REQUEST FOR BIDS

FOR

ENVIRONMENTAL MONITORING, LABORATORY ANALYSIS AND REPORTING SERVICES FOR CRRA LANDFILLS
(Bid Number 13-EN-002)

BID DUE DATE:
April 4, 2013

Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, Connecticut 06103-1722

February 25, 2013

REQUEST FOR BIDS

For

ENVIRONMENTAL MONITORING, LABORATORY ANALYSIS AND REPORTING SERVICES FOR CRRA LANDFILLS

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Connecticut Resources Recovery Authority
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ENVIRONMENTAL MONITORING, LABORATORY ANALYSIS AND REPORTING SERVICES FOR CRRA LANDFILLS

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CONNECTICUT RESOURCES RECOVERY AUTHORITY

NOTICE TO FIRMS – REQUEST FOR BIDS

The Connecticut Resources Recovery Authority ("CRRA") is a quasi-public entity, a body politic and corporate, created pursuant to C.G.S. Chapter 446e, Section 22a-261, as a public instrumentality and political subdivision of the State of Connecticut (the "State"). CRRA has the responsibility for developing and implementing environmentally sound solutions and best practices for solid waste disposal and recycling on behalf of, and in the best interests of the municipalities and residents of the State of Connecticut. CRRA oversees a statewide network of regional waste-to-energy systems, a single-stream recycling facility, five transfer stations, and five landfills.

CRRA is seeking bids from qualified firms to furnish all materials, labor, equipment and incidentals to provide environmental monitoring, laboratory analysis and reporting services for certain of the CRRA landfills and to perform other work incidental thereto. The following are the CRRA landfills that are the subject of this Request For Bids ("RFB") (collectively, the "Landfills"):

- The Ellington Landfill, located at 217 Sadds Mill Road (State Route 140) in Ellington, Connecticut;
- The Hartford Landfill, located at 180 Leibert Road (in the North Meadows off of Exit 33 on I-91) in Hartford, Connecticut;
- The Shelton Landfill, located at 866 River Road (State Route 110) in Shelton, Connecticut; and
- The Wallingford Landfill, located on Pent Road (off of South Cherry Street) in Wallingford, Connecticut.

Firms may submit bids to provide the services at any one, all or a combination of the above listed Landfills. While one bid may cover multiple landfills, a separate Not-To-Exceed Bid Price And Payment Rate Schedule Form must be submitted for each landfill for which the firm wishes to be considered. CRRA intends to select one firm to provide the services at each landfill, and may select a firm to provide the services at more than one landfill.

RFB package documents may be obtained on the World Wide Web at http://www.crra.org under the "Business Opportunities" page beginning **Monday, February 25, 2013.** The documents will also be available Monday through Friday, from 8:30 a.m. to 5:00 p.m. at the offices of CRRA, 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103-1722, beginning on the same date. Anyone intending to pick up the documents at CRRA's offices must contact Roger Guzowski by telephone (860-757-7703), by e-mail (rguzowski@crra.org) or by fax (860-757-7742) at least 24 hours in advance. There is a charge of $25.00 for anyone picking up the documents at CRRA's office. Payment should be made by check payable to "Connecticut Resources Recovery Authority."

There will be a **mandatory pre-bid conference** for prospective bidders at the CRRA Visitor's Center and Trash Museum, 211 Murphy Road, Hartford, Connecticut 06114, at 9:00 a.m., Wednesday, March 13, 2013. There will also be **mandatory site tours** of each of the Landfills for all prospective bidders. Prospective bidders must attend the pre-bid conference and the site tour of each Landfill for which the bidder wishes to be considered. The site tours are scheduled as follows:

- Hartford Landfill – 12:30p.m., Wednesday, March 13, 2013;
- Ellington Landfill – 3:00p.m., Wednesday, March 13, 2013;
- Wallingford Landfill – 9:30a.m., Thursday, March 14, 2013; and
- Shelton Landfill – 1:00 p.m., Thursday, March 14, 2013.

Any prospective bidder intending to participate in the pre-bid conference and any of the site tours should notify CRRA by submitting the Notice Of Interest Form (Section 3 of the RFB Package Documents) to Roger Guzowski via e-mail (rguzowski@crra.org) or via fax (860-757-7742) by 3:00 p.m., Tuesday, March 12, 2013.

Sealed bids must be received at the offices of CRRA, 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103-1722 no later than 3:00 p.m., Thursday, April 4, 2013. Bids received after the time and date set forth above shall be rejected. All bids shall remain open for one hundred twenty (120) days after the bid due date.

Bids will be opened at CRRA's convenience on or after the bid due date. Note that all information submitted by a firm responding to this RFB is subject to the Connecticut Freedom of Information Act.

CRRA is an Equal Opportunity and Affirmative Action employer and does not discriminate in its hiring, employment, contracting, or business practices. CRRA is committed to complying with the Americans with Disability Act of 1990 (ADA) and does not discriminate on the basis of disability in admission to, access to, or operation of its programs, services, or activities.

All questions regarding this RFB must be submitted **in writing** to Roger Guzowski, by e-mail (rguzowski@crra.org), by fax (860-757-7742), or by correspondence (CRRA, 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103) no later than 3:00 p.m., Thursday March 21, 2013. Subject to the discretion of CRRA, CRRA may decide to provide written responses to firms no later than Thursday March 28, 2013. Any firm considering submitting a bid is prohibited from having any ex-parte communications with any CRRA staff member or CRRA Board member except Mr. Guzowski.

REQUEST FOR BIDS

FOR

ENVIRONMENTAL MONITORING, LABORATORY ANALYSIS AND REPORTING SERVICES FOR CRRA LANDFILLS

SECTION 2

INSTRUCTIONS TO FIRMS

INSTRUCTIONS TO BIDDERS

ENVIRONMENTAL MONITORING, LABORATORY ANALYSIS AND REPORTING SERVICES FOR CRRA LANDFILLS

CONTENTS

1. Introduction

The Connecticut Resources Recovery Authority ("CRRA") is a quasi-public agency, a body politic and corporate, created pursuant to C.G.S. Chapter 446e, Section 22a-261, as a public instrumentality and political subdivision of the State of Connecticut (the "State"). CRRA has the responsibility for developing and implementing environmentally sound solutions and best practices for solid waste disposal and recycling on behalf of, and in the best interests of the municipalities and residents of the State of Connecticut. CRRA over-

sees a statewide network of regional waste-to-energy systems, a single-stream recycling facility, five transfer stations, and five landfills.

CRRA is required by the various permits it holds for its five landfills to conduct a variety of environmental monitoring, laboratory analysis and reporting activities for each of them. CRRA is seeking bids from qualified firms to furnish all materials, labor, equipment and incidentals to provide environmental monitoring, laboratory analysis and reporting services for four of the five CRRA landfills and to perform other work incidental thereto.

The following are the CRRA landfills that are the subject of this Request For Bids ("RFB" (collectively, the "Landfills"):

- The Ellington Landfill, located at 217 Sadds Mill Road (Route 140) in Ellington, Connecticut 06029;
- The Hartford Landfill, located at 180 Leibert Road (in the North Meadows off of Exit 33 on I-91) in Hartford, Connecticut 06120;
- The Shelton Landfill, located at 866 River Road (Route 110) in Shelton, Connecticut 06484; and
- The Wallingford Landfill, located on Pent Road (off of South Cherry Street) in Wallingford, Connecticut 06492.

The Ellington, Shelton and Wallingford Landfills have been certified by the Connecticut Department of Environmental Protection as closed and CRRA now provides post-closure monitoring and maintenance care for them. As of the date of this RFB, CRRA is in the process of closing the Hartford Landfill.

Bidders may submit bids to provide the services at any one, all or a combination of the above listed Landfills. CRRA intends to select one firm per Landfill to provide the required services. CRRA may select a firm to provide the services at more than one landfill. However, even if one firm is selected to provide the services at more than one landfill, CRRA will enter into a separate contract for each landfill. The term of the contracts resulting from this RFB will be from July 1, 2013 through June 30, 2016.

The bidder selected to perform the services at any particular landfill will be reimbursed for work performed on either a "lump sum" or "time and materials" basis, as specified in the Not-To Exceed Bid Price And Payment Rate Schedule Form for each landfill. The "time and materials" tasks will be reimbursed at the rates specified in the payment rate schedule in the Not-To Exceed Bid Price And Payment Rate Schedule Form, up to the amount specified as the not-to-exceed contract price.

2. RFB Projected Timeline

The following is the projected timeline for the RFB process:

ITEM	DATE/TIME
RFB Documents Available	Monday, February 25, 2013
Mandatory Pre-Bid Conference	9:00 AM, Wednesday, March 13, 2013
Mandatory Pre-Bid Tour of Hartford Landfill	12:30 PM, Wednesday, March 13, 2013
Mandatory Pre-Bid Tour of Ellington Landfill	3:00 PM, Wednesday, March 13, 2013
Mandatory Pre-Bid Tour of Wallingford Landfill	9:30 AM, Thursday, March 14, 2013
Mandatory Pre-Bid Tour of Shelton Landfill	1:00 PM/ Thursday, March 14, 2013
Deadline for Written Questions	3:00 PM, Thursday, March 21, 2013
Response to Written Questions	No Later Than Thursday, March 28, 2013
Bids Due at CRRA	3:00 PM, Thursday, April 4, 2013
Interviews (Optional)	Expected to be on or about the week of April 22, 2013
Selection and Notice(s) of Award Issued	Pending approval by the CRRA Board of Directors (expected to be presented to the Board for approval at the May Board Meeting).
Effective Date of the Agreement	July 1, 2013

CRRA reserves the right at its sole and absolute discretion to extend any of the actual or proposed dates in the above Projected Timeline and further reserves the right to reject any and all bids and republish this RFB. CRRA also reserves the right at its sole and absolute discretion to terminate this RFB process at any time prior to the execution of any Agreement.

3. Definitions

As used in this Instructions To Bidders and in other Contract Documents (as defined herein), the following terms shall have the meanings as set forth below:

(a) **Addenda**: Written or graphic documents issued prior to the bid due date that clarify, correct or change any or all of the Contract Documents.

(b) **Contract Documents**:

1. Agreement For Environmental Monitoring, Laboratory Analysis and Reporting Services For The [NAME OF LANDFILL] Landfill (the "Agreement");
2. RFB Package Documents (defined below);
3. Addenda;
4. The bidder's Bid (including all documentation attached to or accompanying such Bid, all other documentation submitted in connection with such Bid, and all post-submission documentation submitted prior to the Notice Of Award);
5. Notice Of Award, with Contractor's Certification Concerning Gifts attached [to be executed by successful bidder];
6. Any written amendments to the Agreement.

(c) **Laws And Regulations**: Any and all applicable laws, rules, regulations, ordinances, codes, orders and permits of any and all federal, state and local governmental and quasi-governmental bodies, agencies, authorities and courts having jurisdiction.

(d) **Notice Of Award**: Written notification from CRRA to the apparent successful bidder that states that CRRA has accepted such bidder's bid and sets forth the remaining conditions that must be fulfilled by such bidder before CRRA executes the Agreement.

(e) **RFB Package Documents**:

1. Notice To Firms – Request For Bids
2. Instructions To Bidders
3. Notice of Interest Form
4. Mandatory Bid Forms
   - 4.1. Bid Form
   - 4.2. Not-To-Exceed Bid Price And Payment Rate Schedule Form
   - 4.2 (a) Ellington Landfill
   - 4.2 (b) Hartford Landfill
   - 4.2 (c) Shelton Landfill
   - 4.2 (d) Wallingford Landfill
   - 4.3. Business Information Form
   - 4.4. Personnel Background And Experience Form
   - 4.5. Business Disclosure Form
   - 4.6. References Form
   - 4.7. Questionnaire Concerning Affirmative Action, Small Business Contractors And Occupational Health And Safety
   - 4.8. Affidavit Concerning Nondiscrimination
   - 4.9. Background Questionnaire
   - 4.10. SEEC Form 11, Notice To Executive Branch State Contractors And Prospective State Contractors Of Campaign Contribution And Solicitation Ban
5. Notice Of Award

6. Agreement For Environmental Monitoring, Laboratory Analysis And Reporting Services For [NAME OF LANDFILL] Landfill
   Exhibit A: Scope Of Services
      (a) Ellington Landfill
      (b) Hartford Landfill
      (c) Shelton Landfill
      (d) Wallingford Landfill
   Exhibit B: Request For Services – Standard Form
   Exhibit C: Not-To-Exceed Contract Price And Payment Rate Schedule
   Exhibit D: CRRA Travel and Expense Reporting Document
   Exhibit E: Monthly Bill Format – Lump Sum Tasks
      (a) Ellington Landfill
      (b) Hartford Landfill
      (c) Shelton Landfill
      (d) Wallingford Landfill
   Exhibit F: Monthly Bill Format – Time and Materials Tasks
   Exhibit G: SEEC Form 11, Notice To Executive Branch State Contractors And Prospective State Contractors Of Campaign Contribution And Solicitation Ban
   Exhibit H: Affidavit Concerning Nondiscrimination
   Exhibit I: Affidavit Concerning Consulting Fees
   Exhibit J: Contractor's Certification Concerning Gifts
   Exhibit K: CRRA President's Certification Concerning Gifts

Terms that are not defined and used in this Instructions To Bidders shall have the same respective meanings assigned to such terms in the Agreement.

4. Communications With CRRA Staff And Board Members

Except as otherwise authorized by this Instructions To Bidders, during the period while the RFB process is active (i.e., from the date CRRA issues the RFB until the date the successful bidder accepts the Notice Of Award), contractors contemplating or preparing bids are prohibited from contacting CRRA staff or CRRA Board of Directors members in an ex parte manner to discuss the RFB submission process. A contractor's RFB submission shall be rejected if any of the foregoing ex parte communications take place.

5. Scope Of Services

The Services to be performed under the Agreements are more particularly described in **Exhibit A** of the Agreement. **Exhibit A** in the Agreement attached to this RFB contains the Scope Of Services for each of the four Landfills. The Agreement that results from this RFB for a particular Landfill will contain in **Exhibit A** only the Scope Of Services for that particular Landfill. Specific instructions about how the Services are to be performed are included in the Agreement.

If additional work is required during the term of an Agreement resulting from this RFB at the Landfill to which the Agreement pertains, CRRA will issue Requests For Services to the successful bidder for the Landfill for the specific additional work to be performed.

The successful bidder for a particular Landfill will be required to furnish all materials, labor, equipment and incidentals necessary to perform the environmental monitoring, laboratory analysis and reporting services for that Landfill for the period from July 1, 2013 through June 30, 2016.

6. Availability Of RFB Package Documents

Complete sets of the RFB Package Documents may be obtained on the World Wide Web beginning Monday, February 25, 2013 at:

> http://www.crra.org under the "Business Opportunities" page; select the "RFB: Environmental Monitoring, Laboratory Analysis and Reporting Services for CRRA Landfills" link.

The RFB Package Documents are in PDF format. The forms included in the RFB Package Documents are also available for downloading in Microsoft Word format on CRRA's web site. Prospective bidders can fill the forms out by typing the answers on their computer's keyboard. The forms can then be printed and submitted with the bid. CRRA encourages bidders to make use of the downloadable Word forms.

The RFB Package Documents are also available Monday through Friday, from 8:30 a.m. to 4:30 p.m. at CRRA's offices, 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103-1722, beginning on the same date. Anyone intending to pick up the documents at CRRA's offices must contact Roger Guzowski by telephone (860-757-7703), by e-mail (rguzowski@crra.org) or by fax (860-757-7742) at least 24 hours in advance. There is a charge of $25.00 for anyone picking up the documents at CRRA's office. Payment should be made by check payable to "Connecticut Resources Recovery Authority."

7. Mandatory Pre-Bid Conferences And Landfill Tours

CRRA staff will conduct a **mandatory pre-bid conference** for all prospective bidders at the CRRA Visitor's Center and Trash Museum, 211 Murphy Road, Hartford, Connecticut, at 9:00 a.m., Wednesday, March 13, 2013.

CRRA staff will also conduct **mandatory site tours** of each of the Landfills for all prospective bidders. Prospective bidders must attend the Landfill tour for each Landfill for which they intend to submit a bid.

The mandatory Landfill tours are scheduled as follows:

- Hartford Landfill – 12:30 p.m., Wednesday, March 13, 2013;
- Ellington Landfill – 3:00 p.m., Wednesday, March 13, 2013;

- Wallingford Landfill – 9:30 a.m., Thursday, March 14, 2013; and
- Shelton Landfill – 1:00 p.m., Thursday, March 14, 2013.

CRRA reserves the right to reject bids submitted by a bidder that did not attend the mandatory pre-bid conference and the mandatory Landfill tour for each Landfill for which the bid is submitted. Alternate times for visiting the Landfills will not be allowed.

Prospective Proposers should submit the Notice of Interest Form (Section 3 of the RFB Package Documents) to Roger Guzowski, CRRA Contract and Procurement Manager via e-mail at rguzowski@crra.org or via fax at (860)757-7742 on or prior to Tuesday March 12, 2013 to register.

Directions to the CRRA Visitor's Center and Trash Museum are available under the "Contact CRRA" section of the CRRA web site (http://www.crra.org/pages/contact_trash_museum.htm). Directions to each of the Landfills and instructions on where to meet for the tours will be provided at the pre-bid conference.

8. Addenda And Interpretations

CRRA may issue Addenda to the RFB Package Documents that shall, upon issuance, become part of the RFB Package Documents and binding upon all potential or actual bidders for the Services. Such Addenda may be issued in response to requests for interpretation or clarification received from potential bidders. Subject to the discretion of CRRA, CRRA may decide to provide written responses to such requests for interpretation or clarification.

Any request for interpretation or clarification of any documents included in the RFB Package Documents must be **submitted in writing to Roger Guzowski by e-mail (rguzowski@crra.org), by fax (860-757-7742), or by correspondence (CRRA, 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103-1722). To be given consideration, any such written request must be received by CRRA by 3:00 p.m., Thursday March 21, 2013.**

Addenda, if any, issued prior to the mandatory pre-bid conference and site tour will be posted on CRRA's web site (http://www.crra.org on the "Business Opportunities" page under the "RFB: Environmental Monitoring, Laboratory Analysis and Reporting Services for CRRA Landfills" heading).

Addenda issued after the mandatory pre-bid conference and site tour will be mailed and/or e-mailed to all persons who attended the pre-bid conference and site tour and will be posted on CRRA's web site (http://www.crra.org on the "Business Opportunities" page under the "RFB: Environmental Monitoring, Laboratory Analysis and Reporting Services for CRRA Landfills" heading). Such addenda will be mailed/e-mailed and posted on the web site no later than Thursday, March 28, 2013.

Failure of any bidder to receive any such Addenda shall not relieve such bidder from any conditions stipulated in such Addenda. Only questions answered or issues addressed by

formal written Addenda will be binding. **All oral and other written responses, statements, interpretations or clarifications shall be without legal effect and shall not be binding upon CRRA.**

9. Bid Submission Procedures

Sealed bids in response to this RFB must be submitted no later than 3:00 p.m., Eastern Time, Thursday, April 4, 2013 at the offices of CRRA, 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103-1722, Attn: Roger Guzowski. CRRA reserves the right to reject bids received after the time and date set forth above.

Each bidder must submit one (1) original and one (1) copy of its bid. The one copy may be submitted in one of three ways:

(a) By attaching a copy of its bid in PDF format to an e-mail sent to Roger Guzowski (rguzowski@crra.org);

(b) By saving a copy of its bid in PDF format to a compact disc ("CD") and including the CD with the original or its bid; or

(c) By submitting a hard copy of its bid along with the original.

Regardless of how a bidder submits the copy of its bid, the original and the copy must be received by CRRA no later than 3:00 p.m., Eastern Time on **Thursday, April 4, 2013**.

The original of the bid shall be stamped or otherwise marked as such. The original of each bid shall be enclosed in a sealed envelope that shall be clearly marked "Bid For Environmental Monitoring, Laboratory Analysis and Reporting Services for CRRA Landfills." If the bidder elects to submit the required copy of its bid on a CD, the CD shall be included in the sealed envelope with the original. If the bidder elects to submit a hard copy of its bid, the copy shall be included in the sealed envelope with the original.

10. Joint Bids

No joint bids shall be accepted, but the use of subcontractors is acceptable.

11. Period Bids Shall Remain Open

Bids shall remain open and subject to acceptance for one hundred twenty (120) days after the bid due date.

12. Non-Negotiability of the Agreement

The terms and conditions of the Agreement (Section 6 of the RFB Package Documents), as attached, are non-negotiable. Any potential bidder that will be unable to execute the Agreement, as attached, should not submit a bid. This includes, but is not limited to the Insurance requirements (Section 6 of the Agreement).

13. Modification/Withdrawal of a Bid

Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a bid must be executed) and delivered to CRRA's offices at any time prior to the bid due date.

14. Bid Contents

Bids shall be submitted on forms provided by CRRA as part of the RFB Package Documents, all of which forms must be completed with the appropriate information required and all blanks on such forms filled in.

A bid must consist of the following and be in the following order:

(a) Title page of the bid (not the title page of the RFB Package Documents), including the title of the solicitation, the name of the bidder and the date the bid is submitted;

(b) Cover letter, signed by a person authorized to commit the bidder to the contractual arrangements with CRRA, which includes the following:

1. The name of the bidder;
2. The legal structure of the bidder (e.g., corporation, joint venture, etc.);
3. A clear statement indicating that the attached bid constitutes a firm and binding offer by the bidder to CRRA considering the terms and conditions outlined in the RFB and noting any technical exceptions taken thereto; and
4. The bidder's promise, if any, to set aside a portion of the contract for legitimate minority business enterprises (see Section 17.3(e) of this Instructions To Bidders);

(c) Table of Contents for the bidder's bid;

(d) The Bid Form (Section 4.1 of the RFB Package Documents), with:

1. The Landfills for which the bid is submitted checked in the appropriate place (Page 1);
2. Addenda, if any, listed in the appropriate place (Page 3);
3. The name and address of the contact for Notices listed in the appropriate place (Page 7); and
4. The completed agreement section (Page 8);

(e) A completed Not-To-Exceed Bid Price And Payment Rate Schedule Form (Section 4.2 of the RFB Package Documents) for each Landfill for which the bid is submitted (i.e., each Landfill that the bidder has checked on the Bid Form);

(f) The completed Business Information Form (Section 4.3 of the RFB Package Documents);

(g) The completed Personnel Background And Experience Form (Section 4.4 of the RFB Package Documents);

(h) The completed Business Disclosure Form (Section 4.5 of the RFB Package Documents);

(i) The completed References Form (Section 4.6 of the RFB Package Documents);

(j) The completed Questionnaire Concerning Affirmative Action, Small Business Contractors And Occupational Health And Safety form (Section 4.7 of the RFB Package Documents), with the Bidder's most recent EEO-1 data attached if the bidder wishes such data to be considered in the evaluation of its bid;

(k) The completed Affidavit Concerning Nondiscrimination (Section 4.8 of the RFB Package Documents) (subscribed and sworn before a Notary Public or Commissioner of the Superior Court);

(l) The completed Background Questionnaire (Section 4.9 of the RFB Package Documents) (subscribed and sworn before a Notary Public or Commissioner of the Superior Court);

(m) A copy of the bidder's up-to-date certificate(s) of insurance showing all coverages required by Section 6 of the Agreement. [Please be advised that this is the area in which bidders seem to have the most difficulty. CRRA requires that the certificate(s) submitted show evidence of exactly the insurance requirements specified in the Agreement (e.g., if Section 6.2 of the Agreement requires Business Automobile Liability insurance covering any automobile or vehicle, the certificate of insurance must have the "any" box checked);

(n) Appendix A, which must include a brief resume (i.e., no more than two pages) of each individual listed in the Personnel Background And Experience Form (Section 4.4 of the RFB Package Documents); and

(o) Appendix B, which is applicable only to a bidder proposing an analytical laboratory that is not a vendor under Connecticut Department of Administrative Services ("DAS") contract number 09PSX0054, "Environmental Laboratory Testing Services." Such a bidder must include in the Appendix a copy of the analytical laboratory's Connecticut Department of Public Health ("CTDPH") Approved Laboratory Testing Certification (indicating approvals for sample source type and examination/testing categories), the most recent CTDPH annual inspection report; and a copy of the most recent EPA Performance Evaluation Report Proficiency Scores.

Bidders should not include in their bids other portions of the Bid Package Documents (e.g., this Instructions To Bidders or the Agreement).

A bidder may include additional information as an addendum/appendix to its bid if the bidder thinks that it will assist CRRA in evaluating the bidder's bid. A bidder should not include information that is not directly related to the subject matter of this solicitation.

While CRRA has not established a page limit for bids in response to this RFB, brief and concise answers are encouraged.

15. Bid Opening

All bids will be opened at CRRA's convenience on or after the bid due date.

16. CRRA Right To Reject Bids

CRRA reserves the right to reject any or all of the bids, or any part(s) thereof, and/or to waive any informality or informalities in any bid or the RFB process.

17. Bid Evaluation

The award of the contracts for the Services will be made, if at all, to the bidder(s) whose evaluation by CRRA results in CRRA determining that such award to such bidder(s) is in the best interests of CRRA. **However, the selection of a bidder(s) and the award of such contracts, while anticipated, are not guaranteed**.

CRRA is an Equal Opportunity and Affirmative Action employer and does not discriminate in its hiring, employment, contracting, or business practices. CRRA is committed to complying with the Americans With Disability Act of 1990 (ADA) and does not discriminate on the basis of disability in admission to, access to, or operation of its programs, services, or activities.

17.1 Evaluation Criteria

CRRA will base its evaluation of bids on the following criteria:

(a) Price;

(b) Qualifications;

(c) Demonstrated skill, ability and integrity to perform the Services required by the Contract Documents;

(d) Adequacy of insurance coverages as evidenced by a certificate or certificates of insurance showing, at a minimum, all coverages required by Section 6.1 of the Agreement (See Section 14(n) of this Instructions To Bidders); and

(e) Any other factor or criterion that CRRA, in its sole discretion, deems or may deem relevant or pertinent for such evaluation.

17.2 Additional Evaluation Criteria

CRRA will also base its evaluation of bids on criteria including, but not limited to, the following:

(a) The knowledge, capability and experience of the bidder in performing services similar to the services addressed in this RFB;

(b) The knowledge, capability and experience of the project managers, scientists, chemists and field supervisors who would be assigned to work with CRRA on this project;

(c) The references for the bidder;

(d) The qualifications of the analytical laboratory that would be used by the bidder;

(e) The bidder's training and oversight regarding field work associated with environmental monitoring;

(f) The bidder's laboratory analysis internal report review and quality assurance/quality control program; and

(g) The bidders proposed timing of tasks, including those to be performed by sub-consultants, to meet sampling requirements and reporting deadlines.

17.3 Affirmative Action Evaluation Criteria

All bids will also be rated on the bidder's demonstrated commitment to affirmative action. Sections 46a-68-1 to 46a-68-17 of the *Regulations of Connecticut State Agencies* require CRRA to consider the following factors when awarding a contract that is subject to contract compliance requirements:

(h) The bidder's success in implementing an affirmative action plan (See Question 4 of the Questionnaire Concerning Affirmative Action, Small Business Contractors And Occupational Health And Safety (Section 4.7 of the RFB Package Documents));

(i) The bidder's promise to develop and implement a successful affirmative action plan (See Question 4B of the Questionnaire Concerning Affirmative Action, Small Business Contractors And Occupational Health And Safety (Section 4.7 of the RFB Package Documents));

(j) The bidder's submission of EEO-1 data indicating that the composition of its work force is at or near parity when compared to the racial and

sexual composition of the work force in the relevant labor market area (See Section 14(j) of this Instructions To Bidders);

(k) The bidder's promise to set aside a portion of the contract for legitimate minority business enterprises (See Section 14(b)(4) of this Instructions To Bidders); and

(l) The bidder's success in developing an apprenticeship program complying with Sections 46a-68-1 to 46a-68-17 of the *Regulations of Connecticut State Agencies*, inclusive (See Question 5 of the Questionnaire Concerning Affirmative Action, Small Business Contractors And Occupational Health And Safety (Section 4.7 of the RFB Package Documents)).

18. Interviews

To assist in the selection process, CRRA may decide to interview bidders. Such interviews, if they are conducted, will be held on or about the week of April 21, 2013.

19. Contract Award

If CRRA decides to award the contract(s), CRRA will issue to the successful bidder(s) a Notice Of Award within one hundred twenty (120) days after the bid due date.

CRRA reserves the right to correct inaccurate awards resulting from CRRA's clerical errors. This may include, in extreme circumstances, revoking a Notice Of Award already made to a bidder and subsequently awarding the Notice Of Award to another bidder. Such action by CRRA shall not constitute a breach of this RFB by CRRA since the Notice Of Award to the initial bidder is deemed to be void ab initio and of no effect as if no Agreement ever existed between CRRA and the initial bidder.

20. Requests For Services

Following the execution of the Agreement and the satisfaction of all other conditions by the successful bidder(s), the successful bidder(s) may be required on an as-needed basis to provide a detailed scope of services and estimates of the costs and time to perform such Services as to specific projects occurring during the term of the Agreement. If CRRA chooses to have such bidder(s) perform such services, such bidder(s) will, at CRRA's sole and absolute discretion, execute a Request For Services in the form outlined in **Exhibit B** to the Agreement.

21. Affidavit Concerning Consulting Fees

Pursuant to *Connecticut General Statutes* Section 4a-81, the apparently successful bidder(s) must submit an affidavit stating that, except as specified in the affidavit, it has not entered into any contract with a consultant in connection with the RFB whereby any duties of the consultant pursuant to the contract require the consultant to pursue communications

concerning the business of CRRA, whether or not direct contact with CRRA was expected or made. The affidavit is enclosed as Exhibit I of the Form of the Agreement (Section 6 of the RFB Package Documents).

22. Contractor's Certification Concerning Gifts

Pursuant to *Connecticut General Statutes* Section 4-252, the apparently successful bidder(s) must submit a document certifying that it has not given any gifts to certain individuals between the date CRRA started planning the RFQ and the date the Agreement is executed. If the apparently successful SOQ submitter(s) does not execute the Certification, it will be disqualified for the Agreement. The dates between which the SOQ submitter may not give gifts and the identities of those to whom it may not give gifts are specified in Exhibit J of the Form of the Agreement (Section 6 of the RFB Package Documents).

23. Bidder's Qualifications

CRRA may make any investigation deemed necessary to determine the ability of any bidder to perform the Services required. Each such bidder shall furnish CRRA with all such information as may be required for this purpose.

24. Bid Preparation And Other Costs

Each bidder shall be solely responsible for all costs and expenses associated with the preparation and/or submission of its bid or incurred in connection with any interviews and negotiations with CRRA, and CRRA shall have no responsibility or liability whatsoever for any such costs and expenses.

REQUEST FOR BIDS

FOR

ENVIRONMENTAL MONITORING, LABORATORY ANALYSIS AND REPORTING SERVICES FOR CRRA LANDFILLS

SECTION 3

NOTICE OF INTEREST FORM

CONNECTICUT RESOURCES RECOVERY AUTHORITY

NOTICE OF INTEREST FORM

Individuals and firms that have an interest in the Connecticut Resources Recovery Authority ("CRRA") solicitation listed below are encouraged to submit this Notice Of Interest Form to CRRA as early as they can. Forms should be submitted no later than the date specified below. Request For Bid documents and other information released by CRRA related to the solicitation will be directly provided to those firms that have submitted this Form to CRRA by the Form Due Date.

Solicitation:	**Environmental Monitoring, Laboratory Analysis And Reporting Services For CRRA Landfills**
RFQ Number:	**13-EN-002**
Form Due Date:	**3pm, March 12, 2013**

Provide the following information about the individual/firm and the contact person for the firm.

Name of Individual/Firm:	
Name of Contact Person:	
Title of Contact Person:	
Mailing Address 1:	
Mailing Address 2:	
City, State, Zip Code	
Telephone Number:	
Fax Number:	
E-Mail Address:	

Submit this form to the CRRA contact listed below via e-mail, fax or correspondence as listed below.

CRRA Contact:	**Roger Guzowski**
E-Mail Address:	**rguzowski@crra.org**
Fax Number:	**(860) 757-7742**
Correspondence Address:	**Connecticut Resources Recovery Authority** **100 Constitution Plaza, 6th Floor** **Hartford, CT 06103**

REQUEST FOR BIDS

FOR

ENVIRONMENTAL MONITORING, LABORATORY ANALYSIS AND REPORTING SERVICES FOR CRRA LANDFILLS

SECTION 4

REQUIRED BID FORMS

Includes:

CONNECTICUT RESOURCES RECOVERY AUTHORITY

BID FORM

PROJECT: Dependent On Landfill

RFB NUMBER: 13-EN-002

CONTRACT FOR: Environmental Monitoring, Laboratory Analysis And Reporting Services For CRRA Landfills

BID SUBMITTED TO: Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, Connecticut 06103-1722

1. LANDFILL(S) FOR WHICH BID SUBMITTED

In the table below, place a check mark in the box for each CRRA Landfill for which the Bidder wishes to be considered.

☐	**Ellington Landfill**
☐	**Hartford Landfill**
☐	**Shelton Landfill**
☐	**Wallingford Landfill**

2. DEFINITIONS

Unless otherwise defined herein, all terms that are not defined and used in this Bid Form (a "Bid") shall have the same respective meanings assigned to such terms in the Contract Documents.

3. TERMS AND CONDITIONS

The undersigned (the "Bidder") accepts and agrees to all terms and conditions of the Request For Bids, Instructions To Bidders, the Agreement and any Addenda to any such documents.

This Bid shall remain open and subject to acceptance for one hundred twenty (120) days after the bid due date.

If CRRA issues a Notice Of Award to Bidder, Bidder shall within ten (10) days after the date thereof:

(a) Execute and deliver to CRRA the required number of counterparts of the non-negotiable Agreement;

(b) Execute and deliver to CRRA the Affidavit Concerning Consulting Fees and the Contractor's Certification Concerning Gifts;

(c) Deliver to CRRA the requisite certificates of insurance;

(d) Execute and deliver to CRRA all other Contract Documents attached to the Notice Of Award along with any other documents required by the Contract Documents; and

(e) Satisfy all other conditions of the Notice Of Award.

4. BIDDER'S OBLIGATIONS

If this Bid is accepted by CRRA and CRRA issues a Notice Of Award to Bidder, Bidder proposes and agrees to the following:

(a) To perform, furnish and complete all the Services as specified or indicated in the Contract Documents and Agreement for the prices specified in the Not-To-Exceed Bid Price And Payment Rate Schedule as set forth in this Bid and in accordance with the terms and conditions of the Contract Documents and Agreement; and

(b) At the request of CRRA and if the successful Bidder qualifies, to apply to the State of Connecticut Department Administrative Services, and to do all that is necessary to make itself qualify, as a Small Contractor and/or Minority/Women/ Disabled Person Business Enterprise in accordance with Section 4a-60g of the *Connecticut General Statutes*.

5. BIDDER'S REPRESENTATIONS CONCERNING NON-NEGOTIABILITY OF THE AGREEMENT

In submitting this Bid, Bidder acknowledges and agrees that the terms and conditions of the Agreement (including all Exhibits thereto), as included in the RFB Package Documents, are non-negotiable, and Bidder is willing to and shall, if CRRA accepts its Bid for the Services and issues a Notice Of Award to Bidder, execute such Agreement. However, CRRA reserves the right to negotiate any items with the lowest responsive bidder.

6. BIDDER'S REPRESENTATIONS CONCERNING EXAMINATION OF CONTRACT DOCUMENTS

In submitting this Bid, Bidder represents that:

(a) Bidder has thoroughly examined and carefully studied the RFB Package Documents and the following Addenda, receipt of which is hereby acknowledged (list Addenda by Addendum number and date):

Addendum Number	Date Issued

(b) Without exception the Bid is premised upon performing, furnishing and completing the Services required by the Contract Documents and applying the specific means, methods, techniques, sequences or procedures (if any) that may be shown, indicated or expressly required by the Contract Documents;

(c) Bidder is fully informed and is satisfied as to all Laws And Regulations that may affect cost, progress, performance, furnishing and/or completion of the Services;

(d) Bidder has studied and carefully correlated Bidder's knowledge and observations with the Contract Documents and such other related data;

(e) Bidder has given CRRA written notice of all conflicts, errors, ambiguities and discrepancies that Bidder has discovered in the Contract Documents and the written resolutions thereof by CRRA are acceptable to Bidder;

(f) If Bidder has failed to promptly notify CRRA of all conflicts, errors, ambiguities and discrepancies that Bidder has discovered in the Contract Documents, such failure shall be deemed by both Bidder and CRRA to be a waiver to assert these issues and claims in the future;

(g) Bidder is aware of the general nature of work to be performed by CRRA and others that relates to the Services for which this Bid is submitted; and

(h) The Contract Documents are generally sufficient to indicate and convey understanding by Bidder of all terms and conditions for performing, furnishing and completing the Services for which this Bid is submitted.

7. BIDDER'S REPRESENTATIONS CONCERNING SITE CONDITIONS

In submitting this Bid, Bidder acknowledges and agrees that:

(a) All information and data included in the RFB Package Documents relating to the surface, subsurface and other conditions of the Site are from presently available sources and are being provided only for the information and convenience of the bidders;

(b) CRRA does not assume any responsibility for the accuracy or completeness of such information and data, if any, shown or indicated in the Contract Documents with respect to any surface, subsurface or other conditions of the Site;

(c) Bidder is solely responsible for investigating and satisfying itself as to all actual and existing Site conditions, including surface conditions, subsurface conditions and underground facilities; and

(d) Bidder has visited the Site and has become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, performance, furnishing and completion of the Services.

8. BIDDER'S REPRESENTATIONS CONCERNING INFORMATION MADE AVAILABLE

In submitting this Bid, Bidder acknowledges and agrees that Bidder shall not use any information made available to it or obtained in any examination made by it in connection with this RFB in any manner as a basis or grounds for a claim or demand of any nature against CRRA arising from or by reason of any variance which may exist between information offered or so obtained and the actual materials, conditions, or structures encountered during performance of any of the Services.

9. BIDDER'S REPRESENTATIONS CONCERNING STATE OF CONNECTICUT TAXES

In submitting this Bid, Bidder acknowledges and agrees that CRRA is exempt from all State of Connecticut taxes and assessments, including sales and use taxes. Accordingly, Bidder shall not charge CRRA any State of Connecticut taxes or assessments at any time in connection with Bidder's performance of this Agreement, nor shall Bidder include any State of Connecticut taxes or assessments in any rates, costs, prices or other charges to CRRA hereunder. Bidder represents and warrants that no State of Connecticut taxes or assessments were included in any rates, costs, prices or other charges presented to CRRA in any bid or other submittal to CRRA in connection with this RFB.

10. BIDDER'S REPRESENTATIONS CONCERNING DISCLOSURE OF INFORMATION

In submitting this Bid, Bidder:

(a) Recognizes and agrees that CRRA is subject to the Freedom of Information provisions of the *Connecticut General Statutes* and, as such, any information contained in or submitted with or in connection with Bidder's Bid is subject to disclosure if required by law or otherwise; and

(b) Expressly waives any claim(s) that Bidder or any of its successors and/or assigns has or may have against CRRA or any of its directors, officers, employees or authorized agents as a result of any such disclosure.

11. BIDDER'S REPRESENTATIONS CONCERNING NON-COLLUSION

By submission of this Bid, Bidder, together with any affiliates or related persons, the guarantor, if any, and any joint ventures, hereby represents that, under risk of termination of the Agreement, if awarded, to the best of its knowledge and belief:

(a) The prices in the Bid have been arrived at as the result of an independent business judgment without collusion, consultation, communication, agreement or otherwise for the purpose of restricting competition, as to any matter relating to such prices and any other person or company;

(b) Unless otherwise required by law, the prices that have been quoted in this Bid have not, directly or indirectly, been knowingly disclosed by the Bidder prior to the "bid opening" to any other person or company;

(c) No attempt has been made or will be made by the Bidder to induce any other person, partnership of corporation to submit, or not to submit, a bid for the purpose of restricting competition;

(d) Bidder has not directly or indirectly induced or solicited any other bidder to submit a false or sham bid; and

(e) Bidder has not sought by collusion to obtain for itself any advantage for the Services over any other bidder for the Services or over CRRA.

12. BIDDER'S REPRESENTATIONS CONCERNING RFB FORMS

By submission of this Bid, the Bidder, together with any affiliates or related business entities or persons, the guarantor, if any, and any joint ventures, hereby represents that, under risk of termination of the Agreement, if awarded, all of the forms included in the RFB that are submitted to CRRA as part of its Bid are identical in form and content to the preprinted forms in the RFB Package Documents except that information requested by the forms has been inserted in the spaces on the forms provided for the insertion of such requested information.

13. BIDDER'S WAIVER OF DAMAGES

Bidder and all its affiliates and subsidiaries understand that by submitting a Bid, Bidder is acting at its and their own risk and Bidder does for itself and all its affiliates, subsidiaries,

successors and assigns hereby waive any rights any of them may have to receive any damages for any liability, claim, loss or injury resulting from:

(a) Any action or inaction on the part of CRRA or any of its directors, officers, employees or authorized agents concerning the evaluation, selection, non-selection and/or rejection of any or all bids by CRRA or any of its directors, officers, employees or authorized agents;

(b) Any agreement entered into for the Services (or any part thereof) described in the Contract Documents; and/or

(c) Any award or non-award of a contract for the Services (or any part thereof) pursuant to the Contract Documents.

14. BIDDER'S REPRESENTATION REGARDING THE CONNECTICUT CAMPAIGN CONTRIBUTION AND SOLICITATION BAN

With regard to a State contract as defined in P.A. 07-1 having a value in a calendar year of $50,000 or more or a combination or series of such agreements or contracts having a value of $100,000 or more, the authorized signatory to this submission in response to CRRA's solicitation expressly acknowledges receipt of the State Elections Enforcement Commission's notice advising prospective state contractors of state campaign contribution and solicitation prohibitions, and will inform its principals of the contents of the notice. See Section 4.10 [SEEC Form 11] of the RFB Package Documents.

15. ATTACHMENTS

The following documents are attached hereto and made a part of this Bid:

(a) The completed Not-To-Exceed Bid Price And Payment Rate Schedule Form for each Landfill for which the Bidder has placed a check mark in Section 1 of this Bid Form;

(b) The completed Business Information Form;

(c) The completed Personnel Background And Experience Form;

(d) The completed References Form;

(e) The Questionnaire Concerning Affirmative Action, Small Business Contractors And Occupational Health And Safety that has been completely filled out by the Bidder;

(f) The Affidavit Concerning Nondiscrimination that has been completely filled out by the Bidder and signed before a Notary Public or Commissioner of the Superior Court;

(g) The Background Questionnaire that has been completely filled out by the Bidder and signed before a Notary Public or Commissioner of the Superior Court;

(h) A copy of the Bidder's up-to-date certificate(s) of insurance showing all coverages required by Section 6.1 of the Agreement;

(i) Brief resumes of each professional listed in the Personnel Background And Experience Form; and

(j) If applicable, a copy of the analytical laboratory's Connecticut Department of Public Health ("CTDPH") Approved Laboratory Testing Certification (indicating approvals for sample source type and examination/testing categories), the most recent CTDPH annual inspection report, and a copy of the most recent EPA Performance Evaluation Report Proficiency Scores.

16. NOTICES

Communications concerning this Bid should be addressed to Bidder at the address set forth below.

Bidder Name:	
Bidder Contact:	
Title:	
Street Address 1:	
Street Address 2:	
City, State, Zip Code	
Telephone Number:	
Fax Number:	
E-Mail Address:	

17. ADDITIONAL REPRESENTATION

Bidder hereby represents that the undersigned is duly authorized to submit this Bid on behalf of Bidder.

AGREED TO AND SUBMITTED ON _____, 2013

Name of Bidder (Firm):	
Signature of Bidder Representative:	
Name (Typed/Printed):	
Title (Typed/Printed):	

CONNECTICUT RESOURCES RECOVERY AUTHORITY

NOT-TO-EXCEED BID PRICE AND PAYMENT RATE SCHEDULE FORMS

Each bidder shall submit the applicable Not-To-Exceed Bid Price And Payment Rate Schedule Form for each Landfill on which the Bidder bids to provide the Services. For example, if a bidder wishes to submit a bid for the Services for the Ellington Landfill, the bidder must complete and submit the Not-To-Exceed Bid Price And Payment Rate Schedule Form for the Ellington Landfill. If a bidder also wishes to be considered for the Services for the Shelton Landfill, the bidder must also complete and submit the Form for the Shelton Landfill.

Bidders should carefully review the Scope Of Services for the work (**Exhibit A** to the Agreement) prior to preparing the Not-To-Exceed Bid Price And Payment Rate Schedule Form.

The Not-To-Exceed Bid Price And Payment Rate Schedule Forms are as follows:

- Ellington Landfill – Form A
- Hartford Landfill – Form B
- Shelton Landfill – Form C
- Wallingford Landfill – Form D

1. Not-To-Exceed Bid Price

On Page 1 (and, in some cases, Page 2) of the Not-To-Exceed Bid Price And Payment Rate Schedule Form for each Landfill, the bidder must fill in the Not-To-Exceed Prices by Fiscal Year for each of the three fiscal years that would be covered by the Agreement. Under the Cost Type, "LS" means "Lump Sum" and "T&M NTE" means "Time and Materials Not to Exceed." The bidder must sign and date the page and type/print the name of the person signing and the name of the bidder (i.e., the firm). The bidder should pay particular attention to the Notes for the Not-To-Exceed Bid Price that appear on Page 2 of the Form.

2. Payment Rate Schedule

2.1 Personnel Billing Rates

On Page 3 of the Not-To-Exceed Bid Price And Payment Rate Schedule Form for each Landfill, the bidder must list the staff level, title and hourly billing rates for each staff level of personnel in its firm who will be assigned to work with CRRA on the project. The bidder must also indicate whether each staff level is eligible for and paid a higher hourly rate for overtime work.

2.2 Ancillary Service Rates

On Page 4 of the Not-To-Exceed Bid Price And Payment Rate Schedule Form for each Landfill, the bidder must provide the rates at which ancillary services are billed, including, but not limited to:

- Drafting;
- Surveying;
- Word processing;

- Copying;
- Travel in firm-owned vehicle (per mile);
- Computer time;
- Any other services (excluding phones) for which the bidder routinely bills.

2.3 Analytical Laboratory Service Rates

On Page 5 of the Not-To-Exceed Bid Price And Payment Rate Schedule Form for each Landfill, the bidder must provide the rates for analytical laboratory services.

2.4 Mark-Up Rates

On Page 6 of the Not-To-Exceed Bid Price And Payment Rate Schedule Form for each Landfill, the bidder must provide the percentage markup for the items identified.

2.5 Overtime Rates

On Page 6 of the Not-To-Exceed Bid Price And Payment Rate Schedule Form for each Landfill, the bidder must fill in the percentage rate for overtime for those employees eligible for payments for overtime.

NOT-TO-EXCEED BID PRICE – ELLINGTON LANDFILL

Instructions: Fill in the "Not-to-Exceed Bid Price" by Fiscal Year for each of the three years. Under **Cost Type**, "LS" means "Lump Sum" and "T&M NTE" means "Time and Materials Not to Exceed." Also sign and date this Not-To-Exceed Bid Price Form and print the names of the person signing the form and the bidder (firm).

Task	Cost Type	Proposed Costs		
		FY 14 (07/01/13- 06/30/14)	**FY 15** (07/01/14 – 06/30/15)	**FY 16** (07/01/15 – 06/30/16)
Task 1: Quarterly Monitoring, Analysis, Reporting and Annual Reporting				
1.1: Sampling[1] and Documentation of Field Activities	LS			
1.2. Quarterly Laboratory Analysis[2]	T&M NTE			
1.3: Quarterly Reports - Water Quality Monitoring	LS			
1.4: Non-Sampled Well Condition Survey[3] & Water Elevations	LS			
1.5: Annual Reports - Water Quality Monitoring	LS			
Total Proposed Costs for Task 1				

Authorized Signature:		Date:	
Name (Printed):		Bidder (Firm):	

NOT-TO-EXCEED BID PRICE – ELLINGTON LANDFILL (Continued)

Notes:

[1] Sampling to be conducted in July, October, January, and April.

[2] Assume that the following number of samples will be analyzed:

a. Four (4) groundwater samples quarterly (3 wells plus 1 duplicate), in accordance with Table 2.

b. Nine (9) groundwater samples semi-annually, in accordance with Table 2.

c. Six (6) surface water samples semi-annually, in accordance with Table 2.

d. Four (4) domestic wells quarterly, in accordance with Table 2.

e. Three (3) domestic wells annually, in accordance with Table 2.

f. One (1) equipment blank quarterly associated with groundwater sampling, analyzed in accordance with Table 2.

g. One (1) equipment blank semi-annually one associated with surface water sampling, analyzed in accordance with Table 2.

h. One trip blank for analysis of VOC's only via EPA method 524.2 for each day that groundwater or domestic well samples for VOC's are collected.

[3] To be completed on a semi-annual basis (in October and April) at twenty-one (21) wells.

PAYMENT RATE SCHEDULE – ELLINGTON LANDFILL

PERSONNEL BILLING RATES – ELLINGTON LANDFILL

(Provide Billing Rates Below)

(Use Additional Sheets If Necessary)

Staff Level	Over-Time[1]	Title	Hourly Rate		
			FY 14 (07/01/13- 06/30/14)	**FY 15** (07/01/14 – 06/30/15)	**FY 16** (07/01/15 – 06/30/16)

[1] Indicate with an "X" if the hourly rate is subject to overtime markup.

ANCILLARY SERVICE RATES – ELLINGTON LANDFILL

(Provide Rates Below)

(Use Additional Sheets If Necessary)

Ancillary Service	Billing Rate		
	FY 14 (07/01/13-06/30/14)	**FY 15** (07/01/14 – 06/30/15)	**FY 16** (07/01/15 – 06/30/16)
Drafting (Per Hour)			
Surveying (Per Hour)			
Word Processing (Per Hour)			
Copying (Per Page)			
Travel in Firm-Owned Vehicle (Per Mile)			
Computer Time (Per Hour)			
Any Other Services For Which You Routinely Bill (List Below)			

ANALYTICAL LABORATORY SERVICES RATES – ELLINGTON LANDFILL

1. Is the Analytical Laboratory that would be used by the bidder for the Services a vendor under the Connecticut Department of Administrative Services ("DAS") Contract 09PSX0054?	☐ **Yes**	☐ **No**
2. If you answered "Yes" to Question 1 above, has the Analytical Laboratory agreed to bill the bidder for analytical services in accordance with the DAS contract and any successor DAS contract for Environmental Analytical Services?	☐ **Yes**	☐ **No**
3. If you answered "No" to Question 1 or 2 above:		
(a) Attach a copy of the Analytical Laboratory's standard price list in effect at the time this bid is submitted.		
(b) Specify the amount of the discount, if any, that the Analytical Laboratory will provide to bidder for services.	**Percentage of Discount:** ____ **%**	

MARK-UP RATES – ELLINGTON LANDFILL

Equipment and Materials

The proposed mark-up for overhead expenses associated with the purchase of equipment and materials is:

[ ] % (fill in the percentage markup)

The Consultant will provide to CRRA copies of all applicable invoices in order to receive payment for equipment and materials purchased specifically for installation in association with the Project.

Sub-Consultants

The proposed mark-up for overhead expenses associated with sub-consultant work on the Project is:

[ ] % (fill in the percentage markup)

The Consultant will provide to CRRA copies of all applicable invoices in order to receive payment for sub-consultant work performed on the Project.

OVERTIME RATES – ELLINGTON LANDFILL

For employees who are eligible for and are paid a higher hourly rate for overtime than the hourly rate listed on Page A-3, the successful Bidder will be entitled to reimbursement for such employee overtime when such overtime is a result of more than 8 hours in one day and/or more than 40 hours in one week worked on this project by such an employee.

Below, specify the proposed rate for overtime (i.e., the percentage by which the hourly rates specified on the preceding page would be multiplied to arrive at the overtime rate).

[ ] % (fill in the percentage rate for overtime)

NOT-TO-EXCEED BID PRICE –HARTFORD LANDFILL

Instructions: Fill in the "Not-to-Exceed Bid Price" by Fiscal Year for each of the three years. Under **Cost Type**, "LS" means "Lump Sum" and "T&M NTE" means "Time and Materials Not to Exceed." Also sign and date this Not-To-Exceed Bid Price Form and print the names of the person signing the form and the bidder (firm).

Task	Cost Type	Proposed Costs		
		FY 14 (07/01/13- 06/30/14)	**FY 15** (07/01/14 – 06/30/15)	**FY 16** (07/01/15 – 06/30/16)
Task 1: Quarterly Environmental Monitoring, Analysis, Reporting and Annual Reporting (Ground Water, Surface Water and Untreated Leachate				
1.1: Sampling[1] and Documentation of Field Activities	LS			
1.2: Quarterly Laboratory Analysis[2]	T&M NTE			
1.3: Quarterly Reports - Water Quality Monitoring	LS			
1.4: Non-Sampled Well Condition Survey[3] & Water Elevations	LS			
1.5: Interim Quarterly Event Monitoring[4]	T&M NTE			
1.6: Annual Dioxin/Furan Monitoring, Lab Analysis and Reporting	LS			
1.7: Annual Reports - Water Quality Monitoring	LS			
Task 2: Sanitary Discharge Monitoring, Laboratory Analysis and Reporting				
2.1: Sanitary Discharge Sampling[5]	LS			
2.2: Laboratory Analysis	T&M NTE			
2.3: Reporting	LS			
Task 3: Dike Stability Monitoring and Reporting	LS			
Total Proposed Costs for Tasks 1 through 3				

NOT-TO-EXCEED BID PRICE –HARTFORD LANDFILL (Continued)

Authorized Signature:		Date:	
Name (Printed):		Bidder (Firm):	

Notes:

1. Sampling to be conducted in July, October, January, and April.
2. Assume that the following number of samples will be analyzed each quarter:
    a. Twenty-six (26) ground water samples (25 wells plus 1 QA/QC duplicate), in accordance with Table 2.
    b. Thirteen (13) surface water samples, in accordance with Table 2.
    c. Four (4) "persistent" leachate seep samples, in accordance with Table 2.
    d. One (1) untreated ash leachate sample, in accordance with Table 3.
    e. One (1) equipment blank associated with surface water sampling, in accordance with Table 2.
    f. One (1) field blank associated with surface water sampling, in accordance with Table 2.
    g. One trip blank for analysis of VOC's only via EPA method 8260 for each day that groundwater samples for VOC's are collected.
3. To be completed on a semi-annual basis (in October and April) at twenty-eight (28) wells.
4. For bidding purposes, assume re-sampling each quarter at all eight (8) compliance wells for alkalinity, hardness, total dissolved solids and ammonia.
5. Refer to Table 3 for the list of monitoring parameters and sampling frequencies for the sanitary sewer discharges.

PAYMENT RATE SCHEDULE – HARTFORD LANDFILL

PERSONNEL BILLING RATES – HARTFORD LANDFILL

(Provide Billing Rates Below)

(Use Additional Sheets If Necessary)

Staff Level	Over-Time[1]	Title	Hourly Rate		
			FY 14 (07/01/13- 06/30/14)	**FY 15** (07/01/14 – 06/30/15)	**FY 16** (07/01/15 – 06/30/16)

[1] Indicate with an "X" if the hourly rate is subject to overtime markup.

ANCILLARY SERVICE RATES – HARTFORD LANDFILL

(Provide Rates Below)

(Use Additional Sheets If Necessary)

Ancillary Service	Billing Rate		
	FY 14 (07/01/13-06/30/14)	**FY 15** (07/01/14 – 06/30/15)	**FY 16** (07/01/15 – 06/30/16)
Drafting (Per Hour)			
Surveying (Per Hour)			
Word Processing (Per Hour)			
Copying (Per Page)			
Travel in Firm-Owned Vehicle (Per Mile)			
Computer Time (Per Hour)			
Any Other Services For Which You Routinely Bill (List Below)			

ANALYTICAL LABORATORY SERVICES RATES – HARTFORD LANDFILL

1. Is the Analytical Laboratory that would be used by the bidder for the Services a vendor under the Connecticut Department of Administrative Services ("DAS") Contract 09PSX0054?	☐ **Yes**	☐ **No**
2. If you answered "Yes" to Question 1 above, has the Analytical Laboratory agreed to bill the bidder for analytical services in accordance with the DAS contract and any successor DAS contract for Environmental Analytical Services?	☐ **Yes**	☐ **No**
3. If you answered "No" to Question 1 or 2 above:		
(a) Attach a copy of the Analytical Laboratory's standard price list in effect at the time this bid is submitted.		
(b) Specify the amount of the discount, if any, that the Analytical Laboratory will provide to bidder for services.	**Percentage of Discount:** _____ **%**	

MARK-UP RATES – HARTFORD LANDFILL

Equipment and Materials

The proposed mark-up for overhead expenses associated with the purchase of equipment and materials is

[ ] % (fill in the percentage markup)

The Consultant will provide to CRRA copies of all applicable invoices in order to receive payment for equipment and materials purchased specifically for installation in association with the Project.

Sub-Consultants

The proposed mark-up for overhead expenses associated with sub-consultant work on the Project is

[ ] % (fill in the percentage markup)

The Consultant will provide to CRRA copies of all applicable invoices in order to receive payment for sub-consultant work performed on the Project.

OVERTIME RATES – HARTFORD LANDFILL

For employees who are eligible for and are paid a higher hourly rate for overtime than the hourly rate listed on Page 4.2-3, the successful Bidder will be entitled to reimbursement for such employee overtime when such overtime is a result of more than 8 hours in one day and/or more than 40 hours in one week worked on this project by such an employee.

Below, specify the proposed rate for overtime (i.e., the percentage by which the hourly rates specified on the preceding page would be multiplied to arrive at the overtime rate).

[ ] % (fill in the percentage rate for overtime)

NOT-TO-EXCEED BID PRICE – SHELTON LANDFILL

Instructions: Fill in the "Not-to-Exceed Bid Price" by Fiscal Year for each of the three years. Under **Cost Type**, "LS" means "Lump Sum" and "T&M NTE" means "Time and Materials Not to Exceed." Also sign and date this Not-To-Exceed Bid Price Form and print the names of the person signing the form and the bidder (firm).

Task	Cost Type	Proposed Costs		
		FY 14 (07/01/13- 06/30/14)	**FY 15** (07/01/14 – 06/30/15)	**FY 16** (07/01/15 – 06/30/16)
Task 1: Semi-Annual Monitoring, Analysis, Reporting and Annual Reporting (Ground Water, Surface Water and Untreated Leachate)				
1.1: Sampling[1] and Documentation of Field Activities	LS			
1.2. Semi-Annual Laboratory Analysis[2]	T&M NTE			
1.3: Semi-Annual Reports - Water Quality Monitoring	LS			
1.4: Non-Sampled Well Condition Survey[3] & Water Elevations	LS			
1.5: Annual Reports – Water Quality Monitoring	LS			
1.6: Quality Assurance Project Plan[4]	LS		**N/A**	**N/A**
Task 2: Sanitary Discharge Monitoring, Laboratory Analysis and Reporting				
2.1: Sanitary Discharge Sampling[5]	LS			
2.2: Laboratory Analysis[6]	T&M NTE			
2.3: Reporting	LS			
Task 3: Habitat Mapping	LS			
Total Proposed Costs for Tasks 1 through 3				

NOT-TO-EXCEED BID PRICE – SHELTON LANDFILL (Continued)

Authorized Signature:		Date:	
Name (Printed):		Bidder (Firm):	

Notes:

1. Sampling to be conducted in October and April.
2. Assume that the following number of samples will be analyzed semi-annually:
    a. Twenty-seven (27) ground water samples (26 wells plus 1 field duplicate), in accordance with Table 2.
    b. Six (6) surface water samples (5 plus 1 field duplicate), in accordance with Table 2.
    c. Two (2) untreated ash residue leachate samples, in accordance with Table 2.
    d. One (1) equipment blank associated with surface water sampling, in accordance with Table 2.
    e. One (1) field blank associated with surface water sampling, in accordance with Table 2
    f. One trip blank for analysis of VOC's only via EPA method 8260 for each day that groundwater samples for VOC's are collected.
3. To be completed on a semi-annual basis (in October and April) at thirty-four (34) wells.
4. Preparation and submission of QAPP required before Consultant undertakes the October 2013 monitoring event.
5. Monthly sampling of the sanitary sewer discharge is required.
6. Refer to Table 3 for the list of monitoring parameters for the sanitary sewer discharge.

PAYMENT RATE SCHEDULE – SHELTON LANDFILL

PERSONNEL BILLING RATES – SHELTON LANDFILL

(Provide Billing Rates Below)

(Use Additional Sheets If Necessary)

Staff Level	Over-Time[1]	Title	Hourly Rate		
			FY 14 (07/01/13- 06/30/14)	**FY 15** (07/01/14 – 06/30/15)	**FY 16** (07/01/15 – 06/30/16)

[1] Indicate with an "X" if the hourly rate is subject to overtime markup.

ANCILLARY SERVICE RATES – SHELTON LANDFILL

(Provide Rates Below)

(Use Additional Sheets If Necessary)

Ancillary Service	Billing Rate		
	FY 14 (07/01/13-06/30/14)	**FY 15** (07/01/14 – 06/30/15)	**FY 16** (07/01/15 – 06/30/16)
Drafting (Per Hour)			
Surveying (Per Hour)			
Word Processing (Per Hour)			
Copying (Per Page)			
Travel in Firm-Owned Vehicle (Per Mile)			
Computer Time (Per Hour)			
Any Other Services For Which You Routinely Bill (List Below)			

ANALYTICAL LABORATORY SERVICES RATES – SHELTON LANDFILL

1. Is the Analytical Laboratory that would be used by the bidder for the Services a vendor under the Connecticut Department of Administrative Services ("DAS") Contract 09PSX0054?	☐ **Yes**	☐ **No**
2. If you answered "Yes" to Question 1 above, has the Analytical Laboratory agreed to bill the bidder for analytical services in accordance with the DAS contract and any successor DAS contract for Environmental Analytical Services?	☐ **Yes**	☐ **No**
3. If you answered "No" to Question 1 or 2 above:		
(a) Attach a copy of the Analytical Laboratory's standard price list in effect at the time this bid is submitted.		
(b) Specify the amount of the discount, if any, that the Analytical Laboratory will provide to bidder for services.	**Percentage of Discount:** _____ **%**	

MARK-UP RATES – SHELTON LANDFILL

Equipment and Materials

The proposed mark-up for overhead expenses associated with the purchase of equipment and materials is

[ ] % (fill in the percentage markup)

The Consultant will provide to CRRA copies of all applicable invoices in order to receive payment for equipment and materials purchased specifically for installation in association with the Project.

Sub-Consultants

The proposed mark-up for overhead expenses associated with sub-consultant work on the Project is

[ ] % (fill in the percentage markup)

The Consultant will provide to CRRA copies of all applicable invoices in order to receive payment for sub-consultant work performed on the Project.

OVERTIME RATES – SHELTON LANDFILL

For employees who are eligible for and are paid a higher hourly rate for overtime than the hourly rate listed on Page 4.3-3, the successful Bidder will be entitled to reimbursement for such employee overtime when such overtime is a result of more than 8 hours in one day and/or more than 40 hours in one week worked on this project by such an employee.

Below, specify the proposed rate for overtime (i.e., the percentage by which the hourly rates specified on the preceding page would be multiplied to arrive at the overtime rate).

[ ] % (fill in the percentage rate for overtime)

NOT-TO-EXCEED BID PRICE – WALLINGFORD LANDFILL

Instructions: Fill in the "Not-to-Exceed Bid Price" by Fiscal Year for each of the three years. Under **Cost Type**, "LS" means "Lump Sum" and "T&M NTE" means "Time and Materials Not to Exceed." Also sign and date this Not-To-Exceed Bid Price Form and print the names of the person signing the form and the bidder (firm).

Task	Cost Type	Proposed Costs		
		FY 14 (07/01/13- 06/30/14)	**FY 15** (07/01/14 – 06/30/15)	**FY 16** (07/01/15 – 06/30/16)
Task 1: Semi-Annual Monitoring, Analysis, Reporting and Annual Reporting				
1.1: Sampling[1] and Documentation of Field Activities	LS			
1.2. Laboratory Analysis[2]	T&M NTE			
1.3: Semi-Annual Reports - Water Quality Monitoring	LS			
1.4: Non-Sampled Well Condition Survey[3] & Water Elevations	LS			
1.5: Annual Dioxins and Furans Monitoring, Lab Analysis and Reporting	T&M NTE			
1.6: Annual Reports - Water Quality Monitoring	LS			
Task 2: Quality Assurance Project Plan Revision	LS		N/A	N/A
Total Proposed Costs for Tasks 1-2				

Authorized Signature:		Date:	
Name (Printed):		Bidder (Firm):	

NOT-TO-EXCEED BID PRICE – WALLINGFORD LANDFILL (Continued)

Notes:

1. Sampling to be conducted in October and April.
2. Assume that the following number of samples will be analyzed semi-annually:
    a. Twenty-two (22) groundwater samples (21 wells + 1 duplicate) from the Wallingford Landfill and the former Barberino property, analyzed in accordance with Table 2.
    b. Eleven (11) surface water samples (10 locations + 1 duplicate) from the former Barberino property, analyzed in accordance with Table 2.
3. To be completed on a semi-annual basis (in October and April) at twenty-four (24) wells.

PAYMENT RATE SCHEDULE – WALLINGFORD LANDFILL

PERSONNEL BILLING RATES – WALLINGFORD LANDFILL

(Provide Billing Rates Below)

(Use Additional Sheets If Necessary)

Staff Level	Over-Time[1]	Title	Hourly Rate		
			FY 14 (07/01/13- 06/30/14)	**FY 15** (07/01/14 – 06/30/15)	**FY 16** (07/01/15 – 06/30/16)

[1] Indicate with an “X” if the hourly rate is subject to overtime markup.

ANCILLARY SERVICE RATES – WALLINGFORD LANDFILL

(Provide Rates Below)

(Use Additional Sheets If Necessary)

Ancillary Service	Billing Rate		
	FY 14 (07/01/13-06/30/14)	**FY 15** (07/01/14 – 06/30/15)	**FY 16** (07/01/15 – 06/30/16)
Drafting (Per Hour)			
Surveying (Per Hour)			
Word Processing (Per Hour)			
Copying (Per Page)			
Travel in Firm-Owned Vehicle (Per Mile)			
Computer Time (Per Hour)			
Any Other Services For Which You Routinely Bill (List Below)			

ANALYTICAL LABORATORY SERVICES RATES – WALLINGFORD LANDFILL

1. Is the Analytical Laboratory that would be used by the bidder for the Services a vendor under the Connecticut Department of Administrative Services ("DAS") Contract 09PSX0054?	☐ **Yes**	☐ **No**
2. If you answered "Yes" to Question 1 above, has the Analytical Laboratory agreed to bill the bidder for analytical services in accordance with the DAS contract and any subsequent DAS contract issued for environmental analytical services?	☐ **Yes**	☐ **No**
3. If you answered "No" to Question 1 or 2 above:		
(a) Attach a copy of the Analytical Laboratory's standard price list in effect at the time this bid is submitted.		
(b) Specify the amount of the discount, if any, that the Analytical Laboratory will provide to bidder for services.	**Percentage of Discount:** _____ **%**	

MARK-UP RATES – WALLINGFORD LANDFILL

Equipment and Materials

The proposed mark-up for overhead expenses associated with the purchase of equipment and materials is

[ ] % (fill in the percentage markup)

The Consultant will provide to CRRA copies of all applicable invoices in order to receive payment for equipment and materials purchased specifically for installation in association with the Project.

Sub-Consultants

The proposed mark-up for overhead expenses associated with sub-consultant work on the Project is

[ ] % (fill in the percentage markup)

The Consultant will provide to CRRA copies of all applicable invoices in order to receive payment for sub-consultant work performed on the Project.

OVERTIME RATES – WALLINGFORD LANDFILL

For employees who are eligible for and are paid a higher hourly rate for overtime than the hourly rate listed on Page D-3, the successful Bidder will be entitled to reimbursement for such employee overtime when such overtime is a result of more than 8 hours in one day and/or more than 40 hours in one week worked on this project by such an employee.

Below, specify the proposed rate for overtime (i.e., the percentage by which the hourly rates specified on the preceding page would be multiplied to arrive at the overtime rate).

[ ] % (fill in the percentage rate for overtime)

CONNECTICUT RESOURCES RECOVERY AUTHORITY

BUSINESS INFORMATION FORM

Bidder must provide the information requested in the following sections.

1. BIDDER INFORMATION

Name of Entity:					
Central Office/ Headquarters Address:	Address 1:				
	Address 2:				
	City, State, Zip Code:				
Servicing Office Address (if different than Central Office/ Headquarters Address):	Address 1:				
	Address 2:				
	City, State, Zip Code:				
Name of Parent Company (if any):					
Entity's Legal Structure:	☐ Corporation	☐ Joint Venture	☐ Partnership	☐ Public Entity	☐ Other
State in Which Entity is Legally Organized:					
Year Entity Started:		Number of Employees:		Number of Offices:	
Location(s) of Offices (City and State):					
Brief History of the Entity:					

Overview of Entity's Principal Lines of Work:	

2. ANALYTICAL LABORATORY INFORMATION

In the following table identify the analytical laboratory bidder would use for the Services.

	Analytical Laboratory
Name of Entity:	
Street Address 1:	
Street Address 2:	
City, State, Zip Code:	
Telephone Number:	
Fax Number:	

Is the Analytical Laboratory specified above a vendor under the Connecticut Department of Administrative Services ("DAS") contract number 09PSX0054, "Environmental Laboratory Testing Services?"	Yes ☐ No ☐

If bidder answered "No" to the question above, bidder must provide as Appendix B to the bid a copy of the Analytical Laboratory's Connecticut Department of Public Health ("CTDPH") Approved Laboratory Testing Certification (indicating approvals for sample source type and examination/testing categories), the most recent CTDPH annual inspection report, and a copy of the most recent EPA Performance Evaluation Report Proficiency Scores.

3. SUBCONTRACTOR (SUBCONSULTANT) INFORMATION

	Yes	No
Will bidder **subcontract** with entities, other than the Analytical Laboratory identified in Section 2 of this Form, for significant portions of the Services?	☐	☐

If bidder answered "yes" to the above question, provide the following information concerning the subcontractors. If bidder will subcontract with more than two entities, copy this page of the Form and provide the requested information on the additional subcontractors.

	Subcontractor 1
Name of Entity:	
Street Address 1:	
Street Address 2:	
City, State, Zip Code:	
Telephone Number:	
Fax Number:	
Provide brief description of specific role Subcontractor 1 will have in providing the Services.	

	Subcontractor 2
Name of Entity:	
Street Address 1:	
Street Address 2:	
City, State, Zip Code:	
Telephone Number:	
Fax Number:	
Provide brief description of specific role Subcontractor 2 will have in providing the Services.	

4. KNOWLEDGE, CAPABILITY AND EXPERIENCE

Describe bidder's knowledge, capability and experience in providing services similar to the services addressed in this RFB. Specifically describe services regarding environmental monitoring, laboratory analysis evaluation, and reporting services associated with landfills, water contamination, plume delineation and characterization and monitoring program design and modifications. Indicate the experience of bidder in meeting monitoring and reporting deadlines as prescribed in the permits.

Describe bidder's training and oversight regarding field work associated with monitoring. If submitting a bid for environmental monitoring at the Shelton Landfill and/or the Wallingford Landfill, also address "HAZWOPER" training in accordance with the requirements of 29 CFR 1910.120(3), which is applicable to both sampling personnel and supervisory personnel.

Describe bidder's internal report review and quality assurance/quality control program.

CONNECTICUT RESOURCES RECOVERY AUTHORITY

PERSONNEL BACKGROUND AND EXPERIENCE FORM

In the space below provide the requested information on the professionals (project managers, scientists, chemists and field supervisors) who would be assigned to work with CRRA.

In completing the forms below, please note the following:

- In the "Staff Level" item, indicate the individual's staff level as specified on the Payment Rate Schedule portion of the Not-To-Exceed Bid Price And Payment Rate Schedule Form (Section 4 of the RFQ Package Documents).

- In the "% of Time" item, indicate the percentage of the total person hours that the bidder would spend on providing the Services that would be spent by the individual in providing the Services.

If more than 10 individuals would be assigned to work with CRRA, copy page 6 of this form and use it to provide the requested information for the additional individuals.

Provide a brief resume (i.e., no more than two pages) of each individual listed on this Form as Appendix A to the bid.

Of the professionals listed in items 1 through 10 on the following pages, indicate below the names of the professional who would be the bidder's key contacts in the following areas:

Key Contact Area	Name of Professional
Field Services Associated with Monitoring:	
Laboratory Analysis:	
Report Preparation:	

PROFESSIONAL 1

Name:		Staff Level:	
Title:		% of Time:	
Probable areas of responsibility:			
Background:			

PROFESSIONAL 2

Name:		Staff Level:	
Title:		% of Time:	
Probable areas of responsibility:			
Background:			

PROFESSIONAL 3

Name:		Staff Level:	
Title:		% of Time:	
Probable areas of responsibility:			
Background:			

PROFESSIONAL 4

Name:		Staff Level:	
Title:		% of Time:	
Probable areas of responsibility:			
Background:			

PROFESSIONAL 5

Name:		Staff Level:	
Title:		% of Time:	
Probable areas of responsibility:			
Background:			

PROFESSIONAL 6

Name:		Staff Level:	
Title:		% of Time:	
Probable areas of responsibility:			
Background:			

PROFESSIONAL 7

Name:		Staff Level:	
Title:		% of Time:	
Probable areas of responsibility:			
Background:			

PROFESSIONAL 8

Name:		Staff Level:	
Title:		% of Time:	
Probable areas of responsibility:			
Background:			

PROFESSIONAL 9

Name:		Staff Level:	
Title:		% of Time:	
Probable areas of responsibility:			
Background:			

PROFESSIONAL 10

Name:		Staff Level:	
Title:		% of Time:	
Probable areas of responsibility:			
Background:			

CONNECTICUT RESOURCES RECOVERY AUTHORITY

BUSINESS DISCLOSURE FORM

SOQ Submitter (hereinafter referred to as "Consultant") must provide the information requested in the following sections/tables.

1. CONFLICTS OF INTEREST

In the table below, disclose any material assignments, relationships or other employment that the Consultant or any employee of the Consultant has with any member of CRRA's past or present Board of Directors, any CRRA employee, governmental entity, or other person or entities that may create a conflict of interest or the appearance of a conflict of interest in providing to CRRA the Services that are the subject of this solicitation.

[Attach Additional Pages If Necessary]

2. CONFLICT OF INTEREST MEASURES

In the table below, discuss any measures that the Consultant either has in place or would take to identify, disclose and resolve any possible conflicts of interest.

[Attach Additional Pages If Necessary]

3. BUSINESS WITH MAJOR CRRA CURRENT AND FORMER CONTRACTORS

In the table below, disclose any services similar to the Services that are the subject of this solicitation that the Consultant has provided to any of the following major CRRA current and former contractors. Place a check in the box for any such contractor for which the Consultant has provided the services. If the Consultant has provided any such services, provide a summary description of the services provided.

Having provided the services similar to the Services that are the subject of this solicitation to one or more of the contractors listed below does not disqualify a Consultant from consideration under this solicitation.

[Attach Additional Pages If Necessary]

Entity	Summary Description of Services Provided
☐ Covanta	
☐ Copes Rubbish Service	
☐ CWPM, LLC	
☐ The Metropolitan District	
☐ NAES Corporation	
☐ Wheelabrator (Waste Management)	
☐ ReCommunity/ FCR, LLC	

CONNECTICUT RESOURCES RECOVERY AUTHORITY

REFERENCES FORM

In space below, provide the names of three (3) non-CRRA references who can attest to the quality of work performed/services provided by Bidder. Include job title, the name, address and phone number of the business and a brief description of the work performed/services provided for each reference.

REFERENCE 1

Name of Person:	
Title:	
Name of Business:	
Address:	
Telephone Number:	
Brief Description Of Work Performed/ Services Provided:	

REFERENCE 2

Name of Person:	
Title:	
Name of Business:	
Address:	
Telephone Number:	
Brief Description Of Work Performed/ Services Provided:	

REFERENCE 3

Name of Person:	
Title:	
Name of Business:	
Address:	
Telephone Number:	
Brief Description Of Work Performed/ Services Provided:	

CONNECTICUT RESOURCES RECOVERY AUTHORITY

QUESTIONNAIRE CONCERNING AFFIRMATIVE ACTION, SMALL BUSINESS CONTRACTORS AND OCCUPATIONAL HEALTH AND SAFETY

Because CRRA is a political subdivision of the State of Connecticut, it is required by various statutes and regulations to obtain background information on prospective contractors prior to entering into a contract. The questions below are designed to assist CRRA in procuring this information. Many of the questions are required to be asked by RCSA 46a-68j-31. For the purposes of this form, "Contractor" means Bidder, Proposer or Statement of Qualifications Submitter, as appropriate.

	Yes	No
1. Is the Contractor an Individual? *If you answered "Yes" to Question 1, skip to Question 2.* *If you answered "No" to Question 1, proceed to Question 1A and then to Question 2.*	☐	☐
1A. How many employees does the Contractor have? ☐		
2. Is the Contractor a Small Business Enterprise based on the criteria in Schedule A? *If you answered "Yes" to Question 2, proceed to Question 2A and then to Question 3.* *If you answered "No" to Question 2, skip to Question 3.*	☐	☐
2A. Is the Contractor certified by DAS as a Small Business Enterprise?[1]	☐	☐
3. Is the Contractor a Minority Owned Business Enterprise based on the criteria in Schedule B? *If you answered "Yes" to Question 3, proceed to Question 3A and then to Question 4.* *If you answered "No" to Question 3, skip to Question 4.*	☐	☐
3A. Is the Contractor certified by DAS as a Minority Owned Business Enterprise?[1]	☐	☐
4. Does the Contractor have an Affirmative Action Plan?[2] *If you answered "Yes" to Question 4, proceed to Question 4A and then to Question 5.* *If you answered "No" to Question 4, skip to Question 4B and then to Question 5.*	☐	☐
4A. Has the Affirmative Action Plan been approved by the CHRO?	☐	☐
4B. Will the Contractor develop and implement an Affirmative Action Plan?	☐	☐
5. Does the Contractor have an apprenticeship program complying with RCSA 46a-68-1 through 46a-68-17?	☐	☐
6. Has the Contractor been cited for three or more willful or serious violations of any occupational safety and health act?	☐	☐
7. Has the Contractor received one or more criminal convictions related to the injury or death of any employee in the three-year period preceding the issuance of this Request For Bids/Proposals/Qualifications?	☐	☐
8. Has the Contractor been the recipient of one or more ethical violations from the State of Connecticut Ethics Commission during the three-year period preceding the issuance of this Request For Bids/Proposals/Qualifications?	☐	☐
9. Will subcontractors be involved? *If you answered "Yes" to Question 9, proceed to Question 9A.* *If you answered "No" to Question 9, you are finished with the questionnaire.*	☐	☐
9A. How many subcontractors will be involved? ☐		

LIST OF ACRONYMS

RCSA – Regulations of Connecticut State Agencies
CHRO – State of Connecticut Commission on Human Rights and Opportunities
DAS – State of Connecticut Department of Administrative Services

FOOTNOTES

[1] If the Contractor answered “yes” to Question 2A and/or 3A, Contractor must attach a copy of its DAS Set-Aside Certificate to this Questionnaire.

[2] If the Contract is a "public works contract" (as defined in Section 46a-68b of the Connecticut General Statutes), the dollar amount exceeds Fifty Thousand Dollars ($50,000.00) in any fiscal year, and the Contractor has fifty (50) or more employees, the Contractor, in accordance with the provisions of Section 46a-68c of the Connecticut General Statutes, shall develop and file an affirmative action plan with the Connecticut Commission on Human Rights and Opportunities.

SCHEDULE A
CRITERIA FOR A SMALL BUSINESS ENTERPRISE

Contractor must meet all of the following criteria to qualify as a Small Business Enterprise:

1. Has been doing business under the same ownership or management and has maintained its principal place of business in the Connecticut for at least one year immediately prior to the issuance of the Request For Bids/ Proposals/Qualifications;
2. Has had gross revenues not exceeding fifteen million dollars ($15,000,000) during its most recent fiscal year; and
3. At least 51% of the ownership of the Contractor is held by a person(s) who exercises the operational authority over daily affairs of the business and has the power to direct policies and management and receives beneficial interests of the business.

SCHEDULE B
CRITERIA FOR A MINORITY OWNED BUSINESS ENTERPRISE

Contractor must meet all of the following criteria to qualify as a Minority Owned Business Enterprise:

1. Satisfies all of the criteria in Schedule A for a Small Business Enterprise;
2. At least 51% of the ownership of the Contractor by one or more minority person(s) who exercises operational authority over daily affairs of the business, has the power to direct management and policies and receives the beneficial interests of the business;
3. A minority is a person(s) who is American Indian, Asian, Black, Hispanic, has origins in the Iberian Peninsula, a woman, or an individual with a disability.

CONNECTICUT GENERAL STATUTES SECTION 46a-68b

As used in this section and sections 4a-60, 4a-60a, 4a-60g, 4a-62, 46a-56 and 46a-68c to 46a-68k, inclusive: "Public works contract" means any agreement between any individual, firm or corporation and the state or any political subdivision of the state other than a municipality for construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, or which is financed in whole or in part by the state, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees.

CONNECTICUT RESOURCES RECOVERY AUTHORITY

AFFIDAVIT CONCERNING NONDISCRIMINATION

This Affidavit must be completed and properly executed under penalty of false statement by a chief executive officer, president, chairperson, member or other corporate officer duly authorized to adopt company, corporate or partnership policy of the business entity submitting a bid/proposal/statement of qualifications to the Connecticut Resources Recovery Authority that certifies such business entity complies with the nondiscrimination agreement and warranties contained in Connecticut General Statutes §§ 4a-60(a)(1) and 4a-60a(a)(1), as amended, regarding nondiscrimination against persons on account of their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, intellectual disability, mental disability, physical disability or sexual orientation.

I, the undersigned, am over the age of eighteen and understand and appreciate the obligation of an oath. I am _____ (title) of _____ (firm name), an entity duly formed and existing under the laws of _____ (name of state or commonwealth) ("Contractor").

I certify that I am authorized to execute and deliver this affidavit on behalf of Contractor, as follows:

1. Contractor seeks to enter into the "ENVIIRONMENTAL MONITORING, LABORATORY ANALYSIS, AND REPORTING SERVICES AGREEMENT" (the "Agreement") with the Connecticut Resources Recovery Authority; and

2. Contractor has in place a company or corporate policy that complies with the nondiscrimination agreements and warranties required under Connecticut General Statutes §§ 4a-60(a)(1) and 4a-60a(a)(1), as amended, and the said company or corporate policy is in effect as of the date hereof.

By (Signature): _____

Name (Print): _____

Title: _____

Sworn to before me this _____ day of _____ 20 ____

_____ _____

Notary Public/Commissioner of the Superior Court Commission Expiration Date

Sections 4a-60(a)(1) and 4a-60a(a)(1) of the Connecticut General Statutes follow.

Sec. 4a-60. (Formerly Sec. 4-114a). Nondiscrimination and affirmative action provisions in contracts of the state and political subdivisions other than municipalities.

(a) Every contract to which the state or any political subdivision of the state other than a municipality is a party shall contain the following provisions:

(1) The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the state of Connecticut; and the contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved;

Sec. 4a-60a. Contracts of the state and political subdivisions, other than municipalities, to contain provisions re nondiscrimination on the basis of sexual orientation.

(a) Every contract to which the state or any political subdivision of the state other than a municipality is a party shall contain the following provisions:

(1) The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or of the state of Connecticut, and that employees are treated when employed without regard to their sexual orientation;

CONNECTICUT RESOURCES RECOVERY AUTHORITY

BACKGROUND QUESTIONNAIRE

This Questionnaire must be completed and properly executed by an individual or business entity submitting a bid/proposal/statement of qualifications to the Connecticut Resources Recovery Authority (such individual or business entity hereinafter referred to as the "Contractor").

Please answer the following questions by placing an "X" in the appropriate box.

	Yes	No
1. Has the Contractor or any of the following ever been the subject of a **criminal** investigation? (a) A principal of the Contractor; (b) An owner of the Contractor; (c) An officer of the Contractor; (d) A partner in the Contractor; (e) A director of the Contractor; or (f) A stockholder of the Contractor holding 50% or more of the stock of the Contractor. *If you answered "Yes" to Question 1, proceed to Question 1A and, on a separate sheet of paper, state the following: the court in which the investigation is taking or took place; the approximate date the investigation commenced and, if applicable, concluded; the subject matter of the investigation; and the identity of the person or entity involved.* *If you answered "No" to Question 1, proceed to Question 2.*	☐	☐
1A. Has any indictment arisen out of any such investigation? *If you answered "Yes" to Question 1A, proceed to Question 2 and, on a separate sheet of paper, state the following: the name of the person or entity indicted; and the status of any such indictment.* *If you answered "No" to Question 1A, proceed to Question 2.*	☐	☐
2. Has the Contractor or any of the following ever been the subject of a **civil** investigation[1]? (a) A principal of the Contractor; (b) An owner of the Contractor; (c) An officer of the Contractor; (d) A partner in the Contractor; (e) A director of the Contractor; or (f) A stockholder of the Contractor holding 50% or more of the stock of the Contractor. *If you answered "Yes" to Question 2, proceed to Question 3 and, on a separate sheet of paper, state the following: the court or other forum in which the investigation took or is taking place; the approximate date the investigation commenced and, if applicable, concluded; the subject matter of the investigation; the identity of the person or entity involved; and the status of the investigation.* *If you answered "No" to Question 2, proceed to Question 3.*	☐	☐

[1] The phrase "civil investigation" means an investigation undertaken by a governmental entity (e.g., federal, state or municipal) that has investigative and enforcement authority (e.g., the Office of the Connecticut Attorney General, the Connecticut Ethics Commission, the Connecticut Elections Enforcement Commission, the federal Securities and Exchange Commission).

	Yes	No
3. Has any entity (e.g., corporation, partnership, etc.) in which any of the following has an ownership interest of 50% or more in such entity ever been the subject of a **criminal** investigation? (a) A principal of the Contractor; (b) An owner of the Contractor; (c) An officer of the Contractor; (d) A partner in the Contractor; (e) A director of the Contractor; or (f) A stockholder of the Contractor. *If you answered "Yes" to Question 3, proceed to Question 3A and, on a separate sheet of paper, state the following: the court in which the investigation is taking or took place; the approximate date the investigation commenced and, if applicable, concluded; the subject matter of the investigation; and the identity of the person or entity involved.* *If you answered "No" to Question 3, proceed to Question 4.*	☐	☐
3A. Has any indictment arisen out of any such investigation? *If you answered "Yes" to Question 3A, proceed to Question 4 and, on a separate sheet of paper, state the following: the name of the person or entity indicted; and the status of any such indictment.* *If you answered "No" to question 3A, proceed to Question 4.*	☐	☐
4. Has any entity (e.g., corporation, partnership, etc.) in which any of the following has an ownership interest of 50% or more in such entity ever been the subject of a **civil** investigation[1]? (a) A principal of the Contractor; (b) An owner of the Contractor; (c) An officer of the Contractor; (d) A partner in the Contractor; (e) A director of the Contractor; or (f) A stockholder of the Contractor. *If you answered "Yes" to Question 4, proceed to Question 5 and, on a separate sheet of paper state the following: the court in which the investigation is taking or took place; the approximate date the investigation commenced and, if applicable, concluded; the subject matter of the investigation; the identity of the person or entity involved; and the status of the investigation.* *If you answered "No" to question 4, proceed to Question 5.*	☐	☐
5. Has the Contractor or any of the following ever been debarred from bidding on, or otherwise applying for, any contract with the State of Connecticut or any other governmental authority? (a) A principal of the Contractor; (b) An owner of the Contractor; (c) An officer of the Contractor; (d) A partner in the Contractor; (e) A director of the Contractor; or (f) A stockholder of the Contractor holding 50% or more of the stock of the Contractor. *If you answered "Yes" to Question 5, proceed to the Certification on the following page and, on a separate sheet of paper please explain.* *If you answered "No" to question 5, proceed to the Certification on the following page.*	☐	☐

CERTIFICATION

Signature: _____

Name (print/type): _____

Title: _____

State Of: _____

County Of: _____

_____, being fully sworn, deposes and says that he/she is the _____ (Title) of _____ (Firm Name), the Contractor herein, that he/she has provided answers to the foregoing questions on the Contractor's background, and, under the penalty of perjury, certifies that each and every answer is true.

Sworn to before me this _____ day of _____ 20 ___

_____
Notary Public/Commissioner of the Superior Court

SEEC FORM 11

NOTICE TO EXECUTIVE BRANCH STATE CONTRACTORS AND PROSPECTIVE STATE CONTRACTORS OF CAMPAIGN CONTRIBUTION AND SOLICITATION BAN

This notice is provided under the authority of Connecticut General Statutes 9-612(g)(2), as amended by P.A. 07-1, and is for the purpose of informing state contractors and prospective state contractors of the following law (italicized words are defined on the following page):

Campaign Contribution and Solicitation Ban
No *state contractor*, *prospective state contractor*, *principal of a state contractor or principal of a prospective state contractor*, with regard to a *state contract* or *state contract solicitation* with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall make a contribution to, or *solicit* contributions on behalf of (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee;

In addition, no holder or principal of a holder of a valid prequalification certificate, shall make a contribution to, or solicit contributions on behalf of (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of State senator or State representative, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

Duty to Inform
State contractors and prospective state contractors are required to inform their principals of the above prohibitions, as applicable, and the possible penalties and other consequences of any violation thereof.

Penalties for Violations
Contributions or solicitations of contributions made in violation of the above prohibitions may result in the following civil and criminal penalties:

Civil penalties--$2000 or twice the amount of the prohibited contribution, whichever is greater, against a principal or a contractor. Any state contractor or prospective state contractor which fails to make reasonable efforts to comply with the provisions requiring notice to its principals of these prohibitions and the possible consequences of their violations may also be subject to civil penalties of $2000 or twice the amount of the prohibited contributions made by their principals.

