilution. Site data collected in 1999-2002 have identified a threatened surface water hazard due to exceedances of the threshold concentration consistently for ammonia and randomly for copper and cyanide. The 2001-2002 data have identified the following exceedances for ammonia:

-

Parameter	10x-Acute	Well /Date	1/10/01	4/2/01	7/17/01	10/12/01	1/24/02	4/18/02	7/10/02
Ammonia	99 mg/l	MW-100	**104**	**119**	**100**	**100**	**170**	**140**	**110**
		MW-101R	78.7	73.4	73	**110**	74	78	83
		MW-200	**181**	11.2	13	11	19	18	13

-

Samples collected from wells MW-11, MW-100, MW-101R and MW-200 are representative of groundwater quality likely discharging to the Quinnipiac River. As a follow-up to the notifications of significant environmental hazard, an evaluation of the effect of ammonia loading in the groundwater discharge from the landfill on ammonia concentrations in the Quinnipiac River was conducted. The calculations have indicated that, for four separate monitoring events, concentrations of ammonia in the river were far below the chronic toxicity criterion (Ref. 1a).
The pollutant load of the landfill to the Quinnipiac River, as defined by the Ultimate Oxyden Demand (UOD) of the leachate, has been less than the permit requirements.

3 As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented)?

YES If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR
2) providing or referencing an interim-assessment,[5] appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_ If no - (the discharge of "contaminated" groundwater can not be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s):

In a September 5, 2002 letter, DEP approved the evaluation of the significant environmental hazard identified at the site as currently acceptable (Ref. 1b).

[4] Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

[5] The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

YES_ If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

_ If no - enter "NO" status code in #8.

_ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

Groundwater monitoring at the landfill will continue on a quarterly basis.

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

YES_ YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the **Wallingford Landfill and Metal Hydroxide Cell 1** facility, EPA ID # **CTD991288960**, located at **Pent Road, Wallingford, CT 06492.** Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater". This determination will be re evaluated when the Agency becomes aware of significant changes at the facility.

_ NO - Unacceptable migration of contaminated groundwater is observed or expected.

- IN - More information is needed to make a determination.

Completed by (signature)_____ Date **September 10, 2002**
(print) **Gennady G. Shteynberg**
(title) **Environmental Analyst 3**

Supervisor (signature) John England Date **September 24, 2002**
(print) **John England**
(title) **Supervising Sanitary Engineer, Waste Management Bureau**

Locations where References may be found:

1) Connecticut Department of Environmental Protection, File Room, 79 Elm Street, Hartford, CT 06106
2) US EPA Region I, John F. Kennedy Federal Building, Boston, MA 02203

List of Major References

1a) **Evaluation of Ammonia Impact to Surface Waters. Prepared by Environmental Risk Limited (ERL), Bloomfield, CT, July 9, 2002**

1b) **Letter to P. Egan, CRRA from M. Harder, DEP (Approval of Evaluation of Ammonia Impact to Surface Waters). September 5, 2002**

2) **Quarterly Monitoring Reports for First, Second and Third Quarters 2002. Prepared by ERL, dated February, June and August 2002.**

3) **2001 Annual Monitoring Report. CRRA/Wallingford Landfill, Wallingford, CT. Prepared by ERL, dated December 2001.**

4) **Annual Monitoring Report 2000. CRRA/Wallingford Landfill, Wallingford, CT. Prepared by HRP Associates, Inc., Plainville, CT, dated April 2001.**

5) **Annual Monitoring Report 1999. CRRA/Wallingford Landfill, Wallingford, CT. Prepared by HRP, dated March 2000.**

6) **RCRA Comprehensive Monitoring Evaluation (CME) Summary Memo for Wallingford Landfill. Prepared by G. Shteynberg, DEP, September 14, 1994.**

7) **Part B Post-Closure Permit Application for Wallingford Landfill Metal Hydroxide Cell, Wallingford, CT. Books I-II, December 1991. Prepared by CRRA and Town of Wallingford.**

Figures: 1. Site Location Map (Reference 1). 2. Inferred Groundwater Contours (Reference 2)
Tables: 1. Monitoring Well Completion Details. 2. 2001 Summary of Monitoring Results
Appendix: 1 Survey of Numerical Criteria, CTDEP Remediation Standard Regulations
2 Acronyms and Abbreviation List

Contact telephone and e-mail numbers:

(name) **Gene Shteynberg**
(phone #) **(860) 424-3283**
(e-mail) **gennady. shteynberg@po.state.ct.us**

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YES_ YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the **Wallingford Landfill and Metal Hydroxide Cell 1** facility, EPA ID # **CTD991288960**, located at **Pent Road, Wallingford, CT 06492.** Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater". This determination will be re evaluated when the Agency becomes aware of significant changes at the facility.

_ NO - Unacceptable migration of contaminated groundwater is observed or expected.

- IN - More information is needed to make a determination.

Completed by (signature) Gennady Shteynberg Date **September 10, 2002**
(print) **Gennady G. Shteynberg**
(title) **Environmental Analyst 3**

Reviewed by
David Lim 9/30/02
David Lim
RCRA Corrective Action Sect.

Supervisor (signature)_____ Date **September , 2002**
(print) **Oswald Inglese**
(title) **Assistant Director, Waste Management Bureau**

Approved by
9/30/02
Matthew Hourigan, Chief
RCRA Corrective Action Sect.

Locations where References may be found:
1) Connecticut Department of Environmental Protection, File Room, 79 Elm Street, Hartford, CT 06106
2) US EPA Region I, John F. Kennedy Federal Building, Boston, MA 02203

List of Major References

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ACRONYMS AND ABBREVIATIONS LIST

Cd	**cadmium**
CT DEP	**Connecticut Department of Environmental Protection**
CT RSR	**Connecticut Remediation Standard Regulations**
DEC	**direct exposure criteria**
GB area	**area where the groundwater classification is GB (established by CT Water Quality Standards)**
GW	**groundwater**
I/C	**industrial/commercial**
MC	**methylene chloride**
mg/kg	**micrograms per kilogram**
NAPL	**non-aqueous phase liquid**
Ni	**nickel**
PCB	**polychlorinated biphenyl**
PCE	**tetrachloroethene**
PMC	**pollutant mobility criteria**
ppb	**parts per billion**
ppm	**parts per million**
SPLP	**synthetic precipitation leaching procedure**
SWPC	**surface water protection criteria**
TCA	**trichloroethane**
TCE	**trichloroethene**
TCLP	**Toxicity Characteristic Leaching Procedure EPA Method 1311**
TPH	**total petroleum hydrocarbons**
ug/l	**micrograms per liter**
VC	**volatilization criteria**
VOCs	**volatile organic compounds**
Zn	**zinc**

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: **Wallingford Landfill**
Facility Address: **Pent Road, Wallingford, CT 06492**
Facility EPA ID #: **CTD991288960**

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

YES If yes - check here and continue with #2 below **or with page 1a.**
_ If no - re-evaluate existing data, or
_ if data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

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Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

***** ACRONYMS and ABBREVIATIONS used in responses on this form are given at the end of the form.**

SITE BACKGROUND INFORMATION (Refer to Fig. 1 and 2, area and site maps)

Site Location / Environmental Setting

The Wallingford Landfill (WL) is situated on a 82-acre parcel of land. The site is bounded by the Quinnipiac River to the west, the Wallingford Sewage Treatment Plant to the north, South Cherry Street and Pent Road to the east and undeveloped land the south. The undeveloped land, formerly known as Barbarino Property , reportedly has been recently purchased by Connecticut Resources Recovery Authority (CRRA). Henry's Trailer Park which for several decades had been located in the southeastern corner of the Barbarino Property, 1,000 feet south of the landfill, is currently abandoned.

The groundwater underlying the landfill is classified by CT DEP as GC; surrounding areas are classified as GB. This indicates that the groundwater is known or assumed to be unsuitable for direct human consumption. Residential and commercial properties within 2500 ft of the landfill are served by public water supply.
The Quinnipiac River in this area is rated as C/B. This indicates that water in the river presently is not meeting the water quality criteria for a B classification. The goal is to upgrade the quality of water to Class B, which allows recreational use, fish and wildlife habitat, agricultural and industrial water supply, and navigation.

Landfill Description

WL is a municipal landfill being managed by CRRA under lease from the Town of Wallingford since 1988. It is currently not receiving waste. WL is divided into 4 parts (Fig. 2):

1. The Municipal Solid Waste (MSW) Landfill area is located in the central portion of the site on approximately 30 acres. The most part of MSW is under final cover (clean fill and topsoil) and presently vegetated. A 1989 western extension of MSW, which was used until recently (2001?) for non-processibles and emergency by-pass of solid waste from the CRRA Wallinfgord Waste to Energy Facility, is covered by clean fill only. The final closure of this area including grading, covering with topsoil and vegetation is scheduled for Spring 2002.
2. The Ash Residue Disposal Landfill is located in the southern portion of the WL on approximately 12 acres. This part was permitted in 1989 for ash residue derived from combusting waste and was closed in 1996 with a final cover that included a synthetic membrane.
3. The Bulky Waste Landfill located in the northeastern portion of the WL on approximately 8 acres. This part was permitted in 1975 and closed with the final cover in 1992.
4. The Metal Hydroxide Sludge Landfill ("Cell") is located in the northwestern portion of the landfill. The cell was being in operation since the middle 1960s till 1984. On November 19, 1980, the hydroxide sludges were regulated under RCRA. The "unregulated" sludges, those disposed of prior to November 19, 1980, occupied from 2 to 3 acres. The RCRA regulated area was approximately 1 acre. The both areas were closed in 1986. The regulated unit was covered with a RCRA cap, which includes a 20-mil synthetic membrane.

Hydrogeologic Site Characterization

Unconsolidated sediments beneath the site include 3 units overlying sedimentary bedrock or glacial till:

- The uppermost unit (the upper aquifer), consists of sands, fine gravels and silts and varies from 12 to 75 ft in thickness. The unit exhibits moderate to high permeability.
- A silt and clay unit which is laterally continuous across the site and considered a local aquiclude with a thickness from 40 to 140 ft.
- The lower unit (the lower aquifer) consists of fine/medium sand with clay and silt and varies between 10 and 70 ft in thickness. The unit exhibits high to very high permeability.

The thickness or lateral continuity of till has not been delineated.
The bedrock is from 150 to 225 ft below the grade and consists of the New Haven Arkose, (a mixture of arkosic conglomerate, sandstone and siltstone).

Hydrogeology The site is located on a flood plain of the Quinnipiac River, which flows southerly immediately west of the site. The groundwater table ranges from 3 to 35 feet below the ground surface. Most of the groundwater from the upper unit discharges into the river and an adjacent wetland. A confining clay unit seems to be an effective barrier to vertical migration of groundwater and the leachate contaminants from the upper unit to lower unit in the vicinity of the landfill. Groundwater flow in the lower aquifer is generally to the southwest and is influenced by pumping of the production wells on neighboring properties (Cytec).

Groundwater Monitoring Program

Groundwater study at the site was initiated in 1981. Currently, the groundwater monitoring has been conducted in compliance with both landfill permitting requirements and post-closure requirements for the RCRA metal hydroxide cell. The current monitoring program was implemented in the first quarter of 1989.
22 wells have been included in quarterly groundwater monitoring: 15 wells are screened in the upper aquifer from 5-15 ft to 65-75 ft below grade; 7 wells are screened in the lower aquifer from 60-70 ft to 190-200 ft below grade. Well completion details are summarized in Table 1; the locations of the wells are on Figure 2. The monitoring parameters are provided in Table 2. The current network of wells seems to be adequate to provide sufficient data on local groundwater flow and chemical characteristics for all parts of the landfill.

Groundwater Quality

The groundwater quality evaluation is based on analytical results of monitoring from 1991 to 2001. Historically, analysis of groundwater quality data in the reports has been performed for different parts of the landfill by grouping well data according to the purpose/location of well. The findings made in this determination are in general agreement with the results of the analysis presented in the 1999-2001 annual reports (Ref. 1-3). Specifically, this reviewer refers readers to Tables 4 and 6 of the latest 2001 report (Ref. 1) which summarize the analytical data, including the constituents which have exceeded "comparative standards". Origin of comparative water standards can be seen in Table 7 from the same report. Table 2 attached to this determination is acopy of Table 4. The data from this table will be analyzed and discussed below.

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	**Y**	-	-	**Based on 1981-2001 groundwater monitoring data / Leachate indicator parameters: total dissolved solids (TDS), specific conductance, alkalinity, ammonia, hardness. Inorganic: barium, chloride, copper, cyanide, iron, manganese, sodium. Volatile organic compounds (VOCs): benzene, chloroform, trichloroethylene (TCE), vinyl chloride (VC).**
Air (indoors)[2]	-	-	**?**	**Methane may be present in a dog pound and in the vicinity of an attendant's trailer. Routine monitoring in the dog pound has not detected methane at unacceptable level.**
Surface Soil (e.g. <2 ft)	-	**N**	-	**Most of the landfill has final cover (clean fill and topsoil) and presently vegetated. A RCRA regulated metal hydroxide cell has been covered also by a synthetic membrane. The only western part of the landfill, so called Non–Processible Emergency Bypass Solid Waste Disposal Area, is covered by clean fill only. The final closure of this area including grading, covering with topsoil and vegetation is scheduled for Spring 2002.**
Surface Water	**Y**	-	-	**1993-2001 surface water monitoring data downgradient (south) of the landfill, at the former Barbarino Property and the former trailer park site. The contaminants are: Leachate indicator parameters: TDS, specific conductance, alkalinity, ammonia, hardness. Inorganic: barium, chloride, copper, cyanide, iron, manganese, sodium. No data are available for wetland areas and the Quinnipiac River at the vicinity of the landfill.**
Sediment	-	-	**?**	**Sediment sampling data are not available. Sediments may be contaminated by groundwater discharges.**
Subsurface Soil (e.g.,>2 ft)	**Y**	-	-	**1960s-2001 landfill operations data / Municipal solid waste (mixed residential, commercial and industrial); ash residue from waste-to-energy facility; potential hazardous waste residue.**
Air (outdoors)	-	**N**	-	**The volume and concentrations of the landfill gases can be assumed to be low due to the fact that most waste was disposed of there 15 and more years ago. A methane migration problem toward the east was mitigated through the construction of a venting system in the summer of 1984.**

_ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels" and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

Y If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

1) **Risk-based levels used for each medium are as follows (Appendix 1):**

Groundwater: Connecticut Remediation Standard Regulations (CT RSR) which include for GB areas:

- **Surface Water Protection Criteria (SWPC);**
- **Volatilization Criteria (VC);**
- **no interference with any existing use of the groundwater.**

Indoor & Outdoor Air: CT RSR Industrial/Commercial Volatilization Criteria (I/C VC).

Subsurface Soil: CT RSR Industrial/Commercial Direct Exposure Criteria (I/C DEC) and Pollutant Mobility Criteria (PMC) in soils for GB areas.