Criminal penalties—Any knowing and willful violation of the prohibition is a Class D felony, which may subject the violator to imprisonment of not more than 5 years, or $5000 in fines, or both.

Contract Consequences
Contributions made or solicited in violation of the above prohibitions may result, in the case of a state contractor, in the contract being voided.

Contributions made or solicited in violation of the above prohibitions, in the case of a prospective state contractor, shall result in the contract described in the state contract solicitation not being awarded to the prospective state contractor, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

The State will not award any other state contract to anyone found in violation of the above prohibitions for a period of one year after the election for which such contribution is made or solicited, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

Additional information and the entire text of P.A 07-1 may be found on the website of the State Elections Enforcement Commission, www.ct.gov/seec. Click on the link to “State Contractor Contribution Ban.”

Definitions:

"State contractor" means a person, business entity or nonprofit organization that enters into a state contract. Such person, business entity or nonprofit organization shall be deemed to be a state contractor until December thirty-first of the year in which such contract terminates. "State contractor" does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person's capacity as a state or quasi-public agency employee.

"Prospective state contractor" means a person, business entity or nonprofit organization that (i) submits a response to a state contract solicitation by the state, a state agency or a quasi-public agency, or a proposal in response to a request for proposals by the state, a state agency or a quasi-public agency, until the contract has been entered into, or (ii) holds a valid prequalification certificate issued by the Commissioner of Administrative Services under section 4a-100. "Prospective state contractor" does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person's capacity as a state or quasi-public agency employee.

"Principal of a state contractor or prospective state contractor" means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a state contractor or prospective state contractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization**,** (ii) an individual who is employed by a state contractor or prospective state contractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a state contractor or prospective state contractor, which is not a business entity, or if a state contractor or prospective state contractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any state contractor or prospective state contractor who has *managerial or discretionary responsibilities with respect to a state contract,* (v) the spouse or a *dependent child* who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the state contractor or prospective state contractor.

"State contract" means an agreement or contract with the state or any state agency or any quasi-public agency, let through a procurement process or otherwise, having a value of fifty thousand dollars or more, or a combination or series of such agreements or contracts having a value of one hundred thousand dollars or more in a calendar year, for (i) the rendition of services, (ii) the furnishing of any goods, material, supplies, equipment or any items of any kind, (iii) the construction, alteration or repair of any public building or public work, (iv) the acquisition, sale or lease of any land or building, (v) a licensing arrangement, or (vi) a grant, loan or loan guarantee. "State contract" does not include any agreement or contract with the state, any state agency or any quasi-public agency that is exclusively federally funded, an education loan or a loan to an individual for other than commercial purposes.

"State contract solicitation" means a request by a state agency or quasi-public agency, in whatever form issued, including, but not limited to, an invitation to bid, request for proposals, request for information or request for quotes, inviting bids, quotes or other types of submittals, through a competitive procurement process or another process authorized by law waiving competitive procurement.

“Managerial or discretionary responsibilities with respect to a state contract” means having direct, extensive and substantive responsibilities with respect to the negotiation of the state contract and not peripheral, clerical or ministerial responsibilities.

“Dependent child” means a child residing in an individual’s household who may legally be claimed as a dependent on the federal income tax of such individual.

“Solicit” means (A) requesting that a contribution be made, (B) participating in any fund-raising activities for a candidate committee, exploratory committee, political committee or party committee, including, but not limited to, forwarding tickets to potential contributors, receiving contributions for transmission to any such committee or bundling contributions, (C) serving as chairperson, treasurer or deputy treasurer of any such committee, or (D) establishing a political committee for the sole purpose of soliciting or receiving contributions for any committee. Solicit does not include: (i) making a contribution that is otherwise permitted by Chapter 155 of the Connecticut General Statutes; (ii) informing any person of a position taken by a candidate for public office or a public official, (iii) notifying the person of any activities of, or contact information for, any candidate for public office; or (iv) serving as a member in any party committee or as an officer of such committee that is not otherwise prohibited in this section.

REQUEST FOR BIDS

FOR

ENVIRONMENTAL MONITORING, LABORATORY ANALYSIS AND REPORTING SERVICES FOR CRRA LANDFILLS

SECTION 5

SAMPLE NOTICE OF AWARD

CONNECTICUT RESOURCES RECOVERY AUTHORITY

NOTICE OF AWARD

TO: [NAME OF SUCCESSFUL BIDDER'S CONTACT]
[NAME OF SUCCESSFUL BIDDER]
[ADDRESS OF SUCCESSFUL BIDDER]

PROJECT: [DEPENDENT ON LANDFILL; WILL BE ADDED BY CRRA AT TIME OF AWARD]

RFB NO.: FY13-EN-002

CONTRACT: Agreement For Environmental Monitoring, Laboratory Analysis And Reporting Services For The [NAME OF LANDFILL] Landfill

The Connecticut Resources Recovery Authority ("CRRA") has considered the Bid submitted by you dated [DATE OF BID] in response to CRRA's Notice To Firms – Invitation To Bid for the above-referenced Services, which Services are more particularly described in the "Agreement for Environmental Monitoring, Laboratory Analysis and Reporting Services for the [NAME OF LANDFILL] Landfill" (the "Services").

You are hereby notified that your Bid has been accepted for performing the Services and that you shall be reimbursed for the performance of such Services as specified in **Exhibit C** of the Agreement.

Within ten (10) days from the date of this Notice of Award you are required to:

(a) Execute the two the attached counterparts of the non-negotiable Agreement and deliver such executed counterparts to CRRA. Such execution includes entering the requested information in the "Notices" Section (Section 7.14, Page 22) of the Agreement, signing the Agreement (Page 25), printing the signer's name under the signature line (Page 25) and printing the signer's title following the word "Its" (Page 25);

(b) Execute the attached Contractor's Certification Concerning Gifts (Exhibit J of the Agreements) and deliver such executed Certification to CRRA;

(c) Deliver to CRRA the requisite certificates of insurance;

(d) Complete and deliver to CRRA the attached Form W-9, "Request for Taxpayer Identification Number and Certification;" and

(e) Satisfy all other conditions set forth herein.

As you have agreed, the terms and conditions of the Agreement, as attached, are non-negotiable.

If you fail within ten (10) days from the date of this Notice Of Award to perform and complete any of your obligations set forth in items (a) through (e) above, CRRA will be entitled to consider all your rights arising out of CRRA's acceptance of your Bid as abandoned and terminated. CRRA will also be entitled to such other rights and remedies as may be granted at law or in equity.

You are required to acknowledge your receipt of this Notice Of Award by signing below and returning the same to CRRA at the following address:

Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, CT 06103
Attention: Roger Guzowski

Dated this __ day of __, 2013.

Connecticut Resources Recovery Authority

By: _____
Roger Guzowski
Title: Contract and Procurement Manager

ACCEPTANCE OF NOTICE

Receipt of this NOTICE OF AWARD is hereby acknowledged this _____ day of _____, 2013.

By:

Signature: _____

Name (print/type): _____

Title: _____

REQUEST FOR BIDS

FOR

ENVIRONMENTAL MONITORING, LABORATORY ANALYSIS AND REPORTING SERVICES FOR CRRA LANDFILLS

SECTION 6

FORM OF AGREEMENT AND EXHIBITS

AGREEMENT FOR ENVIRONMENTAL MONITORING, LABORATORY ANALYSIS AND REPORTING SERVICES FOR THE [NAME OF LANDFILL] LANDFILL

CONTENTS

This **AGREEMENT FOR ENVIRONMENTAL MONITORING, LABORATORY ANALYSIS AND REPORTING SERVICES FOR THE [NAME OF LANDFILL] LANDFILL** (the "Agreement") is made and entered into as of this 1st day of July, 2013 (the "Effective Date") by and between the **CONNECTICUT RESOURCES RECOVERY AUTHORITY**, a body politic and corporate, constituting a public instrumentality and political subdivision of the State of Connecticut, having its principal offices at 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103 ("CRRA") and **[NAME OF CONSULTANT]**, a [TYPE OF ENTITY], having a principal place of business at [ADDRESS OF CONSULTANT] ("Consultant").

PRELIMINARY STATEMENT

WHEREAS, [Insert the applicable of the following]

CRRA owns a certain parcel of real property located at 217 Sadds Mill Road (State Route 140) in Ellington, Connecticut (the "Property"), upon which property CRRA formerly operated and now provides post-closure monitoring and maintenance services for a certain sanitary landfill known as the Ellington Landfill (the "Landfill");

CRRA leases a certain parcel of real property located at 180 Leibert Road in Hartford, Connecticut (the "Property"), upon which property CRRA formerly operated and now is in the process of closing a certain sanitary landfill known as the Hartford Landfill (the "Landfill");

CRRA owns a certain parcel of real property located at 866 River Road (State Route 110) in Shelton Connecticut (the "Property"), upon which property CRRA formerly operated and now provides post-closure monitoring and maintenance services for a certain sanitary landfill known as the Shelton Landfill (the "Landfill");

CRRA leases a certain parcel of real property located on Pent Road in Wallingford, Connecticut (the "Property") upon which Property CRRA formerly operated and now provides post-closure monitoring and maintenance services for a certain sanitary landfill known as the Wallingford Landfill (the "Landfill");

WHEREAS, CRRA now desires to enter into this Agreement in order to have Consultant render certain environmental monitoring, laboratory analysis and reporting services at the Landfill in accordance this Agreement;

NOW, THEREFORE, in consideration of the mutual covenants, promises, and representations contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows.

1. DEFINITIONS, CONSTRUCTION AND INTERPRETATION

1.1 Definitions

As used in this Agreement and in other Contract Documents (as defined herein) the following terms shall have the meanings as set forth below:

(a) **"Addenda"** means written or graphic documents issued prior to the bid due date, which clarify, correct or change any or all of the Contract Documents.

(b) **"Contract Documents"** means this Agreement (including all exhibits attached hereto), Notice To Firms - Invitation To Bid, Instructions To Bidders, Addenda, Consultant's Bid (including all documentation accompanying such bid, all other documentation submitted in connection with such bid, and all post-bid documentation submitted prior to the Notice Of Award), Notice Of Award, any written amendments to any of the Contract Documents and any change order issued pursuant to Section 2.7, 2.8 and/or Section 7.13 hereof.

(c) **"Effective Date"** means the date set forth above in this Agreement.

(d) **"Laws And Regulations"** means any and all applicable current or future laws, rules, regulations, ordinances, codes, orders and permits of any and all federal, state and local governmental and quasi-governmental bodies, agencies, authorities and courts having jurisdiction.

(e) **"Notice Of Award"** means written notification from CRRA to the apparent successful bidder which states that CRRA has accepted such bidder's bid and sets forth the remaining conditions that must be fulfilled by such bidder before CRRA executes the Agreement.

(f) **"Project"** means the provision by the Consultant of the environmental monitoring, laboratory analysis and reporting services for the Landfill.

(g) **"Site"** means those areas of the Property upon which the Services are to be performed, furnished and completed by Consultant in accordance with the Contract Documents.

1.2 Construction And Interpretation

For purposes of this Agreement:

(a) Capitalized terms used herein shall have the meanings set forth herein;

(b) Whenever nouns or pronouns are used in this Agreement, the singular shall mean the plural, the plural shall mean the singular, and any gender shall mean all genders or any other gender, as the context may require;

(c) Words that have well-known technical or trade meanings are used herein in accordance with such recognized meanings unless otherwise specifically provided;

(d) All accounting terms not otherwise defined herein have the meanings assigned to them in accordance with "generally accepted accounting principles," and the term "generally accepted accounting principles" with respect to any computation required or permitted hereunder shall mean such accounting principles that are generally accepted as of the Effective Date of this Agreement;

(e) The words "herein," "hereof" and "hereunder" and words of similar import refer to this Agreement as a whole and not to any particular Section or Subsection;

(f) Reference to any particular party shall include that party's employees and the authorized agents of that party;

(g) All references to agreements are references to the agreements as the provisions thereof that may be amended, modified or waived from time to time; and,

(h) The captions contained in this Agreement have been inserted for convenience only and shall not affect or be effective to interpret, change or restrict the terms of provisions of this Agreement.

2. SCOPE OF SERVICES

2.1 Consultant's Responsibilities

Consultant shall be responsible for furnishing all labor, tools, materials, equipment, and incidentals thereto to render environmental monitoring, laboratory analysis and reporting services at the Landfill, including, but not limited to, the services described in **Exhibit A** attached hereto and made a pert hereof (collectively, the "Services"), as such Services may be requested from time to time by an Authorized Representative of CRRA on the terms specified in this Agreement.

2.2 Performance And Completion Of Services

All Services shall be performed and completed by Consultant as an independent contractor, and in a good and workmanlike manner consistent and in accordance with:

(a) Any and all instructions, guidance and directions provided by CRRA to Consultant;

(b) The Contract Documents;

(c) Sound environmental practices;

(d) The highest prevailing industry standards applicable to Consultant and its performance of the Services hereunder; and

(e) All Laws And Regulations.

Items (a) through (e) above are hereinafter collectively referred to as the "Standards."

Consultant shall obtain any locally required building or other permits required for the Services, and Consultant shall also assist and fully cooperate with CRRA in obtaining any other applicable permits necessary to begin and complete the Services.

2.3 Authorized Representative Of CRRA

Consultant will only perform Services upon request from an Authorized Representative of CRRA. For purposes of this Agreement, the terms "Authorized Representative of CRRA" or "Authorized Representative" shall mean CRRA's President (the "President"), or any person designated in writing to Consultant by the President. Any Services performed at the request of anyone who is not an Authorized Representative shall not be paid for by CRRA. CRRA and Consultant shall from time to time mutually agree on the method and manner of performing such Services.

2.4 Access

CRRA hereby grants to Consultant, only at times arranged in advance with an Authorized Representative of CRRA, access to only those areas of the Property necessary for Consultant to perform the Services hereunder, provided that:

(a) Consultant shall not interfere with any other operations or activities being conducted at such Landfill or on such Property by either CRRA or any other person or entity;

(b) Consultant directly coordinates with an Authorized Representative of CRRA on such access; and

(c) Consultant is in compliance with all of the terms and conditions of this Agreement.

CRRA reserves the right to revoke the access granted to Consultant herein if Consultant fails to comply with any of the foregoing conditions of access.

2.5 CRRA Right to Exclude Certain Individuals

Without limitation of Consultant's overall responsibility for the acts and omissions of all on-site personnel and other employees, CRRA reserves the right to exclude anyone from the site who CRRA reasonably believes is a danger to themselves or any other Person, or to CRRA property.

2.6 Direction of Services

CRRA and/or its Authorized Representative may, where necessary or desired, provide Consultant with instructions, guidance and directions in connection with Consultant's performance of the Services hereunder. CRRA reserves the right to determine whether Consultant will, upon completion of any phase of the Services, proceed to any or all remaining phases of the Services. If CRRA determines that Consultant shall not proceed with the remaining Services, CRRA shall terminate this Agreement in accordance with Section 4.3 hereof.

2.7 CRRA's Inspection Rights

Consultant's performance of the Services hereunder, as well as Consultant's work products resulting from such performance, are subject to inspection by CRRA. Inspections may be conducted at any time by CRRA. In the event of an inspection, Consultant shall provide to CRRA any documents or other materials that may be necessary in order for CRRA to conduct the inspection. If after any such inspection CRRA is unsatisfied with Consultant's performance of the Services hereunder or any of the work products resulting therefrom, Consultant shall, at the direction of CRRA, render such performance or work products satisfactory to CRRA at no additional cost or expense to CRRA and without any extension of or addition to any item in the Project Schedule for the remaining Services. For purpose of this Section 2.7, CRRA shall mean CRRA and/or its Authorized Representative.

2.8 Change In Scope Of Services

In the event that CRRA determines during the term of this Agreement that any revisions, modifications or changes are necessary to the Scope Of Services as set forth in Section 2.1 hereof, then pursuant to CRRA's request, Consultant shall promptly commence and perform the services required for such revisions, modifications or changes, which services shall be performed in accordance with the Standards unless otherwise specifically agreed to in writing by CRRA and Consultant. If any adjustment(s) to the Not-To-Exceed Contract Price is required as a result of such revisions, modifications or changes, CRRA and Consultant shall mutually agree in writing on the amount of such adjustment(s) provided that the Payment Rate Schedule approved by CRRA for the project shall be used to determine the appropriate increase or decrease in the quantity or cost of the materials or services necessitated by such revisions, modifications or changes. Consultant shall promptly commence and perform any services required by such revisions, modifications or changes even if CRRA and Consultant cannot agree on the amount of such adjustment(s).

2.9 Specific Services Request For Services

At its discretion, CRRA, through an Authorized Representative, may require that prior to undertaking work on a specific task, Consultant and an Authorized Representative mutually agree in writing upon a detailed Scope of Services required for such task, together with an estimate of the time, cost, and expenses for such Services. In such cases, CRRA will request performance of such Services by means of a written request in accordance with the format of

Exhibit B attached hereto and made a part hereof (a "Request"). Accordingly, upon receipt and acceptance of a written Request, Consultant will perform such Services described in such Request in accordance with the terms of this Agreement and such Request.

If, during Consultant's performance of such Services, there is a change in Consultant's estimated time, cost or expenses for such Services, Consultant will promptly notify CRRA in writing of such change and shall not incur any costs or expenses exceeding those specified in the Request without prior written authorization from an Authorized Representative. CRRA shall not pay for any Services rendered or expenses incurred by Consultant in excess of those included in such Request unless specifically authorized in advance and in writing by an Authorized Representative.

2.10 Site And Subsurface Conditions

All information and data shown or indicated in the Contract Documents with respect to underground facilities, surface conditions, subsurface conditions or other conditions at or contiguous to the Site are furnished for information only and CRRA does not assume any responsibility for the accuracy or completeness of such information and data. Consultant acknowledges and agrees that CRRA does not assume any responsibility for such information and data and that Consultant is solely responsible for investigating and satisfying itself as to all actual and existing Site conditions, including but not limited to surface conditions, subsurface conditions and underground facilities. Consultant has carefully studied all such information and data and Consultant has obtained and carefully studied (or assumes responsibility for having done so) all such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (including but not limited to surface conditions, subsurface conditions and underground facilities) at or contiguous to the Site and all other conditions or factors which may affect cost, progress, performance, furnishing or completion of the Services or which relate to any aspect of the means, methods, techniques, sequences, and procedures or performance of the Services to be employed by Consultant and safety precautions and programs incident thereto. Consultant does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for Consultant to conclusively determine, and Consultant has so determined, that the Services can be performed, furnished and completed in accordance with the Not-To-Exceed Contract Price and the other terms and conditions of the Contract Documents. In the event that the information or data shown or indicated in the Contract Documents with respect to underground facilities or surface, subsurface or other conditions at or contiguous to the Site differs from conditions encountered by Consultant during performance of the Services, there shall be no increase in the Not-To-Exceed Contract Price as a result of such differing conditions, unless CRRA, in its sole and absolute discretion, agrees in writing to such increase and/or extension.

2.11 Methane Gases

Consultant acknowledges the presence of methane gases at the Property. Consultant covenants and agrees that it and its employees, agents, sub-consultants and materialmen shall take all necessary precautions with respect to the presence of methane gases at all times at the Property, including, but not limited to, prohibiting the presence of any open flames, sparks,

smoking or any other activity which might ignite any of the methane gases present at the Property.

2.12 Restoration

Unless otherwise directed in writing by CRRA, Consultant shall restore any part of the Property disturbed or damaged by Consultant or any of its directors, officers, employees, agents, sub-consultants or materialmen to the same condition existing immediately prior to such disturbance or damage.

3. COMPENSATION AND PAYMENT

3.1 Compensation Schedule

Consultant shall be paid by CRRA for the services rendered and expenses incurred under this Agreement on the basis set forth in **Exhibit C** attached hereto and made a part hereof.

Consultant will not be paid for costs or expenses for Services that exceed the Not-To-Exceed Contract Price of **Exhibit C**. CRRA does not guarantee that the Not-To-Exceed Contract Price of **Exhibit C** or any amount of monies will be paid to Consultant during the term of this Agreement.

For employees who are eligible for and are paid a higher hourly rate for overtime than the hourly rate listed in the "Payment Rate Schedule" of **Exhibit C**, Consultant will be entitled to reimbursement for such employee overtime when such overtime is a result of more than eight (8) hours in one day and/or more than forty (40) hours in one week worked by such an employee on this Project. Such overtime will be reimbursed as provided in **Exhibit C**.

Out-of-pocket expenses shall be reimbursed at cost provided they are consistent with CRRA's Travel and Expense Reporting document attached hereto and made a part hereof as **Exhibit D**, except that Consultant will be deemed to have met CRRA's "Receipt" requirements of such document if Consultant provides to CRRA with each billing the following:

(a) Receipts for all items greater than or equal to $25; and

(b) Copies of Consultant's expense forms itemizing expenses incurred in providing Services to CRRA.

Invoices shall be accompanied by an itemization of disbursements and costs (long-distance calls, photocopying, transcripts, expert witnesses, court costs, etc.) and travel expenses shall be itemized separately to indicate travel, lodging, business meeting, meals, taxis and limousines and other expenses (specially detailed). Disbursements will be reimbursed at the Consultant's cost.

Consultant shall not be compensated for any time spent preparing any billing documentation, or any information requested by CRRA's in house accountants/auditors or outside auditors, State of Connecticut auditors, or CRRA in house accounting department, or related materials.

3.2 Bill Format

Consultant shall render a bill to CRRA each month for all of the Services performed and all of the costs and expenses incurred in the immediately preceding month pursuant to this Agreement. Each monthly bill shall contain at least the following information:

(a) For tasks billed on a Lump Sum basis:

(1) A description of the Tasks performed;

(2) The annual fee for each Task, per the Agreement;

(3) The percentage of the Task completed during the current billing period;

(4) The total amount earned during the current billing period (equals the annual fee times the percentage of the task completed during the current billing period);

(5) A year-to-date summary of the percentage of each task completed.

(b) For tasks billed on a Time And Materials basis:

(1) Names of all persons performing Services for which payment is sought;

(2) A description of the Services performed by each person;

(3) The time spent by each person;

(4) The hourly rate for each person;

(5) The total amount charged for each person;

(6) Separate listing of all expenses incurred including copies of receipts or sub-consultant invoices;

(7) The project name and number to be charged; and

(8) The contract number for this Agreement (to be provided by CRRA).

Consultant shall not carry forward balances. If a previous bill is unpaid, Consultant shall resubmit that periodic bill for payment. Group or block billing is not acceptable and bills with such billing will be returned unpaid to the firm for clarification and itemization.

The format for all monthly bills is attached hereto and made a part hereof as **Exhibit E** for Lump Sum Tasks and **Exhibit F** for Time And Materials Tasks.

3.3 Payment Procedure

If CRRA determines, in its sole discretion, that

(a) The Services for which Consultant is requesting payment have been properly performed and completed in conformance with the Standards,

(b) Consultant is not in default hereunder,

(c) CRRA does not dispute the amount of the payment requested, and

(d) The bill contains all of the information required hereunder,

then CRRA shall pay the amount requested within thirty (30) calendar days after its receipt of such bill.

If, however,

(a) CRRA determines that any of the Services for which Consultant has requested payment is not in conformance with the Standards,

(b) Such bill does not contain all the requisite information, or

(c) Consultant is in default hereunder,

then CRRA may, in its sole and absolute discretion, withhold all or a portion of the payment requested by Consultant and Consultant shall, if requested by CRRA, immediately take, at Consultant's sole cost and expense, all action necessary to render such Services and/or bill in conformance with the Standards, or to cure such default.

CRRA shall have no obligation under this Agreement to pay for any Services that CRRA determines have not been performed and/or completed in conformance with the Standards, and CRRA shall have no obligation to pay Consultant any amount due Consultant under this Agreement if Consultant is in default hereunder. If CRRA disputes the amount in any written request for payment submitted by Consultant, CRRA shall have the right to withhold the disputed amount until the dispute is settled. CRRA shall notify Consultant of any disputed amount and the reason(s) for disputing such amount.

3.4 Accounting Obligations

Consultant shall maintain books and accounts of the costs incurred by Consultant in performing the Services pursuant to this Agreement by contract number and in accordance with generally accepted accounting principles and practices. CRRA, during normal business hours, for the duration of this Agreement, shall have access to such books and accounts to the extent required to verify such costs incurred.

3.5 Audit

CRRA reserves the right to review the reasonableness of all bills and expenses as they are billed to CRRA by Consultant. Upon reasonable notice from CRRA, Consultant agrees to allow CRRA to audit Consultant's files pertaining to CRRA's Services assigned to Consultant. Any such audit will be conducted on Consultant's premises and Consultant will be expected to produce any pertinent file information requested including Consultant's time and expense records.

For an audit, Consultant shall provide the following:

(a) Access to files, records, bills in electronic forms, electronic daily billing reports and summaries;

(b) Each employee's original bills and time slips for the services;

(c) A list of hourly rates for each employee providing Services; and

(d) A detailed explanation of Consultant's billing methods.

CRRA reserves the right to seek reimbursement of inappropriately billed time or expenses.

3.6 Withholding Taxes And Other Payments

No FICA (social security) payroll tax, state or federal income tax, federal unemployment tax or insurance payments, state disability tax or insurance payments or state unemployment tax or insurance payments shall be paid or deposited by CRRA with respect to Consultant, nor be withheld from payment to Consultant by CRRA. No workers' compensation insurance has been or will be obtained by CRRA on account of the Services to be performed hereunder by Consultant, or any of Consultant's employees or sub-Consultants. Consultant shall be responsible for paying or providing for all of the taxes, insurance and other payments described or similar to those described in this Section 3.6 and Consultant hereby agrees to indemnify CRRA and hold CRRA harmless against any and all such taxes, insurance or payments, or similar costs which CRRA may be required to pay in the event that Consultant's status hereunder is determined to be other than that of an independent Consultant.

3.7 State of Connecticut Taxes

Pursuant to Section 22a-270 of the *Connecticut General Statutes* (as the same may be amended or superceded from time to time), CRRA is exempt from all State of Connecticut taxes and assessments ("Connecticut Taxes"), and the payment thereof. Without limiting the generality of the preceding sentence, the sale of any services or tangible personal property to be incorporated into or otherwise consumed in the operation of a CRRA Project is exempt from Connecticut Taxes, including without limitation Connecticut sales and use taxes, wherever purchased. Accordingly, Consultant shall not include in the fees, and Consultant shall not charge or pass through any Connecticut Taxes to CRRA, including that portion of any

combined tax or assessment representing any Connecticut Taxes, regardless of whether Consultant has incurred any Connecticut State Taxes in its performance of the Agreement.

CRRA expresses no opinion as to the eligibility for any tax exemption, or refund or other reimbursement, including without limitation any Connecticut Taxes, with respect to tangible personal property purchased at any location for use in the performance of the Services contemplated by this Agreement.

Consultant should consult with its tax advisor and/or its attorney, and the Connecticut Department of Revenue Services ("DRS") and any other applicable tax authority, with regard to such tax authorities' policies, procedures, recordkeeping and filing requirements for reimbursement of any taxes, including without limitation Connecticut Taxes, paid in the performance of the Services contemplated by this Agreement, and whether or not there is a mechanism available to Consultant for the reimbursement of taxes, including without limitation Connecticut Taxes, paid on fuel purchased for use in the performance of the Services contemplated by this Agreement.

Consultant and CRRA agree that Consultant is and shall act as an independent contractor. Notwithstanding Consultant's status as an independent contractor, but without limiting Consultant's obligation hereunder to pay, and be solely responsible for, any Connecticut taxes levied, imposed or applicable to the Services, for the sole purpose of allowing CRRA to benefit from the aforesaid exemption, CRRA shall designate, and Consultant has agreed to act, as CRRA's agent in purchasing services and equipment, machinery, parts, materials, supplies, inventories, fuel, and other items necessary to perform the Services hereunder for the account of CRRA, and with funds provided as reimbursement therefore by CRRA.

4. TERM OF AGREEMENT

4.1 Term

The term of this Agreement shall commence upon the Effective Date and shall terminate, unless otherwise terminated in accordance with the terms hereof, on June 30, 2016.

Consultant shall retain and maintain accurate records and documents relating to the performance of Services under this Agreement for a minimum of three (3) years after final payment by CRRA for the Services hereunder and shall make them available for inspection and audit by CRRA. Contactor's obligations under this paragraph shall survive the termination or expiration of this Agreement.

4.2 Time Is Of The Essence

CRRA and Consultant hereby acknowledge and agree that time is of the essence with respect to Consultant's performance of the Services hereunder. Accordingly, upon Consultant's receipt of the request from the Authorized Representative to perform the Services, Consultant shall

immediately commence performance of the Services requested and continue to perform the same during the term of this Agreement.

4.3 Termination

This Agreement may be terminated by CRRA upon at least thirty (30) days advance written notice.

Upon receipt of such written notice from CRRA, Consultant shall immediately cease services on any and all CRRA matters, unless otherwise directed in writing by the Authorized Representative.

Upon termination of this Agreement pursuant to this Section 4.3,

(a) CRRA shall pay Consultant for all Services performed by Consultant prior to the termination date, provided:

(1) CRRA has determined that such Services have been performed by Consultant in conformance with the Standards;

(2) Payment for such Services has not been previously made or is not disputed by CRRA;

(3) Consultant is not in default hereunder; and,

(4) Consultant has performed all its obligations under this Section 4.3 to CRRA's satisfaction, and

(b) CRRA shall have no further liability hereunder.

Except for the payment that may be required pursuant to the preceding sentence, CRRA shall not be liable to Consultant in any other manner whatsoever in the event CRRA exercises its right to terminate this Agreement.

Consultant shall transmit to CRRA originals or copies of any and all material prepared, developed or obtained under this Agreement in Consultant's possession within thirty (30) days of receipt of the written notice of termination unless otherwise directed by the Authorized Representative. Consultant shall retain and maintain accurate records and documents relating to the performance of Services under this Agreement for a minimum of three (3) years after final payment by CRRA and shall make them available for inspection and audit by CRRA. Consultant's obligations under this Section 4.3 shall survive the termination or expiration of this Agreement.

5. INDEMNIFICATION

5.1 Consultant's Indemnity

Consultant shall at all times defend, indemnify and hold harmless CRRA and its board of directors, officers, agents and employees from and against any and all claims, damages, losses, judgments, liability, workers' compensation payments, costs and expenses (including but not limited to attorneys' fees) arising out of injuries to the person (including death), damages to property or other damages alleged to have been sustained by: (a) CRRA or any of its directors, officers, agents or employees, or (b) Consultant or any of its directors, officers, employees, agents or sub-Consultants, or (c) any other person, to the extent any such injuries, damages or damages are caused or alleged to have been caused in whole or in part by the acts, omissions or negligence of Consultant or any of its directors, officers, employees, agents or sub-consultants. Consultant further undertakes to reimburse CRRA for damages to property of CRRA caused by Consultant or any of its directors, officers, employees, agents or sub-Consultants, or by faulty, defective, or unsuitable material or equipment used by it or any of them. The existence of insurance shall in no way limit the scope of this indemnification. Consultant's obligations under this Section 5.1 shall survive the termination or expiration of this Agreement.

6. INSURANCE

6.1 Insurance

At all times during the term of this Agreement, Consultant shall, at its sole cost and expense, procure and maintain the insurance coverages described below for claims which may arise from or in connection with the work set forth in the scope of work hereunder (the "Work") performed by the Consultant and those for whom they are legally responsible.

CRRA reserves the right to waive, at its sole and absolute discretion, in whole or in part, any of the required insurances specified in this Section 6.

Prior to execution of a Specific Request for Services (a "Request") pursuant to Section 2.9 of this Agreement, CRRA may elect to require additional lines of insurance, increase or decrease the dollar amounts of some or all of the insurance, or make other changes to the insurance provisions based upon the specific scope of services outlined in a Request. If additional insurance is required by CRRA for a request, costs will be discussed at the time the Request terms are negotiated.

(a) Minimum Scope of Insurance

Coverage shall be at least as broad as:

1. Commercial General Liability insurance as specified by the most recent version of ISO Form Number CG 001 (occurrence).

2. Automobile Liability insurance as specified by the most recent edition of ISO Form Number CA 0001, Symbol 1 (any auto**).** An MCS 90 Endorsement and a CA 9948 Endorsement shall be attached **if any hazardous materials are transported by the Consultant during its performance of the Work.**

3. Workers' Compensation insurance as required by all states in which the Work is being done and Employer's Liability insurance.

4. Professional Liability insurance if the Consultant or any subcontractor to them is providing engineering and/or design services. The Professional Liability insurance should include coverage for all professional services related to the Work (including design work that preceded this Agreement) and should be kept in force for a completed operations period of at least five years after final completion of the Work.

6.2 Minimum Limits of Insurance

Consultant shall maintain the following limits of liability for the insurance described above:

1. Commercial General Liability:
    a. $1,000,000 Each Occurrence for Bodily Injury & Property Damage.
    b. $1,000,000 General Aggregate
    c. $1,000,000 Products & Completed Operations Aggregate
    d. $1,000,000 Personal & Advertising Injury

2. Automobile Liability:
    a. $1,000,000 Combined Single Limit Each Accident for Bodily Injury and Property Damage.
    b. Include Owned, Hired and Non-Owned Auto Liability

3. Workers' Compensation: Statutory limits.

4. Employer's Liability:

    a. $500,000 Each Accident
    b. $500,000 Disease – Policy Limit
    c. $500,000 Disease – Each Employee

5. Professional liability
    a. $1,000,000 Each Claim

(a) Deductibles, Self-insured Retentions and Uninsured Losses

The Consultant shall be responsible for payment of all deductibles and self-insured retentions on any of the insurance policies required under this Agreement. The Consultant is also responsible for the payment of all losses arising out of its performance of the Work that may not be covered by the insurance policies required under this Agreement.

(b) Other Insurance Provisions

All policies required under this Agreement shall contain the following provisions:

1. CRRA, its subsidiaries, officials and employees are to be covered as additional insureds on a primary and non-contributing basis on the following insurance policies purchased by the Consultant:
    a. Commercial General Liability
    b. Automobile Liability

2. The Consultant agrees to notify CRRA at least thirty (30) days in advance of any cancellation or change to insurance coverages required under this Agreement. Notice of cancellation or change in coverage shall be provided to CRRA's Risk Manager by fax to 860-757-7740, or by e-mail to lmartin@crra.org, or by correspondence to CRRA, 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103-1722.

3. The Consultant should waive (and require their insurers to waive) subrogation rights against CRRA for losses and damages incurred under the insurance policies required by this Agreement.

4. The Consultant's/Consultant's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

(c) Acceptability of Insurance

Insurance is to be placed with insurers with current A.M. Best ratings of not less than A-VIII, and be lawfully authorized to conduct business in the state(s) or jurisdiction(s) where the Work is being performed, unless otherwise approved by CRRA.

(d) Verification of Coverage

Consultant shall furnish CRRA with a Certificate of Insurance evidencing the coverages

required under this Agreement. All certificates are to be received and approved by CRRA before the Work commences. Consultant shall provide new Certificates of Insurance upon renewal, replacement or addition of any insurance required under this Agreement.

(e) Subcontractors

Consultant shall either include all subcontractors as insureds under its insurance policies or shall require subcontractors to provide their own insurance subject to all of the requirements stated herein.

7. MISCELLANEOUS

7.1 Non-Discrimination

Consultant agrees to the following:

(a) Consultant agrees and warrants that in the performance of the Services for CRRA Consultant will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, sexual orientation, gender identity or expression, intellectual disability, mental disability, or physical disability, including, but not limited to, blindness, unless it is shown by Consultant that such disability prevents performance of the Services involved, in any manner prohibited by the laws of the United States or of the State of Connecticut. Consultant further agrees to take affirmative action to insure that applicants with job related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, sexual orientation, gender identity or expression, intellectual disability, mental disability, or physical disability, including, but not limited to, blindness, unless it is shown by Consultant that such disability prevents performance of the Services involved;

(b) Consultant agrees, in all solicitations or advertisements for employees placed by or on behalf of Consultant, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Connecticut Commission on Human Rights and Opportunities (The "Commission");

(c) Consultant agrees to provide each labor union or representative of workers with which Consultant has a collective bargaining agreement or other contract or understanding and each vendor with which Consultant has a contract or understanding, a notice to be provided by the Commission, advising the labor union, workers' representative and vendor of Consultant's commitments under Sections 4a-60 and 4a-60a of the *Connecticut General Statutes* and to post

copies of the notice in conspicuous places available to employees and applicants for employment;

(d) Consultant agrees to comply with each applicable provision of Sections 4a-60, 4a-60a, 46a-68e, and 46a-68f, inclusive, of the *Connecticut General Statutes* and with each regulation or relevant order issued by the Commission pursuant to Sections 46a-56, 46a-68e, and 46a-68f of the *Connecticut General Statutes*; and

(e) Consultant agrees to provide the Commission with such information requested by the Commission, and permit access to pertinent books, records and accounts concerning the employment practices and procedures of Consultant as related to the applicable provisions of Sections 4a-60, 4a-60a and 46a-56 of the *Connecticut General Statutes*. If this Agreement is a public works contract, Consultant agrees and warrants that it will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials in such public works project.

7.2 Contingent, Management Service And Placement Commissions

Consultant warrants that during its performance under this Agreement it will not receive, or direct to any third parties, any contingent commissions, management service agreement commissions, or any other form of placement commissions, with the exception of wholesale commissions which are customary in the industry. Consultant warrants that it will disclose to CRRA any wholesale commissions it receives from third parties during and related to Consultant's performance of this Agreement.

7.3 Proprietary Information

Consultant shall not use, publish, distribute, sell or divulge any information obtained from CRRA by virtue of this Agreement for Consultant's own purposes or for the benefit of any person, firm, corporation or other entity (other than CRRA) without the prior written consent of CRRA. Any report or other work product prepared by Consultant in connection with the performance of the Services hereunder shall be owned solely and exclusively by CRRA and cannot be used by Consultant for any purpose beyond the scope of this Agreement without the prior written consent of CRRA. Any material designated by CRRA in accordance with applicable law as confidential shall not be disclosed to any third parties without the prior written consent of CRRA. However, Consultant acknowledges that CRRA is subject to the Connecticut Freedom of Information Act and CRRA must disclose certain documents in accordance with said statutes. Consultant retains all of its rights in its inventions, expressions, know how, techniques, skills, knowledge and experience and materials used by it generally or provided by it generally to clients, and Consultant shall not be restricted in any way with respect thereto. The restrictions and agreements set forth in this Section 7.3 shall not apply to any information:

(a) Which at the time disclosed to or obtained by Consultant is in the public domain;

(b) Which becomes part of the pubic domain through no act, omission or fault of Consultant;

(c) Which Consultant's records demonstrate was developed independently by Consultant or was received by Consultant from a third party which Consultant had no reason to believe had any confidentiality or fiduciary obligation to CRRA with respect to such information;

(d) Which is required to be disclosed by law, including, without limitation, pursuant to the terms of a subpoena or other similar document; provided, however, Consultant shall give prior timely notice of such disclosure to CRRA to permit CRRA to seek a protective order, and, absent the entry of such protective order, Consultant shall disclose only such Confidential Information that Consultant is advised by its counsel must be disclosed by law; or

(e) Following the lapse of five years after disclosure of such information to Consultant.

7.4 Sub-Consultants

Consultant shall consult with CRRA before hiring any sub-consultants to perform any Services hereunder. Consultant shall require all of its sub-consultants to abide by the terms and conditions of this Agreement. Moreover, Consultant's subcontracts with such sub-consultants shall specifically provide that, in the event of a default by Consultant thereunder or under this Agreement, CRRA may directly enforce such subcontracts and make payments thereunder. Consultant shall provide CRRA with all contracts, amendments, books, records, accounts, correspondence and other materials necessary to enforce such subcontracts. Also Consultant's subcontracts with its sub-consultants shall specifically include CRRA as a third party beneficiary and shall provide that such sub-consultants shall not be excused from any of their obligations under such subcontracts by reason of any claims, setoffs, or other rights whatsoever that they may have with or against Consultant other than through such subcontracts. Consultant shall be solely responsible for making any payments due to any sub-consultant as a result of such sub-consultant's performance of any of the Services.

7.5 Status Of Consultant

CRRA and Consultant acknowledge and agree that Consultant is acting as an independent contractor in performing any Services for CRRA hereunder and that Consultant shall perform such Services in its own manner and method subject to the terms of this Agreement. Nothing in this Agreement shall be construed or interpreted as creating a partnership, a joint venture, an agency, a master-servant relationship, an employer-employee relationship or any other relationship between CRRA and Consultant other than that of an owner and an independent Consultant. Consultant is expressly forbidden from transacting any business in the name of or on account of CRRA, and Consultant has no power or authority to assume or create any obligation or responsibility for or on behalf of CRRA in any manner whatsoever.

7.6 Consultant's Employees

All persons employed by Consultant shall be subject and responsible solely to the direction of Consultant and shall not be deemed to be employees of CRRA.

7.7 Restrictions On Parties

This Agreement shall not be construed to restrict either CRRA or Consultant from entering into other agreements similar to this one with other parties, provided however Consultant shall not render services to another which would either be in conflict with the interests of CRRA or prevent Consultant from performing hereunder. Consultant shall not assign this Agreement or subcontract any of the Services to be performed hereunder without the prior written consent of the Authorized Representative.

7.8 Entire Agreement

This Agreement constitutes the entire agreement and understanding between the parties hereto and concerning the subject matter hereof, and supersedes any previous agreements, written or oral, between the parties hereto and concerning the subject matter hereof.

7.9 Governing Law

This Agreement shall be governed by, and construed, interpreted and enforced in accordance with the laws of the State of Connecticut as such laws are applied to contracts between Connecticut residents entered into and to be performed entirely in Connecticut.

7.10 Assignment

This Agreement may not be assigned in whole or in part by either party without the prior written consent of the other party or such assignment shall be void.

7.11 No Waiver

Failure to enforce any provision of this Agreement or to require at any time performance of any provision hereof shall not be construed to be a waiver of such provision, or to affect the validity of this Agreement or the right of any party to enforce each and every provision in accordance with the terms hereof. No waiver of any provision of this Agreement shall affect the right of CRRA or Consultant thereafter to enforce such provision or to exercise any right or remedy available to it in the event of any other default involving such provision or any other provision. Making payment or performing pursuant to this Agreement during the existence of a dispute shall not be deemed to be and shall not constitute a waiver of any claims or defenses of the party so paying or performing.

7.12 Mechanic's Liens

Consultant shall claim no interest in the Property or any equipment, fixtures or improvements located or to be located thereon. Consultant shall not file any mechanic's liens or other liens or

security interests against CRRA or any of its properties, including but not limited to the Property. Consultant shall defend, indemnify and hold harmless CRRA against all costs associated with the filing of such liens or interests by Consultant or any of its sub-consultants or materialmen. Before any sub-consultant or materialman of Consultant commences any Services hereunder, Consultant shall deliver to CRRA an original waiver of mechanic's liens properly executed by such sub-consultant or materialman. If any mechanic's lien is filed against CRRA or any of its properties in connection with the Services hereunder, Consultant shall cause the same to be canceled and discharged of record within fifteen (15) days after the filing of such lien and, if Consultant fails to do so, CRRA may, at its option but without any obligation to do so, make any payment necessary to obtain such cancellation or discharge and the cost thereof, at CRRA's election, shall be either deducted from any payment due to Consultant hereunder or reimbursed to CRRA promptly upon demand by CRRA to Consultant.

7.13 Modification

This Agreement may not be amended, modified or supplemented except by a writing signed by the parties hereto that specifically refers to this Agreement. Any oral representations or letters by the parties or accommodations shall not create a pattern or practice or course of dealing contrary to the written terms of this Agreement unless this Agreement is formally amended, modified or supplemented.

7.14 Notices

All notices, requests, demands and other communications hereunder shall be in writing and shall be deemed to have been duly given if mailed via certified first class mail return receipt requested postage prepaid or overnight express mail service to the pertinent address below.

(a) If to CRRA:

Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, Connecticut 06103
Attention: Environmental Engineer

With a copy to:

Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, Connecticut 06103
Attention: President

(b) If to Consultant:

_____

_____

_____

Attention: _____

7.15 Binding Effect

This Agreement shall inure to the benefit of and be binding upon the heirs, personal representatives, successors and assigns of the parties hereto.

7.16 Severability

CRRA and Consultant hereby understand and agree that if any part, term or provision of this Agreement is held by any court to be invalid, illegal or in conflict with any applicable law, the validity of the remaining portions of this Agreement shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if this Agreement did not contain the particular part, term or provision held to be invalid, illegal or in conflict with any applicable law.

7.17 Small Contractor Application

At the request of CRRA and if Consultant qualifies, Consultant shall apply to the State of Connecticut Department of Administrative Services and do all that is necessary to make itself qualify, as a Small Contractor and/or Minority/Women/Disabled Person Business Enterprise in accordance with Section 4a-60g of the *Connecticut General Statutes*.

7.18 Whistleblower Protection

If any officer, employee or appointing authority of the Consultant takes or threatens to take any personnel action against any employee of the Consultant in retaliation for such employee's disclosure of information to the Auditors of Public Accounts or the Attorney General under the provisions of *Connecticut General Statutes* Section 4-61dd, the Consultant shall be liable for a civil penalty of not more than five thousand dollars for each offense, up to a maximum of twenty per cent of the value of the contract. Each violation shall be a separate and distinct offense and in the case of a continuing violation each calendar day's continuance of the violation shall be deemed to be a separate and direct offense. The Consultant shall post a notice in a conspicuous place which is readily available for viewing by employees of the provisions of *Connecticut General Statutes* Section 4-61dd relating to large state Consultants.

7.19 Counterparts

This Agreement may be executed in any number of counterparts by the parties hereto. Each such counterpart so executed shall be deemed to be an original and all such executed counterparts shall constitute but one and the same instrument.

7.20 Campaign Contribution And Solicitation Prohibitions

For all State contracts as defined in P.A. 07-1 having a value in a calendar year of $50,000 or more or a combination or series of such agreements or contracts having a value of $100,000 or more, the authorized signatory to this Agreement expressly acknowledges receipt of the State Elections Enforcement Commission's notice advising state contractors of state campaign

contribution and solicitation prohibitions, and will inform its principals of the contents of the notice. See **Exhibit G** [SEEC Form 11].

7.21 Affidavit Concerning Nondiscrimination

At the time the Consultant submitted its Bid to CRRA, it simultaneously executed a document entitled Affidavit Concerning Nondiscrimination and said document is attached hereto and made a part of this Agreement as **Exhibit H**.

7.22 Affidavit Concerning Consulting Fees

At the time of Consultant's execution of this Agreement, Consultant simultaneously executed a document entitled Affidavit Concerning Consulting Fees and said document is attached hereto and made a part of this Agreement as **Exhibit I**.

7.23 Contractor's Certification Concerning Gifts

At the time of Consultant's execution of this Agreement, Consultant simultaneously executed a document entitled Contractor's Certification Concerning Gifts and said document is attached hereto and made a part of this Agreement as **Exhibit J**.

7.24 President's Certification Concerning Gifts

At the time of the President of CRRA's execution of this Agreement, the President of CRRA simultaneously executed a document entitled President's Certification Concerning Gifts and said document is attached hereto and made a part of this Agreement as **Exhibit K**.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the parties hereto have set their hands and seals as of the day and year first written above.

CONNECTICUT RESOURCES RECOVERY AUTHORITY

By: _____
Thomas D. Kirk
Its President
Duly Authorized

[NAME OF CONSULTANT]

By: _____

_____ [Print/Type Name]

Its _____ [Title]
Duly Authorized

SCOPE OF SERVICES

In the following sub-exhibits are the Scopes of Services for each of the CRRA Landfills as follows:

- Exhibit A 1 – Ellington Landfill
- Exhibit A 2 – Hartford Landfill
- Exhibit A 3 – Shelton Landfill
- Exhibit A 4 – Wallingford Landfill

An Agreement for the Services for one of the Landfills will only include the Exhibit for that Landfill.

EXHIBIT A 1

SCOPE OF SERVICES

Environmental Monitoring, Laboratory Analysis and Reporting - Ellington Landfill

BACKGROUND

The Ellington Landfill is a closed solid waste disposal facility located on the eastern side of Sadds Mill Road (Route 140) in Ellington, Connecticut. A general location plan showing the Ellington Landfill is included as **Figure 1**. The site is 800 to 1,200 feet east of the Ellington/East Windsor town line. The landfill is bounded by the land of the N/F Thompson Family Trust to the north, the Connecticut Resources Recovery Authority (CRRA)/Ellington Transfer Station to the east, residentially-zoned land owned by CRRA to the south and Sadds Mill Road to the west. Gravel excavation and composting (Greencycle) operations are performed on the Thompson Family Trust property. Two occupied, single-family homes, 204 Sadds Mill Road and 208 Sadds Mill Road, are located on the western side of Route 140, across from the southern end of the landfill. The reminder of the land on the western side of Route 140 is primarily undeveloped and wooded, except for a recent gravel extraction to the northwest of the landfill.

CRRA purchased the Ellington Landfill property in 1986. Landfilling reportedly began on this property in 1966, and waste disposal ceased on June 29, 1993. During its active life, the Ellington Landfill received municipal solid waste (MSW) and bulky waste (demolition debris and land clearing debris), as defined by the Connecticut Department of Environmental Protection (CTDEEP). The majority of the landfill received final cover material in the summer of 1993, and has established vegetative growth. Final closure activities were completed in the fall of 1996, with touch-up work completed in the spring and summer of 1997. The current water quality monitoring program was most recently modified with CTDEEP approval in July 2008.

The CRRA Ellington Transfer Station, located immediately to the east of the landfill, is currently inactive but is permitted to accept MSW for transfer to an off-site disposal facility. The transfer station is permitted separately from the landfill.

A detailed site plan showing environmental sampling locations is included as **Figure 2**. The site is equipped with various environmental control systems, including:

(a) A landfill gas collection system located primarily along the northern and western property lines,

(b) A landfill gas oxidizer, located in the northeastern corner of the property, and

(c) A stormwater collection and discharge system (overall site).

Groundwater, surface water, and potable water monitoring at the Ellington Landfill is conducted in accordance with a conditional approval from the CTDEEP dated July 24, 2008 that modified

the water quality monitoring program under the solid waste permit issued by the CTDEEP's Waste Management Bureau. Copies of the letter of conditional approval and of the solid waste permit are included in **Appendix A**.

SCOPE OF SERVICES

Consultant's work shall be inclusive of all environmental monitoring and reporting required at the Ellington Landfill, unless otherwise indicated. Monitoring and reporting will be required for a three (3) year period starting July 1, 2013 and ending June 30, 2016.

Costs for monitoring work shall also include but are not limited to sample bottle preparation and delivery, sample collection, laboratory analysis, and reporting as further described in this Scope of Services. The environmental media to be sampled under this Scope of Services include ground water, surface water and potable water. All sampling at the Ellington Landfill will be performed to meet the requirements of all applicable regulations and permits issued to the Ellington Landfill/CRRA by the federal, state, and local permitting authorities, as applicable. Refer to **Appendix A** for site-specific permit information. All sample analyses shall be conducted by an analytical testing laboratory certified to perform such analyses by the State of Connecticut. The analytical testing laboratory will be subcontracted directly by the Consultant and approved by CRRA.

Consultant is to be familiar with and have reviewed all applicable landfill permits and requirements for site monitoring issued by CTDEEP (and EPA, where applicable). Consultant shall be familiar with representative past monitoring reports prepared for the Ellington Landfill, and shall prepare monitoring reports consistent in format with past monitoring reports. Consultant shall provide summary tables of data results, and reference, as applicable, drinking water standards and Connecticut Remediation Standards for monitoring wells and potable wells, and surface water Numerical Criteria contained in the Connecticut Water Quality Standards.

In accordance with the permits for the Ellington Landfill, Consultant shall conduct the monitoring program for the sampling points and parameters as summarized in **Tables 1** through **3**, on a quarterly basis except as otherwise indicated. In some instances, monitoring points may be inaccessible for regularly-scheduled monitoring, such that Consultant shall make arrangements to sample the location(s) at other times. If it is not possible to sample in a timely manner within the monitoring event timeframe, CRRA will not be charged for sample collection and laboratory analysis for those portions of work not completed.

The environmental monitoring will include but not necessarily be limited to the following elements:

- Preparation for sampling, including bottle preparation, field parameter measurement equipment, sample collection equipment, and means of access to sampling points.

- Completion of field data sheets for each sample point; modified as applicable for each type of sample point.

- Completion of a synoptic groundwater measurement event on the first day of each semi-annual monitoring event to determine the groundwater elevations at all 45 moni-

toring wells installed at the site. The synoptic groundwater measurement event is to be completed prior to any purging and sampling activities.

- Measuring of field parameters, and collection of samples in bottles for laboratory analysis and appropriate field and laboratory QA/QC in accordance with CTDEEP's Solid Waste Management Program and EPA's Subtitle "D" regulations.

- Preservation and transport of samples to the laboratory.

- Analytical laboratory analyses of collected samples.

- Entering analytical results and other pertinent sample and/or laboratory test data into a database. Provide an electronic copy of the database to CRRA at the end of each calendar year to accompany the annual report, and after the completion of the April 2016 sampling event (i.e., the final sampling event under this Scope of Services).

- Data review and verification, cursory check for outliers, extreme exceedances and notification to CRRA of unusual results or "Significant Environmental Hazard" conditions under Public Act 98-134.

- Preparation of graphs and tables of data results, maps of sampling locations, groundwater elevation contours and isopleths of monitoring results as appropriate.

- Preparation of summary reports on status of each sample point and site environmental conditions.

- Preparation of draft quarterly and annual reports for CRRA review and comment prior to report finalization.

- Finalization, duplication, and distribution of reports following incorporation of CRRA comments.

The Consultant is responsible for maintaining clear access to all wells (i.e., by cutting back brush and trimming weeds and grass). Consultant is also responsible for maintaining well markers (i.e., stakes, flagging and ID numbers) to assist field personnel in locating the wells.

The environmental monitoring program is outlined by task and description below. The format of the Not-To-Exceed Bid Price Form is consistent with the task listing that follows.

TASK 1: QUARTERLY ENVIRONMENTAL MONITORING, ANALYSIS, REPORTING AND ANNUAL REPORTING

Environmental permits issued to CRRA for the Ellington Landfill require that water quality monitoring activities be conducted on a quarterly basis. The activities under Task 1 of this Scope of Services describe the monitoring activities, which vary in frequency and monitoring parameters by type of media (groundwater, surface water and potable water) and sampling point.

Task 1.1: Sampling and Documentation of Field Activities

Sampling Schedule

Quarterly sampling of select groundwater and potable water wells is to be performed in the following months:

- January
- April
- July
- October

Semi-annual sampling of select additional groundwater wells and surface water is to be performed in the following months:

- April
- October

Sampling of groundwater, surface water and potable water wells can begin on the 1st day of the sampling month and must be completed by the last day of the sampling month.

Monitoring of Groundwater Wells

There are twelve (12) groundwater monitoring wells at the Ellington Landfill that are monitored on either a quarterly or a semi-annual basis. **Table 1** summarizes the characteristics of each well. Consultant is responsible for supplying all equipment to the site as required for each quarterly monitoring event and its storage at a safe off-site location by Consultant's arrangement.

More specifically, the following items are highlighted for each quarterly sampling event:

- Keyed-alike well locks will be provided for all wells by CRRA.
- Permission to access off-site monitoring wells, surface waters, and potable water wells will be coordinated through CRRA at the initiation of the monitoring contract. Access to some wells is by foot only, because of location and/or restrictions of vehicle use.
- Consultant shall complete a "Monitoring Well Field Data Sheet" which summarizes well elevation data, well condition, purge data, observed water yield and quality comments, sampling data, and results of measured field parameters. An example of the proposed "Monitoring Well Field Data Sheet" is to be submitted for approval by CRRA before the first sampling event, at the initiation of the monitoring contract.
- On the first day of each quarterly sampling event, prior to any purging and sampling activities, complete a synoptic groundwater measurement event to determine the groundwater elevations at all twelve

(12) monitoring wells that are in the sampling program. At each monitoring well, the depth to groundwater and the depth to the bottom of the will be measured with either an electronic water level indicator or a steel tape accurate to within 0.01 feet. All measurements will be made relative to the surveyed measurement point at each well, i.e., the top of the PVC casing.

- The water level measuring device will be decontaminated between monitoring wells to ensure that cross-contamination of the monitoring wells does not occur. The decontamination will consist of rinsing the measuring device with deionized water.

- Measure depth to water at all 12 monitoring wells that are included in the groundwater sampling program using decontaminated equipment (depth to water, depth to bottom, depth of sample) referenced to top of PVC (or casing) and record on the data sheet.

- Provide field meter(s) to concurrently measure pH, temperature, specific conductivity, dissolved oxygen (DO), turbidity, and redox potential (RP), as applicable, during monitoring well purging. A minimum of four (4) readings of each parameter shall be taken and recorded during purging.

- Perform purging using submersible, variable speed positive-displacement pumps at each sampled monitoring well. The Consultant must extract at least three (3) well volumes from each groundwater monitoring well prior to sample collection. The purged groundwater may be discarded to the ground at the landfill.

- Sample collection should proceed from high parameter volatility to low parameter volatility. Samples for volatile parameters should be transferred slowly to the sample container to eliminate creation of air bubbles. Samples are to be collected in proper containers and properly preserved in the field.

- No filtering of samples is to occur, <u>except</u> where analysis of dissolved metals is specified. Where analysis of dissolved metals is specified, sample filtration is to be performed <u>in the field</u> during sample collection with a 0.45-micron filter.

- Record all observations relating to the well sampling and any deviations from the sampling plan.

Surface Water Sampling

Surface water sampling consists of grab sample collection from six (6) surface water sampling locations on a semi-annual basis. The six surface water sampling locations are designated as:

- SW-1 - located on Thompson Brook to the northwest of the landfill.
- SW-2 - located downstream of the confluence of Thompson and Broad Brooks to the northwest of the landfill
- SW-4 - located on Creamery Brook, upstream of the landfill.
- SW-5 - located on Creamery Brook, downstream and to the southwest of the landfill.
- SW-6 - located on Broad Brook, upstream from the confluence of Creamery and Broad Brooks.
- SW-12 - located on Broad Brook between Creamery and Thompson Brooks to the southwest of the landfill.

Surface water sampling shall consist of the collection of one grab sample from each surface water sampling location. A field data sheet shall be completed for each sample location. Field measurements of water temperature, air temperature, pH, specific conductance, and dissolved oxygen shall be recorded. Sampling equipment (i.e., peristaltic pump, dipper sampler, etc.), time and date of sample collection, sampler's name, depth of water, sample identification, and other pertinent information shall also be recorded on the field data sheet. All surface water samples collected for analysis of dissolved metals will be filtered in the field prior to acid preservation.

Domestic Well Sampling

There are seven (7) domestic water supply wells that are included in the environmental monitoring program for the Ellington Landfill. These wells are associated with residences/third parties located in the vicinity of the Ellington Landfill. Four (4) of the domestic wells are sampled on a quarterly basis, while the other three (3) domestic wells are only sampled annually (in January of each year).

When possible, domestic water well samples are collected from the first spigot in line from the well pump, prior to any filtration or treatment systems, and any aeration heads are removed. When sampling domestic wells, the tap water is allowed to run for a minimum of five minutes before the water samples are obtained. The flow from the tap is then reduced in order to collect samples direct-

ly into the sample containers with a minimum of mixing and aeration. No filtering of domestic well samples is to occur.

Preparation for Sampling

This task includes coordination between field monitoring personnel and the analytical laboratory for the bottle order, bottle delivery, sample preservation and chain of custody to complete the required sampling.

Sample event scheduling shall allow enough time for completion of the sample analyses by the laboratory so that the quarterly reports can be assembled, reviewed, finalized and submitted in a timely manner according to permit requirements as further discussed below.

Consultant is responsible for coordinating equipment blanks, trip blanks and duplicate samples as part of the sampling quality assurance program. In addition to any other approved EPA or CTDEEP protocols, equipment blanks are required when non-dedicated sampling equipment is used, with laboratory-supplied reagent water poured over the sampling equipment at the end of the sampling day and collected for analysis. Trip blanks, as supplied by the laboratory, are to be carried on each day that samples for VOC analyses are collected, and returned with the samples for analysis of USEPA's Appendix I VOC's. Duplicate samples are to be collected at one of the quarterly-monitored groundwater well locations during each sampling event and analyzed for all the same parameters as the sampled well.

It shall be the Consultant's responsibility to provide all field equipment, including but not limited to pumps, power source for pumps, tubing, etc., that the Consultant deems necessary to conduct the field sampling activities. The Consultant shall also supply equipment required for measurement of field parameters. Field equipment calibration and decontamination shall be the responsibility of the Consultant. The Consultant shall supply any other equipment necessary to adequately and properly complete the work.

Field Measurements and Collection of Samples

This task includes measuring selected parameters in the field and collecting samples in laboratory-supplied bottles, varying with the sampling point's parameter matrix. Refer to **Table 2** for a summary of field and laboratory parameter requirements for each sampling point at the Ellington Landfill. **Table 1** provides summaries of monitoring well completion details with total well depth and screened interval depth of each monitoring well.

Consultant shall follow the "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846" (latest edition) and "RCRA Groundwater Monitoring" Draft Technical Guidance (latest edition) as well as all applicable CTDEEP and USEPA regulations. Procedures described herein are not intend-

ed to be comprehensive, but to provide a clarification or to supplement the referenced regulations as they might pertain to certain site conditions. The various subsections below describe particulars for sampling at various types of sample locations.

Sampling methods described herein are to be utilized by Consultant during water quality monitoring events including monitoring of groundwater, surface water, and domestic water. Specific items that shall be performed during all water quality monitoring events and summarized in the quarterly reports include the following:

- Documentation of Field Activities
- Sample Handling
- Decontamination Procedures
- Monitoring and Sampling Techniques
- Field Quality Control Checks

Documentation of Field Activities shall include listing the procedures used to record data about the sampling event, the sampling locations, the samples themselves, and the handling and transport of the samples.

Sample Handling shall detail the source of the sample containers, sample preservation methods, and the chain-of-custody protocol that is followed from time of sample collection until sample acceptance by the laboratory performing the analysis.

Decontamination Procedures shall provide general data on field and in-house decontamination. Non-dedicated equipment used for purging, sampling, and filtering (to be completed only for analysis of dissolved metals) is to be decontaminated (unless replaced) between each sampling location.

Monitoring and Sampling Techniques for groundwater and surface water locations shall include a description of the fundamental procedures for collection of samples. Specific procedures to be addressed include water level measurement; purging calculations, sample collection equipment and techniques utilized; and monitoring of field parameters (i.e., pH, temperature, specific conductivity, etc.) and their results. Surface water monitoring and sample techniques shall describe equipment purging, monitoring of field parameters, method of filtering for dissolved metals and sample collection techniques. Domestic well monitoring and sample techniques shall describe tap water run time prior to sampling, monitoring of field parameters, and sample collection techniques.

Field Quality Control Checks shall describe typical QA/QC samples and their use. Monitoring events will include trip blanks, equipment blanks, and duplicate samples. The trip blank is only associated with days when groundwater well and domestic well monitoring is performed, because VOC's are not analyzed in surface waters. Collection and analysis of two (2) equipment blanks per quarter is necessary to document what analytical interferences or sample cross-contamination, if any, may result from the use of non-dedicated groundwater well purging and sample collection equipment, and from the surface water sample collection equipment. Duplicate samples are to be collected at one of the quarterly-monitored groundwater well locations during each sampling event and analyzed for all the same parameters as the sampled well.

Except where sample analysis in accordance with methods in 40 CFR Part 136 is required by permits, the methodologies to be utilized should be consistent with 40 CFR Part 258, Subpart E, Section 258.53 through 258.56, and as further detailed in EPA 530-R-93-017, "Solid Waste Disposal Facility Criteria - Technical Manual," November 1993; CTDEEP's "Solid Waste Management Program Description", July 1993; and USEPA's "RCRA Ground Water Monitoring Technical Enforcement Guidance Document", September 1986.

Task 1.2: Quarterly Laboratory Analysis

All sample analyses required under this Scope of Services shall be performed by a laboratory certified for such analyses by the Connecticut Department of Public Health or, in advance of any use, a laboratory approved in writing by the CTDEEP. The laboratory shall analyze all samples submitted from the same monitoring event at one time, such that duplicate samples and blanks are analyzed under the same conditions.

Preservation and Transport of Samples to Laboratory

Samples shall be properly preserved and kept cool. They shall be transported to the laboratory the same day they are collected per coordination with the lab by the Consultant's field personnel. Container types, preservatives and maximum holding times shall be per CTDEEP Reasonable Confidence protocols, SW-846 (latest edition), or 40 CFR 136, as applicable. Consultant is to coordinate re-sampling, at no additional cost to CRRA, if re-sampling is necessary due to loss of sample in bottle transport or in laboratory handling, or if the maximum holding times are exceeded.

Analytical Methods and Detection Limits

Given the site setting, the minimum detection limit for each analyzed parameter in groundwater monitoring well samples will have to be at least as low as the Surface Water Protection Criteria (SWPC) or the Groundwater Protection Criteria (GWPC) from the State's Remediation Standard Regulations, whichever is lower.

For potable water samples, the minimum detection limit for each analyzed parameter will have to be at least as low as the Maximum Contaminant Level (MCL) established for that parameter by either the USEPA or the Connecticut Department of Public Health, whichever is lower; or, the National Secondary Drinking Water Regulations for that parameter, if applicable.

For surface water samples, the minimum detection limits need to be at least as low as the Chronic Aquatic Life Criteria (CALC) from the State's Surface Water Quality Standards.

Analytical results for each parameter shall be reported together with the analytical method, method detection limits, date of analysis, and initials of analyst. The value of each parameter shall be reported to the maximum level of accuracy and precision possible. Where applicable, specific laboratory analytical methods listed in **Table 2** must be utilized.

Review of Lab Results, Quality Control Procedures and Invoices

Consultant is responsible for ensuring lab analyses are performed as required by the parameter list and that MDL limits are met. A summary of the lab's QA/QC procedures and results, including matrix spikes and surrogate recovery analyses, are to be reviewed by the Consultant and included in the quarterly report. The laboratory must also provide signed "Laboratory Analysis QA/QC Certification Forms" that certify that the all reported data meet the CTDEEP's requirements for "reasonable confidence." Consultant is to review the laboratory invoices for consistency with actual sample parameter analyses requested and completed.

Task 1.3: Quarterly Reports - Water Quality Monitoring

The following deadlines apply to the submission of finalized quarterly reports to the appropriate regulatory agencies:

Sampling Event	Report Deadline
January	March 1
April	June 1
July	September 1
October	December 1

Sampling shall be arranged to allow for a reasonable laboratory turnaround time for analysis and compiling of lab results, writing draft report, reviewing draft report, finalizing report and distributing report to appropriate parties.

The quarterly report shall include in the monitoring results an indication of parameters that exceed criteria appropriate to the sampling point of classification. This will include state and federal limits for maximum contaminant levels not to be exceeded in the aquifer(s) at the relevant point of compliance (per Subtitle D and permit re-

quirements), groundwater/surface water protection criteria per CTDEEP regulations in accordance with the classifications of the same, and acute aquatic life criteria for surface water locations.

The quarterly reports must include assessment of conditions at groundwater monitoring wells and other sampling locations as applicable. The quarterly reports will also include a summary table of groundwater well construction details, and site maps which show groundwater contours in both the overburden and the bedrock aquifers across the monitored area. The groundwater contours shall be developed on an AutoCAD drawing of the sites that includes site features and topography. CRRA will provide an AutoCAD compatible drawing of the site for use by Consultant upon request.

During April and October, ground water elevation data will be collected at all available wells in the project vicinity as described in Task 1.4, regardless of whether or not the well is in the sampling program. The measured groundwater elevations at the additional well locations will be included on the groundwater contour maps. A Monitoring Well Field Data Sheet shall also be completed for each additional well.

Each quarterly report shall fully document the field activities and the laboratory work details, be formatted to support the annual report, and provide interim results and an update on impacts and exceedances. CRRA shall be notified immediately of any significant variation from past results or exceedances of "Significant Environmental Hazard" reporting guidelines under Public Act 98-134.

A copy of the draft quarterly report, including sampling details and supporting analytical data, sample chains of custody, completed Laboratory Analysis QA/QC Certification Forms, Field Data Sheets (for monitoring well sampling, surface water sampling, and domestic well sampling), and a site map of groundwater elevations and possibly isopleths of results, is due to CRRA for review a minimum of fourteen (14) calendar days before the final report is due to the CTDEEP. CRRA shall also be allowed sufficient time to review any other reports or forms prior to submittal to CTDEEP.

Finalized quarterly reports are to be printed by the Consultant on double-sided pages. The report distribution and addresses will be provided. Six (6) finalized copies of each report plus one electronic copy (PDF format) are required to be generated by the Consultant. Consultant is responsible for mailing reports directly.

Task 1.4: Non-Sampled Well Condition Survey & Water Elevations

There are twenty-one (21) ground water monitoring wells included in this monitoring program that are not part of the quarterly or semi-annual sampling program as outlined herein. During the April and October sampling events, the ground water elevation shall be measured at each of the twenty-one (21) non-sampled wells, and a Monitoring Well Field Data Sheet (as described in Task 1.1) shall be completed to document each well's condition. The groundwater elevations obtained at the non-sampled

well locations should be used to supplement the groundwater contour maps developed as part of the applicable quarterly environmental monitoring report. Copies of the Monitoring Well Field Data Sheets for the non-sampled wells shall also be included in the applicable environmental monitoring report.

Task 1.5: Annual Reports - Water Quality Monitoring

The annual report shall address the zone of influence of the discharge (defined as the area of soil and groundwater within which the treatment of the leachate by soils and mixing of leachate with groundwater occurs and could be reasonably expected to occur, and therefore within which some degradation of groundwater quality is anticipated to occur). The annual reports shall also provide an overall assessment of site conditions for the calendar year, including but not limited to the following:

(a) Map depicting all groundwater and surface water monitoring locations, groundwater withdrawal locations, and the locations of the collection, treatment, and conveyance of landfill stormwater;

(b) Evaluation of surface water and groundwater quality, including graphical representations of monitoring results for at least the past three (3) years;

(c) Condition of all monitoring wells and the need for repair or replacement of any wells;

(d) Evaluation of the extent and potential extent of the leachate discharge to groundwater, and whether any impact on the surface water quality or domestic well water quality was detected or could reasonably be expected to occur;

(e) Written request for modification of the surface water and/or ground water monitoring program, as warranted by the data generated through the monitoring.

Although the solid waste permit for the Ellington Landfill allows for submission of the annual report by September 1st of the following year, the submission deadline for the finalized annual reports under this Scope of Services is April 1st. Draft versions of the annual reports are to be submitted to CRRA for review at least ten (10) working days prior to the April 1st submittal deadline. CRRA shall be supplied with electronic copies of all information included in the final annual reports, as well as groundwater contour maps and other miscellaneous site plans in AutoCAD files.

Finalized annual reports are to be printed by the Consultant on double-sided pages. The report distribution and addresses will be provided. Six (6) finalized copies of the annual report plus one electronic copy (PDF format) are required to be generated by the Consultant. Consultant is responsible for mailing reports directly.

TABLE 1
Summary of Monitoring Well Construction

Ellington Landfill
Ellington, Connecticut

Monitoring Well	North Coord. (ft)	East Coord. (ft)	Ground Elevation (ft)	PVC Elevation (ft)	Casing Elevation (ft)	Well Diameter (in)	Well Depth (ft)	Screen Length (ft)	Screen Depth (ft)	Bedrock Elevation (ft)	Date Installed
MW-2S	398778.8	665516.7	188.9	189.74	190.12	2	23.05	10	12.5-22.5	-	Jan-91
MW-2B	398790.3	665516.5	190.9	192.14	192.41	2	81.8*	10	73-83*	120.26	Feb-88
MW-6S	398851.6	664933.4	190.7	193.57	No survey	2	46.1	10	35-45	141.4	Feb-88
MW-6B	398848.4	664936.6	191.1	193.65	No survey	2	65.5	15	48-63	141	Feb-88
MW-7	400576.1	665144	181.7	183.08	183.56	2	32.5	10	20-30	148.8	Feb-88
MW-8S	400336.6	664420.1	189.9	191.53	191.57	2	53	10	40-50	139.8	Feb-90
MW-8B	400326	664413.2	189.8	191.6	191.64	2	73	10	60-70	137.6	Mar-90
MW-12	400261.6	665088.5	182.1	182.91	184.45	2	20.4	10	8-18	164.3	Mar-91
MW-15	399316.6	666225.8	188.2	191.44	190.49	2	48	10	37-47	140.9	Mar-90
MW-16	399503.8	665244.1	215.7	217.06	217.1	2	57.8	10	49-59	156.8	Mar-90
MW-17	-	-	189.54	190.59	190.46	2	29	10	19-29	160.54	Jun-94
MW-18	-	-	179.34	180.28	180.5	2	38	10	28-38	141.34	Jun-94
MW-3B	-	-	186.64	188.19	188.43	2	90	10	80-90	121.64	Feb-88
MW-5	-	-	--------	187.84	No survey	2	56	10	46-56	151.69	Feb-88
MW-5B	-	-	--------	189.2	No survey	2	63	5	58-63	152.29	Feb-88
MW-9	-	-	--------	161.35	161.95	2	42	10	32-42	122.2	Feb-90
MW-10	-	-	174.3	175.72	175.84	2	58	10	48-58	116.3	Mar-90
MW-10B	-	-	174.4	175.97	176.09	2	80	10	70-80	110.4	Mar-90
MW-11	-	-	163.35	164.8	164.98	2	48	10	38-48	115.35	Mar-90
MW-13	-	-	195.9	199.06	199.18	2	10	5	5-10	185.9	Mar-90
MW-14	-	-	179.4	181.1	181.33	2	49	10	39-49	130.4	Feb-90
MW-19	-	-	167.44	169.49	169.31	2	69	10	59-69	103.44	Jun-94
MW-19B	-	-	167.24	169.08	199.66	2	90	10	80-90	103.24	Jun-94
MW-20	-	-	147.64	149.47	149.54	2	58	10	48-58	88.64	Jul-94
MW-20B	-	-	147.64	149.87	149.56	2	76	10	66-76	88.74	Jul-94
MW-21			165.78	167.92	-	2	16	10	5-15	-	Oct-04
MW-22			161.02	163.77	-	2	15	10	5-15	-	Oct-04
MW-23			161.90	163.76	-	2	29	10	19-29	-	Oct-04
MW-24			163.50	165.72	-	2	26	10	16-26	-	Oct-04
MW-25			196.69	198.80	-	2	24	10	14-24	-	Oct-04
MW-100	-	-	184.44	187.27	None	2	29.8	10	19.8-29.8	-	Apr-87
MW-101	-	-	198.3	199.74	200.06	2	55.3	10	45.3-55.3	-	Feb-85
MW-103	-	-	225.49	228.23	228.23	2	52	10	42-52	-	Apr-87

Notes:

(1) Horizontal and vertical elevations surveyed by Fuss & O'Neill, Inc., Spring 1995.

(2) Vertical datum is NGVD 1929 and horizontal datum is AND 1927.

(3) Well and screen depths measured from ground.

* CRRA corrections made after re-examination of well logs and installation details.

TABLE 2
WATER QUALITY MONITORING PROGRAM
Ellington Landfill
Ellington, Connecticut

Parameter[1]	Domestic Wells[2,3]	Quarterly Monitoring Wells[2,4]	Semi-Annual Monitoring Wells[2,5]	Surface Waters[2,6]
pH (Field Measured)	Q	Q	S	S
Specific Conductivity (Field Measured)	Q	Q	S	S
Turbidity (Field Measured)	Q	Q	S	S
Redox Potential (Field Measured)	Q	Q	S	S
Dissolved Oxygen (Field Measured)	Q	Q	S	S
Temperature (Field Measured)	Q	Q	S	S
pH (Lab-Measured)	Q	Q	S	S
Specific Conductivity (Lab-Measured)	Q	Q	S	S
Alkalinity (as $CaCO_3$)	Q	Q	S	S
Ammonia (as N)	Q	Q	S	S
BOD-5 Day	Q	Q	S	S
Chloride	Q	Q	S	S
COD	Q	Q	S	S
Hardness (as $CaCO_3$)	Q	Q	S	S
Nitrate (as N)	Q	Q	S	S
Nitrite (as N)	Q	Q	S	S
TDS	Q	Q	S	S
TSS	Q	Q	S	S
Iron, Dissolved		Q	S	S
Iron, Total	Q			
Lead, Dissolved		Q	S	S
Lead, Total	Q			
Manganese, Dissolved		Q	S	S
Manganese, Total	Q			
Sodium, Dissolved		Q	S	S
Sodium, Total	Q			
Antimony, Dissolved		Q	S	
Antimony, Total	Q			
Barium, Dissolved		Q	S	
Barium, Total	Q			
Chromium, Dissolved		Q	S	
Chromium, Total	Q			
Cyanide, Total	Q	Q	S	

TABLE 2
WATER QUALITY MONITORING PROGRAM
Ellington Landfill
Ellington, Connecticut

Parameter[1]	Domestic Wells[2,3]	Quarterly Monitoring Wells[2,4]	Semi-Annual Monitoring Wells[2,5]	Surface Waters[2,6]
VOC's via EPA Method 524.2 (See Note 7)	Q	Q	S	
1,2-Dibromoethane (EDB) and 1,2-Dibromo-3-Chloropropane (DBCP) via EPA Method 504.1	Q[8]	Q[8]		
Chlorinated herbicides (See Note 8)	Q[8]	Q[8]		

Notes:

1. Groundwater and surface water sample analyses to be conducted in accordance with CTDEEP Reasonable Confidence Protocol (RCP) analytical methods, where published. Domestic Well (potable water) samples to be analyzed in accordance with methods in 40 CFR 141 and 40 CFR 143, as applicable.
2. Q = Quarterly, in January, April, July and October
   S = Semi-Annually, in April and October
   A blank cell indicates that the specified parameter is not monitored at the specified sample location.
3. Domestic Wells = N/F DeCarli Immigration, N/F Kolesinski, N/F Latulippe, N/F Downer, N/F DeCarli (January only), N/F L. DeCarli (January only), and N/F R. DeCarli (January only).
4. Quarterly Monitoring Wells = MW-2S, MW-2B, and MW-16.
5. Semi-Annual Monitoring Wells = MW-6S, MW-6B, MW-7, MW-8S, MW-8B, MW-12, MW-15, MW-17, and MW-18.
6. Surface Waters = Surface Water Sampling Locations SW-1, SW-2, SW-4, SW-5, SW-6, and SW-12
7. Analysis of VOC's to be completed in accordance with EPA Method 524.2. The analytical parameter list is to include all Organic Constituents listed in Appendix I to 40 CFR 258, all analytes listed in CTDEEP RCP Method 8260, and 2-Chloroethyl Vinyl Ether, Chloromethyl Methyl Ether, and 1-Chlorohexane.
8. EDB, DBCP, and Chlorinated Herbicides will only be analyzed at the following five locations: MW-2S, MW-2B, MW-16, N/F Kolesinski Domestic Well, and N/F Latulippe Domestic Well.

FIGURES

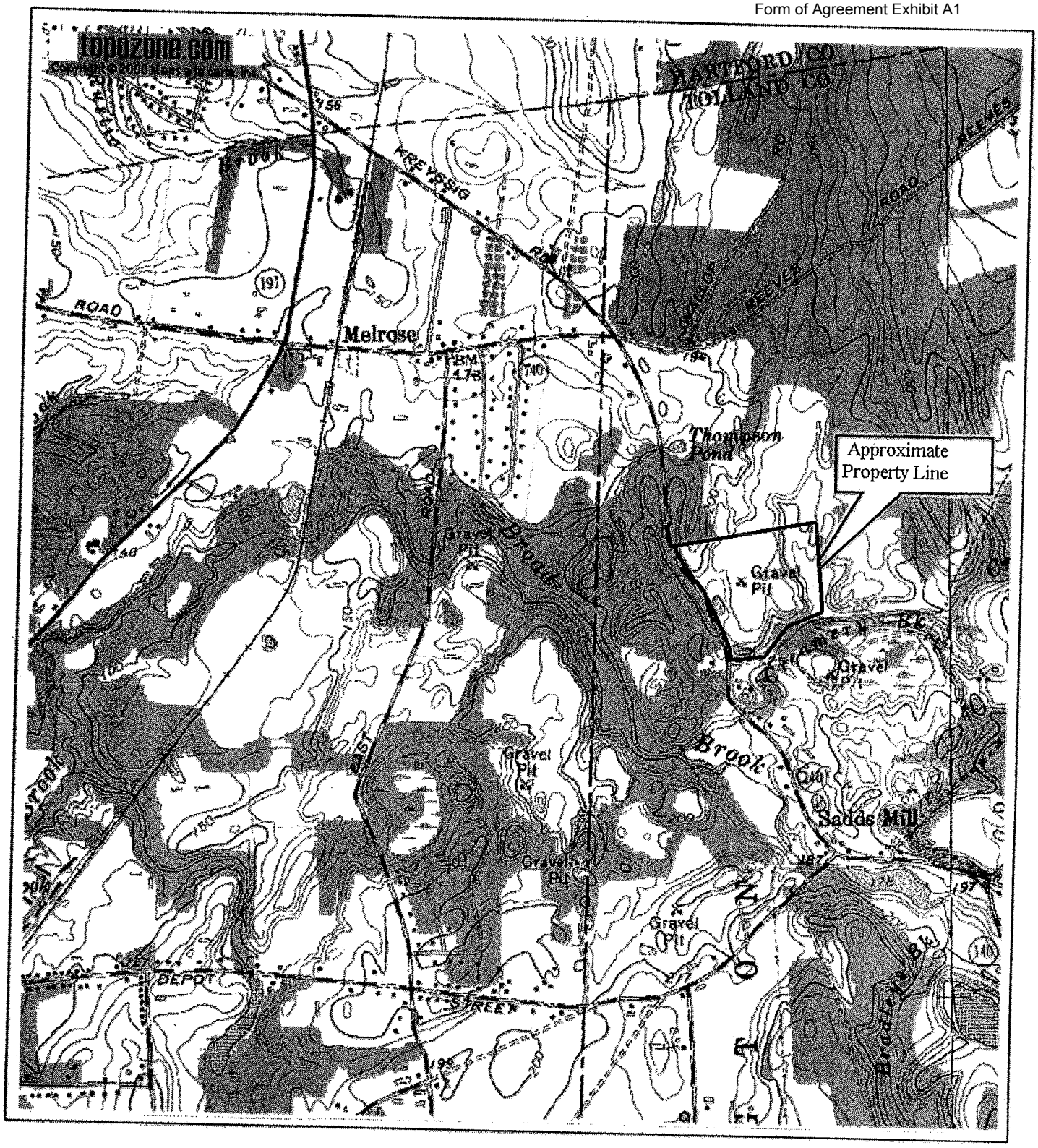
Figure 1: Site Location Map

Figure 2: Water Quality Monitoring Site Plan

APPENDIX A - Permits

SW-048-2(E) **Conditional Approval to Modify Post-Closure Water Quality Monitoring Program**
(Dated July 24, 2008)
5 Pages

Modified Permit to Anthony Botticiello for Expanding a Solid Waste Disposal Area
(Dated June 27, 1984)
5 Pages



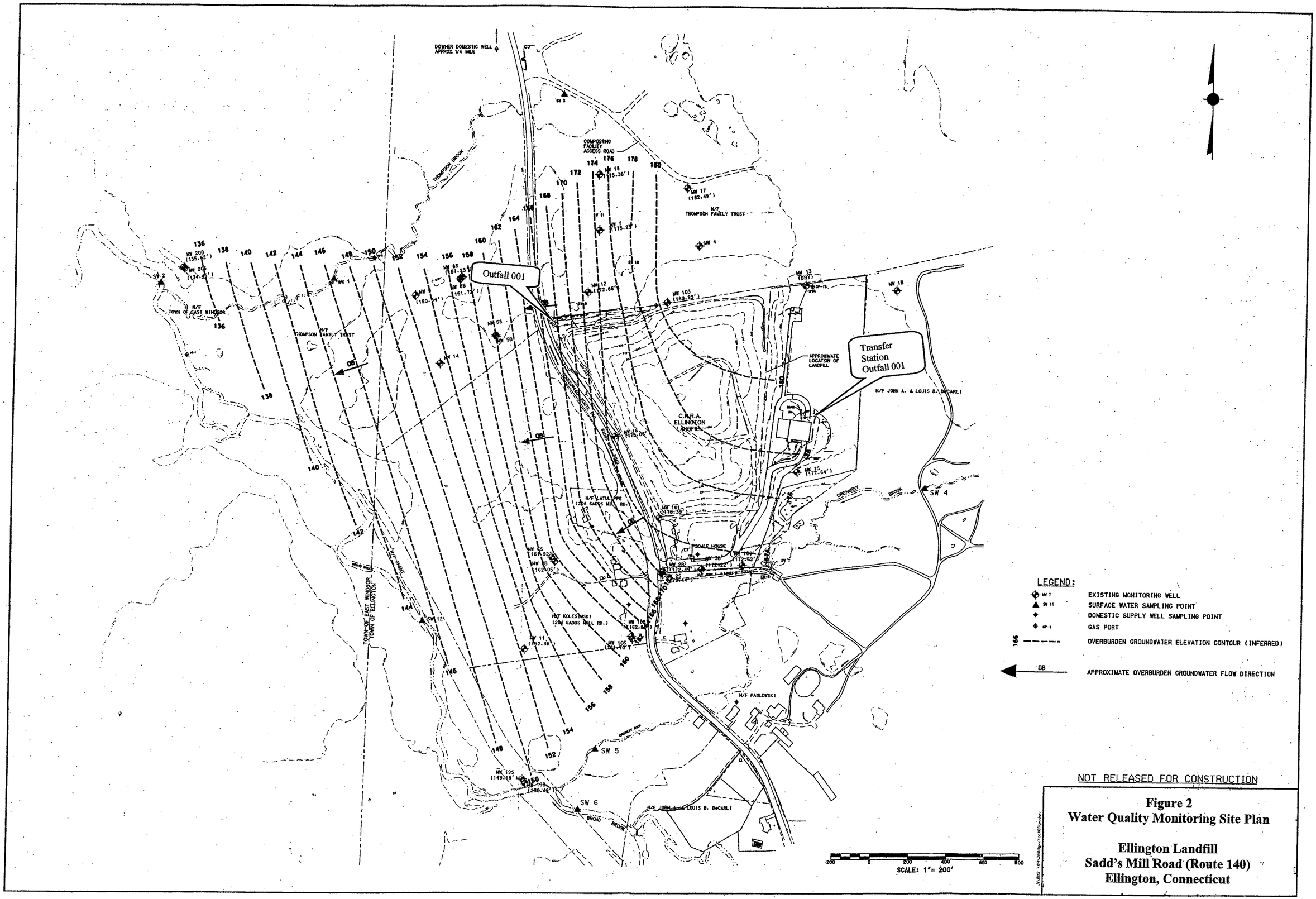
Target is 41° 55' 48"N, 72° 30' 22"W - **BROAD BROOK** quad

N

meters 0 500 1000 1500 2000

miles 0 0.5 1.0

Figure 1
Site Location
Ellington Landfill
Sadd's Mill Road (Route 140)
Ellington, Connecticut



NOT RELEASED FOR CONSTRUCTION

Figure 2
Water Quality Monitoring Site Plan

Ellington Landfill
Sadd's Mill Road (Route 140)
Ellington, Connecticut

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CONDITIONAL APPROVAL

July 24, 2008

Mr. Christopher R. Shepard, P.E.
Environmental Engineer
Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, Connecticut 06103-1722

Re: CRRA Ellington Landfill
Request to Modify Post Closure Water Quality Monitoring Program

Dear Mr. Shepard:

This letter serves to provide notification that Waste Engineering and Enforcement Division staff have completed a review of a CRRA proposal (dated October 25, 2007) to modify the post closure water quality monitoring program at the CRRA Ellington Landfill located on Sadds Mill Road in Ellington, Connecticut. This water quality monitoring program is currently conducted on a quarterly basis pursuant to the requirements of solid waste permit number SW-048-2E. The program currently includes collection of water samples from twelve groundwater monitoring wells, six surface water locations, and six domestic water supply wells on a quarterly basis (three additional domestic wells are sampled annually).

The modification proposal includes a request to reduce the frequency of sampling at all groundwater monitoring and surface water sampling locations from a quarterly to semi-annual basis (in April and October). No changes are proposed regarding the frequency of sampling at any of the domestic water supply wells. Additionally, no changes are proposed regarding required monitoring parameters except that several parameters are proposed for addition to the parameter list based upon data collected during four consecutive quarterly sampling events that occurred between April 2006 and January 2007. The additional parameters include dissolved antimony, dissolved barium, dissolved chromium (total), and cyanide (total) and are proposed for monitoring at all groundwater and domestic well sample locations. Additionally, CRRA has proposed to add chlorinated herbicides to the monitoring program at several sampling locations (including MW-2S, MW-2B, MW-16, the domestic well at 204 Sadds Mill Road, and the domestic well at 208 Sadds Mill Road).

On January 3, 2008, CRRA submitted an addendum to the October 25th proposal outlined above to address concerns identified by Remediation Division staff regarding the designation of groundwater monitoring wells located upgradient of the drinking water wells as 'sentinel' monitoring wells, which would continue to be monitored on a quarterly basis, along with the drinking water supply wells. The addendum identifies monitoring wells MW-2S, MW-2B, and MW-16 as appropriate wells for this purpose.

Additional supporting information was submitted by CRRA (via email) on June 2, 2008 in response to questions raised by Waste Engineering and Enforcement Division staff regarding the reduced monitoring frequency of the domestic wells located at 152, 189, and 191 Sadds Mill Road, which are each monitored on an annual basis (collectively referred to as the N/F Decarli Wells). The information contained within the submittal indicates that an additional domestic supply well was recently installed (during October of 2007) between the N/F DeCarli wells and the landfill leachate plume, that is used solely for the purpose of providing water for irrigation ('N/F DeCarli Irrigation Well'). The submittal indicates that CRRA has begun monitoring this well on a quarterly basis so that it can serve as a 'sentinel' well for the three domestic N/F

Decarli Wells. According to the submittal, these four wells are located outside of and side-gradient to the landfill leachate plume.

The monitoring data submitted in support of this request appears to indicate that, with some exceptions, relatively stable conditions exist within the groundwater and surface water at this landfill and that the parameter trends associated with each monitoring location are, in most cases, well defined. Therefore, the proposed modifications to the water quality monitoring program at the Ellington Landfill are hereby approved.

CRRA shall implement the following changes to the water quality monitoring program at the CRRA Ellington Landfill, which will supersede the relevant conditions in the present program as required in the above referenced permit.

Quarterly Monitoring Locations

Water quality monitoring shall be conducted on a quarterly basis at each of the following groundwater and domestic well monitoring locations.

Groundwater Monitoring Wells:

- MW-2S
- MW-2B
- MW-16

Domestic Monitoring Wells:

- N/F Kolesinski well, 204 Sadds Mill Road
- N/F Downer well, 300 Sadds Mill Road
- N/F Latulippe well, 208 Sadds Mill Road
- Scalehouse well
- Transfer Station well
- N/F DeCarli Irrigation Well

Unless otherwise approved by the commissioner, quarterly monitoring events shall occur during the months of January, April, July, and October for the remainder of the post-closure monitoring period.

Semi-Annual Monitoring Locations

Water quality monitoring shall be conducted on a semi-annual basis at each of the following groundwater and surface water monitoring locations.

Groundwater Monitoring Wells:

- MW-6S
- MW-6B
- MW-7
- MW-8S
- MW-8B
- MW-12
- MW-15
- MW-17
- MW-18

Surface Water Monitoring Locations:

- SW-1
- SW-2
- SW-4
- SW-5
- SW-6
- SW-12

Unless otherwise approved by the commissioner, the semi-annual monitoring events shall occur during the months of April and October for the remainder of the post-closure monitoring period.

Annual Monitoring Locations

Water quality monitoring shall be conducted on an annual basis at each of the following domestic well monitoring locations.

Domestic Monitoring Wells:

- N/F DeCarli well, 152 Sadds Mill Road
- N/F DeCarli well, 189 Sadds Mill Road
- N/F DeCarli well, 191 Sadds Mill Road

Unless otherwise approved by the commissioner, the annual monitoring events shall occur during the month January for the remainder of the post-closure monitoring period.

Water Quality Monitoring Parameters

Water quality monitoring samples shall be analyzed in accordance with the parameter list and analytical requirements specified in Table 1 (Required Monitoring Parameters), which has been included as Attachment 1 to this approval letter.

Nothing in this approval shall affect the Commissioner's authority to institute any proceeding, or take any action to prevent or abate pollution, to recover costs and natural resource damages, and to impose penalties for violations of law. If at any time the commissioner determines that the approved actions have not fully characterized the extent and degree of pollution or have not successfully abated or prevented pollution, the commissioner may institute any proceeding, or take any action to require further investigation or further action to prevent or abate pollution. In addition, nothing in this approval shall relieve any person of his or her obligations under applicable federal, state and local law.

If you have any questions regarding this decision, please contact William Sigmund at (860) 418-5924 of the Waste Engineering and Enforcement Division.

Sincerely,

Robert C. Isner
Director
Waste Engineering and Enforcement Division
Bureau of Materials Management and Compliance Assurance

RCI/wjs

cc: Michelle Bedson, CTDEP, Remediation Division

ATTACHMENT 1
TABLE 1 – REQUIRED MONITORING PARAMETERS
One (1) Page Follows

TABLE 1
REQUIRED MONITORING PARAMETERS
WATER QUALITY MONITORING PROGRAM
CRRA Ellington Landfill

Parameter[1]	Domestic Wells[2,3]	Monitoring Wells[2,4]	Surface Waters[2,5]
pH	X	X	X
Specific Conductivity	X	X	X
Turbidity	X	X	X
Redox Potential	X	X	X
Dissolved Oxygen	X	X	X
Temperature	X	X	X
pH (Lab Measured)	X	X	X
Specific Conductivity (Lab Measured)	X	X	X
Alkalinity (as $CaCO_3$)	X	X	X
Ammonia (as N)	X	X	X
BOD-5 Day	X	X	X
Chloride	X	X	X
COD	X	X	X
Hardness (as $CaCO_3$)	X	X	X
Nitrate (as N)	X	X	X
Nitrite (as N)	X	X	X
Total Dissolved Solids	X	X	X
Total Suspended Solids	X	X	X
Iron, Dissolved		X	X
Iron, Total	X		
Lead, Dissolved		X	X
Lead, Total	X		
Manganese, Dissolved		X	X
Manganese, Total	X		
Sodium, Dissolved		X	X
Sodium, Total	X		
Antimony, Dissolved		X	
Antimony, Total	X		
Barium, Dissolved		X	
Barium, Total	X		
Chromium, Dissolved		X	
Chromium, Total	X		
Cyanide, Total	X	X	
VOCs (See Note 6)	X	X	
Chlorinated Herbicides (See Note 7)	X[7]	X[7]	

Notes:

1. Groundwater samples are to be analyzed in accordance with SW-846 (most recent edition). Surface water and potable water samples are to be analyzed in accordance with 40 CFR 136.
2. X = Required monitoring parameter.
3. Quarterly Domestic Wells (January, April, July, October) = Scalehouse, Transfer Station, N/F Kolesinski, N/F Latulippe, N/F Downer, N/F DeCarli Irrigation Well.
   Annual Domestic Wells (January only) = N/F DeCarli, N/F L. DeCarli, N/F R. DeCarli.
4. Quarterly Groundwater Monitoring Wells (January, April, July, October) = MW-2S, MW-2B, MW-16.
   Semi-Annual Groundwater Monitoring Wells (April, October) = MW-6S, MW-6B, MW-7, MW-8S, MW-8B, MW-12, MW-15, MW-17, MW-18.
5. Semi-Annual Surface Water Sampling Locations (April, October) = SW-1, SW-2, SW-4, SW-5, SW-6, and SW-12.
6. Analysis of VOCs to include the 47 VOCs listed in Appendix I to 40 CFR 258, Methyl-Tertiary-Butyl Ether (MTBE), 2-Chloroethyl Vinyl Ether, Chloromethyl Methyl Ether, and 1-Chlorohexane.
7. Chloronated Herbicides shall, at a minimum, be analyzed at the following five locations: MW-2S, MW-2B, MW-16, N/F Kolesinski Domestic Well, and N/F Latulippe Domestic Well.

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

MODIFIED PERMIT TO ANTHONY BOTTICIELLO FOR
EXPANDING A SOLID WASTE DISPOSAL AREA

An application for a permit modification dated September 5, 1983 has been submitted by:

Anthony Botticello
President, Refuse Gardens, Inc.,
Perrett Place
Manchester, Connecticut 06040

for expanded operation of a solid waste disposal area on approximately 30 acres of property owned by Mr. Anthony Botticello and located on the eastern side of Sadds Mill Road (CT Rte. 140) in Ellington, Connecticut, as shown on Plate No.2 revised June 21, 1983, and September 2, 1983 of the report prepared by Fuss & O'Neill, Inc., and dated September 1978.

THIS PERMIT IS HEREBY GRANTED in accordance with Section 22a-208, Connecticut General Statutes and based on the following submittals:

1. A report entitled " Report Requesting Modification of Permit for Refuse Gardens Landfill - Ellington, Connecticut, September 1978, "as prepared and revised by Fuss & O'Neill, Inc.,

2. Plates 1-4 of site plans (Plate 2 having been revised June 21, 1983 and September 2, 1983) detailing final contours excavation depths, ground water landfill limits, drainage provisions, site location, and details of the "Transfer and Recovery" facility (dated September 1978).

3. The July 1966 approval by the Commissioner of Health for establishment of the Refuse Gardens site.

4. The Commissioner of Environmental Protection's order to complete transfer of the Approval of Plans and Operation specifications for Refuse Gardens to Anthony Botticiello (effective January 19, 1979).

PROVIDED THAT:

1. Solid Waste shall only be deposited in the area of the property delineated for that purpose on Plate No. 2 of the site plan. Only bulky wastes, as defined by the Solid Waste Regulations, shall be disposed of in the bulky waste area delineated on Plate No. 2 of the site plans.

2. The site development and operational plans, as prepared by Fuss & O'Neill, Inc., shall be strictly adhered to throughout the site life.

3. The cell method of sanitary landfill operation, involving cell construction and spreading, compacting, and covering of all deposited solid waste daily is conducted only within the delineated limits of the proposed landfill operation.

4. A minimum of five feet of clean fill shall be maintained between the bottom of the deposited solid waste and the maximum high ground water level or bedrock.

5. Prior to commencing any disposal operation, the prepared site shall be inspected by staff members of the Department of Environmental Protection. During the inspection, the operator will be asked to dig a minimum of three (3) test pits approximately five (5) deep to ascertain that a minimum of five (5) feet of separation between refuse and high watertable or bedrock can be maintained.

6. The operator shall furnish certification from land surveyor registered in the State of Connecticut that the compacted base on which refuse is to be placed meets the grades designated on Plate No. 2 plus or minus six (6) inches. Said certification shall be for the entire disposal area and shall be received by the Solid Waste Management Unit prior to the deposition of any solid waste.

7. Bulky wastes shall be compacted and covered daily.

8. The operator will not cause, suffer or otherwise permit open burning of solid waste at this disposal area, unless specifically approved by the Commissioner in accordance with P.A. 81-127.

9. The site access shall be controlled with a locked gate. The site shall have an attendant present when open during the posted hours.

10. Waste processing and disposal operations shall be conducted so as to maximize runoff, minimize infiltration, and prevent erosion and the collection of standing water.

11. A proper sanitary landfill method of operation involving spreading, compacting, and covering daily of all material shall be carried on.

12. Disposal operations are carried on by a certified operator in accordance with Section 19-524-5 of the Solid Waste Management Regulations.

13. No septic tank wastes, liquid, or semi-solid industrial wastes, or hazardous wastes shall be disposed of unless the wastes and the specific disposal methods are approved by the Department.

14. The transfer and recovery facility shall be operated in such a manner as to avoid nuisance and to protect the public health.

15. An adequate potable water supply system shall be provided at the scale house.

16. Bulky waste and roll-off containers containing refuse at the transfer facility shall be emptied daily.

17. Buffer zones, drainage provisions, erosion control measures and operational details proposed in the application shall be established and maintained as specified by Fuss and O'Neill, Inc.

18. Periodic maintenance of the recharge basin shall be carried out as recommended by Fuss and O'Neill, Inc.

19. All monitor wells (including EL 76, EL 77, EL 78) shall be carried out as recommended by Fuss and O'Neill, Inc.

20. The water quality of the surface streams leaving the site shall be monitored annually by the owner for possible leachate contamination. Copies of laboratory analyses of all samples shall be sent to the Department of Environmental Protection.

Surface water quality monitoring shall be conducted at the following points:

One upstream of the solid waste disposal area on Broad Brook.

One downstream of the solid waste disposal area on Broad Brook.

Ground water quality monitoring shall be conducted at the following locations:

Wells EL 76, EL 77, EL 78, No. 9 and 10 as shown on Plate No. 2 of the site plans.

The two additional points were agreed to by the Department of Environmental Protection and the applicant.

Water quality monitoring shall be performed according to the following specifications and schedule:

Parameter	Sample Location Ground Water	Sample Location Surface Water	Sampling Frequency 4yr	Sampling Frequency 1yr	Sampling Period Jan	Sampling Period Apr	Sampling Period July	Sampling Period Oct	Reporting Date Mar 1	Reporting Date June 1	Reporting Date Sept 1	Reporting Date Dec1
Water level	X		X		X	X	X	X	X	X	X	X
Specific Cond.	X	X	X		X	X	X	X	X	X	X	X
Total Iron	X	X		X			X				X	
Chloride	X	X		X			X				X	
Chemical Oxygen Demand	X	X		X			X				X	
Biochemical Oxygen Demand	X	X		X			X				X	
Total Dissolved Solids	X	X		X			X				X	
Suspended Solids	X	X		X			X				X	

Following measurement of the water level in the monitoring wells, the wells shall be pumped immediately prior to sampling until at least three (3) times the volume of water standing in the well is evacuated to insure that a representative sample of the groundwater is obtained. All groundwater samples should be filtered in the field to remove excess suspended solids. A silty water sample will give false results on the suspended solids, COD, iron and managanese analyses. The samples shall be analyzed by a laboratory certified by the State Health Department. All samples shall be placed in the appropriate container for the test to be conducted (i.e. BOD bottle, volatile organics bottle, 1/2 gallon plastic bottle, etc.)

The results shall be reported to the Solid Waste and Water Compliance Units of the Department of Environmental Protection at the State Office Building, Hartford, CT 06106. A copy of the sampling results shall also be sent to the Health Officer of the town in which the disposal area is located.

Beginning on September 1, 1984 and annually on that date thereafter, a summary report of the monitoring program shall be submitted for the review and approval of the Commissioner. The report shall include an assessment of changing trends in leachate concentration or constituents, impact on adjacent surface waters, changes in plume location, changes in the ground water levels, and impact on nearby water supply wells.

The Commissioner may revise this monitoring schedule at any time with regard to locations to be sampled, frequency, or parameters to be tested, as the need arises.

21. Upon completion of an ½acre portion of the disposal area, that portion shall be graded, covered with two feet of clean soil, and seeded.

22. All major sources of final cover material shall be DEP approved and shall conform to grain size specifications under Section 19-524-2 of the Solid Waste Regulations

23. As required by the Commissioner, the operator shall retain the services of a registered land surveyor to certify the as-built final slopes and elevations are as specified in the site plans.

24. Under no circumstances will the final grades exceed those specified on Plate No. 2 of the application. Landfill closing will be completed over the life of the facility and as approved final grades are reached, filling will cease and the site will be covered and seeded as specified on pages III-9 and III-10 of the report.

25. This permit is subject to and in no way derogates any present or future property rights or other rights or powers of the State of Connecticut, and conveys no property rights in real estate or material nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state, or local laws or regulations pertinent to the property or activity affected hereby.

26. This permit is transferable only with the prior written permission the Commissioner of DEP.

27. The operator complies with all rules and regulations of the Department Environmental Protection applicable to the operation and maintenance of the disposal area as they may be amended from time to time.

Dated in Hartford, Connecticut this 27th day of June, 1984

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STANLEY J. PAC, COMMISSIONER

BY Stanley J. Pac
Stanley J. Pac, Commissioner

Solid Waste
Permit No. 048-2(E) dated

EXHIBIT A 2

SCOPE OF SERVICES

Environmental Monitoring, Laboratory Analysis and Reporting - Hartford Landfill

BACKGROUND

The Hartford Landfill, located off Leibert Road in the North Meadows area of Hartford, Connecticut, is an inactive solid waste disposal facility that is currently undergoing final closure. The site is bounded by the North Meadow Flood Control Dike to the north and east, the City of Hartford Police Department and Public Works facility to the south, and Interstate 91 to the west. A site location map has been included as **Figure 1**.

The Hartford Landfill operated from the 1940's through 2008. The facility consists of two distinct, adjacent northern and southern disposal areas. The southern area is consists of approximately 86 acres of disposal area, which was most-recently used for landfilling non-processibles and bulky waste only. Ash residue has been disposed in a 22+/- acre "interim" cell located in the northeast corner of this disposal area. The interim ash cell reached its permitted capacity in February 1998. The permit to construct the "lined area" for ash residue disposal to the north of the southern area was received by the Connecticut Resources Recovery Authority (CRRA) from the Connecticut Department of Environmental Protection (CTDEEP) on November 8, 1996. The construction began in May 1997 and was substantially completed in December 1997. The use of the "Phase I ash residue disposal area" was begun on February 10, 1998. The Hartford Landfill ceased receiving all wastes on December 31, 2008 in accordance with the terms of solid waste permit number 0640824-M. The landfill is currently receiving clean fill and contaminated soil approved by the CTDEEP for use in contouring and grading. Work on the closure of the CRRA/Hartford Landfill is on-going at this time.

CRRA leases the Hartford Landfill property from the City of Hartford. The CTDEEP transferred the solid waste permit for the landfill to CRRA in 1982 when CRRA leased the property from the City. The facility operates under CTDEEP Solid Waste Permits #064-2 through #064-5 and Ground Water Discharge Permit #LF0000014 (DEP/WPC# 064-072), with subsequent renewal application submittals, and Consent Order WC5111, which allows continued operation of the site under the terms of the original permit. Permit #LF0000014 was modified and revised on February 6, 1998 to accommodate both the operation of a ground water flow control system and the Phase I lined ash residue disposal area. A second modification to Permit #LF0000014 requiring sampling of untreated ash residue leachate was issued on May 28, 2002. A detailed site plan showing sampling locations is included as **Figure 2**.

The landfill has various environmental permits, with specific sampling programs and reporting requirements. Copies of all site-specific permits applicable to the environmental monitoring program are included in **Appendix A**.

SCOPE OF SERVICES

Consultant's work shall be inclusive of all environmental monitoring and reporting required at the Hartford Landfill, unless otherwise indicated. Monitoring and reporting will be required for a three (3) year period starting July 1, 2013 and ending June 30, 2016.

Costs for monitoring work shall also include but are not limited to sample bottle preparation and delivery, sample collection, laboratory analysis, and reporting as further described in this Scope of Services.

The environmental media to be sampled under this Scope of Services include ground water, surface water, collected ash residue leachate, persistent landfill leachate seeps (if present), and stormwater. All sampling will be performed to meet the requirements of all applicable permits issued to the Hartford Landfill/CRRA by the federal, state, and local permitting authorities, as applicable. Refer to **Appendix A** for site-specific permit information. Specific environmental monitoring procedures will be performed in accordance with the details of the "Compliance Monitoring Plan - Hartford Landfill," which was approved by the CTDEEP on January 26, 1998 and which is referenced in CTDEEP Permit No. LF0000014. A copy of the "Compliance Monitoring Plan – Hartford Landfill" is available for review at CRRA's main office, and will be provided to the selected Consultant at the beginning of the contract period. All sample analyses shall be conducted by an analytical testing laboratory certified to perform such analyses by the State of Connecticut. The analytical testing laboratory will be subcontracted directly by the Consultant and approved by CRRA.

All work will be conducted pursuant to all applicable state and federal regulations and guidelines concerning groundwater, surface water, stormwater and sanitary discharge sampling, monitoring and analysis. Consultant is to be familiar with and have reviewed all applicable landfill permits and requirements for site monitoring issued by CTDEEP (and EPA, where applicable). Consultant shall be familiar with representative past monitoring reports prepared for the Hartford Landfill and shall prepare monitoring reports consistent in format with past monitoring reports. Consultant shall provide summary tables of data results, and reference drinking water standards and Connecticut Remediation Standards (i.e., Surface Water Protection Criteria) for monitoring wells, and surface water Numerical Criteria contained in the Connecticut Water Quality Standards. Consultant shall also be responsible for the timely submittal of sanitary discharge to CRRA so that CRRA can meet its regulatory reporting obligations.

In accordance with the environmental permits for the Hartford Landfill, Consultant shall conduct the monitoring program for the sampling points and parameters as summarized in **Tables 1 through 4**, on a quarterly basis except as otherwise indicated. In some instances, monitoring points may be inaccessible for regularly scheduled quarterly monitoring, such that arrangements should be made to sample the location(s) at other times. If it is not possible to sample in a timely manner within the quarterly monitoring event timeframe, CRRA will not be charged for sample collection and laboratory analysis for those portions of work <u>not</u> completed.

The environmental monitoring will include but not necessarily be limited to the following elements:

- Preparation for sampling, including bottle preparation, field parameter measurement equipment, sample collection equipment, and means of access to sampling points.

- Completion of field data sheets for each sample point, modified as applicable for each type of sample point.

- Completion of a synoptic groundwater measurement event on the first day of each monitoring event to determine the groundwater elevations. During the January and July monitoring events, the synoptic measurement events will be completed at all twenty-five (25) sampled wells; during the April and October monitoring events, the synoptic measurement event will be completed at all fifty-three (53) monitoring wells that are in the monitoring well network The synoptic groundwater measurement event is to be completed prior to any purging and sampling activities.

- Measuring of field parameters, and collection of samples in bottles for laboratory analysis and appropriate field and laboratory QA/QC in accordance with applicable CTDEEP and EPA regulations and guidance.

- Preservation and transport of samples to the laboratory.

- Analytical laboratory analyses of collected samples.

- Entering analytical results and other pertinent sample and/or laboratory test data into a database. Provide an electronic copy of the database to CRRA at the end of each calendar year to accompany the annual report, and after the completion of the April 2013 sampling event (i.e., the final sampling event under this Scope of Work).

- Data review and verification, cursory check for outliers, extreme exceedances and notification to CRRA of unusual results or "Significant Environmental Hazard" conditions under Public Act 98-134.

- Preparation of graphs and tables of data results, maps of sampling locations, groundwater elevation contours and isopleths of monitoring results as appropriate.

- Preparation of summary reports on status of each sample point and site environmental conditions.

- Preparation of draft quarterly and annual reports for CRRA review and comment prior to report finalization.

- Finalization of reports to incorporate CRRA comments, duplication and distribution.

The Consultant is responsible for maintaining clear access to all wells (i.e., by cutting back brush and trimming weeds and grass). Consultant is also responsible for maintaining well markers (i.e., stakes and flagging) to assist field personnel in locating the wells.

The environmental monitoring program is outlined by task below for the Hartford Landfill with a description of the series of tasks to be completed. The format of the Not-To-Exceed Bid Price Form is consistent with the task listing that follows.

TASK 1: QUARTERLY ENVIRONMENTAL MONITORING, ANALYSIS, REPORTING AND ANNUAL REPORTING

Groundwater discharge permit LF0000014 requires that quarterly monitoring of the ground water, surface water, and untreated leachate be completed. The activities under Task 1 of this Scope of Services describe the quarterly monitoring activities.

Task 1.1: Sampling and Documentation of Field Activities

Sampling Schedule

Quarterly environmental sampling of site ground water, surface water, and untreated leachate is to be performed in the following months:

- January
- April
- July
- October

Sampling of groundwater, surface water and untreated leachate can begin on the 1st day of the quarterly sampling month and must be completed by the last day of the quarterly sampling month.

Monitoring of Ground Water Wells

There are twenty-five (25) groundwater monitoring wells (including two piezometers) at the Hartford Landfill that are monitored on a quarterly basis. **Table 1** summarizes the characteristics of each well. Consultant is responsible for supplying all equipment to the site as required for each quarterly monitoring event and its storage at a safe off-site location by Consultant's arrangement. More specifically, the following items are highlighted for each quarterly sampling event:

- Keyed-alike well locks will be provided for all wells by CRRA. Access to buildings will have to be coordinated on a case-by-case basis.

- Permission to access off-site monitoring wells and surface waters will be coordinated through CRRA at the initiation of the monitoring contract. Access to some wells is by foot only, because of location and/or restrictions of vehicle use.

- Consultant shall complete a "Monitoring Well Field Data Sheet" which summarizes well elevation data, well condition, purge data, observed water yield and quality comments, sampling data, and results of measured field parameters. An example of the proposed

"Monitoring Well Field Data Sheet" is to be submitted for approval by CRRA before the first sampling event, at the initiation of the monitoring contract.

- On the first day of each quarterly sampling event, prior to any purging and sampling activities, complete a synoptic groundwater measurement event to determine the groundwater elevations at all twenty-five (25) sampled monitoring wells (during January and July) or at all fifty-three (53) monitoring wells that are in the monitoring well network (during April and October). Measure water elevation data at all monitoring wells prior to well purging using decontaminated equipment (depth to water, depth to bottom, depth of sample) referenced to top of PVC (or casing) and record on the data sheet.

- Provide an in-line meter (or equivalent methodology which mitigates exposure to the atmosphere) to concurrently measure pH, temperature, specific conductivity, dissolved oxygen (DO), and redox potential (RP), as applicable, during purging. Also, provide a device to measure turbidity. A minimum of four (4) readings of each parameter shall be taken and recorded during purging.

- Perform purging using dedicated bladder pump equipment at low flow rates, not taking the first reading until at least one pump volume plus one discharge tubing volume have passed. The purged groundwater may be discarded to the ground at the landfill. Sampling personnel are to monitor the drawdown in the wells and ensure that the drawdown is maintained at less than or equal to 0.3 feet during the entire purging and sampling process. Wells shall be purged at a rate of less than or equal to 300 ml/minute. Field parameter readings shall be recorded at a minimum of three minute intervals, until turbidity is stabilized such that three consecutive reading are within 10% of each other for readings >10 NTU, or readings are within 2 NTU of each other for readings <10 NTU. Per EPA's SOP, if the turbidity has not stabilized after four hours of purging, collect samples and provide full explanation of attempt to achieve stabilization. Provide a summary of periodic readings and time of reading for all parameters.

- Sample collection should proceed from high parameter volatility to low parameter volatility at a low flow rate. Samples for volatile parameters should be transferred slowly to the sample container to eliminate creation of air bubbles. Samples are to be collected in proper containers and properly preserved in the field.

- No filtering of groundwater samples is to occur except where analysis of dissolved metals is specified. Where analysis of dissolved metals is specified, sample filtration is to be performed in the field

during sample collection with an in-line 0.45-micron filter.

- Record all observations relating to the well sampling and any deviations from the sampling plan.

Surface Water Sampling

A total of thirteen (13) surface water samples need to be collected from seven river transect locations and analyzed on a quarterly basis. Transects T-1, T-2, and T-3 are located on the Connecticut River (Note: There are three sample locations along each of the Connecticut River transects). Transects T-4, T-5, and T-6 are located on Meadow Brook, and transect T-7 is located at the mouth of Deckers Brook (Note: There is one sample location along each of the Meadow Brook and Deckers Brook transects). There are no transect markings in place; therefore, the Consultant is responsible for locating each surface water sampling location in the field based upon the transect location descriptions included in Permit LF0000014. It is important to note that vertical composite samples are to be collected at each sample location except transect T-2, where three horizontal composite samples are to be collected.

Consultant is responsible for providing a variable speed peristaltic pump or equivalent for collection of surface water samples. Surface water sampling shall proceed from downstream locations to upstream locations. For those surface water locations where a boat is required for sampling, samples shall be taken upstream of the boat's engine. A weighted tape measure shall be attached to the tubing so that depth of sample collection (and bottom depth) can be determined and recorded. Clean tubing shall be used at each sample location. The pump shall be operated at 300-500 ml/min and allow at least one (1) pump and tubing volume to pass through prior to sample collection. No filtering of surface water samples is to occur except where analysis of dissolved metals is specified. Where analysis of dissolved metals is specified, sample filtration is to be performed in the field during sample collection with an in-line 0.45-micron filter.

The Consultant will also be responsible for gauging stream flows at transects T-6 (Meadow Brook) and T-7 (Deckers Brook) at the time of sample collections. Additionally, the Consultant will be responsible for obtaining river gauge information from the U.S. Geological Survey for the Connecticut River for the day of sampling.

A field data sheet shall be completed for each sample location. Field measurements of water temperature, air temperature, pH, specific conductance, salinity and dissolved oxygen shall be recorded. Gauged river flows, time of sample collection and other field data to be measured and recorded are to follow the permit requirements.

Ash Leachate Sampling

Consultant is responsible for collecting grab samples of untreated ash leachate from the leachate lift station associated with the Ash Residue Disposal Area. The Consultant shall use decontaminated bailers and clean rope to collect the leachate samples. Field measurements of pH, specific conductance, dissolved oxygen, turbidity, and leachate temperature shall be recorded. A field data sheet shall be completed to document the field results of the leachate sampling.

Leachate Seep Sampling

Up to four (4) "persistent" leachate seep locations may be sampled during each quarterly sampling event from various parts of the landfill. The Consultant should contact CRRA prior to each quarterly site visit to obtain the number of possible sampling locations, based on CRRA's monthly surface inspection reports. CRRA will only be charged for seep sample collection and analyses based on the number of seeps that are actually sampled each quarter.

Grab samples of leachate seeps are to be collected for analysis. When possible, based on the actual volume of each sample collected, field measurements of pH, specific conductance, dissolved oxygen, turbidity, and leachate seep temperature shall be recorded. A field data sheet shall be completed to document the field results of the leachate seep sampling.

Preparation for Sampling

This task includes coordination between field monitoring personnel and the analytical laboratory for the bottle order, bottle delivery, sample preservation and chain of custody to complete the required sampling. In addition, the Consultant is responsible for mid-quarter monitoring if there is an exceedance of any of the four compliance parameters (alkalinity, hardness, total dissolved solids, and ammonia) at any of the eight (8) Compliance Monitoring Wells (see Columns (1) and (3) of Table 2).

Sample collection scheduling shall allow enough time for completion of the sample analyses by the laboratory so that the quarterly reports can be assembled, reviewed, finalized and submitted in a timely manner according to permit requirements as further discussed below.

Consultant is responsible for coordinating equipment blanks, field blanks, trip blanks and duplicate samples as part of the sampling quality assurance program. In addition to any other approved EPA or CTDEEP protocols, equipment blanks and field blanks are required for each day of sampling where non-dedicated equipment is used. Laboratory-supplied reagent water is to be passed through/poured over decontaminated sampling equipment at the beginning of the sampling day (equipment blank) and at the end of the sampling day (field blank) and collected for analysis. It is important to note that reagent water collected as an equipment or field blank sample for analysis of dissolved metals

must be run through the sample device and the field filter. Trip blanks, as supplied by the laboratory, are to be carried on each day that samples are collected for analysis of VOC's, and returned unopened with the samples for analysis of VOC's. The objective of duplicate samples is to check the accuracy of the analytical laboratory. One (1) blind duplicate sample is to be collected each quarter from one of the Surface Water Protection Wells and analyzed for all the same parameters as the sampled well (see Column (4) of **Table 2**).

Each monitoring well is equipped with a dedicated 2-inch diameter Timco bladder pump (SS/Teflon bladder pumps). The pumps are owned by CRRA. The Consultant shall supply all equipment necessary to operate the bladder pumps. Such equipment may include but not necessarily be limited to bladder pump controllers, oil-less air compressors, inert gas packs to drive the pump bladders, pneumatic hoses and fittings. It is the Consultant's responsibility to maintain the CRRA-owned pumps in good working order. This Scope of Services does not include costs associated with repairs to CRRA-owned pumps that may be necessary due to normal wear and tear. If the CRRA-owned pumps require maintenance, repair or replacement, the Consultant must notify CRRA, provide a price quote for the necessary work, and proceed with the work only after receiving approval from CRRA.

Consultant shall provide all required equipment, besides that which CRRA owns and has supplied to the Consultant, for collection of samples to fill laboratory-supplied bottles. The Consultant shall also supply equipment required for measurement of field parameters. Field equipment calibration and decontamination shall be the responsibility of the Consultant. The Consultant shall supply any other equipment necessary to adequately and properly complete the work.

Field Measurements and Collection of Samples

This task includes measuring selected parameters in the field and collecting samples in laboratory-supplied bottles, varying with the sampling point's parameter matrix. Refer to **Table 2** for a summary of field and laboratory parameter requirements for each groundwater and surface water sampling point at the Hartford Landfill, as well as for leachate seep sampling locations. **Table 1** provides summaries of monitoring well completion details with total well depth and screened interval depth of each monitoring well. Refer to **Table 3** for a summary of field and laboratory parameter requirements for the untreated ash leachate sampling point (lift station) at the Hartford Landfill.

Consultant shall follow the "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846" (latest edition) and "RCRA Groundwater Monitoring" Draft Technical Guidance (latest edition) as well as all applicable CTDEEP and USEPA regulations. Procedures described herein are not intended to be comprehensive, but to provide a clarification or to supplement the referenced regulations as they might pertain to certain site conditions. The various

subsections below describe particulars for sampling at various types of sample locations.

Sampling methods described herein are to be utilized by Consultant during water quality monitoring events including monitoring of groundwater, surface water, and untreated ash leachate. Specific items that shall be performed during all water quality monitoring events and summarized in the quarterly reports include the following:

- Documentation of Field Activities
- Sample Handling
- Decontamination Procedures
- Monitoring and Sampling Techniques
- Field Quality Control Checks

Documentation of Field Activities shall include listing the procedures used to record data about the sampling event, the sampling locations, the samples themselves, and the handling and transport of the samples.

Sample Handling shall detail the source of the sample containers, sample preservation methods, and the chain-of-custody protocol that is followed from time of sample collection until sample acceptance by the laboratory performing the analysis.

Decontamination Procedures shall provide general data on field and in-house decontamination. Non-dedicated equipment used for purging, sampling, and filtering (to be completed only for analysis of dissolved metals) is to be decontaminated (unless replaced) between each sampling location. For the groundwater monitoring wells, each purging device is effectively "dedicated" to each sampling location. It is recommended in those instances where pumps are dedicated to individual wells, that they receive a thorough in-house decontamination as conditions warrant.

Monitoring and Sampling Techniques for groundwater, surface water, landfill leachate seeps (when present) and untreated ash leachate shall include a description of the fundamental procedures for collection of samples. Specific procedures to be addressed include water level measurement; purging calculations, sample collection equipment and techniques utilized; and monitoring of field parameters (i.e., pH, temperature, specific conductivity, etc.) and their results. Surface water monitoring and sample techniques shall describe the order of sample collection, orientation of boat to sampling points, equipment purging, monitoring of field parameters, method of filtering for dissolved metals and sample collection techniques.

Field Quality Control Checks shall describe typical QA/QC samples and their use. Monitoring events will include trip blanks, equipment blanks and field blanks (as necessary), and duplicate samples. The trip blank is only associated with days when groundwater well and untreated leachate monitoring is performed, because VOC's are not analyzed in surface waters. The equipment and field blanks are only necessary when non-dedicated sampling equipment is utilized for well purging, groundwater sample collection, or surface water sample collection. One (1) blind duplicate sample is to be collected each quarter from one of the Surface Water Protection Wells and analyzed for all the same parameters as the sampled well (see Column (4) of **Table 2**).

Except where sample analysis in accordance with methods in 40 CFR Part 136 is required by permits, the methodologies to be utilized should be consistent with 40 CFR Part 258, Subpart E, Section 258.53 through 258.56, and as further detailed in EPA 530-R-93-017, "Solid Waste Disposal Facility Criteria - Technical Manual," November 1993; CTDEEP's "Solid Waste Management Program Description", July 1993; USEPA's "RCRA Ground Water Monitoring Technical Enforcement Guidance Document", September 1986; and US EPA Region I Standard Operating Procedure GW-001 – "Low Stress (Low Flow) Purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells" (January 19, 2010 – Revision 3).

Task 1.2: Quarterly Laboratory Analysis

All sample analyses required by this permit shall be performed by a laboratory certified for such analyses by the Connecticut Department of Public Health or, in advance of any use, a laboratory approved in writing by the CTDEEP. The laboratory shall analyze all samples submitted from the same monitoring event, at one time, such that duplicate samples and blanks are analyzed under the same conditions.

Preservation and Transport of Samples to Laboratory

Samples shall be properly preserved and kept cool. They shall be transported to the laboratory the same day they are collected per coordination with the lab by the Consultant's field personnel. Container types, preservatives and maximum holding times shall be per CTDEEP Reasonable Confidence Protocols (RCP), SW-846 (latest edition), or 40 CFR 136, as applicable. Consultant is to coordinate re-sampling, at no additional cost to CRRA, if re-sampling is necessary due to loss of sample in bottle transport or in laboratory handling, or if the maximum holding times are exceeded.

Analytical Methods and Detection Limits

Analytical results for each parameter shall be reported together with the analytical method, method detection limits, date of analysis, and initials of analyst. The latter two items are specifically required for the sanitary discharge permit reporting. The value of each parameter shall be reported to the maximum level

of accuracy and precision possible. Failure to submit data in accordance with the procedures and protocols set forth in the applicable permits shall constitute a permit violation.

Analyses required under the groundwater, surface water, and untreated ash leachate monitoring programs shall be performed using the methods specified, unless an alternative method has been specifically approved in writing by the CTDEEP for monitoring at the facility. The groundwater, surface water, and leachate seep analytical parameters are specified in **Table 2**, while the untreated ash leachate analytical parameters are specified in **Table 3**. Failure to use the analytical method specified or approved by the Commissioner of CTDEEP shall constitute a permit violation.

Monitoring required of surface water and groundwater which specify the use of analytical methods as listed in the permits and summarized in **Table 2** must be conducted to achieve the minimum detection levels for each of the parameters, where identified, unless an alternative method that is capable of achieving the minimum detection levels has been specifically approved in writing by the CTDEEP.

The minimum detection levels specified in **Table 2** represent the concentration at which quantification must be achieved and verified during the chemical analyses for these compounds, as required by relevant permit(s). It is important to note that, for some parameters, the permit-required detection limits listed in **Table 2** may be higher than those parameters' Groundwater Protection Criteria and/or Surface Water Protection Criteria, as established in the CTDEEP's Remediation Standard Regulations (RSR's). In this situation, the minimum detection level achieved by the laboratory must be at least as low as the lowest applicable RSR criterion. [Note: Groundwater samples for Ethylene Dibromide (EDB) and 1,2-Dibromo-3-chloropropane (DBCP) need only be analyzed via RCP Method 8260; analysis for EDB and DBCP via EPA Method 504.1 is <u>not</u> required.]. Analyses must include calibration points at least as low as the minimum detection level. Check standards within ten percent of the minimum detection level may be used in lieu of a calibration point equal to the minimum detection level.

If any sample analysis indicates that quantification for a particular parameter can not be verified at or below the permit-specified minimum level, a second sample shall be collected and analyzed for that parameter according to the above specified methodology as soon as practicable but no later than thirty (30) days following collection of the sample for which the quantification at or below the minimum level was not verified. The results of the first and subsequent sample analyses shall be submitted to the CTDEEP verifying that the appropriate methodology was employed, the minimum level was achieved for quality-control samples and that failure to quantify the parameter at or below the minimum level specified for the analysis was a result of matrix effects

which could not be compensated for as part of sample analysis allowed pursuant to 40 CFR Part 136.

If any three (3) samples collected in a twelve-month period indicate that the specified minimum level was not achieved for a particular parameter when using the specified test methodology, the Consultant shall, after consultation with and approval by CRRA, submit a report for the review and approval of the CTDEEP which justifies and defines the matrix effect upon analyses for that parameter, identifies the level at which quantification can be verified and recommends modification(s) to the method or an alternative method that is sufficiently sensitive and free of the identified matrix effect.

Review of Lab Results, Quality Control Procedures and Invoices

Consultant is responsible for ensuring lab analyses are performed as required by the parameter list and that MDL limits are met. A summary of the lab's QA/QC procedures and results are to be reviewed and included in the quarterly report. The laboratory must also provide signed "Laboratory Analysis QA/QC Certification Forms" that certify that the all reported data meet the CTDEEP's requirements for "reasonable confidence." Consultant is to review the laboratory invoices for consistency with actual sample parameter analyses requested and completed.

Task 1.3: Quarterly Reports - Water Quality Monitoring

The following deadlines apply to the submission of finalized quarterly reports to the appropriate regulatory agencies:

Sampling Event	Report Deadline
January	March 15
April	June 15
July	September 15
October	December 15

Sampling shall be arranged to allow for a reasonable laboratory turnaround time for analysis and compiling of lab results, writing draft report, reviewing draft report, finalizing report and distributing report to appropriate parties.

The quarterly report shall include the monitoring results of all groundwater, surface water, leachate seeps (if applicable) and untreated ash leachate samples that were analyzed. In the text of the report and in summary tables, the Consultant will also indicate which parameters exceed criteria appropriate to the sampling point of classification. This will include state and federal limits for maximum contaminant levels not to be exceeded in the aquifer(s) at the relevant point of compliance (per Subtitle D and permit requirements), groundwater and surface water protection criteria per CTDEEP regulations in accordance with the classifications of the same, and aquatic life criteria for surface water locations. Additionally, the Consultant shall evaluate all

monitoring results against the "Significant Environmental Hazard Reporting" criteria under Public Act 98-134.

Any mid-quarter re-sampling required because of exceedances of compliance parameters under Permit No. LF0000014 shall be described in the current quarterly monitoring report if the results of the re-sampling are readily available at the time of report preparation.

The quarterly reports must include an assessment of the conditions of the groundwater monitoring wells and other sampling locations as applicable. The quarterly reports will also include a summary table of groundwater well construction details, and a site map which shows groundwater contours in both overburden and bedrock sampling locations on an AutoCAD drawing of the site that includes site features and topography. CRRA will provide an AutoCAD drawing of the landfill site for use by Consultant upon request.

During April and October, ground water elevation data will be collected at all available wells in the project vicinity as described in Task 1.4, regardless of whether or not the well is in the sampling program. The measured groundwater elevations at the additional well locations will be included on the groundwater contour maps for the April and October sampling events. A Monitoring Well Field Data Sheet shall also be completed for each additional well.

Each quarterly report shall fully document the field activities and the laboratory work details, be formatted to support the annual report, and provide interim results and an update on impacts and exceedances. CRRA shall be notified immediately of any significant variation from past results, exceedances of "Significant Environmental Hazard Reporting" criteria, or exceedances of compliance parameters with a recommendation on confirmation of the result.

A copy of the draft quarterly report, including sampling details and supporting analytical data, sample chains of custody, Monitoring Well Field Data Sheets, and a site map of groundwater elevations and possibly isopleths of results, is due to CRRA for review a minimum of fourteen (14) calendar days before the final report is due to the CTDEEP. CRRA shall also be allowed sufficient time to review any other reports or forms prior to submittal to CTDEEP.

Finalized quarterly reports are to be printed by the Consultant on double-sided pages. The report distribution and addresses will be provided. Six (6) finalized hard-copies of each report plus one electronic copy (PDF format) are required to be generated by the Consultant. The Consultant is responsible for mailing reports directly.

Task 1.4: Non-Sampled Well Condition Survey & Water Elevations

There are twenty-eight (28) ground water monitoring wells at the Hartford Landfill that are not part of the quarterly sampling program as outlined herein. During the April and October sampling events, the ground water elevation shall be measured at each of the non-sampled wells, and a Monitoring Well Field Data Sheet (as de-

scribed in Task 1.1) shall be completed to document each non-sampled well's condition. The groundwater elevations obtained at the non-sampled well locations should be used to supplement the groundwater contour maps developed as part of the applicable quarterly environmental monitoring report. Copies of the Monitoring Well Field Data Sheets shall be included in the applicable environmental monitoring report.

Task 1.5: Interim Quarterly Event Monitoring – Groundwater Zone of Compliance

If an exceedance of the previously-established maximum background levels for alkalinity, hardness, total dissolved solids and/or ammonia is found at any of the eight (8) compliance monitoring wells (as defined in permit LF0000014), Consultant shall re-sample the well(s) of exceedance(s) for the parameter(s) exceeded within 45 days of the quarterly sampling event. The analytical results of any re-sampling must be submitted to CRRA by the Consultant within 30 days of the re-sampling date, along with a letter explaining the source and cause of the exceedance (if the re-sampling confirms that there has been an exceedance) and any extenuating circumstances surrounding the sampling or re-sampling activities.

Task 1.6: Annual Dioxin/Furan Monitoring, Laboratory Analysis and Reporting

MW-DX is a stainless steel monitoring well located adjacent to MW-106 on the Connecticut River side of the U.S. Army Corps of Engineers dike. Permit LF0000014 requires that MW-DX be sampled for dioxins and furans annually, in July of each monitoring year. It is important to note that MW-DX is not equipped with a bladder pump. The Consultant must therefore utilize a stainless steel bailer to purge and sample MW-DX. At least three (3) well volumes must be extracted from MW-DX prior to sampling.

Consistent with the sampling and documentation requirements described above in Task 1.1, the Consultant will also be responsible for monitoring "field parameters" at MW-DX during well purging, and for completing a "Monitoring Well Field Data Sheet" which summarizes well elevation data, well condition, purge data, observed water yield and quality comments, sampling data, and results of measured field parameters for MW-DX.

Task 1.7: Annual Reports - Water Quality Monitoring

The annual report shall address the zone of influence of the discharge (defined as the area of soil and groundwater within which the treatment of the leachate by soils and mixing of leachate with groundwater occurs and could be reasonably expected to occur, and therefore within which some degradation of groundwater quality is anticipated to occur). The annual reports shall also provide an overall assessment of site conditions for the calendar year, including but not limited to the following:

(a) Map depicting all groundwater and surface water monitoring locations, groundwater withdrawal locations, and the locations of the collection, treatment, and conveyance of stormwater, leachate, and gas condensate as applicable;

(b) Evaluation of surface water and groundwater quality, and leachate quality and leachate quantity, including graphical representations of monitoring results;

(c) Condition of all monitoring wells and the need for repair or replacement of any wells;

(d) Evaluation of the extent and potential extent of the leachate discharge to groundwater, and whether any impact on the surface water quality of the Connecticut River, Meadow Brook, or any other surface waters was detected or could reasonably be expected to occur;

(e) Evaluation of the performance of the Groundwater Flow Control System and its ability to maintain possession of the zone of influence; and

(f) Written request for modification of the surface water and/or ground water monitoring program, as warranted by the data generated through the monitoring.

All annual reports are to be submitted as a draft to CRRA at least fourteen (14) calendar days prior to the submittal deadline of January 1st specified in the permit. CRRA shall be supplied with electronic copies of all information (i.e., chemical parameter database) included in the final annual report as well as groundwater contour maps and other miscellaneous site plans in AutoCAD files.

Finalized annual reports are to be printed by the Consultant on double-sided pages. The report distribution and addresses will be provided. Six (6) finalized hard-copies of the annual report plus one electronic copy (PDF format) are required to be generated by the Consultant. Consultant is responsible for mailing reports directly.

TASK 2: SANITARY DISCHARGE MONITORING, LABORATORY ANALYSIS AND REPORTING

Task 2.1 Sanitary Discharge Sampling

Sanitary sewer discharge permit number SP0001412 requires that monthly monitoring of the ash residue leachate discharge (DSN 001A) and the pumped groundwater discharge (DSN 001B) be completed. Permit SP0001412 requires that separate sets of grab samples of each discharge be collected from the following monitoring locations:

- DSN 001A: Influent pipe to the ash leachate treatment tank (a sample port has been installed); and,

- DSN 001B: At manhole prior to mixing with DSN 001A (from a manhole downstream of the pumped groundwater discharge, and DSN 001A must be inactive during sampling of DSN 001B).

The Consultant shall coordinate the schedule for sample collection with CRRA personnel at the site.

Task 2.2: Laboratory Analysis

Samples shall be appropriately preserved and kept cool. They shall be transported to the laboratory the same day they are collected per coordination with the lab by Consultant. Container types, preservatives and maximum holding times per 40 CFR 136, latest revisions, shall be followed. Consultant is to coordinate re-sampling at no additional cost to CRRA, if re-sampling is necessary due to loss of sample in bottle transport or in laboratory handling, or if the maximum holding time is exceeded. Samples shall be analyzed for the parameters listed in **Table 3**. Analytical methods shall be in accordance with the methods listed in **Table 3**, as required by Permit No. SP0001412.

Consultant is responsible for ensuring lab analyses are performed as required by the parameter list and that required methods are utilized. A summary of the lab's QA/QC procedures and results are to be reviewed. Consultant is to review the laboratory invoices for consistency with actual sample parameter analyses requested and completed.

Task 2.3: Reporting

CTDEEP reporting requirements specify that CRRA is required to submit Discharge Monitoring Reports (DMR's) summarizing chemical analyses to the CTDEEP on a monthly basis. The DMR's must be submitted by CRRA by the last day of the month following the month that the samples were collected. Therefore, the Consultant is required to provide complete, finalized laboratory reports, sample chains of custody, and sample collection data sheets for the ash leachate and pumped groundwater monitoring to CRRA by the twentieth (20^{th}) day of the month following the month that the samples were collected.

TASK 3: DIKE STABILITY MONITORING AND REPORTING

A quarterly stability monitoring program assesses possible effects of the placement of solid waste against the interior of the U.S. Army Corps of Engineers flood control dike (the North Meadows Flood Control Dike), which separates the Hartford Landfill from the Connecticut River and Meadow Brook. The quarterly (January, April, July, and October) stability monitoring activities (as detailed below) include measurements of soil pore pressures, lateral ground movements, and horizontal and vertical displacement of surveyed monuments, as well as the completion of cross-sectional surveys and an annual report.

Measurement of Pore Pressure

Soil pore pressures are monitored quarterly at five (5) piezometers pairs (shallow & deep) located on the outside of the dike. CRRA will supply the "Sinco" pneumatic - pressure transducer for monitoring purposes. Consultant shall provide the gas source for use with the equipment. Instruction manuals for equipment use will be provided.

Measurement of Lateral Movement

Lateral ground movement in both North/South and East/West directions is measured quarterly at five (5) inclinometers located outside of the toe of the dike. CRRA will supply the "Sinco" digital inclinometer with sensor for monitoring purposes, and a rechargeable 6 volt battery. Instruction manuals for equipment use will be provided.

Measurement of Horizontal and Vertical Displacement

Thirteen (13) covered monuments are located along the crown of the dike (Monument #6 through #18) as reference points to measure for horizontal and vertical displacement. The location of these monuments must be surveyed by a State of Connecticut Licensed Surveyor on a quarterly basis. CRRA will provide Consultant with survey tie-in reference information. **Appendix B** to this Scope of Work contains a copy of the survey specifications.

Dike Cross Section Surveys

Five (5) cross section survey lines have been established from the top of the USACOE dike to the mean high water line of the Connecticut River. These cross-sections must be surveyed by a State of Connecticut Licensed Surveyor on a quarterly basis to make an assessment of possible undermining and/or erosion of the river bank and/or the flood plain between the river and the dike. Quarterly plots of the cross-sections shall be generated.

Data Summaries and Reporting

Quarterly reporting of dike stability data is not required, however, the Consultant is responsible for summarizing and reviewing the quarterly data as soon as possible after it is collected, and promptly notifying CRRA if any unusual data is generated. An annual dike stability report is to be assembled based on contents of past reports and in accordance with the requirements as summarized in the “Hartford Vertical Expansion Permit”. A draft of the report is due to CRRA for review and comment by December 15th each year, and the final report incorporating any CRRA comments is due by December 31st each year. A copy of monitoring results for January and April 2007 will be provided by CRRA to the Consultant. Approximately six (6) hard-copies of the report plus one electronic copy (PDF format) are required to be generated by the Consultant. Consultant is responsible for mailing reports directly.

TABLE 1
Summary of Monitoring Well Construction
(Sampled Wells Only)

Hartford Landfill
Hartford, Connecticut

Well Designation in Permit	Monitor Well	Ground Elevation (ft)	PVC Elevation (ft)	Casing Elevation (ft)	Well Diameter (in)	Well Depth (ft)	Screen Length (ft)	Screen Elevation (ft)	Date Installed
W-17	MW-7	22.7	22.30	22.71	2	29	10	-19 to -29	Not Available
C-8	MW-7B	18.9	20.87	21.19	2	100	10	-81.1 to -71.1	Oct-97
W-9	MW-13	21.6	23.29	23.70	2	40	10	-30 to -40	Aug-87
W-7	MW-14-87	20.3	23.09	23.61	2	32	10	-22 to -32	Aug-87
C-6	MW-14B	20.2	21.93	22.10	2	105	10	-95 to -105	Feb-90
W-6	MW-15-87	20.7	23.67	23.63	2	32	10	-22 to -32	Aug-87
W-3	MW-16M	20.0	22.04	22.24	2	33	10	-13 to -3	Oct-97
W-2	MW-16S	19.9	21.73	22.19	2	24	10	6 to -4	Dec-92
W-11	MW-101	19.8	21.19	21.30	2	33	14	-19 to -33	Nov-83
W-12	MW-102	21.8	22.15	23.03	2	34	19	-15 to -34	Nov-83
W-13	MW-103	19.5	21.26	21.23	2	32	19	-13 to -32	Nov-83
C-7	MW-103B	19.7	21.19	21.37	2	108	10	-88.3 to -78.3	Oct-97
SW-1	MW-104	19.9	22.15	22.31	2	35	19	-16 to -35	Nov-83
W-10	MW-106	21.6	24.33	24.15	2	40	10	-30 to -40	Nov-87
W-16	MW-210	22.4	24.25	24.41	2	33	10	-10.5 to 0.5	Oct-97
W-1	MW-307M	23.0	25.04	25.39	2	14	10	14 to 4	Oct-97
W-4	MW-308M	20.3	22.22	22.85	2	36	10	0 to -10	Dec-92
W-5	MW-309M	22.3	24.13	24.64	2	30	10	5 to -5	Dec-92
W-8	MW-311M	23.5	23.17	25.83	2	35	10	7 to -3	Dec-92
W-15	MW-312M	24.0	26.01	26.35	2	35	5	-2 to -7	Jun-93
C-1	MW-340	15.2	16.64	17.06	2	10	5	4 to 9	May-93
C-2	MW-341M	17.5	19.23	19.39	2	30	10	0 to -10	May-93
C-3	MW-341B	17.4	19.47	19.60	2	86	10	-66.5 to -56.5	Sep-97
C-4	MW-342M	18.7	20.68	18.68	2	24	10	-3.3 to 6.7	Oct-97
C-5	MW-342B	18.6	20.48	18.61	2	90	10	-69.5 to -59.5	Oct-97
C-9 & W-14	PZ-AI	22.49	24.40	-	2	-	22	12.49 to -9.51	Oct-97
C-10 & SW-2	PZ-AE	19.03	21.60	-	2	-	24	12.03 to -11.97	Oct-97

Notes:
Vertical Datum is NGVD '29
ft = feet
in = inches

Table 2
Quarterly Groundwater and Surface Water Monitoring Parameters
Hartford Landfill

				(1)	(2)	(3)	(4)	(5)
Parameter		**Code No.**	**EPA Method; MDL**	**C-2, 3, 4, 5, 6, 7, 8**	**W-3, 6, 14, 17, and Seeps**	**C-1**	**W-1, 2, 4, 5, 7, 8, 9, 10, 11, 12, 13, SW-1, 2**	**Surface Water**
				7 each	**4+ each**	**1 each**	**13 each + QA/QC**	**13 each + QA/QC**
Field Parameters								
1	Temperature (Water and Air)	00011		X	X	X	X	X
2	pH	00400-012		X	X	X	X	X
3	Specific Conductance	00095-104		X	X	X	X	X
4	Dissolved Oxygen	00300-019		X	X	X	X	X
5	Sample Depth			X	X	X	X	X
6	Depth to Bottom			X	X	X	X	X
7	Stream Flows at S-6, S-7, and CT River	00061						X
Laboratory Parameters								
1	Total Dissolved Solids	70295-019	160.1	X	X	X	X	X
2	Total Suspended Solids	00530-019	160.2	X	X	X	X	X
3	Biochemical Oxygen Demand - 5-Day (BOD-5)	00310-019	405.1					X
4	Specific Conductance	00095-104	120.1	X	X	X	X	X
5	Chloride	00940-019	325.x	X	X	X	X	X
6	Hardness (as CaCO3)	00900-019	130.1 or 130.2	X	X	X	X	X
7	pH	00400-012	150.1	X	X	X	X	X
8	Ammonia (as N)	00610-019	350.2; 100 ppb	X	X	X	X	X
9	Nitrate (as N)	00620-019	352.1	X	X	X	X	X
10	Nitrite (as N)	00615-028	354.1			X	X	X
M-11	Cadmium, Total	01027-028	213.2; 0.5 ppb (GW = 6010)	X	X	X	X	X
M-12	Copper, Total	01042-028	220.2; 5 ppb (GW = 6010)	X	X	X	X	X
13	Copper, Dissolved	01040-028	220.2; 5 ppb			X	X	X
14	Iron, Total	01045-019	236.2; 5 ppb	X	X	X	X	X
M-15	Lead, Total	01051-028	239.2; 5 ppb (GW = 6010)	X	X	X	X	X
16	Lead, Dissolved	01049-028	239.2; 5 ppb			X	X	X
M-17	Silver, Total	01077-028	272.2; 1 ppb (GW = 6010)	X	X	X	X	X
M-18	Zinc, Total	01092-028	289.2; 10 ppb (GW = 6010)	X	X	X	X	X
19	Zinc, Dissolved	01090-028	289.2; 10 ppb			X	X	X

Table 2
Quarterly Groundwater and Surface Water Monitoring Parameters
Hartford Landfill

				(1)	(2)	(3)	(4)	(5)
Parameter		**Code No.**	**EPA Method; MDL**	**C-2, 3, 4, 5, 6, 7, 8**	**W-3, 6, 14, 17, and Seeps**	**C-1**	**W-1, 2, 4, 5, 7, 8, 9, 10, 11, 12, 13, SW-1, 2**	**Surface Water**
				7 each	**4+ each**	**1 each**	**13 each + QA/QC**	**13 each + QA/QC**
20	Alkalinity	00410-019	310.1	X	X	X	X	X
21	Chemical Oxygen Demand (COD)	00341-019	410.x	X	X	X	X	X
22	Sulfate, Total	00945-019	375.x			X	X	X
23	Orthophosphorus, Total	70507-019	365.3			X	X	X
M-24	Antimony, Total	01097-028	204.2; 10 ppb (GW = 6010)	X	X	X	X	X
M-25	Arsenic, Total	01002-028	206.2; 5 ppb (GW = 6010)	X	X	X	X	X
M-26	Barium, Total	01007-028	208.2; 10 ppb (GW = 6010)	X	X	X	X	X
M-27	Beryllium, Total	01012-028	210.2; 1 ppb (GW = 6010)	X	X	X	X	X
M-28	Chromium, Total	01034-028	218.2; 5 ppb (GW = 6010)	X	X	X	X	X
29	Chromium, Hexavalent	01032-028	218.5; 5 ppb			X	X	X
M-30	Cobalt, Total	01037-028	219.2; 5 ppb (GW = 6010)	X	X	X	X	X
31	Manganese, Total	01056-019	243.2; 1 ppb	X	X	X	X	X
32	Mercury, Total	71900-028	245.1; 0.2 ppb			X	X	X
M-33	Nickel, Total	01067-028	249.2; 5 ppb (GW = 6010)	X	X	X	X	X
M-34	Selenium, Total	01147-028	270.2; 5 ppb (GW = 6010)	X	X	X	X	X
M-35	Thallium, Total	01059-028	279.2; 10 ppb (GW = 6010)	X	X	X	X	X
M-36	Vanadium, Total	01087-028	286.2; 10 ppb (GW = 6010)	X	X	X	X	X
37	Sodium, Total	00929-019		X	X	X	X	
38	Potassium, Total	00937-019		X	X	X	X	
39	Volatile Organic Compounds (VOC's)		8260 (see Note)	X	X	X	X	

Notes:

EPA Method; MDL

- ppb = parts per billion
- If a parameter's Groundwater Protection Criterion (GWPC) and/or Surface Water Protection Criterion (SWPC) is lower than the listed MDL, then the MDL must be at least as low as the lower of the GWPC and the SWPC.
- (GW = 6010) indicates that groundwater samples for these 15 metals (inorganics listed in 40 CFR 258 Appendix I) are to be analyzed via EPA Method 6010, not via the surface water method listed.
- VOC's via EPA Method 8260: The VOC analytical parameter list is to include all Organic Constituents listed in Appendix I to 40 CFR 258, all analytes listed in CTDEEP RCP Method 8260, and 2-Chloroethyl Vinyl Ether, Chloromethyl Methyl Ether, and 1-Chlorohexane.

Monitoring Well Designations by Column
are as Follows:

(1) = "Compliance Wells" MW-341M, MW-341-B, MW-342M, MW-342B, MW-14B, MW-103B, and MW-7B

(2) = "Plume Characterization Wells" MW-16-87, MW-15-87, PZ-A(I), MW-7

(3) = "Compliance Well" and "Surface Water Protection Well" MW-340

(4) = "Surface Water Protection Wells" MW-307, MW-16S, MW-308M, MW-309M, MW-14-87, MW-311M, MW-13, MW-106, MW-101, MW-102, MW-103, MW-104, PZ-A(E)

Other Sampling Notes:

- For QA/QC purposes, one (1) duplicate sample from one of the Surface Water Protection Wells [Column (4) above] is to be collected during each quarterly event and analyzed for all the same parameters as the original sample set.
- For QA/QC purposes, one (1) equipment blank is to be collected each quarter by passing laboratory-grade reagent water over/through the sampling equipment associated with collection of Surface Water samples at the start of the sampling day, and analyzing the collected rinseate for all Surface Water parameters [Column (5) above].
- For QA/QC purposes, one (1) field blank is to be collected each quarter that non-dedicated Surface Water sampling equipment is used. The field blank is to be collected by passing laboratory-grade reagent water over/through the sampling equipment associated with collection of Surface Water samples at the end of the sampling day, and analyzing the collected rinseate for all Surface Water parameters [Column (5) above].
- Persistent Leachate Seeps ("Seeps") to be sampled may vary in number, but should not exceed four samples per quarter, since representative samples can be collected.
- MW-DX (the stainless steel "Dioxin Well") is to be sampled for Dioxins and Furans in July only, on an annual basis.
- Untreated Ash Leachate from the Phase I Lined Ash Residue Area is to be sampled quarterly in accordance with the May 28, 2002 amendment to Permit No. LF0000014. Refer to Table 3 of the Scope of Services for analytical parameters associated with the untreated ash leachate sampling.

TABLE 3
SANITARY SEWER SAMPLING PARAMETERS[1]
Hartford Landfill
Hartford, Connecticut

	CTDEEP Permit No. SP0001412, issued October 17, 2007		CTDEEP Permit No. LF0000014, issued February 6, 1998 and amended May 28, 2002.
	Phase I	Pumped	Phase I
	Ash Leachate	Groundwater	Ash Leachate
PARAMETER	001-A	001-B	Lift Station
	(Untreated)		(Untreated)
Leachate Indicator Parameters			
Alkalinity	Q	Q	Q
COD	Q	Q	Q
Chloride	Q	Q	Q
Conductivity	Q	Q	Q
N-Ammonia	(M)	(M)	Q
N-Nitrate	(M)	(M)	Q
pH(lab)			Q
TDS	Q	Q	Q
TSS	Q	Q	Q
Metals(Inorganics)[2]			
Aluminum	(M)	(M)	Q
Arsenic	Q	Q	Q
Barium	(M)	(M)	Q
Cadmium	(M)	(M)	Q
Copper (D)	Q	Q	Q
Copper (T)	(M)	Q	Q
Cyanide	Q	Q	Q
Iron (D)	Q	Q	Q
Iron (T)	(M)	(M)	Q
Lead	(M)	Q	Q
Manganese (D)	Q	Q	Q
Manganese (T)			Q
Mercury	Q	Q	Q
Nickel	Q	Q	Q
Potassium	Q	Q	Q
Silver			
Sodium	Q	Q	Q
Zinc	Q	Q	Q
Organics			
VOC's via EPA Method 8260[3]	(M)	(M)	Q

(M) = Monthly Sampling Frequency

Q = Quarterly Sampling Frequency (January, April, July, and October)

Notes:

1. All samples are to be grab samples.
2. All metals are to be analyzed as total (T), unless indicated otherwise by (D) for dissolved.
3. The VOC analytical parameter list is to include all analytes listed in CTDEEP RCP Method 8260, plus 2-Chloroethyl Vinyl Ether; Chloromethyl Methyl Ether; 1-Chlorohexane; Trans-1,3-Dichloropropene; and Trichlorofluoromethane.

FIGURES

Figure 1: Site Location Map

Figure 2: Water Quality Monitoring Site Plan

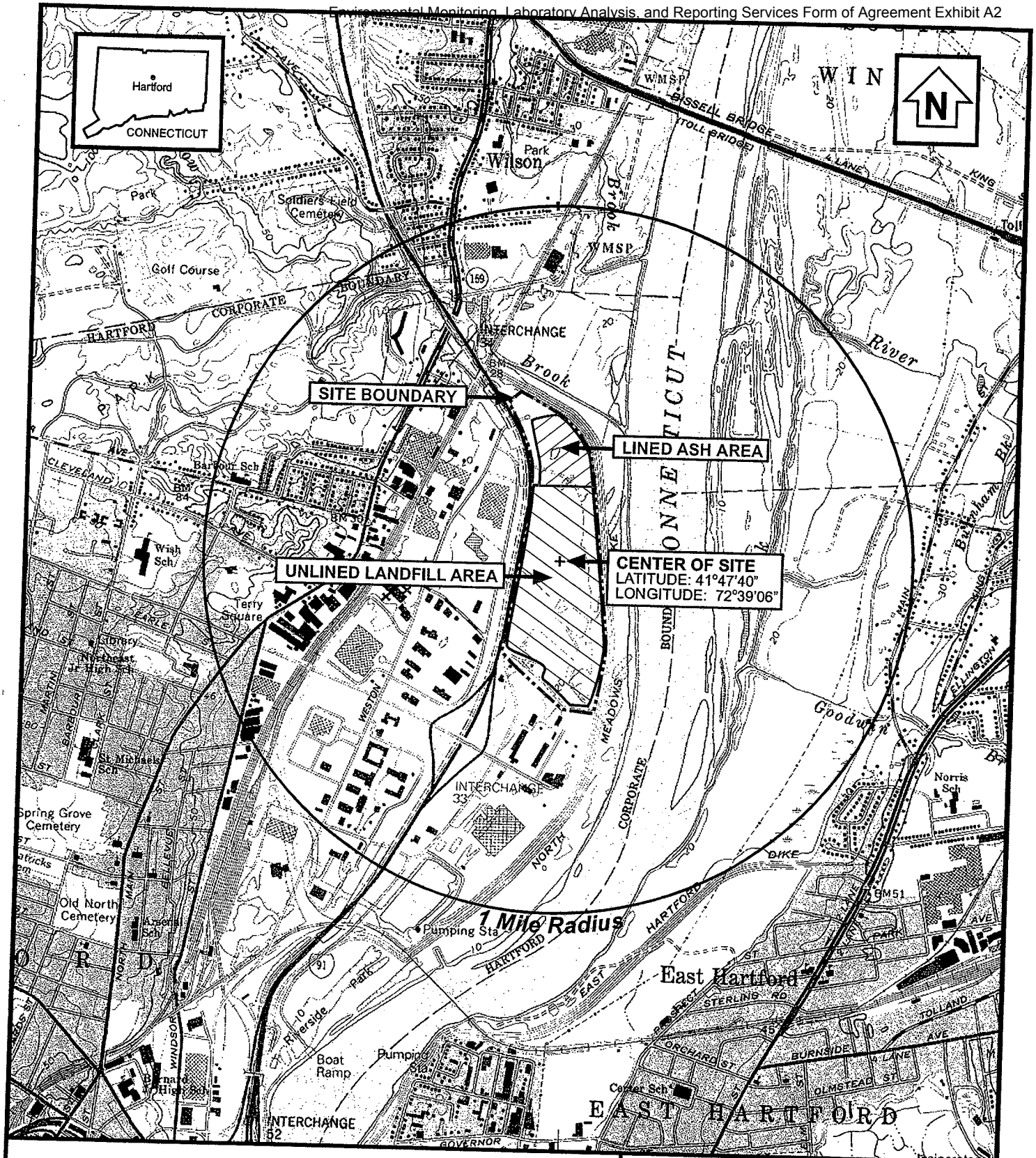
APPENDIX A - Permits

LF0000014 **Discharge of Leachate to Ground Water**
(Dated February 6, 1998, with Modification Dated May 28, 2002)
23 Page Permit, plus 2 Page Modification

SP0001412 **Pretreatment Permit for Discharges to the Sanitary Sewer**
(Dated October 17, 2007)
8 Page Permit

APPENDIX B

SPECIFICATIONS FOR PERFORMING DIKE MONITORING SURVEY: HARTFORD LANDFILL



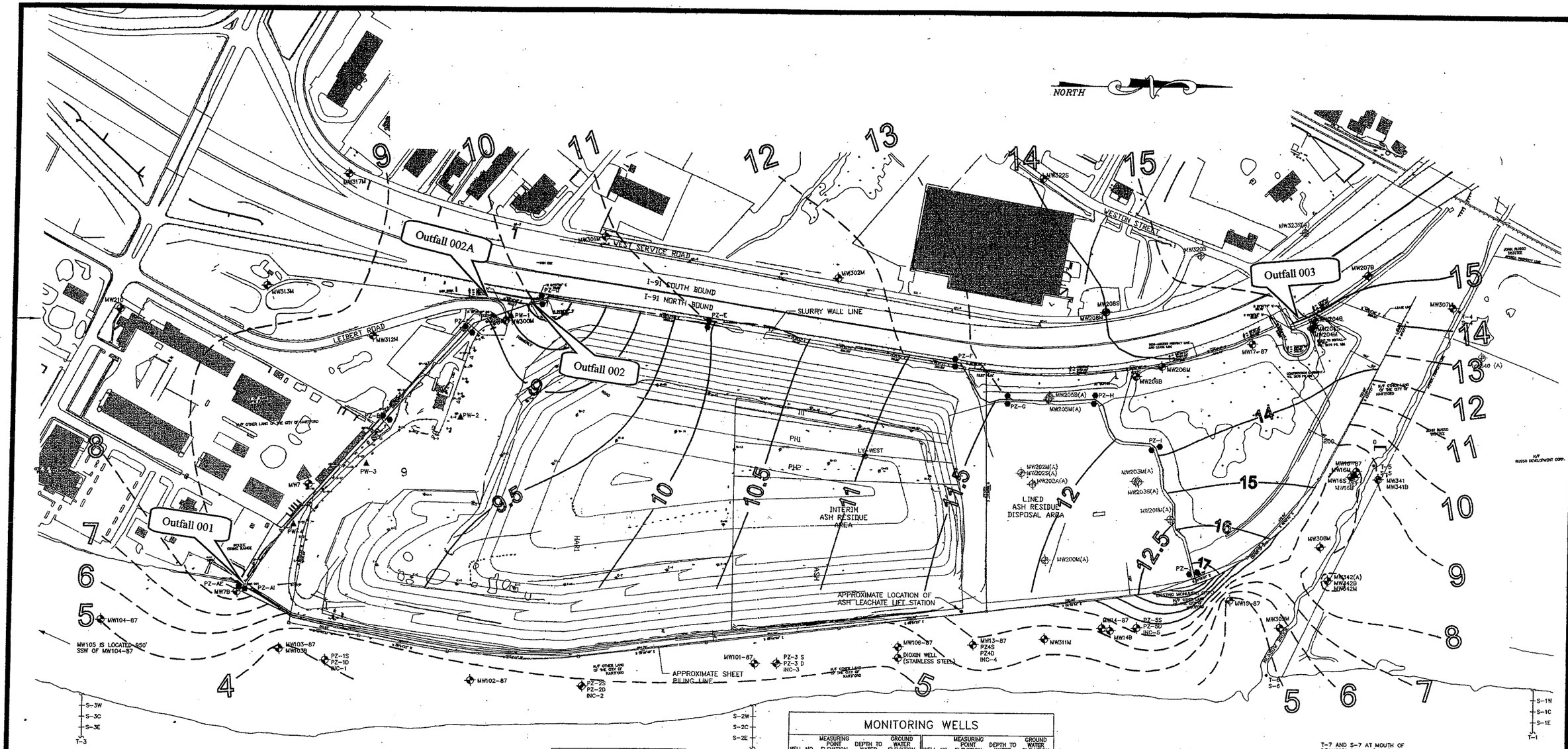
BASE CREATED WITH TOPO™ © 1996 WILDFLOWERS PRODUCTIONS, www.topo.com
7.5' USGS TOPOGRAPHIC MAP OF HARTFORD NORTH QUADRANGLE

CRRA HARTFORD LANDFILL
HARTFORD, CONNECTICUT

FIGURE 1
USGS SITE LOCATION MAP

Date: 10/03 | **Project No.** 21988-0112-00000

C-G/GRAPHICS/CRRA/AIR/32077.FH9



SITE PLAN PREPARED FROM INFORMATION OBTAINED AND MEASUREMENTS TAKEN BY TERRASYN GROUP, INC.

ALL LOCATIONS, DIMENSIONS, AND PROPERTY LINES DEPICTED ON THIS PLAN ARE APPROXIMATE. THIS PLAN SHOULD NOT BE USED FOR CONSTRUCTION OR LAND CONVEYANCE PURPOSES.

HORIZONTAL, AND VERTICAL LOCATIONS OF WELLS, AND SELECTED SITE FEATURES DETERMINED THROUGH REPRESENTATIVES OF TERRASYN GROUP, INC.

WATER TABLE ELEVATIONS ARE BASED ON NGVD 1929.

PIEZOMETER WATER TABLE ELEVATIONS ARE BASED ON MEASUREMENTS MADE BY HRP ON 10/08/03.

WATER TABLE ELEVATIONS ARE BASED ON MEASUREMENTS MADE ON 10/01/03 – 10/08/03.

WATER TABLE CONTOURS, AND FLOW DIRECTIONS ASSUME HOMOGENOUS, ISOTROPIC AQUIFER CONDITIONS, AND HORIZONTAL FLOW.

FLUCTUATIONS IN THE LEVEL OF THE WATER TABLE MAY OCCUR DUE TO FACTORS NOT ACCOUNTED FOR AT THE TIME OF MEASUREMENT.

WATER TABLE CONTOURS ARE INTERPOLATED BETWEEN DATA POINTS, AND INFERRED IN OTHER AREAS.

LEGEND

- MW103–87 — MONITORING WELL LOCATION
- MW03–87(A) — MONITORING WELL LOCATION ABANDONED/ DESTROYED
- PZ-F — APPROX. LOCATION OF SLURRY WALL INTERIOR AND EXTERIOR PIEZOMETER PAIRS ALONG SLURRY WALL
- PW-4 — PUMPING WELL
- INFERRED OVERBURDEN GROUND WATER ISOPLETH (OUTSIDE LANDFILL SLURRY WALL AND SHEET PILING)
- INFERRED OVERBURDEN GROUND WATER ISOPLETH (INSIDE LANDFILL SLURRY WALL AND SHEET PILING)
- S-3W — SURFACE WATER SAMPLE WEST
- S-3C — SURFACE WATER SAMPLE CENTER
- S-3E — SURFACE WATER SAMPLE EAST
- T-3 — TRANSECT LINE

WELL NO.	MEASURING POINT ELEVATION	DEPTH TO WATER	GROUND WATER ELEVATION
PZ-A(I)	24.40	15.37	9.03
PZ-A(E)	21.60	12.44	9.16
PZ-B(I)	23.09	13.81	9.28
PZ-B(E)	22.26	12.76	9.50
PZ-C(I)	23.11	13.58	9.53
PZ-C(E)	21.70	12.05	9.65
PZ-D(I)	19.55	11.94	7.61
PZ-D(E)	19.39	9.14	10.25
PZ-E(I)	23.49	13.5	9.99
PZ-E(E)	21.30	10.27	11.03
PZ-F(I)	25.08	14.85	11.23
PZ-F(E)	24.50	11.62	12.88
PZ-G(I)	35.95	24.4	11.55
PZ-G(E)	32.79	19.75	13.04
PZ-H(I)	35.69	23.91	11.78
PZ-H(E)	32.18	18.62	13.56
PZ-I(I)	38.34	26.17	12.17
PZ-I(E)	24.49	10.71	13.78
PZ-J(I)	38.28	25.52	12.76
PZ-J(E)	33.95	16.69	17.26

MONITORING WELLS

WELL NO.	MEASURING POINT ELEVATION	DEPTH TO WATER	GROUND WATER ELEVATION
7	22.30	12.77	9.53
7B	20.87	13.56	7.31
13	23.70	16.81	6.89
14–87	23.61	16.55	7.06
14B	21.93	10.03	11.90
15–87	23.67	19.65	4.02
16M	22.04	14.63	7.41
16B	21.09	ABANDONED	
16S	21.73	14.37	7.36
17–87	19.81	6.31	13.30
101–87	21.19	15.91	5.28
102–87	23.03	18.32	4.71
103–87	21.26	17.64	3.62
103B	21.19	9.50	11.69
104	22.15	17.13	5.02
105	18.46	13.72	4.76
106	24.33	19.09	5.24
200M		ABANDONED	
201M		ABANDONED	
202A		ABANDONED	
202M		ABANDONED	
202S		ABANDONED	
203M		ABANDONED	
203S		ABANDONED	
204B	22.45	7.77	14.68
204M	20.06	6.35	13.71
204S	19.94	5.04	14.90
205B		ABANDONED	
205M		ABANDONED	
206B	21.63	9.89	11.74
206M	20.07	6.91	13.16
207B	24.01	6.38	17.63
208M	21.90	8.68	13.22
208S	21.62	8.86	14.76
210	24.65	15.89	8.76
300M	23.13	13.94	9.19
301M	21.09	10.16	10.93
302M	21.01	9.60	11.41
307M	25.04	10.78	14.26
308M	22.22	15.10	7.12
309M	24.13	DRY	---
311M	23.17	16.80	6.37
312M	25.98	16.90	9.08
313M	22.84	13.74	9.80
315M	16.19	ABANDONED	
317M	22.71	14.11	8.60
319	23.31	---	---
320S	22.75	ABANDONED	
322	19.86	---	---
323S	23.43	DESTROYED	
340	16.64	DESTROYED	
341M	19.23	9.91	9.32
341B	19.47	6.88	12.59
342M	20.68	11.09	9.59
342B	20.46	7.87	12.61

INFERRED GROUNDWATER CONTOURS 10/01/03 - 10/08/03

SCALE : 1"=200'

Figure 2
Water Quality Monitoring Site Plan

Hartford Landfill
180 Leibert Road
Hartford, Connecticut

SCALE: 1"=200'

0 INCHES 1

SHEET

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

I CERTIFY THAT THIS DOCUMENT IS A TRUE COPY OF THE ORIGINAL.
Pamela D. Kinney
NAME
Processing Technician I
TITLE
DEPARTMENT OF ENVIRONMENTAL PROTECTION, BUREAU OF WATER MANAGEMENT

Connecticut Resources Recovery Authority
179 Allyn Street
Hartford, Connecticut 06103

Attention: Robert Wright
Acting President

Re: Facility ID: 064-072
City of Hartford
Connecticut River Watershed

This permit is issued in accordance with Section 22a-430 of Chapter 446k, Connecticut General Statutes, and regulations adopted thereunder, as amended.

Your applications for a permit submitted by Fuss & O'Neill, Inc. on November 2, 1988, October 1, 1990, and as revised through April 15, 1994 by Fuss & O'Neill and Wehran Engineering Corp ("the application"); supporting documents, addenda, letters and plates identified in Appendix A of this permit; and compliance monitoring plan approved by the Commissioner of Environmental Protection (hereinafter "the Commissioner") on January 26, 1998, have been reviewed by the Connecticut Department of Environmental Protection.

The Commissioner has found that the proposed system to treat the discharge to ground water of leachate from an existing 86-acre, unlined solid waste disposal area, a 17-acre, Phase I, lined ash residue disposal area, and a 15-acre, Phase II, lined ash residue disposal area, if the liner and collection system fails, ("the Hartford Landfill"), located on Liebert Road, Hartford, will protect the waters of the state from pollution. The proposed system includes the construction of a slurry wall and ground water flow control system for the existing unlined solid waste disposal area and the Phase I lined ash residue area.

The Commissioner, acting under Section 22a-430, hereby permits the Connecticut Resources Recovery Authority (hereinafter "the permittee") to discharge leachate from the 86-acre, unlined solid waste disposal area, and the 17-acre, Phase I, lined ash residue disposal area of the Hartford Landfill at Liebert Road, Hartford, Connecticut, to the ground waters of the state in accordance with the following conditions:

1) Discharge Serial No. 001

Description:	Leachate from Municipal Solid Waste and Municipal Solid Waste Ash Residue (Discharge code 305002e)
Discharge Location:	Ground waters in the watershed of the Connecticut River Basin Code 4000.

Disposal Area Design Size: 86 acres, unlined, municipal solid waste
32 acres, lined, municipal solid waste ash residue

2) The Hartford Landfill shall be operated and maintained in accordance with the permit to operate a solid waste disposal area No. 064-4(L) permit modification issued on November 8, 1996, and additional supporting documents as approved.

3) The surface and groundwaters shall be monitored as follows:

(A) Surface Water Quality Monitoring

(i) Locations - Surface water quality monitoring shall be conducted at the following locations as shown on Figure 2, entitled "Compliance Monitoring Location Plan, CRRA - Hartford Landfill, July 1997 Environmental Monitoring Event, Leibert Road, Hartford, Connecticut", prepared by HRP Associates, and approved by the Commissioner on January 26, 1998.

(a) Connecticut River Transects: Three monitoring locations shall be established on each transect. Monitoring locations shall be located approximately 50 feet apart along a line extending from the western bank of the river perpendicular to the direction of flow, with the westernmost location approximately 50 feet from the western shoreline.

Transect T-1, 1200 feet upstream of confluence with Meadow Brook

Locations: S-1W
S-1C
S-1E

Transect T-2, adjacent to location of monitoring well MW-101

Locations: S-2W
S-2C
S-2E

Transect T-3, adjacent to location of monitoring well MW-104

Locations: S-3W
S-3C
S-3E

(b) Meadow Brook Transects: One monitoring location shall be established on each transect. Monitoring locations shall be established near the center of the flow channel.

Transect T-4, adjacent to monitoring well MW-307

Location: S-4

Transect T-5, adjacent to monitoring well MW-341

Location: S-5

Transect T-6, mouth of Meadow Brook

Location: S-6

(c) Deckers Brook Transect: One monitoring location shall be established on each transect. Monitoring locations shall be established near the center of the flow channel.

Transect T-7, mouth of Deckers Brook

Location: S-7

(ii) Sampling Procedures --

(a) All samples shall be collected from each surface water monitoring location in accordance with the plan entitled "Compliance Monitoring Plan, Hartford Landfill", received on December 10, 1997 and revisions received on December 18, 1997, January 6, 1998 and January 23, 1998, and prepared by CRRA and approved by the Commissioner on January 26, 1998.

A discrete grab sample shall be collected at each monitoring location at a depth of one foot below the water surface, at one foot above the bottom sediment, and at mid-depth.

For water depths between three and four feet, two grab samples shall be collected: one at one foot below water surface, and one foot above bottom sediments. For water depths of less than three feet, one grab sample shall be collected at mid-depth.

(b) Grab samples collected at monitoring locations in Transects T-1, T-2 and T-3 listed in paragraph 3(A)(i)(a) above shall be composited prior to analysis as follows:

For monitoring locations established on Transect T-1 and T-3, a vertical composite sample shall be prepared at each monitoring location combining equal volumes of the near

surface, near bottom, and mid-depth grab samples.

For monitoring locations established on Transect T-2, three horizontal composite samples (near surface, near bottom, and mid-depth) shall be prepared by combining equal volumes of all samples collected at similar water depths at monitoring locations S2-W, S2-C, and S2-E.

(c) Grab samples collected at monitoring locations in Transects T-4, T-5, T-6 and T-7 as listed in paragraph 3(A)(i)(b) and 3(A)(i)(c) above shall be composited by combining equal volumes to result in a single vertical composite sample made of the one to three grab samples.

(d) Temperature (00011), pH (00400-012), Specific Conductance (0095-104), dissolved oxygen (00300-019), sample depth, and depth to bottom shall be measured at each sampling location at the time samples are collected in accordance with the schedules required by paragraph 3(A)(iv) or as required by paragraph (E)(vi). Stream flows (00061) shall also be determined at monitoring locations S-6 and S-7 by direct measurement or estimation and for the Connecticut River by gauge reports from the United States Geological Survey. Results shall be reported together with the results of analyses of the samples in accordance with paragraph 3(D).

(iii) Parameters -

(a)

	Parameter	Code No.	EPA Method:Minimum Level
1.	Total Dissolved Solids	(70295-019)	160.1
2.	Total Suspended Solids	(00530-019)	160.2
3.	BOD (5-day)	(00310-019)	405.1
4.	Specific Conductance	(00095-104)	120.1
5.	Chloride	(00940-019)	325.x
6.	Hardness (as $CaCO_3$)	(00900-019)	130.1 or 130.2
7.	pH	(00400-012)	150.1
8.	Ammonia (as N)	(00610-019)	350.2: 100 ppb
9.	Nitrate (as N)	(00620-019)	352.1
10.	Nitrite (as N)	(00615-028)	354.1
11.	Cadmium (Total)	(01027-028)	213.2: 0.5 ppb
12.	Copper (Total)	(01042-028)	220.2: 5 ppb
13.	Copper (Dissolved)	(01040-028)	220.2: 5 ppb
14.	Iron (Total)	(01045-019)	236.2: 5 ppb
15.	Lead (Total)	(01051-028)	239.2: 5 ppb

16.	Lead (Dissolved)	(01049-028)	239.2: 5 ppb
17.	Silver (Total)	(01077-028)	272.2: 1 ppb
18.	Zinc (Total)	(01092-028)	289.2: 10 ppb
19.	Zinc (Dissolved)	(01090-028)	289.2: 10 ppb
20.	Alkalinity	(00410-019)	310.1
21.	COD	(00341-019)	410.x
22.	Sulfate (Total)	(00945-019)	375.x
23.	Orthophosphorus, (Total)	(70507-019)	365.3
24.	Antimony (Total)	(01097-028)	204.2: 10 ppb
25.	Arsenic (Total)	(01002-028)	206.2: 5 ppb
26.	Barium (Total)	(01007-028)	208.2: 10 ppb
27.	Beryllium (Total)	(01012-028)	210.2: 1 ppb
28.	Chromium (Total)	(01034-028)	218.2: 5 ppb
29.	Chromium (Hexavalent)	(01032-028)	218.5: 5 ppb
30.	Cobalt (Total)	(01037-028)	219.2: 5 ppb
31.	Manganese (Total)	(01056-019)	243.2: 1 ppb
32.	Mercury (Total)	(71900-028)	245.1: 0.2 ppb
33.	Nickel (Total)	(01067-028)	249.2: 5 ppb
34.	Selenium (Total)	(01147-028)	270.2: 5 ppb
35.	Thallium (Total)	(01059-028)	279.2: 10 ppb
36.	Vanadium (Total)	(01087-028)	286.2: 10 ppb

x = Any method may be used.

(b) Parameters shall be analyzed in accordance with the specifications of paragraph 3(E) of this permit. Alternative analytical methods which have been approved by the U.S. Environmental Protection Agency in accordance with 40 CFR 136 may be substituted for the methods identified above provided the analysis of these parameters includes appropriate calibration points or check standards which demonstrate that these alternative methods are capable of quantification of the parameter at the concentration present in the sample without sample concentration.

(iv) Schedule --

(a) Surface water quality monitoring locations identified in paragraph 3(A)(i)(a) shall be sampled quarterly during the months of January, April, July, and October.

(b) Surface water quality monitoring locations identified in paragraphs 3(A)(i)(b) and 3(A)(i)(c) shall be sampled quarterly during the months of January, April, July, and October. The frequency of sampling shall be monthly beginning on or before the third year after issuance of this permit, or one year prior to the construction of the ground water flow

control system for phase II of the lined ash residue landfill, whichever is earlier.

(c) Surface water quality monitoring samples collected during the months of January, April, July and October shall be analyzed for the parameters listed in paragraph 3(A)(iii), items 1 through 36 inclusive.

(d) Surface water quality monitoring samples collected during the months of February, March, May, June, August, September, November, and December shall be analyzed for the parameters listed in paragraph 3(A)(iii), items 1 through 19 inclusive.

(B) Ground Water Quality Monitoring

(i) Locations - Ground water quality monitoring shall be conducted at the following locations as shown on Figure 2, entitled "Compliance Monitoring Location Plan, CRRA - Hartford Landfill, July 1997 Environmental Monitoring Event, Leibert Road, Hartford, Connecticut", prepared by HRP Associates, received by the Department on December 10, 1997, and approved by the Commissioner on January 26, 1998.