2) **Groundwater Observed in 2001 groundwater quality data are presented in Table 2 attached. Based on the data, this reviewer has noted the follows:**

The constituents that regularly exceeded standards were:

-In the upper aquifer:

barium (most wells; up to 4.01 mg/lin well MW-200 compared with standard of 1 mg/l);
chloride (wells MW-5, MW-10, MW-10A, MW-12, MW-200; up to 2,300 mg/lin well MW-10 compared with standard of 250 mg/l);
iron (most wells; up to 89.6 mg/l in well MW-2A compared with standard of 0.3 mg/l);
manganese (all wells; up to 14.4 mg/l in well MW-10 compared with standard of 0.05 mg/l);
sodium (most wells; up to 526 mg/l in well MW-10 compared with standard of 28 mg/l);
turbidity (most wells, up to 44.3 NTU in well MW-11 compared with standard of 5 NTU);

-In the lower aquifer:

TCE (wells MW-3A, MW-11A, MW-100A; up to 25 ug/l in well MW-11A compared with standard of 5 ug/l)).

The contaminants that exceeded standards in the upper aquifer sporadically were: zinc, benzene, TCE and vinyl chloride.

Footnotes:

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?
Summary Exposure Pathway Evaluation Table

	Potential **Human Receptors** (Under Current Conditions)						
"Contaminated" Media	Residents	Workers	Day Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	**No**	**No**	**No**	**No**			**No**
Air (indoors)	**No**	**No**					
~~Soil (surface, e.g., <2 ft)~~							
Surface Water	**No**	**No**			**Yes**	**Yes**	**Yes**
Sediments	**No**	**Yes**			**Yes**	**Yes**	**Yes**
Soil (subsurface e.g., >2 ft)				**No**			**No**
~~Air (outdoors)~~							

Instructions for Summary Exposure Pathway Evaluation Table:
1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated") as identified in #2 above.
2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

_ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

Y If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination)- continue after providing supporting explanation.

_ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale and Reference(s):

Groundwater Pathways: Groundwater at the site is classified as GB. The shallow groundwater flow is northwest, west and southwest towards the Quinnipiac River. The shallow groundwater at the landfill and south of the landfill is impacted by leachate. In general, concentrations of the above contaminants decrease with distance from the landfill. There is no use of contaminated groundwater from the upper aquifer. Closure design (a synthetic impermeable cover for the hazardous waste cell and final cover for other parts of the landfill; a drainage system) minimizes groundwater contamination and exposure pathways. A monitoring program identifying current impacts and any future problems is operative.

Indoor Air Pathways: exposure to methane is monitored and is expected to be unlikely.

Surface Water and Sediments Pathways: Closure design (a synthetic impermeable cover for the RCRA cell and final cover for other parts of the landfill; a drainage system; vegetation) minimizes surface water contamination and exposure pathways. Workers and trespassers may contact the Quinnipiac River water and sediments. However, exposure is expected to be insignificant and unlikely due to the security measures and the inaccessibility of the river. Risk due to bioaccumulation and consumption of fish is unknown. Further evaluation of contaminants in sediments and surface water in the river in the vicinity of the landfill is recommended.

Subsurface Soil Pathways: Exposure considered unlikely due to the final cover of the waste and routine inspection and maintenance procedures.

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc)

4 Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

No_ If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s): **Exposures are not expected to be significant based on the following:**

Groundwater

The shallow groundwater at the landfill and south of the landfill is impacted by landfill leachate. In general, concentrations of the above contaminants decrease with distance from the landfill. Based on the last 5-7 years of monitoring data, groundwater quality is relatively stable (Ref. 1-3). The shallow groundwater flow is northwest, west and southwest towards the Quinnipiac River where significant dilution of contaminated groundwater is anticipated.

Based on extensive investigations conducted on behalf of the CRRA at the former Barbarino property, leachate appears to migrate to the base of the shallow aquifer. The southward extent of the plume in the shallow groundwater appears to be beyond the former trailer park location and the Barbarino's southern property line which is about 1000 feet south of the WL.

The deeper groundwater flows southwest and is greatly influenced by pumping of the production wells on neighboring properties (Cytec). Low hydraulic conductivity of the silt and clay unit is likely limited or prevented migration of leachate below base of the upper aquifer.

Surface Water & Sediments

The surface water in the Quinnipiac River in the vicinity of the Wallingford landfill is rated as C/B. Shallow groundwater from the landfill area is discharging to the Quinnipiac River and appears to impact the quality of water in the river. Trespassers' exposures to the Quinnipiac River water and sediments are expected to be insignificant due to minimal magnitude of contamination. The exposures also unlikely due to the security measures (fence against trespassing)* and the inaccessibility (vegetation, mud) of the river.

Some impact on the Quinnipiac River was documented upstream, from the Wallingford Sewage Treatment Plant.

[4] If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

* Per Conversation with John England on 9/30/02, fencing can prevent human exposure to any contamination, if it exists in the wetland.

5 Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

_ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

_ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s):

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

Yes YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the **Wallingford Landfill and Metal Hydroxide Cell** facility, EPA ID # **CTD991288960**, located at **Pent Road, Wallingford, CT 06492** under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

_ NO - "Current Human Exposures" are NOT "Under Control."

_ IN - More information is needed to make a determination.

Completed by (signature) Gennady Shteynberg Date **February 21, 2002**
(print) **Gennady G. Shteynberg**
(title) **Environmental Analyst 3**

Reviewed by
David Lim 9/30/02
David Lim
EPA - Region 1
RCRA Corrective Action Section

Supervisor (signature) John England Date ~~**February**~~ , **2002**
May 8,
(print) **John England**
(title) **Supervising Environmental Analyst**

Approved by
9/30/02
Matthew Hoagland Chief
RCRA Corrective Action Section

Locations where References may be found:
1) Connecticut Department of Environmental Protection, File Room, 79 Elm Street, Hartford, CT 06106
2) US EPA Region I, John F. Kennedy Federal Building, Boston, MA 02203

List of Major References

1 **2001 Annual Monitoring Report. CRRA/Wallingford Landfill, Wallingford, CT; December 2001. Prepared by Environmenal Risk Limited, Bloomfield, CT. DEP File.**
2 **Annual Monitoring Report 2000. CRRA/Wallingford Landfill, Wallingford, CT; April 3, 2001. Prepared by HRP Associates, Inc., Plainville, CT. DEP File.**
3 **Annual Monitoring Report 1999. CRRA/Wallingford Landfill, Wallingford, CT; March 23, 1999. Prepared by HRP Associates, Inc., Plainville, CT. DEP File.**
4 **RCRA Comprehensive Monitoring Evaluation (CME) Summary Memo for Wallingford Landfill. Prepared by G. Shteynberg, DEP, September 14, 1994. DEP File.**
5 **Part B Post-Closure Permit Application for Wallingford Landfill Metal Hydroxide Cell, Wallingford, CT. Books I-II, December 1991. Prepared by CRRA and Town of Wallingford. DEP File.**

Figures: 1. Site Location Map (Reference 1). 2 Inferred Groundwater Contours (Reference 2)
Tables: 1. Monitoring Well Completion Details. 2. 2001 Summary of Monitoring Results (Table 4 in Ref. 1)
Appendix: 1 Survey of Numerical Criteria, CTDEP Remediation Standard Regulations
2 Acronyms and Abbreviation List

Contact telephone and e-mail numbers:
(name) **Gene Shteynberg**
(phone #) **(860) 424-3283**
(e-mail) **gennady. shteynberg@po.state.ct.us**

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

September 5, 2002

Peter W. Egan
Director of Environmental Services
Connecticut Resources Recovery Authority
100 Constitution Plaza
Hartford, CT 06103-1722

RE: CRRA / Wallingford Landfill - Evaluation of Ammonia Impact to Surface Waters

Dear Mr. Egan:

Your letter report, "CRRA Wallingford Landfill - Evaluation of Ammonia Impact to Surface Waters", dated July 9, 2002 has been reviewed. This evaluation of the effect of ammonia loading in the groundwater discharge from the landfill on ammonia concentrations in the Quinnipiac River was prepared in response to our May 20, 2002 acknowledgement of your notices of Significant Environmental Hazards filed in February 1999, April 2000, and June 2001. Your evaluation indicates that, for four separate monitoring events, concentrations of ammonia in the river (which were calculated to include the contribution from the landfill groundwater discharge) are far below the chronic toxicity criterion for ammonia at actual river temperatures.

This letter approves your evaluation and certifies that the Department has determined that no further actions are necessary to abate the identified significant environmental hazard condition. Based on the data provided, DEP has determined that future Significant Environmental Hazard notifications relating to similar high ammonia concentrations are not necessary. However, please advise DEP if significantly different groundwater quality conditions are disclosed by periodic monitoring conducted for compliance with your groundwater discharge permit.

This certification relates only to your evaluation of the significant environmental hazard identified at the site. It does not certify that the site conditions are in conformance with the Connecticut Remediation Standard Regulations or applicable discharge permit requirements.

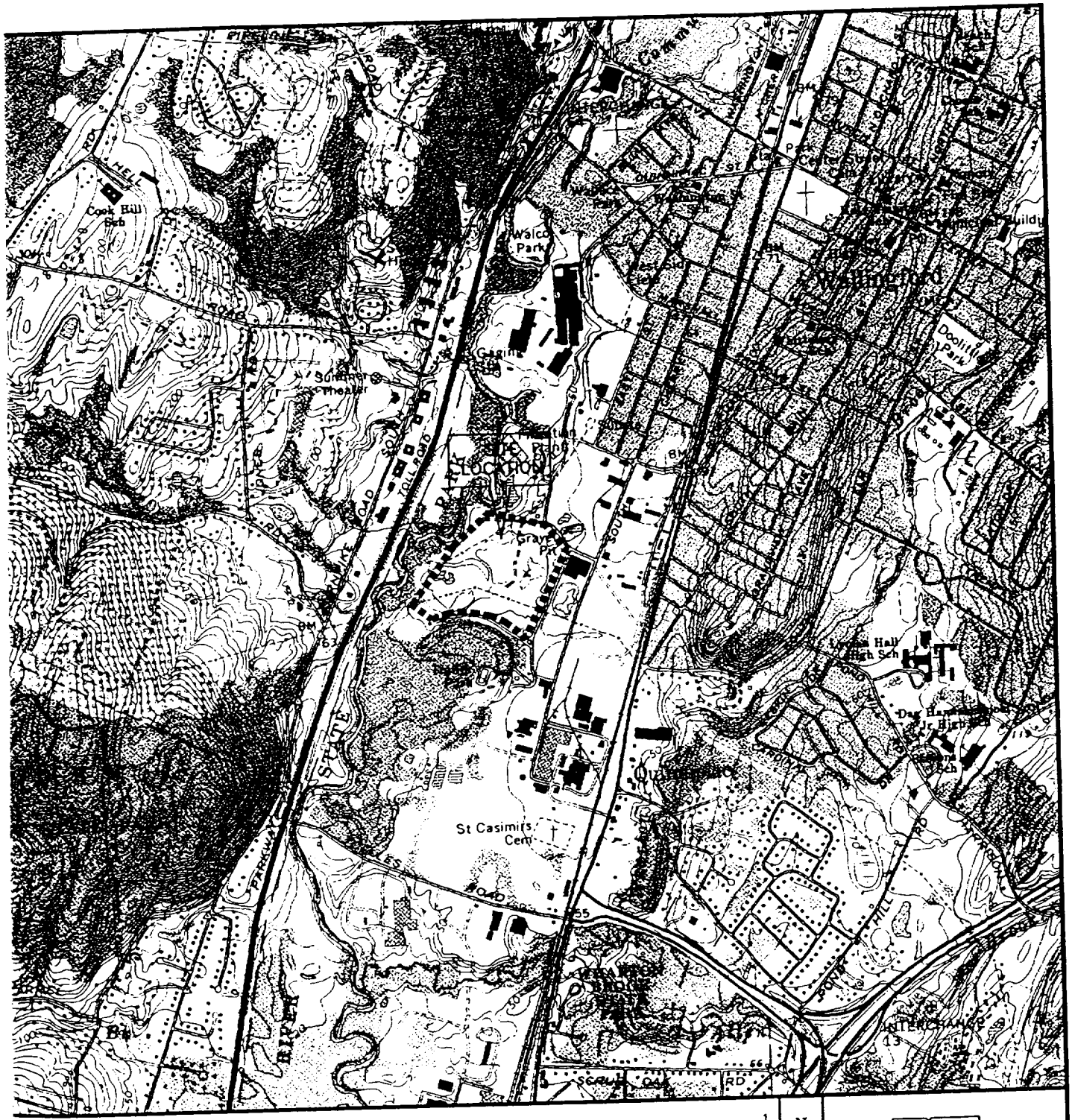
Nothing in this certification shall affect the Commissioner's authority to institute any proceeding, or take any other action to prevent or abate pollution, to recover costs and natural resource damages, and to impose penalties for violations of law including but not limited to violations of any permit issued by the Commissioner. If at any time the

environmental hazard, the Commissioner may institute any proceeding to further require investigation or action to abate the hazard condition. In addition, nothing in this certification of compliance shall relieve any person of his or her obligations under applicable federal, state, or local laws or regulations.