(a) Compliance Monitoring Wells:

C- 1:MW-340	
C- 2:MW-341M	
C- 3:MW-341B	Proposed bedrock monitoring well
C- 4:MW-342M	
C- 5:MW-342B	Proposed bedrock monitoring well
C- 6:MW-14B	
C- 7:MW-103B	Proposed bedrock well SE of existing landfill
C- 8:MW-7B	Proposed bedrock monitoring well on Southeast corner of existing landfill
C- 9:PZ-AI	Piezometer South of existing landfill
C-10:PZ-AE	Piezometer South of existing landfill
C-11:PZ-BI	Piezometer South of existing landfill
C-12:PZ-BE	Piezometer South of existing landfill
C-13:PZ-CI	Piezometer South of existing landfill
C-14:PZ-CE	Piezometer South of existing landfill
C-15:PZ-DI	Piezometer West of existing landfill
C-16:PZ-DE	Piezometer West of existing landfill
C-17:PZ-EI	Piezometer West of existing landfill
C-18:PZ-EE	Piezometer West of existing landfill
C-19:PZ-FI	Piezometer West of existing landfill
C-20:PZ-FE	Piezometer West of existing landfill
C-21:PZ-GI	Piezometer West of proposed landfill, Phase I

C-22:PZ-GE	Piezometer West of proposed landfill, Phase I
C-23:PZ-HI	Piezometer West of proposed landfill, Phase I
C-24:PZ-HE	Piezometer West of proposed landfill, Phase I
C-25:PZ-II	Piezometer North of proposed landfill, Phase I
C-26:PZ-IE	Piezometer North of proposed landfill, Phase I
C-27:PZ-JI	Piezometer North of proposed landfill, Phase I
C-28:PZ-JE	Piezometer North of proposed landfill, Phase I

(b) Plume Characterization Wells:

W- 1:MW-307M
W- 2:MW-16S
W- 3:MW-16M
W- 4:MW-308M
W- 5:MW-309M
W- 6:MW-15-87
W- 7:MW-14-87
W- 8:MW-311M
W- 9:MW-13
W-10:MW-106
W-11:MW-101
W-12:MW-102
W-13:MW-103
W-14:PZ-AI (also C-9)
W-15:MW-312
W-16:MW-210
W-17:MW-7

(c) The following wells have also been designated as Surface Water Protection Wells:

C- 1:MW-340
W- 1:MW-307M
W- 2:MW-16S
W- 4:MW-308M
W- 5:MW-309M
W- 7:MW-14-87
W- 8:MW-311M
W- 9:MW-13
W-10:MW-106
W-11:MW-101
W-12:MW-102
W-13:MW-103
SW-1:MW-104
SW-2:PZ-AE (also C-10)

(d) The following well has been designated as a dedicated dioxin sampling well:

D-1:MW-DX (stainless steel well located approximately 5 feet from MW-106)

(ii) Parameters -

	Parameter	Code No.	EPA Method : Minimum Level
1.	Total Dissolved Solids	(70295-019)	160.1
2.	Total Suspended Solids	(00530-019)	160.2
3.	Alkalinity	(00410-019)	310.1
4.	COD	(00341-019)	410.x
5.	Iron (Total)	(01045-019)	236.2: 5 ppb
6.	Manganese (Total)	(01056-019)	243.2: 1 ppb
7.	Specific Conductance	(00095-104)	120.1
8.	Nitrate (as N)	(00620-019)	352.1
9.	Chloride	(00940-019)	325.x
10.	Hardness (as $CaCO_3$)	(00900-019)	130.1 or 130.2
11.	pH	(00400-012)	150.1
12.	Ammonia (as N)	(00610-019)	350.2: 100 ppb
13.	Sodium	(00929-019)	
14.	Potassium	(00937-019)	
15.	All inorganics identified in Appendix I of 40 CFR Part 258 of the Federal Register, Vol. 56, No. 196, October 9, 1991, beginning page 51032 using EPA method 6010.		
16.	Volatile Organic Compounds identified in Appendix I of 40 CFR Part 258 of the Federal Register, Vol. 56, No. 196, October 9, 1991, beginning page 51032 using EPA method 8260		
17.	Beginning the first quarter after the Commissioner's approval of the report required under paragraph 3(C)(iv), any supplemental parameters identified in accordance with the requirements of paragraph 3(C).		
18.	Dioxin and Furans		

x = Any method may be used

(iii) Schedule for Ground Water Quality Monitoring - The ground water quality monitoring program shall begin the first scheduled quarterly sampling period after issuance of this permit. The permittee shall certify to the Commissioner that all monitoring wells, piezometers, dedicated sampling devices and associated appurtenances have been installed. Thereafter, with the exception of the piezometers identified in paragraph 3(B)(i)(a) as numbers C- 9 to C-28, the ground water quality monitoring locations in paragraph 3(B)(i) shall be conducted four times per year in accordance with the following schedule unless otherwise specified:

Sampling Periods

January
April
July
October

(a) Each ground water sample collected from the monitoring wells designated in paragraph 3(B)(i)(a) as C-2, C-3, C-4, C-5, C-6, C-7, and C-8 shall be analyzed for the parameters identified in paragraph 3(B)(ii), items 1 through 17.

(b) Each ground water sample collected from the monitoring wells designated in paragraph 3(B)(i)(b) as W-3, W-6, W-14 and W-17 shall be analyzed for the parameters listed in paragraph 3(B)(ii), items 1 through 16.

(c) Each ground water sample collected from the monitoring wells designated in paragraph 3(B)(i)(b) as W-15 and W-16 shall be analyzed for the parameters identified in Appendix II of 40 CFR Part 258 of the Federal Register, Vol. 56, No. 196, October 9, 1991, beginning page 51033, and the parameters listed in paragraph 3(B)(ii), items 1 through 14 for only two consecutive quarterly sampling periods beginning the first scheduled sampling period after issuance of the permit and ending after the second scheduled quarterly sampling period.

(d) Each ground water sample collected from the monitoring wells designated in paragraphs 3(B)(i)(a), and 3(B)(i)(c) as C-1 shall be analyzed for the parameters identified in paragraph 3(B)(ii), items 13, 14, 16 and 17, and the parameters identified in paragraph 3(A)(ii), items 1 through 36, with the exception of item 3.

(e) Each ground water sample collected from the monitoring wells designated in paragraphs 3(B)(i)(b), and 3(B)(i)(c) as W-1, W-2, W-4, W-5, W-7, W-8, W-9, W-10, W-11, W-12, W-13, SW-1, and SW-2, shall be analyzed for the parameters identified in paragraph 3(B)(ii), items 13, 14, and 16, and the parameters identified in paragraph 3(A)(ii), items 1 through 36, with the exception of item 3.

(f) Each groundwater sample collected from the monitoring well designated in paragraph 3(B)(i)(d) as D-1 should be analyzed on an annual basis during the July sampling event for the parameters in paragraph 3(B)(ii), item 18.

(iv) Schedule for Monitoring Piezometers - The ground water monitoring program for the piezometers shall begin 30 days after issuance of the permit. Piezometers identified in paragraph 3(B)(i)(a) as numbers C- 9 to C-28 shall be monitored for ground water

elevations on a monthly basis for a period of a minimum of twelve (12) months after notification in writing to the Commissioner that a state of equilibrium has been reached. Thereafter the monitoring frequency shall be quarterly in accordance with paragraph 3(B)(iii).

(v) Sampling Conditions - Water level elevation (C0137) shall be measured at all ground water monitoring locations in paragraph 3(B)(i) prior to each sample collection and shall be reported together with the results of analyses of the sample in accordance with paragraph 3(D).

The samples shall be collected from each ground water monitoring location in accordance with the plan entitled "Compliance Monitoring Plan, Hartford Landfill", dated December 1997, prepared by CRRA, received on December 10, 1997 and revisions received December 18, 1997, January 6, 1998 and January 23, 1998, and approved by the Commissioner on January 26, 1998.

(C) Supplemental Ground Water Quality Monitoring

(i) Location - Supplemental ground water quality monitoring shall be conducted at the following locations identified in paragraph 3(B)(i).

1. W- 10:MW-106
2. W- 11:MW-101
3. W- 12:MW-102
4. W- 13:MW-103
5. W- 17:MW-7
6. SW- 1:MW-104

(ii) Schedule - Supplemental ground water quality monitoring shall be conducted for two consecutive quarterly sampling periods beginning the first scheduled quarterly sampling period after permit issuance and ending after the second scheduled quarterly sampling period.

(iii) Parameters - Samples collected for supplemental monitoring shall be analyzed for the compounds identified in Appendix II of 40 CFR Part 258 of the Federal Register, Vol. 56, No. 196, October 9, 1991, beginning page 51033.

(iv) Subsequent supplemental monitoring - On or before sixty (60) days after the second supplemental ground water quality monitoring event, the permittee shall submit for the review and approval of the Commissioner a report describing the results of monitoring in conformance with Appendix II of CFR Part 258 of the Federal Register, Vol. 56, No. 196, October 9, 1991 required by this paragraph, and a plan for amending the ground water quality monitoring parameters at the compliance monitoring wells C-1 to C-8 identified in paragraph 3(B)(i)(a), and schedule listed in paragraphs 3(B)(iii)(a) and 3(B)(iii)(d) to include Appendix II compounds detected.

(v) Sampling conditions - The samples shall be collected from each ground water monitoring location identified in paragraph 3(C)(i) in accordance with the plan entitled "Compliance Monitoring Plan, Hartford Landfill", received on December 10, 1997 and revisions received on December 18, 1997, January 6, 1998 and January 23, 1998, prepared by CRRA, and approved by the Commissioner on January 26, 1998.

(D) Reporting

(i) The results of all sampling and analyses required by this permit, unless otherwise specified in writing by the Commissioner, shall be reported in accordance with the following schedule:

Reporting Dates

March 15
June 15
September 15
December 15

(ii) The results of all analyses and measurements required by this permit shall, unless otherwise specified in writing by the Commissioner, be reported by the Permittee to both the Bureau of Waste Management and the Bureau of Water Management (Attention: Landfill Monitoring Coordinator) of the Department of Environmental Protection at 79 Elm Street, Hartford, Connecticut 06106-5127. An additional copy of each report shall be submitted by the Permittee to the Aquatic Toxicology section of the Water Management Bureau.

(iii) The results of all analyses and measurements required by this permit shall also be reported to the Health Officer of the City of Hartford.

(E) Sample Analysis

(i) All sample analyses required by this permit shall be performed by a laboratory certified for such analyses by the Connecticut Department of Public Health and Addiction Services or in advance of any use, a laboratory approved in writing by the Commissioner.

(ii) Analytical results for each parameter shall be reported together with their method detection limits. The value of each parameter shall be reported to the maximum level of accuracy and precision possible. Failure to submit data in accordance with the procedures and protocols set forth in this permit shall constitute a permit violation.

(iii) Analyses required by paragraphs 3(A), 3(B), 5 and 6 shall be performed using

the methods specified unless an alternative method has been specifically approved in writing by the Commissioner for monitoring at this facility. Failure to use the analytical method specified or approved by the Commissioner shall constitute a permit violation.

(iv) Monitoring required by paragraphs 3(A) and 3(B) which specify the use of analytical methods in paragraph 3(A)(iii)(a) must be conducted to achieve the minimum levels for each of the parameters, where identified, unless an alternative method that is capable of achieving the minimum levels has been specifically approved in writing by the Commissioner.

(v) The minimum levels specified in paragraph 3(A)(iii)(a) represent the concentration at which quantification must be achieved and verified during the chemical analyses for these compounds. Analyses for these compounds must include calibration points at least as low as the specified minimum level. Check standards within ten percent of the specified minimum level may be used in lieu of a calibration point equal to the minimum level.

(vi) If any sample analysis indicates that quantification for a particular parameter can not be verified at or below the specified minimum level, a second sample shall be collected and analyzed for that parameter according to the above specified methodology as soon as practicable but no later than thirty (30) days following collection of the sample for which the quantification at or below the minimum level was not verified. The results of the first and subsequent sample analyses shall be submitted to the Commissioner verifying that the appropriate methodology was employed, the minimum level was achieved for quality-control samples and that failure to quantify the parameter at or below the minimum level specified for the analysis was a result of matrix effects which could not be compensated for as part of sample analysis allowed pursuant to 40 CFR Part 136.

(vii) If any three (3) samples collected in a twelve-month period indicate that the specified minimum level was not achieved for a particular parameter when using the specified test methodology, the permittee shall submit a report for the review and approval of the Commissioner which justifies and defines the matrix effect upon analyses for that parameter, identifies the level at which quantification can be verified and recommends modification to the method or an alternative method that is sufficiently sensitive and free of the identified matrix effect.

4. Zone of Influence Compliance Monitoring - The Permittee shall operate and maintain a ground water flow control system in accordance with the compliance monitoring plan entitled "Compliance Monitoring Plan, Hartford Landfill", received on December 10, 1997 and revisions received on December 18, 1997, January 6, 1998 and January 23, 1998, prepared by CRRA, and approved by the Commissioner on January 26, 1998. The Permittee

shall follow the requirements of this section to determine whether the discharge of leachate has exceeded the boundaries of the permitted zone of influence. All sampling shall be conducted in accordance with the compliance monitoring plan.

(A) Background Data Base and Piezometer Monitoring -

(i) Background Data Base - The compliance ground water quality monitoring wells identified in paragraph 3(B)(i)(a) of this permit shall be sampled no less than thirty (30) day intervals for twelve months. Samples shall be analyzed for alkalinity, hardness, ammonia, chlorides, iron, manganese, sodium, potassium, and total dissolved solids. The results of all sampling and analyses during this twelve month period shall be reported in accordance with paragraph 3(D) of this permit. No later than 60 days after the collection of the final sample, a report shall be submitted for the review and approval of the Commissioner describing the results of all sampling and analyses performed required by this paragraph, proposing maximum background levels for all nine parameters, and recommending selection of at least four parameters for the zone of influence compliance monitoring program. These selected parameters will be designated as compliance parameters. The maximum background level is defined as the maximum measured concentration of each compliance parameter at each compliance well during the twelve month monitoring period.

(ii) Piezometer Monitoring - No later than 30 days after permit issuance, the permittee shall submit for the Commissioner's review and written approval a report describing the performance of the ground water flow control system, the difference in ground water elevations measured at each piezometer pair, and proposing the recommended minimum differential of ground water elevations at each piezometer pair location and a schedule for attaining the minimum differential. The minimum differential is defined as the minimum difference in ground water elevations established at each piezometer pair between the inside and outside of the ground water flow control system to assure that the zone of influence will not extend beyond the possession of the permittee.

(B) Exceedance -

(i) Any analytical result from any sample obtained from the compliance wells for each of the four compliance parameters which exceeds the maximum background level for that parameter as defined in paragraph 4(A)(i) shall constitute an exceedance.

(ii) Ground water elevations which are not maintained at the minimum differential at any piezometer pair as defined in paragraph 4(A)(ii) shall constitute an exceedance.

(C) Confirmed Exceedance -

(i) Any well for which an exceedance occurs shall be resampled within forty-five (45) days of the sampling event which established the exceedance and shall be analyzed for the parameter(s) causing the exceedance. If the second result is found to exceed the maximum background level for the same parameter(s), such result will constitute a confirmed exceedance. If the second result for the parameter(s) causing an exceedance does not exceed the maximum background level for that parameter, the zone of influence compliance monitoring program shall resume its normal quarterly schedule. If the next quarterly sampling result is found to exceed the maximum background level for the same parameter(s) at the same compliance well, such result will constitute a confirmed exceedance. The permittee shall assure that the results of all sampling necessary to confirm an exceedance is received from the laboratory no more than 30 days from the date of sample collection.

(ii) Any piezometer pair for which an exceedance occurs shall be resampled within fourteen (14) days of the sampling event which established the exceedance. If the second result is found not meeting the minimum differential, such result shall constitute a confirmed exceedance. If the second result is found to meet the minimum differential, the monitoring program shall resume its normal monitoring schedule. If the next monthly sampling result is found not meeting the minimum differential, such result shall constitute a confirmed exceedance.

(D) Within 7 days of becoming aware of an occurrence of a confirmed exceedance as defined in paragraph 4(C), the permittee shall notify the Commissioner in writing and within 60 days shall submit a report for the Commissioner's review and approval which explains the source and cause of the confirmed exceedance and provides a description of any extenuating circumstances and recommends steps to be taken to prevent such exceedances from recurring.

5. On a monthly basis the permittee shall conduct an inspection of the perimeter and side slopes of the existing 86-acre, unlined solid waste disposal area, and the 17-acre, Phase I ash residue disposal area ("the landfills"), the banks of surface waters, and the wetlands adjacent to the landfills to identify the presence of any leachate seeps or iron oxide precipitation. All persistent leachate seeps identified shall be sampled and analyzed for the parameters identified in paragraph 3(B)(ii), items 1 through 16. Persistent leachate seeps are defined as active discharges which have been identified at any one location in three consecutive inspection periods. The permittee shall, in accordance with the reporting schedule in paragraph 3(D) submit for the review and approval of the Commissioner a report which includes a map drawn to a scale of one inch equal to 200 feet showing the presence and location of all leachate seeps or iron oxide precipitation, describes their chemical composition, any sampling results, and the discharge rate, and which includes a plan for the

remediation of such seeps or iron oxide precipitation and a schedule for carrying out the remediation plan. The permittee shall conduct the remediation plan in accordance with the schedule approved by the Commissioner in writing.

6. In 1998, 2000, and 2002, during the months of July and August, a habitat assessment shall be conducted in accordance with the surface water and ground water monitoring plan entitled "Compliance Monitoring Plan, Hartford Landfill", received on December 10, 1997 and revisions received on December 18, 1997, January 6, 1998 and January 23, 1998, prepared by CRRA, and approved by the Commissioner on January 26, 1998. The habitat assessment shall include but not be limited to the following: at each surface water monitoring location identified in paragraph 3(A)(i), a description of physical characteristics and water quality; chemical analyses of sediment samples collected; and a survey of stream bank and submerged aquatic vegetation in and along that portion of Meadow Brook east of the railroad right of way, and a schedule for reporting the results of such assessment to the Commissioner. Sediment samples shall be analyzed for the following parameters:

   Arsenic (Total)
   Cadmium (Total)
   Chromium (Total)
   Copper (Total)
   Iron (Total)
   Lead (Total)
   Mercury (Total)
   Nickel (Total)
   Silver (Total)
   Zinc (Total)
   Percent Moisture
   Particle Size
   Total Organic Carbon
   Total Polyaromatic Hydrocarbons
   Total Polychlorinated Biphenyls
   Acid Volatile Sulfides

   Metals, with the exception of mercury, shall be analyzed using graphite furnace atomic absorption spectrophotometry. Mercury shall be analyzed using the cold vapor method.

   Report shall be submitted to the Aquatic Toxicity section of the Bureau of Water Management of the Department of Environmental Protection.

7. On or before January 1, 1999 and annually thereafter, a summary report of the monitoring and inspection program required by this permit shall be submitted for the Commissioner's review and written approval. The report shall include but not be limited to a) a map depicting all ground water and surface water monitoring locations, ground water withdrawal locations, and the locations of the collection, treatment, and conveyance of stormwater, leachate, and gas condensate; b) an evaluation of surface water and ground water quality,

and leachate quality and quantity, including graphical representation(s) of monitoring results; c) the condition of all monitoring wells and the need for repair or replacement of any wells; d) an evaluation of the extent and potential extent of the leachate discharge to ground water and whether any impact on the surface water quality of the Connecticut River, Meadow Brook or any other surface waters was detected or could reasonably be expected to occur; and e) an evaluation of the performance of the ground water flow control system and its ability to maintain possession of the zone of influence. The second annual report shall specifically include a summary of all surface and ground water monitoring results to date. The permittee may submit a written request for the Commissioner's review and approval a modification of the surface water and ground water quality monitoring program as warranted by the data collected and reported pursuant to the requirements of this permit.

8. For ground water, the zone of influence of the discharge from the Hartford Landfill, which is hereby permitted, shall not extend beyond property owned by the permittee or onto property whereby the right of possession of the zone of influence was not acquired by easement as approved by the Commissioner. The instrument establishing any easement shall, at a minimum, provide the following: (i) the permittee has the right to discharge pollutants to the ground water within the zone of influence; (ii) the permittee has the exclusive right to withdraw ground water from within the zone of influence; and (iii) the Municipality has the right to access the area of easement for the purposes of characterizing, monitoring, and remediating the ground water within the zone of influence. All such instruments establishing the right of possession shall be recorded on the land records of the Municipality.

   The zone of influence of the discharge is defined as the area of soil and ground water within which the treatment of the leachate discharge by soils and mixing of leachate with ground water occurs and could reasonably be expected to occur and, therefore, within which some degradation of ground water quality is anticipated to occur.

The permittee shall pay the annual compliance determination fee as set forth in the Regulations of Connecticut State Agencies including but not limited to Section 22a-430-7.

This permit is issued under Section 22a-430 of the Connecticut General Statutes and shall expire on February 6, 2028 .

The Commissioner reserves the right to make appropriate revisions to this permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under federal or state law. This permit as modified or reissued under this paragraph may also contain any other requirements of federal or state law then applicable.

This permit shall be subject to the following sections of the Regulations of Connecticut State

Agencies which are hereby incorporated into this permit:

Section 22a-430-3 General Conditions

(a)Definitions
(b)General
(c)Inspection and Entry
(d)Effect of a Permit
(e)Duty
(f)Proper Operation and Maintenance
(g)Sludge Disposal
(h)Duty to Mitigate
(i)Facility Modifications; Notification
(j)Monitoring, Records and Reporting Requirements
(k)Bypass
(l)Conditions Applicable to POTWs
(m)Effluent Limitation Violations (Upsets)
(n)Enforcement
(o)Resource Conservation
(p)Spill Prevention and Control
(q)Instrumentation, Alarms, Flow Recorders
(r)Equalization

22a-430-4 Procedures and Criteria

(a)Duty to Apply
(b)Duty to Reapply
(c)Application Requirements
(d)Preliminary Review
(e)Tentative Determination
(f)Draft Permits, Fact Sheets
(g)Public Notice, Notice of Hearing
(h)Public Comments
(i)Final Determination
(j)Public Hearings
(k)Submission of Plans and Specifications. Approval.
(l)Establishing Effluent Limitations and Conditions
(m)Case by Case Determinations
(n)Permit issuance or renewal
(o)Permit Transfer
(p)Permit revocation, denial or modification
(q)Variances
(r)Secondary Treatment Requirements
(s)Treatment Requirements for Metals and Cyanide
(t)Discharges to POTWs - Prohibitions

Your attention is especially drawn to the notification requirements of subsection (i)(2), (i)(3), (j)(6), (j)(9)(C), (j)(11)(C), (D), (E), and (F), (k)(3) and (4) and (l)(2) of Section 22a-430-3.

Entered as a Permit of the Commissioner of the Department of Environmental Protection on the 6th day of February, 1998.

Arthur J. Rocque, Jr.
Commissioner

PAMS Application No. 19950983
Application Nos. 88-357 & 90-496

Permit No. LF0000014

APPENDIX A

The Application

Proof of Publication provided by the Hartford Courant dated March 10, 1994, APP EX 1.

Application Summary Supplement Regarding the Permit Application Documents for the Proposed North Meadows Ash Landfill Expansion at the Hartford Landfill and DEP Comments. Dated March, 1994, revised to April 13, 1994 (Wehran Engineering Corporation, 3" 3-Ring Binder), APP EX 2.

Exhibit B: Development\Design Report Ash Monocells and Revised Operational and Management Plan. Dated May 1987, Rev. August, 1990 and August, 1993 (F&O, 20 pg - Bound), APP EX 4.

Exhibit C: Ash Leachate Treatability Review for CRRA for the Hartford Landfill Ash Residue Disposal Facility, Dated August, 1990, Rev. June 1993 (F&O, 1" - Bound), APP EX 5.

Exhibit D: Hydrogeological Investigation of the Hartford Landfill and Proposed Residue Disposal Site, Dated July 1990, as Ex. f, Rev. September, 1993 (F&O, 4" 3-Ring Binder), APP EX 6.

Exhibit F: SPDES Application for the Discharge of Leachate from the Existing and Proposed Landfill to Groundwater for Discharge to the MDC Sewer System, Hartford Landfill (Wehran, 1" - bound), APP EX 8.

Exhibit G(1): Stormwater Pollution Prevention Plan Hartford Landfill, Liebert Road, Hartford, CT Dated August, 1990 as NPDES Application, Rev. Aug. 1993, Rev. March, 1994 (Anchor, ½" - bound), APP EX 9.

Exhibit G(2): Stormwater Drainage and Design Computations - Hartford Landfill Phase 1 and 2, Liebert Road, Hartford, CT, Proposed Horizontal Expansion, Dated November, 1989 Stormwater Management Plan Ex. J., Rev. August 1993 (F&O 1" - bound), APP EX 10.

Exhibit I: Proposed Horizontal Expansion, Phase I and Phase II Hartford Landfill Drawings Dated June, 1990 as Ex. H Rev. August, 1993 (F&O, 21 - 30"x42" Sheets), APP EX 12.

Potentiometric Surface Contour Maps, 1":100' scale plans dated April, 1994 (F&O, 4 plates, 4A-4D), APP EX 13.

Groundwater Reclassification Request, Letter to Robert Smith (DEP) from Christopher Recchia (CRRA), dated March 18, 1994 (CRRA, 6 pages), APP EX 14.

1989 Annual Groundwater Summary for the Hartford Landfill by F&O, dated June, 1990, APP EX 18.

1990 Annual Groundwater Summary for the Hartford Landfill by F&O, dated June, 1991, APP EX 19.

1991 Annual Groundwater Summary for the Hartford Landfill by F&O, dated May, 1992, APP EX 20.

1992 Annual Groundwater Summary for the Hartford Landfill by F&O, dated May, 1993, APP EX 21.

NPDES (Sic SPDES) Permit Application for the Mid-Connecticut [Hartford] Landfill by F&O, dated October, 1988, APP EX 22a.

Reapplication for Permit DEP/WPC 064-072 for the Mid-Connecticut [Hartford] Landfill by F&O, dated March, 1989, APP EX 22b.

Supplement to the Discharge Permit Reapplication for the Mid-Connecticut Project [Hartford Landfill] by F&O, dated July, 1990, APP EX 22c.

Hydrogeologic Investigation for the Proposed Residue Disposal Site by F&O, dated July 1990, APP EX 23a.

Hydrogeologic Investigation for the Proposed Residue Disposal Site by F&O, dated July 1990. Appendices A-P, Plates 1-8, APP EX 23b.

Additional Submittals

Lease Agreement Amendment with the City of Hartford, dated December 29, 1995, includes drawings "Survey Showing Land Leased by CRRA ... Sheets 1& 2" by Fuss & O'Neill, revised November 21, 1995.

Letter from CRRA to CTDEP, Re: Amendment to Lease Agreement with City of Hartford, Hartford Landfill, dated June 18, 1997.

"Project Manual Contract Documents for Hartford Landfill - Groundwater Flow Control System, CRRA Contract No. 974120" prepared by EMCON for CRRA, dated February 14, 1997.

Incorporates the following documents:

"Technical Specification, Groundwater Collection and Pumping System at the Hartford Landfill" prepared by EMCON for CRRA, dated October 1996 with cover letter dated November 15, 1996.

"Operations and Maintenance Plan for the Groundwater Collection and Pumping System - Hartford Landfill - Hartford, Connecticut" prepared by EMCON for CRRA dated December 3, 1996.

"Engineering Design Report for the Groundwater Collection and Pumping System - Hartford Landfill - Hartford, Connecticut" prepared by EMCON for CRRA dated December 3, 1996.

"Connecticut Resource Recovery Authority, Hartford Landfill, Construction Plans for the Groundwater Collection System" prepared by EMCON, dated November 1996, revised January 1997.

"Project Manual Contract Documents for Hartford Landfill - Groundwater Collection and Pumping System, CRRA Contract No. 974117" prepared by EMCON for CRRA, dated January 30, 1997.

"Connecticut Resources Recovery Authority, Hartford Landfill, Preliminary Design Plans for the Groundwater Flow Control System" prepared by EMCON for CRRA, dated February 1997.

Operations and Maintenance Plan Revisions - Mixed Waste Landfill, dated December 16, 1996, includes Closure of Interim Ash Area and Program of Leachate Outbreaks & Seeps, dated November 1996.

Incorporates the following document:

"Summary of Proposed Program and Past Practices Associated with Inspections, Monitoring and Control of Leachate Outbreaks and Seeps at the Hartford Landfill" prepared by CRRA, dated November 1996.

Letter from Jim Law, Dept. of the Army, New England Division, Corps of Engineers, to Frank Venile, Greater Hartford Flood Control Commission, dated March 13, 1997.

Letter from CRRA to CTDEP, Re: Groundwater Flow Control System, dated March 27, 1997. (Revision to "Project Manual Contract Documents for Hartford Landfill - Groundwater Collection and Pumping System, CRRA Contract No. 974120" dated February 14, 1997.)

Letter from CRRA to CTDEP Re: Groundwater Flow Control System, Hartford Landfill, supplemental Information to letter dated March 27, 1997, dated April 24, 1997. (Revision to "Project Manual Contract Documents for Hartford Landfill - Groundwater Collection and Pumping System, CRRA Contract No. 974120" dated February 14, 1997.)

"Cutoff Wall - Site Plan, Groundwater Flow Control System, Hartford Landfill, Connecticut Resources Recovery Authority, Hartford, Connecticut" prepared by Woodward-Clyde Consultants, dated May 2, 1997. (Revision to "Project Manual Contract Documents for Hartford Landfill - Groundwater Collection and Pumping System, CRRA Contract No. 974120" dated February 14, 1997.)

"Construction Certification Report - Groundwater Flow Control System (including slurry wall) - Hartford Landfill", Volumes 1 and 2, prepared by EMCON for CRRA, dated November 1997.

Includes the following document as Appendix I of Volume 1:

"72 Hour Aquifer Pump Test, Groundwater Flow Modeling and Groundwater Control Alternatives for the Hartford Landfill" by Environmental Risk Limited dated November 1997.

"Addendum to the Operations and Maintenance Plan - Groundwater Control System - Hartford Landfill" Environmental Risk Limited dated November 1997. (Also located in Appendix F of letter dated November 24, 1997.

Letter from CRRA to Oswald Inglese, CTDEP, Re: Renewal of Groundwater Discharge Permit No. LF0000014, Hartford Landfill (Groundwater Flow Control System (GFCS)), dated November 24, 1997.

"Compliance Monitoring Plan, Hartford Landfill", received Decmeber 10, 1997 and revisions received on December 18, 1997, January 6, 1998, and January 23, 1998 and prepared by CRRA.

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATE PERMIT MODIFICATION

issued to

Permittee:

Connecticut Resources Recovery Authority
100 Constitution Plaza, 17th Floor
Hartford, CT 06103

Attn: Peter Egan

Location Address:

180 Leibert Road
Hartford, CT

Facility ID: 064-072 **Permit ID: LF0000014**

This permit modification is issued in accordance with section 22a-430 of Chapter 446k, Connecticut General Statutes ("CGS"), section 22a-430-4(p)(5) of the Regulations of Connecticut State Agencies ("RCSA") adopted thereunder, as amended.

Connecticut Resources Recovery Authority, ("Permittee"), shall comply with all conditions of Permit No. LF0000014 issued on February 6, 1998 with the following modifications:

Paragraph 2) is replaced in its entirety with the following:

2) The Hartford landfill Phase I lined Ash Residue Disposal Area shall be operated and maintained in accordance with the "Revised Operations and Management Plan, Hartford Landfill, including Vertical Expansion of Special Waste Disposal Area and Phase I lined Ash Residue Disposal Area", dated July 10, 2000, or any replacement for this plan as it may be approved by the Commissioner; and shall also be operated and maintained in accordance with all other permits required by regulation. All other areas of the Hartford landfill shall be operated in accord with all conditions of Permit No. LF0000014, issued on February 6, 1998, and operational plans referenced therein.

A new paragraph 9) is added as follows:

9) Leachate shall be monitored as follows:

(A) Lined Ash Residue Disposal Area

Leachate from the Phase I Lined Ash Residue Disposal Area leachate collection system shall be sampled at any point in the collection system that is representative of leachate from the entire Ash Residue Disposal Area, is prior to any co-mingling with other wastestreams, and is prior to the pH adjustment system. Samples shall be acquired in accord with the frequency and methods specified in Table B of State Pretreatment Permit SP0001412, except that grab samples shall also be obtained for field pH measurement. Leachate samples shall be analyzed for parameters specified in Table B of State Pretreatment Permit SP0001412, and for pH and total

Manganese. The results of all sampling required through this paragraph shall be included in all reports required by paragraph 3)(D) of Permit No. LF0000014. The annual summary reports required under paragraph 7) of Permit No. LF0000014 shall include all leachate sample results, summary flow volume statistics, and, beginning in 2002, a comparison of current results to prior year average results.

The Commissioner reserves the right to make appropriate revisions to the permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the Connecticut General Statutes or regulations adopted thereunder, as amended. The permit as modified or renewed under this paragraph may also contain any other requirements of the Connecticut General Statutes or regulations adopted thereunder which are then applicable.

All other terms and conditions of Permit No. LF0000014 issued on February 6, 1998 shall continue in full force and effect.

This modification is hereby issued on the May 28, 2002.

Arthur J. Rocque, Jr.
Commissioner

AJR/KRF

Permit No. LF0000014
Sent RRR

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PRETREATMENT PERMIT

issued to

Connecticut Resources Recovery Authority (CRRA)
100 Constitution Plaza, 6th Floor
Hartford, CT 06103-1722

Location Address:
180 Leibert Road
Hartford

Facility ID: 064-072 **Permit ID:** SP0001412 **Permit Expires:** October 1, 2012

SECTION 1: GENERAL PROVISIONS

(A) This permit is reissued in accordance with section 22a-430 of Chapter 446k, Connecticut General Statutes ("CGS"), and Regulations of Connecticut State Agencies ("RCSA") adopted thereunder, as amended, and a modified Memorandum of Agreement (MOA) dated June 3, 1981, by the Administrator of the United States Environmental Protection Agency which authorizes the State of Connecticut to administer a Pretreatment Program pursuant to 40 CFR Part 403.

(B) Connecticut Resources Recovery Authority (CRRA), ("Permittee"), shall comply with all conditions of this permit including the following sections of the RCSA which have been adopted pursuant to section 22a-430 of the CGS and are hereby incorporated into this permit. Your attention is especially drawn to the notification requirements of subsection (i)(2), (i)(3), (j)(1), (j)(6), (j)(8), (j)(9)(C), (j)(11)(C), (D), (E), and (F), (k)(3) and (4) and (l)(2) of section 22a-430-3.

Section 22a-430-3 General Conditions

(a) Definitions
(b) General
(c) Inspection and Entry
(d) Effect of a Permit
(e) Duty
(f) Proper Operation and Maintenance
(g) Sludge Disposal
(h) Duty to Mitigate
(i) Facility Modifications; Notification
(j) Monitoring, Records and Reporting Requirements
(k) Bypass
(l) Conditions Applicable to POTWs
(m) Effluent Limitation Violations (Upsets)
(n) Enforcement
(o) Resource Conservation
(p) Spill Prevention and Control
(q) Instrumentation, Alarms, Flow Recorders
(r) Equalization

Section 22a-430-4 Procedures and Criteria

(a) Duty to Apply
(b) Duty to Reapply
(c) Application Requirements
(d) Preliminary Review
(e) Tentative Determination
(f) Draft Permits, Fact Sheets
(g) Public Notice, Notice of Hearing
(h) Public Comments
(i) Final Determination
(j) Public Hearings
(k) Submission of Plans and Specifications. Approval.
(l) Establishing Effluent Limitations and Conditions

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(m) Case by Case Determinations
(n) Permit issuance or renewal
(o) Permit Transfer
(p) Permit revocation, denial or modification
(q) Variances
(r) Secondary Treatment Requirements
(s) Treatment Requirements for Metals and Cyanide
(t) Discharges to POTWs - Prohibitions

(C) Violations of any of the terms, conditions, or limitations contained in this permit may subject the Permittee to enforcement action, including but not limited to, seeking penalties, injunctions and/or forfeitures pursuant to applicable sections of the CGS and RCSA. Specifically, civil penalties of up to twenty-five thousand dollars may be assessed per violation per day.

(D) Any false statement in any information submitted pursuant to this permit may be punishable as a criminal offense under section 22a-438 or 22a-131a of the CGS or in accordance with section 22a-6, under section 53a-157b of the CGS.

(E) The authorization to discharge under this permit may not be transferred without prior written approval of the Commissioner of Environmental Protection ("the Commissioner"). To request such approval, the Permittee and proposed transferee shall register such proposed transfer with the Commissioner at least 30 days prior to the transferee becoming legally responsible for creating or maintaining any discharge which is the subject of the permit transfer. Failure by the transferee to obtain the Commissioner's approval prior to commencing such discharge(s) may subject the transferee to enforcement action for discharging without a permit pursuant to applicable sections of the CGS and RCSA.

(F) Nothing in this permit shall relieve the Permittee of other obligations under applicable federal, state and local law.

(G) An annual fee shall be paid for each year this permit is in effect as set forth in section 22a-430-7 of the Regulations of Connecticut State Agencies.

SECTION 2: DEFINITIONS

(A) The definitions of the terms used in this permit shall be the same as the definitions contained in section 22a-423 of the CGS and section 22a-430-3(a) and 22a-430-6 of the RCSA.

(B) In addition to the above the following definitions shall apply to this permit:

"----" in the limits column on the monitoring table means a limit is not specified but a value must be reported on the DMR.

"Average Monthly Limit" means the maximum allowable "Average Monthly Concentration" as defined in section 22a-430-3(a) of the RCSA when expressed as a concentration (e.g. mg/l); otherwise, it means "Average Monthly Discharge Limitation" as defined in section 22a-430-3(a) of the RCSA.

"Daily Concentration" means the concentration of a substance as measured in a daily composite sample, or the arithmetic average of all grab sample results defining a grab sample average.

"Daily Quantity" means the quantity of waste generated during an operating day.

"Instantaneous Limit" means the highest allowable concentration of a substance as measured by a grab sample, or the highest allowable measurement of a parameter as obtained through instantaneous monitoring.

"Maximum Daily Limit" means the maximum allowable "Daily Concentration" (defined above) when expressed as a concentration (e.g. mg/l); otherwise, it means the maximum allowable "Daily Quantity" as defined above unless it is expressed as a flow quantity. If expressed as a flow quantity it means "Maximum Daily Flow" as defined in section 22a-430-3(a) of the RCSA.

"NA" as a Monitoring Table abbreviation means "not applicable".

"NR" as a Monitoring Table abbreviation means "not required".

"Quarterly", in the context of a sampling frequency, means sampling is required in the months of January, April, July, and October.

"Range During Month" or "RDM", as a sample type, means the lowest and the highest values of all of the monitoring data for the reporting month.

SECTION 3: COMMISSIONER'S DECISION

(A) The Commissioner has made a final determination and found that the continuance of the existing system to treat the discharge will protect the waters of the state from pollution. The Commissioner's decision is based on Application No. 200203214 for permit reissuance, and modification, received on July 31, 2002 and the administrative record established in the processing of that application.

(B) The Commissioner hereby authorizes the Permittee to discharge in accordance with the provisions of this permit, the above referenced application, and all approvals issued by the Commissioner or the Commissioner's authorized agent for the discharges and/or activities authorized by, or associated with, this permit.

(C) The Commissioner reserves the right to make appropriate revisions to the permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions that may be authorized under the Federal Clean Water Act or the Connecticut General Statutes or regulations adopted thereunder, as amended. The permit as modified or renewed under this paragraph may also contain any other requirements of the Federal Clean Water Act or Connecticut General Statutes or regulations adopted thereunder which are then applicable.

SECTION 4: EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

(A) The discharges shall not exceed and shall otherwise conform to specific terms and conditions listed below. The discharges are restricted by, and shall be monitored in accordance with, the tables below.

Table A

Discharge Serial Number: 001-A | **Monitoring Location: 1**

Wastewater Description: Ash Leachate

Monitoring Location Description: in effluent pipe after pH adjustment

Discharge is to: The MDC Hartford Sewage Treatment Facility (Facility ID. 064-001) via its conveyance system.

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING		
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency [2]	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/ Reporting Frequency[2]	Sample Type or measurement to be reported
Flow, Instantaneous	gpm	NA	NA	NR	NA	-----	Monthly	Grab
Flow, Maximum Daily[1]	gpd	NA	190,000	Daily/Monthly	Daily Flow	NA	NR	NA
pH, Continuous	S.U.	NA	NA	NR	NA	6-10	Monthly	RDM

Footnotes:

[1] For this parameter the Permittee shall maintain at the facility a record of the Total Daily Flow for each day of discharge and shall report the Maximum Daily Flow for each month and the instantaneous flow at the time of sample collection.

[2] The first entry in this column is the 'Sample Frequency'. If this entry is not followed by a 'Reporting Frequency' and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.

Table

Discharge Serial Number: 001-A | **Monitoring Location: G**

Wastewater Description: Ash Leachate

Monitoring Location Description: influent to pH adjustment tank

Discharge is to: The MDC Hartford Sewage Treatment Facility (Facility ID. 064-001) via its conveyance system.

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING		
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency [1]	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/ Reporting Frequency[1]	Sample Type or measurement to be reported
Alkalinity	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Aluminum, Total	mg/l	NA	NA	NR	NA	-----	Monthly	Grab
Arsenic, Total	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Barium, Total	mg/l	NA	NA	NR	NA	-----	Monthly	Grab
Cadmium, Total	mg/l	NA	NA	NR	NA	-----	Monthly	Grab
Chloride	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
COD	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Conductivity	umho/cm	NA	NA	NR	NA	-----	Quarterly	Grab
Copper, Total	mg/l	NA	NA	NR	NA	-----	Monthly	Grab
Copper, Dissolved	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Cyanide, Total	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Hydrocarbon, Total Volatile (Method 8260 plus 2-Chloroethyl Vinyl Ether, Chloromethyl Methyl Ether, 1-Chlorohexane, Trans-1-3-Dichloropropene, and Trichlorofluoromethane	mg/l	NA	NA	NR	NA	-----	Monthly	Grab
Iron, Dissolved	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Iron, Total	mg/l	NA	NA	NR	NA	-----	Monthly	Grab
Lead, Total	mg/l	NA	NA	NR	NA	-----	Monthly	Grab
Manganese, Dissolved	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Mercury, Total	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Nickel, Total	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Nitrogen, Ammonia	mg/l	NA	NA	NR	NA	-----	Monthly	Grab
Nitrogen, Nitrate	mg/l	NA	NA	NR	NA	-----	Monthly	Grab
Potassium	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Sodium	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Solids, Total Suspended	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Solids. Total Dissolved	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Zinc, Total	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab

Footnotes:

[1] The first entry in this column is the 'Sample Frequency'. If this entry is not followed by a 'Reporting Frequency' and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.

Table

Discharge Serial Number: 001-B | **Monitoring Location: 1**

Wastewater Description: Municipal Solid Waste Leachate (Plume Control)

Monitoring Location Description: at manhole prior to mixing with DSN001-A (Ash Leachate)

Discharge is to: The MDC Hartford Sewage Treatment Facility (Facility ID. 064-001) via its conveyance system.

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING		
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency [2]	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/ Reporting Frequency[2]	Sample Type or measurement to be reported
Alkalinity	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Aluminum, Total	mg/l	NA	NA	NR	NA	-----	Monthly	Grab
Arsenic, Total	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Barium, Total	mg/l	NA	NA	NR	NA	-----	Monthly	Grab
Cadmium, Total	mg/l	NA	NA	NR	NA	-----	Monthly	Grab
Chloride	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
COD	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Conductivity	umho/cm	NA	NA	NR	NA	-----	Quarterly	Grab
Copper, Total	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Copper, Dissolved	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Cyanide, Total	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Flow, Instantaneous[1]	gpm	NA	NA	NR	NA	-----	Monthly	Grab
Flow, Maximum Daily[1]	gpd	NA	173,000	Daily/Monthly	Daily Flow	NA	NR	Grab
Hydrocarbon, Total Volatile (Method 8260 plus 2-Chloroethyl Vinyl Ether, Chloromethyl Methyl Ether, 1-Chloro -hexane, Trans-1-3-Dichloropropene, and Trichlorofluoromethane)	mg/l	NA	NA	NR	NA	-----	Monthly	Grab
Iron, Dissolved	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Iron, Total	mg/l	NA	NA	NR	NA	-----	Monthly	Grab
Lead, Total	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Manganese, Dissolved	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Mercury, Total	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Nickel, Total	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Nitrogen, Ammonia	mg/l	NA	NA	NR	NA	-----	Monthly	Grab
Nitrogen, Nitrate	mg/l	NA	NA	NR	NA	-----	Monthly	Grab
pH, Continuous	S.U.	NA	NA	NR	NA	-----	Monthly	RDM
Potassium	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Sodium	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Solids, Total Suspended	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Solids. Total Dissolved	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab
Zinc, Total	mg/l	NA	NA	NR	NA	-----	Quarterly	Grab

Footnotes:

[1] For this parameter the Permittee shall maintain at the facility a record of the Total Daily Flow for each day of discharge and shall report the Maximum Daily Flow for each month and the instantaneous flow at the time of sample collection.

[2] The first entry in this column is the 'Sample Frequency'. If this entry is not followed by a 'Reporting Frequency' and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.

(B) All samples shall be comprised of only those wastewaters described in this schedule; therefore, samples shall be taken prior to combination with wastewaters of any other type and after all approved treatment units, if applicable. All samples taken shall be representative of the discharge during standard operating conditions.

(C) In cases where limits and sample type are specified but sampling is not required, the limits specified shall apply to all samples which may be collected and analyzed by, the Department of Environmental Protection personnel, the Permittee, or other parties.

(D) The limits imposed on the discharges listed in this permit take effect on the issuance date of this permit, hence any sample taken after this date which, upon analysis, shows an exceedance of permit limits will be considered non-compliance.

The monitoring requirements of this permit begin on the date of issuance of this permit if the issuance date is on or before the 12th day of a month. For permits issued on or after the 13th day of a month, monitoring requirements begin the 1st day of the following month.

SECTION 5: SAMPLE COLLECTION, HANDLING AND ANALYTICAL TECHNIQUES AND REPORTING REQUIREMENTS

(A) Chemical analyses to determine compliance with effluent limits and conditions established in this permit shall employ methods approved by the Environmental Protection Agency pursuant to 40 CFR 136 unless an alternative method has been approved in writing in accordance with 40 CFR 136.4.

(B) All metals analyses identified in this permit shall refer to analyses for Total Recoverable Metal as defined in 40 CFR136 unless otherwise specified.

(C) The results of chemical analysis required above shall be entered on the Discharge Monitoring Report (DMR), provided by this office, and reported to the Bureau of Materials Management and Compliance Assurance at the following address. The report shall also include a detailed explanation of any violations of the limitations specified. The DMR shall be received at this address by the last day of the month following the month in which samples are taken.

Bureau of Materials Management and Compliance Assurance
Water Permitting and Enforcement Division (Attn: DMR Processing)
Connecticut Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

(D) If this permit requires monitoring of a discharge on a calendar basis (e.g. Monthly, quarterly, etc.) but a discharge has not occurred within the frequency of sampling specified in the permit, the Permittee must submit the DMR as scheduled, indicating "NO DISCHARGE". For those permittees whose required monitoring is discharge dependent (e.g. per batch), the minimum reporting frequency is monthly. Therefore, if there is no discharge during a calendar month for a batch discharge, a DMR must be submitted indicating such by the end of the following month.

(E) Copies of all DMRs shall be submitted concurrently to the local Water Pollution Control Authority(ies) ("WPCA") involved in the treatment and collection of the permitted discharge.

SECTION 6: RECORDING AND REPORTING OF VIOLATIONS, ADDITIONAL TESTING REQUIREMENTS

(A) If any sample analysis indicates that an effluent limitation specified in Section 4 of this permit has been exceeded, a second sample of the effluent shall be collected and analyzed for the parameter(s) in question and the results reported to the Bureau of Materials Management and Compliance Assurance (Attn: DMR Processing) within 30 days of the exceedance.

(B) The Permittee shall immediately notify the Bureau of Materials Management and Compliance Assurance and the local WPCA of all discharges that could cause problems to the Publicly Owned Treatment Works ("POTW"), including but not limited to slug loadings of pollutants which may cause a violation of the POTW's NPDES permit, or which may inhibit or disrupt the POTW, its treatment processes or operations, or its sludge processes, use or disposal.

(C) In addition to the notification requirements specified in Section 1B of this permit, if any sampling and analysis of the discharge performed by the Permittee indicates a violation of limits specified in Section 4 of this permit, the Permittee shall notify the Bureau of Materials Management and Compliance Assurance within 24 hours of becoming aware of the violation.

SECTION 7: COMPLIANCE CONDITIONS

The Commissioner may provide public notification, in a newspaper of general circulation in the area of the respective POTW, of permittees that at any time in the previous twelve months were in significant noncompliance with the provisions of this permit. For the purposes of this provision, a permittee is in significant noncompliance if its violation(s) meet(s) one or more of the following criteria:

- **Chronic violations:** Those in which sixty-six percent or more of all measurements taken during a six-month period exceed the Average Monthly or Maximum Daily Limit(s) for the same pollutant parameter.
- **Technical Review Criteria violations:** Those in which 33% or more of all of the measurements for each pollutant parameter taken during a six-month period equal or exceed the average or maximum daily limits multiplied by (1.4 for BOD, TSS, oil and grease) or (1.2 for all other pollutants except pH).
- **Compliance Schedule:** Failure to meet within 90 days after the schedule date, a compliance schedule milestone contained in or linked to a respective permit.
- **Noncompliance Reporting:** Failure to accurately report noncompliance in accordance with provisions identified in Section 6 of this permit.
- **Discretionary:** Any other violation of an effluent limit that the Department determines has caused, alone or in combination with other discharges, a violation of the POTW's NPDES permit, inhibition or disruption of the POTW, its treatment processes or operations, or its sludge processes, use or disposal.
- **Imminent Endangerment:** Any discharge of pollutant(s) that has caused imminent endangerment to human health, welfare or to the environment.

This permit is hereby issued on 10/17/07.

Gina McCarthy
Commissioner

GM/GLL

cc: MDC Hartford POTW

CERTIFIED TO BE A TRUE COPY
Connecticut Department of
Environmental Protection

NAME: Theresa Iacone
TITLE: Processing Tech.

SPECIFICATIONS FOR PERFORMING DIKE MONITORING SURVEY HARTFORD LANDFILL

PREPARED FOR

CONNECTICUT RESOURCES RECOVERY AUTHORITY

PREPARED BY
CONKLIN & SOROKA, INC.
1484 HIGHLAND AVENUE, UNIT 4B
CHESHIRE. CT 06410

FEBRUARY 2001

Specifications for Performing Dike Monitor Survey

The purpose of these specifications is to establish methods and procedures to run the horizontal and vertical control of the monitoring monuments along the dike to the east of the Hartford Landfill.

The field methods and procedures are developed such that the values obtained are based upon the most effective use of today's equipment and software.

— HORIZONTAL CONTROL —

The field angles and distances will be measured with a total station that measures angles to 3 seconds and distances with a standard mean error of 5 mm ± 5 ppm or less.. All angles are to be measured twice in the direct and reverse positions, with an angular closure of 2 seconds. All distances are to be measured twice with the total station in the direct and reverse position. The mean average of the measured distances should not exceed .01 of a foot.

The horizontal control to be held consists of 4 random monuments on the northbound lane of Interstate 91 and 4 random points, 3 located on Jennings Road and one located on Weston Street (see Attachment "A" for general monument locations) and Attachment "B" for ties and coordinates to the control monuments.

The monitoring monuments are concrete monuments with metal caps located on the dike just to the east of the chain link fence around the landfill. All monitoring monuments are to be occupied and incorporated into the balancing of the traverse.

The traverse is to be balanced utilizing a least squares program with the following estimated error parameters.

	Est. Error
Control monuments	0.005
Distances	0.002
Angles	4.0 seconds
Set-up error	0.003

The coordinates provided are based upon the North American Datum of 1983 projected onto the Connecticut Coordinate System. The bases for the coordinates are Random Monuments A-4485; A-4486; A-4491 and A-4492 along the east side of Interstate 91.

The adjustment of the horizontal traverse should pass at the 95% significance level.

The traverse should also meet the Horizontal Accuracy Class of an A-1 Survey 1:10,000 as outlined in the current Standards for Surveys and Maps.

— VERTICAL CONTROL —

The elevations will be run trigonometrically utilizing a Total Station. Changes will be noted in the direct and reverse positions. Elevations will be referenced to temporary benchmark MH-X with an elevation of 49.492 and BM CHD with an elevation of 32.490. See Attachment "A" for monument locations.

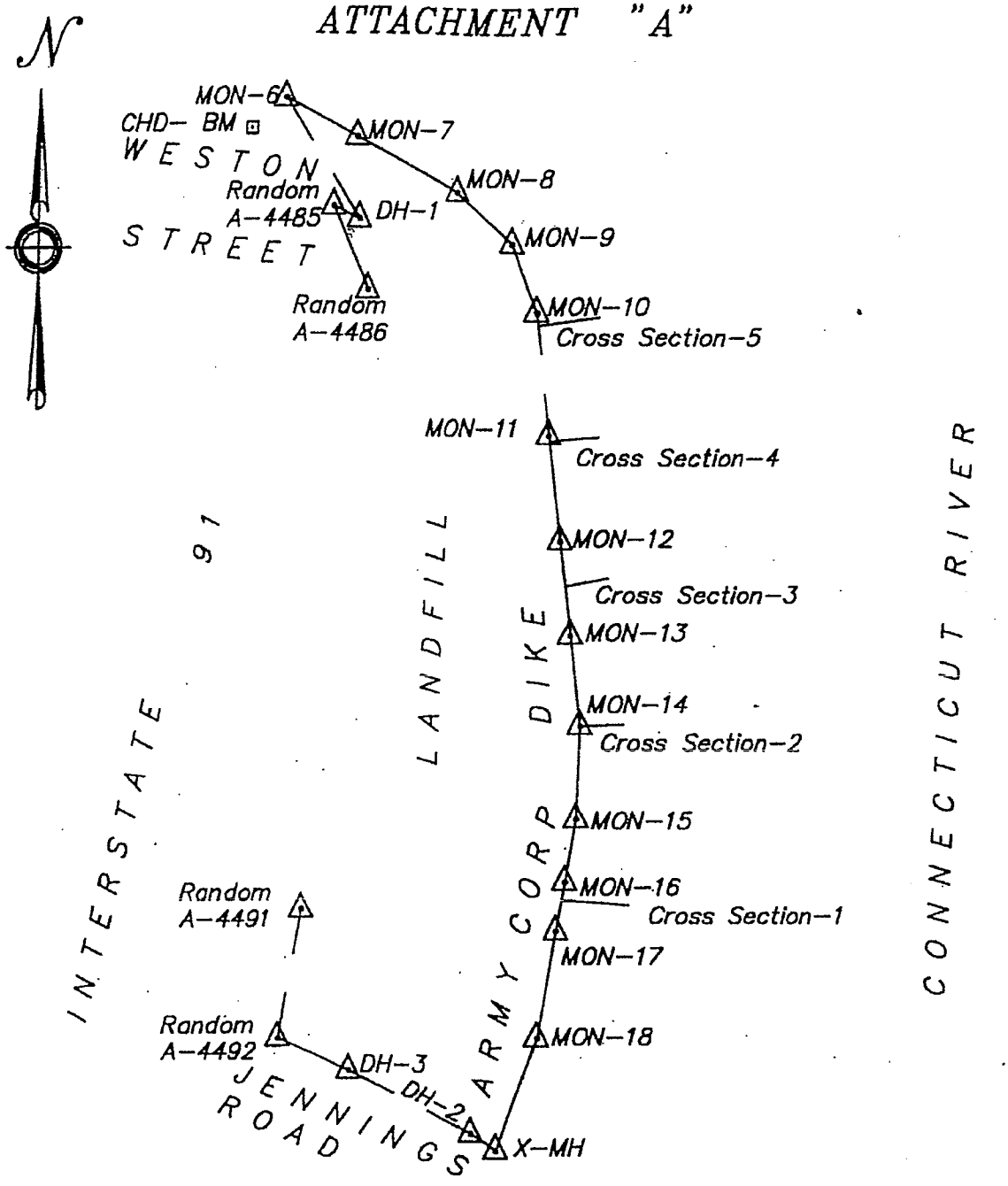
All monitoring monuments are to be held as turn points in the level run. The average change in elevation will be used for balancing in the level run.

The allowable error for each set up shall be the square root of (distance in feet x .00063)] and the allowable error for the total level run shall be .035 (square root of level run in miles), which meets the vertical accuracy of a Class V-2 level loop greater than one mile.

The level run and the traverse shall be run separately from each other.

The accuracies stated above were compiled from Sections 20-300b-1 through 20-300b-20 of the Regulations of Connecticut State Agencies "Minimum Standards for Surveys and Maps in the State of Connecticut" as endorsed by the Connecticut Association of Land Surveyors, Inc., on September 26, 1996.

ATTACHMENT "A"



CONKLIN & SOROKA, INC.

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32 WASHINGTON STREET
MIDDLETOWN, CONNECTICUT 06457
(860) 346-2801

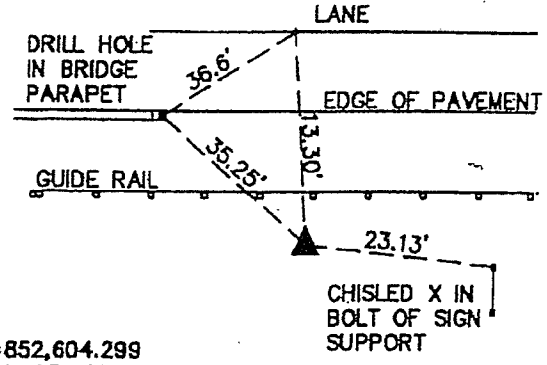
CONSULTING ENGINEERS LAND SURVEYORS LAND PLANNERS

MONITORING WELL & CROSS SECTION LOCATONS
AT THE
HARTFORD LANDFILL
PREPARED FOR
CONNECTICUT RESOURCE RECOVERY AUTHORITY

DATE 10/2/00 SCALE 1"=1000'	FIELD TC FB. NO. 325 COMPS JW	DRN. JW CKD.	CADD INFO. DISK NO. FILE 94-106Q	DISK NO. 1087 JOB NO. 6	PROJECT NO. 94-106Q

ATTACHMENT "B"

A-4485



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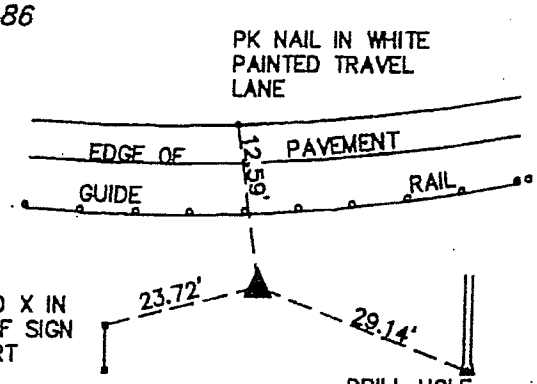

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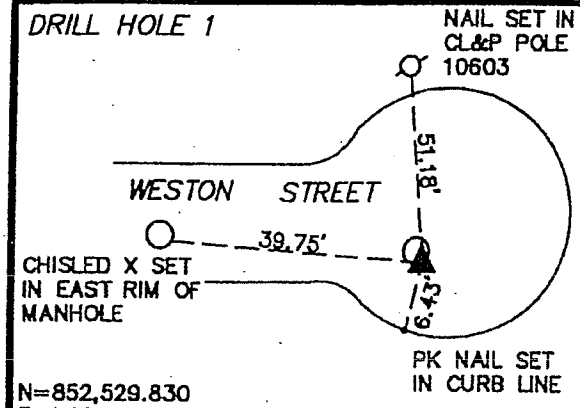

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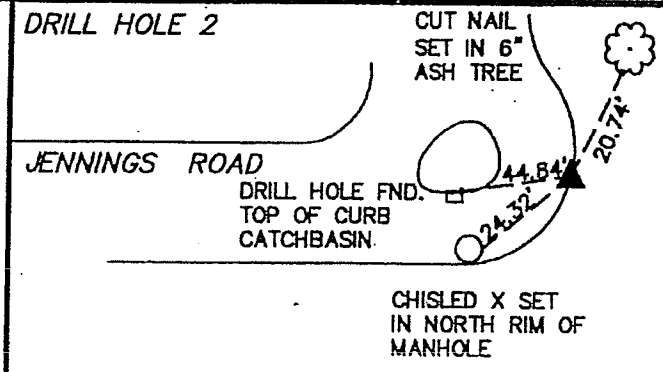

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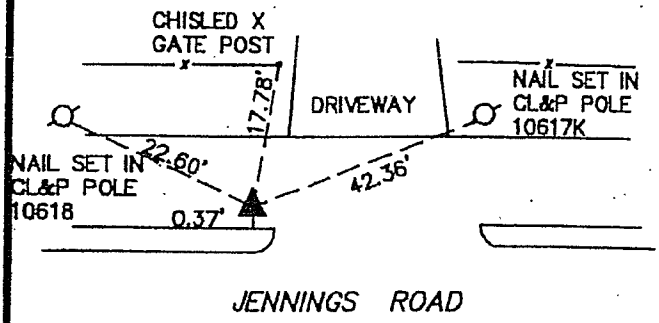

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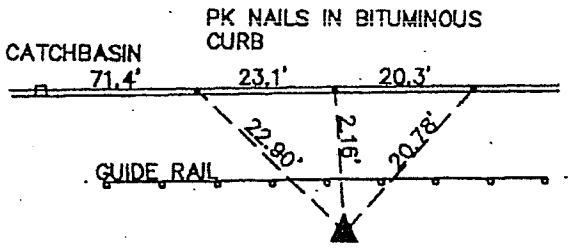

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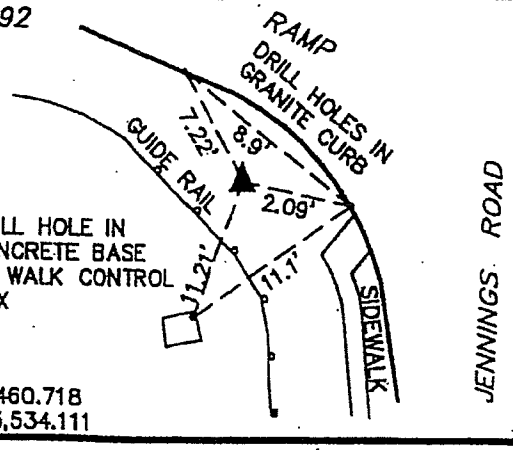

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EXHIBIT A 3

SCOPE OF SERVICES

Environmental Monitoring, Laboratory Analysis and Reporting - Shelton Landfill

BACKGROUND

The 86-acre Shelton Landfill parcel is located east of Route 110, bounded to the south by the Far Mill River, the Housatonic Lagoon and Housatonic River to the east and property used by Family Golf to the north.

A general location plan showing the CRRA Shelton landfill site is included as **Figure 1**. A detailed site plan showing sampling locations is included as **Figure 2**. The landfill consists of the following waste management units, all of which have been closed:

(a) MSW/Interim Ash Disposal Area: This area consists of a 36-acre footprint of municipal solid waste (MSW), the disposal of which began under private/town operations circa 1950. There is a 22-acre parcel consisting solely of ash residue from MSW combustion that is situated on top of the MSW disposal area.

(b) Metal Hydroxide Cell: This cell, which is located in the northeast corner of the site on top of the MSW disposal area, covers an area of approximately 2 acres.

(c) Northeast and Southeast Expansion Areas (NEEA and SEEA): The NEEA and SEEA are double-lined landfill units for the disposal of ash residue from MSW combustion. The NEEA is approximately 3.1 acres in area, while the SEEA is approximately 6.5 acres in area.

The site is equipped with various environmental control systems, including

(a) A landfill gas extraction, collection and flaring system (for the MSW/Interim Ash area),

(b) A leachate collection system (for the NEEA and SEEA),

(c) A leachate pre-treatment system (pH adjustment) for the discharge of collected leachate to the Town of Stratford POTW, and

(d) A stormwater collection, detention and discharge system (overall site).

There is also an active MSW transfer station located on the Shelton Landfill property that is permitted and operated by the City of Shelton.

The landfill has various environmental permits, with specific sampling programs and reporting requirements associated with the various control systems and permits. Copies of all site-specific permits applicable to the environmental monitoring program are included in **Appendix A**.

SCOPE OF SERVICES

Consultant's work shall be inclusive of all environmental monitoring and reporting required at the Shelton Landfill, unless otherwise indicated. Monitoring and reporting will be required for a three (3) year period starting July 1, 2013 and ending June 30, 2016.

Costs for monitoring work shall also include but are not limited to sample bottle preparation and delivery, sample collection, laboratory analysis, and reporting as further described in this Scope of Services. The environmental media to be sampled under this Scope of Services include ground water, surface water, and ash leachate. All sampling will be performed to meet the requirements of all applicable permits issued to the Shelton Landfill/CRRA by the federal, state, and local permitting authorities, as applicable. Refer to **Appendix A** for site-specific permit information and for a copy of the Shelton Landfill's approved Water Quality Monitoring Plan, dated March 15, 2010. All sample analyses shall be conducted by an analytical testing laboratory certified to perform such analyses by the State of Connecticut. The analytical testing laboratory will be sub-contracted directly by the Consultant and approved by CRRA.

All work will be conducted pursuant to all applicable state and federal regulations and guidelines concerning groundwater, surface water and sanitary discharge sampling, monitoring and analysis. Consultant is to be familiar with and have reviewed all applicable landfill permits and requirements for site monitoring issued by CTDEEP (and EPA, where applicable). Consultant shall be familiar with representative past monitoring reports prepared for the Shelton Landfill and shall prepare monitoring reports consistent in format with past monitoring reports. Consultant shall provide summary tables of data results, and reference drinking water standards and Connecticut Remediation Standards for monitoring wells (i.e., Surface Water Protection Criteria), and surface water Numerical Criteria contained in the Connecticut Water Quality Standards. Consultant shall also be responsible for the timely submittal of sanitary discharge data to CRRA so that CRRA can meet its regulatory reporting obligations.

In accordance with the environmental permits for the Shelton Landfill, Consultant shall conduct the monitoring program for the sampling points and parameters as summarized in **Tables 1 through 4**, on a semi-annual basis except as otherwise indicated. In some instances, monitoring points may be inaccessible for regularly scheduled semi-annual monitoring, such that arrangements should be made to sample the location(s) at other times. If it is not possible to sample in a timely manner within the semi-annual monitoring event timeframe, CRRA will not be charged for sample collection and laboratory analysis for those portions of work <u>not</u> completed.

The environmental monitoring will include but not necessarily be limited to the following elements:

- Preparation for sampling, including bottle preparation, field measured parameter equipment, sample collection equipment, and means of access to sampling points.

- Completion of field (RCRA) data sheets for each sample point, modified as applicable for each type of sample point.

- Completion of a synoptic groundwater measurement event on the first day of each monitoring event to determine the groundwater elevations at all sixty (60) monitoring wells that are in the monitoring well network. The synoptic groundwater measurement event is to be completed prior to any purging and sampling activities.

- Measuring of field parameters, and collection of samples in bottles for laboratory analysis and appropriate field and laboratory QA/QC in accordance with applicable CTDEEP and EPA regulations and guidance.

- Preservation and transport of samples to the laboratory.

- Analytical laboratory analyses of collected samples.

- Entering analytical results and other pertinent sample and/or laboratory test data into a database. Provide an electronic copy of the database to CRRA at the end of each calendar year to accompany the annual report, and after the completion of the April 2016 sampling event (i.e., the final sampling event under this Scope of Work).

- Data review and verification, cursory check for outliers, extreme exceedances and notification to CRRA of unusual results or "Significant Environmental Hazard" conditions under Public Act 98-134.

- Preparation of graphs and tables of data results, maps of sampling locations, groundwater elevation contours and isopleths of monitoring results as appropriate.

- Preparation of summary reports on status of each sample point and site environmental conditions.

- Preparation of draft semi-annual and annual reports for CRRA review and comment prior to report finalization.

- Finalization of reports to incorporate CRRA comments, duplication and distribution.

The Consultant is responsible for maintaining clear access to all wells (i.e., by cutting back brush and trimming weeds and grass). Consultant is also responsible for maintaining well markers (i.e., stakes, flagging and labels) to assist field personnel in locating and identifying the wells.

The environmental monitoring program is outlined by task below for the Shelton Landfill with a description of the series of tasks to be completed. The format of the Not-To-Exceed Bid Price Form is consistent with the task listing that follows.

TASK 1: SEMI-ANNUAL ENVIRONMENTAL MONITORING, ANALYSIS, REPORTING AND ANNUAL REPORTING

Environmental permits issued to cover operations at the Shelton Landfill require that semi-annual monitoring of the ground water, surface water, and untreated leachate be completed. The activities under Task 1 of this Scope of Services describe the semi-annual monitoring activities.

Task 1.1: Sampling and Documentation of Field Activities

Sampling Schedule

Semi-annual environmental sampling of site ground water, surface water, and untreated leachate is to be performed in the following months:

- April
- October

Sampling of groundwater, surface water, and untreated leachate can begin on the 1st day of the sampling month and must be completed by the last day of the sampling month.

Monitoring of Ground Water Wells

There are twenty-six (26) ground water monitoring wells at the Shelton Landfill that are to be monitored on a semi-annual basis. **Table 1** summarizes the characteristics of each well. Consultant is responsible for supplying all equipment to the site as required for each semi-annual monitoring event and its storage at a safe off-site location by Consultant's arrangement.

Due to the presence of the closed RCRA cell at the Shelton Landfill, the Consultant shall develop and maintain a site-specific safety and health plan in accordance with 29 CFR 1910.120(b)(4). Additionally, the Consultant shall ensure that all sampling personnel "receive a minimum of 24 hours of instruction off the site, and the minimum of one day actual field experience under the direct supervision of a trained, experienced supervisor," as required by 29 CFR 1910.120(e)(3)(ii). The Consultant shall also ensure that on-site supervisory personnel are trained in accordance with 29 CFR 1910.120(e)(4), and that all personnel (sampling personnel and supervisory personnel) are provided with annual refresher training under 29 CFR 1910.120(e)(8).

The following items are also highlighted for each semi-annual sampling event:

- Keyed-alike well locks will be provided for all wells by CRRA. Access to buildings will have to be coordinated on a case-by-case basis.

- Permission to access off-site monitoring wells will be coordinated through CRRA at the initiation of the monitoring contract. Access to some wells is by foot only, because of location and/or restrictions of vehicle use.

- Consultant shall complete a "Monitoring Well Field Data Sheet" which summarizes well elevation data, well condition, purge data, observed water yield and quality comments, sampling data, and results of measured field parameters. An example of the proposed "Monitoring Well Field Data Sheet" is to be submitted for approval by CRRA before the first sampling event, at the initiation of the monitoring contract.

- On the first day of each semi-annual sampling event, prior to any purging and sampling activities, complete a synoptic groundwater measurement event to determine the groundwater elevations at all sixty (60) monitoring wells that are in the monitoring well network. Measure water elevation data at all monitoring wells prior to well purging using decontaminated equipment (depth to water, depth to bottom, depth of sample) referenced to top of PVC (or casing) and record on the data sheet.

- Provide an in-line meter (or equivalent methodology which mitigates exposure to the atmosphere) to concurrently measure pH, temperature, specific conductivity, dissolved oxygen (DO), and redox potential (RP), as applicable, during purging. Also, provide a device to measure turbidity. A minimum of four (4) readings of each parameter shall be taken and recorded during purging.

- Perform purging using dedicated bladder pump equipment at low flow rates, not taking the first reading until at least one pump volume plus one discharge tubing volume have passed. The purged groundwater may be discarded to the ground at the landfill. Sampling personnel are to monitor the drawdown in the wells and ensure that the drawdown is maintained at less than or equal to 0.3 feet during the entire purging and sampling process. Wells shall be purged at a rate of less than or equal to 300 ml/minute. Field parameter readings shall be recorded at a minimum of three minute intervals, until turbidity is stabilized such that three consecutive reading are within 10% of each other for readings >10 NTU, or readings are within 2 NTU of each other for readings <10 NTU. Per EPA's SOP, if the turbidity has not stabilized after four hours of purging, collect samples and provide full explanation of attempt to achieve stabilization. Provide a summary of periodic readings and time of reading for all parameters.

- Sample collection should proceed from high parameter volatility to low parameter volatility at a low flow rate. Samples for volatile parameters should be transferred slowly to the sample container to eliminate creation of air bubbles. Samples are to be collected in proper containers and properly preserved in the field.

- No filtering of samples is to occur, except where analysis of dissolved metals is specified. Where analysis of dissolved metals is specified, sample filtration is to be performed in the field during sample collection with an in-line 0.45-micron filter.

- Record all observations relating to the well sampling and any deviations from the sampling plan.

Surface Water Sampling

A total of five (5) surface water samples need to be collected and analyzed on a semi-annual basis. The samples are to be collected at "ebb flow" conditions (between one-half hour and two hours after low tide for Bridgeport) after at least 72 hours of no precipitation. Consultant is responsible for providing a Masterflex variable speed peristaltic pump or equivalent for collection of surface water samples. Surface water sampling shall proceed from downstream locations to upstream locations. For those surface water locations where a boat is required for sampling, samples shall be taken upstream of the boat's engine. A weighted tape measure shall be attached to the tubing so that depth of sample collection (and bottom depth) can be determined. Clean tubing shall be used at each sample location. The pump shall be operated at 300-500 ml/min and allow at least one (1) pump and tubing volume to pass through prior to sample collection. No filtering of samples is to occur, except where analysis of dissolved metals is specified. Where analysis of dissolved metals is specified, sample filtration is to be performed in the field during sample collection with an in-line 0.45-micron filter. A field data sheet shall be completed for each sample location. Field measurements of water temperature, air temperature, pH, specific conductance, salinity and dissolved oxygen shall be recorded. Gauging river flows, time of sample collection and other field data to be measured and recorded are to follow the permit requirements.

Ash Leachate Sampling

Consultant is responsible for collecting grab samples of untreated ash leachate from each of the two (2) leachate lift stations associated with the NEEA and the SEEA. The Consultant shall use decontaminated bailers and clean rope to collect the leachate samples. Field measurements of pH, specific conductance, dissolved oxygen, turbidity, and leachate temperature shall be recorded. A field data sheet shall be completed for each sample location.

Preparation for Sampling

This task includes coordination between field monitoring personnel and the analytical laboratory for the bottle order, bottle delivery, sample preservation and chain of custody to complete the required sampling.

Sample collection scheduling shall allow enough time for completion of the sample analyses by the laboratory so that the semi-annual reports can be assembled, reviewed, finalized and submitted in a timely manner according to permit requirements as further discussed below.

Consultant is responsible for coordinating equipment blanks, field blanks, trip blanks and duplicate samples as part of the sampling quality assurance program. In addition to any other approved USEPA or CTDEEP protocols, equipment blanks and field blanks are required for each day of sampling where non-dedicated equipment is used, with laboratory-supplied reagent water poured over the sampling equipment at the beginning of the sampling day and at the end of the sampling day and collected for analysis. Trip blanks, as supplied by the laboratory, are to be carried on each day that samples for analysis of VOC's are collected and returned with the other samples for analysis of VOC's. Duplicate samples are to be collected at one of the Surface Water Protection Well locations for each semi-annual sampling event and analyzed for all the parameters applicable to the Surface Water Protection Wells.

Each monitoring well is equipped with a dedicated 2-inch diameter bladder pump (either Timco or Marschalk brand SS/Teflon bladder pumps). The pumps are owned by CRRA. The Consultant shall supply all equipment necessary to operate the bladder pumps. Such equipment may include but not necessarily be limited to bladder pump controllers, oil-less air compressors, inert gas packs to drive the pump bladders, pneumatic hoses and fittings. It is the Consultant's responsibility to maintain the CRRA-owned pumps in good working order. This Scope of Services does not include costs associated with repairs to CRRA-owned pumps that may be necessary due to normal wear and tear. It shall be the Consultant's responsibility to provide pump controllers and other necessary field equipment/power source(s) (i.e., air compressor, generator, 12-volt battery, etc.) to conduct the field sampling activities.

Consultant shall provide all required equipment, besides that which CRRA owns and has supplied to the Consultant, for collection of samples to fill laboratory-supplied bottles. The Consultant shall also supply equipment required for measurement of field parameters. Field equipment calibration and decontamination shall be the responsibility of the Consultant. The Consultant shall supply any other equipment necessary to adequately and properly complete the work.

Field Measurements and Collection of Samples

This task includes measuring selected parameters in the field and collecting samples in laboratory-supplied bottles, varying with the sampling point's parameter matrix. Refer to **Table 2** for a summary of field and laboratory parameter requirements for each sampling point at the Shelton Landfill. **Table 1** provides summaries of monitoring well completion details with total well depth and screened interval depth of each monitoring well.

Consultant shall follow the "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846" (latest edition) and "RCRA Groundwater Monitoring" Draft Technical Guidance (latest edition) as well as all applicable CTDEEP and USEPA regulations. Procedures described herein are not intended to be comprehensive, but to provide a clarification or to supplement the referenced regulations as they might pertain to certain site conditions. The various subsections below describe particulars for sampling at various types of sample locations.

Sampling methods described herein are to be utilized by Consultant during water quality monitoring events including monitoring of groundwater, surface water, and ash leachate discharges to the sanitary sewer. Specific items that shall be performed during all water quality monitoring events and summarized in the semi-annual reports include the following:

- Documentation of Field Activities
- Sample Handling
- Decontamination Procedures
- Monitoring and Sampling Techniques
- Field Quality Control Checks

Documentation of Field Activities shall include listing the procedures used to record data about the sampling event, the sampling locations, the samples themselves, and the handling and transport of the samples.

Sample Handling shall detail the source of the sample containers, sample preservation methods, and the chain-of-custody protocol that is followed from time of sample collection until sample acceptance by the laboratory performing the analysis.

Decontamination Procedures shall provide general data on field and in-house decontamination. Non-dedicated equipment used for purging and sampling is to be decontaminated (unless replaced) between each sampling location. For the groundwater monitoring wells, each purging device is effectively

"dedicated" to each sampling location. It is recommended in those instances where pumps are dedicated to individual wells, that they receive a thorough in-house decontamination as conditions warrant.

Monitoring and Sampling Techniques for groundwater, surface water, and sanitary discharges shall include a description of the fundamental procedures for collection of samples. Specific procedures to be addressed include water level measurement; purging calculations, sample collection equipment and techniques utilized; and monitoring of field parameters (i.e., pH, temperature, specific conductivity, etc.) and their results. Surface water monitoring and sample techniques shall describe the order of sample collection, orientation of boat to sampling points, equipment purging, monitoring of field parameters, method of filtering for dissolved metals and sample collection techniques.

Field Quality Control Checks shall describe typical QA/QC samples and their use. Monitoring events will include trip blanks, equipment blanks, field blanks, and duplicate samples. The trip blank is only associated with days when groundwater well and untreated leachate monitoring is performed, because VOC's are not analyzed in surface waters. The equipment blank and field blank are only necessary when non-dedicated sampling equipment is utilized for well purging or sample collection. Duplicate samples will be collected at one (1) ground water monitoring well and at one (1) surface water monitoring location.

Except where sample analysis in accordance with methods in 40 CFR Part 136 is required by permits, the methodologies to be utilized should be consistent with 40 CFR Part 258, Subpart E, Section 258.53 through 258.56, and as further detailed in EPA 530-R-93-017, "Solid Waste Disposal Facility Criteria - Technical Manual," November 1993; CTDEEP's "Solid Waste Management Program Description", July 1993; USEPA's "RCRA Ground Water Monitoring Technical Enforcement Guidance Document", September 1986; and US EPA Region I Standard Operating Procedure GW-001 – "Low Stress (Low Flow) Purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells" (January 19, 2010 – Revision 3).

Task 1.2: Semi-annual Laboratory Analysis

All sample analyses required by this permit shall be performed by a laboratory certified for such analyses by the Connecticut Department of Public Health or, in advance of any use, a laboratory approved in writing by the CTDEEP. The laboratory shall analyze all samples submitted from the same monitoring event, at one time, such that duplicate samples and blanks are analyzed under the same conditions.

Preservation and Transport of Samples to Laboratory

Samples shall be properly preserved and kept cool. They shall be transported to the laboratory the same day they are collected per coordination with the lab by the Consultant's field personnel. Container types, preservatives and maximum holding times shall be per SW-846, latest edition, or 40 CFR 136, as applicable. Consultant is to coordinate re-sampling, at no additional cost to CRRA, if re-sampling is necessary due to loss of sample in bottle transport or in laboratory handling, or if the maximum holding times are exceeded.

Analytical Methods and Detection Limits

Where published by CTDEEP, laboratory analyses will be conducted in accordance with Reasonable Confidence Protocol (RCP) analytical methods. In those circumstances where an RCP method has not been published by CTDEEP, the applicable method from the most-recent edition of EPA SW-846 ("Test Methods for Evaluating Solid Waste, Physical/Chemical Methods") will utilized. In the absence of RCP and SW-846 analytical methods, the laboratory analytical procedure from the most recent edition of "Standard Methods for the Examination of Water and Wastewater" will be utilized.

Monitoring parameters for surface water and groundwater samples are summarized in **Table 2.** Analytical results for each parameter shall be reported together with the analytical method, method detection limits, date of analysis, and initials of analyst. The value of each parameter shall be reported to the maximum level of accuracy and precision possible. Failure to submit data in accordance with the procedures and protocols set forth in the applicable permits shall constitute a permit violation.

Analyses required under the groundwater, surface water and sanitary discharge monitoring programs shall be performed using the methods specified, unless an alternative method has been specifically approved in writing by the CTDEEP for monitoring at the facility. Failure to use the analytical method specified or approved by the Commissioner of CTDEEP shall constitute a permit violation.

Monitoring required of surface water and groundwater which specify the use of analytical methods as listed in the permits and summarized in **Table 2** must be conducted to achieve the minimum detection levels for each of the parameters, where identified, unless an alternative method that is capable of achieving the minimum detection levels has been specifically approved in writing by the CTDEEP.

The minimum detection levels specified in **Table 2** represent the concentrations at which quantification must be achieved and verified during the chemical analyses for these compounds, as required by relevant permit(s). It is important to note that, for some parameters, the permit-required detection limits

listed in **Table 2** may be higher than those parameters' Groundwater Protection Criteria and/or Surface Water Protection Criteria, as established in the CTDEEP's Remediation Standard Regulations (RSR's). In this situation, the minimum detection level achieved by the laboratory must be at least as low as the lowest applicable RSR criterion. For surface water samples, the minimum detection limits need to be at least as low as the Chronic Aquatic Life Criteria (CALC) from the State's Surface Water Quality Standards. Analyses for these compounds must include calibration points at least as low as the specified minimum detection level. Check standard within ten percent of the specified minimum detection level may be used in lieu of a calibration point equal to the minimum detection level.

If any sample analysis indicates that quantification for a particular parameter can not be verified at or below the permit-specified minimum level, a second sample shall be collected and analyzed for that parameter according to the above specified methodology as soon as practicable but no later than thirty (30) days following collection of the sample for which the quantification at or below the minimum level was not verified. The results of the first and subsequent sample analyses shall be submitted to the CTDEEP verifying that the appropriate methodology was employed, the minimum level was achieved for quality-control samples and that failure to quantify the parameter at or below the minimum level specified for the analysis was a result of matrix effects which could not be compensated for as part of sample analysis allowed pursuant to 40 CFR Part 136.

If any three (3) samples collected in a twelve-month period indicate that the specified minimum level was not achieved for a particular parameter when using the specified test methodology, the Consultant shall, after consultation with and approval by CRRA, submit a report for the review and approval of the CTDEEP which justifies and defines the matrix effect upon analyses for that parameter, identifies the level at which quantification can be verified and recommends modification(s) to the method or an alternative method that is sufficiently sensitive and free of the identified matrix effect.

Review of Lab Results, Quality Control Procedures and Invoices

Consultant is responsible for ensuring lab analyses are performed as required by the parameter list and that MDL limits are met. A summary of the lab's QA/QC procedures and results, including matrix spikes and surrogate recovery analyses, are to be reviewed and included in the semi-annual report. The laboratory must also provide signed "Laboratory Analysis QA/QC Certification Forms" that certify that the all reported data meet the CTDEEP's requirements for "reasonable confidence." Consultant is to review the laboratory invoices for consistency with actual sample parameter analyses requested and completed.

Task 1.3: Semi-annual Reports - Water Quality Monitoring

The Stewardship Permit specifies that finalized water quality monitoring reports must be submitted to the CTDEEP within sixty (60) calendar days of the date of sampling. Also, an electronic copy (PDF format) must be submitted to USEPA Region 1.

Sampling shall be arranged to allow for a reasonable laboratory turnaround time for analysis and compiling of lab results, writing draft report, reviewing draft report, finalizing report and distributing report to appropriate parties.

The semi-annual report shall include the monitoring results of all groundwater, surface water, and untreated ash leachate samples that were analyzed. In the text of the report and in summary tables, the Consultant will also indicate which parameters exceed criteria appropriate to the sampling point of classification. This will include state and federal limits for maximum contaminant levels not to be exceeded in the aquifer(s) at the relevant point of compliance (per Subtitle D requirements), groundwater and surface water protection criteria per CTDEEP regulations in accordance with the classifications of the same, and aquatic life criteria for surface water locations.

These reports must include assessment of conditions of the groundwater monitoring wells and other sampling locations as applicable. The semi-annual reports will also include a summary table of groundwater well construction details, and a site map which shows groundwater contours in both overburden and bedrock sampling locations on an AutoCAD drawing of the landfill site that includes site features and topography. CRRA will provide an AutoCAD disk of the landfill site for use by Consultant upon request.

During April and October, ground water elevation data will be collected at all available wells in the project vicinity as described in Task 1.4, regardless of whether or not the well is in the sampling program. The measured groundwater elevations at the additional well locations will be included on the groundwater contour maps. A Monitoring Well Field Data Sheet shall also be completed for each additional well.

Each semi-annual report shall fully document the field activities and the laboratory work details, be formatted to support the annual report, and provide interim results and an update on impacts and exceedances. CRRA shall be notified immediately of any significant variation from past results or exceedances of compliance parameters with a recommendation on confirmation of the result.

A copy of the draft semi-annual report, including sampling details and supporting analytical data, sample chains of custody, Monitoring Well Field Data Sheets, and a site map of groundwater elevations and possibly isopleths of results, is due to CRRA for review a minimum of fourteen (14) calendar days before the final report is due to

the CTDEEP. CRRA shall also be allowed sufficient time to review any other reports or forms prior to submittal to CTDEEP.

Finalized semi-annual reports are to be printed by the Consultant on double-sided pages. The report distribution and addresses will be provided. Seven (7) finalized hard-copies of each report plus one electronic copy (PDF format) are required to be generated by the Consultant. Consultant is responsible for mailing reports directly.

Task 1.4: Non-Sampled Well Condition Survey and Water Elevations

There are thirty-four (34) ground water monitoring wells at the Shelton Landfill that are not part of the semi-annual sampling program as outlined in **Table 1** herein. During the April and October sampling events, the ground water elevation shall be measured at each of the non-sampled wells, and a Monitoring Well Field Data Sheet (as described in Task 1.1) shall be completed to document each well's condition. The groundwater elevations obtained at the non-sampled well locations should be used to supplement the groundwater contour maps developed as part of the applicable semi-annual environmental monitoring report. Copies of the Monitoring Well Field Data Sheets shall be included in the applicable environmental monitoring report.

Task 1.5: Annual Reports - Water Quality Monitoring

The annual report shall address the zone of influence of the discharge (defined as the area of soil and groundwater within which the treatment of the leachate by soils and mixing of leachate with groundwater occurs and could be reasonably expected to occur, and therefore within which some degradation of groundwater quality is anticipated to occur). The annual reports shall also provide an overall assessment of site conditions for the calendar year, including but not limited to the following:

(a) Map depicting all groundwater and surface water monitoring locations, groundwater withdrawal locations, and the locations of the collection, treatment, and conveyance of stormwater, leachate, and gas condensate as applicable;

(b) Evaluation of surface water and groundwater quality, and leachate quality and leachate quantity, including graphical representations of monitoring results for at least the past six (6) years;

(c) Condition of all monitoring wells and the need for repair or replacement of any wells;

(d) Evaluation of the extent and potential extent of the leachate discharge to groundwater, and whether any impact on the surface water quality to any surface waters bodies including wetlands was detected or could reasonably be expected to occur;

(e) Preparation of graphs depicting parameter history versus precipitation hydrograph for those parameters and locations specified in Section 5.B.ii.a of Permit No. LF0000052; and

(f) Written request for modification of the surface water and/or ground water monitoring program, as warranted by the data generated through the monitoring.

All annual reports are to be submitted as a draft to CRRA at least fourteen (14) calendar days prior to the submittal deadline of March 1st specified in the permit. CRRA shall be supplied with electronic copies of all information included in the final annual report as well as groundwater contour maps and other miscellaneous site plans in AutoCAD files.

Finalized annual reports are to be printed by the Consultant on double-sided pages. The report distribution and addresses will be provided. Seven (7) finalized copies of the annual report are required to be generated by the Consultant. Consultant is responsible for mailing reports directly.

Task 1.6: Quality Assurance Project Plan

On September 16, 2009, the Connecticut Department of Energy & Environmental Protection issued Stewardship Permit No. DEP/HWM/CS-126-005 to CRRA to govern post-closure and corrective action activities at the Shelton Landfill. Under the Stewardship Permit, revision of the Quality Assurance Project Plan (QAPP) and submission of the QAPP to the CT-DEEP for approval is required. As stated in in Section II.B.6 of the Stewardship Permit, the QAPP will be prepared in accordance with the *Quality Assurance Guidance for Conducting Brownfields Site Assessments*, US EPA OSWER Directive No. 9230.0-83P, and will incorporate Connecticut's Reasonable Confidence Protocols.

Under this task, CRRA will provide the Consultant with the current QAPP dated March 12, 2010. Within 45 days of the contract award, the Consultant will provide a revised draft QAPP to CRRA for review. Revisions will reflect all quality assurance modifications (i.e. personnel, standard operating procedures, subcontracted analytical testing laboratories, etc.) that result from CRRA contracting the Consultant.

After CRRA comments and revisions have been incorporated into the plan, the Consultant will submit the final QAPP within 7 days directly to the CT DEEP with one hard-copy submitted to CRRA. Consultant will also provide CRRA with electronic QAPP files (PDF, Microsoft Word and Microsoft Excel formats) as applicable. The Consultant will address any CTDEEP comments and also maintain QAPP current for term of Agreement.

TASK 2: SANITARY DISCHARGE MONITORING, LABORATORY ANALYSIS AND REPORTING

Sanitary sewer discharge permit number SP0001459 requires that quarterly monitoring of the treated (pH-adjusted) leachate be completed. The quarterly sampling of treated leachate (DSN001-1) is to be performed in the following months:

- January
- April
- July
- October

The "Special Permit to Discharge to the Sanitary Sewer" issued by the Town of Stratford on June 16, 2009 requires that treated leachate samples be collected on a monthly basis.

The discharge of treated (pH-adjusted) landfill gas condensate has been authorized under Permit SP00001459 once plans and specifications of the treatment system are submitted to the CTDEEP for review and approval. Once the discharge (DSN001-A) has been fully authorized, the Consultant will provide sample containers to CRRA personnel to collect the samples and deliver them to the Consultant's sub-contracted laboratory.

Task 2.1 Sanitary Discharge Sampling

Permit SP0001459 requires that both grab samples and a daily composite sample of the pH-adjusted leachate be collected on a quarterly basis. The composite sample is to be collected with use of an auto-sampler to be supplied by the Consultant. The auto-sampler is to be placed in an in-line downstream location in the leachate treatment facility, as specified by CRRA personnel. The composite is to be taken over the course of a full operating day, which is generally 6 hours +/-. The grab samples are also collected from a downstream location in the leachate treatment facility. The Consultant shall coordinate the schedule for sample collection with CRRA personnel at the site.

In addition to the quarterly sampling requirements of Pretreatment Permit SP0001459, the Special Permit to Discharge to the Sanitary Sewer of the Town of Stratford requires that, grab samples of the treated leachate shall be collected from the downstream location inside the treatment facility on a monthly basis.

Task 2.2: Laboratory Analysis

Samples shall be appropriately preserved and kept cool. They shall be transported to the laboratory the same day they are collected per coordination with the lab by Consultant. Container types, preservatives and maximum holding times per 40 CFR 136, latest revisions, shall be followed. Consultant is to coordinate re-sampling at no additional cost to CRRA, if re-sampling is necessary due to loss of sample in bottle transport or in laboratory handling, or if the maximum holding time is exceeded. Samples shall be analyzed for the parameters listed in **Table 3**, varying for the quarterly versus off-quarterly month sampling event. Analytical methods shall be in accordance with the methods listed in **Table 3**, as required by Permit No. SP0001459.

Consultant is responsible for ensuring lab analyses are performed as required by the parameter list and that required methods are utilized. Analytical results for each parameter shall be reported together with the analytical method, method detection limits, date of analysis, and initials of analyst. The latter two items are specifically required for the sanitary discharge permit reporting. A summary of the lab's QA/QC procedures and results are also to be reviewed. Consultant is to review the laboratory invoices for consistency with actual sample parameter analyses requested and completed.

Analysis of DSN001-A will be billed under the contract that the Consultant has established with the laboratory.

Task 2.3: Reporting

CTDEEP reporting requirements specify that CRRA is required to submit Discharge Monitoring Reports (DMR's) to the CTDEEP on a semi-annual basis. The DMR's must be submitted by CRRA by the last day of the month following the month that the samples were collected. Therefore, the Consultant is required to provide complete, finalized laboratory reports, sample chains of custody, and sample collection data sheets for the treated leachate monitoring to CRRA by the following deadlines:

Sampling Event	Deadline to Provide Final Lab Reports to CRRA
January	February 20
April	May 20
July	August 20
October	November 20

CRRA is required to submit the results of the monthly sampling events to the City of Stratford on a timely basis. In order to maintain consistency with the CTDEEP reporting deadlines, the Consultant shall provide finalized laboratory reports and sample chains of custody for monthly sampling events to CRRA by the 20th day of the month following the month that the samples were collected.

TASK 3: HABITAT MAPPING

In 1996, a habitat map of the Shelton Landfill and nearby areas was prepared to meet habitat characterization requirements under groundwater discharge permit LF0000052. Section 4(H)(i) of the permit requires that the habitat map be updated on an annual basis and submitted to CTDEEP as part of the annual environmental monitoring report.

In order to meet the requirement to update the habitat maps, an on-site inspection must be conducted annually between July 1 and August 31. The purposes of the on-site inspection

are to document wildlife observed at the site, to determine if there have been any changes in wetland or upland cover types, to determine if there have been any new habitat units established, to determine if any existing habitat units have been lost, and to determine if there have been changes in the size and/or classification of any existing habitat units.

The annual update to the habitat maps is to include a written summary report discussing the observations made during the on-site inspection and revisions made to the habitat maps, as well as copies of the revised habitat maps themselves. The annual update is to be submitted to the CTDEEP as an appendix to the annual environmental monitoring report.

TABLE 1

Summary of Monitoring Well Construction

Shelton Landfill
Shelton, Connecticut

Sampled Monitoring Wells						
Well No.	**Screen Interval**	**Hydraulic Conductivity (Year of Test), K, in ft/day**	**Measuring Point (Top of PVC) Elevation, ft.**	**Top of Screen Elevation, ft.**	**Screen Length, ft.**	**Depth to Bottom, ft.**
GP-4	S	---	56.72	42.52	20	36.12
BR-4	B	1.10 (1988)	55.32	-4.45	10	70.62
BR-19	B	---	71.87	84	10	98
Ed	D	37.49 (1988)	8.97	-52.66	10	71.34
BR-6	B	---	9.06	-66.46	10	84.2
Qb	B	0.72 (1996)	71.48	2.16	10	74.43
Rs	S	18.33 (1996)	17.17	7.1	10	20.04
Rd	D	14.18 (1996)	16.22	-17.3	5	37.82
BR-7	B	---	19.96	-34.3	20	103.85
D2d	D	17.89 (1988)	21.61	-9.81	10	42.49
BR-17D	B	---	14.43	-36.79	10	65
BR-18	B	---	17.64	?	?	53
Td	D	---	12.68	-41.32	5	64.05
100	S	6.84 (1988)	14.08	-2.2	10	26.43
A	D	---	16.22	-6.6	10	32.59
Bd	D	---	11.50	-5.33	10	26.62
BR-2	B	---	10.26	-28.38	10	50.03
Cs	S	---	22.34	-3.78	15	40.88
Cd	D	---	22.33	-54.08	10	85.83
I3s	S	---	9.98	0.96	10	21.43
BR-16S	B	---	8.16	-83.95	10	100.5
BR-5	B	---	69.02	30.02	NA	NA

TABLE 1

Summary of Monitoring Well Construction

Shelton Landfill
Shelton, Connecticut

BR-1	B	---	13.26	-57.43	10	80.62
BR-8	B	---	11.98	-99.02	10	123.88
104S	S	---	9.64	4.48	10	12
105	S	---	14.4 or 14.15	9.35	10	25
Non-Sampled Monitoring Wells						
Well No.	**Screen Interval**	**Hydraulic Conductivity (Year of Test), K, in ft/day**	**Measuring Point (Top of PVC) Elevation, ft.**	**Top of Screen Elevation, ft.**	**Screen Length, ft.**	**Depth to Bottom, ft.**
BR-9	B	---	72.38	Open Borehole	Open Borehole	49.18
BR-12	B	---	16.75	-19.63	10	46
Well No.	**Screen Interval**	**Hydraulic Conductivity (Year of Test), K, in ft/day**	**Measuring Point (Top of PVC) Elevation, ft.**	**Top of Screen Elevation, ft.**	**Screen Length, ft.**	**Depth to Bottom, ft.**
BR-14D	B	---	59.74	-3.48	10	79.5
BR-14S	B	---	59.62	10.44	10	61
102S	S	---	59.65	31.93	10	39
BR-15D	B	---	25.38	-20.54	10	57
BR-15S	B	---	24.49	-1.77	10	35
103	S	---	24.56	19.31	10	15
BR-16D	B	---	9.12	-99.45	10	120
104D	D	---	7.91	-62.09	10	79
BR-17S	B	---	13.88	-21.81	10	44.5
BR-3	B	---	58.37	NA	NA	NA
BR-10	B	---	70.27	29.27	10	51
BR-11	B	---	23.74	5.14	NA	NA
Bs	S	---	11.30	4.32	10	16.8
B1	S	---	60.86	NA	NA	NA
B2	S	---	66.99	NA	NA	NA
B3	S	---	67.83	NA	NA	NA
D1	S	---	10.36	NA	NA	NA
D2	D	---	15.52	5.13	10	20.04
E	S	6.01 (1988)	9.47	-7.34	10	27.45
Gd	S	---	14.54	NA	NA	NA
GP1	S	---	60.60	NA	NA	NA
GP2	S	---	57.07	NA	NA	NA
GP3	S	---	53.43	NA	NA	NA
Hs	S	---	22.85	4.25	10	28.02

TABLE 1

Summary of Monitoring Well Construction

Shelton Landfill
Shelton, Connecticut

H2d	D	---	21.59	-14.41	10	45.68
L	S	---	16.75	4.75	NA	NA
M	S	---	60.82	40.32	NA	NA
N	D	---	13.07	-11.43	NA	NA
S2s	S	33.08 (1996)	17.67	5.85	5	22.5
S2d	D	---	17.11	-6.73	15	35.93
Ts	S	35.69 (1996)	12.75	6.75	5	18.24

S = Shallow Overburden
D = Deep Overburden
B = Bedrock
Depth to Bottom measurements of sampled wells were measured during pump installations in October 1996.

TABLE 2
MONITORING PARAMETERS
SHELTON LANDFILL
SHELTON, CONNECTICUT

(1)	(2)	(3)	(4)
Parameters	**Surface Water**	**Groundwater**	**Leachate**
Description: **Number of Sample Locations:**	**5 ea + 1 QA/QC**	**Wells** **26 ea + 1 QA/QC**	**Untreated** **2 ea**
Field Measured			
Time of Collection	X	X	X
Sample Depth	X	X	X
Total Water Column Depth	X	X	X
Water Level Elevation		X	
Water Temp.	X	X	X
Air Temp.	X		X
PH	X	X	X
Spec. Cond.	X	X	X
Salinity	X		X
Dissolved Oxygen (D)	X		X
ORP		X	
Turbidity - (NTU)		X	
Water Clarity-Secchi Disk	X		X
Lab Measured			
Spec. Cond.		X	X
PH			X
TDS			X
TSS			X
Chloride			X
Alkalinity			X
Hardness as CaCO3		X	X
BOD - 5-day			X
COD			X
Ammonia - (T)			X
TKN (T)			X
Nitrate (T)			X
Nitrite (T)			X
Phosphorus (T)			X
Aluminum (T)			X
Arsenic (T)		X	X
Barium (T)		X	X
Cadmium (T)		X	X
Chromium (T)		X	X
Copper (T)	X	X	X
Iron (T)	X	X	X
Lead (T)		X	X
Manganese (T)		X	X
Mercury (T)			X
Nickel (T)		X	X
Potassium (T)		X	
Selenium (T)		X	
Silver (T)		X	X
Zinc (T)		X-1	X

TABLE 2
MONITORING PARAMETERS
SHELTON LANDFILL
SHELTON, CONNECTICUT

(1)	(2)	(3)	(4)
Parameters	**Surface Water**	**Groundwater**	**Leachate**
Description: **Number of Sample Locations:**	**5 ea + 1 QA/QC**	**Wells** **26 ea + 1 QA/QC**	**Untreated** **2 ea**
Additional Parameters to be monitored only at listed locations:			
Radium (Radium-226 and Radium-228 combined via EPA Method 9320 of SW-846)		X-1	
Gross Alpha		X-1	
Gross Beta		X-1	
Dioxins and Furans via EPA Method 8280			X

NOTES:

The minimum detection limit (MDL) must be at least as low as the SWPC, if a criteria has been established for the compound.

Surface Water

Column 2 - Samples will be collected as a composite of top, mid and bottom from SW-3, sW-4, SW-5. A mid-depth sample will be collected from SW-1 and SW-2

Ground Water

Column 3– The well designations in Groundwater Discharge Permit LF0000052 are as follows:

MW-100 MW-Cs MW-D2d MW-BR-19 MW-Ed
MW-GP4 MW-BR1 MW-I3s MW-16s MW-BR4
MW-Td MW-BR8 MW-104s MW-Rs MW-BR2
MW-17d MW-BR6 MW-Rd MW-Bd MW-105
MW-Cd MW-BR7 MW-BR-18

X-1 Radionuclide monitoring wells
MW-Qb MW-BR5 MW-A

Untreated Leachate

Column 4 – The following 2 locations represent the sample locations for untreated ash residue leachate from the SEEA and the NEEA, respectively:
L-1S (SEEA Lift Station) L-1N (NEEA Lift Station)

TABLE 3
TREATED LEACHATE SAMPLING PARAMETERS

Shelton Landfill

Shelton, Connecticut

Parameter	Units	EPA Method Number	Sample Frequency	Sample Type	DSN001-	DSN001-A
Arsenic, Total	mg/l	Per 40 CFR 136	Quarterly	Daily Compo-site	X	X
Barium, Total	mg/l	Per 40 CFR 136	Quarterly	Daily Compo-site	X	
Cadmium, Total	mg/l	Per 40 CFR 136	Quarterly	Daily Compo-site	X	
Chemical Oxygen Demand	mg/l	Per 40 CFR 136	Quarterly	Daily Compo-site	X	
Copper, Total	mg/l	Per 40 CFR 136	Quarterly	Daily Compo-site	X	
Lead, Total	mg/l	Per 40 CFR 136	Quarterly	Daily Compo-site	X	
Nickel, Total	mg/l	Per 40 CFR 136	Quarterly	Daily Compo-site	X	
Zinc, Total	mg/l	Per 40 CFR 136	Quarterly	Daily Compo-site	X	
Total Volatile Hydrocarbons	μg/l	Via EPA Method 624	Quarterly	Grab	X	
Biochemical Oxygen Demand (5-Day)	mg/l	Per 40 CFR 136	Monthly	Grab	X	
Total Suspended Sol-ids	mg/l	Per 40 CFR 136	Monthly	Grab	X	
Total Nitrogen	mg/l	Per 40 CFR 136	Monthly	Grab	X	

Notes:
1. Quarterly sampling is to be conducted in the months of January, April, July, and October.
2. All chemical analyses shall be performed by a laboratory certified for such analyses by the Connecticut Department of Public Health.

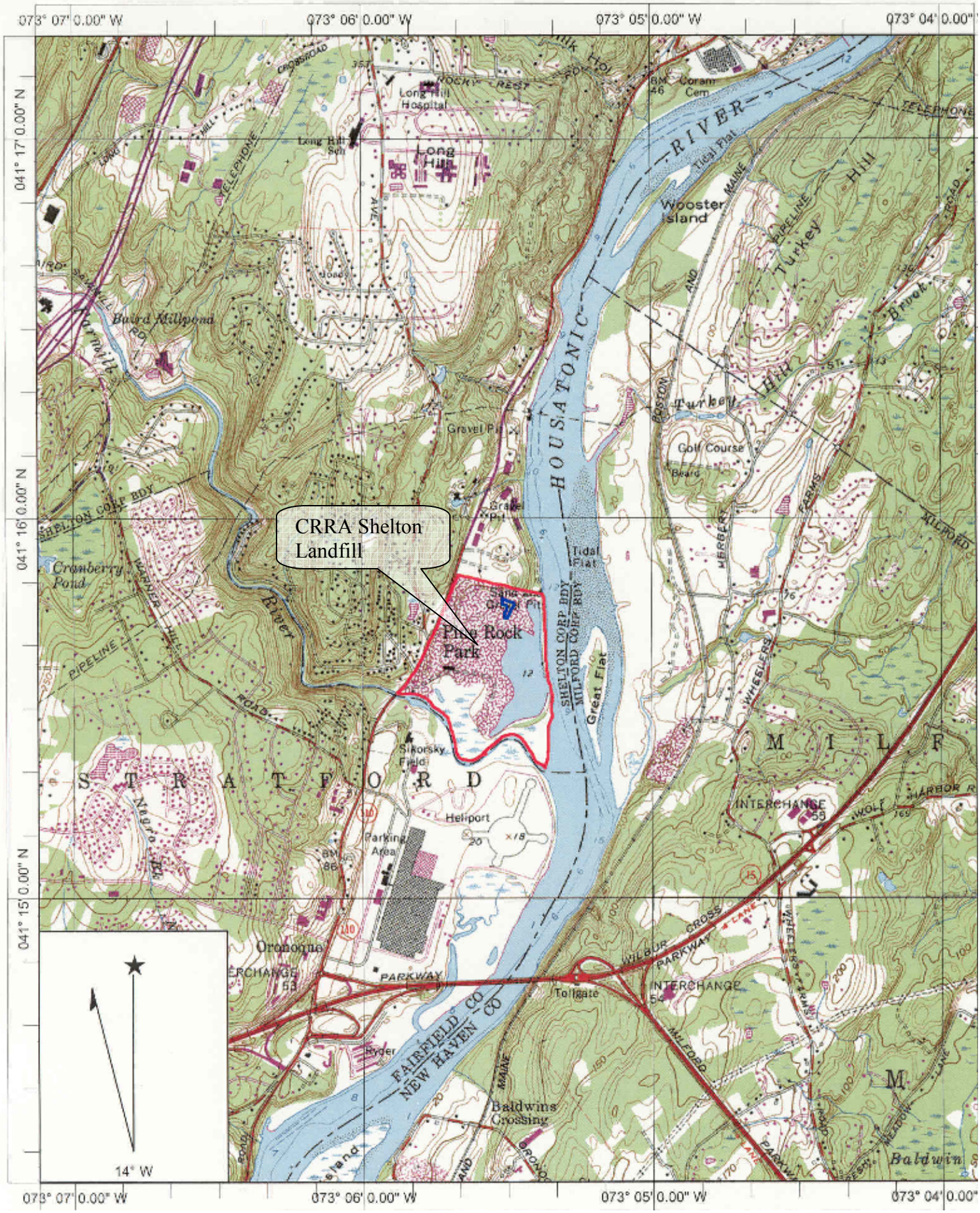
FIGURES

Figure 1: Site Location Plan

Figure 2: Water Quality Monitoring Site Plan

APPENDIX A - Permits

DEP/HWM/CS-126-005	**Stewardship Permit** **(Dated September 16, 2009)** **56 Pages**
LF0000052	**Discharge of Leachate from Municipal Solid Waste Ash Residue to Ground Water** **(Dated August 27, 1996, with Modification Dated September 5, 1997)** **30 Page Permit, plus 3 Page Modification**
LF0000023	**Discharge of Sanitary Landfill Leachate to Ground Water** **(Dated January 11, 1985)** **4 Pages**
SP0001459	**Pretreatment Permit for Discharge of Pre-Treated Leachate to the Sanitary Sewer** **(Dated December 5, 2012)** **12 Pages**
No Number	**Special Permit to Discharge to the Sanitary Sewer of the Town of Stratford** **(Dated June 16, 2009)** **1 Page**
No Number	**Approved Water Quality Monitoring Plan** **(Dated March 15, 2010)** **69 Pages**



USGS Topo Quad Name: ANSONIA
Source: Maptech, Inc. (1997)

Figure 1 – Site Location
CRRA Shelton Landfill
866 River Road
Shelton, Connecticut
Scale: 1" = 2,000'±

North

LEGEND

- MONITOR WELL IN SAMPLING NETWORK
- OTHER SITE MONITOR WELL
- PROPOSED MONITOR WELL
- EXISTING STILLING WELL
- SW-5 SURFACE WATER SAMPLING POINT
- 10 REPRESENTATIVE GROUNDWATER CONTOURS
- GROUNDWATER FLOW

SW-1
LOT 2
SENECA TRAIL
LOT 151
LOT 152
LOT 153
LOT 145
LONG HILL AVE.
LOT 171
LOT 180
LOT 172
LOT 173
LOT 174
RIVER ROAD (CONN. ROUTE 110)
STATE HIGHWAY LINE
BEDROCK OUTCROP
N/F UNITED AIRCRAFT
STRATFORD
SHELTON
FAR MILL RIVER
SHORE LINE
STILLING WELL #2
STILLING WELL #1
WETLANDS
L-2 (TREATMENT FACILITY)
L-1 (LIFT STATION)
APPROXIMATE LIMIT OF MSW LANDFILL
APPROXIMATE LIMIT OF ASH DISPOSAL AREA
INTERIM ASH DISPOSAL AREA
SOUTHEAST EXPANSION AREA FOR ASH DISPOSAL
NORTHEAST EXPANSION AREA
LIMIT OF SATURATED OVER BURDEN
METAL HYDROXIDE SLUDGE CELL (CLOSED)
HOUSATONIC RIVER LAGOON
N/F CRRA
HOUSATONIC RIVER
MW-BR-15D
MW-103
MW-BR-15S
MW-GP1
MW-BR3
MW-GP2
MW-GP3
MW-Gd
MW-102D
MW-BR-14S
MW-BR-14D
MW-BR4
MW-GP4
MW-M
MW-B1
MW-B2
MW-BR-9
MW-BR-10
MW-BR-11
MW-BR-12
MW-BR-13
MW-BR-16D
MW-BR-16S
MW-104D
MW-104S
MW-BR5
MW-E
MW-Ed
MW-BR7
MW-D2d
MW-Hs
MW-H2d
MW-105
MW-BR-17D
MW-BR-17S
MW-D2
MW-Cd
MW-C
MW-Cs
MW-Bd
MW-D1
MW-Bs
MW-BR2
MW-BR6
MW-13s
MW-A
MW-BR-18
MW-Qb
MW-BR-19
MW-100
MW-BR1
MW-Td
MW-Ts
MW-S1
MW-S2
MW-S2d
[MW-JS(OLD)]
MW-Rs
MW-Rd
SW-2
SW-3
SW-4
SW-5
0
4
8
12
16
20
24

120 0 60 120
APPROXIMATE SCALE
(1" = 120')

REVISIONS

NO.	DATE	DESCRIPTION

MONITOR WELL NETWORK

CRRA SHELTON LANDFILL

RIVER ROAD (ROUTE 110)
SHELTON, CONNECTICUT

GTS DESIGNED	APPROVED	APPROX. 1" = 120' SCALE
BOB DRAWN	FEB. 23, 2010 DATE	Figure 2
GTS CHECKED	CRR0149.GW PROJECT NO.	SHEET NO.

J:\C\CRRAU - CT RESOURCES RECOVERY AUTHORITY\RIVER RD, SHELTON\CRR0149GW\CAD\FIGURE 7 - MONITOR WELL NETWORK.dwg, Layout1, 3/12/2010 4:11:02 PM, DWG To PDF.pc3, Plot stamp

Environmental Monitoring, Laboratory Analysis, and Reporting Services - Form of Agreement Exhibit A3

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Mr. Peter W. Egan
Director of Environmental Affairs
Connecticut Resource Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, CT 06103

September 16, 2009

Re: Transmittal Letter- Shelton Landfill Stewardship Permit
EPA ID No. CTD000604546
Permit No. DEP/HWM/CS-126-005

Dear Mr. Egan:

The Commissioner of the Department of Environmental Protection ("DEP') has made a final permit decision in accordance with Chapters 439 and 446k of the Connecticut General Statutes ("CGS") to issue the Stewardship Permit to the Connecticut Resources Recovery Authority ("CRRA") for the Shelton Landfill. This permit became effective on the date it was signed by the Commissioner and shall expire ten (10) years from that date. Included with this letter you will find the signed Stewardship Permit.

The permit regulates and authorizes CRRA to complete post-closure care inclusive of water quality monitoring, landfill gas decomposition monitoring, leachate collection; and environmental investigation and cleanup ("corrective action" measures) at the Shelton Landfill. The permit does not authorize CRRA to accept waste or to operate the facility. The permit requires CRRA to complete the post-closure care and corrective action activities in accordance with a schedule, fulfill its cleanup obligations, and provide financial assurance for environmental cleanup.

The draft Stewardship Permit was public noticed on July 7, 2009 and the comment period closed at the end of the business day on August 20, 2009. The DEP received comments from the United States Environmental Protection Agency ("US EPA") dated August 17, 2009 addressing the draft permit. The comments have been evaluated and are addressed by the DEP in the Response to Comments, Attachment A pursuant to Section 22a-449(c)-110(a)(2)(a)(KKK) of the Regulations of Connecticut State Agencies, incorporating 40 CFR 124.179(a). The Response to Comments specifies which provisions of the draft permit have been changed in the final permit decision, the reasons for the change to the final permit and also provides the reasons for not making other revisions which were requested.

The permit includes a Compliance Schedule, Section III, which identifies the submittals that CRRA must complete within specific timeframes. Failure to fulfill these conditions may result in violations, suspension or revocation of the permit.

The permit is transferrable upon the Commissioner's written authorization, provided the Permittee and potential transferee have complied with the requirements set forth for permit transfer in the permit and CGS Section 22a-6o.

If you have any questions or need additional information regarding this transmittal letter, please contact Lauren Kostiuk of my staff at (860) 424-3155 or e-mail Lauren.Kostiuk@ct.gov.

Sincerely,

Diane W. Duva

Diane W. Duva
Assistant Director
Waste Engineering and Enforcement Division
Bureau of Materials Management and Compliance Assurance

Encl.(3): Stewardship Permit
Certificate of Stewardship
Response to Comments, Attachment A

cc: Stuart Gray, Chief Hazardous Waste Unit, Compliance Enforcement Section, EPA Region I, 1 Congress Street, Suite 1100 (CHW), Boston, MA 02114-2023
James Chow, EPA Region I, 1 Congress Street, Suite 1100 (CHW), Boston, MA 02114-2023

ATTACHMENT A
RESPONSE TO COMMENTS

Connecticut Resources Recovery Authority, Shelton Landfill
Stewardship Permit No. DEP/HWM/CS-126-005

Comments from the United States Environmental Protection Agency ("US EPA") Dated August 17, 2009, Followed by DEP Responses

1. Page 13 – Section II.A.9.(b) – The condition notes the requirement for the repair/replacement of malfunctioning equipment but there was no schedule for the repair or replacement of the malfunctioning equipment. A repair/replacement condition should be included in the permit.

   Comment accepted.

   The condition has been revised to state: "The Permittee shall remove and inspect each primary and secondary leachate collection system sump pump on a semi-annual basis. Such inspections shall be recorded on an inspection log in accordance with the requirements of Condition No. II.A.7. of this permit. The Permittee shall repair or replace any malfunctioning pump within seventy-two (72) hours after the date of the inspection or the date the Permittee is made aware of the need for repair. When conditions arise which do not allow for the repair or replacement to be completed within seventy-two (72) hours, the Permitteee shall notify the Department in writing. Such notification shall include a description of the repair to be made, the date the repair will be made and the interim measures taken until the repair is completed. This information shall also be recorded in the inspection records."

2. Page 20 – Section III.A.1 – Consultant – In addition to the naming and designation of the "Consultant" as required in the compliance schedule, the language in this condition should be revised to include clearer language noting that the CTDEP will be notified in writing for approval whenever there is a change in the "Consultant" during the life of the permit.

   Comment accepted.

   The condition has been revised to state: "The Permittee shall designate and assign an environmental compliance expert who may be a full-time employee of the Permitee, and/or retain one or more qualified consultants, acceptable to the Commissioner to prepare the documents required by Condition Nos. II.B.2. and III.C.2. and shall, by that date, notify the Commissioner in writing of the identity of such environmental compliance expert and/or consultants. The Permiteee shall assign such environmental compliance expert and/or retain such qualified consultant, acceptable to the Commissioner, until Condition No. III.C.1. of this permit is fully complied with. The Permittee shall notify the Commissioner in writing of the identity of any environmental compliance expert or consultant otherthan the one approved by the Commissioner, within ten (10) days after assigning or retaining any environmental compliance expert or consultant for the purpose of addressing the actions required by this permit. The Permittee shall submit to the Commissioner a description of the assigned environmental compliance expert's and/or consultant's education, experience and training which is relevant to the work required by this permit within ten (10) days after a request for such a description. Nothing in this paragraph shall preclude the Commissioner from finding a previously acceptable environmental compliance expert or consultant unacceptable."

CERTIFICATE OF STEWARDSHIP

The Commissioner of Environmental Protection has made a final administrative decision to issue a Stewardship Permit to the **Connecticut Resources Recovery Authority** for the Shelton Landfill, EPA ID No. CTD000604546, located at 866 River Road, Shelton, Connecticut.

This permit is for the continuation of facility post-closure care inclusive of water quality monitoring, landfill decomposition gas monitoring, leachate collection; and corrective action activities, meaning environmental investigation and remediation, at the facility and may be transferred upon the written authorization of the Commissioner. Opportunity for public comment has been provided in accordance with state and federal requirements.

This action is based on the obligation to initiate and complete post-closure care and environmental clean-up work required by state laws and regulations, including RCRA Corrective Action and Closure, and requires compliance with Connecticut's Solid Waste Management Regulations and Hazardous Waste Management Regulations, as well as state and federal guidance.

September 16, 2009

Amey W. Marrella

Amey W. Marrella
Commissioner

Environmental Monitoring Laboratory Analysis and Reporting Services Form

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Stewardship Permit

Pursuant to Chapters 439 and 446k of the Connecticut General Statutes, a permit is issued to:

Permittee:
Connecticut Resources Recovery Authority
Shelton Landfill
866 River Road, Shelton, CT 06484

Facility Identification:
EPA ID No. CTD000604546
Permit Number: DEP/HWM/CS-126-005

To perform site-wide environmental investigation and cleanup ("post-closure care" and "corrective action measures") at the hazardous and solid waste disposal facility in accordance with Connecticut General Statutes ("CGS") Sections 22a-6, 22a-449(c) and 22a-454, and Section 22a-449(c)-110 of the Regulations of Connecticut State Agencies ("RCSA") as specified in the conditions set forth in this permit.

This permit regulates and authorizes the Permittee to perform post-closure care and corrective action measures at the facility. The permit does not authorize operation of a hazardous and solid waste management facility in the sense of treating, storing, or disposing of hazardous and solid wastes generated off-site.

All terms in this permit are defined in the permit or if not defined in the permit are as defined in Section 22a-449(c)-100 of the RCSA or in Title 40 of the Code of Federal Regulations ("CFR") Parts 260, 261, 262, 264, 268, 270, 273 or 279.

This permit is based on the information described in the Resource Conservation and Recovery Act ("RCRA") Part A filed by the applicant on November 7, 2002 and the Stewardship application filed on May 5, 2009. The Permittee must keep records of all data used to complete the permit application and any supplemental information submitted for the effective term of this permit. The permit application and RCRA Part A filing are incorporated by reference as part of the permit. Any false statements or inaccuracies contained in the information submitted by the Permittee may result in the suspension, revocation or modification of this permit and civil or criminal enforcement action.

The Permittee shall comply with all terms and conditions contained in the following sections of the permit: Section I (Standard Facility Conditions) pages 1 through 10; Section II (Authorized Activities) pages 11 through 19; Section III (Compliance Schedule) pages 20 through 21; Appendices A-1, and B-1; and the information contained in the Permittee's permit application, except where the application is superseded by the more stringent conditions contained herein. Any violation of any provision of this permit may subject the Permittee to enforcement action pursuant to the CGS including but not limited to Sections 22a-6a and 22a-131.

This permit is transferrable upon the Commissioner's written authorization, provided the Permittee and potential transferee have complied with the requirements set forth in CGS Section 22a-6o.

This permit may be revoked, suspended, modified, transferred, or reissued, in order to comply with applicable law. The Commissioner may also modify this permit when it is deemed necessary to do so.

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The Permittee shall submit a revised permit application to the Commissioner at least one hundred and eighty (180) calendar days before making any changes to any of the permitted areas or activities. Any application shall be approved in writing by the Commissioner prior to the Permittee implementing such change. The Permittee shall submit an application for a renewal of this permit to the Commissioner at least one hundred eighty (180) calendar days prior to its expiration date.

The terms and conditions of the permits listed below are hereby superseded with the terms and conditions of this permit. Subsequently, the permits listed below are hereby revoked for administrative purposes.

1. Approval of the Plans and Operational Specifications of Municipal Bulky Waste Disposal Area for the Town of Shelton, CT dated June 1969;
2. Permit to Operate No. 126-1 issued on October 6, 1977;
3. Approval for the metal hydroxide sludge disposal at the Shelton municipal landfill dated January 4, 1980;
4. Permit to Operate No. 126-1E issued on August 12, 1983;
5. Permit Modification No. 126-1EM issued on December 24, 1984;
6. Permit to Operate No. 126-1-E issued on November 14, 1986;
7. Permit Modification No. 126-1E-M issued on February 22, 1988;
8. Minor Permit Amendment No. 126-1E issued on September 1, 1988;
9. Minor Permit Amendment No. 126-1E issued on May 11, 1989;
10. Permit Variance No. 126-1VA issued on September 1, 1989;
11. Minor Permit Amendment No. 126-1E issued on February 25, 1993;
12. Permit to Operate No. 1260227 issued on April 19, 1994; and
13. Permit Modification No. 1260399 issued on August 25, 1998.

In the event of a conflict between any previously issued solid waste permit and the terms and conditions of this permit, the terms and conditions of this permit shall supersede.

Condition No. 3(B)(iii) of Groundwater Discharge Permit No. LF0000052 issued on August 27, 1996 and Condition No. 3E of Groundwater Discharge Permit No. LF0000023 issued on January 11, 1985 are superseded by the requirements of this permit.

This permit is hereby in effect and shall expire ten (10) years from this date.

September 16, 2009
Date

Amey W. Marrella
Amey W. Marrella
Commissioner

STEWARDSHIP PERMIT
Connecticut Resources Recovery Authority
Shelton Landfill

866 River Road
Shelton, CT

EPA ID No. CTD000604546
Permit No. DEP/HWM/CS-126-005

SECTION I

Stewardship Permit
Standard Facility Conditions

Connecticut Resources Recovery Authority
Shelton Landfill

EPA ID No. CTD000604546
Permit No. DEP/HWM/CS-126-005

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CRRA Shelton Landfill
866 River Road
Shelton, CT

EPA ID No. CTD000604546
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STEWARDSHIP PERMIT
SECTION I
STANDARD FACILITY CONDITIONS

A. EFFECT OF PERMIT

Except as is provided in the Regulations of Connecticut State Agencies (RCSA) Section 22a-449(c)-110(a)(2) and except for any federally enforceable requirement(s), compliance with this permit during its term constitutes compliance, for purposes of enforcement, with Connecticut General Statutes (CGS) Section 22a-449(c). This permit may be modified, revoked and reissued, or terminated during its term as set forth in RCSA Section 22a-449(c)-110(a)(1), which incorporates by reference Title 40 of the Code of Federal Regulations (40 CFR) Parts 270.41, 270.42 and 270.43.

The Permittee shall perform post-closure care inclusive of surface and groundwater monitoring, landfill decomposition gas monitoring, leachate collection and corrective action in accordance with its application (Application No. 200901273 and 200100602) received by the Department of Environmental Protection ("the Department") on May 5, 2009 and February 28, 2001, respectively, and the requirements of this permit. In the event of a conflict between the Permittee's application and the requirements of this permit, the requirements of this permit shall take precedence and apply.

The issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state, federal or local law or regulations.

Term (Duration) - The effective date of this permit is the date on which the permit is signed by the Commissioner. This permit is in effect for a term of ten (10) years and may be renewed at the end of the term, in accordance with the requirements described in Condition No. I.E.2., "Duty to Reapply."

In accordance with 40 CFR 270.73(a), upon issuance of this permit the Permittee's Interim Status granted under the Resource Conservation and Recovery Act ("RCRA") is hereby terminated. In addition, upon the Commissioner's determination that the Permittee has satisfied the requirements of this permit, a Certificate of Completion shall be issued to the Permittee.

B. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstances is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

C. CONFIDENTIAL INFORMATION

The Permittee may claim that any information required to be submitted by this permit contains or constitutes confidential information in accordance with CGS Section 1-210(b).

D. IMMINENT HAZARD ACTIONS

Notwithstanding any provision of this permit, enforcement actions may be brought pursuant to Section 7003 of the Resource Conservation and Recovery Act, CGS Section 22a-6, or any other applicable law.

E. DUTIES AND REQUIREMENTS

1. Duty to Comply. The Permittee shall comply with all conditions of this permit except that the Permittee need not comply with the conditions of this permit to the extent and for the duration such noncompliance is authorized in an Emergency Permit that explicitly authorizes any such noncompliance. Noncompliance by the Permittee with the terms of this permit, except under the terms of an Emergency Permit, shall constitute a violation of this permit and any applicable laws or regulations and is grounds for enforcement action, for permit termination, revocation and reissuance or for denial of a permit renewal. Emergency Permit as used herein shall mean Emergency Permit as identified in RCSA Section 22a-449(c)-110(a)(1) incorporating 40 CFR 270.61.

   A violation of this permit for purposes of state and federal law constitutes a violation of a RCRA permit.

2. Duty to Reapply. This permit shall expire ten (10) years after the effective date of this permit. If the Permittee wishes to continue engaging in an activity regulated by this permit after the expiration date of this permit, the Permittee shall apply for renewal of this permit one hundred eighty (180) calendar days prior to the date of expiration of this permit, in accordance with the requirements of RCSA Sections 22a-449(c)-104(a) and 22a-449(c)-110 incorporating 40 CFR 264.101, 270.10(h) and any other applicable law.

3. Obligation for Post-Closure Care and Corrective Action. The Permittee is required to continue this permit for any period necessary to comply with the post-closure care and corrective action requirements of this permit.

4. Need to Halt or Reduce Activity Not a Defense. It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce any activity authorized by this permit in order to maintain compliance with the conditions of this permit, unless otherwise required to do so by another state or federal authority.

5. Duty to Mitigate. In the event of noncompliance with this permit, the Permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent its noncompliance from having significant adverse impacts on human health or the environment. No action taken by the Permittee pursuant to this section of this permit shall affect or limit the Commissioner's authority under any other statute or regulation.

6. Permit Actions. This permit may be modified, revoked and reissued, or terminated as provided for in 40 CFR 270.41, 270.42 or 270.43, and in accordance with all applicable law, including but not limited to, CGS Sections 22a-6g and 6h and RCSA Sections 22a-3a-5 and 22a-449(c)-110. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any condition of this permit.

7. Property Rights. This permit does not convey any property rights of any sort, or any exclusive privilege to the Permittee.

8. Duty to Provide Information. The Permittee shall furnish to the Commissioner, within a reasonable time, any information which the Commissioner may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee shall also furnish to the Commissioner, upon request, copies of records required to be kept by this permit.

9. Post-Closure Maintenance. The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance, at a minimum, includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate laboratory quality assurance procedures. This provision requires the operation of backup, auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.

10. Inspection and Entry. The Permittee shall allow the Commissioner, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

(a) Enter at reasonable times upon the Site where a regulated activity is located or conducted, or where records must be kept under the conditions of this permit;

(b) Have access to and copy, at reasonable times, any records that shall be kept under the conditions of this permit;

(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, operations regulated or required under this permit; and

(d) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by RCRA, any substance or parameters at any location.

11. Security. Pursuant to RCSA Section 22a-449(c)-104 incorporating 40 CFR 264.14, the Permittee shall prevent the unknowing entry, and minimize the possibility for unauthorized entry, of persons or livestock onto the active portion of the Facility. The Permittee shall secure the Facility to the extent necessary to protect human health.

12. Preparedness, Prevention, Contingency Plan and Emergency Procedures.

(a) The Permittee shall comply with the requirements of RCSA Section 22a-449(c)-104(a)(1) incorporating 40 CFR 264 Subpart C "Preparedness and Prevention" and 40 CFR 264 Subpart D "Contingency Plan and Emergency Procedures" until the termination of this permit.

(b) The Permittee shall choose an entity to provide emergency response services at the Site from the Department of Administrative Services contract (Contract No. 04PSX0275) and ensure that such entity has a permit issued by the Commissioner pursuant to CGS Section 22a-454 authorizing such entity to provide emergency response services. The Permittee shall ensure that any action(s) taken by an entity (including such entity's officers, employees, agents

and subcontractors) providing emergency response services at its Facility conform to the requirements of this permit.

13. Monitoring and Records.

(a) The Permittee shall ensure that samples and measurements taken for the purpose of monitoring are representative of the monitored activity.

(b) The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit (i.e. records from groundwater monitoring, landfill gas monitoring and groundwater surface elevations), the certification required by RCSA Section 22a-449(c)-104 incorporating 40 CFR 264.73(b)(9), and records of all data used to complete the application for this permit, for the Post-Closure Period. This period may be extended by request of the Commissioner at any time.

(c) Records for monitoring information shall include:
- (i) The date, exact place and time of sampling or measurements;
- (ii) The individual(s) or company who performed the sampling or measurements;
- (iii) The date(s) analyses were performed;
- (iv) The individual(s) or company who performed the analyses;
- (v) The analytical techniques or methods used; and
- (vi) The results of such analyses.

14. Operating Record. The Permittee shall maintain, in writing, the following information in the Facility's operating record until termination of this permit:

(a) Summary reports and details of all incidents that require implementing the Contingency Plan pursuant to 40 CFR 264 Subpart D;

(b) Records and results of inspections as required by this permit, except this data need only be kept for three (3) years from the date of any such inspection;

(c) Monitoring, testing or analytical data, and corrective action where required by 40 CFR 264 Subpart F or any regulatory section noted in 40 CFR 264.73(b)(6);

(d) All post-closure and corrective action cost estimates, as applicable, under RCSA Section 22a-449(c)-104 and 40 CFR 264.142 and 40 CFR 264 Subpart H; and

(e) Any other information required by this permit or by any applicable law to be maintained in the Facility operating record.

15. Signatory Requirements. The Permittee's application and all reports or information submitted to the Commissioner by the Permittee pursuant to this permit shall be signed by the person specified in and contain the certification prescribed in RCSA Section 22a-449(c)-110 incorporating 40 CFR 270.11.

16. Transfers. This permit is not transferable to any person without the advanced written authorization of the Commissioner. The Commissioner may request any information deemed necessary regarding the potential transferee. Before any such transfer, the Permittee and any proposed transferee shall fully comply with the requirements of CGS Section 22a-6o. The Commissioner may require modification or revocation and reissuance of this permit to change the name of the Permittee and as an incident to any such transfer, incorporate such other requirements, as the Commissioner deems necessary.

In advance of transferring ownership or operation of its Facility prior to the termination of this permit, the Permittee shall notify the prospective new owner or operator in writing of the requirements of this permit, 40 CFR 264 through 270, and of the RCSA Section 22a-449(c)100 et. al. The Permittee shall provide such prospective new owner or operator with a copy of this permit.

The Permittee's failure to notify the new Permittee of the requirements of this permit in no way relieves the new Permittee of his obligations to comply with all applicable requirements.

If the transfer of the property takes place and the Permittee retains the permit, an access agreement between the Permittee and the prospective new owners of the Facility shall be approved by the Commissioner prior to the sale of the Facility/Site. The agreement shall include the anticipated times, locations and frequency of access needed in order for the Permittee to complete closure, post-closure care and corrective action activities and conduct inspection, operation and management activities for all remedial systems. A copy of the Post Closure Plan, referenced in Condition No. II.A.1., and the Water Quality Monitoring Plan, referenced in Condition No. II.B.1 of this permit, shall be provided to the prospective new owner prior to transfer of the property.

17. Reporting Requirements.

(a) Anticipated Non-Compliance. The Permittee shall give as much advance written notice as possible to the Commissioner of any planned changes in the Facility or activity, which may result in non-compliance with any requirement of this permit.

(b) Compliance Schedules. Except where otherwise provided for in this permit, reports of compliance and non-compliance with, or any progress reports on, interim and final requirements contained in any Compliance Schedule (Section III) of this permit, shall be submitted no later than fourteen (l4) calendar days following each schedule date, to the extent such reports are required herein.

(c) Twenty-four Hour Reporting.

(i) The Permittee or designee shall orally report to the Commissioner any condition resulting from remedial activity or waste related activity at its Facility, irrespective of whether such activity is in compliance with the requirements of this permit, which does or may pose an imminent and substantial endangerment to human health or the environment, immediately but not later than twenty-four (24) hours from the time the Permittee becomes aware or should be aware of the circumstances causing such endangerment.

The report to the Commissioner shall include:

(A) Name, address, and telephone number of the Permittee;
(B) Name, address, and telephone number of the Facility;
(C) Date, time and type of incident;
(D) Description of the occurrence and its cause;
(E) Name and quantity of waste(s) or constituents thereof involved;
(F) The extent of injuries, if any;
(G) An assessment of actual or potential hazards to human health and the environment;
(H) Estimated quantity and disposition of recovered waste that resulted from the incident;
(I) All information concerning the release of any waste or constituents thereof that may cause an endangerment to public drinking water supplies; and
(J) All information concerning a release or discharge of waste or constituents thereof or of a fire or explosion from the Facility, which could threaten human health or the environment

(ii) A written submission shall also be provided within five (5) calendar days of the time the Permittee becomes aware of the circumstances described in subdivision (i) above. The written submission shall contain a description of the endangerment and its cause; the period of endangerment including exact dates and times, if the endangerment has been abated, and if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the endangerment. The Permittee shall maintain in the operating record of its Facility a copy of all such written reports. The Commissioner may waive the five (5) day written notice requirement in favor of a written report within fifteen (15) days of the incident requiring reporting.

(iii) Nothing in this section shall effect or relieve the Permittee of its obligations under CGS Sections 22a-6u or 22a-450.

(d) Other Noncompliance. The Permittee shall report all instances of noncompliance with this permit not otherwise required to be reported by this permit to the Commissioner along with any other required monitoring report, no later than thirty (30) days after the date the Permittee is aware, or reasonably should have been aware of any such noncompliance. Any such report shall contain, at a minimum, the information listed in Condition No. I.E.17.(c)(i) of this permit.

(e) Other Information. When the Permittee becomes aware that it failed to submit any relevant facts or information in a permit application, or submitted incorrect information in a permit application, report or other document provided to the Commissioner regarding this permit, it shall submit such relevant facts or correct information to the Commissioner within thirty (30) calendar days of becoming aware of such facts or information.

18. Computation of Time.

(a) Except as is expressly provided for in this permit, the computation of time periods set forth in this permit shall be as follows:

(i) Any time period scheduled to begin on the occurrence of an act or event shall begin on the day after the act or event.

(ii) Any time period scheduled to begin before the occurrence of an act or event shall be computed so that the period ends on the day before the act or event.

(iii) If the final day of any time period falls on a Saturday, Sunday or a federally or state recognized legal holiday or state mandated furlough day, the time period shall be extended to the next working day.

(b) Submission of Reports. Where this permit requires the submission of a written report, a notification or other information or documentation to the Commissioner, the report or notification shall be deemed submitted on the date such report, notification or other information is received by the Department.

19. Availability, Retention and Disposition of Records. The Permittee shall ensure that all records required under RCSA Sections 22a-449(c)-100 to 119 et. seq. or this permit, including all plans, are furnished upon request, and made available at all reasonable times for inspection, by any officer, employee, or representative of the Department or the U.S. Environmental Protection Agency ("EPA").

The retention period for all records required under RCSA Sections 22a-449(c)-100 to 119 and this permit is extended automatically during the course of any unresolved enforcement action regarding the Facility or as requested by the Commissioner or Regional Administrator of EPA.

20. Additional Requirements. Requirements not included in this permit, which become effective by statute or regulation, and not made specifically inapplicable to facilities with a permit, shall apply to the Permittee's Facility. In the event of any conflict between this permit and any such requirement, the Permittee shall comply with the more stringent requirement. If the Permittee does not fully comply with the more stringent requirement, the Department may enforce either requirement.

21. Federal, State and Local Laws. Nothing in this permit shall be construed to prohibit any federal, state or political subdivision thereof from imposing any requirements to the extent authorized by law which are more stringent than those imposed by this permit. In addition, nothing in the permit shall relieve the Permittee of its obligation to comply with any other applicable federal, state, or local statute, regulation or ordinance.

22. Modification of the Compliance Schedule.

(a) The Permittee may request to modify the submittal due dates of the Compliance Schedule (Section III) of this permit at any time. Such requests shall be submitted for the Commissioner's review and written approval and shall include sufficient justification for such request(s).

(b) The Commissioner may grant extensions of submittal due dates based on the Permittee's demonstration that sufficient justification for the extension exists. Extensions to due dates, which this permit explicitly defines as being due by a

certain time or during a certain time interval, may be granted by the Commissioner if sufficient justification for the extension is demonstrated by the Permittee.

F. DEFINITIONS

Any term not otherwise defined herein shall be defined as that term is defined in RCSA 22a-449(c)-100 thru 119 incorporating 40 CFR 264 through 279.

1. "Annual" means that sampling and analysis shall occur no later than December 31st of the calendar year. The results of such sampling and analysis shall be submitted to the Commissioner no later than March 1st of the subsequent year.

2. "CFR" means the Code of Federal Regulations in effect on the date that this permit is issued.

3. "Commissioner" means the Commissioner of Environmental Protection as defined in the CGS Section 22a-2 or the Commissioner's duly authorized designee.

4. "Facility" shall mean, pursuant to 40 CFR 261.10, all contiguous land, structures, other appurtenances and improvements on the land, used for treating, storing or disposing of hazardous and solid waste and all contiguous property in control of the owner or operator.

   For the purposes of this permit, Facility shall mean the 110-acre parcel of land located at 866 River Road in Shelton, CT and subject to the requirements of this permit. Facility does not include the Former Crump Property.

5. "Former Crump Property" means the 6.3-acre parcel of land to the north of the Municipal Solid Waste/Ash Area.

6. "Hazardous Waste" or "Hazardous Wastes" shall mean hazardous waste as identified or listed as hazardous waste pursuant to 42 U.S.C. Section 6901 et. seq. and RSCA Section 22a-449(c)-101.

7. "Metal Hydroxide Sludge Cell Area" means the 1.7-acre area located in the northeast quadrant of the Facility atop the Municipal Solid Waste/Ash Area. This area was used for the disposal of approximately 10,000 to 16,000 cubic yards of hazardous wastes (EPA hazardous waste code F006) consisting of metal finishing wastewater treatment sludge and iron oxide from local industries.

8. "Municipal Solid Waste / Ash Area" means the 37-acre area located in the central portion of the Facility that was used for the disposal of municipal solid wastes and ash residue.

9. "Northeast Lined Ash Area" or "Northeast Expansion Area" means the 3.1 acre area located in the northeast corner of the Facility adjacent to the Housatonic River lagoon. This area consists of three double lined cells used for the disposal of ash residue.

10. "Period of Active Remediation" shall mean the period of time prior to the completion of remedial activity conducted pursuant to this permit, with the exception of that period when the only remaining activity is post-remediation monitoring and monitored natural attenuation.

11. "Permittee" shall mean the person responsible for the overall operation of the facility who has been issued a license by the Commissioner. As used herein "person" is defined

in Section 22a-423, Chapter 446k, of the CGS and "license" is defined in Section 4-166, Chapter 54 of the CGS.

12. "Post-Closure Period" means a minimum of thirty (30) years from the date of certification of closure of the Facility. This period may be extended or shortened by the Commissioner in accordance with 40 CFR 264.117(a)(2). For the purposes of this permit, the start date of the post-closure period is April 27, 2001.

    Please note: For sites in which waste will remain in place, the post-closure period shall be extended at the Commissioner's discretion. In the event the waste is removed, an alternate post-closure period may be approved by the Commissioner.

13. "Quarterly" means that sampling and analysis shall occur once every three (3) consecutive months in a calendar year (i.e. January, April, July and October). The results of the sampling and analysis shall be submitted to the Commissioner within sixty (60) calendar days of the date of sampling.

14. "Semi-annual" means that sampling and analysis shall occur during the months of April and October each calendar year. The results of the sampling and analysis shall be submitted to the Commissioner within sixty (60) calendar days of the date of sampling.

15. "Site" means the same or geographically contiguous property which may be divided by public and private right-of-way, provided the entrance and exit between the properties is at a cross-road intersection, and access is by crossing opposed to going along, the right-of-way. Non-contiguous properties owned by the same person but connected by a right-of-way that he controls and to which the public does not have access, is also considered part of the Site property.

    For the purposes of this permit, there are five areas that comprise the Site: "Metal Hydroxide Sludge Cell Area", "Municipal Solid Waste / Ash Area", "Northeast Lined Ashe Area", "Southeast Lined Ash Area", and "Former Crump Property". Herein after the term "Site" shall refer to all five areas.

16. "Southeast Lined Ash Area" or "Southeast Expansion Area" means the 6.5 acre area located in the southeast corner of the Shelton Landfill Property near the confluence of the Housatonic River and Farmill River. This area consists of four double lined cells used for the disposal of ash residue.

17. "Weekly" means once every seven (7) calendar days.

SECTION II

Stewardship Permit
Authorized Activities

Connecticut Resources Recovery Authority
Shelton Landfill

EPA ID No. CTD000604546
Permit No. DEP/HWM/CS-126-005

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Section II – Authorized Activities

SECTION II
AUTHORIZED ACTIVITIES

A. POST-CLOSURE REQUIREMENTS

1. Post-Closure Care Plan. The Permittee shall perform post-closure care of the Site in accordance with the Post-Closure Plan, included in CRRA's application (included as Appendix A-1 of this permit). Herein after, the "approved Post-Closure Plan".

2. Modifications of Post-Closure Plan. The Permittee shall submit a written notification or request for a permit modification to authorize a change in the approved Post-Closure Plan in accordance with the applicable requirements of 40 CFR 124 and 40 CFR 270. The written notification or request must include a copy of the amended post-closure plan for the Commissioner's review and written approval.

3. Copy of Post-Closure Plan. The Permittee shall ensure that a copy of the approved Post-Closure Plan is kept at CRRA Headquarters or at an alternate location acceptable to the Commissioner, until the Post-Closure Period has been completed and certified in accordance with the requirements of this permit.

4. Completion of Post-Closure Period.
   (a) The Permittee shall notify the Commissioner in writing two (2) calendar years prior to the anticipated end date of the Post-Closure Period for the Northeast and Southeast Lined Ash Areas.

   (b) Within sixty (60) calendar days after the completion of the Post-Closure Period, the Permittee shall submit to the Commissioner by registered mail or equivalent means, a certification signed by both the Permittee and by an independent registered professional engineer stating that the post-closure care for the Site, was performed in accordance with the specifications in the approved Post-Closure Plan. Documentation supporting the independent, registered professional engineer's certification shall be furnished to the Commissioner upon request.

5. Ecological Risk Assessment. Pursuant to RCSA Section 22a-133k-1 et. seq. ("Remediation Standard Regulations"), the Permittee shall prepare and submit for the Commissioner's review and written approval an Ecological Risk Assessment evaluating the potential for ecological receptors to be exposed to contaminants and to ensure that any remedial goals and objectives address protection for those receptors from existing or potential contaminant exposures.

6. Notification Requirements for Newly Discovered Releases.
   (a) The Permittee shall notify the Commissioner in writing of any newly discovered release(s) of hazardous waste or hazardous waste constituents discovered during the course of post-closure care, surface and groundwater monitoring, environmental audits, or other means, within fifteen (15) calendar days of the date of discovery.

(b) If the Commissioner determines that further investigation of the Site is needed, the Permittee shall be required to prepare a plan for further investigation within sixty (60) calendar days of notification by the Commissioner.

7. Inspections.

(a) The Permittee shall inspect the Facility for malfunctions, deterioration, and discharges, which may lead to any release of hazardous or solid wastes. The Permittee shall remedy any deterioration which an inspection reveals, to ensure that the problem does not lead to an environmental hazard. Where a hazard is imminent or has already occurred, remedial action shall be taken immediately.

(b) The Permittee shall ensure that inspections are performed on a quarterly basis by a registered professional engineer. Such inspections shall include, but not be limited to:

(i) Odors and dust control;
(ii) Condition of the access road;
(iii) Erosion, settling, subsidence or other events that may affect the grading;
(iv) Integrity of the final cover soils and vegetation;
(v) Integrity of the containment structure and benchmarks;
(vi) Drainage control; and
(vii) Leachate seeps.

(c) The Permittee shall record all inspections on an inspection log. Such inspection logs shall include: the date and time of the inspection, the name of the inspector and company affiliation, a notation of the observations made, and the date and nature of any repairs. Inspection logs shall be kept for at least three (3) years from the date of the inspection or for longer if a more stringent condition applies; and maintained in either an electronic format with a hard copy available to the Commissioner upon request, or as a written copy in the Facility's operating record.

8. Maintenance of Final Cover. The Permittee shall ensure that the final cover for the Site is properly maintained and repaired when necessary in accordance with the approved Post-Closure Plan. Proper maintenance shall include, but not be limited to, ensuring that:

(a) Established vegetation is cut to the proper length to ensure that the root depth is less than six inches for the Metal Hydroxide Sludge Cell Area, Northeast Lined Ash Area and Southeast Lined Ash Area;

(b) For areas in which erosion has occurred, the lost material shall be replaced and the area re-seeded; and

(c) Obstructions to the drainage structures are removed and properly disposed.

9. Leak Detection System.

(a) The Permittee shall ensure that the leak detection systems for the Southeast Lined Ash Area and Northeast Lined Ash Area are properly maintained and operational at all times. The Permittee shall ensure that any hazard that is identified is immediately corrected and noted in the inspection logs maintained pursuant to Condition No. II.A.7. of this permit.

(b) The Permittee shall remove and inspect each primary and secondary leachate collection system sump pump on a semi-annual basis. Such inspections shall be recorded on an inspection log in accordance with the requirements of Condition No. II.A.7. of this permit. The Permittee shall repair or replace any malfunctioning pump within seventy-two (72) hours after the date of the inspection or the date the Permittee is made aware of the need for repair. When conditions arise which do not allow for the repair or replacement to be completed within seventy-two (72) hours, the Permitteee shall notify the Department in writing. Such notification shall include a description of the repair to be made, the date the repair will be made and the interim measures taken until the repair is completed. This information shall also be recorded in the inspection records.

(c) The Permittee shall inspect and monitor the flow meters for the pumps of the leak detection system on a monthly basis. During such inspections, the Permittee shall record a reading of the flow meter; and shall submit such records on a quarterly basis to the Department.

10. Leachate Collection and Removal System

(a) The Permittee shall maintain and operate the leachate collection and removal systems for the Northeast Lined Ash Area and the Southeast Lined Ash Area in accordance with the requirements of the Pretreatment Permit (Permit No. SP0001459) issued by the Department on June 27, 2001 or as renewed or modified by the Commissioner.

11. Landfill Decomposition Gas System.

(a) The Permittee shall operate and monitor the landfill decomposition gas collection system in accordance with the requirements of:

(i) 40 CFR 258.23;

(ii) The New Source Review Permit to Construct and Operate the Shelton Landfill Gas Collection System and Enclosed Flare (Permit No. 163/0119-0091), herein after the "Flare Permit" or as renewed or modified by the Commissioner; and

(iii) The CRRA Shelton Landfill Gas Systems Operation and Gas Migration Monitoring Plan originally issued April 20, 2000 and revised on February 27, 2002, herein after the "approved Gas Monitoring Plan" or as renewed or modified by the Commissioner.

In the event of a conflict between the requirements of the Flare Permit and the approved Gas Monitoring Plan, the requirements of the Flare Permit shall take precedence.

(b) The Permittee shall prepare and submit for the Commissioner's review and written approval a revised gas monitoring plan for the Site to reflect current site conditions.

(c) The Permittee shall submit a written notification or request for a permit modification to authorize a change in the approved Gas Monitoring Plan in accordance with the applicable requirements of 40 CFR 124 and 270. The written

notification or request must include a copy of the amended gas monitoring plan for the Commissioner's review and written approval.

(d) The Permittee shall ensure that the landfill decomposition gas collection system and associated equipment are properly operated and maintained at all times in accordance with the Flare Permit and approved Gas Monitoring Plan.

(e) The Permittee shall monitor and inspect the landfill decomposition gas monitoring system in accordance with the requirements of the Flare Permit and approved Gas Monitoring Plan.

(f) The Permittee shall inspect and test all on-site and off-site soil gas probes and continuous monitoring devices in accordance with the requirements of the Flare Permit and approved Gas Monitoring Plan to confirm proper operation of the sensors and to test for the presence of methane gas.

12. Public Participation Plan. The Permittee shall develop and implement a Public Participation Plan. Such plan shall, at a minimum, include provisions for:
(a) A public notice prior to the start of or completion of remedial activities or the completion of post-closure care inclusive of landfill decomposition gas and surface and groundwater monitoring at the Site or area affected by the Site or any portion thereof consistent with Condition No. II.A.13. of this permit and the requirements of CGS Section 22a-134(i);
(b) The submittal of a copy of such notice to the Commissioner ten (10) calendar days prior to the date of the publication; and
(c) The submittal of a written summary of all comments received and responses thirty (30) calendar days after the end of the comment period.

The Commissioner shall review the summary of the comments and the Permittee's responses and shall either: adopt the responses, adopt the responses with modifications, or reject the responses and prepare a response to each comment.

In the event of substantial changes in the remedial or post-closure care approach, the Commissioner may require an additional opportunity for public comment with respect to such changes.

13. Public Notice Requirements. The Permittee shall provide public notice of any proposed remediation and the Commissioner's tentative determination that remediation and/or post-closure care inclusive of landfill gas decomposition and surface and groundwater monitoring is complete. Each public notice must provide a forty-five (45) calendar day comment period and a public information meeting no earlier than thirty (30) calendar days from the date of the public notice and no later than forty five (45) days after the date of the public notice.
(a) Prior to the commencement of any proposed remedial action, the public notice shall summarize the investigations undertaken, the results of the investigations, clearly identify the proposed remedial activities, and include an address and telephone number for a contact person. The Permittee shall:
(i) Publish the notice in a newspaper having substantial circulation in the municipality in which the Site or the affected area is located;

(ii) Broadcast the notice on a radio station during the high volume listening times on the same day the notice is published;

(iii) Provide a copy of the notice to the Chief Elected Official and the Director of Health of the municipality where the Site or affected area is located;

(iv) Provide a copy of the notice to the owner or operator of the Site (if the Permittee is not the Site owner or operator) and to all persons on the Facility mailing list maintained pursuant to 40 CFR 124.10(c)(1)(ix); and

(v) Erect and maintain a sign at least six (6) feet by four (4) feet for at least thirty (30) calendar days in a legible condition at the Site, clearly visible from the public highway and including the words "ENVIRONMENTAL CLEAN_UP IN PROGRESS AT THIS SITE. FOR FURTHER INFORMATION CONTACT:", and a telephone number at which any interested person may obtain additional information about the remediation.

(b) Prior to the Commissioner's final determination that remediation and/or post-closure care inclusive of landfill decomposition gas monitoring and surface and groundwater monitoring is complete, the Permittee shall:

(i) Publish the notice in a newspaper having substantial circulation in the municipality in which the Site or the affected area is located;

(ii) Broadcast the notice on a radio station during the high volume listening times on the same day the notice is published;

(iii) Provide a copy of the notice to the owner or operator of the Site (if the Permittee is not the Site owner or operator) and to all persons on the Facility mailing list maintained pursuant to 40 CFR 124.10(c)(1)(ix); and

(iv) Include a summary of the basis for the Commissioner's determination.

(c) Upon the completion of the public comment period the Commissioner shall make a final determination. If the final determination is that the post-closure period and remediation is complete then the Stewardship Permit will be terminated and a Certificate of Completion will be issued.

B. WATER QUALITY MONITORING REQUIREMENTS

1. Water Quality Monitoring Plan. The Permittee shall perform surface water and groundwater monitoring in accordance with the Groundwater Monitoring Plan, included in CRRA's application (included as Appendix B-1 of this permit) until it is superseded by the approval of a revised Water Quality Monitoring Plan submitted pursuant to Condition No. II.B.2. of this permit. Herein after, the "approved Water Quality Monitoring Plan".

2. Revised Water Quality Monitoring Plan. The Permittee shall prepare and submit for the Commissioner's review and written approval a revised water quality monitoring plan for the Site that incorporates the requirements of CGS Section 22a-430 and the Groundwater Discharge Permit (Permit Nos. LF0000023 andLF0000052) issued on January 11, 1985 and August 27, 1996 respectively.

3. Modifications of Approved Water Quality Monitoring Plan. The Permittee shall submit a written notification or request for a permit modification to authorize a change in the approved Water Quality Monitoring Plan in accordance with the applicable requirements of 40 CFR 124 and 270. The written notification or request must include a copy of the amended water quality monitoring plan for the Commissioner's review and written approval.

4. Copy of Approved Water Quality Monitoring Plan. The Permittee shall ensure that a copy of the approved Water Quality Monitoring Plan is kept at CRRA Headquarters or at an alternate location acceptable to the Commissioner, until the groundwater monitoring has been completed and certified in accordance with the requirements of this permit.

5. Proper Operation and Maintenance. The Permittee shall at all times properly operate and maintain all monitoring wells which are installed or used by the Permittee to achieve compliance with this permit. Proper maintenance, at a minimum, includes inspections to detect existing and potential problems and adequate funding to maintain proper conditions and repair any problems at the Site.

6. Quality Assurance Project Plan. The Permittee shall prepare and submit for the Commissioner's review and written approval a Quality Assurance Project plan ("QAPP"), prepared in accordance with the document titled: *Quality Assurance Guidance for Conducting Brownfield's Site Assessments*, US Environmental Protection Agency OSWER Directive No. 9230.0-83P, and incorporating Connecticut's Reasonable Confidence Protocols. The Permittee shall ensure that the data is of sufficient quality to make decisions regarding the investigation, potential remediation and monitoring of the Site.

7. Monitoring Frequency. The Permittee shall perform surface and groundwater monitoring on a quarterly basis until the Commissioner approves in writing the Ecological Risk Assessment submitted in accordance with Condition No. II.A.5. of this permit. After the Commissioner has approved the Ecological Risk Assessment, the Permittee may re-evaluate the Water Quality Monitoring Plan. If such re-evaluation results in proposed changes to the approved Water Quality Monitoring Plan, the Permittee shall submit

written notification of such changes and an amended plan for the Commissioner's review and written approval.

8. Future Corrective Action. If the Commissioner determines that the surface and groundwater monitoring data indicates the soil and/or groundwater remediation was not effective, the Permittee shall within one hundred eighty (180) days of the Commissioner's notice, submit for the Commissioner's review and written approval, a plan for additional soil, surface water and groundwater characterization and establishment of a corrective action program consistent with the objectives of 40 CFR 264.100.

9. Completion of Water Quality Monitoring. Within sixty (60) calendar days after the completion of surface and groundwater monitoring (i.e. end of the Post-Closure Period), the Permittee shall submit to the Commissioner by registered mail or equivalent means, a certification signed by both the Permittee and by an independent registered professional engineer stating that the surface and groundwater monitoring for the Site, was performed in accordance with the specifications in the approved Water Quality Monitoring Plan. Documentation supporting the independent, registered professional engineer's certification shall be furnished to the Commissioner upon request.

C. FINANCIAL RESPONSIBILITY

1. The Permittee shall submit for the Commissioner's review and written approval written estimate(s) of the current cost to performing post-closure care inclusive of surface and groundwater monitoring, landfill decomposition gas monitoring, and leachate collection of the Site for the Post-Closure Period in accordance with the requirements of this permit. The Permittee shall ensure that such written estimates are prepared in accordance with the methodology specified in RCSA 22a-449(c)-104 incorporating 40 CFR 264.142(a) and 40 CFR 264.144(a), as applicable. Note a fifteen percent (15%) contingency shall be applied to the estimates for unforeseeable elements or events which may increase the cost of performing corrective action.

2. Upon request by the Permittee, the Commissioner may approve periodic reductions in the amount of financial assurance commensurate with the completion of corrective action activities. Such request shall include a revised cost estimate and demonstration of completed work activities which equates to at least a fifteen percent (15%) reduction in the estimated costs.

3. The Permittee shall maintain such financial assurances in effect until the Commissioner notifies the Permittee in writing that it is no longer required to maintain such a mechanism for financial assurances as provided for in Condition No II.C.6. of this permit.

4. Within sixty (60) calendar days after receiving the certification, submitted pursuant to Condition Nos. II.A.4.(b) and II.B.9., that post-closure care inclusive of surface and groundwater monitoring and landfill decomposition gas monitoring of the Site has been completed in accordance with the approved Post-Closure Plan, approved Water Quality Monitoring and approved Gas Monitoring Plan, the Commissioner will notify the Permittee in writing that it is no longer required to maintain financial assurance for post-closure care of the Site, unless the Commissioner has reason to believe that post-closure care has not been performed and/or completed in accordance with the approved Post-Closure Plan, approved Water Quality Monitoring Plan and approved Gas Monitoring Plan. The Commissioner shall provide the Permittee with a detailed written statement of any such reason(s) to believe that post-closure care has not been performed and/or completed in accordance with the approved plans.

5. If the Permittee fails to perform any of the terms or conditions of this permit, the financial assurance shall be available to the Commissioner to perform such terms or conditions of this permit provided that, prior to drawing upon any mechanism(s) for financial assurance, the Commissioner shall notify Permittee, in writing, of the alleged failure to perform and provide Permittee with a reasonable period of not less than fifteen (15) calendar days in which to remedy the alleged non-performance.

D. MISCELLANEOUS

1. The Permittee shall not operate the Facility in any manner that stores, treats, or disposes of hazardous or solid wastes or in any way manages hazardous or solid wastes other than hazardous or solid wastes that may be generated during Facility maintenance, authorized closure and/or corrective action activities. Such waste shall be managed in accordance with all applicable regulations. The Permittee shall comply with all applicable requirements of RCSA Section 22a-449(c)-102 incorporating 40 CFR Part 262 "Standards Applicable to Generators of Hazardous Waste".

PART 1: POST-CLOSURE PLAN

1. GENERAL REQUIREMENTS

1.1 Location and Number of Post Closure Plans

There are three Post-Closure Plans for the Shelton Landfill. The Plans are assigned to the following at the indicated locations:

Peter W. Egan
Director of Environmental Affairs and Development
Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, CT 06103

Connecticut Resources Recovery Authority Environmental Files
Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, CT 06103

1.2 Identification and Location of Person Responsible for Facility During Post-Closure Period

The person responsible for the Shelton Landfill during the post-closure period is Peter W. Egan, CRRA Director of Environmental Affairs and Development. Mr. Egan is located as follows:

Peter W. Egan
Director of Environmental Affairs and Development
Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, CT 06103
(860) 757-7725

1.3 Procedures for Updating Post-Closure Plan

When updates of the Post-Closure Plan are required, CRRA prepares the update and distributes copies to the appropriate personnel at CRRA Headquarters. In addition, copies of the updated Plan are forwarded to the United States Environmental Protection Agency ("USEPA") and the Connecticut Department of Environmental Protection ("CTDEP").

1.4 General Description of the Closed Facility

The Shelton Landfill is located in southwestern Connecticut in the City of Shelton. A site plan for the Landfill is Exhibit 1 to this Plan. The Housatonic River and an interconnected lagoon abut the facility to the east and the Farmill River and it associated tidal wetlands bound the facility to the south. The western portion of the facility is

bounded by River Road (State Route 110), and the commercially zoned Former Crump Parcel (now owned by CRRA) borders the northern property boundary. The general area surrounding the facility is primarily commercial/industrial. Sikorsky Aircraft is located in the Town of Stratford, approximately one mile south of the facility.

The Shelton Landfill consists of 110 acres of land. The early site history is only partially known and only since circa 1892 when Charles Wakelee owned the property. It is not known if Mr. Wakelee ever developed the property. Mr. Wakelee owned the site until circa 1927. Site ownership is unknown from circa 1927 until circa 1955. In 1955, the site was owned by Alfred Gallucci and members of his family who operated a sand and gravel pit and construction company on site. It was also noted that an asphalt plant was in operation on site from circa 1945 until circa 1981. In 1967 the town of Shelton leased the property from Mr. Gallucci to run a municipal landfill. In 1977, the town hired William Archer and/or Archer Landfill Services Corporation to operate the landfill activities. Mr. Archer operated the landfill until 1983, when operations were taken over by Connecticut Resources Recovery Authority ("CRRA"). CRRA bought the site in August 1983 and continued active landfilling activities onsite until February 1998. CRRA continues to perform post-closure care and environmental monitoring, including operation of a landfill gas collection system, a landfill gas flare, and an ash leachate collection and pretreatment system.

1.4.1 Shelton Landfill

The Shelton Landfill consists of four parts, described below.

(a) The Municipal Solid Waste/Ash Area consists of 37 acres of the property. The City of Shelton initially received a permit in October of 1977 for the disposal of municipal solid waste ("MSW"). In August of 1983, just prior to CRRA's purchase of the Shelton Landfill, CTDEP issued a solid waste permit to CRRA for expansion and operation of the solid waste disposal area at the Landfill. The solid waste permit was modified in 1988 to allow CRRA to dispose of ash residue from waste-to-energy facilities on top of the existing MSW landfill. The ash residue was added in a roughly 22-acre parcel on top of the original 37-acre footprint. Ash disposal in this area occurred from February 1988 until August 1994, and this area received final cover from the winter of 1996 to 1997. Final CTDEP approval for the closure was obtained on March 30, 1999.

(b) The Southeast Lined Ash Area is located at the southeast corner of the landfill property, near the confluence of the Housatonic River and the Farmill River, along the Housatonic River Lagoon. It covers approximately 6.5 acres of land. The Southeast Lined Ash Area consists of four double-lined cells with leachate collection systems, which discharge to the sanitary sewer via a leachate pretreatment (pH-adjustment) system. The Southeast Lined Ash Area accepted ash residue from August 1994 until June 1996, when the Area received a Posishell® interim cover. The base pad (beneath the liner layers) of the Southeast Lined Ash Area was constructed partly from dredged spoils from Bridgeport Harbor, which were contaminated with volatile organic compounds (VOC's). The final cover for the Southeast Lined Ash Area

was completed at the end of May 2000 and CTDEP approved closure of the Area in April 2001.

(c) The Northeast Lined Ash Area is located at the northeast corner of the landfill, adjacent to the Housatonic River and the Housatonic River Lagoon. It covers approximately 3.1 acres of land. The Northeast Lined Ash Area consists of three double-lined cells with a leachate collection system that discharges through the same leachate pretreatment system that treats the Southeast Lined Ash Area leachate. Ash residue was landfilled in the Northeast Lined Ash Area from June 1996 until February 1998 and received final cover in October 1999. CTDEP approved closure of the Area in April 2001.

(d) The Metal Hydroxide Sludge Area/Cell is a former hazardous waste disposal area that covers approximately 1.7 acres atop the 37-acre MSW landfill. The Metal Hydroxide Sludge Area/Cell is located in the northeastern quadrant of the site. The Metal Hydroxide Sludge Area/Cell is comprised of metal-finishing wastewater treatment sludge (i.e. metal hydroxide sludge [MOH], RCRA-Listed Waste Code F006). It has also been reported that iron-hydroxide sludge from lime treatment of spent pickle liquor from steel finishing operations, which was generated historically by Raymark, Inc. (or Raybestos Friction Materials Company), was also landfilled in the Metal Hydroxide Sludge Area/Cell. The iron hydroxide sludge was generated through the operation of a surface impoundment located in the central-southeast side of the property between 1975 and 1983. On March 18, 1981, USEPA granted a temporary exclusion to the Raybestos facility in Stratford, Connecticut for the treated spent pickle liquor, so the USEPA returned Mr. Gallucci's Part A application that was submitted for operation of the surface impoundment. The Metal Hydroxide Sludge Area/Cell last received hazardous waste in April, 1983, and was certified closed by CTDEP in October 1989.

1.4.2 Shelton Transfer Station

In March 1991, CTDEP issued to CRRA a "Permit to Construct" (SW-1260136) a transfer station on approximately one/half acre in the southwestern portion of the Shelton Landfill. CTDEP issued to CRRA a "Permit to Operate" (SW-1260154) for the transfer station in October 1991. While CRRA held the permits for the transfer station and owned it, the transfer station was operated by the City of Shelton and was available only for the use of Shelton residents to drop-off their waste.

In January 2009, CRRA leased the transfer station to the City of Shelton for its continued operation. In February 2009, the City of Shelton registered the transfer station under the Municipal Transfer Station General Permit (Registration No. 1260902-MTSGP) and, subsequently CRRA surrendered the "Permit to Construct" and the "Permit to Operate" the transfer station. In March 2009, CTDEP acknowledged CRRA's surrender of the permits.

To CRRA's knowledge, no materials were ever disposed on the portion of the Landfill where the transfer station is located.

1.4.3 Former Crump Parcel

CRRA purchased the adjacent northerly property (the 200-foot wide Former Crump Parcel) in February 1996. The purchase was in part to obtain the groundwater rights of the parcel. A plume investigation at the north end of the landfill had indicated that there was contamination in the bedrock on the adjacent parcel. The contamination was in one location near a dip in the bedrock at the north central part of the Landfill. This contamination was attributed to leachate from the MSW/Ash Area or to off-site sources from the north or northwest. The investigation concluded that even under a worst-case scenario, a failure of the Northeast Lined Ash Area's liner(s) would not impact groundwater beyond the landfill's original northern boundary. To CRRA's knowledge, no landfilling activities have ever been conducted on the Former Crump Parcel.

The Former Crump Parcel has now been leased for use as a golf driving range and miniature golf course and batting cages. CRRA retains the groundwater rights to that parcel.

CRRA has also obtained the groundwater rights to the parcel north of the Former Crump Parcel, which has been developed for an indoor ice rink.

1.5 Documentation of Facility Relative to 100-Year Flood Plain Level

The 100- and 500-year flood elevation for the Housatonic River is 13.8 feet and 21.0 feet, respectively (FIRM Flood Insurance Study, Shelton, CT; US Department of Housing and Urban Development, July 1991). These elevations reflect the tidal influences in addition to stormwater elevations, thereby representing worst case conditions. At a minimum elevation of 64 MSL, the hazardous waste management unit will not be impacted by either the 500-year flood or the 100-year flood.

1.6 Description of Groundwater Monitoring Activities and Frequencies

Pursuant to the Groundwater Discharge Permits (LF0000023 for the MSW/Ash Area and LF0000052 for the Northeast and Southeast Lined Ash Areas) for the Shelton Landfill, quarterly monitoring of groundwater is required. In addition to submitting quarterly reports of the monitoring, CRRA also is required to submit an annual report summarizing the results of the quarterly monitoring.

Until October 1994, two separate quarterly groundwater monitoring reports were required, one for the MSW/Ash Area for CTDEP and another for the Metal Hydroxide Sludge Area/Cell for CTDEP and USEPA. With CTDEP's approval, the reports were combined beginning with the October 1994 quarterly report.

The hazardous waste monitoring program for the Metal Hydroxide Sludge Area/Cell has historically had statistically significant levels of several parameters at two downgradient wells. The MSW/Ash Area plume investigation that was completed in March 2003, however, concluded that the existing monitoring program needs to be

revised to account for the fact that the groundwater up-gradient of the cell has been impacted by the MSW/Ash Area plume. The five wells used for sampling under this program include two that are also used under the groundwater discharge permit monitoring program.

Domestic wells across River Road (State Route 110) from the Landfill and lysimeters had previously been monitored under the groundwater discharge permit. However, the properties where the domestic wells were monitored have been provided with a pubic drinking water supply and the lysimeters dried up years ago. Neither is monitored any longer.

When the Southeast Lined Ash Area opened in 1994, CRRA was required to sample, on a quarterly basis, eight additional groundwater monitoring wells, six surface water locations and two ash leachate sewer discharge locations.

CRRA began implementing some of the USEPA Subtitle D measures in its monitoring program during FY 1995. This resulted in sampling and testing for additional field parameters and expanding the list of metals for analysis. During FY 1996, an engineer consultant requested a lower flow rate for sample collection to obtain more accurate results. This increased field-sampling time and costs.

When the Northeast Lined Ash Area was developed, CTDEP revised the groundwater discharge permit to establish a comprehensive monitoring program that met USEPA's Subtitle D MSW landfill requirements. The amended permit provided for monitoring of well clusters wherever possible, added ash leachate sampling locations, expanded the surface water monitoring program and added USEPA Appendix II VOC monitoring for two sampling events. Also added was a quantitative and qualitative habitat characterization of the Farmill River and Housatonic Lagoon. The modified permit requires the following:

(a) Monitoring a total of 30 groundwater wells;

(b) Monitoring one water supply well (no longer in use);

(c) Monitoring two ash leachate sample locations;

(d) Monitoring 12 surface water sampling points;

(e) An expanded list of parameters to be monitored;

(f) Lower laboratory analysis detection levels; and

(g) Two detailed habitat characterizations.

1.7 Description of the Maintenance Activities and Frequencies for the Final Containment Structures and Facility Monitoring Equipment

1.7.1 Final Containment Structures

The final cover of the MSW/Ash Area of the Shelton Landfill consists of an 18-inch (minimum) layer of low permeability soil, a 6-inch layer of topsoil and

dense vegetation. The final cover of the Southeast and Northeast Lined Ash Areas consists of a sand bedding layer, a geomembrane cap, a drainage layer, a topsoil layer and vegetation. The final cover of Metal Hydroxide Sludge Area/Cell consists of a soil layer, a bentonite liquid containment liner, a synthetic membrane cap, a sand drainage layer, filter fabric, a cover soil layer and vegetation.

The Landfill is inspected quarterly by physically walking the site and making observations regarding the integrity of the cover and drainage facilities. Specifically, the inspector (required to be a professional engineer) notes evidence of erosion, settling, subsidence or other events affecting the cover, objects obstructing the drainage/run-off systems and disturbance to the cover. These constitute are the containment structures requiring maintenance or inspection. Any deficiencies are noted in the inspection report which is submitted to CTDEP and, if required, immediately repaired.

1.7.2 Facility Monitoring Equipment

The Shelton Landfill has monitoring equipment associated with the groundwater monitoring program, the leachate collection and pretreatment system and the landfill gas collection and monitoring system.

1.7.2.1 Groundwater Monitoring

The groundwater monitoring wells at the Landfill are discussed in Section 1.6, above. The groundwater is monitored quarterly by a contractor retained by CRRA (currently, Fuss & O'Neill). The condition of each well and well appurtenances are inspected during each monitoring event by the contractor and CRRA staff is notified of any wells requiring repair.

1.7.2.2 Leachate Collection and Pretreatment System

The Northeast and Southeast Lined Ash Areas are equipped with leachate collection systems and a pretreatment system for pH adjustment prior to discharge to the sanitary sewer. Leachate in the lined ash disposal cells is pumped to the pretreatment system by CRRA using automatic actuation features of the pumps. Data and maintenance records are maintained on-site by CRRA. CRRA conducts operation and maintenance of this system, typically on a weekly basis. CRRA contracts with vendors as necessary to maintain the system in operating condition.

1.7.2.3 Landfill Gas Collection and Monitoring System

CRRA operates an enclosed, "John Zink" flare to control landfill gas at the Shelton Landfill. Landfill gas is collected under vacuum through a number of central and perimeter extraction wells and associated header piping and directed to the enclosed flare for combustion. Vacuum is provided by one of two blowers connected to the system in parallel.

CRRA uses a contractor (currently, SCS Field Services) to perform gas monitoring and operation and maintenance of the gas system and flare. The contractor is on-site a minimum of once each week performing these services.

Perimeter soil gas concentrations on the west and north sides of the property are monitored by 12 continuous monitoring probes located on the property boundary and connected to an autodialer system. Seven non-continuous soil gas probes located on the property boundary are monitored quarterly (at a minimum), using a hand held instrument. In addition, 16 bar-punch soil gas probes located on both sides of the River Road right-of-way are monitored quarterly (at a minimum) using a hand held instrument. The south and east sides of the Landfill are bounded by the Housatonic and Farmill Rivers respectively, which provide a barrier to landfill gas migration.

On-site structure monitoring is performed quarterly (at a minimum). Although only required to monitor quarterly, CRRA typically monitors all on-site structures weekly as an added measure of safety. Many on-site structures are equipped with a continuous methane monitoring device. CRRA's contractor tests the continuous monitors at least monthly to ensure proper operation

Off-site structure monitoring for businesses and residences across River Road from the Landfill is performed quarterly (at a minimum). Although only required to monitor quarterly, CRRA typically monitors all off-site businesses monthly as an added measure of safety. For businesses, CRRA's contractor performs a monthly inspection and test to confirm operation of the sensor and to check for the presence of methane with a hand-held instrument. Six off-site businesses are currently equipped with continuous methane monitoring sensors.

Two residences located west of the landfill are also equipped with continuous methane monitoring sensors. CRRA's contractor performs a quarterly inspection and test to confirm operation of the sensor and to check for the presence of methane with a hand-held instrument. Recently, the occupants of the residences have not returned telephone calls from the contractor requesting permission to inspect and test the sensors and, therefore, the inspection and testing has not occurred.

1.8 Documentation of the Notice on the Deed

Documentation on the land records that the land was used to manage hazardous wastes and that the area has restricted use in included in Exhibit 2.

2. INSPECTION PROCEDURES AND SCHEDULE

2.1 Inspection Procedures

2.1.1 Quarterly Landfill Inspections

Pursuant to the Solid Waste Permits (SW-126-1E, SW-126-1VA, 1260181 and 1260227) for the Shelton Landfill, quarterly landfill inspections by a professional engineer are required. The inspections cover subject such as

- odors,
- dust control,
- final cover soils, vegetation and grading,
- drainage and erosion control,
- leachate seeps,
- access roads
- groundwater monitoring, and
- gas collection and monitoring.

The landfill inspections are conducted by David Bodendorf, CRRA's Senior Environmental Engineer and reports of the inspections are submitted to CTDEP.

2.1.2 Quarterly Groundwater Monitoring

Pursuant to the Groundwater Discharge Permits (LF0000023 and LF0000052) for the Shelton Landfill, quarterly monitoring of groundwater is required. The groundwater monitoring system is described in Section 1.6 above. The Groundwater Monitoring Plan for the Shelton Landfill provides a detailed description of the subject.

CRRA uses a contractor (currently, Fuss & O'Neill) to conduct the groundwater monitoring. On a periodic basis, CRRA conducts a competitive bid process to select a consultant to conduct the groundwater monitoring. The condition of each well and well appurtenances are inspected during each monitoring event by the contractor and CRRA staff is notified of any wells requiring repair.

2.1.3 Leachate Collection System Inspections

Pursuant to the Pretreatment Permit (SP0001459) for the Shelton Landfill, ash leachate from the Northeast and Southeast Lined Ash Areas is collected and, after pH adjustment, discharged to the Stratford sanitary sewer system. Leachate is sampled and analyzed on a quarterly basis. In addition, pursuant to a "Special Permit to Discharge to the Sanitary Sewer" issued to CRRA by the Town of Stratford, leachate is sampled and analyzed on a monthly basis for parameters not included by CTDEP in the sampling and analysis under the Pretreatment Permit.

CRRA uses a contractor (currently, Fuss & O'Neill) for the monthly (Stratford) and quarterly (CTDEP) leachate sampling and analysis. CRRA operates and

maintains the system itself with maintenance and inspection typically conducted on a weekly basis.

2.1.4 Landfill Gas System Monitoring and Inspection

Pursuant to CRRA's "Permit to Construct and Operate Gas Collection and Control System" (163-119-091) and Consent Order 1590, CRRA is responsible for a variety of monitoring and inspection activities related to landfill gas (methane) at the Shelton Landfill. CRRA uses a consultant (currently, SCS Field Services) to conduct monitoring and inspection activities. The landfill gas collection and monitoring system is described in Section 1.7.2.3 above.

CRRA's contractor performs gas monitoring, inspection and operation and maintenance of the gas system and flare. The contractor is on-site a minimum of once each week performing these services.

Perimeter soil gas concentrations on the west and north sides of the property are monitored by 12 continuous monitoring probes located on the property boundary and connected to an autodialer system. Seven non-continuous soil gas probes located on the property boundary are monitored and inspected quarterly (at a minimum), using a hand held instrument. In addition, 16 bar-punch soil gas probes located on both sides of the River Road right-of-way are monitored and inspected quarterly (at a minimum) using a hand held instrument.

On-site structure monitoring and inspection is performed quarterly (at a minimum). Although only required to monitor quarterly, CRRA typically monitors all on-site structures weekly as an added measure of safety. Many on-site structures are equipped with a continuous methane monitoring device. CRRA's contractor tests the continuous monitors at least monthly to ensure proper operation

Off-site structure monitoring for businesses and residences across River Road from the Landfill is performed quarterly (at a minimum). Although only required to monitor quarterly, CRRA typically monitors all off-site businesses monthly as an added measure of safety. For businesses, CRRA's contractor performs a monthly inspection and test to confirm operation of the sensor and to check for the presence of methane with a hand-held instrument. Six off-site businesses are currently equipped with continuous methane monitoring sensors.

Two residences located west of the landfill are also equipped with continuous methane monitoring sensors. CRRA's contractor performs a quarterly inspection and test to confirm operation of the sensor and to check for the presence of methane with a hand-held instrument. Recently, the occupants of the residences have not returned telephone calls from the contractor requesting permission to inspect and test the sensors and, therefore, the inspection and testing has not occurred.

2.1.5 Stormwater Semi-Annual Comprehensive Site Compliance Evaluations and Annual Monitoring

Pursuant to the "General Permit for the Discharge of Stormwater Associated with Industrial Activities" (Issued 10/01/02, Modified 07/15/03 and Re-Issued 10/02/08), as registered by Permit No. GSI000512 for the Shelton Landfill, Comprehensive Site Compliance Evaluations are performed semi-annually and stormwater samples are taken and analyzed on an annual basis. The results of the annual sampling and analysis are reported to CTDEP. During the Comprehensive Site Compliance Evaluations, there must be visual inspection of potential sources of pollution for evidence of, or the potential for, pollutants entering the stormwater drainage system. Structural stormwater management measures, erosion control measures and other structural pollution prevention measures must be observed to ensure that they are operating correctly.

The Comprehensive Site Compliance Evaluations are conducted by David Bodendorf, CRRA's Senior Environmental Engineer or Christopher Shepard, CRRA's Environmental Engineer.

2.2 Statement as to Where the Inspection Schedule and Logs Will Be Kept

The inspection schedule and logs will be kept at CRRA Headquarters, 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103.

3. ADDITIONAL REQUIREMENTS FOR LANDFILLS

3.1 List of Hazardous Wastes Placed in Each Cell

Between 1980 and 1983, approximately 10,685 to 16,028 cubic yards of metal hydroxide sludge was disposed in the Metal Hydroxide Sludge Area/Cell before it was closed. These sludges are listed hazardous wastes which have been assigned the EPA hazardous waste number F006, "Wastewater Treatment Sludge from Electro Plating Operations." The hazardous waste is an alkaline composition of metal hydroxide sludges primarily comprised of the metals cadmium, chromium, lead, nickel and zinc.

The Metal Hydroxide Sludge Area/Cell was placed directly on top of the MSW landfill in an area of no saturate overburden groundwater. During the RCRA closure of the Area/Cell, a portion of the sludge cell ("Area 1") was excavated and the metal hydroxide sludge was consolidated in "Area 2" of the Area/Cell. MSW was then disposed in and above "Area 1" and "Area 1" was capped with a modified RCRA cap. "Area 2," which contains all the metal hydroxide sludge that was landfilled in the hazardous waste cell, was then capped with a synthetic membrane cap.

3.2 Description of the System for Controlling Run-On and Run-Off

An evaluation of the volume and flow rate of surface infiltration was conducted to determine the drainage requirements for the final landform of the Metal Hydroxide Sludge Area/Cell. This evaluation was conducted in part by using data obtained from the "Hydrologic Evaluation of Landfill Performance" ("HELP") Model published by USEPA. Based on this evaluation, the measures which were proposed and ap-

proved for both surface and subsurface drainage will handle all surface infiltration with a significant factor of safety.