Yours truly,

Michael J.Harder
Director
Permitting, Enforcement and Remediation Division
Bureau of Water Management

Cc: Gene Shteynberg, CTDEP, WEED
David McKeegan, CTDEP, WEED
Ken Feathers, CTDEP, PERD
Phil Hamel, Town of Wallingford
Chris Shepard, CRRA
Phil Hamel, Town of Wallingford
David Purington, ERL
Gene Shteynberg, CTDEP, WEED
David McKeegan, CTDEP, WEED
Ruth Lepley, CTDEP, PERD
Martin Beskind, CTDEP, PERD



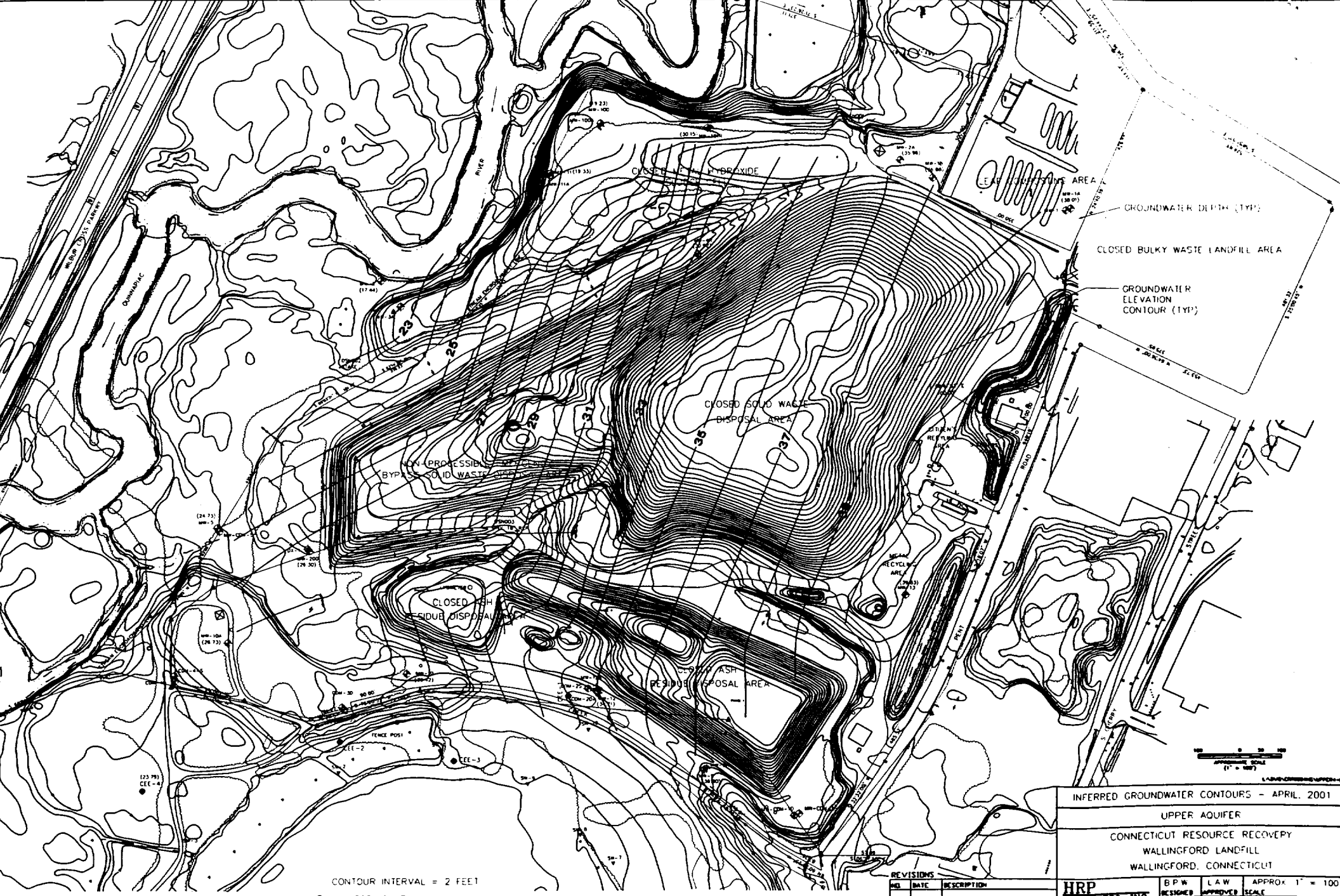
USGS 7.5 MINUTE QUADRANGLE BASE MAP: WALLINGFORD, CONNECTICUT 1967 - REVISED 1984

ENVIRONMENTAL RISK LIMITED

FIGURE 1-1
SITE LOCATION MAP

Compiled By:	JRY	Date:	8-20-01
Reviewed By:	ATH	Drawn By:	MRH
Job No:	07512-27	Filename:	7512-27TOPO

CONNECTICUT RESOURCE RECOVERY
WALLINGFORD LANDFILL
WALLINGFORD, CONNECTICUT



INFERRED GROUNDWATER CONTOURS - APRIL, 2001

UPPER AQUIFER

CONNECTICUT RESOURCE RECOVERY
WALLINGFORD LANDFILL
WALLINGFORD, CONNECTICUT

REVISIONS		
NO.	DATE	DESCRIPTION

HRP ASSOCIATES, INC.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-0889
FAX: (860) 793-0871
www.hrpassoc.com

B P W	L A W	APPROX 1" = 100
DESIGNED	APPROVED	SCALE
B O B	MAY, 2001	FIG. 2
DRAWN	DATE	
B P W	CRR0084 HG	
CHECKED	PROJECT NO.	SHEET NO.

TABLE 1
Monitoring Well Completion Details

Well Number	Ground Elevation (feet)	Top of Steel Elevation (feet)	Date of Installation
Upper Aquifer			
MW-1A	58.50	62.37	Sep-81
MW-1B	59.90	61.08	Jun-86
MW-2A	59.50	61.13	Nov-88
MW-3	22.60	23.59	Sep-81
MW-4R	42.10	43.87	Jul-92
MW-5	25.80	27.48	Sep-81
MW-9	43.90	46.01	May-86
MW-10	36.20	36.82	May-86
MW-10A	37.00	37.23	May-86
MW-11	49.80	51.12	Nov-88
MW-12	36.60	37.86	Dec-88
MW-13	61.00	62.13	Dec-88
MW-100	51.70	53.90	Nov-83
MW-101R	54.50	55.84	Jul-92
MW-200	29.10	30.64	Dec-88
Lower Aquifer			
MW-1	60.70	62.24	Sep-81
MW-3A	35.60	37.02	Jan-89
MW-9A	44.30	46.41	Jan-89
MW-11A	49.70	51.19	Dec-88
MW-12A	36.90	37.45	Feb-89
MW-100A	52.00	53.30	Dec-88
MW-101A	54.10	55.35	Dec-88
Non-sampled Wells			
CDM-1S	43.20	45.34	Oct-94
CDM-1D	42.90	45.71	Oct-94
CDM-2S	DW	DW	Oct-94
CDM-2D	36.00	38.87	Oct-94
CDM-3S	37.90	39.89	Oct-94
CDM-3D	37.50	39.20	Oct-94
CDM-4S	DW	DW	Oct-94
CDM-4D	DW	DW	Oct-94
CDM-5	25.70	27.94	Oct-94
DX-1	ND	ND	ND

DW = Damged well, not found during most recent sampling event
ND= Not Determined
All information per Camp Dresser & McKee and HRP Associates

TABLE 4
2001 Summary of Monitoring Results
CRRA - Wallingford Landfill, Wallingford, CT TABLE 2 DATA FOR THE UPPER AQUIFER WELLS

	Method #	MDL	Comparative Standard [1]	Ground Water Protection Criteria (GWPC) [2]	Surface Water Protection (SWPC) [2]	Surface Water Reporting Condition [3]	MW-1 Lower Aquifer	MW-1 Lower Aquifer	MW-1 Lower Aquifer	MW-1 Lower Aquifer
Date							1/10/2001	4/2/2001	7/17/2001	10/12/2001
Field Parameters (units vary)										
pH (S.U.)	N/A	0.01	6.5-8.5	--	--	--	6.89	7.13	6.95	6.90
Turbidity (NTU)	N/A	0.1	5	--	--	--	4.2	3.2	**46.2**	**41.8**
Dissolved Oxygen (ppm)	N/A	0.01	--	--	--	--	4.03	3.1	7.57	3.06
Redox Potential (mv)	N/A	1	--	--	--	--	-99	-38.6	-79	-75
Specific Conductivity (umhos/cm)	N/A	0.01	--	--	--	--	410	411	440	390
Temperature (deg. C.)	N/A	0.1	--	--	--	--	9.6	11.81	14.8	13.5
Depth to Groundwater (feet)	N/A	0.01	--	--	--	--	29.94	27.81	27.43	30.25
Groundwater Elevation (feet)	N/A	0.01	--	--	--	--	32.3	34.43	34.81	31.99
Leachate Indicator Parameters (mg/l)										
Ammonia as N	350.2	0.02	--	--	--	99	0.23	0.20	0.44	0.37
Nitrate as N	353.2	0.1	10	--	--	--	BDL	BDL	0.12	0.38
Alkalinity, Total	310.1	5	--	--	--	--	135	112	130	94
BOD-5 Day	405.1	2	--	--	--	--	4	BDL	BDL	BDL
Chloride	325.3	3	250	--	--	--	50.2	49	49	48
COD	410.2	10	--	--	--	--	12	8	10	BDL
Total Coliform Bacteria-per 100 ml	9222B	0	1	--	--	--	**Present**	**Present**	**Present**	**200**
Hardness(CaCO3)	130.1	0.1	250	--	--	--	145	156	172	138
Sulfate	375.4	3	250	--	--	--	30	19	16	19
Total Organic Carbon - TOC	9060.0	1	--	--	--	--	1.0	1.3	3	1.3
Total Organic Halogens - TOX	9020	0.015	--	--	--	--	BDL	BDL	35.8	0.048
Total Dissolved Solids - TDS	160.1	5	500	--	--	--	237	240	250	200
Total Suspended Solids -TSS	160.2	5	--	--	--	--	18	13	14	110
Fluoride	340.2	0.1	2	--	--	--	0.33	0.28	**2.2**	1.5
Cyanide, Total	9010	0.01	0.2	0.2	0.052	0.22	BDL	BDL	BDL	BDL
Metals (mg/l)										
Aluminum, Total	202.2	0.01	0.2	--	--	--	0.15	0.19	**1.27**	0.126
Antimony, Total	204.2	0.003	0.006	0.006	86	--	BDL	BDL	0.006	BDL
Arsenic, Total	206.2	0.001	0.05	0.05	0.004	3.60	BDL	BDL	0.003	0.001
Barium, Total	200.7	0.002	1	1	--	--	0.100	0.100	0.142	0.093
Beryllium, Total	210.2	0.001	0.004	0.004	0.004	--	BDL	BDL	0.002	BDL
Cadmium, Total	213.2	0.001	0.005	0.005	0.006	0.018	BDL	BDL	BDL	BDL
Calcium, Total	215.1	1	--	--	--	--	45.6	42.3	51.7	41.0
Chromium, Hexavalent	218.5	0.01	0.05	--	0.11	0.15	BDL	BDL	BDL	BDL
Chromium, Total	200.7	0.001	0.05	0.05	1.31	--	BDL	BDL	0.028	0.004
Cobalt, Total	219.2	0.002	--	--	--	--	BDL	BDL	BDL	BDL
Copper, Total	200.7	0.001	1	1.3	0.048	0.143	BDL	BDL	**0.12**	0.010
Iron, Dissolved	200.7	0.002	0.3	--	--	--	**0.537**	0.290	**0.486**	**0.901**
Iron, Total	200.7	0.002	0.3	--	--	--	**1.850**	**1.630**	**4.06**	**1.60**
Lead, Total	239.2	0.001	0.015	0.015	0.013	0.3	BDL	BDL	**0.043**	0.004
Magnesium, Total	242.1	0.1	--	--	--	--	9.89	8.43	10.3	8.60
Manganese, Dissolved	200.7	0.002	0.05	--	--	--	**0.11**	**0.10**	**0.104**	**0.098**
Manganese, Total	200.7	0.001	0.05	--	--	--	**0.130**	**0.120**	**0.16**	**0.113**
Mercury, Total	245.1	0.0002	0.002	0.002	0.0004	0.021	BDL	BDL	0.0002	BDL
Nickel, Total	200.7	0.001	0.1	0.1	0.88	7.88	BDL	BDL	0.021	0.004
Potassium, Dissolved	258.1	0.1	--	--	--	--	0.94	0.78	1.1	1.00
Potassium, Total	258.1	0.3	--	--	--	--	0.94	0.89	1.5	1.34
Selenium, Total	270.2	0.002	0.05	0.05	0.05	0.2	BDL	BDL	BDL	BDL
Silver, Total	272.2	0.001	0.036	0.036	0.012	0.0102	BDL	BDL	0.005	0.001
Sodium, Dissolved	273.1	0.02	28.0	--	--	--	20.6	16.1	18.3	14.4
Sodium, Total	273.1	0.02	28.0	--	--	--	20.6	16.1	16.4	17.3
Thallium, Total	279.2	0.001	0.002	0.005	0.063	--	BDL	BDL	BDL	BDL
Vanadium, Total	200.7	0.01	0.05	0.05	--	--	BDL	BDL	BDL	BDL
Zinc, Total	200.7	0.002	5	5	0.123	0.636	0.02	0.02	**0.128**	0.020
Other Parameters (units vary)										
PCB's (ug/l)	8082	0.05	0.5	0.5	0.5	--	NA	NA	NA	NA
Lindane (ug/l)	8081a/8151	0.02	0.2	0.2	--	10	NA	BDL	BDL	BDL
Chlordane (ug/l)	8081a/8151	0.3	0.3	0.3	0.3	12	NA	NA	BDL	BDL
Endrin (ug/l)	8081a/8151	0.02	0.2	--	0.1	0.9	NA	BDL	BDL	BDL
Heptachlor (ug/l)	8081a/8151	0.04	0.4	0.4	0.05	2.6	NA	NA	BDL	BDL
Heptachlor Epoxide (ug/l)	8081a/8151	0.02	0.2	0.2	0.05	2.6	NA	NA	BDL	BDL
Methoxychlor (ug/l)	8081a/8151	0.5	40	40	--	--	NA	BDL	BDL	BDL
Toxaphene (ug/l)	8081a/8151	0.5	3	3	1	7.3	NA	BDL	BDL	BDL
2,4 D (ug/l)	8081a/8151	0.1	70	70	--	--	NA	BDL	BDL	BDL
2,4,5 TP (ug/l)	8081a/8151	0.1	10	--	--	--	NA	BDL	BDL	BDL
Dioxin (ug/l)	8081a/8151	--	--	--	--	--	NA	NA	BDL	BDL
Furan (ug/l)	8081a/8151	--	--	--	--	--	NA	NA	BDL	BDL
Phenols, Total (mg/l)	420.1/420.2	0.015	4	4	92000000	--	BDL	BDL	0.028	BDL