There are five stormwater outfalls for the Shelton Landfill. Pursuant to the CTDEP general permit for stormwater discharges, four representative locations are sampled on an annual basis. The discharges lead to the Far Mill River (a tidal tributary to the Housatonic River), or the Housatonic Lagoon, which is hydraulically connected to the Housatonic River. The sedimentation basins for the five stormwater outfalls are cleaned on an as needed basis.

3.3 Procedures for Maintenance and Repair of the Final Cover

The primary maintenance activity of the final cover required at those portions of the Shelton Landfill that have a synthetic cover (i.e., the Metal Hydroxide Sludge Area/Cell and the Northeast and Southeast Lined Ash Areas), consists of cutting the vegetative growth in order to limit the root depth to less than six inches and eliminate any observed obstructions of drainage facilities.

Repair of the cover typically consists of replacement of any lost material and reseeding. Drainage facility repair consists of removal and proper disposal of any obstruction objects. If the obstruction object is silt or soil material that has eroded off the surface of the Landfill, the material is used to repair the erosional feature and the area is re-seeded. However, since the last area of the Landfill that was closed was closed over seven years ago, the vegetative cover is mature and there are seldom erosional features that require repair.

3.4 Procedures for Monitoring and Maintenance of the Leak Detection System

There is no leak detection system for the MSW/Ash Area or the Metal Hydroxide Sludge Area/Cell at the Shelton Landfill.

The Southeast and Northeast Lined Ash Areas have a leak detection system. There are in-line flow meters just downstream from the pumps for the secondary liner system. The pumps are operated by CRRA using automatic actuation features of the pumps. These flow meters record the flow from the pumps. The meters are read on a monthly basis by a CRRA employee and the results are reported on a quarterly basis to CTDEP.

3.5 Procedures for Operation of the Leachate Collection/Removal System

There is no leachate collection/removal system for the MSW/Ash Area or the Metal Hydroxide Sludge Area/Cell at the Shelton Landfill.

The Southeast and Northeast Lined Ash Areas have a leachate collection and pretreatment system. Leachate is collected from the two Areas (each of which has its own lift station) and is conveyed to a 30,000-gallon underground storage tank. From there the leachate is piped to the pretreatment facility (for pH adjustment only) and final lift station before discharge to the sanitary sewer leading to the Stratford Water Pollution Control Facility. The ash leachate collection and pretreatment system began operation in August 1994 when the Southeast Lined Ash Area went into operation.

All of the pumps associated with the ash leachate collection and pretreatment system are operated by CRRA by using automatic actuation features on the pumps. The pH adjustment system is also operated by CRRA by using automatic actuation features of the system. While sampling and analysis of the leachate is only required on a monthly (Town of Stratford) and quarterly (CTDEP) basis, CRRA staff typically inspect and monitor the system on a weekly basis

3.6 Procedures for Maintenance of the Groundwater Monitoring System

The groundwater monitoring system is inspected during the quarterly landfill inspections and the periodic groundwater monitoring events (see Section 2.1.3 and the Groundwater Monitoring Plan for additional details). During both of these types of inspections, any damage to the wells or impairment to the drainage system is noted and corrective action is immediately undertaken if warranted.

3.7 Procedures for Ensuring Compliance with 40 CFR 264 Subpart F

A quarterly groundwater monitoring program has been instituted at the Shelton Landfill (see Section 2.1.3 and the Groundwater Monitoring Plan for additional details). The groundwater monitoring program will continue throughout the post-closure period. If any statistically significant change to the groundwater is detected, appropriate action will be taken immediately.

3.8 Procedures for Preventing Erosion of the Final Cap Due to Run-On and Run-Off

The final grading of the MSW/Ash Area and the Metal Hydroxide Sludge Area/Cell of the Shelton Landfill were designed with a three percent slope on the top surface and side slope of 3:1, which is conducive to preventing excess run-on and promoting run-off. The Northeast and Southeast Lined Ash Areas have a three percent slope on the top surface, but the side slopes have 2:1 grades with benching. This is also conducive to preventing excess run-on and promoting run-off.

The Landfill is designed so that run-off from disposal areas is collected in swales and diverted away from disposal areas to the five point source stormwater discharge points for the Landfill (see Section 3.2) from which it is discharged to off-site wetlands/surface waters.

The final cap on each of the four Areas of the Landfill has an established vegetative cover to protect it from erosion. The condition of the vegetation is one of the items monitored during the quarterly landfill inspections (see Section 2.1.1). For areas other than the MSW/Ash Area, in the event the inspector identifies the presence of deep-rooting plants or bare spots, corrective action is immediately taken. In addition, vehicular access is prohibited on the top of the Metal Hydroxide Sludge Area/Cell and the Northeast and Southeast Lined Ash Areas.

3.9 Procedures for the Protection and Maintenance of Benchmarks

During the quarterly landfill inspections (see Section 2.1.1), the benchmarks are checked to assure that no damage to the permanently surveyed benchmarks has

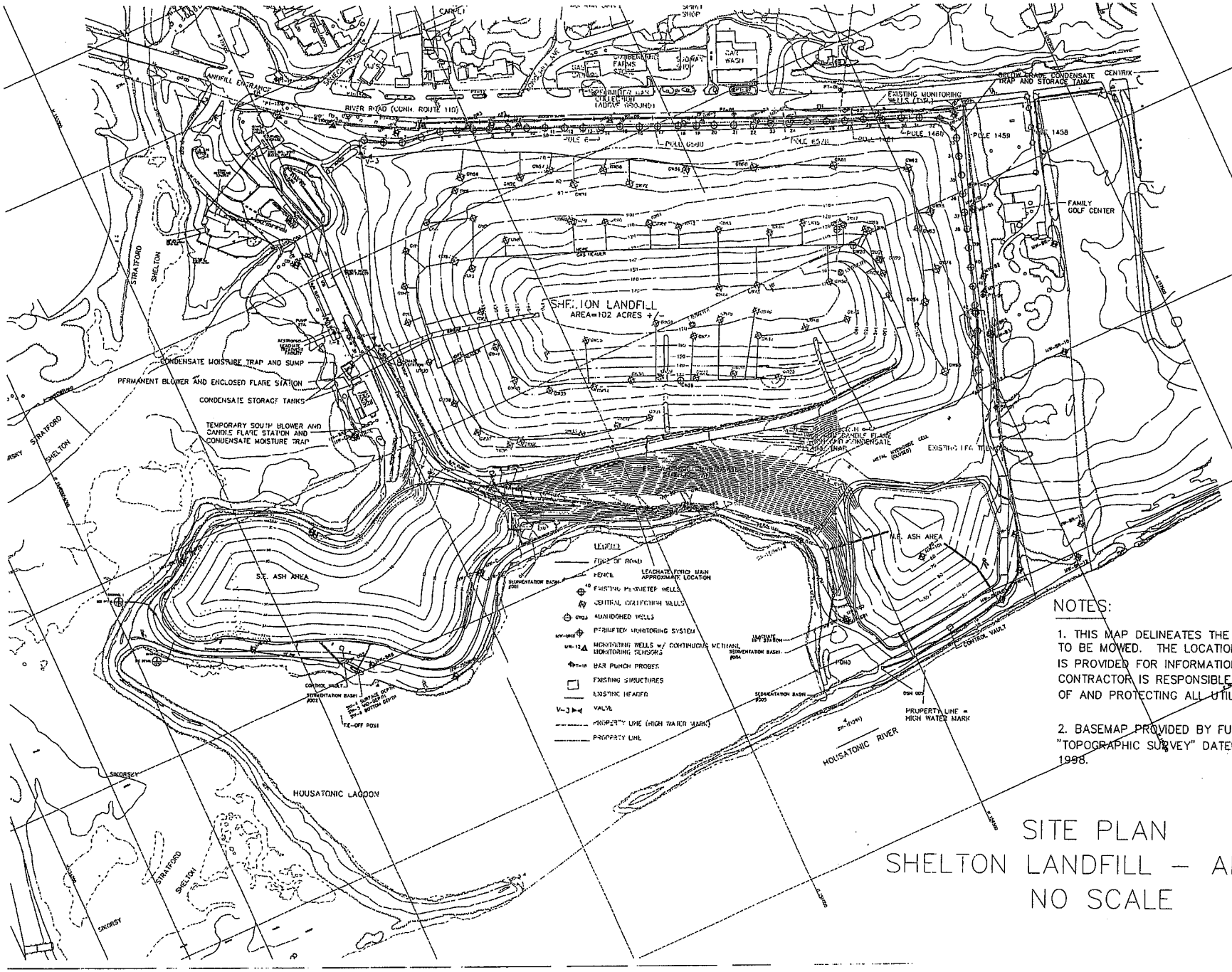
occurred. In the event that a problem is noted, corrective action will be undertaken as soon as possible.

3.10 Procedures for Inspecting Weekly and After Storms

The Shelton Landfill, including the Metal Hydroxide Sludge Area/Cell, is subject to four different types of inspections/monitoring, including landfill inspections on a quarterly basis (see Section 2.1.1), quarterly landfill gas monitoring (see Section 2.1.2), quarterly groundwater monitoring (see Section 2.1.3) and semi-annual stormwater evaluations (see Section 2.1.4). Based on the results of all of these types on inspections over the past ten years and on the maturity of the cover systems for all of the landfill units, CRRA does not consider it necessary to conduct weekly inspections of the Metal Hydroxide Sludge Area/Cell or inspections of the Area/Cell after storms.

EXHIBIT 1
TO
POST-CLOSURE PLAN

SITE PLAN



NOTES:

1. THIS MAP DELINEATES THE AREAS TO BE MOWED. THE LOCATION OF ANY UTILITIES IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATIONS OF AND PROTECTING ALL UTILITIES.

2. BASEMAP PROVIDED BY FUSS & O'NEILL "TOPOGRAPHIC SURVEY" DATED AUGUST 1998.

SITE PLAN
SHELTON LANDFILL – APRIL 2009
NO SCALE

EXHIBIT 2
TO
POST CLOSURE PLAN

DOCUMENTATION OF THE NOTICE ON THE DEED

I, PAUL R. MAZZACCARO, hereby certify on behalf of the CONNECTICUT RESOURCES RECOVERY AUTHORITY that a notation on the deed to the Shelton Landfill property located in Shelton, Connecticut, has been recorded with the Town of Shelton. The notation on the deed was recorded on May 25, 1989, Volume 903 pages 299-300. The notation was submitted in accordance with the requirements of 40 CFR 265.119(b)(1).

For THE CONNECTICUT RESOURCES RECOVERY AUTHORITY

Signature: Paul R. Mazzaccaro

Paul R. Mazzaccaro

Title: Project Manager

Date: 6/16/89

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TO WHOM IT MAY CONCERN:

I, PAUL R. MAZZACCARO, the undersigned, on behalf of the Connecticut Resources Recovery Authority, 179 Allyn Street, City of Hartford, County of Hartford, State of Connecticut, hereby gives the following notice as required by 40 CFR 265.119 of the Federal Regulations:

1. The Connecticut Resources Recovery Authority is, and since November, 1983 have been in possession in fee simple of the following described lands located in the Town of Shelton, State of Connecticut, as being shown as Area 1 and Area 2 on a map entitled "Survey Plat, Shelton Landfill, 866 River Road (Route 110) Shelton, Connecticut", Scale 1" = 100', Dated February 1989 by Fuss & O'Neill, Inc., said parcel being more particularly bounded and described as follows:

   Commencing at a point, said point being the northerly corner of the herein described parcel, said point further having the coordinates North 156,850.20 and East 505,931.94 based on the U.S.C.G.S. datum:

   Thence running South 72°-19'-43" East, 61.98 feet to a point;
   Thence running South 80°-39'-23" East, 70.00 feet to a point;
   Thence running South 68°-39'-01" East, 92.62 feet to a point;
   Thence running South 05°-01'-41" East, 56.17 feet to a point;
   Thence running South 23°-01'-49" East, 86.78 feet to a point;
   Thence running South 33°-17'-50" West, 76.43 feet to a point;
   Thence running South 70°-38'-53" West, 95.88 feet to a point;
   Thence running North 09°-09'-37" East, 40.49 feet to a point;
   Thence running North 07°-59'-04" West, 43.14 feet to a point;
   Thence running North 52°-05'-07" East, 42.83 feet to a point;
   Thence running North 02°-26'-40" East, 104.81 feet to a point;
   Thence running South 85°-55'-11" West, 85.34 feet to a point and North 04°-15'-15" West, 87.96 feet to the point and place of commencement.

2. Since 1980 and until April, 1983, hazardous chemical wastes have been disposed under the terms of regulations promulagted by the United States Environmental Protection Agency on/in the above-described land.

3. The future use of the above-described land is restricted under the terms of 40 CFR 265 Subpart G of the Federal Regulations.

4. Any and all future purchasers of this land should inform themselves of the requirements and ascertain the amount and nature of wastes disposed on the above-described property.

5. The Connecticut Resources Recovery Authority have filed a survey plat with the Town Clerk of Shelton and with the Regional Administrator of the Environmental Protection Agency showing the location and dimensions of landfill cells and a record of the type, location and quantity of waste disposal within each area of the facility.

For the CONNECTICUT RESOURCES RECOVERY AUTHORITY

Signature: Paul R. Mazzaccaro
PAUL R. MAZZACCARO

Title: Project Manager

Date: 5/5/89

IN WITNESS WHEREOF, I hereunto set my hand.

Thelma E. McCarty
NOTARY PUBLIC

My Commission Expires: 3/31/92

SEAL

VERIFIED

Received for Record 5/25/89
At 2 H 12 M. P M. and Recorded by
Ass't Town Clerk

SECTION III

Stewardship Permit
Compliance Schedule

Connecticut Resources Recovery Authority
Shelton Landfill

EPA ID No. CTD000604546
Permit No. DEP/HWM/CS-126-005

SECTION III
COMPLIANCE SCHEDULE

A. All conditions set forth in Section III.A. of this permit, shall be conducted within thirty (30) calendar days of the effective date of this permit. Otherwise, the Permittee may be subject to formal enforcement actions.

1. Consultant. The Permittee shall designate and assign an environmental compliance expert who may be a full-time employee of the Permitee, and/or retain one or more qualified consultants, acceptable to the Commissioner to prepare the documents required by Condition Nos. II.B.2. and III.C.2. and shall, by that date, notify the Commissioner in writing of the identity of such environmental compliance expert and/or consultants. The Permitee shall assign such environmental compliance expert and/or retain such qualified consultant, acceptable to the Commissioner, until Condition Nos. II.B.2. and III.C.2. of this permit is fully complied with. The Permittee shall notify the Commissioner in writing of the identity of any environmental compliance expert or consultant other than the one approved by the Commissioner, within ten (10) days after assigning or retaining any environmental compliance expert or consultant for the purpose of addressing the actions required by this permit. The Permittee shall submit to the Commissioner a description of the assigned environmental compliance expert's and/or consultant's education, experience and training which is relevant to the work required by this permit within ten (10) days after a request for such a description has been made. Nothing in this paragraph shall preclude the Commissioner from finding a previously acceptable environmental compliance expert or consultant unacceptable.

2. Cost Estimate. The Permittee shall submit for the Commissioner's review and written approval the cost estimate for performing post-closure care inclusive of surface and groundwater monitoring, landfill decomposition gas monitoring, and leachate collection in accordance with the requirements of Condition No. II.C.1. of this permit.

B. All conditions set forth in Section III.B. of this permit, shall be conducted within one hundred twenty (120) calendar days of the effective date of this permit. Otherwise, the Permittee may be subject to formal enforcement actions.

1. Contingency Plan. The Permittee shall prepare and submit for the Commissioner's review and written approval a Contingency Plan in accordance with the requirements of Condition No. I.E.12. of this permit. The Permittee shall submit a revised plan within sixty (60) calendar days whenever there are any significant changes to the condition of the Site.

2. Ecological Risk Assessment. The Permittee shall prepare and submit for the Commissioner's review and written approval a Screening Level Ecological Risk Assessment in accordance with the requirements of Condition No. II.A.5. of this permit.

3. Public Participation Plan. The Permittee shall submit for the Commissioner's review and written approval the public participation plan prepared in accordance with the requirements of Condition No. II.A.13. of this permit.

C. All conditions set forth in Section III.C. of this permit, shall be conducted within one hundred eighty (180) calendar days of the effective date of this permit. Otherwise, the Permittee may be subject to formal enforcement actions.

1. Quality Assurance Project Plan. The Permittee shall prepare and submit for the Commissioner's review and written approval a Quality Assurance Project Plan prepared in accordance with the requirements of Condition No. II.B.6. of this permit.

2. Revised Water Quality Monitoring Plan. The Permittee shall submit for the Commissioner's review and written approval a revised Water Quality Monitoring Plan prepared in accordance with the requirements of Condition No. II.B.2. of this permit.

3. Revised Gas Monitoring Plan. The Permittee shall submit for the Commissioner's review and written approval a revised Gas Monitoring Plan prepared in accordance with the requirements of Condition No. II.A.11.(b) of this permit.

D. All conditions set forth in Section III.D. of this permit, shall be conducted within three hundred sixty five (365) calendar days of the effective date of this permit. Otherwise, the Permittee may be subject to formal enforcement actions.

1. Progress Reports. The Permittee shall submit a progress report for the Commissioner's review describing the actions which the Permittee has taken to date to comply with the terms and conditions of this permit and annually thereafter until all actions required by this Permit have been completed to the Commissioner's satisfaction.

2. Installation of Additional Wells. The Permittee shall install the additional groundwater monitoring wells as proposed in the Groundwater Monitoring Plan specified in Condition No. II.B.1. of this permit.

E. All conditions set forth in Section III.E. of this permit, shall be conducted within the timeframe specified. Otherwise, the Permittee may be subject to formal enforcement actions.

1. Financial Assurance. Within one hundred fifty (150) calendar days of the Commissioner's approval of the cost estimate submitted in accordance with Condition No. III.A.1. of this permit, the Permittee shall establish and continually maintain financial assurance using one or more of the instrument formats prescribed by the Commissioner for post-closure care inclusive of surface and groundwater monitoring, landfill decomposition gas monitoring and leachate collection of the Site or areas affected by.

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

IN THE MATTER OF : *APPLICATION NO.: 200901273*

STEWARDSHIP PERMIT FOR
CT RESOURCES RECOVERY AUTHORITY
SHELTON LANDFILL : *SEPTEMBER 16, 2009*

FINAL DECISION

I have reviewed the hearing officer's Proposed Final Decision in this matter, which adopts the agreed draft decision of the parties. This agreement is attached to his decision as Attachment A. I affirm his decision and accept his recommendation to issue the requested permit, a copy of which is attached to the Proposed Final Decision as Attachment B.

Amey W. Marrella

Amey W. Marrella, Commissioner

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PERMIT

Connecticut Resources Recovery Authority
179 Allyn Street
Hartford, Connecticut 06103

Attention: Mr. William R. Darcy
President

Re: Facility ID: 126-104
City of Shelton
Housatonic River Watershed

I CERTIFY THAT THIS DOCUMENT IS A TRUE COPY OF THE ORIGINAL
Pamela D. Burney
NAME
Processing Technician
TITLE
DEPARTMENT OF ENVIRONMENTAL PROTECTION, BUREAU OF WATER MANAGEMENT

This permit is issued in accordance with Section 22a-430 of Chapter 446k, Connecticut General Statutes, and regulations adopted thereunder, as amended.

Your permit application (Application No. 199502403 received on June 28, 1995), supporting documents, addenda, letters and plates identified in Appendix A attached to this permit; and supplemental documents have been reviewed by the Connecticut Department of Environmental Protection.

The Commissioner of Environmental Protection (hereinafter "the Commissioner") has found that the proposed system to treat the discharge to ground water of leachate from an existing 6.3-acre lined ash residue disposal area (the southeast expansion area), if the liner and collection system fail, and a proposed 3.1-acre lined ash residue disposal area (the northeast expansion area), if the liner and collection system fail, both located at 866 River Road, Shelton, will protect the waters of the state from pollution. The proposed system includes the construction of a new, 3.1 acre, lined municipal solid waste ash residue disposal area.

The Commissioner, acting under Section 22a-430, hereby permits the Connecticut Resources Recovery Authority (CRRA) (hereinafter "the permittee") to discharge leachate from the southeast expansion area and the proposed northeast expansion area, both located at 866 River Road, Shelton, Connecticut, to the ground waters of the state in accordance with the following conditions.

1) Permitted discharges:

(A) Discharge Serial No. 301 (southeast expansion area)
Description - Leachate from Municipal Solid Waste Ash Residue (Discharge code 305002d)

Discharge Location - Ground water in the watershed of the Housatonic River (Basin Code 6000) and the Farmill River (Basin Code 6025).
Disposal Area Design Size - 6.3 acres, lined, municipal solid waste ash residue

(B) Discharge Serial No. 302 (northeast expansion area)
Description - Leachate from Municipal Solid Waste Ash Residue (Discharge code 305002a)
Discharge Location - Ground water in the watershed of the Housatonic River (Basin Code 6000) and the Farmill River (Basin Code 6025).
Disposal Area Design Size - 3.1 acres, lined, municipal solid waste ash residue

2) The southeast expansion area shall be operated and maintained in accordance with the permit to construct a solid waste disposal area No. 1260181 issued on August 5, 1992, and in accordance with plans and specifications described in application No. 90-579, approved by the Commissioner on April 19, 1994. The northeast expansion area shall be operated and maintained in accordance with the permit to construct a solid waste disposal area No. 1260181 issued on August 5, 1992, and in accordance with plans and specifications described in the application, and the detailed plans and specifications identified in Appendix A.

3) The surface and groundwaters shall be monitored in accordance with the following submittals listed below and collectively identified as the "Groundwater and Surface Water Monitoring Program":

Groundwater and Surface Water Monitoring Program

Pages 1 to 39 from "Groundwater and Surface Water Quality Monitoring Program for the Northeast Expansion Area and Southeast Expansion Area in Support of an Amendment of the CTDEP Groundwater Discharge Permit No. LF0000052," prepared by CRRA, submitted to the Commissioner on September 18, 1995, as revised to June 12, 1996.

Tables No. 1 and 2 from submittal dated May 31, 1996 prepared by CRRA.

Table No. 3 from "Groundwater and Surface Water Quality Monitoring Program for the Northeast Expansion Area and Southeast Expansion Area in Support of an Amendment of the CTDEP Groundwater Discharge Permit No.

LF0000052," prepared by CRRA, submitted to the Commissioner on September 18, 1995, as revised to June 12, 1996.

Figures No. 1, 2, and 3 from "Groundwater and Surface Water Quality Monitoring Program for the Northeast Expansion Area, Southeast Expansion Area and MSW/Ash Area in Support of the CTDEP Groundwater Discharge Permit," submitted to the Commissioner on September 18, 1995, as revised to May 1996.

Appendices A, B, C, D, E, F, G, H, and I from submittal dated May 31, 1996 prepared by CRRA.

Appendix J from letter and attachments submitted by CRRA dated June 14, 1996 and facsimile submitted by CRRA dated June 17, 1996.

(A) Surface Water Quality Monitoring

(i) Locations - Surface water quality monitoring shall be conducted at the following locations as shown on Figure 2, entitled "Water Quality Monitroing Site Plan," (sic) contained in the "Groundwater and Surface Water Monitoring Program" identified in paragraph 3 above.

SW-1: Farmill River upstream of the CRRA Shelton Landfill. Samples to be collected from mid-stream and mid-depth.

SW-2: Farmill River downstream of the O&G expansion area, but upstream of the confluence of the Farmill and Housatonic Rivers.

SW-2T: Samples to be collected from mid-stream and within 0.5 meter of the water surface.

SW-2B: Samples to be collected from mid-stream and within 0.5 meter of the stream bed.

SW-3: Housatonic River Lagoon inlet. Station is located to the southern side of the inlet.

SW-3T: Samples to be collected within 0.5 meter of the water surface.

SW-3M: Samples to be collected from mid-depth.

SW-3B: Samples to be collected within 0.5 meter of the bottom of the lagoon.

SW-4: Housatonic River Lagoon mid-point. Station is located about 200 feet east of the shoreline opposite MW-BR8 and Sediment Pool No. 2.

SW-4T: Samples to be collected within 0.5 meter of the water surface. This location was formerly known as S-4.

SW-4M: Samples to be collected from mid-depth. This location was formerly known as S-5, and prior to that was known as S-2.

SW-4B: Samples to be collected within 0.5 meter of the bottom of the lagoon. This location was formerly known as S-6.

SW-5: Housatonic River Lagoon northeast. Station is located approximately 200 feet south of MW-100 and MW-BR1.

SW-5T: Samples to be collected within 0.5 meter of the water surface.

SW-5M: Samples to be collected from mid-depth.

SW-5B: Samples to be collected within 0.5 meter of the bottom of the lagoon.

(ii) Each surface water sample collected from the stations designated in paragraph 3(A)(i) shall be sampled quarterly between the 15th and 30th day of January, April, July, and October, except as provided by paragraph 3(A)(iv)(f).

(iii) Each surface water sample shall be analyzed for the following parameters:

(a) Surface water samples collected from SW-1, SW-2T and SW-2B, SW-3T and SW-3B, SW-4T and SW-4B, and SW-5T and SW-5B shall be analyzed for the parameters numbered 1-32.

(b) Surface water samples collected from SW-3M, SW-4M and SW-5M shall be analyzed for the parameters numbered 1-10.

	Parameter	Minimum Level	
1.	Specific Conductance		
2.	pH		
3.	Total Dissolved Solids		
4.	Total Suspended Solids		
5.	Chloride		
6.	Alkalinity		
7.	Hardness as $CaCO_3$		
8.	BOD, 5-day		
9.	COD		
10.	Ammonia-N, total		
11.	Kjeldahl-N, total		
12.	Nitrate-N, total		
13.	Nitrite-N, total		
14.	Phosphorus, total		
15.	Aluminum, total	10	µg/L
16.	Arsenic, total	5	µg/L
17.	Barium, total	10	µg/L
18.	Cadmium, total	0.5	µg/L
19.	Chromium, total	5	µg/L
20.	Copper, total	5	µg/L
21.	Copper, dissolved	5	µg/L
22.	Iron, total	5	µg/L
23.	Iron, dissolved	5	µg/L
24.	Lead, total	5	µg/L
25.	Lead, dissolved	5	µg/L
26.	Manganese, total	1	µg/L
27.	Manganese, dissolved	1	µg/L
28.	Mercury, total	0.2	µg/L
29.	Nickel, total	5	µg/L
30.	Silver, total	1	µg/L
31.	Zinc, total	10	µg/L
32.	Zinc, dissolved	10	µg/L

(iv) Sampling Conditions

(a) The Farmill River flows shall be gauged and reported for each day of sample collection.

(b) Surface water samples shall be collected only when no measurable precipitation has fallen on the site during the previous 72 hours.

(c) Sampling locations that are tidally influenced, (e.g. SW-2, SW-3, SW-4, and SW-5) shall be sampled at low ebb, defined here as between one-half hour and two hours after the published time of low tide for Bridgeport corrected to local mean time (NOAA Tide Tables).

(d) Except as provided by sub-paragraph (f) of this section, all samples to be collected from the monitoring locations identified in paragraph 3(A)(i) shall be collected on the same day.

(e) Time of collection, water clarity, sample depth, total water column depth (distance to river bottom), water and air temperature, pH, specific conductance, salinity and dissolved oxygen shall be measured in the surface water body for each sample collected in accordance with the requirements of paragraph 3(A). Results shall be reported together with the results of laboratory analyses, and for those parameters required to be measured in the field and in the laboratory, both values shall be reported.

(f) During periods when surface water conditions would be unsafe for field personnel (e.g. icing conditions in the lagoon), DEP shall be contacted to discuss whether a particular surface water sampling event may be rescheduled.

(B) Ground Water Quality Monitoring

(i) Locations - Ground water quality monitoring shall be conducted at the following locations as shown on Figure 2, entitled "Water Quality Monitroing Site Plan," (sic) contained in the monitoring plan contained in the "Groundwater and Surface Water Monitoring Program" identified in paragraph 3 above.

(a) Upgradient Monitoring Wells

U-1: MW-GP4
U-2: MW-BR4
U-3: MW-E
U-4: MW-ED
U-5: MW-BR6
U-6: MW-QB

(b) Compliance Monitoring Wells:

C-1: MW-RS
C-2: MW-RD
C-3: MW-BR12
C-4: MW-BR9
C-5: MW-D2D
C-6: MW-BR7

(c) Plume Characterization Wells:

W-1: MW-SD (formerly MW-Js old)
W-2: MW-SS
W-3: MW-TS
W-4: MW-TD
W-5: MW-100
W-6: MW-BR1
W-7: MW-C
W-8: MW-CD
W-9: MW-CS
W-10: MW-BS
W-11: MW-BD
W-12: MW-BR2
W-13: MW-D2
W-14: MW-I2S (formerly MW-Js new)
W-15: MW-BR8
W-16: MW-A
W-17: MW-HS
W-18: MW-H2D

(d) The following wells have also been designated as Surface Water Protection Wells:

W-3: MW-TS
W-5: MW-100
W-9: MW-CS
W-16: MW-A
W-13: MW-D2

(e) Water Supply Wells:

PW-1: 153 River Road

(ii) Parameter list

Parameter

1. Total Dissolved Solids
2. Total Suspended Solids
3. Alkalinity
4. COD
5. Iron (Total)
6. Manganese (Total)
7. Specific Conductance
8. Nitrate (as N)
9. Chloride
10. Hardness (as $CaCO_3$)
11. pH
12. Ammonia (as N)
13. Sodium (Total)
14. Potassium (Total)
15. Sulfate (Total)
16. All inorganics identified in Appendix I of 40 CFR Part 258 of the Federal Register, Vol. 56, No. 196, October 9, 1991, beginning page 51032 using EPA method 6010.
17. Volatile Organic Compounds identified in Appendix I of 40 CFR Part 258 of the Federal Register, Vol. 56, No. 196, October 9, 1991, beginning page 51032 using EPA method 8260
18. Beginning the first quarter after the Commissioner's approval of the report required under paragraph 3(C)(iv), any supplemental parameters identified in accordance with the requirements of paragraph 3(C).

(iii) Schedule - The ground water quality monitoring program shall begin 30 days after confirmation that all monitoring wells, sampling devices and associated appurtenances have been installed, but not later than 90 days after permit issuance. Thereafter, the ground water quality monitoring locations in paragraph 3(B)(i) shall be monitored four times per year in accordance with the following schedule:

Sampling Periods

January
April
July
October

(a) Each ground water sample collected from the monitoring wells designated in paragraph 3(B)(i)(a) as U-1, U-2, U-3, U-4, U-5, and U-6 shall be analyzed for the parameters listed in paragraph 3(B)(ii), items 1 through 17.

(b) Each ground water sample collected from the monitoring wells designated in paragraph 3(B)(i)(b) as C-1, C-2, C-3, C-4, C-5, and C-6 shall be analyzed for the parameters identified in paragraph 3(B)(ii), items 1 through 18.

(c) Each ground water sample collected from the monitoring wells designated in paragraphs 3(B)(i)(c) as W-1, W-2, W-4, W-6, W-7, W-8, W-10, W-11, W-12, W-14, W-15, W-17, and W-18 shall be analyzed for the parameters listed in paragraph 3(B)(ii), items 1 through 17.

(d) Each ground water sample collected from the monitoring wells designated in paragraphs 3(B)(i)(c) and 3(B)(i)(d) as W-3, W-5, W-9, W-13, and W-16 shall be analyzed for the parameters identified in paragraph 3(B)(ii), items 1 through 17, with the exception that for those parameters in item 16 for which a lower minimum level is specified in paragraph 3(A)(iii), laboratory analyses shall be performed using the lower minimum level.

(e) Each ground water sample collected from the water supply well designated in paragraph 3(B)(i)(e) as PW-1 shall be analyzed for the parameters listed in paragraph 3(B)(ii), items 1 through 17.

(iv) Sampling Conditions - Field measurement of pH, temperature, specific conductance, turbidity, and Oxidation Reduction Potential shall be performed at all ground water monitoring locations in paragraph 3(B)(i) prior to each sample collection. In addition, the water level elevation shall be measured at all ground water monitoring locations in paragraphs 3(B)(i)(a), 3(B)(i)(b), 3(B)(i)(c), and 3(B)(i)(d). These field measurements shall be reported together with the results of analyses of the samples in accordance with paragraph 5.

(v) Ground water monitoring shall be performed as described in the monitoring plan contained in the "Groundwater and Surface Water Monitoring Program" identified in paragraph 3 above, subject to the modifications listed below. Where the requirements of the permittee's monitoring plan conflict with those of this permit, the permit requirements shall be used.

Where specific sampling or redevelopment procedures are not specified in the monitoring plan or in the following paragraphs, the permittee shall follow applicable procedures identified in the following EPA guidance documents. "Handbook of Suggested Practices for the Design and Installation of Ground-Water Monitoring Wells", U.S. EPA, EPA/600/4-89/034, 1991; "RCRA Ground-Water Monitoring: Draft Technical Guidance", U.S. EPA, EPA/530-R-93-001, 1992; and the draft document "Low Flow (Minimum Stress) Purging and Sampling Procedure for the Collection of Ground Water Samples From Monitoring Wells", Revision Number 1 draft, U.S. EPA, dated August 3, 1995.

(a) Redevelop all monitoring wells identified in paragraph 3(B)(i) of this permit, with the exception of well MW-HS.

(1) Schedule - Redevelopment shall be completed within 60 days of issuance of this permit.

(2) Methods - Redevelopment shall be performed for each well, using the procedure described below.

Measure the static water level and total well depth.

Set a pump in the well, and begin pumping. The pump must be capable of removing all sediment from the well. Monitor turbidity of the pump discharge using a field turbidimeter, and continue pumping until the turbidity decreases to 5 Nephelometric Turbidity Units (NTU) or stabilizes (defined as less than 10 percent variance in 3 consecutive measurements, taken 3 to 5 minutes apart).

Surge the well using a properly designed surge block and proper surging technique. Perform surging throughout the screened or open interval. Record total well depth.

Continue alternating cycles of pumping and surging as described above until the initial turbidity during the second of two consecutive pumping cycles, separated by a sufficient period of well recharge (with the pump shut off and left in place), does not exceed 5 NTU. The recharge period shall be at least the period of time needed for the water level in the well to return to within 0.5 feet of the static level, as corrected for tidal fluctuations.

Record static water level, total well depth, starting and ending time of each pumping and each surging cycle, volume of water pumped during each pumping cycle, water level at the start of each pumping cycle, initial and final turbidity of pump discharge during each pumping cycle, the manufacturer's name and model number of all equipment and instruments used in well development, and the name and address of all contractors and / or consultants involved in the work.

(3) If, after redevelopment a well still yields water with turbidity exceeding 5 NTU, the permittee shall either abandon the well and replace it with a new well constructed in accordance with the "Handbook of Suggested Practices for the Design and Installation of Ground-Water Monitoring Wells", U.S. EPA, EPA/600/4-89/034, 1991, or demonstrate to the Commissioner's satisfaction that the well was properly completed and adequately developed, and that turbidity is an artifact of the geologic materials in which the well is installed. Information to be used in such a demonstration shall include, but be limited to, geologic logs, well construction diagrams, grain size analyses, calculations for sizing the sand pack and well screen to the geologic formation, and water quality data including turbidity and total suspended solids.

(4) Within 90 days of issuance of this permit, the permittee shall submit a report for the Commissioner's review and approval which (1) summarizes all well redevelopment efforts, (2) identifies wells which must be replaced in accordance with paragraph 3(B)(v)(a)(3), (3) proposes a schedule, methods, and materials for old well abandonment

and new well construction, and (4) presents any demonstrations of well adequacy vs. persistent turbidity as a geologic artifact..

(b) Within 90 days of issuance of this permit, the permittee shall install permanently dedicated, submersible sampling pumps in all monitoring wells identified in paragraph 3(B)(i) of this permit. All pumps and ancillary support cables, electrical wiring, and discharge tubing shall be new, clean material, constructed and installed such that all parts which may contact groundwater samples contain only stainless steel and / or fluoropolymers. The pumping rate shall be adjustable by means of a controller which controls the operating rate of the pump, and the pump / controller system shall be capable of a minimum flow rate no greater than 100 milliliters per minute with the discharge tubing unobstructed. Each pump shall be installed with the pump intake set at the midpoint of the saturated portion of the screened / open interval of the well.

(c) The maximum pumping rate during purging and sampling shall not exceed 300 milliliters per minute.

(d) During well purging and sample collection, the drawdown induced by pumping shall not exceed a depth of 0.3 feet below the static water level in the well. The following procedure shall be used to maintain a drawdown of less than 0.3 feet:

(1) Using a water level indicator, measure the static depth to water in the well, and set the indicator probe to a depth 0.3 feet below the static water level.

(2) During purging and sampling, verify that the water level indicator produces a continuous audible signal.

(3) If the signal from the water level indicator is interrupted, adjust the pumping rate downward as necessary until the signal returns.

(4) If, at the lowest possible pumping rate, the drawdown still exceeds 0.3 feet, modify the purging and / or sampling procedure by stopping the pump, waiting for the well to recharge, and then operating the pump intermittently such

that drawdown does not exceed 0.3 feet, until purging and / or sampling are completed.

(e) Monitoring of field parameters shall not begin until a minimum volume equivalent to one pump volume plus one discharge tubing volume has been purged from the well. Successive field parameter measurements shall be conducted at time intervals no less than three minutes apart. Purging shall continue until turbidity stabilizes (defined as ten percent variance or, if less than ten NTU, differences of no greater than two NTU) for three successive measurements.

(C) Supplemental Ground Water Quality Monitoring

(i) Location - Supplemental ground water quality monitoring shall be conducted at the following locations identified in paragraph 3(B)(i)

W-1: MW-SD (formerly MW-Js old)
W-2: MW-SS
W-3: MW-TS
W-4: MW-TD
W-5: MW-100
W-6: MW-BR1
W-7: MW-C
W-8: MW-CD
W-9: MW-CS
W-10: MW-BS
W-11: MW-BD
W-12: MW-BR2
W-13: MW-D2
W-14: MW-JS (formerly MW-Js new)
W-15: MW-BR8
W-16: MW-A
W-17: MW-HS
W-18: MW-H2D

(ii) Schedule - Supplemental ground water quality monitoring shall be conducted for two consecutive quarterly sampling periods beginning the first scheduled quarterly sampling period after permit issuance.

(iii) Parameters - Samples collected for supplemental monitoring shall be analyzed for the compounds identified in Appendix II of 40 CFR Part 258 of the Federal Register, Vol. 56, No. 196, October 9, 1991, beginning page 51033.

(iv) Subsequent supplemental monitoring - On or before sixty (60) days after the second supplemental ground water quality monitoring event, the permittee shall submit for the review and approval of the Commissioner a report describing the results of the Appendix II monitoring required by this paragraph, and a plan for amending the ground water quality monitoring parameters at the compliance monitoring wells C-1, C-2, C-3, C-4, C-5, and C-6 identified in paragraph 3(B)(i)(b), and schedule listed in paragraph 3(B)(iii)(b) to include Appendix II compounds detected.

(v) The samples shall be collected from each ground water monitoring location in accordance with the monitoring plan contained in the "Groundwater and Surface Water Monitoring Program" identified in paragraph 3 above.

(D) Precipitation Monitoring

(i) Precipitation data to be used in preparing precipitation hydrographs shall be obtained from the Department of Environmental Protection's Flood Alert Center, for monitoring location No. 510, located along the Merritt Parkway in Orange.

(ii) Reporting - The first reporting period shall be the period from the date of permit issuance to the following October 30. Thereafter, the reporting period shall be the period from November first to October 30 of the following year. The data to be reported shall be a precipitation hydrograph (in inches of precipitation per hour) for the station identified in paragraph 3(D)(i) above, for the reporting period. Precipitation hydrographs are to be prepared as follows: First, the instantaneous precipitation rate R_t (inches per hour) shall be calculated for each increment I (in inches) of precipitation measured during the reporting period using the formula

$$R_t = \frac{I}{T_t - T_{t-1}}$$

where T_t and T_{t-1} are the time values at which two consecutive increments are recorded. Second, the instantaneous rates shall be plotted using

straight lines joining the data points, but no symbol for the data points themselves. Third, each storm event on the hydrograph shall be labeled with the total precipitation (in inches of water) for that event. The x-axis of the precipitation hydrograph shall be referenced to the date (November first) and year of the start of the monitoring period, and scaled in months. The Y-axis shall be scaled and labeled in inches per hour. The data shall be reported in accordance with paragraph 5(B)(ii) of this permit.

(E) Ground Water Zone of Influence Compliance Monitoring

(i) For ground water, the ground water zone of influence of the discharges for the southeast and northeast expansion areas, as identified in paragraphs 1(A) and 1(B) of this permit, which is hereby permitted shall not extend beyond property owned by the permittee. The ground water zone of influence of the discharge is defined as the soil and ground water area within which the treatment of leachate by soils and mixing of leachate with ground waters occurs and could reasonably be expected to occur and, therefore, within which some degradation of ground water quality has occurred or is anticipated to occur.

(ii) The following requirements of this section will be used to determine whether the discharge of leachate has exceeded the boundaries of the permitted ground water zone of influence. All sampling shall be conducted in accordance with the monitoring plan contained in the "Groundwater and Surface Water Monitoring Program" identified in paragraph 3 above.

(a) Background Data Base - The compliance ground water quality monitoring wells identified in paragraph 3(B)(i)(b) of this permit shall be sampled monthly for twelve months, beginning with the first ground water quality monitoring event required in paragraph 3(B) of this permit. Sampling shall be conducted in accordance with the sampling conditions in paragraph 3(B)(iv) of this permit. Samples shall be analyzed for alkalinity, ammonia, chemical oxygen demand, chloride, hardness, total iron, potassium, sodium, specific conductance, and total dissolved solids. The results of all sampling and analyses during this twelve month period shall be reported in accordance with paragraph 5 of this permit. No later than 45 days after the collection of the final sample, a report shall be submitted for the review and approval of the Commissioner which describes the results of all sampling and analyses conducted

pursuant to this paragraph, proposes maximum background levels for all ten parameters, and recommends selection of at least four parameters for the ground water zone of influence compliance monitoring program. These parameters will be designated as compliance parameters. The maximum background level is defined for each parameter at each well as the maximum concentration measured during the twelve month monitoring period.

(b) Exceedance - Any analytical result from any sample obtained from the compliance wells for each of the four compliance parameters which exceeds the maximum background level for that parameter as defined in paragraph 3(E)(ii)(a), shall constitute an exceedance.

(c) Confirmed Exceedance - Any well for which an exceedance occurs shall be resampled within forty-five (45) days of the sampling event which established the exceedance and shall be analyzed for the parameter(s) causing the exceedance. If the second result is found to exceed the maximum background level for the same parameter(s), such result will constitute a confirmed exceedance. If the second result for the parameter(s) causing an exceedance does not exceed the maximum background level for that parameter, the ground water zone of influence compliance monitoring program shall resume its normal quarterly schedule. If the next quarterly sampling result is found to exceed the maximum background level for the same parameter(s) at the same compliance well, such result will constitute a confirmed exceedance. The permittee shall assure that the results of all sampling necessary to confirm an exceedance is received from the laboratory no more than 30 days from the date of sample collection.

(d) Within 7 days of becoming aware of an occurrence of a confirmed exceedance as defined in paragraph 3(E)(ii)(c), the permittee shall notify the Commissioner in writing and within 60 days shall submit a report for the Commissioner's review and approval which explains the source and cause of the confirmed exceedance and provides a description of any extenuating circumstances.

(F) Leachate Monitoring

(i) Leachate quality monitoring shall be conducted at the following locations as shown on Figure 2, entitled "Water Quality Monitroing Site Plan," (sic) contained in the monitoring plan contained in the "Groundwater and Surface Water Monitoring Program" identified in paragraph 3 above.

L-1S: Leachate collected in the liner system of the Southeast Expansion Area prior to the equalization tank.

L-1N: Leachate collected in the liner system of the Northeast Expansion Area prior to the equalization tank.

(ii) Samples of leachate shall be analyzed for the parameters listed in paragraph 3(A)(iii), and with the addition of the following parameters:

33. Volatile organics by EPA Method 8260
34. Polychlorinated Biphenyls (PCBs) by EPA Method 608
35. dioxins and furans by EPA Method 8280

(iii) Leachate samples shall be analyzed for parameters listed in paragraphs 3(A)(iii) and 3(F)(ii) numbered 1-33 between the 15th and 30th day of January, April, and October, and for the parameters numbered 1-35 between the 15th and 30th day of July.

(G) Sediment Monitoring

(i) Two rounds of physical and chemical characterization of sediment quality and chemical analysis of the overlying water column shall be conducted; the first one in July 1997 and the second one in July 1999. Samples shall be collected at the following locations as shown on Figure 2, entitled "Water Quality Monitroing Site Plan," (sic) contained in the monitoring plan contained in the "Groundwater and Surface Water Monitoring Program" identified in paragraph 3 above.

S-1: Monitoring location is in the depositional area immediately upstream of the dam at River Road (Connecticut Route 110).

S-2: Monitoring Location is a transect across the Farmill River downstream of the O&G expansion area, but upstream of the confluence of the Farmill and Housatonic Rivers. The transect is comprised of three stations.

S-2S: Sample to be collected mid-way between the southern waterline and S-2M.

S-2M: Sample to be collected at the mid-point of the transect across the Farmill River, and coincides with the surface water monitoring location SW-2. .

S-2N: Sample to be collected mid-way between the northern waterline and S-2M.

S-3: Monitoring location is in the Housatonic River Lagoon inlet. Station is located in the southern side of the inlet and coincides with the surface water monitoring location SW-3.

S-4: Monitoring location is in the Housatonic River Lagoon and coincides with the surface water monitoring location SW-4.

S-5: Monitoring location is in the Housatonic River Lagoon and coincides with the surface water monitoring location SW-5.

S-6: Monitoring location is mid-stream in the Farmill River south of the Leachate Treatment Facility and the discharge from Sediment Pool No.3.

(ii) Sediment samples from each of the six sampling locations identified in (C)(i) shall be analyzed (on a dry weight basis) for the following parameters:

(a) Samples from S-1, S-3, S-4, S-5, and S-6 shall be analyzed for the parameters 1s - 12s.

(b) Samples from S-2S, S-2M and S-2N shall be analyzed separately for parameters 1s - 9s, but may be composited for parameters 10s - 12s.

1s. Percent Moisture
2s. Grain Size Fractionation (including fines)
3s. Depth to Redox Potential Discontinuity (RPD)
4s. Total Carbon
5s. Total Inorganic Carbon
6s. Total Organic Matter
7s. Copper, total

8s. Lead, total
9s. Zinc, total
10s. Acid Volatile Sulfides, and SEMs by trace-ICP
11s. Polynuclear Aromatic Hydrocarbons
12s. Polychlorinated Biphenyls

(c) Analyses for total copper (7s) and total lead (8s) may be by Graphite Furnace Atomic Absorption Spectroscopy (GFAA) or Inductively Coupled Plasm analysis/Mass Spectroscopy (IAP/MS). Analyses for total zinc (s) may be by Inductively Coupled Plasm analysis (IAP) or IAP/MS. Results of analyses for 7s, 8s and s shall be reported together with the SEM results for these same metals (10s).

(iii) Water samples shall be collected from above each sediment sampling location in accordance with the conditions specified in 3(A)(iv) and the following conditions.

(a) Water samples shall be collected within 0.5m of the sediment/water interface.

(b) Water samples from above each sediment sampling station shall be collected when the sediment samples are collected.

(c) Water samples from above each sediment sampling station shall be analyzed, at a minimum, for the parameters numbered 1 - 10, 20, 21, 24, 25, 31 and 32 in paragraph 3(A)(iii).

(H) Habitat Characterization

(i) A detailed site map of the area in which the Shelton landfill is situated, at a scale of 1 inch equals 100 feet, shall be prepared to depict and identify the Farmill and Housatonic Rivers, flood boundaries, wetlands, anthropogenic structures (e.g. roads, dams, bridges, rail lines, sewer crossings), existing and potential pollutant sources (e.g. sewage treatment plants, gravel mining operations, existing and abandoned or closed landfills, highway garages, storm drainage, etc.). The map shall also depict all current and historical surface water, sediment, and biological monitoring locations, habitat characterization locations, and shall plot submerged aquatic vegetation and sediment type in the Farmill River. Permittee may refer to, and incorporate aerial photographs, local wetlands maps, sewer and

highway department plans, Coastal Area Management maps, etc. This map shall be included in the first annual report, and shall be updated for inclusion in each subsequent annual report, as required in paragraph 5(A).

(ii) Two qualitative habitat characterizations of the area in which the Shelton landfill is situated shall be conducted; the first one in August 1997 and the second one in August 1999. The qualitative habitat characterization shall describe, in particular, the entire area in the vicinity of the Farmill River from River Road (Connecticut Route 110) east to its confluence with the Housatonic River, the shoreline along the Housatonic River Lagoon, and wetland areas in or near the landfill. A descriptive report of upland areas as they contribute to the ecology of the surface water system, and a description of nearby influences shall be included.

(iii) The first annual report shall include the results of a bathymetric survey of the Housatonic River Lagoon. Results shall be presented in the form of a site map, prepared at a scale of one inch equal to one hundred feet, depicting depth contours within the lagoon at a minimum contour interval of five feet.

(iv) Two quantitative habitat evaluations of the area within the statistical mean annual floodplain of the Farmill River shall be conducted; the first one in August 1997 and the second one in August 1999. The habitat characterizations shall be conducted using standardized and reproducible protocols that follow those recommended by Platts et al. (DA GTR INT-138) and incorporate the metrics required by the RBP III described by Plafkin, et al. (EPA/444/4-89-001), and shall include, at a minimum, Stream width; Stream depth and shore water depth; Location and extent of pool, riffle, run, and glide areas; Stream velocity; General channel morphology, elevation, gradient, and sinuosity; Stream bank, stability, vegetation; Stream bottom; Canopy; Submerged and emergent aquatic vegetation (%-cover, type).

(v) Two benthic macro invertebrate community assessments of the Farmill River shall be conducted; the first one during August and October 1997, and the second in August and October 1999. The benthos shall be evaluated using U.S. EPA's Rapid Bioassessment Protocol, Level 3 (RBP III) as described by Plafkin, *et al.*, 1989. At least one kicknet and rock basket sampling location in riffle/run habitat shall be established. Rock baskets shall be deployed during the middle of August, and shall be retrieved during the first week of October. Concurrent with retrieval, kicknet and CPOM samples shall be collected from streambed locations

representative of the channel cross-section at each station. Samples shall be identified to species as required by RBP III and analysis of community structure. The permittee shall consult with DEP prior to initiating the first of the benthic macro invertebrate community assessments to establish the appropriate reference site and conditions.

(vi) Results of the analyses of community structure, and of each habitat evaluation, including field and laboratory data sheets and updating of the map required by paragraph 3(H)(i) shall be submitted for the review and approval of the commissioner by inclusion in the annual reports in accordance with the requirements of paragraph 5(B)(i)(c)

4. Sample Analysis

(A) All sample analyses required by this permit shall be performed by a laboratory certified for such analyses by the Connecticut Department of Public Health or approved in writing for monitoring at this facility by the Connecticut Department of Environmental Protection.

(B) Analytical results for each parameter shall be reported together with the actual method detection limits achieved during the analysis. The value of each parameter shall be reported to the maximum level of accuracy and precision possible. Failure to submit data in accordance with the procedures and protocols set forth in this permit shall constitute a permit violation.

(C) Chemical analyses for surface water, ground water, and leachate shall be performed using methods approved pursuant to the Code of Federal Regulations, Part 136 of Title 40, except where otherwise specified in paragraphs 3(B)(ii), 3(C)(iii), and 3(F)(ii), or unless an alternative method has been specifically approved in writing by the Commissioner for monitoring at this facility. Failure to use approved methods shall constitute a permit violation.

(D) Analyses required by paragraphs 3(A), 3(B), and 3(F) shall be conducted to achieve the minimum levels for each of those parameters for which minimum levels are identified in 3(A)(iii), unless an alternative method that is capable of achieving the minimum levels has been specifically approved in writing by the Commissioner.

(E) The minimum levels specified in paragraph 3(A)(iii) represent the concentration at which quantification must be achieved and verified during the chemical analyses for these compounds. Analyses for these compounds must include calibration points at least as low as the specified minimum level. Check standards within ten percent of the specified minimum level may be used in lieu of a calibration point equal to the minimum level.

(F) If any sample analysis indicates that quantification for a particular parameter can not be verified at or below the specified minimum level, a second sample shall be collected and analyzed for that parameter according to the above specified methodology as soon as practicable. The results of the first and subsequent sample analyses shall be submitted to the Commissioner verifying that the appropriate methodology was employed, the minimum level was achieved for quality-control samples and that failure to quantify the parameter at or below the minimum level specified for the analysis was a result of matrix effects which could not be compensated for as part of sample analysis allowed pursuant to 40 CFR Part 136.

(G) If any three (3) samples collected in a twelve-month period indicate that the specified minimum level was not achieved for a particular parameter when using the specified test methodology, the permittee shall submit a report for the review and approval of the Commissioner which justifies and defines the matrix effect upon analyses for that parameter, identifies the level at which quantification can be verified for those specific test conditions, and recommends modification to the method or an alternative method that is sufficiently sensitive and free of the identified matrix effect.

5. Reporting

(A) Schedule

The results of all sampling and analyses required by this permit, unless otherwise specified in writing by the Commissioner, shall be reported in accordance with the following schedule:

Sampling periods	Reporting Dates
January	March 21

April	June 21
July	September 21
October	December 21

(B) Annual Reports

(i) Beginning on the first March 21 following permit issuance, and annually on or before that date thereafter, a summary report for the preceding one year period of the monitoring and inspection programs required by this permit shall be submitted for the review and written approval of the Commissioner.

(a) The report shall include but not be limited to a) an evaluation of leachate quality and quantity, including graphical representation of monitoring results, b) the condition of all monitoring wells and the need for repair or replacement of any wells, c) an evaluation of the extent and potential extent of the ground water zone of influence and whether any impact on the surface water quality of the Housatonic River or Far Mill River, or any other surface waters was detected or could reasonably be expected to occur, and d) a detailed site map of the area in which the Shelton landfill is situated, at a scale of 1 inch equals 100 feet.

(b) For the first annual report only, additional reporting of work required under paragraph 3(H)(iii) shall include a map showing the Housatonic River Lagoon bathymetry with a minimum contour interval of five feet, at a scale of one inch equal to one hundred feet.

(c) For the second and fourth annual reports, the following additional reporting of work required under paragraphs 3(G)(i), 3(H)(ii), 3(H)(iv), and 3(H)(v) shall be included: 1) results of the physical and chemical sediment analyses and accompanying water quality analyses; 2) a qualitative habitat characterization, 3) a quantitative habitat evaluation; and 4) benthic macro invertebrate community assessments.

(d) The second annual report and subsequent annual reports may propose modifications to the monitoring program for the Commissioner's review and written approval.

(ii) For the parameters and monitoring locations identified in this paragraph, additional annual reporting shall be required. The additional reporting shall consist of preparing graphs of parameter history versus precipitation hydrograph.

(a) Parameters and Locations -

One graph shall be prepared for each of the four compliance parameters identified in paragraph 3(E)(ii)(a) of this permit, for each of the following five pairs of wells: MW-TS and MW-TD; MW-BS and MW-BD; MW-CS and MW-CD; MW-D2D and MW-BR7; MW-E and MW-ED. In addition, one graph shall be prepared for ground water elevation measurements for each of the five well pairs listed above.

(b) Graph construction -

The graphs shall be constructed by plotting all values for a specific parameter at a specified pair of monitoring locations along the Y - axis, time along the X - axis, and the precipitation hydrograph along a second Y - axis. Data to be used for constructing the precipitation hydrograph shall be that required in paragraph 3(D). The following units shall be used: Parameters shall be plotted using the appropriate units, time shall be plotted as calendar months and years, and precipitation hydrograph shall be plotted in inches per hour. Beside each precipitation event, the graph shall be labeled with the total precipitation (in inches) for that event.

(C) The results of all analyses and measurements required by this permit shall, unless otherwise specified in writing by the Commissioner, be reported to the following three divisions of the Connecticut Department of Environmental Protection at 79 Elm Street, Hartford, Connecticut 06106-5127: 1) the Bureau of Waste Management, Waste Engineering and Enforcement Division; 2) the Bureau of Water Management, Permitting, Enforcement, and Remediation Division, State Remediation Program; and 3) the Bureau of Water Management, Planning and Standards Division, Aquatic Toxicity Program.

(D) The results of all analyses and measurements required by this permit shall also be reported to the Naugatuck Valley Health Department.

The permittee shall pay the annual compliance determination fee as set forth in the Regulations of Connecticut State Agencies including but not limited to Section 22a-430-7.

This permit is issued under Section 22a-430 of the Connecticut General Statutes and shall expire on August 27, 2001.

The Commissioner reserves the right to make appropriate revisions to this permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under federal or state law. This permit as modified or reissued under this paragraph may also contain any other requirements of federal or state law then applicable.

This permit shall be subject to the following sections of the Regulations of Connecticut State Agencies which are hereby incorporated into this permit:

Section 22a-430-3 General Conditions

(a) Definitions
(b) General
(c) Inspection and Entry
(d) Effect of a Permit
(e) Duty
(f) Proper Operation and Maintenance
(g) Sludge Disposal
(h) Duty to Mitigate
(i) Facility Modifications; Notification
(j) Monitoring, Records and Reporting Requirements
(k) Bypass
(l) Conditions Applicable to POTWs
(m) Effluent Limitation Violations (Upsets)
(n) Enforcement
(o) Resource Conservation
(p) Spill Prevention and Control
(q) Instrumentation, Alarms, Flow Recorders
(r) Equalization

22a-430-4 Procedures and Criteria

(a) Duty to Apply
(b) Duty to Reapply
(c) Application Requirements

(d) Preliminary Review
(e) Tentative Determination
(f) Draft Permits, Fact Sheets
(g) Public Notice, Notice of Hearing
(h) Public Comments
(i) Final Determination
(j) Public Hearings
(j) Public Hearings
(k) Submission of Plans and Specifications. Approval.
(l) Establishing Effluent Limitations and Conditions
(m) Case by Case Determinations
(n) Permit issuance or renewal
(o) Permit Transfer
(p) Permit revocation, denial or modification
(q) Variances
(r) Secondary Treatment Requirements
(s) Treatment Requirements for Metals and Cyanide
(t) Discharges to POTWs - Prohibitions

Your attention is especially drawn to the notification requirements of subsection (i)(2), (i)(3), (j)(6), (j)(9)(C), (j)(11)(C), (D), (E), and (F), (k)(3) and (4) and (l)(2) of Section 22a-430-3.

Entered as a Permit of the Commissioner of the Department of Environmental Protection on 27 Aug 96.

Sidney J. Holbrook, Commissioner

Application No. 199502403

Permit No. LF0000052

APPENDIX A

LIST OF APPLICATION SUBMITTALS

CRRA Shelton Landfill Northeast Expansion Area Permit No. LF0000052

"Shelton Landfill Groundwater Assessment, Shelton, Connecticut," August 1988, Fuss & O'Neill, Inc. (APP-11)

"Connecticut Resources Recovery Authority, Shelton, Connecticut, Discharge Permit Reapplication, DEP/WCU 126-104," July 1989, Fuss & O'Neill, Inc. (APP-12)

"Connecticut Resources Recovery, Shelton Landfill, 1990 Annual Summary Report," January 1991, Fuss & O'Neill, Inc. (APP-13)

"Connecticut Resources Recovery Authority, Shelton Landfill, Hazardous Waste Disposal Area, 1990 Annual Summary," February 1991, Fuss & O'Neill, Inc. (APP-14)

"Shelton Landfill Horizontal Expansion Development/Design Report Ash Monocells, 866 River Road (Route 110), Shelton, Connecticut, Volume I, Book I of II," July 1990, revised to January 1992, Fuss & O'Neill, Inc. (APP-3A)

"Shelton Landfill Horizontal Expansion Development/Design Report Ash Monocells, 866 River Road (Route 110), Shelton Connecticut, Volume I, Book II of II," June 1990, Revised to January 1992, Fuss & O'Neill, Inc. (APP-3B)

"Certificate of Need Information and Documentation," July 1990, revised to June 1992. (APP-4)

"Shelton Landfill Horizontal Expansion State Discharge Permit Application (SPDES) Pretreated Ash Leachate, 866 River Road (Route 110), Shelton, Connecticut, Volume III," June 1990, Revised to January 1992, Fuss & O'Neill, Inc. (APP-5)

"State Discharge Permit Application (SPDES) Groundwater Discharge, Volume IV," June 1990, Revised to January 1992, Fuss & O'Neill, Inc. (APP-6)

"Shelton Landfill Horizontal Expansion, 866 River Road (Route 110), Shelton, Connecticut, National Pollutant Discharge Elimination System Permit Application (NPDES) Storm Water Discharge, Volume V," January 1991, Revised to January 1992, Fuss & O'Neill, Inc. (APP-7)

"State Structure and Dredging Permit Application, Volume VI," July 1990, Revised to January 1992, Fuss & O'Neill, Inc. (APP-8)

"Future Public Use and Recreation Plan, Volume VII," July 1990, Revised to January 1992, Fuss &O'Neill, Inc. (APP-9)

"Quality Assurance/Quality Control Documentation, Geomembrane Liner Installation, Volume VIII," February 1991, Revised to January 1992, Fuss & O'Neill, Inc. (APP-10)

"Technical Review for Landfill Permit Application for the Shelton Landfill Horizontal Expansion, Shelton, Connecticut," prepared by Roy F. Weston, Inc., January 1992. (APP-15)

Letter from Chris Recchia, CRRA, to Mike Harder, CTDEP, dated September 15, 1995.

Letter from Natural Resources Center, CTDEP, to Chris Recchia, CRRA, dated September 25, 1995.

Letter and attachments to Jim Fitting, CTDEP, from Debbie Denfeld, CRRA, dated September 29, 1995.

"Permit Application for Wastewater Discharge," September 1995, CRRA.

"Groundwater and Surface Water Monitoring Program for the Northeast Expansion Area," September 1995, CRRA.

"Leachate Prevention Plan for the Shelton Landfill," September 1995, CRRA.

"Compilation of Historical Analytical Monitoring Results," September 1995, CRRA.

"Hydrogeologic Investigation in the Northeast Expansion Area of the Shelton Landfill and Two Contiguous Properties to the North, Shelton Landfill, " October 1995, Environmental Risk Limited.

"Precipitation Hydrographs, Northeast Expansion Area Shelton Landfill," October 1995, CRRA.

"Supplemental Information, Northeast Area Horizontal Expansion, CRRA Shelton Landfill Modification to Permit LF0000052," January 1996, CRRA.

"Groundwater and Surface Water Quality Monitoring Program for the Northeast Expansion Area, Southeast Expansion Area and MSW/Ash Area in Support of the CTDEP Groundwater Discharge Permit," September 1995, Revised May 1996, CRRA.

Table No. 1 and No. 2, and Appendices A, B, C, D, E, F, G, H, and I of "Groundwater and Surface Water Quality Monitoring Program for the Northeast Expansion Area, Southeast Expansion Area and MSW/Ash Area in Support of the CTDEP Groundwater Discharge Permit," submitted September 1995, revised to May 1996, May 31, 1996, CRRA.

"Groundwater and Surface Water Quality Monitoring Program for the Northeast Expansion Area and Southeast Expansion Are in Support of an Amendment of the CTDEP Groundwater Discharge Permit No. LF0000052," September 1995, revised June 12, 1996, CRRA.

Letter and attachments to Jim Fitting, CTDEP, from Debbie Denfeld, CRRA, dated June 14, 1996.

Facsimile to Jim Fitting, CTDEP, from Debbie Denfeld, CRRA, dated June 17, 1996.

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

SEPTEMBER 5, 1997

BUREAU OF WATER MANAGEMENT

MINOR PERMIT MODIFICATION

cc: MT
P.O.
Bob Leach, HRP

Ms. Deborah Denfeld
Connecticut Resources Recovery Authority
179 Allyn Street
Hartford, CT 06103

Re: Shelton Landfill
Permit ID: LF0000052
Facility ID: 126-104
App. No.: 199502403

Dear Ms. Denfeld:

The Connecticut Resources Recovery Authority was issued a permit for the discharge of leachate from a municipal solid waste ash residue to the ground water in watershed of the Housatonic and Farmill Rivers. It has been requested by my staff that the permit be modified to reflect changes in the benthic monitoring program as described in paragraph 3(H)(v) of the permit. The changes to the permit will not result in a permit which is less stringent than the existing permit.

In accordance with the Regulations of Connecticut State Agencies Section 22a-430-4(p)(5)(B)(vi) of the Water Discharge Permit Regulations, I hereby modify the benthic monitoring program as described on pages 20 and 21 paragraph 3(H)(v) of permit LF0000052 and as shown on the attached modified pages of the permit.

If you have any questions regarding this matter, please call Oswald Inglese at (860)424-3725.

Sincerely,

Sidney J. Holbrook
Commissioner

SJH/rel

attachment

highway department plans, Coastal Area Management maps, etc. This map shall be included in the first annual report, and shall be updated for inclusion in each subsequent annual report, as required in paragraph 5(A).

(ii) Two qualitative habitat characterizations of the area in which the Shelton landfill is situated shall be conducted; the first one in August 1997 and the second one in August 1999. The qualitative habitat characterization shall describe, in particular, the entire area in the vicinity of the Farmill River from River Road (Connecticut Route 110) east to its confluence with the Housatonic River, the shoreline along the Housatonic River Lagoon, and wetland areas in or near the landfill. A descriptive report of upland areas as they contribute to the ecology of the surface water system, and a description of nearby influences shall be included.

(iii) The first annual report shall include the results of a bathymetric survey of the Housatonic River Lagoon. Results shall be presented in the form of a site map, prepared at a scale of one inch equal to one hundred feet, depicting depth contours within the lagoon at a minimum contour interval of five feet.

(iv) Two quantitative habitat evaluations of the area within the statistical mean annual floodplain of the Farmill River shall be conducted; the first one in August 1997 and the second one in August 1999. The habitat characterizations shall be conducted using standardized and reproducible protocols that follow those recommended by Platts et al. (DA GTR INT-138) and incorporate the metrics required by the RBP III described by Plafkin, et al. (EPA/444/4-89-001), and shall include, at a minimum, Stream width; Stream depth and shore water depth; Location and extent of pool, riffle, run, and glide areas; Stream velocity; General channel morphology, elevation, gradient, and sinuosity; Stream bank, stability, vegetation; Stream bottom; Canopy; Submerged and emergent aquatic vegetation (%-cover, type).

(v) Two benthic macroinvertebrate community assessments of the Farmill River shall be conducted; the first one during October 1997 and the second in October 1999. The benthos shall be evaluated using U.S.EPA's Rapid Bioassessment Protocol (RBP), Level 3 as described by Plafkin, et al., 1989. At least one kick net sampling location in a riffle/run habitat in the Farmill River shall be established. An ecoregional reference or an upstream reference site shall also be established and sampled concurrently with the other site(s). Kick net and CPOM samples shall be collected from streambed locations representative of the channel cross-section at

each station. Subsampling the material collected, following procedures in RBP, is acceptable as long as a minimum 200 organism subsample is obtained. The number of organisms in the subsample should not be less than 10% of the target subsample value. Samples shall be identified to the lowest taxonomic level possible, preferably to the species level. The permittee shall consult with DEP prior to iniating the first of the benthic macroinvertebrate community assessments to establish the appropriate reference site, and discuss field and laboratory procedures.

(vi) Results of the analyses of community structure, and of each habitat evaluation, including field and laboratory data sheets and updating of the map required by paragraph 3(H)(i) shall be submitted for the review and approval of the commissioner by inclusion in the annual reports in accordance with the requirements of paragraph 5(B)(i)(c)

4. Sample Analysis

(A) All sample analyses required by this permit shall be performed by a laboratory certified for such analyses by the Connecticut Department of Public Health or approved in writing for monitoring at this facility by the Connecticut Department of Environmental Protection.

(B) Analytical results for each parameter shall be reported together with the actual method detection limits achieved during the analysis. The value of each parameter shall be reported to the maximum level of accuracy and precision possible. Failure to submit data in accordance with the procedures and protocols set forth in this permit shall constitute a permit violation.

(C) Chemical analyses for surface water, ground water, and leachate shall be performed using methods approved pursuant to the Code of Federal Regulations, Part 136 of Title 40, except where otherwise specified in paragraphs 3(B)(ii), 3(C)(iii), and 3(F)(ii), or unless an alternative method has been specifically approved in writing by the Commissioner for monitoring at this facility. Failure to use approved methods shall constitute a permit violation.

(D) Analyses required by paragraphs 3(A), 3(B), and 3(F) shall be conducted to achieve the minimum levels for each of those parameters for which minimum levels are identified in 3(A)(iii), unless an alternative method that is capable of achieving the minimum levels has been specifically approved in writing by the Commissioner.

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PERMIT

Connecticut Resources Recovery Authority
179 Allyn Street
Hartford, CT 06103

Attention: Mr. David Brown

Re: DEP/WPC-126-104
Town of Shelton
Housatonic River Watershed

Gentlemen:

This PERMIT is issued in accordance with Section 22a-430 of the Connecticut General Statutes, as amended. The Commissioner of Environmental Protection (hereinafter "the Commissioner") has found that the discharge from the operation and maintenance of the sanitary landfill will not cause pollution of the waters of the state. This action is further found to be consistent with the applicable policies of the Connecticut Coastal Management Act (Section 22a-92 of the Connecticut General Statutes as amended by Section 2 of P.A. 79-535).

The Commissioner, acting under Section 22a-430, hereby permits the Connecticut Resources Recovery Authority (CRRA) to operate and maintain a sanitary landfill with the resultant leachate discharged to the groundwaters of the state in accordance with the following conditions:

1) Discharge Serial No. 001
Description - Sanitary Landfill Leachate (code 305002C)
Discharge Location - Groundwaters in the watershed of the Housatonic River (basin code 6000)
Design Flow Rate - 74,000 gallons per day

2) The sanitary landfill shall be operated and maintained in accordance with the plans and specifications approved by the Director of Water Compliance on December 28, 1984. The sanitary landfill site consists of 110 acres of land located to the east of Route 110 in the Town of Shelton. The permitted area of refuse disposal is 37 acres as shown on the site grading plan prepared by Fuss & O'Neill and dated December 4, 1984.

3) The surface and groundwaters shall be monitored as follows:

A) Surface water quality monitoring shall be conducted at the following locations:

S-1: Lagoon inlet (downstream)
S-2: Lagoon mid-point (downstream)

Samples shall be obtained on the falling tide approximately midway between high and low tide and be taken at mid-depth in the lagoon.

Each quarterly sample shall be analyzed for the following leachate indicator parameters.

1. total dissolved solids (613)
2. total suspended solids (614)
3. alkalinity (602)
4. COD (303)
5. total iron (113)
6. total managanese (116)
7. ammonia (201)
8. nitrate (204)
9. chloride (502)
10. organic nitrogen (205)
11. T.O.C. (306)
12. pH (609)
13. conductivity (611)
14. BOD_{20} (302)
15. nitrite (203)
16. TKN (202)
17. copper (111)
18. zinc (127)
19. nickel (119)
20. cadmium (107)
21. lead (114)
22. chromium (109)

B) Groundwaters monitoring shall be conducted at the following locations:

W-1: F (up-gradient)
W-2: As
W-3: Ad
W-4: Bs
W-5: C
W-6: E
W-7:
W-9:
W-10:

Following measurement of the water level in the monitoring wells, the wells shall be pumped immediately prior to sampling until at least three (3) times the volume of water standing in the well is evacuated to insure that a representative sample of the groundwater is obtained. All ground water samples for metals, COD and volatile organics shall be filtered in the field to remove excess suspended solids. A silty water sample will give false results on the COD and metal analyses. The samples shall be analyzed by a laboratory certified by the State Health Department. All samples shall be placed in the appropriate container for the test to be conducted (i.e. BOD bottle, volatile organics bottle, one-half gallon plastic bottle, etc.).

Each quarterly ground water sample shall be analyzed for the previously listed leachate indicator parameters and the following:

water level (706)
volatile organics (annually)

C) The domestic water supply wells at the following addresses shall be sampled quarterly:

PW-1: Lot 5
PW-2: Lot 151
PW-3: Lot 152
PW-4: Lot 153
PW-5: Lot 172
PW-6: Lot 173

Each quarterly water sample shall be analyzed for specific conductance (611), chloride (502), total dissolved solids (613), alkalinity (602), ammonia (201), nitrate (204), iron (113), manganese (116) and pH (609).

Tap water should be run vigorously for five (5) minutes prior to sample collection and from a tap which bypasses holding tanks and water treatment systems. Samples shall be placed in the appropriate bottle.

D) This permit condition (C) is binding only if the property owners grant the applicant permission to collect the well water sample.

E) The sampling and testing performed according to subparagraphs A, B, and C shall be done according to this schedule:

Sampling Date	Reporting Date
January	March 1
April	June 1
July	September 1
October	December 1

The results shall be reported to the Solid Waste and Water Compliance Units of the Department of Environmental Protection at the State Office Building, Hartford, Connecticut 06106. A copy of the sampling results shall also be sent to the Health Officer of the town in which the disposal area is located and copies of the private well sampling results shall be sent to the residences of those properties.

F) Beginning on December 31, 1984 and annually on that date thereafter, a summary report of the monitoring program shall be submitted for the review and approval of the Commissioner. The report shall include an assessment of changing trends in leachate concentration or constituents, impact on adjacent surface waters, changes in plume location, changes in the ground water levels, and impact on nearby water supply wells.

4) The zone of influence of the discharge which is hereby permitted is restricted to the property owned by CRRA. The zone of influence is defined as the soil and groundwater area needed to allow the treatment of leachate by soils and mixing of leachate with groundwaters and in which the groundwaters could be in violation of pertinent Federal and State drinking water standards.

5) Within ninety (90) days of the date of this permit, verify to the Commissioner that notice has been placed by the CRRA on the land records of this area as shown in the engineering report dated Februrary 1982, which indicates that groundwaters beneath this parcel are not suitable for drinking without treatment due to the existence of the landfill.

6) Within ninety (90) days of the date of this permit, verify to the Commissioner that refuse monuments have been installed around the perimeter of the refuse disposal area. Refuse monuments shall be at least six (6) feet high, three (3) inches in diameter and permanently anchored to protect against accidental destruction or vandalism.

7) On or before six (6) months of when the metal hydroxide disposal cell will reach its permitted capacity of 10,000 cubic yards, the CRRA shall submit for the review and approval of the Commissioner, plans and specifications for the final disposition of the metal hydroxide sludge.

8) Within one (1) year of the date of issuance of this permit, verify to the Commissioner that a vegetated buffer zone fifty (50) feet wide has been established between the lagoon and the landfill.

9) The monitoring of this landfill shall continue for at least twenty-five (25) years after full and complete closure has occurred.

The PERMIT is issued under Section 22a-430 and shall expire on January 11, 1990.

The PERMIT shall be subject to all the Section 22a-430 General Conditions dated April 27, 1979 which are hereby incorporated into this PERMIT.

Entered as a PERMIT of the Commissioner on January 11, 1985.

Stanley J. Pac
Stanley J. Pac
COMMISSIONER

LF 0000023

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

PRETREATMENT PERMIT

issued to

Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, CT 06103

Location Address:

Shelton Landfill
866 River Road
Shelton, CT

Permit ID: SP0001459

Permit Expires: December 4, 2022

SECTION 1: GENERAL PROVISIONS

(A) This permit is reissued in accordance with section 22a-430 of Chapter 446k, Connecticut General Statutes ("CGS"), and Regulations of Connecticut State Agencies ("RCSA") adopted thereunder, as amended, and a modified Memorandum of Agreement (MOA) dated June 3, 1981, by the Administrator of the United States Environmental Protection Agency which authorizes the State of Connecticut to administer a Pretreatment Program pursuant to 40 CFR Part 403.

(B) Connecticut Resources Recovery Authority, ("Permittee"), shall comply with all conditions of this permit including the following sections of the RCSA which have been adopted pursuant to section 22a-430 of the CGS and are hereby incorporated into this permit. Your attention is especially drawn to the notification requirements of subsection (i)(2), (i)(3), (j)(1), (j)(6), (j)(8), (j)(9)(C), (j)(11)(C), (D), (E), and (F), (k)(3) and (4) and (l)(2) of section 22a-430-3.

Section 22a-430-3 General Conditions

(a) Definitions
(b) General
(c) Inspection and Entry
(d) Effect of a Permit
(e) Duty
(f) Proper Operation and Maintenance
(g) Sludge Disposal
(h) Duty to Mitigate
(i) Facility Modifications; Notification
(j) Monitoring, Records and Reporting Requirements
(k) Bypass
(l) Conditions Applicable to POTWs
(m) Effluent Limitation Violations (Upsets)
(n) Enforcement
(o) Resource Conservation
(p) Spill Prevention and Control
(q) Instrumentation, Alarms, Flow Recorders
(r) Equalization

Section 22a-430-4 Procedures and Criteria

(a) Duty to Apply
(b) Duty to Reapply
(c) Application Requirements
(d) Preliminary Review
(e) Tentative Determination
(f) Draft Permits, Fact Sheets
(g) Public Notice, Notice of Hearing
(h) Public Comments

I CERTIFY THAT THIS IS A
TRUE COPY OF THE ORIGINAL.
Luis Munoz / Planning Tech
NAME & TITLE:
CONN. DEPT. OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER MANAGEMENT

(i) Final Determination
(j) Public Hearings
(k) Submission of Plans and Specifications. Approval.
(l) Establishing Effluent Limitations and Conditions
(m) Case by Case Determinations
(n) Permit issuance or renewal
(o) Permit Transfer
(p) Permit revocation, denial or modification
(q) Variances
(r) Secondary Treatment Requirements
(s) Treatment Requirements for Metals and Cyanide
(t) Discharges to POTWs - Prohibitions

(C) Violations of any of the terms, conditions, or limitations contained in this permit may subject the Permittee to enforcement action, including but not limited to, seeking penalties, injunctions and/or forfeitures pursuant to applicable sections of the CGS and RCSA. Specifically, civil penalties of up to twenty-five thousand dollars may be assessed per violation per day.

(D) Any false statement in any information submitted pursuant to this permit may be punishable as a criminal offense under section 22a-438 or 22a-131a of the CGS or in accordance with section 22a-6, under section 53a-157b of the CGS.

(E) The authorization to discharge under this permit may not be transferred without prior written approval of the Commissioner of Energy and Environmental Protection ("the Commissioner"). To request such approval, the Permittee and proposed transferee shall register such proposed transfer with the Commissioner at least 30 days prior to the transferee becoming legally responsible for creating or maintaining any discharge which is the subject of the permit transfer. Failure by the transferee to obtain the Commissioner's approval prior to commencing such discharge(s) may subject the transferee to enforcement action for discharging without a permit pursuant to applicable sections of the CGS and RCSA.

(F) Nothing in this permit shall relieve the Permittee of other obligations under applicable federal, state and local law.

(G) An annual fee shall be paid for each year this permit is in effect as set forth in section 22a-430-7 of the Regulations of Connecticut State Agencies.

(H) This permitted discharge is consistent with the applicable goals and policies of the Connecticut Coastal Management Act (section 22a-92 of the Connecticut General Statutes).

SECTION 2: DEFINITIONS

(A) The definitions of the terms used in this permit shall be the same as the definitions contained in section 22a-423 of the CGS and section 22a-430-3(a) and 22a-430-6 of the RCSA.

(B) In addition to the above the following definitions shall apply to this permit:

"----" in the limits column on the monitoring table means a limit is not specified but a value must be reported on the DMR.

"Average Monthly Limit" means the maximum allowable "Average Monthly Concentration" as defined in section 22a-430-3(a) of the RCSA when expressed as a concentration (e.g. mg/l); otherwise, it means "Average Monthly Discharge Limitation" as defined in section 22a-430-3(a) of the RCSA.

"Batch" means the maximum volume of landfill gas condensate discharge from the 3,000 gallons holding tank.

"Daily Concentration" means the concentration of a substance as measured in a daily composite sample, or the arithmetic average of all grab sample results defining a grab sample average.

"Daily Quantity" means the quantity of waste generated during an operating day.

"Instantaneous Limit" means the highest allowable concentration of a substance as measured by a grab sample, or the highest allowable measurement of a parameter as obtained through instantaneous monitoring.

"Maximum Daily Limit" means the maximum allowable "Daily Concentration" (defined above) when expressed as a concentration (e.g. mg/l); otherwise, it means the maximum allowable "Daily Quantity" as defined above unless it is expressed as a flow quantity. If expressed as a flow quantity it means "Maximum

Daily Flow" as defined in section 22a-430-3(a) of the RCSA.

"NA" as a Monitoring Table abbreviation means "not applicable".

"NR" as a Monitoring Table abbreviation means "not required".

"Quarterly", in the context of a sampling frequency, means sampling is required in the months of January, April, July, and October.

"Range During Sampling" or "RDS", as a sample type, means the maximum and minimum of all values recorded as a result of analyzing each grab sample of; 1) a Composite Sample, or 2) a Grab Sample Average. For those permittees with continuous monitoring and recording pH meters, Range During Sampling shall mean the maximum and minimum readings recorded with the continuous monitoring device during the Composite or Grab Sample Average sample collection.

"Range During Month" or "RDM", as a sample type, means the lowest and the highest values of all of the monitoring data for the reporting month.

"Sub-discharge" means a discharge described under Table B (those representing for example DSN 001-A) of this permit.

"mg/l" means milligrams per liter.

"ug/l" means micrograms per liter.

SECTION 3: COMMISSIONER'S DECISION

(A) The Commissioner has made a final determination and found that the continuance of the existing system to treat the discharge for Discharge Serial Number (DSN) 001 and modification of the existing system or installation of a new system for DSN 001-A will protect the waters of the state from pollution. The Commissioner's decision is based on Application No. 201006864 for permit reissuance received on December 28, 2010 and the administrative record established in the processing of that application.

(B) (1)From the issuance of this permit through and including December 31, 2012, the Commissioner hereby authorizes the Permittee to discharge in accordance with the terms and conditions of Permit No. SP0001459, issued by the Commissioner to the Permittee on June 27, 2001, the previous application submitted by the Permittee on December 16, 1998 application, and all approvals issued by the Commissioner or the Commissioner's authorized agent for the discharge and/or activities authorized by, or associated with, Permit No. SP0001459, issued by the Commissioner to the Permittee on June 27, 2001.

(2) From January 1, 2013, until this permit expires or is modified or revoked, the Commissioner hereby authorizes the Permittee to discharge in accordance with the terms and conditions of Permit No. SP0001459, issued by the Commissioner to the Permittee on December 5, 2012, Application No. 20106864 received by the Department on December 28, 2010, and all approvals issued by the Commissioner or the Commissioner's authorized agent for the discharge and/or activities authorized by, or associated with, Permit No. SP0001459, issued by the Commissioner to the Permittee on December 5, 2012.

(C) The Commissioner reserves the right to make appropriate revisions to the permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions that may be authorized under the Federal Clean Water Act or the Connecticut General Statutes or regulations adopted thereunder, as amended. The permit as modified or renewed under this paragraph may also contain any other requirements of the Federal Clean Water Act or Connecticut General Statutes or regulations adopted thereunder which are then applicable.

SECTION 4: EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

(A) The discharges shall not exceed and shall otherwise conform to specific terms and conditions listed below. The discharges are restricted by, and shall be monitored in accordance with, the tables below.

I CERTIFY THAT THIS IS A
TRUE COPY OF THE ORIGINAL.
Luis Munn / processing Tech
NAME & TITLE:
CONN. DEPT. OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER MANAGEMENT

Table A

Discharge Serial Number: 001-1 | **Monitoring Location:** 1

Wastewater Description: Collected and treated landfill gas condensate and leachate wastewaters from a closed landfill

Monitoring Location Description: After the final pH Adjustment Tank

Discharge is to: The Town of Stratford Water Pollution Control Facility

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING		
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency [2]	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/ Reporting Frequency[2]	Sample Type or measurement to be reported
Arsenic, Total	mg/l	NA	-----	Quarterly	Daily Composite	------	NR	NA
Barium, Total	mg/l	NA	------	Quarterly	Daily Composite	------	NR	NA
Cadmium, Total	mg/l	NA	-------	Quarterly	Daily Composite	------	NR	NA
Chromium, Total	mg/l	NA	-------	Quarterly	Daily Composite	------	NR	NA
Chemical Oxygen Demand	mg/l	NA	------	Quarterly	Daily Composite	------	NR	NA
Copper, Total	mg/l	NA	------	Quarterly	Daily Composite	------	NR	NA
Flow rate, Average Daily[1]	gpd	20,000	NA	Quarterly	Total Daily Flow	NA	NR	NA
Flow, Maximum During 24 hours period[1]	gpd	NA	30,000	Quarterly	Total Daily Flow	NA	NR	NA
Flow, (Day of Sampling)	gpd	NA	30,000	Quarterly	Total Daily Flow	NA	NR	NA
Lead, Total	mg/l	NA	-----	Quarterly	Daily Composite	-------	NR	NA
Nickel, Total	mg/l	NA	------	Quarterly	Daily Composite	-------	NR	NA
pH, Day of Sampling	S.U.	NA	NA	NR	NA	6.0 – 10.0	Quarterly	Instantaneous
pH, Minimum	S.U.	NA	NA	NR	NA	6.0	Continuous	Continuous
pH, Maximum	S.U.	NA	NA	NR	NA	10.0	Continuous	Continuous
Volatile Organic Compound (VOC)	ug/l	NA	NA	NR	NA	------	Quarterly	Grab
Zinc, Total	mg/l	NA	------	Quarterly	Daily Composite	------	NR	NA

I CERTIFY THAT THIS IS A TRUE COPY OF THE ORIGINAL.

Luis Muniz / Processing Tech

NAME & TITLE:
CONN. DEPT. OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER MANAGEMENT

Table Footnotes and Remarks:

Footnotes:

[1] For this parameter the Permittee shall maintain at the facility a record of the Total Daily Flow for each day of discharge and shall report the Average Daily Flow and the Maximum Daily Flow for each sampling month.

[2] The first entry in this column is the 'Sample Frequency'. If this entry is not followed by a 'Reporting Frequency' and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.

Table B

Discharge Serial Number: 001-A | **Monitoring Location:** 1

Wastewater Description: Collected and treated landfill gas condensate from a closed landfill

Monitoring Location Description: From the 3,000 gallons Holding/Elementary Neutralization Tank

Discharge is to: 30,000 gallons Holding Tank

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING		
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency [2]	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/ Reporting Frequency[2]	Sample Type or measurement to be reported
Arsenic, Total	mg/l	NA	-----	Per Discharge	Daily Composite	------	NR	NA
Flow rate, Average Daily[1]	gpd	3,000	NA	Per Discharge	Total Daily Flow	NA	NR	NA
Flow, Maximum During 24 hours period[1]	gpd	NA	3,000	Per Discharge	Total Daily Flow	NA	NR	NA
Flow, (Day of Sampling)	gpd	NA	3,000	Per Discharge	Total Daily Flow	NA	NR	NA
pH, Day of Sampling	S.U.	NA	NA	NR	NA	-----	Per Discharge	Grab
pH, Minimum	S.U.	NA	NA	NR	NA	-----	Per Discharge	Grab
pH, Maximum	S.U.	NA	NA	NR	NA	-----	Per Discharge	Grab

Table Footnotes and Remarks:

Footnotes:

[1] For this parameter the Permittee shall maintain at the facility a record of the Total Daily Flow for each day of discharge and shall report the Average Daily Flow and the Maximum Daily Flow for each sampling month.

[2] The first entry in this column is the 'Sample Frequency'. If this entry is not followed by a 'Reporting Frequency' and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.

I CERTIFY THAT THIS IS A
TRUE COPY OF THE ORIGINAL.

Luis Munir / Processing Tech

NAME & TITLE:
CONN. DEPT. OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER MANAGEMENT

(B) All samples shall be comprised of only those wastewaters described in this schedule; therefore, samples shall be taken prior to combination with wastewaters of any other type and after all approved treatment units, if applicable. All samples taken shall be representative of the discharge during standard operating conditions.

(C) In cases where limits and sample type are specified but sampling is not required, the limits specified shall apply to all samples which may be collected and analyzed by, the Department of Energy and Environmental Protection personnel, the Permittee, or other parties.

SECTION 5: SAMPLE COLLECTION, HANDLING AND ANALYTICAL TECHNIQUES AND REPORTING REQUIREMENTS

(A) Chemical analyses to determine compliance with effluent limits and conditions established in this permit shall be performed using the methods approved by the Environmental Protection Agency pursuant to 40 CFR 136 unless an alternative method has been approved in writing in accordance with 40 CFR 136.4 or as provided in section 22a-430-3(j)(7) of the RCSA. Chemicals which do not have methods of analysis defined in 40 CFR 136 shall be analyzed in accordance with methods specified in this permit.

(B) All metals analyses identified in this permit shall refer to analyses for Total Recoverable Metal as defined in 40 CFR 136 unless otherwise specified.

(C) The results of chemical analysis required above shall be entered on the Discharge Monitoring Report (DMR), provided by this office, and reported to the Bureau of Materials Management and Compliance Assurance at the following address. Except for continuous monitoring, any monitoring required more frequently than monthly shall be reported on an attachment to the DMR, and any additional monitoring conducted in accordance with 40 CFR 136 or other methods approved by the Commissioner shall also be included on the DMR, or as an attachment, if necessary. The report shall also include a detailed explanation of any violations of the limitations specified. The DMR shall be received at this address by the last day of the month following the month in which samples are taken.

Bureau of Materials Management and Compliance Assurance
Water Permitting and Enforcement Division (Attn: DMR Processing)
Connecticut Department of Energy and Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

(D) If this permit requires monitoring of a discharge on a calendar basis (e.g. Monthly, quarterly, etc.) but a discharge has not occurred within the frequency of sampling specified in the permit, the Permittee must submit the DMR as scheduled, indicating "NO DISCHARGE". For those permittees whose required monitoring is discharge dependent (e.g. per batch), the minimum reporting frequency is monthly. Therefore, if there is no discharge during a calendar month for a batch discharge, a DMR must be submitted indicating such by the end of the following month.