TABLE 4

2001 Summary of Monitoring Results

CRRA - Wallingford Landfill, Wallingford, CT

	Method #	MDL	Comparative Standard [1]	Ground Water Protection Criteria (GWPC) [2]	Surface Water Protection (SWPC) [2]	Surface Water Reporting Condition [3]	MW-1 Lower Aquifer	MW-1 Lower Aquifer	MW-1 Lower Aquifer	MW-1 Lower Aquifer
Volatile Organic Compounds (ug/l)										
Acetone	8260B	10	700	700	--	--	BDL	BDL	BDL	BDL
Acrylamide	8032A	2	--	--	--	--	BDL	BDL	BDL	BDL
Acrylonitrile	8260B	0.5	0.5	0.5	20	--	BDL	BDL	BDL	BDL
Benzene	8260B	1	1	1	710	--	BDL	BDL	BDL	BDL
Bromobenzene	8260B	1	--	--	--	--	BDL	BDL	BDL	BDL
Bromochloromethane	8260B	1	--	--	--	--	BDL	BDL	BDL	BDL
Bromodichloromethane	8260B	1	0.56	0.56	--	--	BDL	BDL	BDL	BDL
Bromoform	8260B	1	4	4	10800	--	BDL	BDL	BDL	BDL
Bromomethane	8260B	1	9.8	9.8	--	--	BDL	BDL	BDL	BDL
2-Butanone (MEK)	8260B	2	400	400	--	--	BDL	BDL	BDL	BDL
n-Butylbenzene	8260B	1	61	61	--	--	BDL	BDL	BDL	BDL
sec- Butylbenzene	8260B	1	61	61	--	--	BDL	BDL	BDL	BDL
tert-Butylbenzene	8260B	1	61	61	--	--	BDL	BDL	BDL	BDL
Carbon Disulfide	8260B	10	700	700	--	--	BDL	BDL	BDL	BDL
Carbon Tetrachloride	8260B	1	5	5	132	--	BDL	BDL	BDL	BDL
Chlorobenzene	8260B	1	100	100	420000	--	BDL	BDL	BDL	BDL
Chlorodibromomethane	8260B	1	--	--	--	--	BDL	BDL	BDL	BDL
Chloroethane	8260B	1	--	--	--	--	BDL	BDL	BDL	BDL
2-Chloroethylvinylether	8260B	10	--	--	--	--	BDL	BDL	BDL	BDL
Chloroform	8260B	1	6	6	14100	--	BDL	BDL	BDL	BDL
Chloromethane	8260B	1	2.7	2.7	--	--	BDL	BDL	BDL	BDL
2-Chlorotoluene	8260B	10	--	--	--	--	BDL	BDL	BDL	BDL
4-Chlorotoluene	8260B	10	--	--	--	--	BDL	BDL	BDL	BDL
1,2-Dibromo-3-chloropropane (DBCP)	504	0.02	--	--	--	--	BDL	BDL	BDL	BDL
1,2-Dibromoethane (EDB)	504	0.02	0.05	--	--	--	BDL	BDL	BDL	BDL
Dibromomethane	8260B	1	--	--	--	--	BDL	BDL	BDL	BDL
trans-1,4-Dichloro-2-butene	8260B	10	--	--	--	--	BDL	BDL	BDL	BDL
1,2-Dichlorobenzene	8260B	1	600	600	170000	--	BDL	BDL	BDL	BDL
1,3-Dichlorobenzene	8260B	1	600	600	26000	--	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	8260B	1	75	75	26000	--	BDL	BDL	BDL	BDL
Dichlorodiflouromethane	8260B	1	--	--	--	--	BDL	BDL	BDL	BDL
1,1-Dichloroethane	8260B	1	70	70	--	--	BDL	BDL	BDL	BDL
1,2-Dichloroethane (EDC)	8260B	1	1	1	2970	--	BDL	BDL	BDL	BDL
1,1-Dichloroethene	8260B	1	7	7	96	--	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethene	8260B	1	70	70	--	--	BDL	BDL	BDL	BDL
trans-1,2-Dichloroethene	8260B	1	100	100	--	--	BDL	BDL	BDL	BDL
Dichloromethane (Methylene Chloride)	8260B	1	5	5	48000	--	BDL	BDL	BDL	BDL
1,2-Dichloropropane	8260B	1	5	5	--	--	BDL	BDL	BDL	BDL
1,3-Dichloropropane	8260B	1	--	--	--	--	BDL	BDL	BDL	BDL
2,2-Dichloropropane	8260B	1	--	--	--	--	BDL	BDL	BDL	BDL
1,1-Dichloropropene	8260B	1	--	--	--	--	BDL	BDL	BDL	BDL
cis-1,3-Dichloropropene	8260B	1	--	--	--	--	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene	8260B	1	10	--	--	--	BDL	BDL	BDL	BDL
Ethylbenzene	8260B	1	700	700	580000	--	BDL	BDL	BDL	BDL
2-Hexanone	8260B	1	--	--	--	--	BDL	BDL	BDL	BDL
Hexachlorobutadiene	8260B	5	0.45	0.45	--	--	BDL	BDL	BDL	BDL
Isopropylbenzene	8260B	1	30	30	--	--	BDL	BDL	BDL	BDL
p-Isopropyltoluene	8260B	1	70	70	--	--	BDL	BDL	BDL	BDL
Methyl Iodide	8260B	10	--	--	--	--	BDL	BDL	BDL	BDL
4-Methyl-2-pentanone (MIBK)	8260B	1	--	--	--	--	BDL	BDL	BDL	BDL
Methyl Tert Butyl Ether (MTBE)	8260B	1	100	100	--	--	BDL	BDL	BDL	BDL
Naphthalene	8260B	1	280	280	--	--	BDL	BDL	BDL	BDL
n Propylbenzene	8260B	1	61	61	--	--	BDL	BDL	BDL	BDL
Styrene	8260B	1	100	100	--	--	BDL	BDL	BDL	BDL
1,1,1,2-Tetrachloroethane	8260B	0.5	1	1	--	--	BDL	BDL	BDL	BDL
1,1,2,2-Tetrachloroethane	8260B	0.5	0.5	0.5	110	--	BDL	BDL	BDL	BDL
Tetrachloroethene	8260B	1	5	5	88	--	BDL	BDL	BDL	BDL
Toluene	8260B	1	1000	1000	4000000	--	BDL	BDL	BDL	BDL
1,2,3-Trichlorobenzene	8260B	1	--	--	--	--	BDL	BDL	BDL	BDL
1,2,4-Trichlorobenzene	8260B	1	70	70	--	--	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	8260B	1	200	200	62000	--	BDL	BDL	BDL	BDL
1,1,2-Trichloroethane	8260B	1	5	5	1260	--	BDL	BDL	BDL	BDL
Trichloroethene	8260B	1	5	5	2340	--	BDL	BDL	BDL	BDL
Trichloroflouromethane	8260B	1	1300	1300	--	--	BDL	BDL	BDL	BDL
1,2,3-Trichloropropane	8260B	1	--	--	--	--	BDL	BDL	BDL	BDL
1,2,4-Trimethylbenzene	8260B	1	350	350	--	--	BDL	BDL	BDL	BDL
1,3,5-Trimethylbenzene	8260B	1	350	350	--	--	BDL	BDL	BDL	BDL
Vinyl Acetate	8260B	1	--	--	--	--	BDL	BDL	BDL	BDL
Vinyl Chloride	8260B	1	2	2	15750	--	BDL	BDL	BDL	BDL
Total Xylene	8260B	1	530	530	--	--	BDL	BDL	BDL	BDL

[1] Based on lowest protection criteria (see table 4)

[2] From CTDEP Remediation Standard Regulations

[3] Surface Water Reporting Condition Equals Ten Times the Acute Aquatic Life Criteria Listed in the State of Connecticut Water Quality Standards

-- = no standard

mv = millivolts

mg/l = milligrams per liter

ppm = parts per million

ug/l = micrograms per liter

S.U = standard units

NTU = Nephelometric Turbidity Units

BDL = below detection limits

MDL = minimum detection limit

NA = not analyzed

TABLE 4 (continued)
2001 Summary of Monitoring Results
CRRA - Wallingford Landfill, Wallingford, CT

	Method #	MDL	Comparative Standard [1]	Ground Water Protection Criteria (GWPC) [2]	Surface Water Protection (SWPC) [2]	Surface Water Reporting Condition [3]	MW-3A Lower Aquifer	MW-3A Lower Aquifer	MW-3A Lower Aquifer	MW-3A Lower Aquifer
Date							1/10/2001	4/2/2001	7/18/2001	10/9/2001
Field Parameters (units vary)										
pH (S.U.)	N/A	0.01	6.5-8.5	---	---	---	8.24	**8.53**	**8.58**	8.25
Turbidity (NTU)	N/A	0.1	5	---	---	---	1.55	3	**34.1**	4.0
Dissolved Oxygen (ppm)	N/A	0.01	---	---	---	---	3.45	1.12	1.95	3.31
Redox Potential (mv)	N/A	1	---	---	---	---	32	176.4	37	-1
Specific Conductivity (umhos/cm)	N/A	0.01	---	---	---	---	300	297	350	0.35
Temperature (deg. C.)	N/A	0.1	---	---	---	---	8.9	10.14	14	14.6
Depth to Groundwater (feet)	N/A	0.01	---	---	---	---	20.50	16.00	19.98	21.78
Groundwater Elevation (feet)	N/A	0.01	---	---	---	---	16.52	21.02	17.04	15.24
Leachate Indicator Parameters (mg/l)										
Ammonia as N	350.2	0.02	---	---	---	99	BDL	BDL	0.08	0.16
Nitrate as N	353.2	0.1	10	---	---	---	1.76	1.32	0.85	0.92
Alkalinity, Total	310.1	5	---	---	---	---	109	98	86	80
BOD-5 Day	405.1	2	---	---	---	---	BDL	BDL	BDL	BDL
Chloride	325.3	3	250	---	---	---	25.4	19	12	13
COD	410.2	10	---	---	---	---	8	BDL	BDL	BDL
Total Coliform Bacteria-per 100 ml	9222B	0	1	---	---	---	PRESENT	ABSENT	PRESENT	0
Hardness(CaCO3)	130.1	0.1	250	---	---	---	107	109	86.7	95.1
Sulfate	375.4	3	250	---	---	---	22	26	31	31
Total Organic Carbon - TOC	9060.0	1	---	---	---	---	BDL	BDL	1.2	1.2
Total Organic Halogens - TOX	9020	0.015	---	---	---	---	BDL	0.0800	18.0000	0.023
Total Dissolved Solids - TDS	160.1	5	500	---	---	---	189	196	170	180
Total Suspended Solids -TSS	160.2	5	---	---	---	---	1	2	BDL	BDL
Fluoride	340.2	0.1	2	---	---	---	0.16	0.21	**2.6**	1.8
Cyanide, Total	9010	0.01	0.2	0.2	0.052	0.22	BDL	BDL	BDL	BDL
Metals (mg/l)										
Aluminum, Total	202.2	0.01	0.2	---	---	---	0.05	0.06	BDL	0.028
Antimony, Total	204.2	0.003	0.006	0.006	86	---	BDL	BDL	BDL	BDL
Arsenic, Total	206.2	0.001	0.05	0.05	0.004	3.60	BDL	BDL	0.004	0.003
Barium, Total	200.7	0.002	1	1	---	---	0.160	0.120	0.125	0.129
Beryllium, Total	210.2	0.001	0.004	0.004	0.004	---	BDL	BDL	BDL	BDL
Cadmium, Total	213.2	0.001	0.005	0.005	0.006	0.018	BDL	BDL	BDL	BDL
Calcium, Total	215.1	1	---	---	---	---	33.1	26.6	25.3	29.0
Chromium, Hexavalent	218.5	0.01	0.05	---	0.11	0.15	BDL	BDL	BDL	BDL
Chromium, Total	200.7	0.001	0.05	0.05	1.31	---	BDL	BDL	BDL	0.005
Cobalt, Total	219.2	0.002	---	---	---	---	BDL	BDL	BDL	BDL
Copper, Total	200.7	0.001	1	1.3	0.048	0.143	BDL	BDL	0.006	0.003
Iron, Dissolved	200.7	0.002	0.3	---	---	---	0.029	0.020	0.005	0.006
Iron, Total	200.7	0.002	0.3	---	---	---	0.045	0.049	0.002	0.017
Lead, Total	239.2	0.001	0.015	0.015	0.013	0.3	BDL	BDL	BDL	BDL
Magnesium, Total	242.1	0.1	---	---	---	---	7.4	5.07	5.72	5.5
Manganese, Dissolved	200.7	0.002	0.05	---	---	---	BDL	BDL	BDL	BDL
Manganese, Total	200.7	0.001	0.05	---	---	---	BDL	BDL	BDL	BDL
Mercury, Total	245.1	0.0002	0.002	0.002	0.0004	0.021	BDL	BDL	BDL	BDL
Nickel, Total	200.7	0.001	0.1	0.1	0.88	7.88	BDL	BDL	BDL	BDL
Potassium, Dissolved	258.1	0.1	---	---	---	---	**0.72**	**0.43**	**0.9**	**0.7**
Potassium, Total	258.1	0.3	---	---	---	---	**0.72**	**0.64**	BDL	**1.01**
Selenium, Total	270.2	0.002	0.05	0.05	0.05	0.2	BDL	BDL	BDL	BDL
Silver, Total	272.2	0.001	0.036	0.036	0.012	0.0102	BDL	BDL	BDL	BDL
Sodium, Dissolved	273.1	0.02	28.0	---	---	---	17.9	16.7	19.2	19.9
Sodium, Total	273.1	0.02	28.0	---	---	---	17.9	19.2	19	21.6
Thallium, Total	279.2	0.001	0.002	0.005	0.063	---	BDL	BDL	BDL	BDL
Vanadium, Total	200.7	0.01	0.05	0.05	---	---	BDL	BDL	BDL	BDL
Zinc, Total	200.7	0.002	5	5	0.123	0.636	BDL	BDL	BDL	0.005
Other Parameters (units vary)										
PCB's (ug/l)	8082	0.05	0.5	0.5	0.5	---	NA	NA	NA	NA
Lindane (ug/l)	8081a/8151	0.02	0.2	0.2	---	10	NA	NA	NA	NA
Chlordane (ug/l)	8081a/8151	0.3	0.3	0.3	0.3	12	NA	NA	NA	NA
Endrin (ug/l)	8081a/8151	0.02	0.2	---	0.1	0.9	NA	NA	NA	NA
Heptachlor (ug/l)	8081a/8151	0.04	0.4	0.4	0.05	2.6	NA	NA	NA	NA
Heptachlor Epoxide (ug/l)	8081a/8151	0.02	0.2	0.2	0.05	2.6	NA	NA	NA	NA
Methoxychlor (ug/l)	8081a/8151	0.5	40	40	---	---	NA	NA	NA	NA
Toxaphene (ug/l)	8081a/8151	0.5	3	3	1	7.3	NA	NA	NA	NA
2,4 D (ug/l)	8081a/8151	0.1	70	70	---	---	NA	NA	NA	NA
2,4,5 TP (ug/l)	8081a/8151	0.1	10	---	---	---	NA	NA	NA	NA
Dioxin (ug/l)	8081a/8151	---	---	---	---	---	NA	NA	NA	NA
Furan (ug/l)	8081a/8151	---	---	---	---	---	NA	NA	NA	NA
Phenols, Total (mg/l)	420.1/420.2	0.015	4	4	92000000	---	BDL	BDL	BDL	BDL
Volatile Organic Compounds (ug/l)										
Acetone	8260B	10	700	700	---	---	BDL	BDL	BDL	BDL
Acrylamide	8032A	2	---	---	---	---	BDL	BDL	BDL	BDL
Acrylonitrile	8260B	0.5	0.5	0.5	20	---	BDL	BDL	BDL	BDL
Benzene	8260B	1	1	1	710	---	BDL	BDL	BDL	BDL
Bromobenzene	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Bromochloromethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Bromodichloromethane	8260B	1	0.56	0.56	---	---	BDL	BDL	BDL	BDL

TABLE 4 (continued)
2001 Summary of Monitoring Results
CRRA - Wallingford Landfill, Wallingford, CT

	Method #	MDL	Comparative Standard [1]	Ground Water Protection Criteria (GWPC) [2]	Surface Water Protection (SWPC) [2]	Surface Water Reporting Condition [3]	MW-3A Lower Aquifer	MW-3A Lower Aquifer	MW-3A Lower Aquifer	MW-3A Lower Aquifer
Bromoform	8260B	1	4	4	10800	---	BDL	BDL	BDL	BDL
Bromomethane	8260B	1	9.8	9.8	---	---	BDL	BDL	BDL	BDL
2-Butanone (MEK)	8260B	2	400	400	---	---	BDL	BDL	BDL	BDL
n-Butylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
sec- Butylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
tert-Butylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
Carbon Disulfide	8260B	10	700	700	---	---	BDL	BDL	BDL	BDL
Carbon Tetrachloride	8260B	1	5	5	132	---	BDL	BDL	BDL	BDL
Chlorobenzene	8260B	1	100	100	420000	---	BDL	BDL	BDL	BDL
Chlorodibromomethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Chloroethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
2-Chloroethylvinylether	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
Chloroform	8260B	1	6	6	14100	---	BDL	BDL	BDL	BDL
Chloromethane	8260B	1	2.7	2.7	---	---	BDL	BDL	BDL	BDL
2-Chlorotoluene	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
4-Chlorotoluene	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
1,2-Dibromo-3-chloropropane (DBCP)	504	0.02	---	---	---	---	BDL	BDL	BDL	BDL
1,2-Dibromoethane (EDB)	504	0.02	0.05	---	---	---	BDL	BDL	BDL	BDL
Dibromomethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
trans-1,4-Dichloro-2-butene	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
1,2-Dichlorobenzene	8260B	1	600	600	170000	---	BDL	BDL	BDL	BDL
1,3-Dichlorobenzene	8260B	1	600	600	26000	---	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	8260B	1	75	75	26000	---	BDL	BDL	BDL	BDL
Dichlorodiflouromethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,1-Dichloroethane	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
1,2-Dichloroethane (EDC)	8260B	1	1	1	2970	---	BDL	BDL	BDL	BDL
1,1-Dichloroethene	8260B	1	7	7	96	---	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethene	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
trans-1,2-Dichloroethene	8260B	1	100	100	---	---	BDL	BDL	BDL	BDL
Dichloromethane (Methylene Chloride)	8260B	1	5	5	48000	---	BDL	BDL	BDL	BDL
1,2-Dichloropropane	8260B	1	5	5	---	---	BDL	BDL	BDL	BDL
1,3-Dichloropropane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
2,2-Dichloropropane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,1-Dichloropropene	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
cis-1,3-Dichloropropene	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene	8260B	1	10	---	---	---	BDL	BDL	BDL	BDL
Ethylbenzene	8260B	1	700	700	580000	---	BDL	BDL	BDL	BDL
2-Hexanone	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Hexachlorobutadiene	8260B	5	0.45	0.45	---	---	BDL	BDL	BDL	BDL
Isopropylbenzene	8260B	1	30	30	---	---	BDL	BDL	BDL	BDL
p-Isopropyltoluene	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
Methyl Iodide	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
4-Methyl-2-pentanone (MIBK)	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Methyl Tert Butyl Ether (MTBE)	8260B	1	100	100	---	---	BDL	BDL	BDL	BDL
Napthalene	8260B	1	280	280	---	---	BDL	BDL	BDL	BDL
n-Propylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
Styrene	8260B	1	100	100	---	---	BDL	BDL	BDL	BDL
1,1,1,2-Tetrachloroethane	8260B	0.5	1	1	---	---	BDL	BDL	BDL	BDL
1,1,2,2-Tetrachloroethane	8260B	0.5	0.5	0.5	110	---	BDL	BDL	BDL	BDL
Tetrachloroethene	8260B	1	5	5	88	---	1.0	1.0	1.6	1.2
Toluene	8260B	1	1000	1000	4000000	---	BDL	BDL	BDL	BDL
1,2,3-Trichlorobenzene	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,2,4-Trichlorobenzene	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	8260B	1	200	200	62000	---	BDL	2.0	3.5	3.3
1,1,2-Trichloroethane	8260B	1	5	5	1260	---	BDL	BDL	BDL	BDL
Trichloroethene	8260B	1	5	5	2340	---	5.0	**9.0**	**5.9**	**8.3**
Trichlorofluoromethane	8260B	1	1300	1300	---	---	BDL	BDL	BDL	BDL
1,2,3-Trichloropropane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,2,4-Trimethylbenzene	8260B	1	350	350	---	---	BDL	BDL	BDL	BDL
1,3,5-Trimethylbenzene	8260B	1	350	350	---	---	BDL	BDL	BDL	BDL
Vinyl Acetate	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Vinyl Chloride	8260B	1	2	2	15750	---	BDL	BDL	BDL	BDL
Total Xylene	8260B	1	530	530	---	---	BDL	BDL	BDL	BDL

[1] Based on lowest protection criteria (see table 4)
[2] From CTDEP Remediation Standard Regulations
[3] Surface Water Reporting Condition Equals Ten Times the Acute Aquatic Life Criteria Listed in the State of Connecticut Water Quality Standards

--- = no standard
mv = millivolts
mg/l = milligrams per liter
ppm = parts per million
ug/l = micrograms per liter
S.U.= standard units
NTU = Nephelometric Turbidity Units
BDL = below detection limits
MDL = minimum detection limit
NA = not analyzed

TABLE 4 (continued)
2001 Summary of Monitoring Results
CRRA - Wallingford Landfill, Wallingford, CT

	Method #	MDL	Comparative Standard [1]	Ground Water Protection Criteria (GWPC) [2]	Surface Water Protection (SWPC) [2]	Surface Water Reporting Condition [3]	MW-11A Lower Aquifer	MW-11A Lower Aquifer	MW-11A Lower Aquifer	MW-11A Lower Aquifer
Date							1/10/2001	4/2/2001	7/20/2001	10/10/2001
Field Parameters (units vary)										
pH (S.U.)	N/A	0.01	6.5-8.5	--	--	--	7.87	7.97	7.5	7.30
Turbidity (NTU)	N/A	0.1	5	--	--	--	0.4	22.7	0.2	3.6
Dissolved Oxygen (ppm)	N/A	0.01	--	--	--	--	7.18	4.36	2.7	2.45
Redox Potential (mv)	N/A	1	--	--	--	--	75	192.5	-50	-4
Specific Conductivity (umhos/cm)	N/A	0.01	--	--	--	--	323	286	310	0.33
Temperature (deg. C.)	N/A	0.1	--	--	--	--	10.1	13.69	18.2	17.0
Depth to Groundwater (feet)	N/A	0.01	--	--	--	--	29.90	28.04	28.85	33.51
Groundwater Elevation (feet)	N/A	0.01	--	--	--	--	21.29	23.15	22.34	17.61
Leachate Indicator Parameters (mg/l)										
Ammonia as N	350.2	0.02	--	--	--	99	BDL	BDL	0.07	0.17
Nitrate as N	353.2	0.1	10	--	--	--	1.33	1.85	1.6	1.5
Alkalinity, Total	310.1	5	--	--	--	--	90	78	63	76
BOD-5 Day	405.1	2	--	--	--	--	BDL	BDL	BDL	BDL
Chloride	325.3	3	250	--	--	--	23.7	25	30	26
COD	410.2	10	--	--	--	--	BDL	BDL	BDL	BDL
Total Coliform Bactena-per 100 ml	9222B	0	1	--	--	--	PRESENT	ABSENT	PRESENT	0
Hardness(CaCO3)	130.1	0.1	250	--	--	--	109	127	120	116
Sulfate	375.4	3	250	--	--	--	24	24	22	23
Total Organic Carbon - TOC	9060.0	1	--	--	--	--	BDL	BDL	BDL	1.9
Total Organic Halogens - TOX	9020	0.015	--	--	--	--	0.0730	0.1670	0.0698	0.037
Total Dissolved Solids - TDS	160.1	5	500	--	--	--	153	180	170	180
Total Suspended Solids -TSS	160.2	5	--	--	--	--	3	9	BDL	BDL
Fluonde	340.2	0.1	2	--	--	--	BDL	BDL	2.2	3.7
Cyanide, Total	9010	0.01	0.2	0.2	0.052	0.22	BDL	BDL	BDL	BDL
Metals (mg/l)										
Aluminum, Total	202.2	0.01	0.2	--	--	--	0.07	0.17	0.05	0.011
Antimony, Total	204.2	0.003	0.006	0.006	86	--	BDL	BDL	BDL	BDL
Arsenic, Total	206.2	0.001	0.05	0.05	0.004	3.60	BDL	BDL	0.001	0.002
Barium, Total	200.7	0.002	1	1	--	--	0.230	0.230	0.258	0.267
Berylium, Total	210.2	0.001	0.004	0.004	0.004	--	BDL	BDL	BDL	BDL
Cadmium, Total	213.2	0.001	0.005	0.005	0.006	0.018	BDL	BDL	BDL	BDL
Calcium, Total	215.1	1	--	--	--	--	30.9	30.0	31.9	30.2
Chromium, Hexavalent	218.5	0.01	0.05	--	0.11	0.15	BDL	BDL	BDL	BDL
Chromium, Total	200.7	0.001	0.05	0.05	1.31	--	BDL	BDL	BDL	0.001
Cobalt, Total	219.2	0.002	--	--	--	--	BDL	BDL	BDL	BDL
Copper, Total	200.7	0.001	1	1.3	0.048	0.143	BDL	BDL	BDL	BDL
Iron, Dissolved	200.7	0.002	0.3	--	--	--	0.072	0.039	BDL	0.004
Iron, Total	200.7	0.002	0.3	--	--	--	0.633	0.422	0.069	0.046
Lead, Total	239.2	0.001	0.015	0.015	0.013	0.3	BDL	BDL	BDL	BDL
Magnesium, Total	242.1	0.1	--	--	--	--	9.36	8.93	9.74	9.81
Manganese, Dissolved	200.7	0.002	0.05	--	--	--	0.01	BDL	BDL	0.010
Manganese, Total	200.7	0.001	0.05	--	--	--	0.020	0.010	0.009	0.010
Mercury, Total	245.1	0.0002	0.002	0.002	0.0004	0.021	BDL	BDL	BDL	BDL
Nickel, Total	200.7	0.001	0.1	0.1	0.88	7.88	BDL	BDL	BDL	BDL
Potassium, Dissolved	258.1	0.1	--	--	--	--	0.40	0.31	0.40	0.60
Potassium, Total	258.1	0.3	--	--	--	--	0.54	0.54	0.70	0.648
Selenium, Total	270.2	0.002	0.05	0.05	0.05	0.2	BDL	BDL	BDL	BDL
Silver, Total	272.2	0.001	0.036	0.036	0.012	0.0102	BDL	BDL	BDL	BDL
Sodium, Dissolved	273.1	0.02	28.0	--	--	--	10.0	5.81	7.20	7.30
Sodium, Total	273.1	0.02	28.0	--	--	--	10.0	5.81	8.00	10.2
Thallium, Total	279.2	0.001	0.002	0.005	0.063	--	BDL	BDL	BDL	BDL
Vanadium, Total	200.7	0.01	0.05	0.05	--	--	BDL	BDL	BDL	BDL
Zinc, Total	200.7	0.002	5	5	0.123	0.636	BDL	BDL	0.018	0.118
Other Parameters (units vary)										
PCB's (ug/l)	8082	0.05	0.5	0.5	0.5	--	NA	NA	NA	NA
Lindane (ug/l)	8081a/8151	0.02	0.2	0.2	--	10	NA	NA	NA	NA
Chlordane (ug/l)	8081a/8151	0.3	0.3	0.3	0.3	12	NA	NA	NA	NA
Endrin (ug/l)	8081a/8151	0.02	0.2	--	0.1	0.9	NA	NA	NA	NA
Heptachlor (ug/l)	8081a/8151	0.04	0.4	0.4	0.05	2.6	NA	NA	NA	NA
Heptachlor Epoxide (ug/l)	8081a/8151	0.02	0.2	0.2	0.05	2.6	NA	NA	NA	NA
Methoxychlor (ug/l)	8081a/8151	0.5	40	40	--	--	NA	NA	NA	NA
Toxaphene (ug/l)	8081a/8151	0.5	3	3	1	7.3	NA	NA	NA	NA
2 4 D (ug/l)	8081a/8151	0.1	70	70	--	--	NA	NA	NA	NA
2 4,5 TP (ug/l)	8081a/8151	0.1	10	--	--	--	NA	NA	NA	NA
Dioxin (ug/l)	8081a/8151	--	--	--	--	--	NA	NA	NA	NA
Furan (ug/l)	8081a/8151	--	--	--	--	--	NA	NA	NA	NA
Phenols, Total (mg/l)	420.1/420.2	0.015	4	4	92000000	--	BDL	BDL	BDL	BDL
Volatile Organic Compounds (ug/l)										
Acetone	8260B	10	700	700	--	--	BDL	BDL	BDL	BDL
Acrylamide	8032A	2	--	--	--	--	BDL	BDL	BDL	BDL
Acrylonitrile	8260B	0.5	0.5	0.5	20	--	BDL	BDL	BDL	BDL
Benzene	8260B	1	1	1	710	--	BDL	BDL	BDL	BDL
Bromobenzene	8260B	1	--	--	--	--	BDL	BDL	BDL	BDL
Bromochloromethane	8260B	1	--	--	--	--	BDL	BDL	BDL	BDL
Bromodichloromethane	8260B	1	0.56	0.56	--	--	BDL	BDL	BDL	BDL

TABLE 4 (continued)
2001 Summary of Monitoring Results
CRRA - Wallingford Landfill, Wallingford, CT