(E) NetDMR Reporting Requirements

1. Prior to one-hundred and eighty (180) days after the issuance of this permit, the Permittee may either submit monitoring data and other reports to the Department in hard copy form or electronically using NetDMR, a web-based tool that allows Permittees to electronically submit discharge monitoring reports (DMRs) and other required reports through a secure internet connection. Unless otherwise approved in writing by the Commissioner, no later than one-hundred and eighty (180) days after the issuance of this permit the Permittee shall begin reporting electronically using NetDMR. Specific requirements regarding subscription to NetDMR and submittal of data and reports in hard copy form and for submittal using NetDMR are described below:

a. Submittal of *NetDMR Subscriber Agreement*

On or before fifteen (15) days after the issuance of this permit, the Permittee and/or the person authorized to sign the Permittee's discharge monitoring reports ("Signatory Authority") as described in RCSA Section 22a-430-3(b)(2) shall contact the Department at deep.netdmr@ct.gov and initiate the NetDMR subscription process for electronic submission of Discharge Monitoring Report (DMR) information. Information on NetDMR is available on the Department's website at www.ct.gov/deep/netdmr. On or before ninety (90) days after issuance of this permit the Permittee shall submit a signed and notarized copy of the ***Connecticut DEEP NetDMR Subscriber Agreement*** to the Department.

I CERTIFY THAT THIS IS A
TRUE COPY OF THE ORIGINAL.
Lyle Munro / Process Tech
NAME & TITLE:
CONN. DEPT. OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER MANAGEMENT

b. Submittal of Reports Using NetDMR

Unless otherwise approved by the Commissioner, on or before one-hundred and eighty (180) days after issuance of this permit, the Permittee and/or the Signatory Authority shall electronically submit DMRs and reports required under this permit to the Department using NetDMR in satisfaction of the DMR submission requirement of Section 5(C) of this permit.

DMRs shall be submitted electronically to the Department no later than the 30th day of the month following the completed reporting period. All reports required under the permit, including any monitoring conducted more frequently than monthly or any additional monitoring conducted in accordance with 40 CFR 136, shall be submitted to the Department as an electronic attachment to the DMR in NetDMR. Once a Permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to the Department. The Permittee shall also electronically file any written report of non-compliance described in Section 6 of this permit as an attachment in NetDMR. NetDMR is accessed from: http://www.epa.gov/netdmr.

c. Submittal of NetDMR Opt-Out Requests

If the Permittee is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for electronically submitting DMRs and reports, the Commissioner may approve the submission of DMRs and other required reports in hard copy form ("opt-out request"). Opt-out requests must be submitted in writing to the Department for written approval on or before fifteen (15) days prior to the date a Permittee would be required under this permit to begin filing DMRs and other reports using NetDMR. This demonstration shall be valid for twelve (12) months from the date of the Department's approval and shall thereupon expire. At such time, DMRs and reports shall be submitted electronically to the Department using NetDMR unless the Permittee submits a renewed opt-out request and such request is approved by the Department.

All opt-out requests and requests for the NetDMR subscriber form should be sent to the following address or by email at deep.netdmr@ct.gov:

Attn: NetDMR Coordinator
Connecticut Department of Energy and Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

(F) Copies of all DMRs shall be submitted concurrently to the local Water Pollution Control Authority ("WPCA") involved in the treatment and collection of the permitted discharge.

SECTION 6: RECORDING AND REPORTING OF VIOLATIONS, ADDITIONAL TESTING REQUIREMENTS

(A) If any sample analysis indicates that an effluent limitation specified in Section 4 of this permit has been exceeded, a second sample of the effluent shall be collected and analyzed for the parameter(s) in question and the results reported to the Bureau of Materials Management and Compliance Assurance (Attn: DMR Processing) within 30 days of the exceedance.

(B) The Permittee shall immediately notify the Bureau of Materials Management and Compliance Assurance and the local WPCA of all discharges that could cause problems to the Publicly Owned Treatment Works ("POTW"), including but not limited to slug loadings of pollutants which may cause a violation of the POTW's NPDES permit, or which may inhibit or disrupt the POTW, its treatment processes or operations, or its sludge processes, use or disposal.

(C) In addition to the notification requirements specified in Section 1B of this permit, if any sampling and analysis of the discharge performed by the Permittee indicates a violation of limits specified in Section 4 of this permit, the Permittee shall notify the Bureau of Materials Management and Compliance Assurance within 24 hours of becoming aware of the violation.

I CERTIFY THAT THIS IS A
TRUE COPY OF THE ORIGINAL.
Lucy Munn / Processing Tech
NAME & TITLE:
CONN. DEPT. OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER MANAGEMENT

SECTION 7: COMPLIANCE CONDITIONS

In accordance with 40 CFR §403.8(f)(2)(viii), the Commissioner may provide public notification, in a newspaper of general circulation in the area of the respective POTW, of permittees that at any time in the previous twelve months were in significant noncompliance with the provisions of this permit. For the purposes of this provision, a permittee that is not a Significant Industrial User is in significant noncompliance if its violation(s) meet(s) one or more of the following criteria:

- **Discretionary:** Any violation of an effluent limit that the Department determines has caused, alone or in combination with other discharges, a violation of the POTW's NPDES permit, inhibition or disruption of the POTW, its treatment processes or operations, or its sludge processes, use or disposal.

- **Imminent Endangerment:** Any discharge of a pollutant that has caused imminent endangerment to human health, welfare or to the environment, or has resulted in the Department's exercise of its emergency authority under 40 CFR §403.8(f)(1)(vi)(B) to halt or prevent such a discharge.

- **BMPs:** Any other violation or group of violations, which may include a violation of Best Management Practices, which the Department determines will adversely affect the operation or implementation of the pretreatment program.

This permit is hereby issued on

12/5/12

Macky McCleary
Deputy Commissioner
Department of Energy and Environmental Protection

MM/CN

cc: The Town of Stratford, POTW

I CERTIFY THAT THIS IS A
TRUE COPY OF THE ORIGINAL.
Luis Munic / process Tech
NAME & TITLE:
CONN. DEPT. OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER MANAGEMENT

WASTEWATER DISCHARGE PERMIT: DATA TRACKING AND TECHNICAL FACT SHEET

Permittee: Connecticut Resources Recovery Authority

PERMIT, ADDRESS, AND FACILITY DATA

PERMIT #: SP0001459 APPLICATION #: 201006864

Mailing Address:						Location Address:					
Street:	100 Constitution Plaza, 6th Floor					Street:	866 River Road				
City:	Hartford	ST:	CT	Zip:	06103	City:	Shelton	ST:	CT	Zip:	
Contact Name:	Peter W. Egan					DMR Contact	Christopher R. Shepard				
Phone No.:	860-757-7725					Phone No.:	860-757-7706				
Contact E-mail:	pegan@crra.org					DMR Contact E-mail:	cshepard@crra.org				

PERMIT INFORMATION

DURATION 5 YEAR ___ 10 YEAR _x_ 30 YEAR ___

TYPE New _ Reissuance _x_ Modification ___

CATEGORIZATION POINT (x) NON-POINT ( ) GIS #

NPDES ( ) PRETREAT (x) GROUND WATER(UIC) ( ) GROUND WATER (OTHER) ( )

NPDES MAJOR**(MA)** ___
NPDES SIGNIFICANT MINOR or PRETREAT SIU **(SI)** ___
NPDES or PRETREATMENT MINOR **(MI)** _x_

PRETREAT SIGNIFICANT INDUS USER**(SIU)** ___
PRETREAT CATEGORICAL **(CIU)** __

POLLUTION PREVENTION MANDATE _ ENVIRONMENTAL EQUITY ISSUE

SIC CODE _____4953_____

COMPLIANCE SCHEDULE YES__ NO _x_

POLLUTION PREVENTION __ TREATMENT REQUIREMENT__ WATER CONSERVATION__

WATER QUALITY REQUIREMENT __ REMEDIATION __ OTHER __

RECENT ENFORCEMENT HISTORY

Is the Permittee subject to a pending enforcement action? Yes __ No _x_

(If yes explain)

OWNERSHIP CODE

Private __ Federal __ State __ Municipal (town only) __ Other public _x_ (CRRA Quasi)

DEEP STAFF ENGINEER Charles Nezianya

PERMIT FEES

Discharge Code	DSN Number	Annual Fee
5090000	001	$4,337.50

FOR SEWER DISCHARGES

Discharge to The Town of Stratford POTW via its collection system.

NATURE OF BUSINESS GENERATING DISCHARGE

The discharges consist of landfill gas condensate and leachate wastewaters from a closed landfill. The condensate is generated by the collection and control of landfill gas generated from the closed municipal solid waste/interim ash residue disposal area. The leachate is generated from two closed, double lined, ash residue disposal areas (the southeast expansion area and the northeast expansion area). The landfill gas condensate and leachate are collected and treated prior to discharging into the Town of Stratford POTW via its collection system.

PROCESS AND TREATMENT DESCRIPTION (by DSN)

DSN 001 – Holding/Equalization and Neutralization

DSN 001-A – Holding/Equalization and Neutralization

RESOURCES USED TO DRAFT PERMIT

_x_ Federal Effluent Limitation Guideline 40 CFR 445 (See Other Comments below)
Landfills Point Source Category

__ Performance Standards

__ Federal Development Document

__ Treatability Manual

_x_ Department File Information

__ Connecticut Water Quality Standards

__ Anti-degradation Policy

_x_ Coastal Management Consistency Review Form – Since this application does not include

any new exterior construction at the facility, the applicant was not required to submit a CAM consistency form. This facility is considered to be consistent with the CAM Act.

__ Other - Explain

BASIS FOR LIMITATIONS, STANDARDS OR CONDITIONS

_x_ Best Professional Judgement (See Other Comments) – Monitoring only for: Arsenic Total; Barium, Total; Cadmium, Total; Chromium, Total; Chemical Oxygen Demand (COD); Copper, Total; Lead, Total; Nickel, Total; Volatile Organic Compounds (VOCs); and Zinc, Total Monitoring and effluent limits for pH

_x_ Case by Case Determination (See Other Comments) – Monitoring only for: Arsenic Total; Barium, Total; Cadmium, Total; Chromium, Total Chemical Oxygen Demand (COD); Copper, Total; Lead, Total; Nickel, Total; Volatile Organic Compounds (VOCs); and Zinc, Total Monitoring and effluent limits for pH

OTHER COMMENTS

The following statement is provided to document that the Permittee submitted a timely application to renew its permit.

CRRA submitted a timely and sufficient application and the Department issued a Notice of Sufficiency on January 13, 2011.

The following statements are provided in this fact sheet to document the logic used to establish the effluent limits and monitoring requirements and to also explain the addition of a new discharge in the permit.

Based on the permit application review, monitoring only is being proposed for: arsenic, total; barium, total; cadmium, total; chromium, total; COD; copper, total; lead, total; nickel, total; VOCs; and zinc, total because this type of wastewater typically contains these types of parameters. Also, this is consistent with the monitoring requirement in the existing permit issued on June 21, 2001 with the exception of arsenic. The monitoring requirements are based on a case by case determination using best professional judgment (BPJ) and this discharge is not expected to have an adverse impact on the environment. The effluent limits and monitoring for pH under this permit are also based on a case by case determination using BPJ.

Although the discharge is covered under 40 CFR 445, Landfills Point Source Category, there is no established numeric effluent guideline for discharges to sanitary sewers.

In order to conserve resources, CRRA is requesting to discharge the treated landfill gas condensate under this permit rather than continuing to haul it off-site for disposal. Based on the treatability study report submitted by CRRA with its application, it appears that this discharge will not have an adverse impact to the waters of state. In accordance with the CRRA permit application, the condensate wastewater treatment of holding/equalization and neutralization is being proposed because of the acidic nature (pH ~ 2.0 S.U.) of the wastewater. At the end of the public notice comment period, CRRA is required to submit the plans and specifications of the treatment system for DSN 001-A (condensate wastewater) for review and approval. After the holding/equalization and neutralization treatment system approval, the WPED staff will inspect it to verify that the system has been installed as approved and then the permit will be issued.

Based on the WPED staff review of the DMRs for the past 5 years, the Permittee is in compliance of the existing permit issued on June 27, 2001.

The Town of Stratford POTW has reviewed the draft permit and does not have any concerns or comments based on an email sent to the Department dated June 14, 2012.

During this permit renewal, CRRA amended their application in an email dated 10/11/2012 to reduce their average and maximum daily flow limits from 55,000 gallons per day (gpd) to 20,000 gpd and 30,000 gpd respectively since the discharge has been consistently below the permitted flows and they have been averaging about 2,000 gpd to 5,000 gpd for the past 5 years in accordance with the DMRs. Based on the proposed average daily flow limit of 20,000 gpd, effluent characteristics of the discharge and treatment provided as outlined in the application, low heavy metals, COD and VOCs levels and good compliance history from the DMRs review, it is unlikely that this discharge will have an adverse impact on the POTW. Further, the Town of Stratford POTW submitted an email dated June 14, 2012 stating that they do not have any concerns or comments on the draft permit. Therefore, it is recommended that the industrial user (IU) category for this discharge not be classified as a significant industrial user (SIU). This categorization is consistent with 40 CFR 403.3(v)(3) which states: "Upon a finding that an industrial user meeting the criteria in paragraph (v)(1)(ii) of this section has no reasonable potential for adversely affecting the POTW's operation or for violating any Pretreatment Standards or requirement, the Control Authority may at any time, on its own initiative or in response to a petition received from an Industrial User or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such Industrial User is not a Significant Industrial User."

TOWN OF STRATFORD
WATER POLLUTION CONTROL

105 BEACON POINT ROAD
STRATFORD, CT 06615
(203) 385-4065
FAX: (203) 381-2043

Permit Date: June 16, 2009
Permit Expires: June 16, 2014

SPECIAL PERMIT TO DISCHARGE TO THE SANITARY SEWER

Discharge Location:

Connecticut Resources Recovery Authority (C.R.R.A.)
Shelton Landfill Ash Leachate Project
866 River Road, Shelton, CT 06484

Permit Issued To:

Connecticut Resources Recovery Authority (C.R.R.A.)
100 Constitution Plaza-17th Floor
Hartford, CT 06103-1722

1) It shall be required that the discharge be sampled and tested monthly for Biochemical Oxygen Demand (5-day), Total Suspended Solids and Total Nitrogen, with copies of these test results provided to the Town.
2) C.R.R.A. shall utilize a certified laboratory approved by the Town for all sampling required. Copies of any and all testing done at this site for the D.E.P. or the E.P.A. shall be supplied to the Town.
3) C.R.R.A. shall pay all fees associated with the required sampling. The Town reserves the right to change the sampling parameters as needed.
4) Stratford Water Pollution Control shall be notified immediately as to any system malfunctions, system changes or problems, which could impact or adversely affect the discharge to the sanitary sewer line.
5) If for any reason the City of Shelton, the D.E.P. or the E.P.A. disapprove C.R.R.A.'s application/permit, this permit shall also be disapproved/revoked.
6) A control manhole shall be maintained on this discharge line for sampling at a location approved by the Town. This installation shall be per Town Code Chapter 172-23.
7) A non-resettable meter shall record the volume of wastewater discharged. The meter to be used must be approved by the Town and designed for the intended purpose.
8) It shall be the responsibility of the applicant to obtain all permits necessary. It shall also be the applicant's responsibility to pay all costs associated with this.
9) The Town reserves the right to make revisions to this permit at any time and to discontinue this connection into the sanitary sewer line if it is found to affect the operation or discharge permit of the Town's Water Pollution Control Facility or limit the Town's expansion. This right is stated in the Town Code Chapter 172-50.
10) This permit shall expire on June 16, 2014. The Town shall be notified sixty days in advance of this expiration date if renewal is required.

WATER QUALITY MONITORING PLAN

STEWARDSHIP PERMIT DEP/HWM/CS-126-005

CRRA- Shelton Landfill
EPA ID No. CTD000604546
River Road
Shelton, Connecticut

March 15, 2010

Prepared For:

Connecticut Resources Recovery Authority
100 Constitution Plaza
Hartford, Connecticut 06106

Prepared By:

HRP Associates, Inc
197 Scott Swamp Road
Farmington, Connecticut

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Appendices

1.0 INTRODUCTION

Connecticut Resources Recovery Authority (CRRA) retained HRP Associates, Inc (HRP) to prepare this Revised Water Quality Monitoring Plan (WQM Plan) in accordance with Section II.B.2 of the Shelton Landfill Stewardship Permit number DEP/HWM/CS-126-005 that was issued by the Connecticut Department of Environmental Protection (CTDEP) on September 16, 2009. The revised WQM Plan proposes modifications of the current Water Quality Monitoring Plan provided as Appendix B-1 to the Stewardship Permit.

The revised WQM Plan proposes

- Consolidation of comparative standards to the Surface Water Protection Criteria,
- Installation of 2 additional bedrock monitoring wells
- Reduction in the well sampling array and monitoring parameters,
- Changes to the untreated leachate monitoring parameters,
- Decreases to the monitoring frequency, and
- Elimination of the surface water monitoring program.

The rationale supporting the changes proposed herein are based upon the environmental setting of the area, 10-year groundwater monitoring trends, and the results of the *Screening-Level Ecological Risk Assessment: CRRA-Shelton Landfill* (Fuss&O'Neill, December 31, 2009).

1.1 Monitoring History

Groundwater, surface water and untreated ash residue leachate monitoring has been conducted at the Shelton Landfill since October 1996 in accordance with the requirements specified in paragraphs 3, 4 and 5 of modified Groundwater Discharge Permit LF0000052, which was issued to CRRA by the CTDEP on August 27, 1996. The modified Groundwater Discharge Permit authorized the discharge of leachate to groundwater from the Southeast Expansion Area (SEEA) and the Northeast Expansion Area (NEEA) at the Shelton Landfill. This site-wide water quality monitoring program also incorporated the monitoring of the municipal solid waste (MSW)/Interim Ash Disposal Area (conducted previously under Groundwater Discharge Permit LF0000023 and Solid Waste Permit to Construct No. 126-1VA). All wells associated with the RCRA hazardous waste disposal area are also sampled as part of the current sitewide water quality monitoring program. Groundwater Discharge Permit LF0000052 expired on August 27, 2001; however, CRRA did submit a timely application for renewal that was not acted upon by CTDEP. It is CRRA's understanding that a renewed Groundwater Discharge Permit is not required for the Shelton Landfill because the landfill is no longer operational and all solid waste disposal units have been closed.

Until CTDEP has approved the Screening Level Ecological Risk Assessment (SLERA) and revised WQMP, CRRA will continue to conduct water quality monitoring activities at the Shelton Landfill on a quarterly basis in accordance with the Stewardship Permit requirements.

2.0 ENVIRONMENTAL SETTING

2.1 Site Setting

The Shelton Landfill covers approximately 110 acres and is located on the east side of River Road (Rte. 110) in the southeast portion of Shelton, Connecticut. The landfill is located in the Housatonic River Valley, immediately upstream and north of the confluence of the Housatonic and Farmill Rivers. The landfill is owned and managed by the Connecticut Resources Recovery Authority (CRRA). The landfill property is bordered by the following properties and features (Figure 1).

North- miniature golf course/driving range,
South- Farmill River and United Technologies-Sikorsky Aircraft property,
East- Housatonic Lagoon and River, and
West- River Road/commercial properties.

The topography of the property rises from near mean sea level (MSL) in the east along the Housatonic River to 170 feet above MSL at the peak of the landfill. From this point, the land slopes downward to the west to an elevation of approximately 60 feet above MSL along River Road.

2.2 Site Activities

The Shelton Landfill consists of the four following parts (Figure 2).

1. Municipal Solid Waste Landfill (MSW)/Interim Ash Residue Landfill
2. Southeast Expansion Area (SEEA)
3. Northeast Expansion Area (NEEA)
4. Hazardous Waste Disposal Area

The MSW/Interim Ash Residue Landfill includes 37 acres located along the western edge of the property. The initial permit to operate the municipal solid waste landfill at this location was issued to CRRA by the CTDEP in August 1983. In February of 1988, this permit was modified to allow CRRA to dispose of ash residue on top of the existing municipal solid waste. From February of 1988 to August of 1994, only ash residue was landfilled on-site in a roughly 22-acre parcel atop the 37-acre footprint (Figure 2). The interim ash residue landfilling operations ceased in August of 1994 and final cover was applied in the winter of 1996/1997, with CTDEP approval of the final closure on March 30, 1999.

The Southeast Expansion Area (SEEA) consists of about 6.5 acres in the southeast corner of the landfill property, near the confluence of the Housatonic and Farmill Rivers, and adjacent to the Housatonic River Lagoon (Figure 2). According to previous consultant reports, the SEEA base pad (beneath the liner layers) was constructed partly of dredge spoils from Bridgeport Harbor, which were contaminated with VOCs. The SEEA consists of four (4) lined cells equipped with a leachate collection system on top of the primary liner and between the primary and secondary liners. Landfilling of ash

residue in this lined area began in August 1994 and ended in November 1996. The SEEA is covered to prevent erosion, lined, and has a leachate collection system. In October 1999, the HDPE geomembrane was completely installed over the area. Final cover soils (18 inches protective cover plus 6 inches topsoil) and hydroseed was completed at the SEEA in the end of May 2000. CRRA continues to maintain and monitor the leachate collection system.

The Northeast Expansion Area (NEEA) comprises approximately 3.1 acres in the northeastern corner of the landfill, adjacent to the Housatonic River and the Housatonic River Lagoon. The NEEA consists of three lined cells and a leachate collection system that serves both the primary and secondary cell liners. Ash residue was landfilled in the NEEA from November 1996 to February 1998 when capacity was reached (with a temporary diversion of the ash to the Hartford Landfill beginning in October 1997; re-depositing of ash in the NEEA restarted in December 1997). The NEEA received final cover at the end of October 1999 and closure of the ash expansion area was approved by CTDEP in October 2001.

The closed hazardous waste disposal area consists of about 2 acres, located atop the 37-acre footprint, in the north central corner of the MSW Landfill area. The hazardous waste disposal area was certified closed by the CTDEP in October of 1989.

All disposal activities at the Shelton Landfill have ceased and all disposal units have been closed. The only activities currently performed at the Shelton Landfill are listed below.

- Post-closure activities including regular landfill inspections to ensure the integrity of all landfill caps,
- Operation and maintenance of the ash leachate collection and pretreatment system, and
- Operation and maintenance of the landfill gas collection and flaring system.

An active residential drop-off center/transfer station for municipal solid waste, bulky waste, and scrap metal is also operated on the landfill property. The residential drop-off center/transfer station is permitted and operated by the City of Shelton, and is located outside of all disposal units at the landfill.

Future use of the Shelton Landfill property is governed by a "Future Use Plan" that has been developed by CRRA with input and approval from both the CTDEP and the City of Shelton. Proposed future site uses would include the post-closure activities that are currently conducted, as well as passive recreation areas, such as a walking trail, wildlife viewing areas, and a boat launch onto the Housatonic River lagoon for non-motorized boats.

2.3 Surficial and Bedrock Geology

The surficial geology of the Shelton Landfill property was mapped between 1964 and 1967, and the results were published in 1968 (Flint, 1968). In 1968 the entire site is shown as Pine Rock Park on U.S.G.S. mapping. Human modifications include sand and gravel pits, and artificial fill, especially in the south part of the site and around the lagoon to prepare the sub-base pad for the SEEA. Most of the remaining site is mapped as ice-

contact stratified drift, consisting of sand, gravel, silt and clay deposited in streams and ephemeral lakes commonly in contact with glacial ice. Post-glacial swamp deposits are mapped at the south end of the site abutting the Farmill and Housatonic Rivers.

The materials are mainly sand, silt, clay and organic matter in poorly drained fresh water and tidal areas. Till is mapped on the north part of the site in an area corresponding with the bedrock high point shown on Figures 3 and 4 as an area of no saturated overburden. This is also the area of the closed hazardous waste cell, which reportedly is underlain by no native surficial deposits, only the MSW material. In contrast to the ice-contact stratified drift and swamp deposits, till is a compact and non-sorted sediment deposited by glacial ice, with little to no water sorting.

From west to east, bedrock underlying the western third of the site consists of the Oronoque Schist and the combined Maltby Lakes and Allingtown Metavolcanics. The Maltby Lakes is a metamorphosed diabase, and the Allingtown a metamorphosed basalt (greenstone). The Oronoque Schist is a fine-grained, slabby to thinly laminated, schistose to phyllitic paragneiss. Bedrock underlying the eastern two-thirds of the site consists of the Wepawaug Schist. This rock unit is mainly interlayered medium light-gray to dark-gray phyllitic schist and medium to dark-gray quartz-rich paragneiss, with local, thin beds of crystalline limestone.

These crystalline metamorphic rocks have no mapped faults and fractures, and possess a north-northeasterly lineation (Fritts 1965). There is typically little to no intergranular porosity in such rocks, and any groundwater is derived almost exclusively from local fractures and joints.

2.4 Hydrogeology

Several hydrologic features potentially influence the groundwater flow system. These include the following features.

1. Housatonic River,
2. Farmill River and its associated tidal wetlands, and
3. Housatonic River Lagoon.

The Housatonic River is a tidally influenced river located along the eastern boundary of the site. The Farmill River is a minor tributary of the Housatonic River and flows southeastward along the southern boundary of the site. The Housatonic River Lagoon is a 23-acre lagoon that forms the eastern boundary of the site and is the primary receptor of groundwater discharge from the site. Natural groundwater flow within the area is from west to east (from the upland areas toward the landfill and Housatonic River). Based on the wells screened in shallow surficial deposits, groundwater flow within the unconsolidated deposits at the Shelton Landfill is predominantly in an east-southeasterly direction towards the Housatonic River Lagoon. Groundwater flow in the surficial deposits is controlled by shallow bedrock to the west of the property and within the northern portion of the landfill (Figure 3 and 4). This shallow bedrock precludes the presence of an overburden aquifer beneath the northeastern portion of the MSW/interim ash disposal area and the metal hydroxide sludge cell.

The bedrock aquifer groundwater flow direction is generally from northwest to southeast (Figures 5 and 6), which is controlled by the slope of bedrock fractures to the southeast in the site vicinity.

Groundwater beneath the MSW/Interim Ash Disposal Area, and metal hydroxide waste cell at the site is classified "GC" by the CTDEP. The "GC" portion of the site, pursuant to a CTDEP Final Decision dated July 17, 1997, is bordered by a "GB" area that includes wetlands to the south, wetlands and the Housatonic River Lagoon to the east, and commercial land to the north, including the former Crump Parcel which is owned by CRRA but is not part of the landfill. To the west, the site is bounded by River Road and then commercial properties, all of which overlay groundwater that is classified "GA".

2.5 Surface Water

The Housatonic River and the Housatonic River Lagoon are tidally-influenced surface water bodies located to the east of the site. The CTDEP has classified the surface water within the Housatonic River and the Housatonic River Lagoon as "SC/SB." An “SC/SB designation indicates that the water is saline in nature, and that certain Water Quality Criteria or one or more designated uses assigned to Class "SB" waters may not be currently met due to point or non-point sources of pollution. The water quality goal is achievement of Class “SB” criteria and attainment of Class "SB" designated uses, which include marine fish, shellfish and wildlife habitat; shellfish harvesting for transfer to a depuration plant or relay (transplant) to approved areas for purification prior to human consumption; and recreation, industrial supply, and other legitimate uses including navigation.

Surface water within the Farmill River, located south of the Shelton Landfill, is classified as "SB" near the confluence with the Housatonic River, “B” further upstream. A Class “B” designation indicates that the Farmill River is known or presumed to meet Water Quality Criteria which support the following designated uses: recreational use; fish and wildlife habitat; agricultural and industrial supply; and other legitimate uses including navigation.

3.0 GROUNDWATER, SURFACE WATER AND UNTREATED LEACHATE MONITORING SYSTEMS

3.1 Summary of Groundwater Sampling Locations

A total of fifty-nine groundwater monitoring wells is present on the site (Figure 2). Twenty-nine of these wells were installed as part of a Zone of Influence study (ZOI) or other hydrogeologic investigations, and have therefore not been sampled under the site's long-term groundwater monitoring program. The remaining thirty wells have historically been included the groundwater monitoring plan. Twenty-one (21) of the monitoring wells are completed within the overburden (ranging from 6 to 85 feet deep) and nine (9) of the monitoring wells are bedrock wells (ranging from 36 to 124 feet deep). The overburden wells are designated as: MW-100, MW-A, MW-Bd, MW-Bs, MW-C, MW-Cd, MW-Cs, MW-D2, MW-D2d, MW-E, MW-Ed, MW-GP4, MW-H2d, MW-Hs, MW-I3s, MW-Rs, MW-Rd, MW-Ts, MW-Td, MW-S2d and MW-S2s. The bedrock wells are designated as: MW-BR1, MW-BR2, MW-BR4, MW-BR6, MW-BR7, MW-BR8, MW-BR9, MW-BR12 and MW-Qb. Monitoring well completion details are summarized in Table 1. The locations of the wells are presented on the Figure 2.

The wells historically sampled at the site were characterized in Groundwater Discharge Permit #LF0000052 as follows:

Up-gradient Monitoring Wells:

MW-GP4	MW-BR6	MW-ED
MW-E	MW-BR4	MW-QB

Compliance Monitoring Wells:

MW-RS	MW-D2d	MW-BR9
MW-BR12	MW-Rd	MW-BR7

Plume Characterization Wells:

MW-S2D	MW-I3S	MW-BR2
MW-S2S	MW-TS	MW-D2
MW-TD	MW-100	MW-BR8
MW-BR1	MW-C	MW-A
MW-Cd	MW-CS	MW-HS
MW-BS	MW-BD	MW-H2D

The following wells have also been designated as Surface Water Protection Wells:

MW-TS	MW-100	MW-D2
MW-CS	MW-A	

3.2 Monitoring Well Locations in Relation to Closed Landfill Disposal Areas

The hydrogeologic locations of the thirty monitoring wells with respect to the four landfill disposal areas are as follows:

(a) The Closed MSW/Interim Ash Residue Landfill:
- MW-A,
- MW-BD,
- MW-C,
- MW-E,
- MW-BS,
- MW-BR2,
- MW-BR4 (upgradient),
- MW-GP4 (upgradient), and
- MW-BR9 (upgradient).

(b) The Closed SEEA:
- MW-BR7,
- MW-BR8,
- MW-C,
- MW-CD,
- MW-CS,
- MW-D2,
- MW-D2D,
- MW-HS,
- MW-H2D,
- MW-I3S
- MW-BR6 (upgradient), and
- MW-ED.

(c) The Closed NEEA:
- MW-100,
- MW-BR1,
- MW-RS,
- MW-RD,
- MW-S2D,
- MW-S2S,
- MW-TD,
- MW-TS,
- MW-BR12, and
- MW-QB (upgradient).
  [Note: Monitoring wells MW-S2S and MW-S2D were installed to replace MW-Ss and MW-Sd (based upon poor groundwater yields) on January 7, 1997.]

(d) The Closed Hazardous Waste Disposal Area:

- MW-A,
- MW-BR1,
- MW-100,
- MW-QB, and
- MW-GP4 (upgradient).
  (Note: Monitoring well MW-QB is a bedrock well, installed in February 1996 in an area without saturated overburden, to replace MW-101, which was in the footprint of the NEEA and has been abandoned. Monitoring well MW-QB was replaced on July 12-14, 1999 with a similarly-named and constructed bedrock well located 50 feet south of the former MW-QB location.)

3.3 Aquifer Characteristics

Groundwater flow within the unconsolidated deposits at the Shelton Landfill is predominantly in an east-southeasterly direction towards the Housatonic River Lagoon. This overburden groundwater flow is controlled by shallow bedrock to the west of the property and within the northern portion of the landfill (Figures 3 and 4). This shallow bedrock precludes the presence of an overburden aquifer beneath the northeastern portion of the MSW/interim ash disposal area and the metal hydroxide sludge cell.

The bedrock aquifer groundwater flow direction is generally from northwest to southeast (figures 5 and 6), which is controlled by the slope of bedrock fractures to the southeast in the site vicinity.

In the March 19, 2003 report entitled *Study to Determine the Zone of Influence at the CRRA Shelton Landfill*, HRP Associates, Inc. (HRP) concluded that that the primary surface water receptor of site groundwater is the Housatonic River Lagoon, located proximal to the site's eastern boundary. HRP concluded that the Farmill River, located proximal to the site's southern boundary, is not an evident surface water receptor of site groundwater due to a preferential west to east groundwater flow pathway at the southern end of the site that conducts groundwater away from the Farmill River and toward the Housatonic River Lagoon (Figures 3 and 4). This preferential flow pathway results from

1. the local tidal cycle,
2. a bedrock high point at the southern end of the SEEA,
3. a channel or depression in the bedrock surface that runs from the Farmill River wetlands through the center of the SEEA toward the Housatonic River Lagoon, and
4. the presumed limited compaction of dredge spoils that form the base of the SEEA.

The March 19, 2003 HRP report also concluded that the deep overburden and the shallow bedrock zones at the site are the most appropriate for monitoring groundwater quality. This conclusion was based in part on vertical gradients observed in well clusters installed at the site, as well as significant observed secondary porosity in the shallow

bedrock at the site. This conclusion was also further supported by the following historic hydraulic conductivity data (tabulated below) that was previously determined by Fuss & O'Neill, Inc.

Well	Aquifer	Hydraulic Conductivity (K), ft/day
MW-D2d	Deep Overburden	17.89
MW-Ed	Deep Overburden	37.49
MW-E	Shallow Overburden	6.01
MW-100	Shallow Overburden	6.84
MW-BR4	Bedrock	1.10

Hydraulic conductivity testing in addition to that summarized above was completed in 1996 at the following monitoring wells located in the vicinity of the NEEA:

Well	Aquifer	Hydraulic Conductivity (K), ft/day
MW-Qb	Bedrock	0.72
MW-Rs	Shallow Overburden	18.33
MW-Rd	Deep Overburden	14.18
MW-S2s	Shallow Overburden	33.08
MW-Ts	Shallow Overburden	35.69

3.4 Proposed Revisions to Current Water Quality Monitoring Plan

The revisions proposed in this Water Quality Monitoring Plan were developed to achieve the following objectives.

- Evaluate groundwater quality at the site as a whole rather than based on individual disposal areas
- Simplify and consolidate the comparative standards to be consistent with the Connecticut Remediation Standard Regulations (RSRs)
- Implement recommendations from the March 19, 2003 HRP Report
- Reduce the well array, parameters, and sampling frequency of the groundwater monitoring program
- Reduce the surface water monitoring program
- Modify the reporting format

Revisions related to each of these areas are described below.

3.4.1 Evaluation of Groundwater Quality

Based on the groundwater monitoring and investigation results, the site is characterized by commingled plumes emanating from the various landfill disposal areas including the MSW, SEEA, NEEA, and hazardous waste disposal areas. Generally, the smaller plumes derived from the SEEA, NEEA, and hazardous waste disposal area are encompassed and lie within the footprint of the plume originating from the MSW landfill. Each plume discharges towards the Housatonic River lagoon. Given the available data and present understanding of the various plume discharge locations, it is proposed to assess the overall quality of the groundwater at the site as a whole rather than an individual assessment of each plume. Assessment in this manner will monitor the overall impact associated with the MSW landfill, but also acknowledge the contaminant plumes related to the SEEA, NEEA, and hazardous waste disposal area, where appropriate.

3.4.2 Comparative Standards

Historically, groundwater data at the site was compared to a wide variety of standards including drinking water standards, maximum contaminant levels (MCLs), secondary drinking water standards, and CT remediation standards (groundwater protection criteria, surface water protection criteria). Given the environmental setting of the area, the comparative standards proposed for future use include the surface water protection criteria (SWPC). The SWPC is the appropriate standard for comparison at the site for the following reasons.

1. Groundwater quality at the site is designated “class GC and GB” acknowledging impairment of groundwater that prevents its use as a drinking water source

2. The property immediately borders the Housatonic River, a primary river drainage basin in western Connecticut. Site groundwater discharges to the Housatonic River Lagoon immediately adjacent to the eastern border of the site. The SWPC was established to protect surface water resources.

3. Receptor surveys, documented in the March 19, 2003 HRP Report, identified private water supply wells west of the property. These wells were located hydraulically up gradient of the landfill at topographic elevations significantly higher than the site. No impairment of groundwater quality at these wells has been detected, and there are no wells located hydraulically downgradient.

3.4.3 Recommendations from March 19, 2003 HRP Report

Based on the results of investigations to delineate the zone of influence of the landfill, the following recommendations of the March 19, 2003 HRP report will be implemented as part of the water quality monitoring plan.

- Two bedrock monitoring wells associated with the hazardous waste disposal unit will be installed, including a deep bedrock well

completed adjacent to MW-Qb (to be designated MW-BR-19) and a shallow bedrock well drilled next to MW-A (to be designated MW-BR-18).

- Two existing bedrock wells (MW-BR-16S, MW-BR-17D) located along the perimeter of the leachate plume in the southern portion of the landfill will be incorporated as monitoring locations in the water quality monitoring plan.

Bedrock Well Construction Methods

Proposed bedrock wells MW-BR-18 and MW-BR-19 will be drilled using 4-in diameter drill holes or similar to enable construction of a 2-in diameter monitor well. Drilling methods will include

1. Drilling through overburden materials and the upper 5-ft of bedrock using a rotary bit to enable installation of permanent 4-in diameter casing that is seated and grouted into bedrock.

2. Inside the permanent casing, a 4-in diameter drill hole will be extended into bedrock below the bottom depth of the casing using an air-percussion hammer or equivalent. The deep bedrock well (MW-BR-19) shall be drilled to a depth of 94-ft below grade adjacent to well Qb. The shallow bedrock well (MW-BR-18) will be drilled to a depth of 52-ft below grade adjacent to well MW-A.

3. A 10-ft length of PVC well screen will be set at the bottom depth of each drill hole and threaded to an appropriate length of PVC well casing to extend the well material to the ground surface.

4. A coarse sand will be placed around the well screen and extended to a depth of about 2-ft above the top of the well screen. Approximately 2-ft of bentonite pellets will be placed above the sandpack. The remaining annular space will be filled with cement-bentonite grout to the ground surface. The grout will be tremied into place.

5. MW-BR-19 will be finished in a stand pipe surrounded by a concrete collar, while MW-BR-18 will be located along an access road and will, therefore, be installed within a manhole.

Additional Monitoring Points

Wells MW-BR-18 and MW-BR-19 will be incorporated into the water quality monitoring program. The frequency and sampling parameters for these wells are described in Section 3.4.4.

3.4.4 Groundwater Monitoring Program

Based on a review of the most-recent 10 years of groundwater monitoring data, the March 19, 2003 HRP Report, and the F&O SLERA, CRRA proposes the following changes to the groundwater monitoring plan:

1. Focus collection of groundwater samples on monitor wells that can be used to

   a. Evaluate compliance with the SWPC
   b. Monitor general impacts of leachate
   c. Document groundwater quality in areas of special interest.

2. Analyze for parameters that continue to exceed the SWPC and/or are useful in monitoring the overall affects of the leachate impact

3. Reduce in the sampling frequency from quarterly to semi-annual

Proposed Monitor Well Array

In order to evaluate compliance with the SWPC, monitor the affects of the leachate, and document ground water quality in areas of special interest, groundwater samples will be collected from the 24 existing and 2 proposed monitor wells listed below (Figure 7).

MW-Qb	MW-Td	MW-Cd	MW-BR7	MW-BR-18
MW-BR5	MW-100	MW-Cs	MW-D2d	MW-BR-19
MW-GP4	MW-BR1	MW-I3s	MW-16s	
MW-BR4	MW-A	MW-BR8	MW-104s	
MW-Rs	MW-BR2	MW-17d	MW-BR6	
MW-Rd	MW-Bd	MW-105	MW-Ed	

The monitor well network was selected based on review of water quality data collected over the past 10-years and the locations of the proposed wells with respect to the following features.

- The landfill disposal unit (MSW, SEEA, NEEA, etc.) and anticipated surface water body receiving groundwater discharge from the site.
- The extent of the leachate plume.
- Site features of special interest (e.g. hazardous waste disposal unit).

Eleven monitor wells, listed below, are proposed to be dropped from the program based on data trends over the past 10-year period (Appendix A). The rationale for eliminating sampling of these wells is provided in Table 2.

MW-BR-12	MW-D2	MW-S2D
MW-BR-9	MW-E	MW-S2S
MW-BS	MW-H2D	MW-TS
MW-C	MW-HS	

Proposed Sampling Parameters

The proposed list of analytical parameters was determined through a review process that included:

1. Initial query of site data in the past 10-years to develop a list of parameters and wells with at least one detection above the SWPC.
2. Preparation and review of parameter trend graphs for wells and parameters where concentrations exceeded the SWPC.
3. Review of general leachate indicator parameters to identify the most prevalent and predominant compounds characteristic of the landfill leachate.
4. Review of specialty parameter levels (radionuclides, dioxins/furans, etc.) and SLERA results to identify other parameters of environmental or ecological significance.

The data review process revealed the following four classes of proposed analytical parameters.

- Plume monitoring parameters include a group of select metals (arsenic, cadmium, chromium (total), copper, lead, selenium, zinc) that persist at one or more monitoring well above the applicable SWPC
- Leachate monitoring parameters that are most characteristic of the site plume include specific conductance, potassium, iron and manganese
- Ecological parameters of potential significance include copper, iron, barium, total chromium, nickel, and silver.
- Parameters of special interest include radionuclides that appear to be associated with the hazardous waste disposal cell.

The proposed analytical parameters at each well location include the leachate and ecological monitoring parameters described above. The plume monitoring and special interest parameters vary from well to well depending upon the sampling history and concentration trend of the parameter. A complete list of testing parameters for each well is provided in Table 3.

Proposed Sampling Frequency

Historically, groundwater samples from site monitor wells were collected on a quarterly basis since 1996. Quarterly sampling continued 9-years after closure of the last disposal unit at the landfill in 2001. Collection of this data has provided a substantial database that enables a strong understanding of groundwater contaminant trends at the site. Given the amount of data available for the site and the present closed status of the landfill, the frequency of sampling will be reduced to a semi-annual basis. The sampling events will be scheduled to occur during the months of April and October of each year.

3.4.5 Surface Water Monitoring Program

Historically, a total of five surface water locations were sampled each quarter. These five surface water sampling locations are summarized as follows:

Surface Water Sample Location	Sample Depth
SW-1: *Farmill River upstream of landfill and dam. Sample from Mid-Stream.*	Mid-Depth
SW-2: *Farmill River downstream of O&G expansion area but upstream of the confluence with the Housatonic River; approximately 1,000 feet southeast of MW-D2d. Sample from Mid-Stream.*	
• **SW-2(T)***	Within 0.5 m of water surface
• **SW-2(B)***	Within 0.5 m of stream bed
SW-3: *Housatonic River Lagoon – South Side of the Inlet.*	
• **SW-3(T)**	Within 0.5 m of water surface
• **SW-3(M)**	Mid-Depth
• **SW-3(B)**	Within 0.5 m of Lagoon Bottom
SW-4: *Housatonic River Lagoon Mid-Point. Approximately 200 feet east of shoreline opposite MW-BR8 and Sediment Pool No. 2.*	
• **SW-4(T)**	Within 0.5 m of water surface
• **SW-4(M)**	Mid-Depth
• **SW-4(B)**	Within 0.5 m of Lagoon Bottom
SW-5: *Housatonic River Lagoon Northeast. Approximately 200 feet south of MW-100 and MW-BR1.*	
• **SW-5(T)**	Within 0.5 m of water surface
• **SW-5(M)**	Mid-Depth
• **SW-5(B)**	Within 0.5 m of Lagoon Bottom

The proposed semi-annual surface water sampling includes collection of five samples from the original SW-1 through SW-5 locations, but modifies the collection method as indicated below.

- SW-1 and SW-2 surface water samples will be collected from mid depth.
- SW-3, SW-4, SW-5 surface water samples will be collected as a composite from the top, mid and bottom depths.

Samples will be analyzed for total iron and total copper. This modification is based on the following:

1. Surface water sampling results from the past 10-years reveal no significant impacts to water quality.
2. The March 19, 2003 HRP Report revealed that the ground water leachate plumes from the various landfill units migrate towards and discharge to the Housatonic Lagoon and Housatonic River.
3. The SLERA identified no significant ecological impact to surface water quality. However, Iron and Copper were listed as contaminants of potential ecological concern (COPECs).

3.4.6 Report Format

The results of each semi-annual sampling event will be summarized in a separate report. Each report will include the following items.

- A narrative summarizing the sampling event and any anomalous test results
- Groundwater contour maps for the overburden and bedrock aquifers
- Tabulated data summary of analytical results, field parameters, and ground water elevations
- Data Quality Assessment and Data Usability Evaluation completed in accordance with *Laboratory Quality Assurance and Quality Control Data Quality Assessment and Data Usability Evaluation Guidance Document* (CTDEP, May 2009)
- Evaluation of test results with respect to the SWPC
- Field sampling data sheets
- CD-ROM with electronic copies of the laboratory analytical reports

The October semi-annual monitoring report prepared for each year will also include the additional items listed below.

- Graphs depicting Plume monitoring parameters since closure of the final landfill disposal unit in 2001.
- A brief narrative reviewing the current data trends relative to the applicable SWPC will also be included
- Any proposed changes to the monitoring program that can be supported by site data.

3.5 Untreated Ash Residue Leachate Sampling Program

CRRA proposes to continue to collect and analyze a total of two untreated ash residue leachate grab samples during each semi-annual monitoring event in a manner as described in the Groundwater Discharge Permit No. LF0000052. One untreated ash residue leachate grab sample will be collected from the NEEA lift station into which both the primary and secondary ash residue leachate liners discharge (Sample L-1N). The other untreated ash residue leachate grab sample will be collected from the SEEA lift

station into which both the primary and secondary ash residue leachate liners discharge (Sample L-1S). Changes to the sampling parameters are proposed, however, based on the historical results available for the site.

3.5.1 Proposed Changes to Untreated Leachate Sampling

Review of available historical analytical data for the leachate samples revealed the following information.

- No VOCs have been detected above the SWPC since sampling began at L-1S (1995) and L-1N (2003)
- No PCBs have been reported above the laboratory detection limit since testing began in 1995

Based on these findings, CRRA proposes to remove PCBs and VOCs from the analyte list for the untreated leachate samples. With this change, the leachate samples will be analyzed for the parameters listed in Table 3.

4.0 SAMPLING AND ANALYSIS PROCEDURES

The following sections describe the sample collection, preservation and analytical procedures which will be employed to ensure that all collected samples are representative of the sampled media.

4.1 Determination of Groundwater Elevations

A synoptic groundwater measurement will be completed on the first day of each semi-annual monitoring event at all 61 monitoring wells (27 sampled wells and 34 non-sampled wells) to determine the groundwater elevations prior to any groundwater purging and sampling activities. At each monitoring well, the depth to groundwater and the depth to the bottom will be measured with either an electronic water level indicator or a steel tape accurate to within 0.01 feet. All measurements will be made relative to the surveyed measurement point at each well, i.e., the top of the PVC casing.

The water level measuring device will be decontaminated between monitoring wells to ensure that cross-contamination of the monitoring wells does not occur. The decontamination will consist of rinsing the measuring device with deionized water.

4.2 Groundwater Sample Collection Methods

The following sample collection procedures will be followed during each sampling event:

- A “Monitoring Well Field Data Sheet” which summarizes well elevation data, well condition, purge data, observed water yield and quality comments, sampling data, and results of measured field parameters will be completed for each monitoring well sampled.

- Measure well’s water depth using decontaminated equipment (depth to water, depth to bottom, depth of sample) referenced to top of PVC (or casing) and record on the data sheet.

- Provide an in-line meter (or equivalent methodology which mitigates exposure to the atmosphere) to concurrently measure pH, temperature, specific conductivity, dissolved oxygen (DO), and redox potential (RP), as applicable, during purging. Also, provide a device to measure turbidity. A minimum of four (4) readings of each parameter shall be taken and recorded during purging.

- Perform purging using dedicated bladder pump equipment at all wells at low flow rates, not taking the first reading until at least one pump volume plus one discharge tubing volume have passed. (Note: Due to its shallow depth and typically low water column height, MW-RS is equipped with dedicated tubing that is connected to a peristaltic pump for purging.) The purged groundwater may be discarded to the ground. Sampling personnel are to monitor the drawdown in the wells and ensure that the drawdown is maintained at less than or equal to 0.3 feet during the entire purging and sampling process. Wells shall be purged at a rate of less than or equal to 300 ml/minute. Field parameter readings shall be recorded at a minimum of three minute intervals, until turbidity is stabilized such that three consecutive reading are within 10% of each other for readings >10 NTU, or readings are within 2 NTU of each other for readings <10 NTU. Per US

- Sample collection should proceed from high parameter volatility to low parameter volatility at a low flow rate. Samples for volatile parameters should be transferred slowly to the sample container to eliminate creation of air bubbles. Samples are to be collected in proper containers and properly preserved in the field, as summarized in Table 4.

- All observations relating to the well sampling, well conditions and any deviations from the sampling plan are to be recorded on the Monitoring Well Data Sheet.

4.3 Untreated Ash Residue Leachate Sample Collection Methods

The untreated ash residue leachate samples will consist of grab samples collected from the NEEA lift station and the SEEA lift station. The following sample collection procedures will be followed during each sampling event:

- A Field Data Sheet will be utilized at each ash residue leachate sample location to record all applicable field observations and data, such as weather conditions, field measurements, and sample collection times.

- Disposable or decontaminated bailers and clean rope will be utilized to collect each untreated ash residue leachate sample.

- Field measurements of pH, specific conductance, dissolved oxygen, turbidity, and leachate temperature shall be recorded.

- The appropriate sample containers will be filled from the bailer and properly preserved in the field, as summarized in Table 4.

- No filtering of samples is to occur, except where analysis of dissolved metals is specified. Where analysis of dissolved metals is specified, sample filtration is to be performed in the field during sample collection with an in-line 0.45-micron filter prior to acid preservation of the samples.

4.4 Sample Preservation and Submission

All samples are to be preserved in the field at the time of sample collection, as summarized in Table 4. All sample containers are to be labeled in the field with the sample/well identification, sample date and time, type of preservation, and parameters to be analyzed. Following collection of the samples in the proper containers, all samples are to be placed into a cooler with ice/ice packs and maintained at a temperature of 4°C until submitted to the analytical testing laboratory. All samples are to be submitted to the testing laboratory as soon as possible after collection to ensure that all applicable testing

method holding times are met. Proper chain of custody protocols will be followed to document the sample collection and submission.

4.5 Laboratory Analyses

All sample analyses will be performed only by environmental testing laboratories that are certified by the State of Connecticut Department of Public Health. Where published by CTDEP, laboratory analyses will be conducted in accordance with Reasonable Confidence Protocol (RCP) analytical methods. In those circumstances where an RCP method has not been published by CTDEP, the applicable method from the most-recent edition of EPA SW-846 ("Test Methods for Evaluating Solid Waste, Physical/Chemical Methods") will be utilized. In the absence of RCP and SW-846 analytical methods, the laboratory analytical procedure from the most recent edition of “Standard Methods for the Examination of Water and Wastewater” will be utilized. Table 5 provides a summary of parameters to be analyzed and their acceptable method(s) of analysis.

4.6 Laboratory Reporting of Analytical Results

Laboratory reports must include sampling date, sample identification numbers, analytical results, sample specific reporting limits, preparation date, and analysis date for each sample. When an analyte is not detected or when the result for an analyte is below the reporting limit, the result will be reported as "ND," along with the sample-specific reporting limit. Reporting limits must be corrected to take into account any dilutions that were performed, the exact volume of the sample, and any other factors that would affect the actual reporting limit for specific sample(s). The reasons for any dilutions that were performed must be reported in the narrative that will accompany the RCP Laboratory Analysis QA/QC Certification Form.

The laboratory reports will also include a table listing field sample identification numbers that are cross-referenced to laboratory sample identification numbers, matrix, date of collection, and date of receipt at the laboratory.

4.7 Quality Assurance/Quality Control

In order to establish and document the reliability and quality of the field and laboratory data, quality assurance/quality control (QA/QC) procedures will be followed both in the field and in the testing laboratory.

4.7.1 Field Quality Assurance/Quality Control

A total of two field duplicate samples will be collected during each semi-annual sampling event to document the precision of the sample collection procedures. One field duplicate sample will be collected from a ground water monitoring well, and one field duplicate sample will be collected from a surface water sampling location.

The use of equipment blanks is not necessary because all well purging and sample collection is completed with either dedicated sampling equipment or disposable, one-time-use equipment.

4.7.2 Laboratory Quality Assurance/Quality Control

In order to ensure that the analytical testing laboratory provides analytical data of known and documented quality, the applicable laboratory quality assurance and quality control (QA/QC) criteria from the RCPs will be met. All laboratory reports will be accompanied by the RCP Laboratory Analysis QA/QC Certification Form and required narrative that provides a detailed explanation of any non-conformances that occurred.

For those analytical methods for which no RCP method has been established, the laboratory will submit QC data deemed equivalent to a similar RCP method. In general, the QC data will include the following, as appropriate to the method:

- Method blank results;
- Sample duplicate results, identified as a duplicate;
- Matrix spike results;
- Matrix spike duplicate results;
- Surrogate recovery results; and
- Laboratory control sample results.

4.8 Minimum Detection Limits

Given the site setting, the discharge of groundwater from the site to the Housatonic River Lagoon will have to comply with the Surface Water Protection Criteria (SWPC) from the State's Remediation Standard Regulations. Therefore, the minimum detection limits for all groundwater analyses will have to be at least as low as the SWPC numeric criteria. For surface water samples, the minimum detection limits for all groundwater analyses will have to be at least as low as the Chronic Aquatic Life Criteria from the State's Surface Water Quality Standards.

5.0 COST ESTIMATE

The estimated annual cost of proposed semi-annual groundwater and untreated leachate monitoring for the Shelton Landfill is $ 40,000 per year. This annual cost covers monitoring of all disposal areas at the site. CRRA currently provides financial assurance for quarterly groundwater and surface water monitoring at the Shelton Landfill through June 2016. Continued semi-annual monitoring of all disposal areas has been assumed through June 2027 at an annual cost of $40,000 per year. The 30-year post-closure monitoring period for the MSW/Interim Ash Area ends in September 2027, with an estimated $5,963 to be incurred for monitoring costs between July 2027 and September 2027. For the NEEA and the SEEA, post-closure monitoring is expected to continue semi-annually from July 2027 until June 2030 at an annual cost of $23,850. The 30-year post closure monitoring period for the NEEA and the SEEA ends in March 2031, with an estimated $17,888 to be incurred for monitoring costs between July 2030 and March 2031. The total estimated cost for the post-closure monitoring through March 2031 is $1,383,301.

Figures

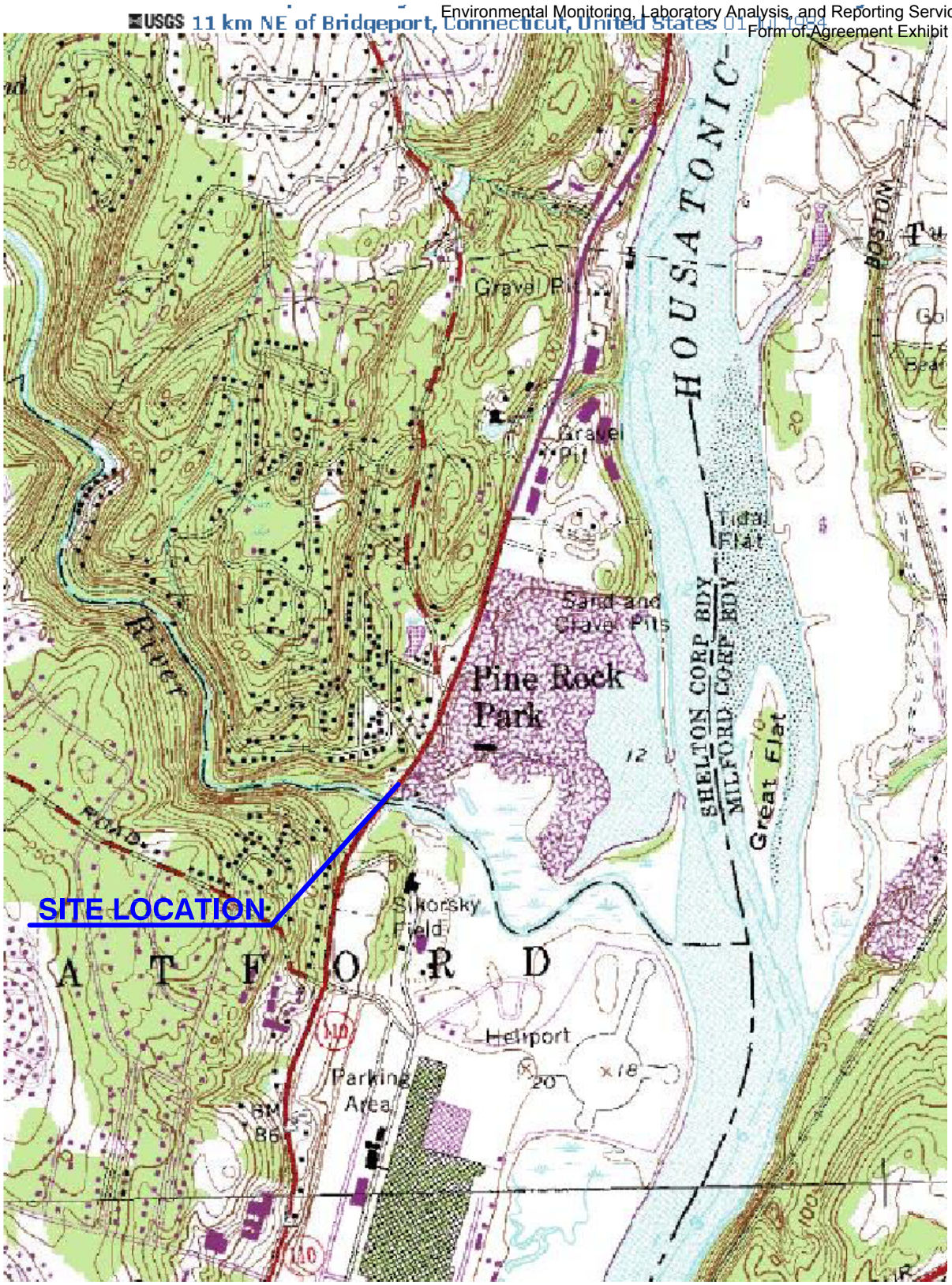

Image courtesy of the U.S. Geological Survey

North

FIGURE 1
SITE LOCATION
CRRA SHELTON LANDFILL
RIVER ROAD
SHELTON, CT
HRP# CRR0149.GW

North

LEGEND
- EXISTING MONITOR WELL
- EXISTING STILLING WELL
- SW-5 SURFACE WATER SAMPLING POINT

SW-1
LOT 2
SENECA TRAIL
LOT 151
LOT 152
LOT 153
LOT 145
LONG HILL AVE.
LOT 171
LOT 180
LOT 172
LOT 173
LOT 174
RIVER ROAD (CONN. ROUTE 110)
STATE HIGHWAY LINE
BEDROCK OUTCROP
MW-BR-15D
MW-103
MW-BR-15S
MW-GP1
MW-BR3
MW-GP2
MW-GP3
MW-102S
MW-BR-14S
MW-BR-14D
MW-BR4
MW-GP4
MW-M
MW-B1
MW-B2
MW-BR-9
N/F UNITED AIRCRAFT
STRATFORD
SHELTON
N/F CRRA
MW-Gd
APPROXIMATE LIMIT OF MSW LANDFILL
APPROXIMATE LIMIT OF ASH DISPOSAL AREA
INTERIM ASH DISPOSAL AREA
LIMIT OF SATURATED OVER BURDEN
METAL HYDROXIDE SLUDGE CELL (CLOSED)
MW-Qb
MW-B3
MW-BR-10
BEDROCK OUTCROP
STILLING WELL #2
FAR MILL RIVER
SHORE LINE
L-2 (TREATMENT FACILITY)
MW-BR-16D
MW-BR-16S
MW-104D
MW-104S
WETLANDS
L-1 (LIFT STATION)
MW-BR6
MW-E
MW-E2d
MW-BR7
MW-D2d
STILLING WELL #1
MW-Hs
MW-H2d
MW-105
MW-BR-17D
MW-BR-17S
SOUTHEAST EXPANSION AREA FOR ASH DISPOSAL
MW-D2
MW-Cd
MW-C
MW-Cs
MW-Bd
MW-D1
MW-Bs
MW-BR2
MW-BR8
MW-I3s
SW-4
MW-A
HOUSATONIC RIVER LAGOON
MW-101
MW-100
MW-BR1
NORTHEAST EXPANSION AREA
MW-L
MW-N
MW-Rs
MW-BR-12
MW-Rd
MW-S2s
MW-S2d
[MW-JS(OLD)]
MW-Td
MW-Ts
MW-BR-11
SW-5
SW-2
SW-3
SHORE LINE
HOUSATONIC RIVER

REVISIONS

NO.	DATE	DESCRIPTION

SITE PLAN

CRRA SHELTON LANDFILL

RIVER ROAD (ROUTE 110)
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www.hrpassociates.com

GTS	BPW	1" = 120'±
DESIGNED	APPROVED	SCALE
BOB	2/23/10	
DRAWN	DATE	
GTS	CRR0149.GW	FIG. 2
CHECKED	PROJECT NO.	SHEET NO.

North

LEGEND
- 24 — GROUNDWATER CONTOUR
- EXISTING MONITOR WELL
- STILLING WELL

LOT 2
SENECA TRAIL
LOT 151
LOT 152
LOT 153
LOT 145
LONG HILL AVE.
LOT 171
LOT 180
LOT 172
LOT 173
LOT 174
RIVER ROAD (CONN. ROUTE 110)
STATE HIGHWAY LINE
BEDROCK OUTCROP

N/F UNITED AIRCRAFT
STRATFORD
SHELTON
FAR MILL RIVER
SHORE LINE
STILLING WELL #2
STILLING WELL #1

MW-BR-15D
MW-103
MW-BR-15S
MW-GP1
MW-BR3
MW-GP2
MW-GP3
MW-BR4
MW-GP4
MW-102S
MW-BR-14S
MW-BR-14D
MW-M
MW-B1
MW-B2
MW-BR-9
MW-BR5
MW-B3
MW-BR-10
MW-G2
MW-104S
MW-BR-16D
MW-BR-16S
MW-104D
MW-BR6
MW-C
MW-E
MW-BR7
MW-D2d
MW-He
MW H2d
MW-BR-17D
MW-105
MW-BR-17S
MW-D2
MW-Cd
MW-Cs
MW-Bd
MW-Bs
MW-D1
MW-BR2
MW-BR8
MW-I3s
MW-A
MW-Q8
MW-101
MW-100
MW-BR1
MW-N
MW-S2s
MW-S2d
{MW-2S(OLD)}
MW-Td
MW-Ts
MW-Rs
MW-BR-12
MW-Rd
MW-BR-11

APPROXIMATE LIMIT OF MSW LANDFILL
APPROXIMATE LIMIT OF ASH DISPOSAL AREA
INTERIM ASH DISPOSAL AREA
SOUTHEAST EXPANSION AREA FOR ASH DISPOSAL
NORTHEAST EXPANSION AREA
LIMIT OF SATURATED OVER BURDEN
METAL HYDROXIDE SLUDGE CELL (CLOSED)
L-2 (TREATMENT FACILITY)
L-1 (LIFT STATION)
WETLANDS
N/F CRRA
HOUSATONIC RIVER LAGOON
HOUSATONIC RIVER
SHORE LINE

0 4 8 12 16 20 24 28

120 0 60 120
APPROXIMATE SCALE
(1" = 120')

NOTE:
CONTOURS ARE TAKEN FROM DATA FROM 2003 ZOI REPORT.

REVISIONS

NO.	DATE	DESCRIPTION

OVERBURDEN GROUNDWATER CONTORUS AT LOW TIDE

CRRA SHELTON LANDFILL

RIVER ROAD (ROUTE 110)
SHELTON, CONNECTICUT

HRP Associates, Inc.
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www.hrpassociates.com

GTS			APPROX. 1" = 120'
DESIGNED		APPROVED	SCALE
BOB	FEB. 23, 2010		Figure 3
DRAWN	DATE		
GTS	CRR0149.GW		
CHECKED	PROJECT NO.		SHEET NO.

J:\C\CRRAU - CT RESOURCES RECOVERY AUTHORITY\RIVER RD, SHELTON\CRR0149GW\CAD\FIGURE 3 - OVERBURDEN GROUNDWATER CONTOURS AT LOW TIDE.dwg, Layout1, 3/12/2010 4:05:21 PM, DWG To PDF.pc3, Plot stamp

North

LEGEND
- 24 — GROUNDWATER CONTOUR
- EXISTING MONITOR WELL
- STILLING WELL

LOT 2
SENECA TRAIL
LOT 151
LOT 152
LOT 153
LOT 145
LONG HILL AVE.
LOT 171
LOT 180
LOT 172
LOT 173
LOT 174
RIVER ROAD (CONN. ROUTE 110)
STATE HIGHWAY LINE
BEDROCK OUTCROP

N/F UNITED AIRCRAFT
STRATFORD
SHELTON
FAR MILL RIVER
SHORE LINE
STILLING WELL #2
STILLING WELL #1
WETLANDS

MW-BR-15D
MW-103
MW-BR-15S
MW-GP1
MW-BR3
MW-GP2
MW-GP3
MW-BR4
MW-GP4
MW-102S
MW-BR-14S
MW-BR-14D
MW-M
MW-B1
MW-B2
MW-BR-9
MW-BR-8
MW-B3
MW-BR-10
MW-Gd
MW-16D
MW-BR-16S
MW-104D
MW-104S
MW-BR6
MW-E
MW-D2d
MW-BR7
MW-He
MW H2d
MW-105
MW-BR-17D
MW-BR-17S
MW-D2
MW-Cd
MW-C
MW-Cs
MW-Bd
MW-D1
MW-Bs
MW-BR2
MW-BR8
MW-I3s
MW-A
MW-QB
MW-101
MW-L
MW-100
MW-BR1
MW-N
MW-Rs
MW-BR-12
MW-Rd
MW-BR-11
MW-S2s
MW-S2d (MW-JS(OLD))
MW-Td
MW-Ts

APPROXIMATE LIMIT OF MSW LANDFILL
APPROXIMATE LIMIT OF ASH DISPOSAL AREA
L-2 (TREATMENT FACILITY)
L-1 (LIFT STATION)
INTERIM ASH DISPOSAL AREA
SOUTHEAST EXPANSION AREA FOR ASH DISPOSAL
NORTHEAST EXPANSION AREA
LIMIT OF SATURATED OVER BURDEN
METAL HYDROXIDE SLUDGE CELL (CLOSED)
N/F CRRA
HOUSATONIC RIVER LAGOON
HOUSATONIC RIVER
SHORE LINE

12
4
8
16
20
24
28
0
-4
2

120 0 60 120
APPROXIMATE SCALE
(1" = 120')

NOTE:
CONTOURS ARE TAKEN FROM DATA FROM 2003 ZOI REPORT.

REVISIONS

NO.	DATE	DESCRIPTION

OVERBURDEN GROUNDWATER CONTORUS AT HIGH TIDE

CRRA SHELTON LANDFILL

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www.hrpassociates.com

GTS			APPROX. 1" = 120'
DESIGNED		APPROVED	SCALE
BOB		FEB. 23, 2010	Figure 4
DRAWN		DATE	
GTS		CRR0149.GW	
CHECKED		PROJECT NO.	SHEET NO.

J:\C\CRRAU - CT RESOURCES RECOVERY AUTHORITY\RIVER RD, SHELTON\CRR0149GW\CAD\FIGURE 4 - OVERBURDEN GROUNDWATER CONTOURS AT HIGH TIDE.dwg, Layout1, 3/12/2010 4:06:22 PM, DWG To PDF.pc3, Plot stamp

LEGEND
- EXISTING MONITOR WELL
- EXISTING STILLING WELL
- 24 GROUNDWATER CONTOUR

North

LOT 2
SENECA TRAIL
LOT 151
LOT 152
LOT 153
LOT 145
LONG HILL AVE.
LOT 171
LOT 180
LOT 172
LOT 173
LOT 174
RIVER ROAD (CONN. ROUTE 110)
STATE HIGHWAY LINE
BEDROCK OUTCROP

N/F UNITED AIRCRAFT
STRATFORD
SHELTON
FAR MILL RIVER
SHORE LINE
STILLING WELL #2
WETLANDS
L-2 (TREATMENT FACILITY)
L-1 (LIFT STATION)
APPROXIMATE LIMIT OF MSW LANDFILL
APPROXIMATE LIMIT OF ASH DISPOSAL AREA
INTERIM ASH DISPOSAL AREA
SOUTHEAST EXPANSION AREA FOR ASH DISPOSAL
NORTHEAST EXPANSION AREA
METAL HYDROXIDE SLUDGE CELL (CLOSED)
LIMIT OF SATURATED OVER BURDEN
N/F CRRA
HOUSATONIC RIVER LAGOON
HOUSATONIC RIVER

MW-BR-15D, MW-103, MW-BR-15S, MW-GP1, MW-BR3, MW-GP2, MW-GP3, MW-BR4, MW-GP4, MW-102S, MW-BR-14S, MW-BR-14D, MW-Gd, MW-BR-16D, MW-BR-16S, MW-104D, MW-104S, MW-BR5, MW-E, MW-Ed, MW-BR7, MW-D2d, MW-He, MW-H2d, STILLING WELL #1, MW-105, MW-BR-17D, MW-BR-17S, MW-D2, MW-C4d, MW-C, MW-C4, MW-Bd, MW-D1, MW-Bs, MW-BR2, MW-BR8, MW-I3s, MW-A, MW-Qb, MW-101, MW-I, MW-100, MW-BR1, MW-N, MW-Rs, MW-BR-12, MW-S2s, MW-S2d, {MW-JS(OLD)}, MW-Td, MW-Ts, MW-M, MW-B1, MW-B2, MW-BR-9, MW-BR6, MW-B3, MW-BR-10, MW-BR-11

2 0 4 2 4 6 8 12 16 20 24 28

120 0 60 120
APPROXIMATE SCALE
(1" = 120')

NOTE:
CONTOURS ARE TAKEN FROM DATA FROM 2003 ZOI REPORT.

REVISIONS

NO.	DATE	DESCRIPTION

BEDROCK GROUNDWATER CONTORUS AT LOW TIDE

CRRA SHELTON LANDFILL

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SHELTON, CONNECTICUT

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Ph:(860)674-9570 Fax:(860)674-9624
www.hrpassociates.com

GTS		APPROX. 1" = 120'	
DESIGNED	APPROVED	SCALE	
BOB		FEB. 23, 2010	Figure 5
DRAWN		DATE	
GTS		CRR0149.GW	
CHECKED		PROJECT NO.	SHEET NO.

J:\C\CRRAU - CT RESOURCES RECOVERY AUTHORITY\RIVER RD, SHELTON\CRR0149GW\CAD\FIGURE 5 - BEDROCK CONTOURS AT LOW TIDE.dwg, Layout1, 3/12/2010 4:07:25 PM, DWG To PDF.pc3, Plot stamp

LEGEND
- EXISTING MONITOR WELL
- EXISTING STILLING WELL
- 24 GROUNDWATER CONTOUR

North

LOT 2
SENECA TRAIL
LOT 151
LOT 152
LOT 153
LOT 145
LONG HILL AVE.
LOT 171
LOT 180
LOT 172
LOT 173
LOT 174
RIVER ROAD (CONN. ROUTE 110)
STATE HIGHWAY LINE
BEDROCK OUTCROP

N/F UNITED AIRCRAFT
STRATFORD
SHELTON
FAR MILL RIVER
SHORE LINE
WETLANDS
STILLING WELL #2
STILLING WELL #1

APPROXIMATE LIMIT OF MSW LANDFILL
APPROXIMATE LIMIT OF ASH DISPOSAL AREA
INTERIM ASH DISPOSAL AREA
SOUTHEAST EXPANSION AREA FOR ASH DISPOSAL
NORTHEAST EXPANSION AREA
LIMIT OF SATURATED OVER BURDEN
METAL HYDROXIDE SLUDGE CELL (CLOSED)

L-2 (TREATMENT FACILITY)
L-1 (LIFT STATION)

HOUSATONIC RIVER LAGOON
HOUSATONIC RIVER
N/F CRRA

MW-BR-15D
MW-103
MW-BR-15S
MW-GP1
MW-BR3
MW-GP2
MW-GP3
MW-BR4
MW-GP4
MW-102S
MW-BR-14S
MW-BR-14D
MW-M
MW-B1
MW-B2
MW-BR-9
MW-BR-10
MW-B3
MW-BR-13
MW-Qb
MW-Gd
MW-BR-16D
MW-BR-16S
MW-104D
MW-104S
MW-BR6
MW-E
MW-Ed
MW-BR7
MW-D2d
MW-Hs
MW-H2d
MW-105
MW-BR-17D
MW-BR-17S
MW-D2
MW-Cd
MW-C
MW-Cs
MW-Bd
MW-Bs
MW-D1
MW-BR2
MW-BR8
MW-I3s
MW-A
MW-I6L
MW-I
MW-100
MW-BR1
MW-K
MW-Rs
MW-BR-12
MW-Rd
MW-S2s
MW-S2d
{MW-JS(OLD)}
MW-Td
MW-Ts
MW-BR-11

24 20 16 12 8 4 0 -4

120 0 60 120
APPROXIMATE SCALE
(1" = 120')

NOTE:
CONTOURS ARE TAKEN FROM DATA FROM 2003 ZOI REPORT.

REVISIONS

NO.	DATE	DESCRIPTION

BEDROCK GROUNDWATER CONTORUS AT HIGH TIDE

CRRA SHELTON LANDFILL

RIVER ROAD (ROUTE 110)
SHELTON, CONNECTICUT

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www.hrpassociates.com

GTS DESIGNED		APPROVED	APPROX. 1" = 120' SCALE
BOB DRAWN		FEB. 23, 2010 DATE	Figure 6
GTS CHECKED		CRR0149.GW PROJECT NO.	SHEET NO.

J:\C\CRRAU - CT RESOURCES RECOVERY AUTHORITY\RIVER RD, SHELTON\CRR0149GW\CAD\FIGURE 6 - BEDROCK CONTOURS AT HIGH TIDE.dwg, Layout1, 3/12/2010 4:08:49 PM, DWG To PDF.pc3, Plot stamp

North

LEGEND

- MONITOR WELL IN SAMPLING NETWORK
- OTHER SITE MONITOR WELL
- PROPOSED MONITOR WELL
- EXISTING STILLING WELL
- SW-5 SURFACE WATER SAMPLING POINT
- 10 REPRESENTATIVE GROUNDWATER CONTOURS
- GROUNDWATER FLOW

SW-1
LOT 2
SENECA TRAIL
LOT 151
LOT 152
LOT 153
LOT 145
LONG HILL AVE.
LOT 171
LOT 180
LOT 172
LOT 173
LOT 174
RIVER ROAD (CONN. ROUTE 110)
STATE HIGHWAY LINE
BEDROCK OUTCROP
N/F UNITED AIRCRAFT
STRATFORD
SHELTON
FAR MILL RIVER
SHORE LINE
STILLING WELL #2
STILLING WELL #1
WETLANDS
L-2 (TREATMENT FACILITY)
L-1 (LIFT STATION)
APPROXIMATE LIMIT OF MSW LANDFILL
APPROXIMATE LIMIT OF ASH DISPOSAL AREA
INTERIM ASH DISPOSAL AREA
SOUTHEAST EXPANSION AREA FOR ASH DISPOSAL
LIMIT OF SATURATED OVER BURDEN
METAL HYDROXIDE SLUDGE CELL (CLOSED)
NORTHEAST EXPANSION AREA
HOUSATONIC RIVER LAGOON
N/F CRRA
HOUSATONIC RIVER
MW-BR15D
MW-103
MW-BR-15S
MW-Gd
MW-GP1
MW-BR3
MW-GP2
MW-GP3
MW-BR4
MW-GP4
MW-102S
MW-BR-14S
MW-BR-14D
MW-BR-16D
MW-BR-16S
MW-104D
MW-104S
MW-BR5
MW-E
MW-Ed
MW-BR7
MW-D2d
MW-Hs
MW-H2d
MW-BR-17D
MW-105S
MW-BR-17S
MW-D2
MW-Cd
MW-C
MW-Cs
MW-Bd
MW-D1
MW-Bs
MW-BR2
MW-BR6
MW-13s
SW-4
MW-A
MW-BR-18
MW-Qb
MW-BR-19
MW-100
MW-BR1
SW-5
MW-Td
MW-Ts
SW-2
SW-3
MW-M
MW-B1
MW-B2
MW-BR-9
MW-BR-10
MW-BR-11
MW-BR-12
MW-Rs
MW-Rd
MW-S2d
[MW-JS(OLD)]

120 0 60 120
APPROXIMATE SCALE
(1" = 120')

REVISIONS

NO.	DATE	DESCRIPTION

MONITOR WELL NETWORK

CRRA SHELTON LANDFILL

RIVER ROAD (ROUTE 110)
SHELTON, CONNECTICUT

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Farmington, Connecticut 06032
Ph:(860)674-9570 Fax:(860)674-9624
www.hrpassociates.com

GTS			APPROX. 1" = 120'
DESIGNED		APPROVED	SCALE
BOB		FEB. 23, 2010	Figure 7
DRAWN		DATE	SHEET NO.
GTS		CRR0149.GW	
CHECKED		PROJECT NO.	

J:\C\CRRAU - CT RESOURCES RECOVERY AUTHORITY\RIVER RD, SHELTON\CRR0149GW\CAD\FIGURE 7 - MONITOR WELL NETWORK.dwg, Layout1, 3/12/2010 4:11:02 PM, DWG To PDF.pc3, Plot stamp

Tables

TABLE 1

Summary of Monitoring Well Construction

Shelton Landfill
Shelton, Connecticut

Well No.	Screen Interval	Hydraulic Conductivity (Year of Test), K, in ft/day	Measuring Point (Top of PVC) Elevation, ft.	Top of Screen Elevation, ft.	Screen Length, ft.	Depth to Bottom, ft.
GP-4	S	---	56.72	42.52	20	36.12
BR-4	B	1.10 (1988)	55.32	-4.45	10	70.62
E	S	6.01 (1988)	9.47	-7.34	10	27.45
Ed	D	37.49 (1988)	8.97	-52.66	10	71.34
BR-6	B	---	9.06	-66.46	10	84.2
Qb	B	0.72 (1996)	71.48	2.16	10	74.43
Rs	S	18.33 (1996)	17.17	7.1	10	20.04
Rd	D	14.18 (1996)	16.22	-17.3	5	37.82
BR-12	B	---	16.75	-19.63	10	46
BR-9	B	---	72.38	Open Borehole	Open Borehole	49.18
D2d	D	17.89 (1988)	21.61	-9.81	10	42.49
BR-7	B	---	19.96	-34.3	20	103.85
S2s	S	33.08 (1996)	17.67	5.85	5	22.5
S2d	D	---	17.11	-6.73	15	35.93
Ts	S	35.69 (1996)	12.75	6.75	5	18.24
Td	D	---	12.68	-41.32	5	64.05
100	S	6.84 (1988)	14.08	-2.2	10	26.43
BR-1	B	---	13.26	-57.43	10	80.62
A	D	---	16.22	-6.6	10	32.59
Bs	S	---	11.30	4.32	10	16.8
Bd	D	---	11.50	-5.33	10	26.62
BR-2	B	---	10.26	-28.38	10	50.03
Cs	S	---	22.34	-3.78	15	40.88
C	D	---	22.37	-27.98	5	54.83
Cd	D	---	22.33	-54.08	10	85.83
I3s	S	---	9.98	0.96	10	21.43
BR-8	B	---	11.98	-99.02	10	123.88
D2	D	---	15.52	5.13	10	20.04
Hs	S	---	22.85	4.25	10	28.02
H2d	D	---	21.59	-14.41	10	45.68
BR-14D	B	---	59.74	-3.48	10	79.5
BR-14S	B	---	59.62	10.44	10	61
102S	S	---	59.65	31.93	10	39
BR-15D	B	---	25.38	-20.54	10	57
BR-15S	B	---	24.49	-1.77	10	35

TABLE 1

Summary of Monitoring Well Construction

Shelton Landfill
Shelton, Connecticut

Well No.	Screen Interval	Hydraulic Conductivity (Year of Test), K, in ft/day	Measuring Point (Top of PVC) Elevation, ft.	Top of Screen Elevation, ft.	Screen Length, ft.	Depth to Bottom, ft.
103	S	---	24.56	19.31	10	15
BR-16D	B	---	9.12	-99.45	10	120
BR-16S	B	---	8.16	-83.95	10	100.5
104D	D	---	7.91	-62.09	10	79
104S	S	---	9.64	4.48	10	12
BR-17D	B	---	14.43	-36.79	10	65
BR-17S	B	---	13.88	-21.81	10	44.5
105	S	---	14.15	4.80	10	25
BR-3	B	---	58.37	NA	NA	NA
BR-5	B	---	69.02	30.02	NA	NA
BR-10	B	---	70.27	29.27	10	51
BR-11	B	---	23.74	5.14	NA	NA
B1	S	---	60.86	NA	NA	NA
B2	S	---	66.99	NA	NA	NA
B3	S	---	67.83	NA	NA	NA
D1	S	---	10.36	NA	NA	NA
Gd	S	---	14.54	NA	NA	NA
GP1	S	---	60.60	NA	NA	NA
GP2	S	---	57.07	NA	NA	NA
GP3	S	---	53.43	NA	NA	NA
L	S	---	16.75	4.75	NA	NA
M	S	---	60.82	40.32	NA	NA
N	D	---	13.07	-11.43	NA	NA

S = Shallow Overburden
D = Deep Overburden
B = Bedrock
Depth to Bottom measurements of sampled wells were measured during pump installations in October 1996.

TABLE 2

Rationale For Eliminating Wells From Monitoring Network

Shelton Landfill
Shelton, Connecticut

Well Id	Rationale for Discontinuing Sampling
MW-BR12	No parameters exceeding the SWPC in past 10 years
MW-BR9	No persistent parameters exceeding the SWPC in past 10 years
MW-BS	Deep overburden well MW-BD in same cluster being sampled. Both are overburden wells, and both have exceedances for the same compound. Concentrations in MW-BS were consistently lower than MW-BD.
MW-C	No parameters exceeding the SWPC in past 10 years
MW-D2	No persistent parameters exceeding the SWPC in past 10 years
MW-E	Deep overburden well MW-ED in same cluster being sampled. Both are overburden wells, and both have exceedances for the same compound. Concentrations in MW-E were consistently lower than MW-ED.
MW-H2D	No persistent parameters exceeding the SWPC in past 10 years
MW-HS	Not SWPC compliance point, additional monitoring wells down gradient
MW-S2D	No parameters exceeding the SWPC in past 10 years
MW-S2S	No parameters exceeding the SWPC in past 10 years
MW-TS	Deep overburden well MW-TD in same cluster being sampled. Both are overburden wells, and both have exceedances for the same compound. Concentrations in MW-TS were consistently lower than MW-TD.

TABLE 3
MONITORING PARAMETERS
SHELTON LANDFILL
SHELTON, CONNECTICUT

(1)	(2)	(3)	(4)
Parameters	Surface Water	Groundwater	Leachate
Description: Number of Sample Locations:	5 ea + 1 QA/QC	Wells 26 ea + 1 QA/QC	Untreated 2 ea
Field Measured			
Time of Collection	X	X	X
Sample Depth	X	X	X
Total Water Column Depth	X	X	X
Water Level Elevation		X	
Water Temp.	X	X	X
Air Temp.	X		X
PH	X	X	X
Spec. Cond.	X	X	X
Salinity	X		X
Dissolved Oxygen (D)	X		X
ORP		X	
Turbidity - (NTU)		X	
Water Clarity-Secchi Disk	X		X
Lab Measured			
Spec. Cond.		X	X
PH			X
TDS			X
TSS			X
Chloride			X
Alkalinity			X
Hardness as CaCO3		X	X
BOD - 5-day			X
COD			X
Ammonia - (T)			X
TKN (T)			X
Nitrate (T)			X
Nitrite (T)			X
Phosphorus (T)			X
Aluminum (T)			X
Arsenic (T)		X	X
Barium (T)		X	X
Cadmium (T)		X	X
Chromium (T)		X	X
Copper (T)	X	X	X
Iron (T)	X	X	X
Lead (T)		X	X
Manganese (T)		X	X
Mercury (T)			X
Nickel (T)		X	X
Potassium (T)		X	
Selenium (T)		X	
Silver (T)		X	X
Zinc (T)		X-1	X
Additional Parameters to be monitored only at listed locations:			

TABLE 3
MONITORING PARAMETERS
SHELTON LANDFILL
SHELTON, CONNECTICUT

(1)	(2)	(3)	(4)
Parameters	Surface Water	Groundwater	Leachate
Description: Number of Sample Locations:	5 ea + 1 QA/QC	Wells 26 ea + 1 QA/QC	Untreated 2 ea
Radium (Radium-226 and Radium-228 combined via EPA Method 9320 of SW-846)		X-1	
Gross Alpha		X-1	
Gross Beta		X-1	
Dioxins and Furans via EPA Method 8280			X

NOTES:

The minimum detection limit (MDL) must be at least as low as the SWPC, if a criteria has been established for the compound.

Surface Water

Column 2 - Samples will be collected as a composite of top, mid and bottom from SW-3, sW-4, SW-5. A mid-depth sample will be collected from SW-1 and SW-2

Ground Water

Column 3– The well designations in Groundwater Discharge Permit LF0000052 are as follows:

MW-100 MW-Cs MW-D2d MW-BR-19 MW-Ed
MW-GP4 MW-BR1 MW-I3s MW-16s MW-BR4
MW-Td MW-BR8 MW-104s MW-Rs MW-BR2
MW-17d MW-BR6 MW-Rd MW-Bd MW-105
MW-Cd MW-BR7 MW-BR-18

X-1 Radionuclide monitoring wells

MW-Qb MW-BR5 MW-A

Untreated Leachate

Column 6 – The following 2 locations represent the sample locations for untreated ash residue leachate from the SEEA and the NEEA, respectively:
L-1S (SEEA Lift Station) L-1N (NEEA Lift Station)

Table 4
Required Containers, Preservation Techniques, and Holding Times
Shelton Landfill
Shelton, Connecticut

Parameters	Minimum Sample Size	Container	Preservation	Maximum holding time
Inorganic Leachate Indicator Parameters:				
pH (Lab Analysis)	100 mL	Plastic†	None Required	Analyze within 15 minutes
Specific Conductance (Lab Analysis)	100 mL	Plastic†	Cool to 4 ± 2º C	28 Days
Total Dissolved Solids (TDS)	100 mL	Plastic†	Cool to 4 ± 2º C	7 Days
Total Suspended Solids (TSS)	100 mL	Plastic†	Cool to 4 ± 2º C	7 Days
Alkalinity, Total	100 mL	Plastic†	Cool to 4 ± 2º C	14 Days
Hardness	100 mL	Plastic†	Nitric Acid or Sulfuric Acid to pH <2	6 Months
Biochemical Oxygen Demand (BOD5)	1 L	Plastic†	Cool to 4 ± 2º C	48 Hours
Chemical Oxygen Demand (COD)	100 mL	Plastic†	Sulfuric Acid to pH <2, Cool to 4 ± 2º C	28 Days
Chloride	100 mL	Plastic†	None Required	28 Days
Nitrate (N)	100 mL	Plastic†	Cool to 4 ± 2º C	48 Hours
Nitrite (N)	100 mL	Plastic†	Cool to 4 ± 2º C	48 Hours
Ammonia (N)	500 mL	Plastic†	Sulfuric Acid to pH <2, Cool to 4 ± 2º C	28 Days
Total Kjeldahl Nitrogen (TKN)	1 L	Plastic†	Sulfuric Acid to pH <2, Cool to 4 ± 2º C	28 Days
Phosphorus, Total	100 mL	Plastic†	Sulfuric Acid to pH <2, Cool to 4 ± 2º C	28 Days
Total Organic Halogens (TOX)	250 mL	Plastic†	Cool to 4 ± 2º C	7 Days
Total Organic Carbon (TOC)	100 mL	Plastic†	Hydrochloric Acid or Sulfuric Acid to pH <2, Cool to 4 ± 2º C	28 Days
Sulfate, Total	100 mL	Plastic†	Cool to 4 ± 2º C	28 Days
Cyanide, Total	1L	Plastic†	NaOH to pH >12, Cool to 4 ± 2º C	14 Days
Metals:				
Mercury, Total	500 mL	Plastic†	Nitric Acid to pH <2	28 days
All Other Total Metals	1 L	Plastic†	Nitric Acid to pH <2	180 days
Phenol &Total Phenolics:				
Total Phenols	250 mL	Glass with Teflon lined screw caps	Store at 4 ± 2º C.	7 days to extraction. 40 days from extraction to analysis.
Radionuclides				
Gross Alpha	1 L	Plastic†	Nitric Acid to pH <2	6 months
Gross Beta				
Radium-226	1 L	Plastic†	Nitric Acid to pH <2	6 months
Radium-228	1 L	Plastic†	Nitric Acid to pH <2	6 months

Table 4
Required Containers, Preservation Techniques, and Holding Times
Shelton Landfill
Shelton, Connecticut

Parameters	Minimum Sample Size	Container	Preservation	Maximum holding time
Dioxins / Furans:				
Polychlorinated Dibenzo-*p*-Dioxins and Polychlorinated Dibenzofurans	1 L	Amber glass bottle with Teflon lined cap	Store at 4 ± 2º C.	7 days to extraction. 40 days from extraction to analysis.

Notes:

† Plastic bottles must be acid rinsed and either high density polyethylene or Teflon

Note 1: If samples effervesce upon addition of hydrochloric acid, samples must be collected unpreserved and stored at 4 ± 2º C. Holding time is 7-days from collection.