	Method #	MDL	Comparative Standard [1]	Ground Water Protection Criteria (GWPC) [2]	Surface Water Protection (SWPC) [2]	Surface Water Reporting Condition [3]	MW-11A Lower Aquifer	MW-11A Lower Aquifer	MW-11A Lower Aquifer	MW-11A Lower Aquifer
Bromoform	8260B	1	4	4	10800	---	BDL	BDL	BDL	BDL
Bromomethane	8260B	1	9.8	9.8	---	---	BDL	BDL	BDL	BDL
2-Butanone (MEK)	8260B	2	400	400	---	---	BDL	BDL	BDL	BDL
n-Butylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
sec- Butylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
tert-Butylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
Carbon Disulfide	8260B	10	700	700	---	---	BDL	BDL	BDL	BDL
Carbon Tetrachloride	8260B	1	5	5	132	---	BDL	BDL	BDL	BDL
Chlorobenzene	8260B	1	100	100	420000	---	BDL	BDL	BDL	BDL
Chlorodibromomethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Chloroethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
2-Chloroethylvinylether	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
Chloroform	8260B	1	6	6	14100	---	**86.0**	**74.0**	**97.0**	**79**
Chloromethane	8260B	1	2.7	2.7	---	---	BDL	BDL	BDL	BDL
2-Chlorotoluene	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
4-Chlorotoluene	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
1,2-Dibromo-3-chloropropane (DBCP)	504	0.02	---	---	---	---	BDL	BDL	BDL	BDL
1,2-Dibromoethane (EDB)	504	0.02	0.05	---	---	---	BDL	BDL	BDL	BDL
Dibromomethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
trans-1,4-Dichloro-2-butene	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
1,2-Dichlorobenzene	8260B	1	600	600	170000	---	BDL	BDL	BDL	BDL
1,3-Dichlorobenzene	8260B	1	600	600	26000	---	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	8260B	1	75	75	26000	---	BDL	BDL	BDL	BDL
Dichlorodifluoromethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,1-Dichloroethane	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
1,2-Dichloroethane (EDC)	8260B	1	1	1	2970	---	BDL	BDL	BDL	BDL
1,1-Dichloroethene	8260B	1	7	7	96	---	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethene	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
trans-1,2-Dichloroethene	8260B	1	100	100	---	---	BDL	BDL	BDL	BDL
Dichloromethane (Methylene Chloride)	8260B	1	5	5	48000	---	BDL	BDL	BDL	BDL
1,2-Dichloropropane	8260B	1	5	5	---	---	BDL	BDL	BDL	BDL
1,3-Dichloropropane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
2,2-Dichloropropane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,1-Dichloropropene	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
cis-1,3-Dichloropropene	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene	8260B	1	10	---	---	---	BDL	BDL	BDL	BDL
Ethylbenzene	8260B	1	700	700	580000	---	BDL	BDL	BDL	BDL
2-Hexanone	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Hexachlorobutadiene	8260B	5	0.45	0.45	---	---	BDL	BDL	BDL	BDL
Isopropylbenzene	8260B	1	30	30	---	---	BDL	BDL	BDL	BDL
p-Isopropyltoluene	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
Methyl Iodide	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
4-Methyl-2-pentanone (MIBK)	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Methyl Tert Butyl Ether (MTBE)	8260B	1	100	100	---	---	BDL	BDL	BDL	BDL
Napthalene	8260B	1	280	280	---	---	BDL	BDL	BDL	BDL
n-Propylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
Styrene	8260B	1	100	100	---	---	BDL	BDL	BDL	BDL
1,1,1,2-Tetrachloroethane	8260B	0.5	1	1	---	---	BDL	BDL	BDL	BDL
1,1,2,2-Tetrachloroethane	8260B	0.5	0.5	0.5	110	---	BDL	BDL	BDL	BDL
Tetrachloroethene	8260B	1	5	5	88	---	BDL	BDL	BDL	BDL
Toluene	8260B	1	1000	1000	4000000	---	BDL	BDL	BDL	BDL
1,2,3-Trichlorobenzene	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,2,4-Trichlorobenzene	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	8260B	1	200	200	62000	---	BDL	BDL	BDL	BDL
1,1,2-Trichloroethane	8260B	1	5	5	1260	---	BDL	BDL	BDL	BDL
Trichloroethene	8260B	1	5	5	2340	---	**23.0**	**17.0**	**25.0**	**23**
Trichlorofluoromethane	8260B	1	1300	1300	---	---	BDL	BDL	BDL	BDL
1,2,3-Trichloropropane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,2,4-Trimethylbenzene	8260B	1	350	350	---	---	BDL	BDL	BDL	BDL
1,3,5-Trimethylbenzene	8260B	1	350	350	---	---	BDL	BDL	BDL	BDL
Vinyl Acetate	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Vinyl Chloride	8260B	1	2	2	15750	---	BDL	BDL	BDL	BDL
Total Xylene	8260B	1	530	530	---	---	BDL	BDL	BDL	BDL

[1] Based on lowest protection criteria (see table 4)
[2] From CTDEP Remediation Standard Regulations
[3] Surface Water Reporting Condition Equals Ten Times the Acute Aquatic Life Criteria Listed in the State of Connecticut Water Quality Standards

--- = no standard
mv = millivolts
mg/l = milligrams per liter
ppm = parts per million
ug/l = micrograms per liter
S.U.= standard units
NTU = Nephelometric Turbidity Units
BDL = below detection limits
MDL = minimum detection limit
NA = not analyzed

TABLE 4 (continued)
2001 Summary of Monitoring Results
CRRA - Wallingford Landfill, Wallingford, CT

	Method #	MDL	Comparative Standard [1]	Ground Water Protection Criteria (GWPC) [2]	Surface Water Protection (SWPC) [2]	Surface Water -Reporting Condition [3]	MW-12A Lower Aquifer	MW-12A Lower Aquifer	MW-12A Lower Aquifer	MW-12A Lower Aquifer
Date							1/10/2001	4/2/2001	7/23/2001	10/11/2001
Field Parameters (units vary)										
pH (S.U.)	N/A	0.01	6.5-8.5	---	---	---	**9.62**	**8.88**	**9.33**	**9.38**
Turbidity (NTU)	N/A	0.1	5	---	---	---	0	0.9	**5.6**	**9.9**
Dissolved Oxygen (ppm)	N/A	0.01	---	---	---	---	8.15	3.31	10.72	4.12
Redox Potential (mv)	N/A	1	---	---	---	---	-94	-0.3	43	-140
Specific Conductivity (umhos/cm)	N/A	0.01	---	---	---	---	332	273	290	0.28
Temperature (deg. C.)	N/A	0.1	---	---	---	---	6.8	13.09	13.8	13.3
Depth to Groundwater (feet)	N/A	0.01	---	---	---	---	35.12	28.60	34.12	35.83
Groundwater Elevation (feet)	N/A	0.01	---	---	---	---	2.33	8.85	3.33	1.62
Leachate Indicator Parameters (mg/l)										
Ammonia as N	350.2	0.02	---	---	---	99	BDL	BDL	0.11	0.21
Nitrate as N	353.2	0.1	10	---	---	---	0.37	0.12	0.39	0.41
Alkalinity, Total	310.1	5	---	---	---	---	58	72	49	52
BOD-5 Day	405.1	2	---	---	---	---	BDL	BDL	BDL	BDL
Chloride	325.3	3	250	---	---	---	50.6	27	38	30
COD	410.2	10	---	---	---	---	8	BDL	BDL	14
Total Coliform Bacteria-per 100 ml	9222B	0	1	---	---	---	**PRESENT**	**PRESENT**	**PRESENT**	0
Hardness(CaCO3)	130.1	0.1	250	---	---	---	44	103	50	37.8
Sulfate	375.4	3	250	---	---	---	20	22	19	18
Total Organic Carbon - TOC	9060.0	1	---	---	---	---	BDL	BDL	BDL	1.2
Total Organic Halogens - TOX	902D	0.015	---	---	---	---	BDL	BDL	0.0520	0.06
Total Dissolved Solids - TDS	160.1	5	500	---	---	---	180	167	150	140
Total Suspended Solids -TSS	160.2	5	---	---	---	---	8	12	BDL	6
Fluoride	340.2	0.1	2	---	---	---	0.30	0.12	**2.20**	1.5
Cyanide, Total	9010	0.01	0.2	0.2	0.052	0.22	BDL	BDL	BDL	BDL
Metals (mg/l)										
Aluminum, Total	202.2	0.01	0.2	---	---	---	**0.35**	**0.26**	**0.34**	**0.32**
Antimony, Total	204.2	0.003	0.006	0.006	86	---	BDL	BDL	BDL	BDL
Arsenic, Total	206.2	0.001	0.05	0.05	0.004	3.60	BDL	BDL	0.004	0.004
Barium, Total	200.7	0.002	1	1	---	---	0.040	0.130	0.093	0.058
Beryllium, Total	210.2	0.001	0.004	0.004	0.004	---	BDL	BDL	BDL	BDL
Cadmium, Total	213.2	0.001	0.005	0.005	0.006	0.018	BDL	BDL	BDL	BDL
Calcium, Total	215.1	1	---	---	---	---	17.0	24.1	16.9	13.0
Chromium, Hexavalent	218.5	0.01	0.05	---	0.11	0.15	BDL	BDL	BDL	BDL
Chromium, Total	200.7	0.001	0.05	0.05	1.31	---	BDL	BDL	BDL	BDL
Cobalt, Total	219.2	0.002	---	---	---	---	BDL	BDL	BDL	BDL
Copper, Total	200.7	0.001	1	1.3	0.048	0.143	BDL	BDL	0.0120	0.003
Iron, Dissolved	200.7	0.002	0.3	---	---	---	0.061	0.022	BDL	0.06
Iron, Total	200.7	0.002	0.3	---	---	---	**0.587**	**1.110**	**2.420**	**0.426**
Lead, Total	239.2	0.001	0.015	0.015	0.013	0.3	BDL	BDL	0.002	BDL
Magnesium, Total	242.1	0.1	---	---	---	---	1.20	6.20	1.89	1.3
Manganese, Dissolved	200.7	0.002	0.05	---	---	---	BDL	BDL	0.00	0.010
Manganese, Total	200.7	0.001	0.05	---	---	---	**0.130**	**0.210**	**0.222**	**0.070**
Mercury, Total	245.1	0.0002	0.002	0.002	0.0004	0.021	BDL	BDL	BDL	BDL
Nickel, Total	200.7	0.001	0.1	0.1	0.88	7.88	BDL	BDL	BDL	BDL
Potassium, Dissolved	258.1	0.1	---	---	---	---	4.24	1.27	3.6	2.70
Potassium, Total	258.1	0.3	---	---	---	---	4.32	1.87	4.27	3.52
Selenium, Total	270.2	0.002	0.05	0.05	0.05	0.2	BDL	BDL	BDL	BDL
Silver, Total	272.2	0.001	0.036	0.036	0.012	0.0102	BDL	BDL	0.001	0.002
Sodium, Dissolved	273.1	0.02	28.0	---	---	---	**39.7**	12.5	25.46	22.8
Sodium, Total	273.1	0.02	28.0	---	---	---	**39.7**	12.5	32.5	27.4
Thallium, Total	279.2	0.001	0.002	0.005	0.063	---	BDL	BDL	BDL	BDL
Vanadium, Total	200.7	0.01	0.05	0.05	---	---	0.02	BDL	0.01	0.015
Zinc, Total	200.7	0.002	5	5	0.123	0.636	0.01	BDL	0.027	0.005
Other Parameters (units vary)										
PCB's (ug/l)	8082	0.05	0.5	0.5	0.5	---	NA	NA	NA	NA
Lindane (ug/l)	8081a/8151	0.02	0.2	0.2	---	10	NA	NA	NA	NA
Chlordane (ug/l)	8081a/8151	0.3	0.3	0.3	0.3	12	NA	NA	NA	NA
Endrin (ug/l)	8081a/8151	0.02	0.2	---	0.1	0.9	NA	NA	NA	NA
Heptachlor (ug/l)	8081a/8151	0.04	0.4	0.4	0.05	2.6	NA	NA	NA	NA
Heptachlor Epoxide (ug/l)	8081a/8151	0.02	0.2	0.2	0.05	2.6	NA	NA	NA	NA
Methoxychlor (ug/l)	8081a/8151	0.5	40	40	---	---	NA	NA	NA	NA
Toxaphene (ug/l)	8081a/8151	0.5	3	3	1	7.3	NA	NA	NA	NA
2,4 D (ug/l)	8081a/8151	0.1	70	70	---	---	NA	NA	NA	NA
2,4,5 TP (ug/l)	8081a/8151	0.1	10	---	---	---	NA	NA	NA	NA
Dioxin (ug/l)	8081a/8151	---	---	---	---	---	NA	NA	NA	NA
Furan (ug/l)	8081a/8151	---	---	---	---	---	NA	NA	NA	NA
Phenols, Total (mg/l)	420.1/420.2	0.015	4	4	92000000	---	BDL	BDL	BDL	0.044
Volatile Organic Compounds (ug/l)										
Acetone	8260B	10	700	700	---	---	BDL	BDL	BDL	BDL
Acrylamide	8032A	2	---	---	---	---	BDL	BDL	BDL	BDL
Acrylonitrile	8260B	0.5	0.5	0.5	20	---	BDL	BDL	BDL	BDL
Benzene	8260B	1	1	1	710	---	BDL	BDL	BDL	BDL
Bromobenzene	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Bromochloromethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Bromodichloromethane	8260B	1	0.56	0.56	---	---	BDL	BDL	BDL	BDL

TABLE 4 (continued)
2001 Summary of Monitoring Results
CRRA - Wallingford Landfill, Wallingford, CT

	Method #	MDL	Comparative Standard [1]	Ground Water Protection Criteria (GWPC) [2]	Surface Water Protection (SWPC) [2]	Surface Water Reporting Condition [3]	MW-12A Lower Aquifer	MW-12A Lower Aquifer	MW-12A Lower Aquifer	MW-12A Lower Aquifer
Bromoform	8260B	1	4	4	10800	---	BDL	BDL	BDL	BDL
Bromomethane	8260B	1	9.8	9.8	---	---	BDL	BDL	BDL	BDL
2-Butanone (MEK)	8260B	2	400	400	---	---	BDL	BDL	BDL	BDL
n-Butylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
sec- Butylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
tert-Butylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
Carbon Disulfide	8260B	10	700	700	---	---	BDL	BDL	BDL	BDL
Carbon Tetrachloride	8260B	1	5	5	132	---	BDL	BDL	BDL	BDL
Chlorobenzene	8260B	1	100	100	420000	---	BDL	BDL	BDL	BDL
Chlorodibromomethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Chloroethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
2-Chloroethylvinylether	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
Chloroform	8260B	1	6	6	14100	---	BDL	BDL	BDL	BDL
Chloromethane	8260B	1	2.7	2.7	---	---	BDL	BDL	BDL	BDL
2-Chlorotoluene	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
4-Chlorotoluene	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
1,2-Dibromo-3-chloropropane (DBCP)	504	0.02	---	---	---	---	BDL	BDL	BDL	BDL
1,2-Dibromoethane (EDB)	504	0.02	0.05	---	---	---	BDL	BDL	BDL	BDL
Dibromomethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
trans-1,4-Dichloro-2-butene	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
1,2-Dichlorobenzene	8260B	1	600	600	170000	---	BDL	BDL	BDL	BDL
1,3-Dichlorobenzene	8260B	1	600	600	26000	---	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	8260B	1	75	75	26000	---	BDL	BDL	BDL	BDL
Dichlorodifluoromethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,1-Dichloroethane	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
1,2-Dichloroethane (EDC)	8260B	1	1	1	2970	---	BDL	BDL	BDL	BDL
1,1-Dichloroethene	8260B	1	7	7	96	---	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethene	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
trans-1,2-Dichloroethene	8260B	1	100	100	---	---	BDL	BDL	BDL	BDL
Dichloromethane (Methylene Chloride)	8260B	1	5	5	48000	---	BDL	BDL	BDL	BDL
1,2-Dichloropropane	8260B	1	5	5	---	---	BDL	BDL	BDL	BDL
1,3-Dichloropropane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
2,2-Dichloropropane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,1-Dichloropropene	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
cis-1,3-Dichloropropene	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene	8260B	1	10	---	---	---	BDL	BDL	BDL	BDL
Ethylbenzene	8260B	1	700	700	580000	---	BDL	BDL	BDL	BDL
2-Hexanone	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Hexachlorobutadiene	8260B	5	0.45	0.45	---	---	BDL	BDL	BDL	BDL
Isopropylbenzene	8260B	1	30	30	---	---	BDL	BDL	BDL	BDL
p-Isopropyltoluene	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
Methyl Iodide	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
4-Methyl-2-pentanone (MIBK)	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Methyl Tert Butyl Ether (MTBE)	8260B	1	100	100	---	---	BDL	BDL	BDL	BDL
Napthalene	8260B	1	280	280	---	---	BDL	BDL	BDL	BDL
n-Propylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
Styrene	8260B	1	100	100	---	---	BDL	BDL	BDL	BDL
1,1,1,2-Tetrachloroethane	8260B	0.5	1	1	---	---	BDL	BDL	BDL	BDL
1,1,2,2-Tetrachloroethane	8260B	0.5	0.5	0.5	110	---	BDL	BDL	BDL	BDL
Tetrachloroethene	8260B	1	5	5	88	---	BDL	BDL	BDL	BDL
Toluene	8260B	1	1000	1000	4000000	---	BDL	BDL	BDL	BDL
1,2,3-Trichlorobenzene	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,2,4-Trichlorobenzene	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	8260B	1	200	200	62000	---	BDL	BDL	BDL	BDL
1,1,2-Trichloroethane	8260B	1	5	5	1260	---	BDL	BDL	BDL	BDL
Trichloroethene	8260B	1	5	5	2340	---	BDL	BDL	BDL	BDL
Trichlorofluoromethane	8260B	1	1300	1300	---	---	BDL	BDL	BDL	BDL
1,2,3-Trichloropropane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,2,4-Trimethylbenzene	8260B	1	350	350	---	---	BDL	BDL	BDL	BDL
1,3,5-Trimethylbenzene	8260B	1	350	350	---	---	BDL	BDL	BDL	BDL
Vinyl Acetate	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Vinyl Chloride	8260B	1	2	2	15750	---	BDL	BDL	BDL	BDL
Total Xylene	8260B	1	530	530	---	---	BDL	BDL	BDL	BDL

[1] Based on lowest protection criteria (see table 4)

[2] From CTDEP Remediation Standard Regulations

[3] Surface Water Reporting Condition Equals Ten Times the Acute Aquatic Life Criteria Listed in the State of Connecticut Water Quality Standards

--- = no standard
mv = millivolts
mg/l = milligrams per liter
ppm = parts per million
ug/l = micrograms per liter
S.U.= standard units
NTU = Nephelometric Turbidity Units
BDL = below detection limits
MDL = minimum detection limit
NA = not analyzed

TABLE 4 (continued)
2001 Summary of Monitoring Results
CRRA - Wallingford Landfill, Wallingford, CT

	Method #	MDL	Comparative Standard [1]	Ground Water Protection Criteria (GWPC) [2]	Surface Water Protection (SWPC) [2]	Surface Water Reporting Condition [3]	MW-100A Lower Aquifer	MW-100A Lower Aquifer	MW-100A Lower Aquifer	MW-100A Lower Aquifer
Date							1/10/2001	4/2/2001	7/20/2001	10/10/2001
Field Parameters (units vary)										
pH (S.U.)	N/A	0.01	6.5-8.5	---	---	---	7.43	7.19	7.39	7.00
Turbidity (NTU)	N/A	0.1	5	---	---	---	1.6	0	3.7	7.4
Dissolved Oxygen (ppm)	N/A	0.01	---	---	---	---	0.35	0.52	0.06	0.34
Redox Potential (mv)	N/A	1	---	---	---	---	-33	76	165	20
Specific Conductivity (umhos/cm)	N/A	0.01	---	---	---	---	308	342	380	0.35
Temperature (deg. C.)	N/A	0.1	---	---	---	---	12.8	14	15.8	17.2
Depth to Groundwater (feet)	N/A	0.01	---	---	---	---	30.67	27.42	30.29	31.69
Groundwater Elevation (feet)	N/A	0.01	---	---	---	---	22.63	25.88	23.01	21.61
Leachate Indicator Parameters (mg/l)										
Ammonia as N	350.2	0.02	---	---	---	99	BDL	BDL	0.03	0.43
Nitrate as N	353.2	0.1	10	---	---	---	2.23	2.78	3	1.1
Alkalinity, Total	310.1	5	---	---	---	---	123	104	100	99
BOD-5 Day	405.1	2	---	---	---	---	BDL	BDL	BDL	BDL
Chloride	325.3	3	250	---	---	---	20.8	24	26	11
COD	410.2	10	---	---	---	---	BDL	4	BDL	BDL
Total Coliform Bacteria-per 100 ml	9222B	0	1	---	---	---	ABSENT	ABSENT	PRESENT	0
Hardness(CaCO3)	130.1	0.1	250	---	---	---	112	149	160	65.7
Sulfate	375.4	3	250	---	---	---	27	26	26	19
Total Organic Carbon - TOC	9060.0	1	---	---	---	---	BDL	BDL	BDL	1.4
Total Organic Halogens - TOX	9020	0.015	---	---	---	---	0.0260	NA	0.0117	BDL
Total Dissolved Solids - TDS	160.1	5	500	---	---	---	201	213	230	160
Total Suspended Solids -TSS	160.2	5	---	---	---	---	1	1	BDL	BDL
Fluoride	340.2	0.1	2	---	---	---	0.14	BDL	2	3.9
Cyanide, Total	9010	0.01	0.2	0.2	0.052	0.22	BDL	BDL	BDL	BDL
Metals (mg/l)										
Aluminum, Total	202.2	0.01	0.2	---	---	---	BDL	BDL	0.02	0.018
Antimony, Total	204.2	0.003	0.006	0.006	86	---	BDL	BDL	BDL	BDL
Arsenic, Total	206.2	0.001	0.05	0.05	0.004	3.60	BDL	BDL	BDL	BDL
Barium, Total	200.7	0.002	1	1	---	---	0.160	0.200	0.248	0.128
Beryllium, Total	210.2	0.001	0.004	0.004	0.004	---	BDL	BDL	BDL	BDL
Cadmium, Total	213.2	0.001	0.005	0.005	0.006	0.018	BDL	BDL	BDL	BDL
Calcium, Total	215.1	1	---	---	---	---	34.8	40.4	46.7	19.4
Chromium, Hexavalent	218.5	0.01	0.05	---	0.11	0.15	BDL	BDL	BDL	BDL
Chromium, Total	200.7	0.001	0.05	0.05	1.31	---	BDL	BDL	BDL	0.003
Cobalt, Total	219.2	0.002	---	---	---	---	BDL	BDL	BDL	BDL
Copper, Total	200.7	0.001	1	1.3	0.048	0.143	BDL	BDL	BDL	0.002
Iron, Dissolved	200.7	0.002	0.3	---	---	---	0.030	0.013	0.003	0.005
Iron, Total	200.7	0.002	0.3	---	---	---	0.045	0.013	0.016	0.041
Lead, Total	239.2	0.001	0.015	0.015	0.013	0.3	BDL	BDL	BDL	0.002
Magnesium, Total	242.1	0.1	---	---	---	---	7.79	8.88	10.5	4.20
Manganese, Dissolved	200.7	0.002	0.05	---	---	---	BDL	BDL	BDL	0.005
Manganese, Total	200.7	0.001	0.05	---	---	---	BDL	BDL	BDL	0.004
Mercury, Total	245.1	0.0002	0.002	0.002	0.0004	0.021	BDL	BDL	BDL	BDL
Nickel, Total	200.7	0.001	0.1	0.1	0.88	7.88	BDL	BDL	BDL	BDL
Potassium, Dissolved	258.1	0.1	---	---	---	---	0.57	0.65	0.5	0.70
Potassium, Total	258.1	0.3	---	---	---	---	0.76	0.65	0.8	0.903
Selenium, Total	270.2	0.002	0.05	0.05	0.05	0.2	BDL	BDL	BDL	0.021
Silver, Total	272.2	0.001	0.036	0.036	0.012	0.0102	BDL	BDL	BDL	0.001
Sodium, Dissolved	273.1	0.02	28.0	---	---	---	17.0	6.91	9.9	20.6
Sodium, Total	273.1	0.02	28.0	---	---	---	20.0	6.91	11	24.9
Thallium, Total	279.2	0.001	0.002	0.005	0.063	---	BDL	BDL	BDL	BDL
Vanadium, Total	200.7	0.01	0.05	0.05	---	---	BDL	BDL	BDL	BDL
Zinc, Total	200.7	0.002	5	5	0.123	0.636	BDL	BDL	BDL	0.123
Other Parameters (units vary)										
PCB's (ug/l)	8082	0.05	0.5	0.5	0.5	---	NA	NA	NA	NA
Lindane (ug/l)	8081a/8151	0.02	0.2	0.2	---	10	NA	NA	NA	NA
Chlordane (ug/l)	8081a/8151	0.3	0.3	0.3	0.3	12	NA	NA	NA	NA
Endrin (ug/l)	8081a/8151	0.02	0.2	---	0.1	0.9	NA	NA	NA	NA
Heptachlor (ug/l)	8081a/8151	0.04	0.4	0.4	0.05	2.6	NA	NA	NA	NA
Heptachlor Epoxide (ug/l)	8081a/8151	0.02	0.2	0.2	0.05	2.6	NA	NA	NA	NA
Methoxychlor (ug/l)	8081a/8151	0.5	40	40	---	---	NA	NA	NA	NA
Toxaphene (ug/l)	8081a/8151	0.5	3	3	1	7.3	NA	NA	NA	NA
2,4 D (ug/l)	8081a/8151	0.1	70	70	---	---	NA	NA	NA	NA
2,4,5 TP (ug/l)	8081a/8151	0.1	10	---	---	---	NA	NA	NA	NA
Dioxin (ug/l)	8081a/8151	---	---	---	---	---	NA	NA	NA	NA
Furan (ug/l)	8081a/8151	---	---	---	---	---	NA	NA	NA	NA
Phenols, Total (mg/l)	420 1/420.2	0.015	4	4	92000000	---	BDL	BDL	BDL	BDL
Volatile Organic Compounds (ug/l)										
Acetone	8260B	10	700	700	---	---	BDL	BDL	BDL	BDL
Acrylamide	8032A	2	---	---	---	---	BDL	BDL	BDL	BDL
Acrylonitrile	8260B	0.5	0.5	0.5	20	---	BDL	BDL	BDL	BDL
Benzene	8260B	1	1	1	710	---	BDL	BDL	BDL	BDL
Bromobenzene	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Bromochloromethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Bromodichloromethane	8260B	1	0.56	0.56	---	---	BDL	BDL	BDL	BDL

TABLE 4 (continued)
2001 Summary of Monitoring Results
CRRA - Wallingford Landfill, Wallingford, CT

	Method #	MDL	Comparative Standard [1]	Ground Water Protection Criteria (GWPC) [2]	Surface Water Protection (SWPC) [2]	Surface Water Reporting Condition [3]	MW-100A Lower Aquifer	MW-100A Lower Aquifer	MW-100A Lower Aquifer	MW-100A Lower Aquifer
Bromoform	8260B	1	4	4	10800	---	BDL	BDL	BDL	BDL
Bromomethane	8260B	1	9.8	9.8	---	---	BDL	BDL	BDL	BDL
2-Butanone (MEK)	8260B	2	400	400	---	---	BDL	BDL	BDL	BDL
n-Butylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
sec- Butylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
tert-Butylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
Carbon Disulfide	8260B	10	700	700	---	---	BDL	BDL	BDL	BDL
Carbon Tetrachlonde	8260B	1	5	5	132	---	BDL	BDL	BDL	BDL
Chlorobenzene	8260B	1	100	100	420000	---	BDL	BDL	BDL	BDL
Chlorodibromomethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Chloroethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
2-Chloroethylvinylether	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
Chloroform	8260B	1	6	6	14100	---	1.0	BDL	2.6	1.2
Chloromethane	8260B	1	2.7	2.7	---	---	BDL	BDL	BDL	BDL
2-Chlorotoluene	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
4-Chlorotoluene	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
1,2-Dibromo-3-chloropropane (DBCP)	504	0.02	---	---	---	---	BDL	BDL	BDL	BDL
1,2-Dibromoethane (EDB)	504	0.02	0.05	---	---	---	BDL	BDL	BDL	BDL
Dibromomethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
trans-1,4-Dichloro-2-butene	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
1,2-Dichlorobenzene	8260B	1	600	600	170000	---	BDL	BDL	BDL	BDL
1,3-Dichlorobenzene	8260B	1	600	600	26000	---	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	8260B	1	75	75	26000	---	BDL	BDL	BDL	BDL
Dichlorodifluoromethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,1-Dichloroethane	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
1,2-Dichloroethane (EDC)	8260B	1	1	1	2970	---	BDL	BDL	BDL	BDL
1,1-Dichloroethene	8260B	1	7	7	96	---	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethene	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
trans-1,2-Dichloroethene	8260B	1	100	100	---	---	BDL	BDL	BDL	BDL
Dichloromethane (Methylene Chloride)	8260B	1	5	5	48000	---	BDL	BDL	BDL	BDL
1,2-Dichloropropane	8260B	1	5	5	---	---	BDL	BDL	BDL	BDL
1,3-Dichloropropane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
2,2-Dichloropropane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,1-Dichloropropene	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
cis-1,3-Dichloropropene	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene	8260B	1	10	---	---	---	BDL	BDL	BDL	BDL
Ethylbenzene	8260B	1	700	700	580000	---	BDL	BDL	BDL	BDL
2-Hexanone	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Hexachlorobutadiene	8260B	5	0.45	0.45	---	---	BDL	BDL	BDL	BDL
Isopropylbenzene	8260B	1	30	30	---	---	BDL	BDL	BDL	BDL
p-Isopropyltoluene	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
Methyl Iodide	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
4-Methyl-2-pentanone (MIBK)	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Methyl Tert Butyl Ether (MTBE)	8260B	1	100	100	---	---	BDL	BDL	BDL	BDL
Napthalene	8260B	1	280	280	---	---	BDL	BDL	BDL	BDL
n-Propylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
Styrene	8260B	1	100	100	---	---	BDL	BDL	BDL	BDL
1,1,1,2-Tetrachloroethane	8260B	0.5	1	1	---	---	BDL	BDL	BDL	BDL
1,1,2,2-Tetrachloroethane	8260B	0.5	0.5	0.5	110	---	BDL	BDL	BDL	BDL
Tetrachloroethene	8260B	1	5	5	88	---	BDL	BDL	BDL	BDL
Toluene	8260B	1	1000	1000	4000000	---	BDL	BDL	BDL	BDL
1,2,3-Trichlorobenzene	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,2,4-Trichlorobenzene	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	8260B	1	200	200	62000	---	10.0	5.0	4.2	BDL
1,1,2-Trichloroethane	8260B	1	5	5	1260	---	BDL	BDL	BDL	BDL
Trichloroethene	8260B	1	5	5	2340	---	5.0	5.0	7.2	5.2
Trichlorofluoromethane	8260B	1	1300	1300	---	---	BDL	BDL	BDL	BDL
1,2,3-Trichloropropane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,2,4-Trimethylbenzene	8260B	1	350	350	---	---	BDL	BDL	BDL	BDL
1,3,5-Trimethylbenzene	8260B	1	350	350	---	---	BDL	BDL	BDL	BDL
Vinyl Acetate	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Vinyl Chlonde	8260B	1	2	2	15750	---	BDL	BDL	BDL	BDL
Total Xylene	8260B	1	530	530	---	---	BDL	BDL	BDL	BDL

[1] Based on lowest protection criteria (see table 4)
[2] From CTDEP Remediation Standard Regulations
[3] Surface Water Reporting Condition Equals Ten Times the Acute Aquatic Life Criteria Listed in the State of Connecticut Water Quality Standards

--- = no standard
mv = millivolts
mg/l = milligrams per liter
ppm = parts per million
ug/l = micrograms per liter
S.U = standard units
NTU = Nephelometric Turbidity Units
BDL = below detection limits
MDL = minimum detection limit
NA = not analyzed

TABLE 4 (continued)
2001 Summary of Monitoring Results
CRRA - Wallingford Landfill, Wallingford, CT

	Method #	MDL	Comparative Standard [1]	Ground Water Protection Criteria (GWPC) [2]	Surface Water Protection (SWPC) [2]	Surface Water Reporting Condition [3]	MW-101A Lower Aquifer	MW-101A Lower Aquifer	MW-101A Lower Aquifer	MW-101A Lower Aquifer
Date							1/10/2001	4/2/2001	7/18/2001	10/10/2001
Field Parameters (units vary)										
pH (S.U.)	N/A	0.01	6.5-8.5	—	—	—	7.47	7.55	7.59	7.35
Turbidity (NTU)	N/A	0.1	5	—	—	—	**13.5**	0	**33.1**	**15.8**
Dissolved Oxygen (ppm)	N/A	0.01	—	—	—	—	2.56	2.03	1.92	0.02
Redox Potential (mv)	N/A	1	—	—	—	—	114	132.4	22	-98
Specific Conductivity (umhos/cm)	N/A	0.01	—	—	—	—	436	446	500	0.49
Temperature (deg. C.)	N/A	0.1	—	—	—	—	12.57	13.44	16.1	16.5
Depth to Groundwater (feet)	N/A	0.01	—	—	—	—	30.96	27.95	29.47	31.81
Groundwater Elevation (feet)	N/A	0.01	—	—	—	—	24.39	27.4	25.88	23.54
Leachate Indicator Parameters (mg/l)										
Ammonia as N	350.2	0.02	—	—	—	99	BDL	BDL	0.04	0.11
Nitrate as N	353.2	0.1	10	—	—	—	2.07	2.68	2.5	1.5
Alkalinity, Total	310.1	5	—	—	—	—	116	100	83	110
BOD-5 Day	405.1	2	—	—	—	—	BDL	BDL	BDL	BDL
Chloride	325.3	3	250	—	—	—	58.0	64	69	51
COD	410.2	10	—	—	—	—	BDL	4	BDL	BDL
Total Coliform Bacteria-per 100 ml	9222B	0	1	—	—	—	ABSENT	ABSENT	PRESENT	0
Hardness(CaCO3)	130.1	0.1	250	—	—	—	169	184	176	166
Sulfate	375.4	3	250	—	—	—	30	24	26	29
Total Organic Carbon - TOC	9060.0	1	—	—	—	—	BDL	BDL	BDL	1.8
Total Organic Halogens - TOX	9020	0.015	—	—	—	—	0.0340	BDL	0.0128	BDL
Total Dissolved Solids - TDS	160.1	5	500	—	—	—	269	323	310	260
Total Suspended Solids -TSS	160.2	5	—	—	—	—	BDL	BDL	BDL	BDL
Fluoride	340.2	0.1	2	—	—	—	BDL	BDL	1.9	3.5
Cyanide, Total	9010	0.01	0.2	0.2	0.052	0.22	BDL	BDL	BDL	0.04
Metals (mg/l)										
Aluminum, Total	202.2	0.01	0.2	—	—	—	BDL	BDL	BDL	BDL
Antimony, Total	204.2	0.003	0.006	0.006	86	—	BDL	BDL	BDL	BDL
Arsenic, Total	206.2	0.001	0.05	0.05	0.004	3.60	BDL	BDL	BDL	BDL
Barium, Total	200.7	0.002	1	1	—	—	0.160	0.180	0.165	0.183
Beryllium, Total	210.2	0.001	0.004	0.004	0.004	—	BDL	BDL	BDL	BDL
Cadmium, Total	213.2	0.001	0.005	0.005	0.006	0.018	BDL	BDL	BDL	BDL
Calcium, Total	215.1	1	—	—	—	—	55.7	54.5	53.7	51.8
Chromium, Hexavalent	218.5	0.01	0.05	—	0.11	0.15	BDL	BDL	BDL	BDL
Chromium, Total	200.7	0.001	0.05	0.05	1.31	—	BDL	BDL	BDL	BDL
Cobalt, Total	219.2	0.002	—	—	—	—	BDL	BDL	BDL	BDL
Copper, Total	200.7	0.001	1	1.3	0.048	0.143	BDL	BDL	0.0080	0.003
Iron, Dissolved	200.7	0.002	0.3	—	—	—	0.038	0.040	0.017	0.033
Iron, Total	200.7	0.002	0.3	—	—	—	0.046	0.047	BDL	0.069
Lead, Total	239.2	0.001	0.015	0.015	0.013	0.3	BDL	BDL	BDL	BDL
Magnesium, Total	242.1	0.1	—	—	—	—	9.85	8.91	10.2	8.96
Manganese, Dissolved	200.7	0.002	0.05	—	—	—	BDL	BDL	0.00	0.048
Manganese, Total	200.7	0.001	0.05	—	—	—	BDL	BDL	BDL	**0.068**
Mercury, Total	245.1	0.0002	0.002	0.002	0.0004	0.021	BDL	BDL	BDL	BDL
Nickel, Total	200.7	0.001	0.1	0.1	0.88	7.88	BDL	BDL	BDL	0.015
Potassium, Dissolved	258.1	0.1	—	—	—	—	0.61	0.46	1.00	0.80
Potassium, Total	258.1	0.3	—	—	—	—	0.74	0.68	BDL	1.06
Selenium, Total	270.2	0.002	0.05	0.05	0.05	0.2	BDL	BDL	BDL	BDL
Silver, Total	272.2	0.001	0.036	0.036	0.012	0.0102	BDL	BDL	BDL	0.001
Sodium, Dissolved	273.1	0.02	28.0	—	—	—	16.0	13.1	15.3	12.0
Sodium, Total	273.1	0.02	28.0	—	—	—	16.0	13.1	13	14.8
Thallium, Total	279.2	0.001	0.002	0.005	0.063	—	BDL	BDL	BDL	BDL
Vanadium, Total	200.7	0.01	0.05	0.05	—	—	BDL	BDL	BDL	BDL
Zinc, Total	200.7	0.002	5	5	0.123	0.636	BDL	BDL	BDL	0.121
Other Parameters (units vary)										
PCB's (ug/l)	8082	0.05	0.5	0.5	0.5	—	NA	NA	BDL	NA
Lindane (ug/l)	8081a/8151	0.02	0.2	0.2	—	10	NA	NA	NA	NA
Chlordane (ug/l)	8081a/8151	0.3	0.3	0.3	0.3	12	NA	NA	NA	NA
Endrin (ug/l)	8081a/8151	0.02	0.2	—	0.1	0.9	NA	NA	NA	NA
Heptachlor (ug/l)	8081a/8151	0.04	0.4	0.4	0.05	2.6	NA	NA	NA	NA
Heptachlor Epoxide (ug/l)	8081a/8151	0.02	0.2	0.2	0.05	2.6	NA	NA	NA	NA
Methoxychlor (ug/l)	8081a/8151	0.5	40	40	—	—	NA	NA	NA	NA
Toxaphene (ug/l)	8081a/8151	0.5	3	3	1	7.3	NA	NA	NA	NA
2,4-D (ug/l)	8081a/8151	0.1	70	70	—	—	NA	NA	NA	NA
2,4,5-TP (ug/l)	8081a/8151	0.1	10	—	—	—	NA	NA	NA	NA
Dioxin (ug/l)	8081a/8151	—	—	—	—	—	NA	NA	NA	NA
Furan (ug/l)	8081a/8151	—	—	—	—	—	NA	NA	NA	NA
Phenols, Total (mg/l)	420.1/420.2	0.015	4	4	92000000	—	BDL	BDL	0.028	BDL
Volatile Organic Compounds (ug/l)										
Acetone	8260B	10	700	700	—	—	BDL	BDL	BDL	BDL
Acrylamide	8032A	2	—	—	—	—	BDL	BDL	BDL	BDL
Acrylonitrile	8260B	0.5	0.5	0.5	20	—	BDL	BDL	BDL	BDL
Benzene	8260B	1	1	1	710	—	BDL	BDL	BDL	BDL
Bromobenzene	8260B	1	—	—	—	—	BDL	BDL	BDL	BDL
Bromochloromethane	8260B	1	—	—	—	—	BDL	BDL	BDL	BDL
Bromodichloromethane	8260B	1	0.56	0.56	—	—	BDL	BDL	BDL	BDL

Click Here to Go to Table 2

TABLE 4 (continued)
2001 Summary of Monitoring Results
CRRA - Wallingford Landfill, Wallingford, CT

	Method #	MDL	Comparative Standard [1]	Ground Water Protection Criteria (GWPC) [2]	Surface Water Protection (SWPC) [2]	Surface Water Reporting Condition [3]	MW-101A Lower Aquifer	MW-101A Lower Aquifer	MW-101A Lower Aquifer	MW-101A Lower Aquifer
Bromoform	8260B	1	4	4	10800	---	BDL	BDL	BDL	BDL
Bromomethane	8260B	1	9.8	9.8	---	---	BDL	BDL	BDL	BDL
2-Butanone (MEK)	8260B	2	400	400	---	---	BDL	BDL	BDL	BDL
n-Butylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
sec- Butylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
tert-Butylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
Carbon Disulfide	8260B	10	700	700	---	---	BDL	BDL	BDL	BDL
Carbon Tetrachloride	8260B	1	5	5	132	---	BDL	BDL	BDL	BDL
Chlorobenzene	8260B	1	100	100	420000	---	BDL	BDL	BDL	BDL
Chlorodibromomethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Chloroethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
2-Chloroethylvinylether	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
Chloroform	8260B	1	6	6	14100	---	3.0	BDL	2.3	1.0
Chloromethane	8260B	1	2.7	2.7	---	---	BDL	BDL	BDL	BDL
2-Chlorotoluene	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
4-Chlorotoluene	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
1,2-Dibromo-3-chloropropane (DBCP)	504	0.02	---	---	---	---	BDL	BDL	BDL	BDL
1,2-Dibromoethane (EDB)	504	0.02	0.05	---	---	---	BDL	BDL	BDL	BDL
Dibromomethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
trans-1,4-Dichloro-2-butene	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
1,2-Dichlorobenzene	8260B	1	600	600	170000	---	BDL	BDL	BDL	BDL
1,3-Dichlorobenzene	8260B	1	600	600	26000	---	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	8260B	1	75	75	26000	---	BDL	BDL	BDL	BDL
Dichlorodifluoromethane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,1-Dichloroethane	8260B	1	70	70	---	---	BDL	BDL	BDL	1.5
1,2-Dichloroethane (EDC)	8260B	1	1	1	2970	---	BDL	BDL	BDL	BDL
1,1-Dichloroethene	8260B	1	7	7	96	---	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethene	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
trans-1,2-Dichloroethene	8260B	1	100	100	---	---	BDL	BDL	BDL	BDL
Dichloromethane (Methylene Chloride)	8260B	1	5	5	48000	---	BDL	BDL	BDL	BDL
1,2-Dichloropropane	8260B	1	5	5	---	---	BDL	BDL	BDL	BDL
1,3-Dichloropropane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
2,2-Dichloropropane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,1-Dichloropropene	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
cis-1,3-Dichloropropene	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
trans-1,3-Dichloropropene	8260B	1	10	---	---	---	BDL	BDL	BDL	BDL
Ethylbenzene	8260B	1	700	700	580000	---	BDL	BDL	BDL	BDL
2-Hexanone	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Hexachlorobutadiene	8260B	5	0.45	0.45	---	---	BDL	BDL	BDL	BDL
Isopropylbenzene	8260B	1	30	30	---	---	BDL	BDL	BDL	BDL
p-Isopropyltoluene	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
Methyl Iodide	8260B	10	---	---	---	---	BDL	BDL	BDL	BDL
4-Methyl-2-pentanone (MIBK)	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Methyl Tert Butyl Ether (MTBE)	8260B	1	100	100	---	---	BDL	BDL	BDL	BDL
Napthalene	8260B	1	280	280	---	---	BDL	BDL	BDL	BDL
n-Propylbenzene	8260B	1	61	61	---	---	BDL	BDL	BDL	BDL
Styrene	8260B	1	100	100	---	---	BDL	BDL	BDL	BDL
1,1,1,2-Tetrachloroethane	8260B	0.5	1	1	---	---	BDL	BDL	BDL	BDL
1,1,2,2-Tetrachloroethane	8260B	0.5	0.5	0.5	110	---	BDL	BDL	BDL	BDL
Tetrachloroethene	8260B	1	5	5	88	---	2.0	BDL	1.6	BDL
Toluene	8260B	1	1000	1000	4000000	---	BDL	BDL	BDL	BDL
1,2,3-Trichlorobenzene	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,2,4-Trichlorobenzene	8260B	1	70	70	---	---	BDL	BDL	BDL	BDL
1,1,1-Trichloroethane	8260B	1	200	200	62000	---	2.0	BDL	3	BDL
1,1,2-Trichloroethane	8260B	1	5	5	1260	---	BDL	BDL	BDL	BDL
Trichloroethene	8260B	1	5	5	2340	---	1.0	BDL	1	1.1
Trichlorofluoromethane	8260B	1	1300	1300	---	---	BDL	BDL	BDL	BDL
1,2,3-Trichloropropane	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
1,2,4-Trimethylbenzene	8260B	1	350	350	---	---	BDL	BDL	BDL	BDL
1,3,5-Trimethylbenzene	8260B	1	350	350	---	---	BDL	BDL	BDL	BDL
Vinyl Acetate	8260B	1	---	---	---	---	BDL	BDL	BDL	BDL
Vinyl Chloride	8260B	1	2	2	15750	---	BDL	BDL	BDL	BDL
Total Xylene	8260B	1	530	530	---	---	BDL	BDL	BDL	BDL

[1] Based on lowest protection criteria (see table 4)
[2] From CTDEP Remediation Standard Regulations
[3] Surface Water Reporting Condition Equals Ten Times the Acute Aquatic Life Criteria Listed in the State of Connecticut Water Quality Standards

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MDL = minimum detection limit
NA = not analyzed