Table 5
Laboratory Analytical Procedures
Shelton Landfill
Shelton, Connecticut

Parameters	RCP Method Number(s)	EPA Method Number	Standard Methods Test Number
Inorganic Leachate Indicator Parameters:			
pH (Lab Analysis)		9045	SM4500-H B
Specific Conductance (Lab Analysis)			SM2510B
Total Dissolved Solids (TDS)			SM2540C
Total Suspended Solids (TSS)			SM2540D
Alkalinity, Total			SM2320B
Hardness		200.7	
Biochemical Oxygen Demand (BOD5)			SM5210B
Chemical Oxygen Demand (COD)			SM5220D
Chloride		300.0	
Nitrate (N)		300.0; 9056	4500-NO3
Nitrite (N)		300.0	4500-NO2
Ammonia (N)		350.1	
Total Kjeldahl Nitrogen (TKN)		351	
Phosphorus, Total		365	4500-P
Total Organic Carbon (TOC)			SM5310B
Sulfate, Total		300.0	
Cyanide, Total	9010; 9012; 9014		
Metals:			
Aluminum, Total		6010; 6020; 7000	
Arsenic, Total	6010; 6020; 7000		
Barium, Total	6010; 6020; 7000		
Cadmium, Total	6010; 6020; 7000		
Calcium, Total		6010; 6020; 7000	
Chromium, Total	6010; 6020; 7000		
Copper, Total	6010; 6020; 7000		
Iron, Total		6010; 6020; 7000	
Lead, Total	6010; 6020; 7000		
Manganese, Total		6010; 6020; 7000	
Mercury, Total	6020; 7470; 7471		
Nickel, Total	6010; 6020; 7000		
Potassium, Total		6010; 6020; 7000	
Selenium, Total	6010; 6020; 7000		
Silver, Total	6010; 6020; 7000		
Zinc, Total	6010; 6020; 7000		
Phenol &Total Phenolics:			
Method		9065	
Radionuclides			
Gross Alpha		9310;900.0	7110B
Gross Beta		9310; 900.0	7110B
Radium (Radium-226 and Radium-228)		9320; 903.0 & 904.0	7500-Ra B & 7500-Ra D

Table 5
Laboratory Analytical Procedures
Shelton Landfill
Shelton, Connecticut

Parameters	RCP Method Number(s)	EPA Method Number	Standard Methods Test Number
Dioxins / Furans:			
Polychlorinated Dibenzo-*p*-Dioxins and Polychlorinated Dibenzofurans		1613B; 8280B; 8290A	

Note:
Where an RCP Method is specified, that method is to be utilized for sample analyses. The listed EPA Methods and/or Standard Methods Tests will only be used if an RCP Method is not available.

Appendix A

Rationale For Proposed Monitoring Well Network and Parameter Trend Graphs

Maximum SWPC Exceedance from 2000 to 2009

SWPC	0.004	0.006	0.048	0.013	0.88	0.05	0.012	0.123	96
Well	arsenic	cadmium	copper	lead	nickel	selenium	silver	zinc	11DCE
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L
MW-100	0.043	0.0062	0.095	0.018				0.179	
MW-A	0.206		0.096	0.027		0.066		0.159	
MW-BR1	0.297		0.096	0.152				0.237	
MW-BR2	0.38	0.015	0.093			0.16	0.02		
MW-BR4	0.2							0.17	
MW-BR6	0.014								
MW-BR7	0.02								
MW-BR8	0.0083						0.02		
MW-BR9	0.0083		0.054					0.465	
MW-BD	0.26	0.009	0.074			0.075	0.02		
MW-BS	0.497	0.008	0.056			0.071			
MW-Cd	0.019	0.098		0.017	2.14	0.07	0.02	5.23	110
MW-CS	0.172							0.252	
MW-d2	0.016		0.053						
MW-D2D	0.01							0.74	
MW-E	0.011	0.015		0.021		0.056			
MW-Ed	0.024		0.058			0.075			
MW-GP4	0.29								
MW-H2D	0.07	0.009		0.02					
MW-Hs	0.134							0.18	
MW-I3s	0.013	0.011						1.11	
MW-Qb	0.16	0.013	0.862	0.038		0.081	0.078	1.16	
MW-Rd	0.006		0.06						
MW-Rs								0.16	
MW-S2D									
MW-S2S									
MW-Td	0.032							1.05	
MW-Ts	0.016								

Note 11DCE -- 1,1-dichloroethylene

Rationale For Proposed Analytical Parameters

Shelton Landfill
Shelton, Connecticut

Sampling Point	Analyte	Rationale
MW-Qb	Pb, As, Cu, Se	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Radionuclides	Levels above drinking water standards and significantly above levels in MW-BR4 (up gradient)
	Hardness	General parameter used to monitor movement of landfill gases
MW-Br5	Pb, As, Cu, Se	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Radionuclides	MW-BR4 is completed in a different lithologic unit. BR5 is installed in the same unit as QB, and is therefore a more accurate up gradient or background well
	Hardness	General parameter used to monitor movement of landfill gases
MW-GP4	As	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases
MW-BR4	As	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases
MW-Rs	Zn	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases
MW-Rd	As	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases

Rationale For Proposed Analytical Parameters

Shelton Landfill
Shelton, Connecticut

Sampling Point	Analyte	Rationale
MW-Td	As	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases
MW-100	As, Cd	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases
MW-Br1	As	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases
MW-A	As, Cu, Se	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Radionuclides	Levels above drinking water standards and significantly above levels in MW-BR4 (up gradient)
	Hardness	General parameter used to monitor movement of landfill gases
MW-Br2	As, Se	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases
MW-Bd	As, Se	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases
MW-Cd	As, Se, Cd, Zn	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases

Rationale For Proposed Analytical Parameters

Shelton Landfill
Shelton, Connecticut

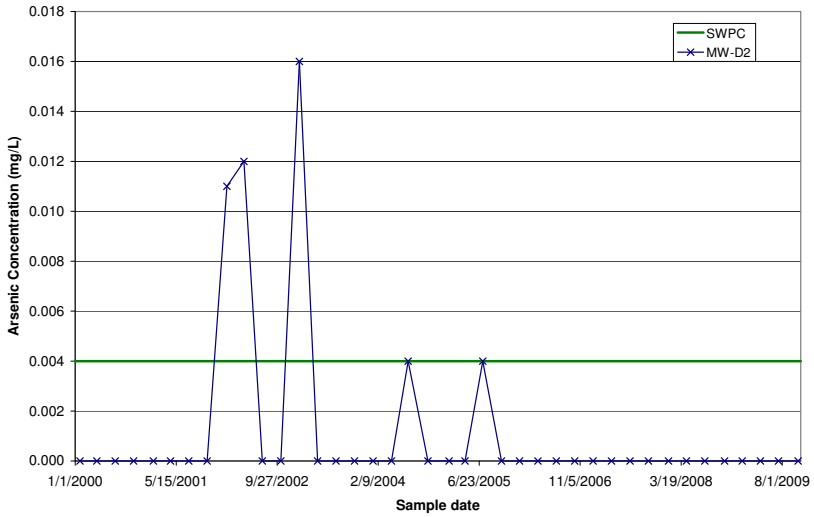
Sampling Point	Analyte	Rationale
MW-Cs	As	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases
MW-I3s	As, Zn	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases
MW-Br8	As	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases
MW-BR-17d	Cr (t)	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases
MW-105	Cr (t)	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases
MW-Br7	As	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases
MW-D2d	As	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases

Rationale For Proposed Analytical Parameters

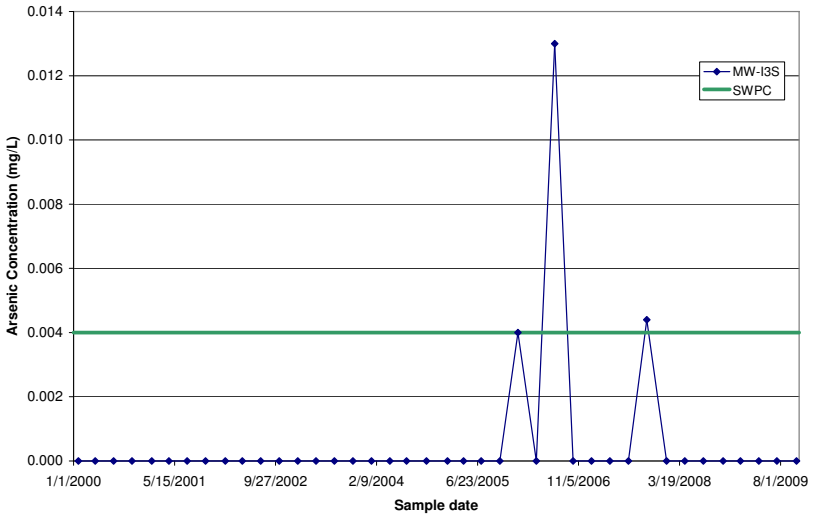
Shelton Landfill
Shelton, Connecticut

Sampling Point	Analyte	Rationale
MW-BR 16s	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases
MW-104s	As	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases
MW-Br6	As	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases
Mw-Ed	As	Persistent SWPC exceedances in the last ten years
	K, Mn, Spec Con	Selected as the most appropriate plume monitoring parameters based on the ZOI
	Fe	Selected as Plume monitoring compound (ZOI and potential sensitive Ecological compound (SLERA))
	Hardness	General parameter used to monitor movement of landfill gases

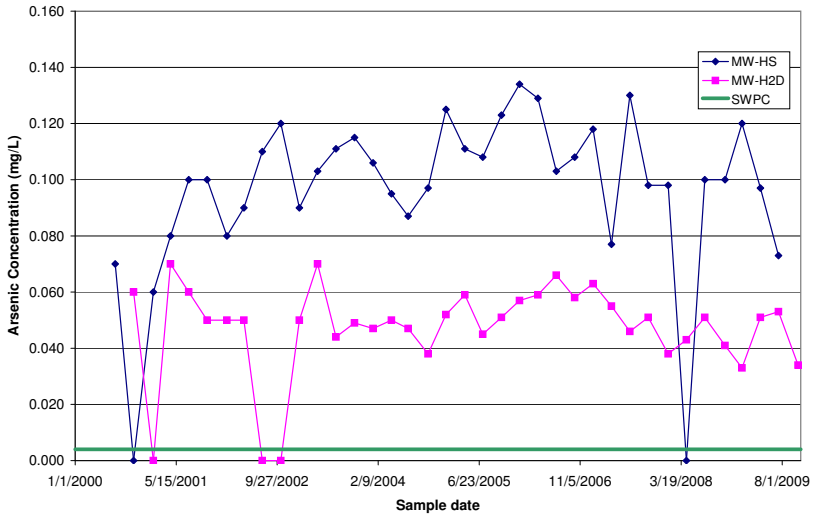
Arsenic, MW-D2



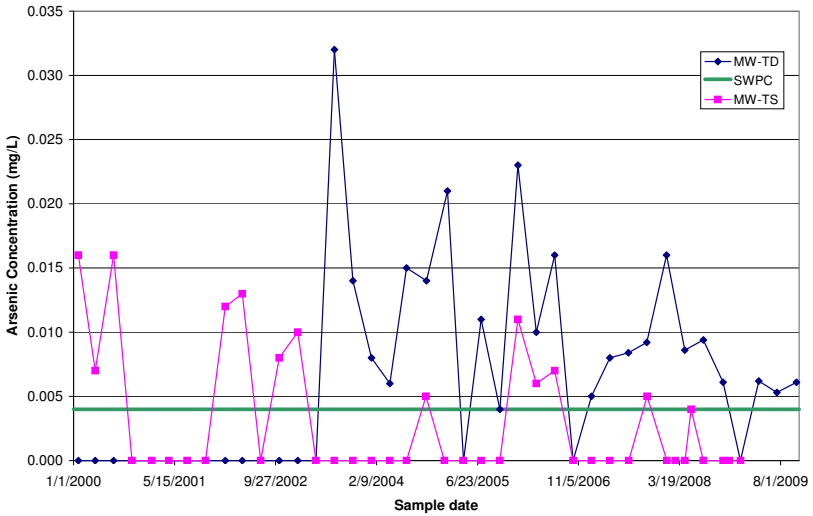
Arsenic, MW-I3S



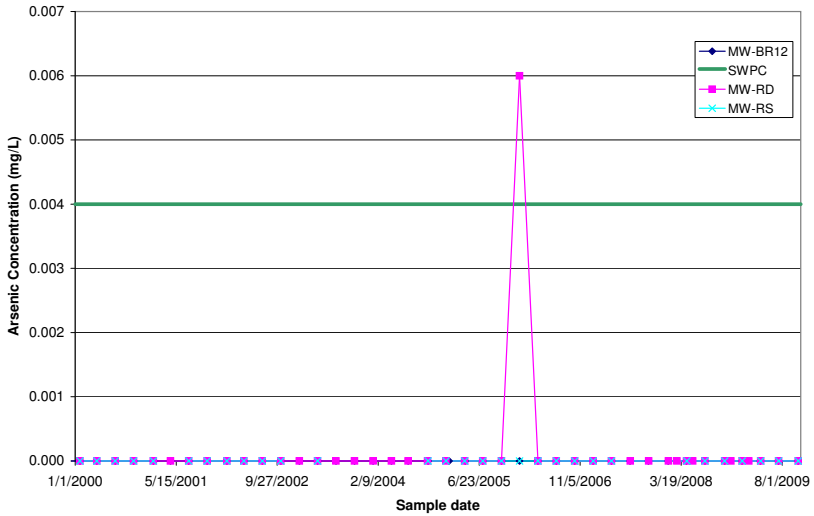
Arsenic, MW-HS, MW-H2D cluster



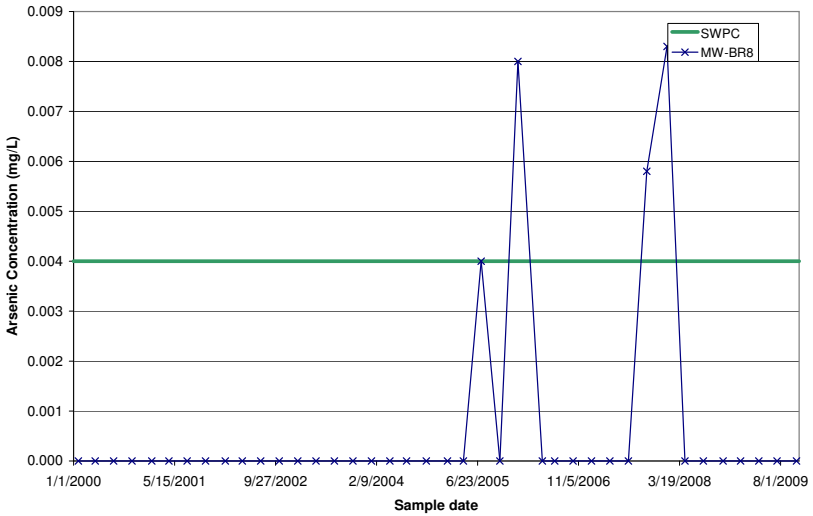
Arsenic for MW-TD, MW-TS Cluster



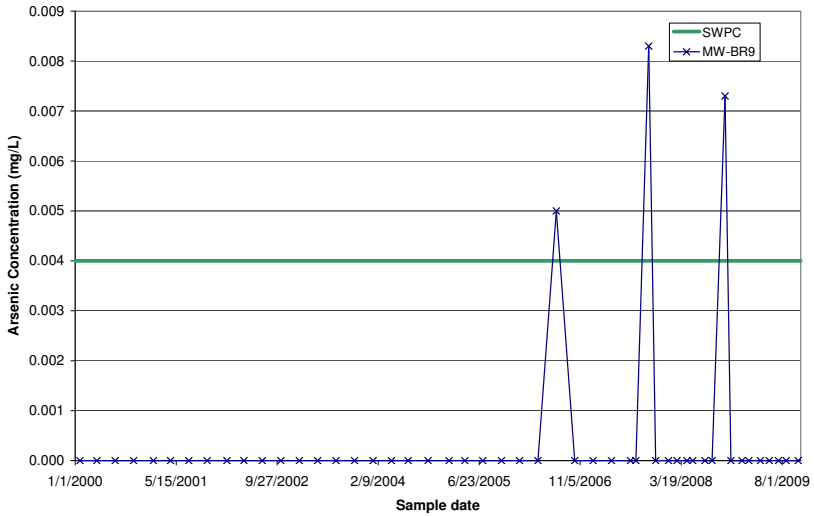
Arsenic for MW-BR12, MW-RD, MW-RS Cluster



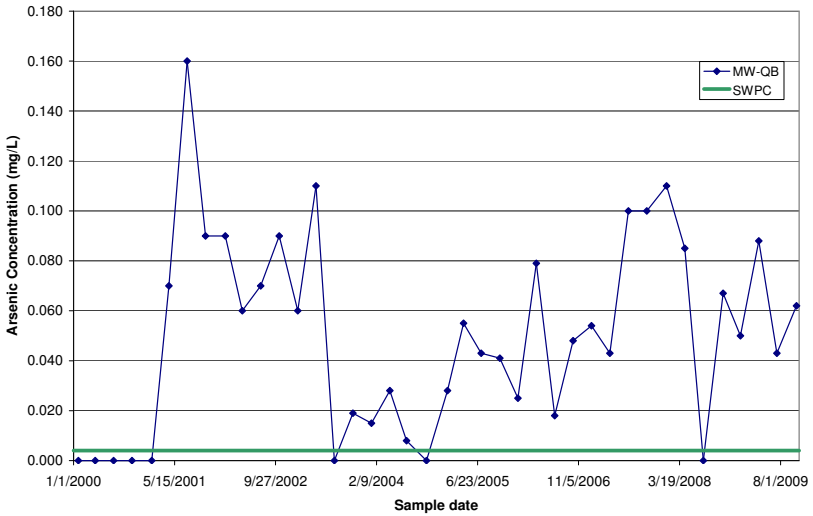
Arsenic, MW-BR8



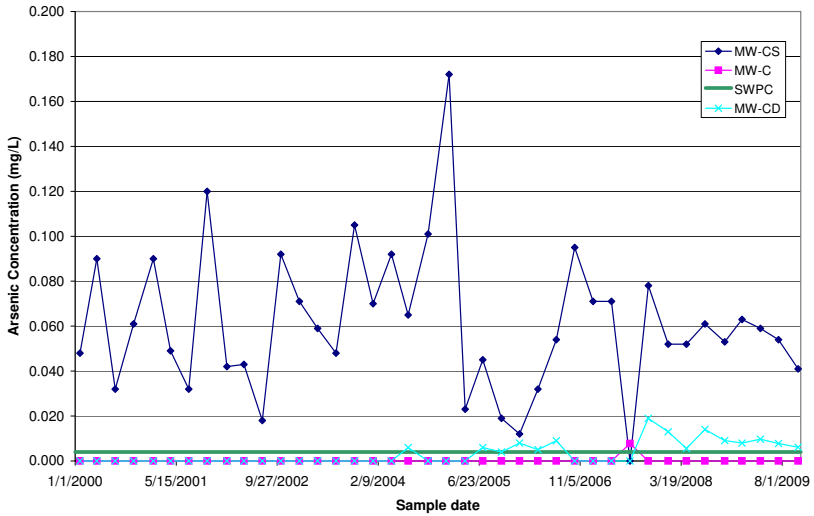
Arsenic, MW-BR9



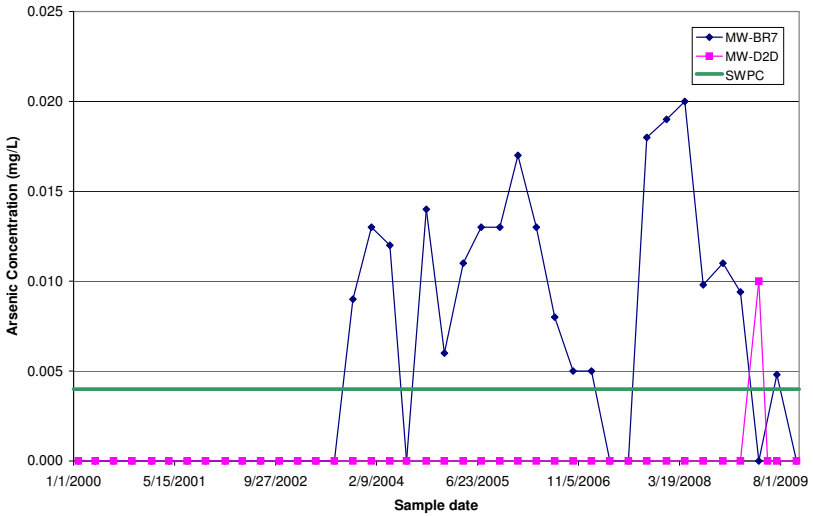
Arsenic, MW-QB



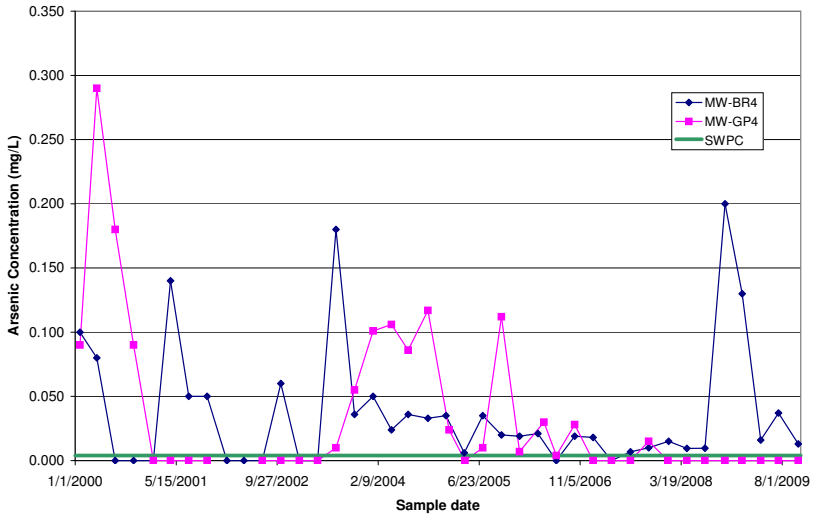
Arsenic, MW-CS, MW-C, MW-CD cluster



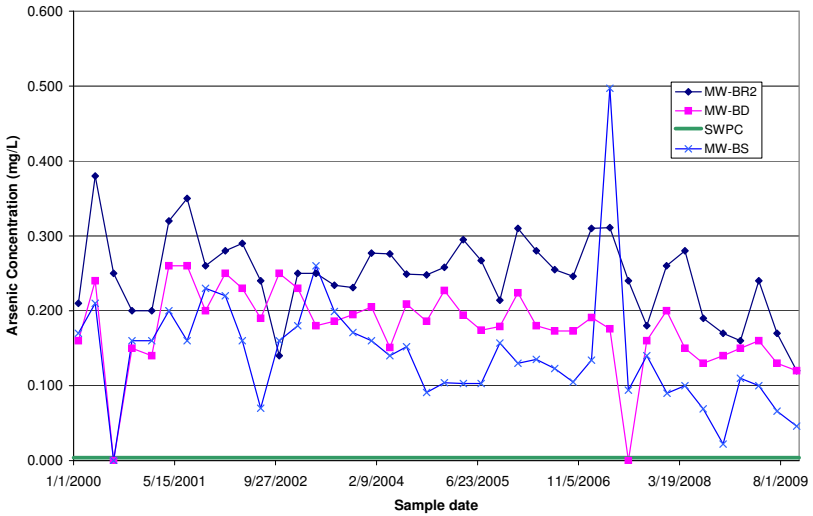
Arsenic, MW-BR7, MW-D2D cluster



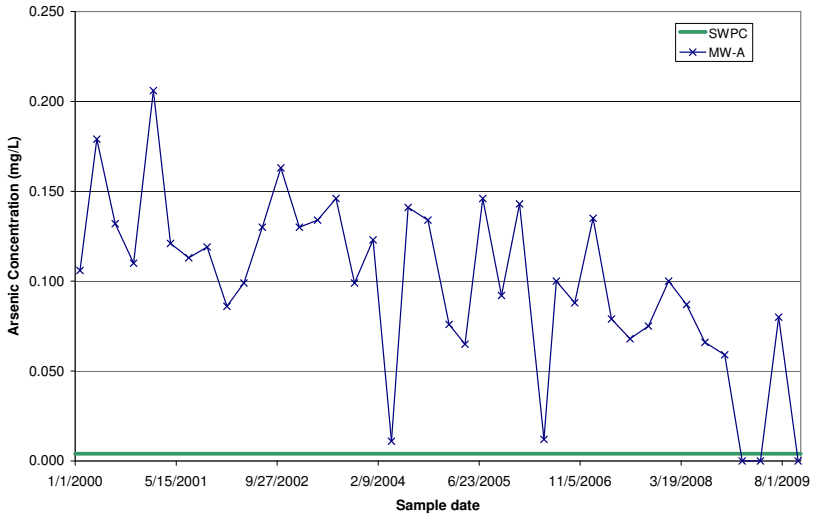
Arsenic, MW-BR4, MW-GP4 cluster



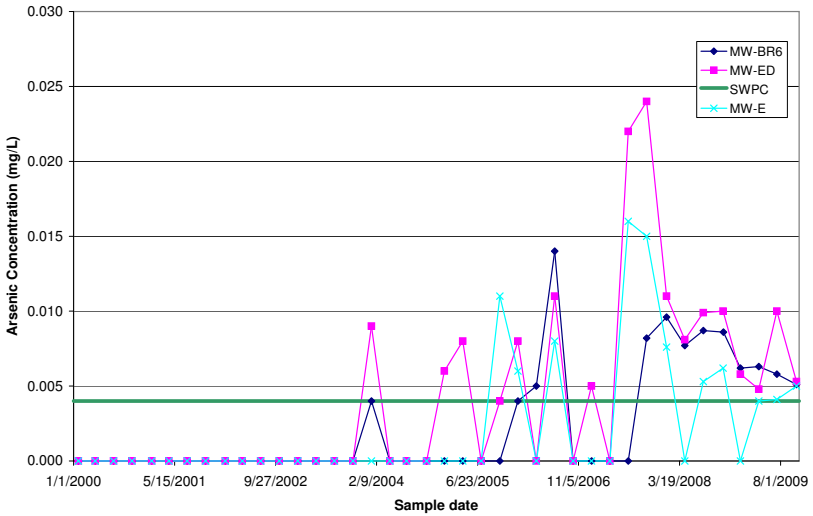
Arsenic, MW-BR2, MW-BD, MW-BS cluster



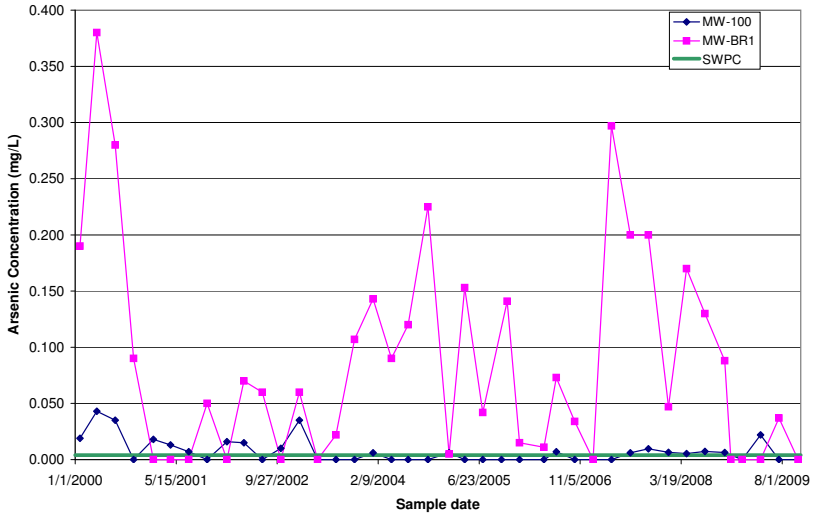
Arsenic, MW-A



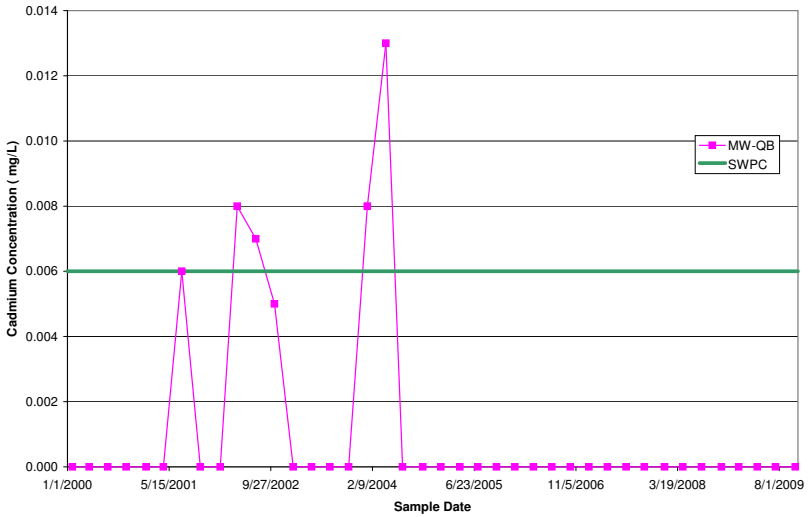
Arsenic, MW-BR4, MW-ED, MW-E cluster



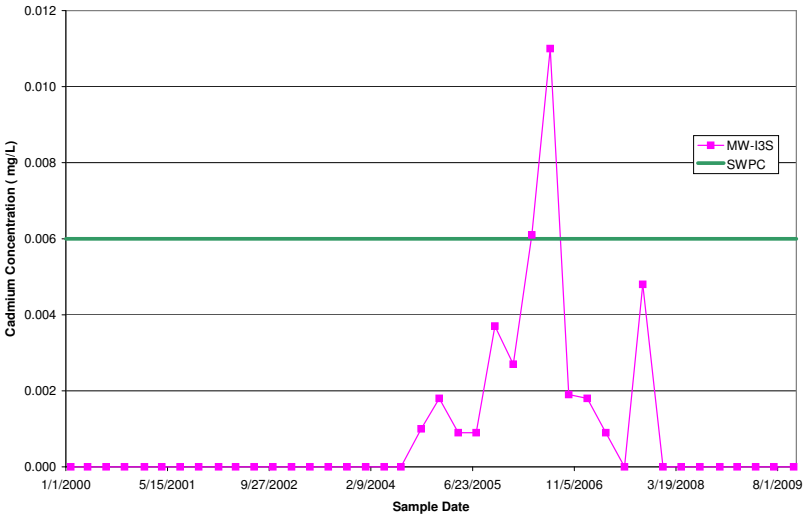
Arsenic, MW-100 and MW-BR1 cluster



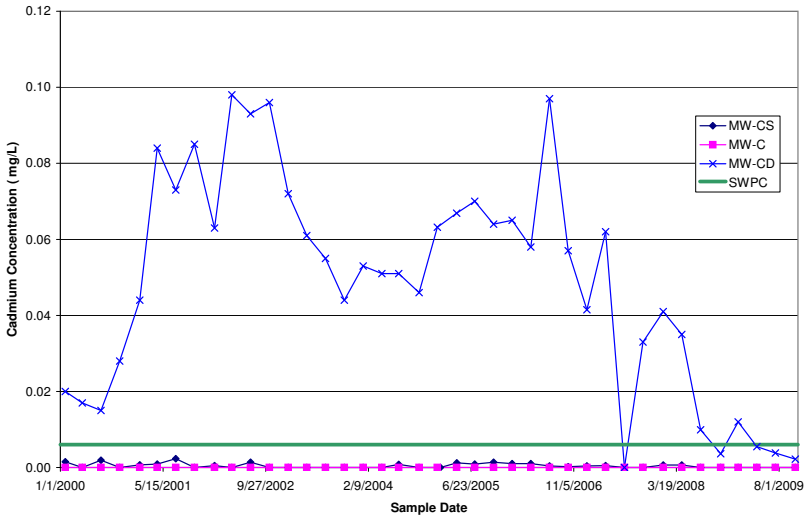
Cadmium MW-QB



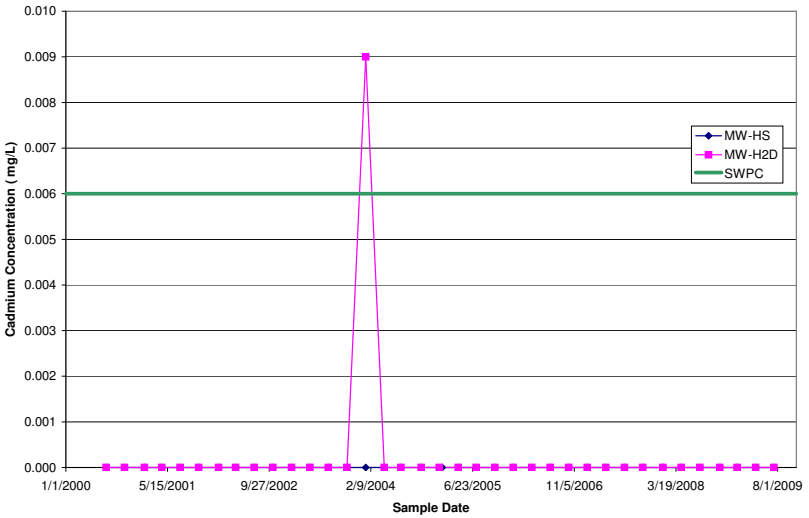
Cadmium MW-I3S



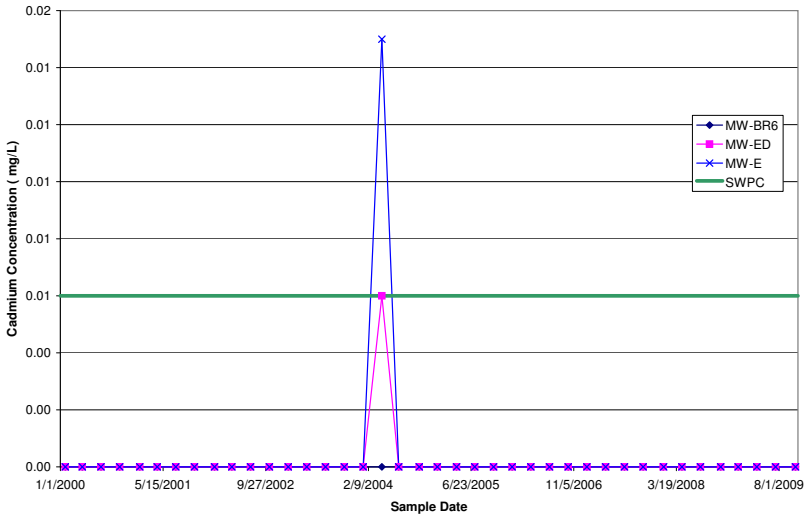
Cadmium in MW-CS, MW-C, MW-CD cluster



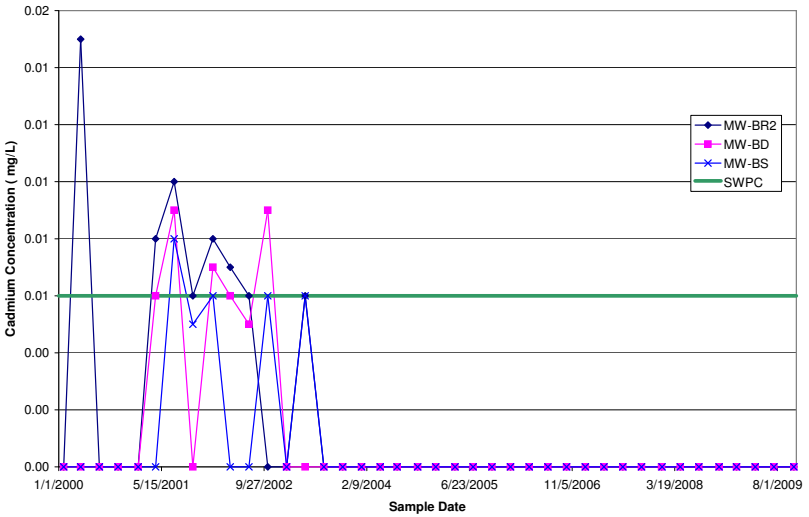
Cadmium in MW-HS, MW-H2D cluster



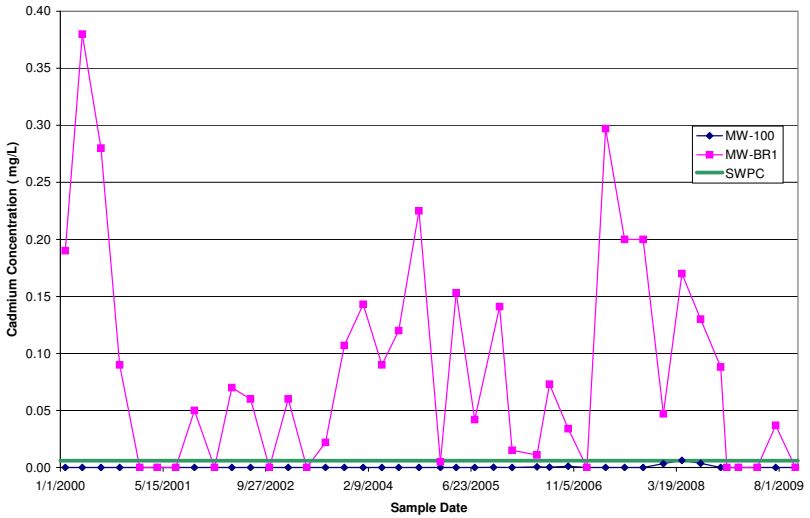
Cadmium in MW-BR6, MW-BD, MW-E cluster



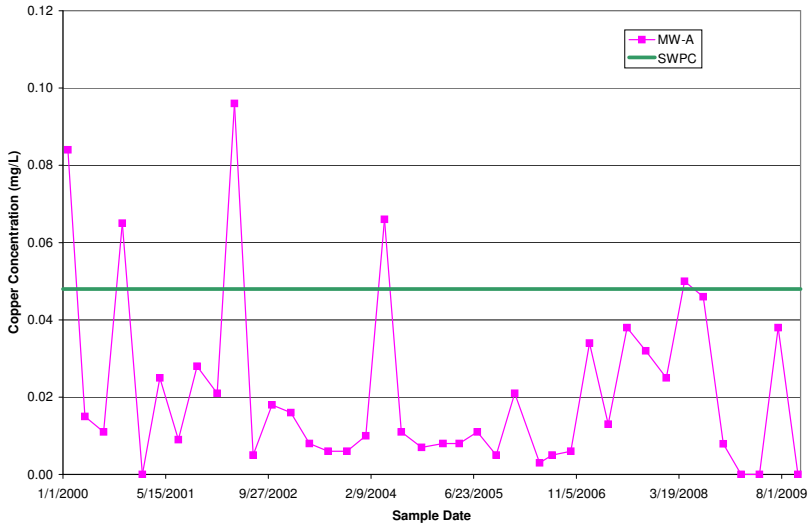
Cadmium in MW-BR2, MW-BD, MW-BS cluster



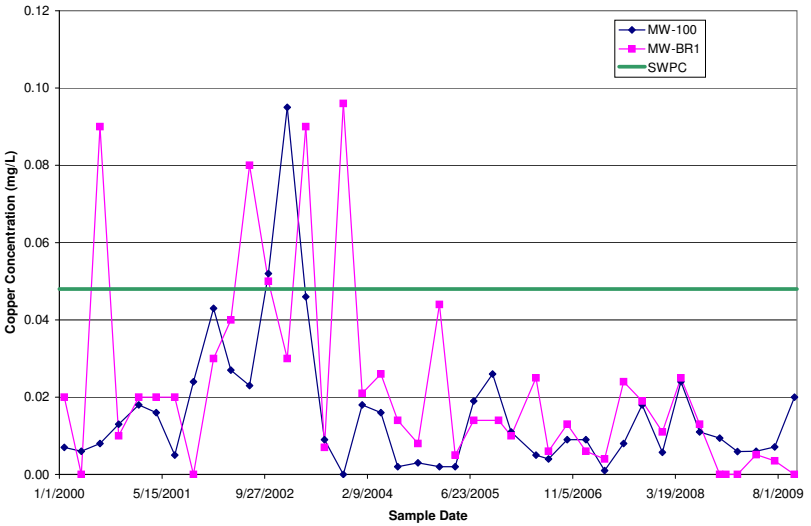
Cadmium in MW-100, MW-BR1 cluster



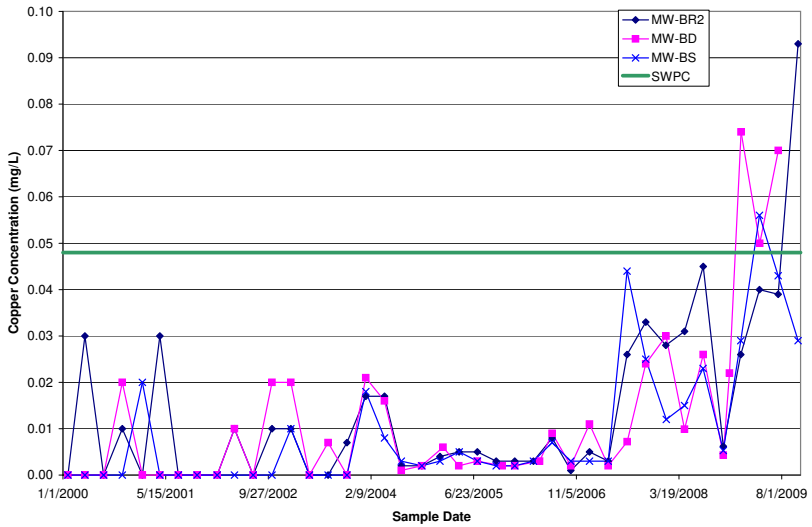
Copper for MW-A



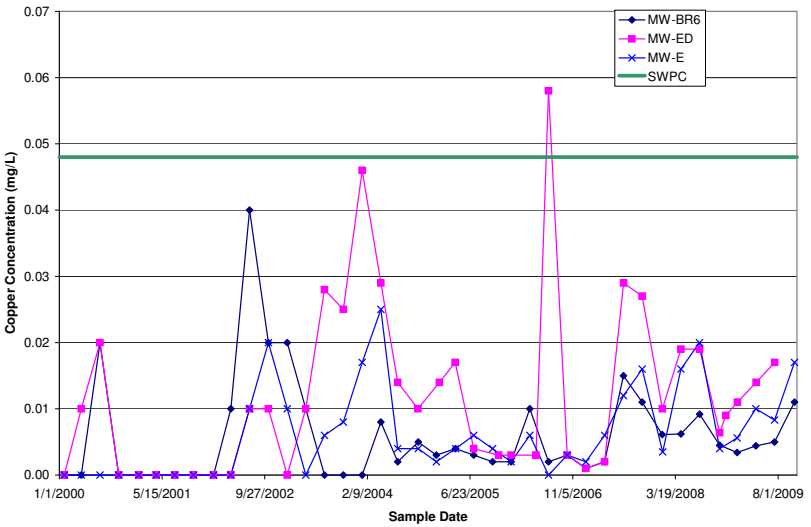
Copper for MW-100 and MW-BR1 cluster



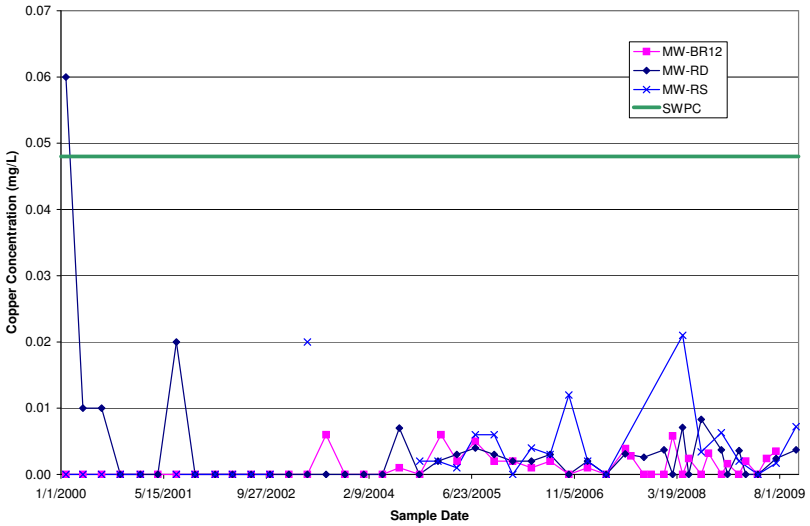
Copper for MW-BR2, MW-BD, MW-BS cluster



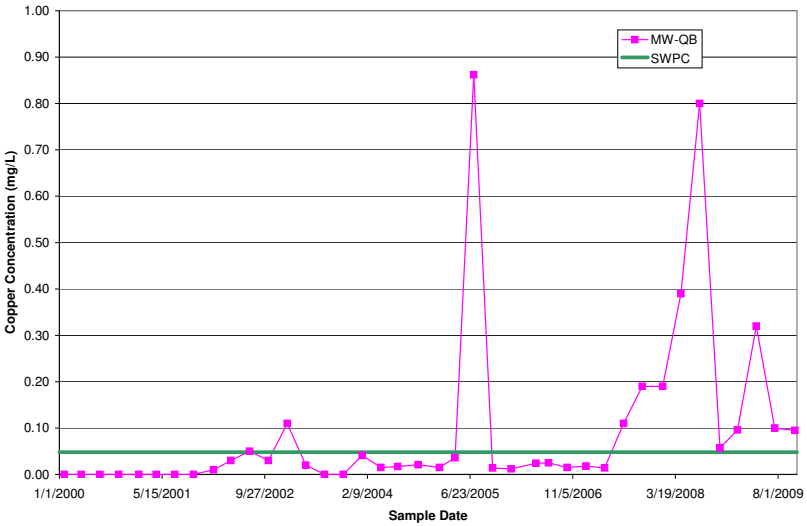
Copper for MW-BR6, MW-ED, ME-E cluster



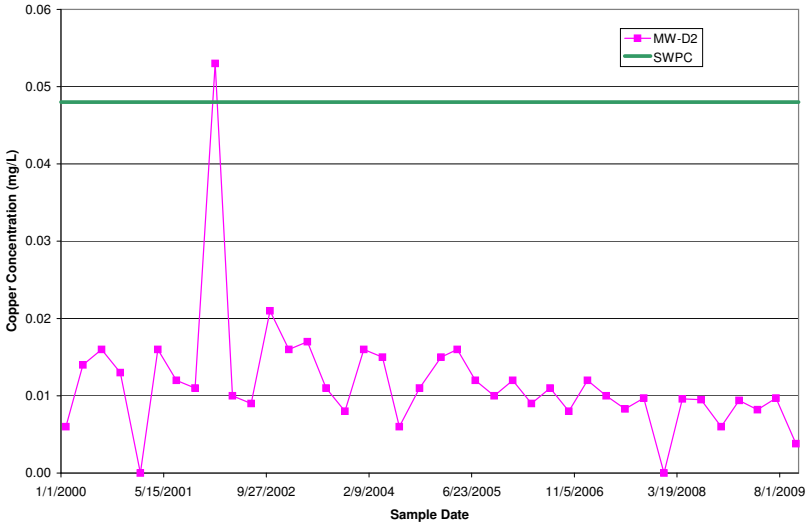
Copper for MW-BR12, MW-Rd, MW-RS cluster



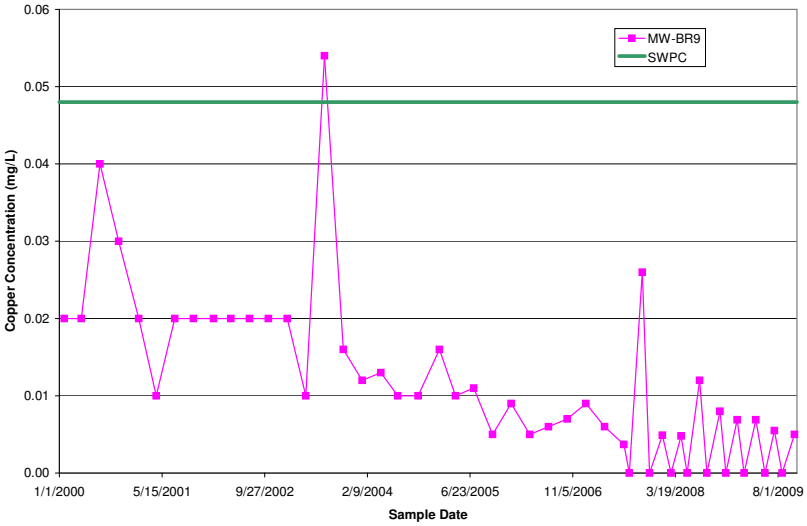
Copper for MW-QB



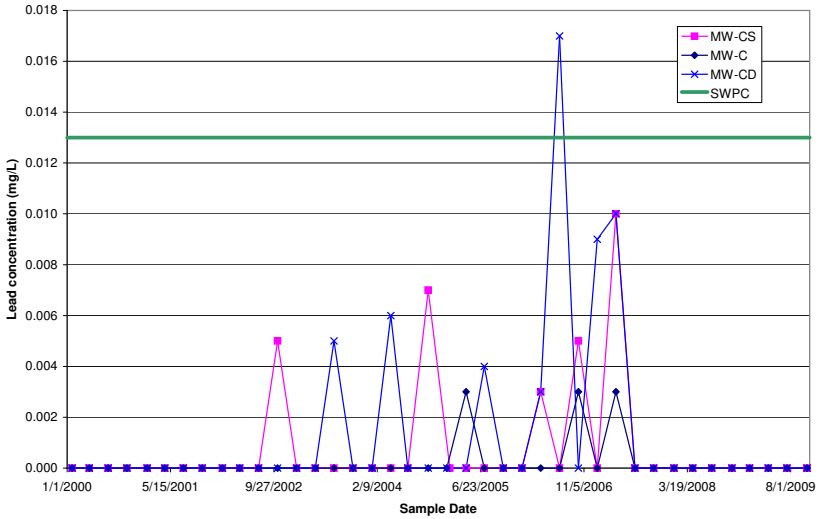
Copper for MW-D2



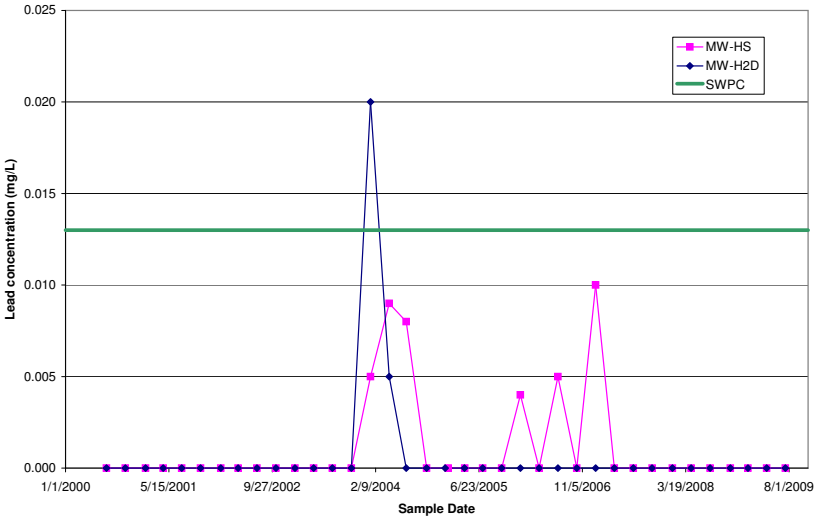
Copper for MW-BR9



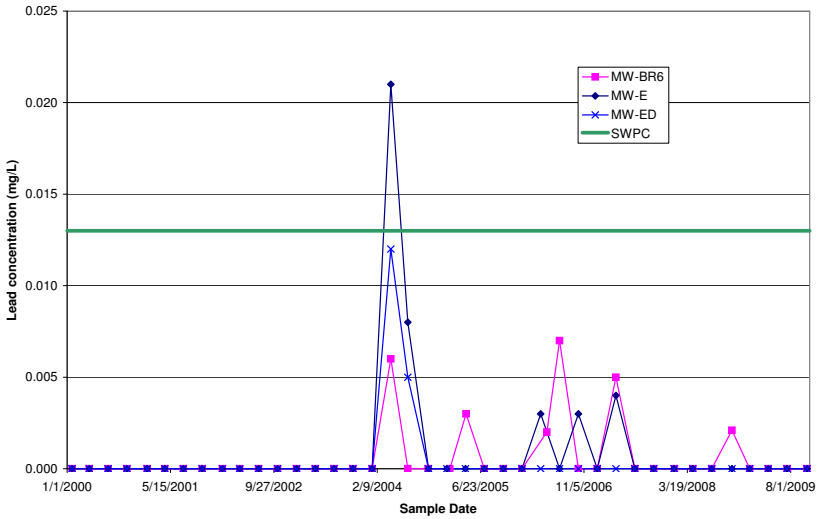
Lead for MW-CS, MW-C, MW-CD Cluster



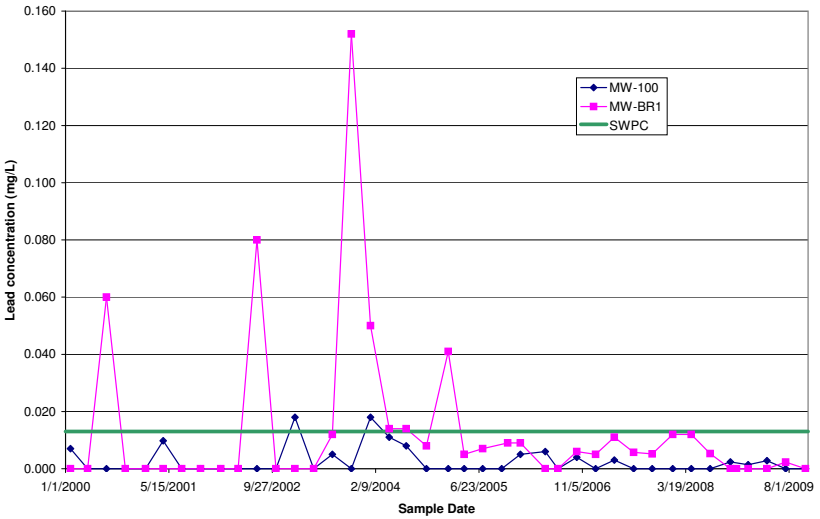
Lead for MW-HS, MW-H2D Cluster

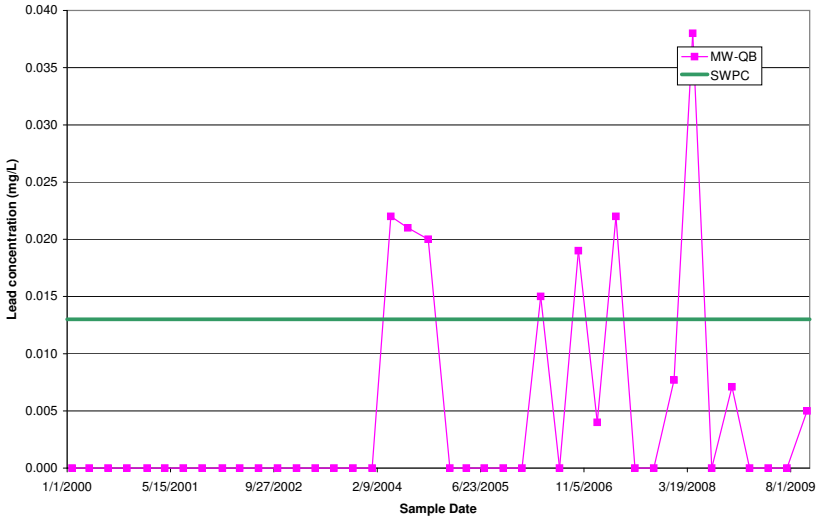


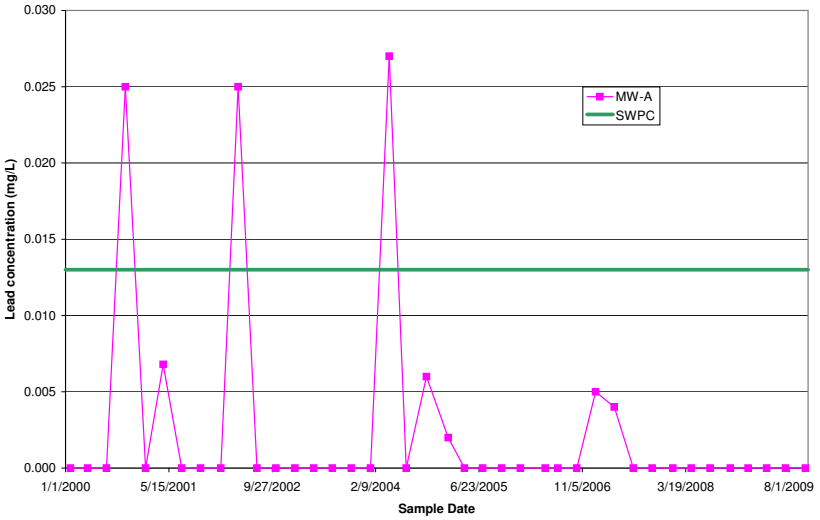
Lead for MW-BR6, MW-E, MW-ED Cluster

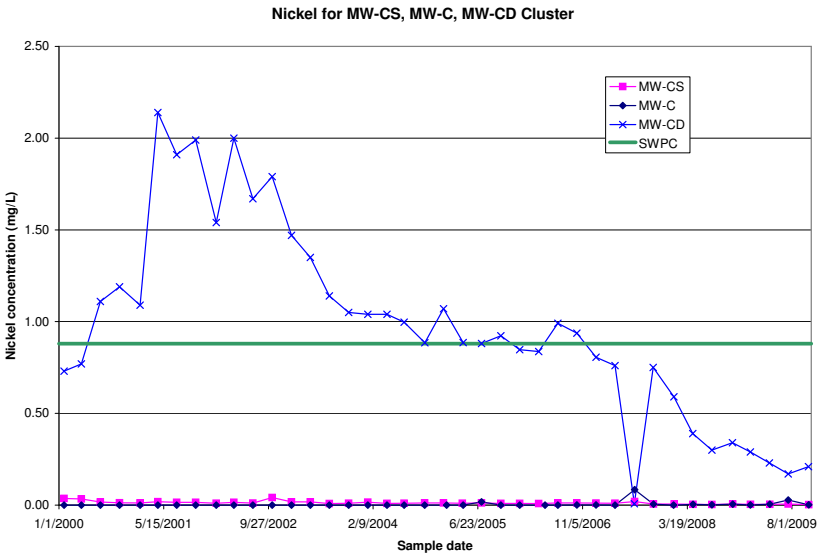


Lead for MW-100, MW-BR1 Clsuter

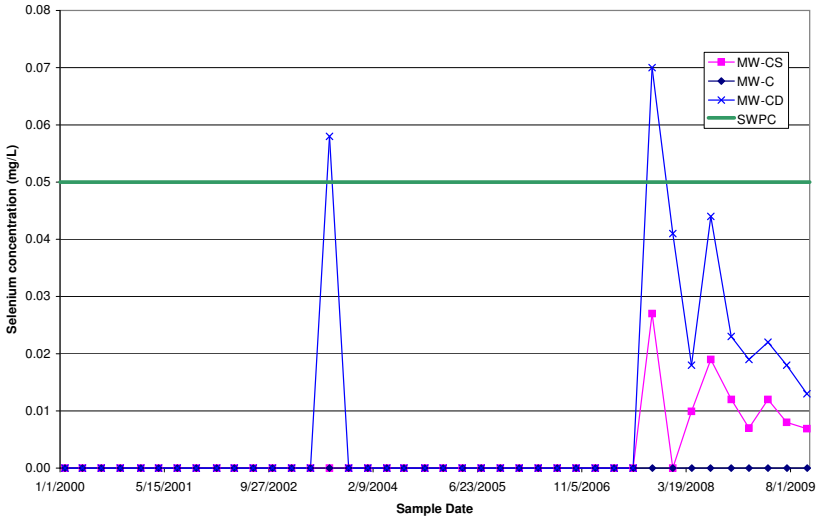



Lead for MW-QB
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
Lead concentration (mg/L)
MW-QB
SWPC
1/1/2000
5/15/2001
9/27/2002
2/9/2004
6/23/2005
11/5/2006
3/19/2008
8/1/2009
Sample Date

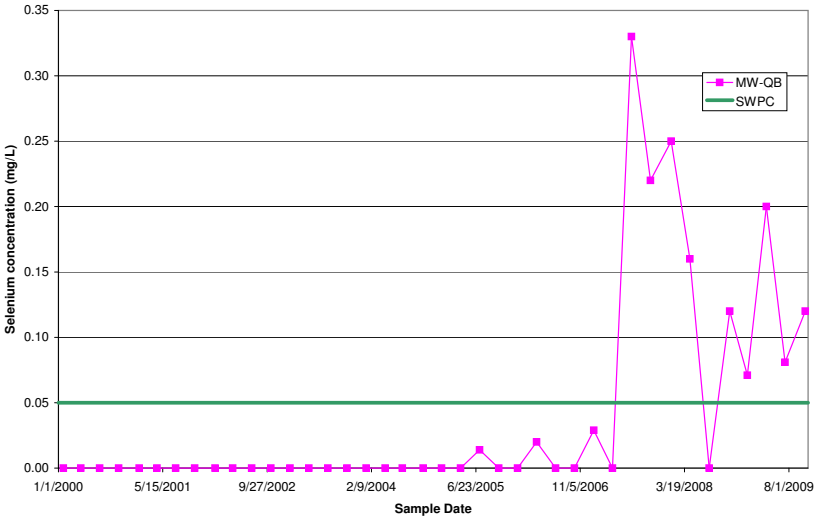

Lead for MW-A
0.030
0.025
0.020
0.015
0.010
0.005
0.000
Lead concentration (mg/L)
MW-A
SWPC
1/1/2000
5/15/2001
9/27/2002
2/9/2004
6/23/2005
11/5/2006
3/19/2008
8/1/2009
Sample Date


Nickel for MW-CS, MW-C, MW-CD Cluster
Nickel concentration (mg/L)
2.50
2.00
1.50
1.00
0.50
0.00
1/1/2000
5/15/2001
9/27/2002
2/9/2004
6/23/2005
11/5/2006
3/19/2008
8/1/2009
Sample date
MW-CS
MW-C
MW-CD
SWPC

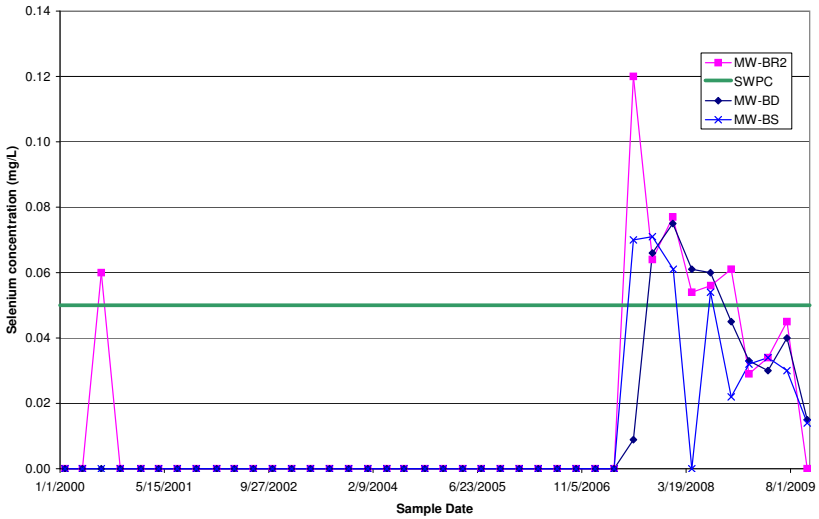
Selenium for MW-CS, MW-C, MW-CD cluster



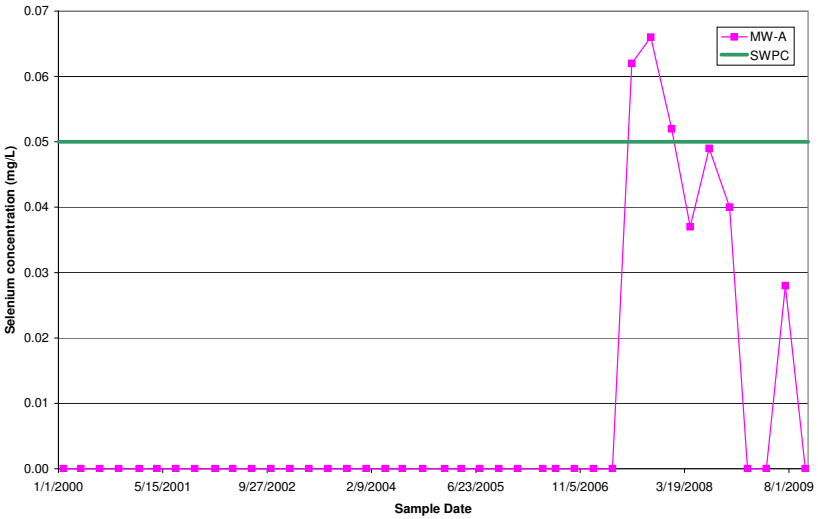
Selenium for MW-QB

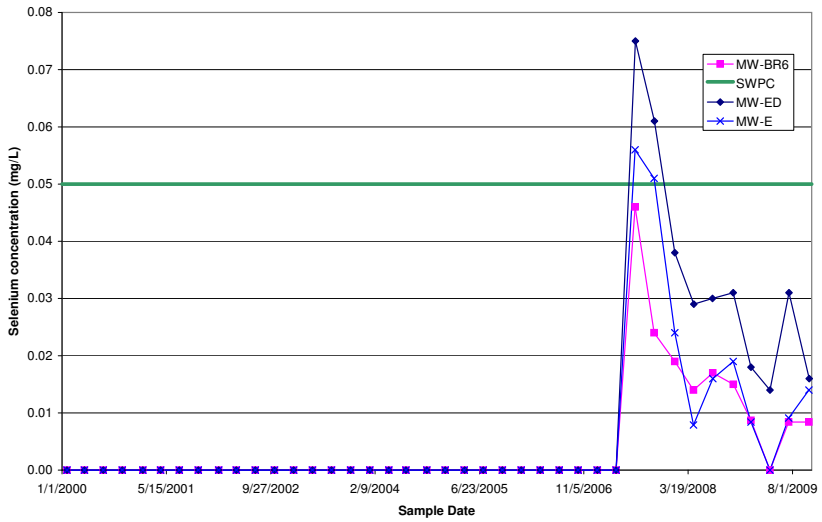


Selenium for MW-BR2, MW-BD, MW-BS cluster

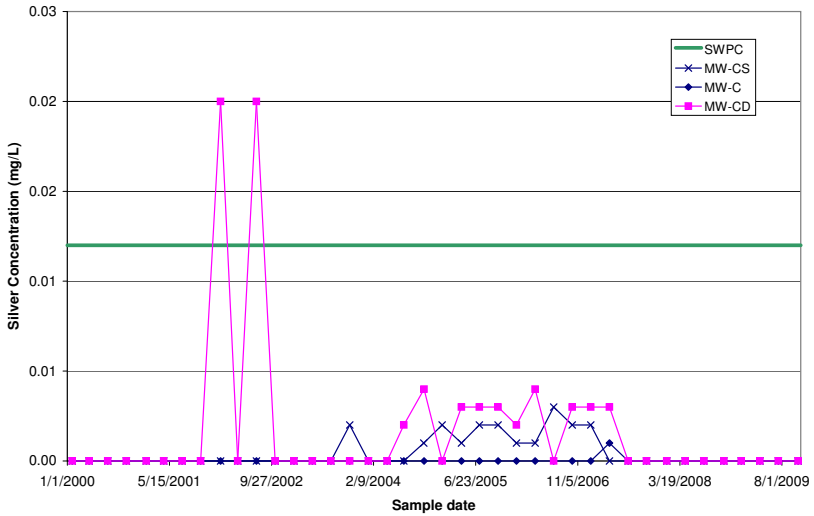


Selenium for MW-A

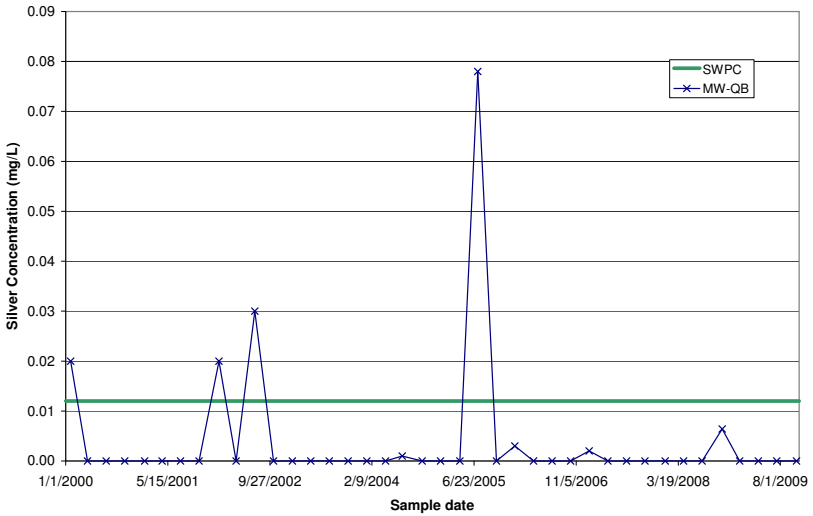



Selenium for MW-BR6, MW-ED, MW-E cluster
Selenium concentration (mg/L)
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
1/1/2000
5/15/2001
9/27/2002
2/9/2004
6/23/2005
11/5/2006
3/19/2008
8/1/2009
Sample Date
MW-BR6
SWPC
MW-ED
MW-E

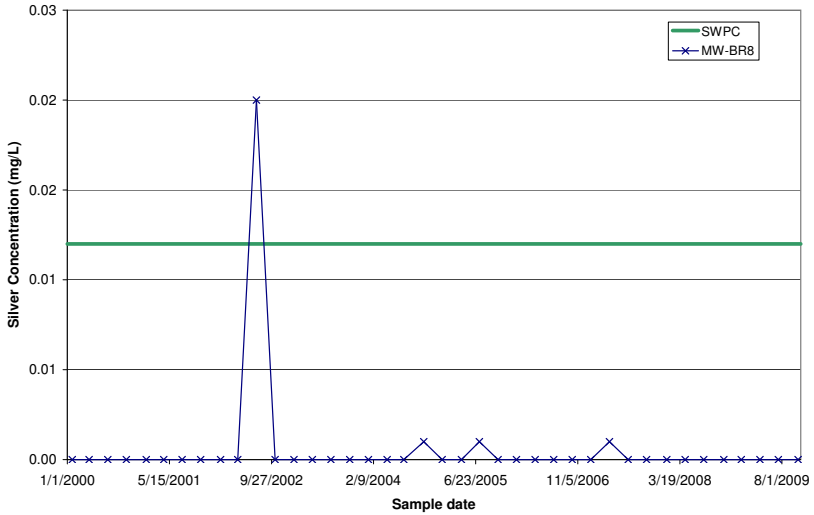
Silver, MW-CS, MW-C, MW-CD Cluster



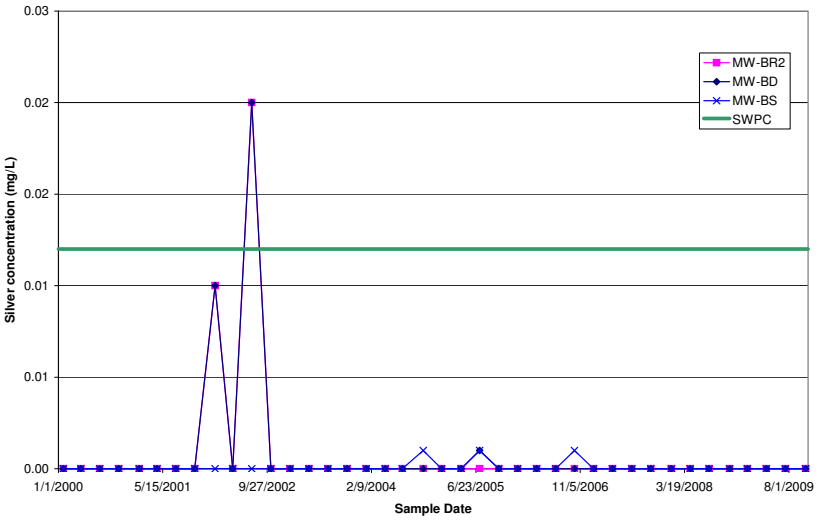
Silver, MW-QB



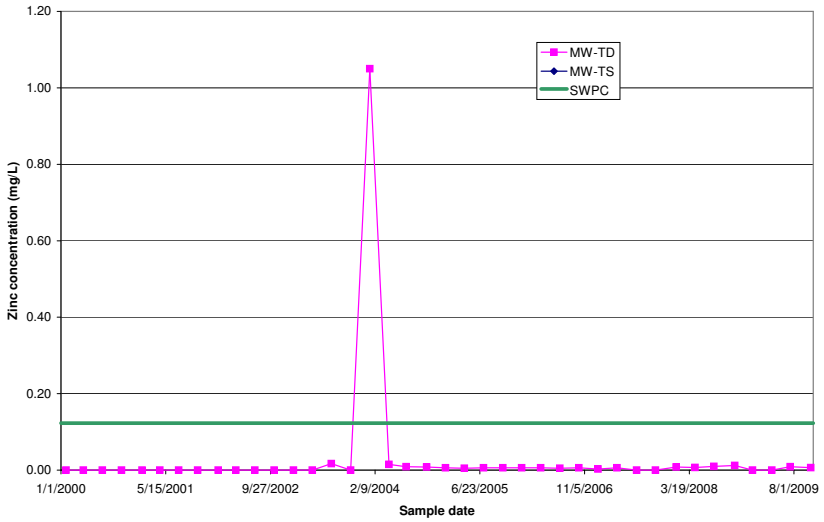
Silver, MW-BR8



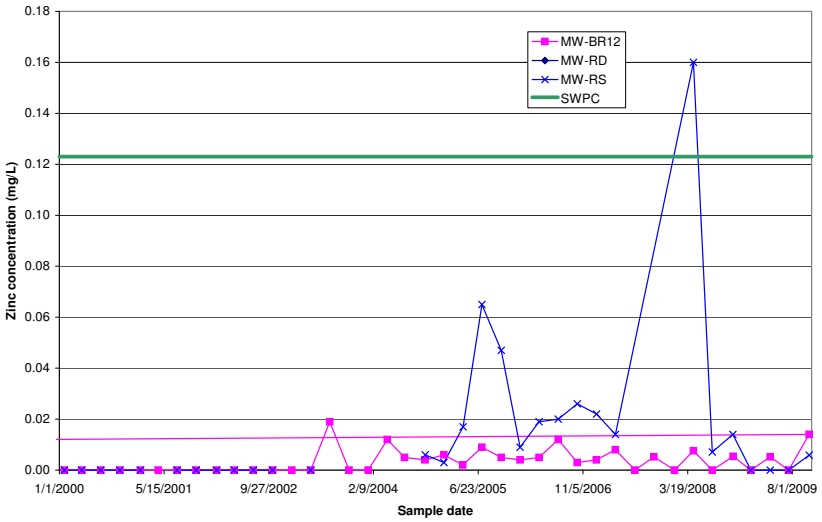
Silver for MW-BR2, MW-BD, MW-BS cluster



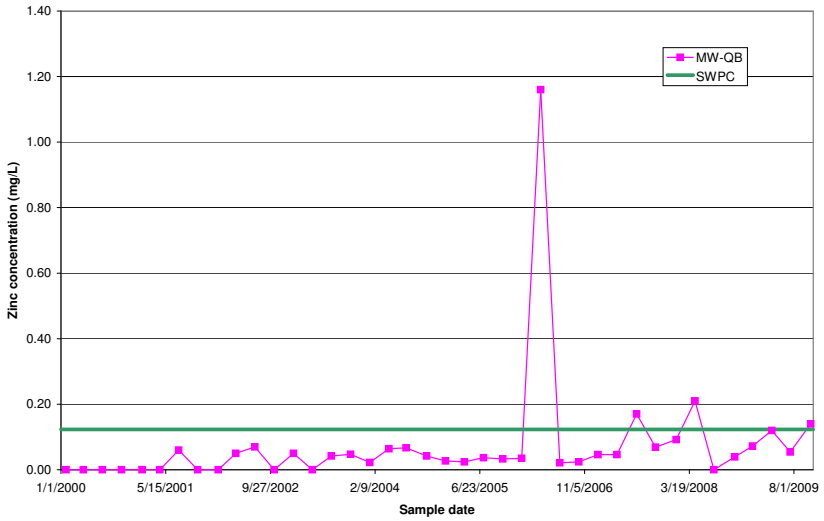
Zinc for MW-TD , MW-TS cluster



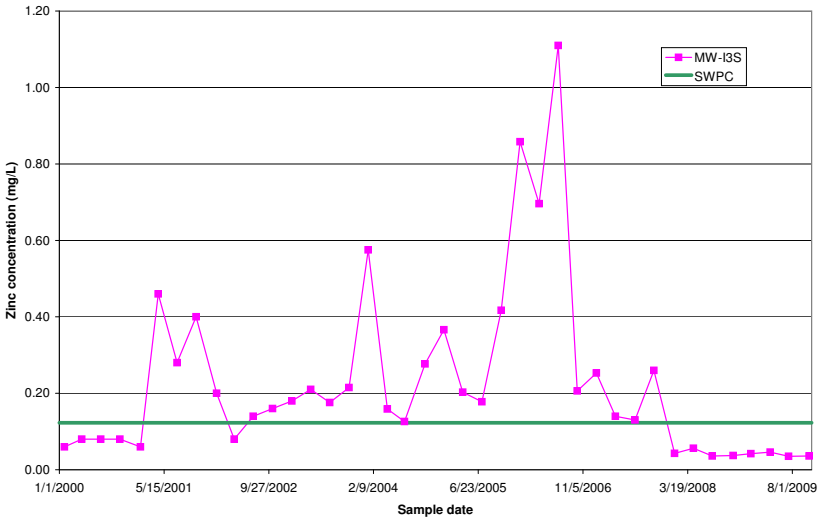
Zinc for MW-BR12, MW-RD, MW-RS



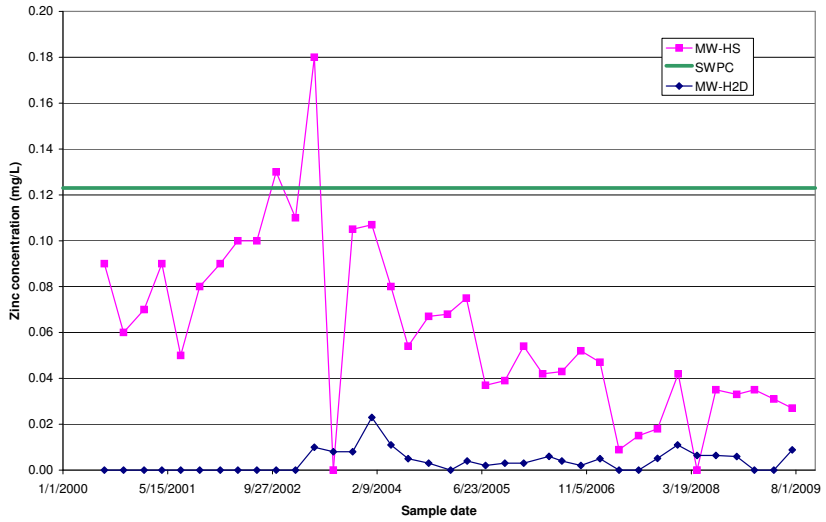
Zinc for QB



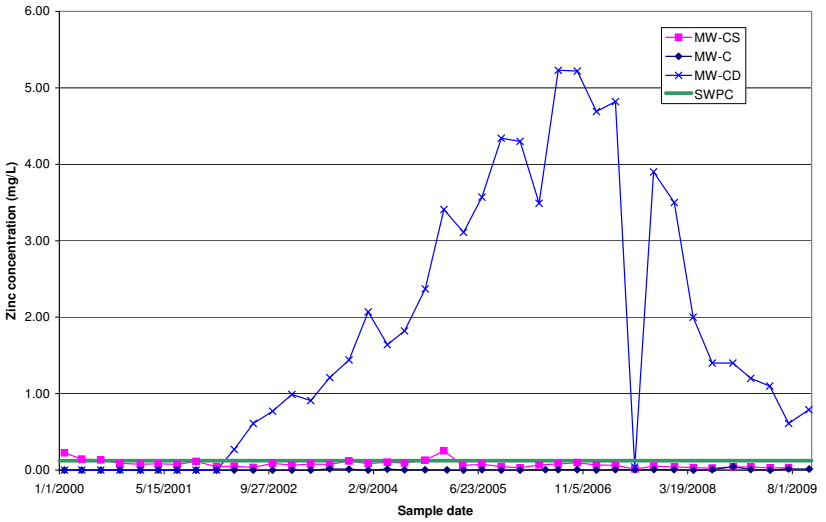
Zinc for MW-I3S



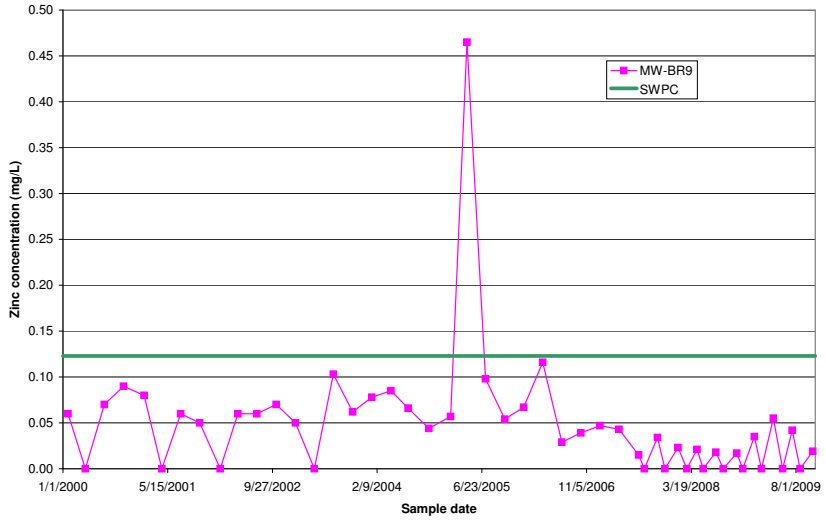
Zinc for MW-HS, MW-H2D Cluster



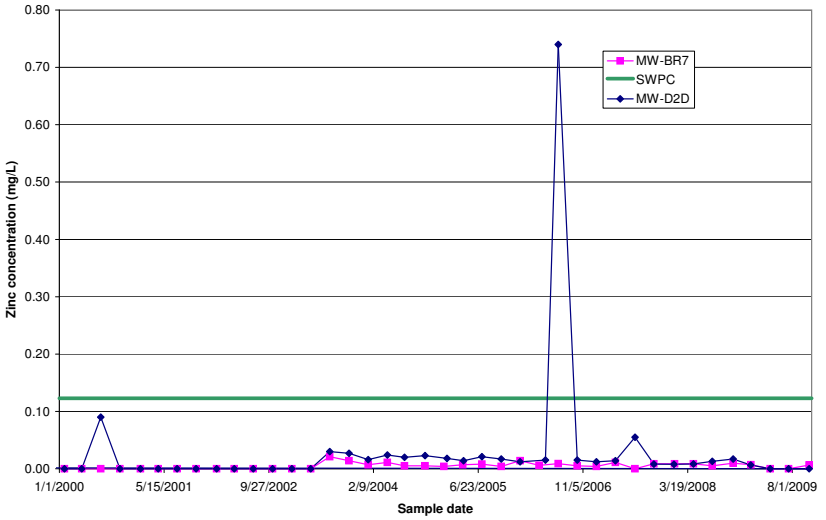
Zinc for MW-CS, MW-C, MW-CD Cluster

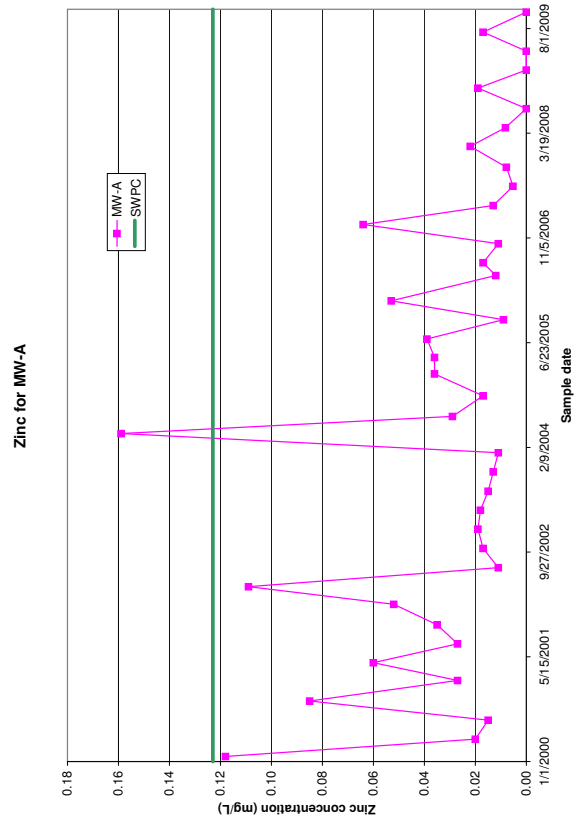


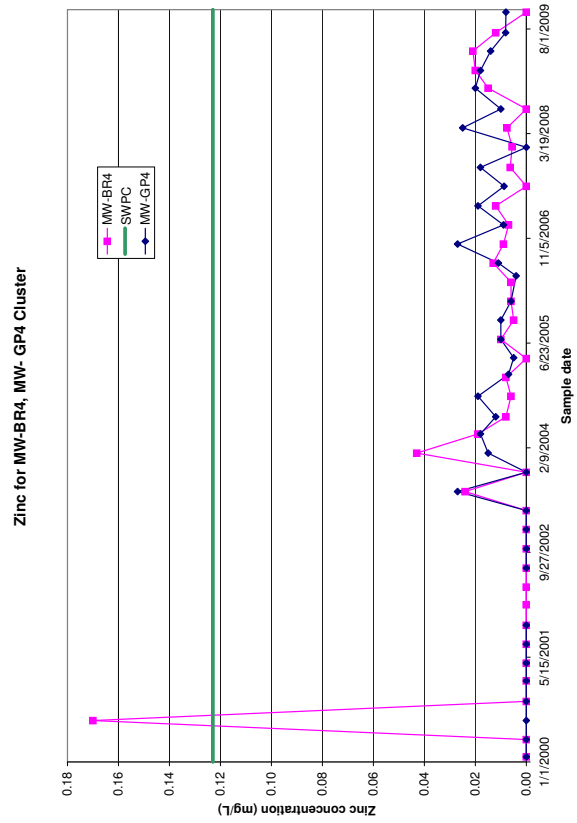
Zinc for MW-BR9

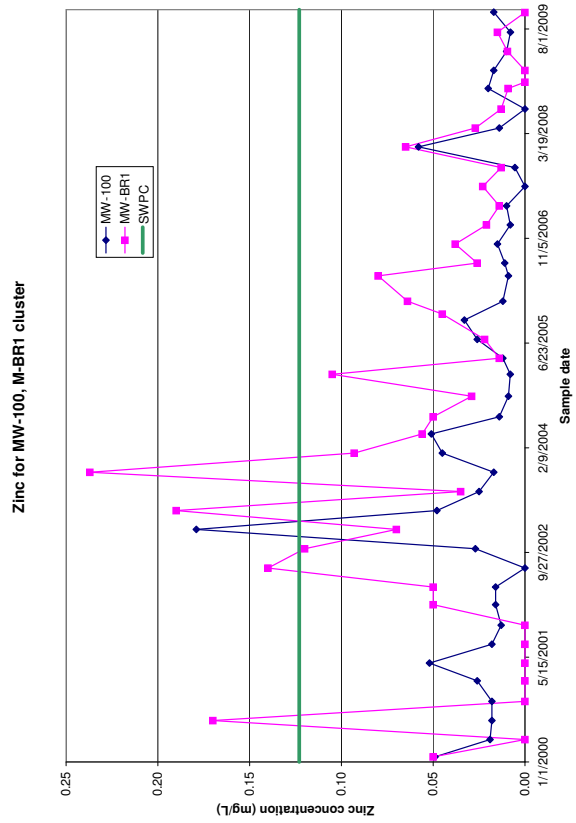


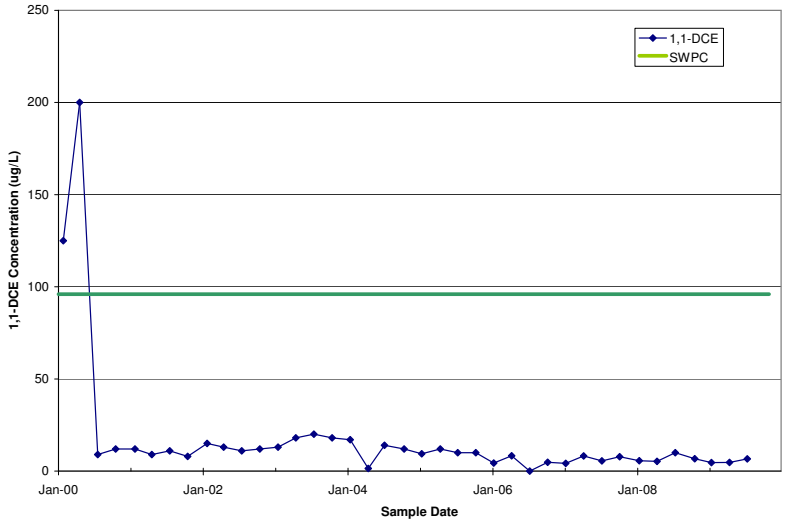
Zinc for MW-BR7, D2D Cluster




Zinc for MW-A
MW-A
SWPC
Zinc concentration (mg/L)
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
1/1/2000
5/15/2001
9/27/2002
2/9/2004
6/23/2005
11/5/2006
3/19/2008
8/1/2009
Sample date


Zinc for MW-BR4, MW- GP4 Cluster
MW-BR4
SWPC
MW-GP4
Zinc concentration (mg/L)
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
1/1/2000
5/15/2001
9/27/2002
2/9/2004
6/23/2005
11/5/2006
3/19/2008
8/1/2009
Sample date

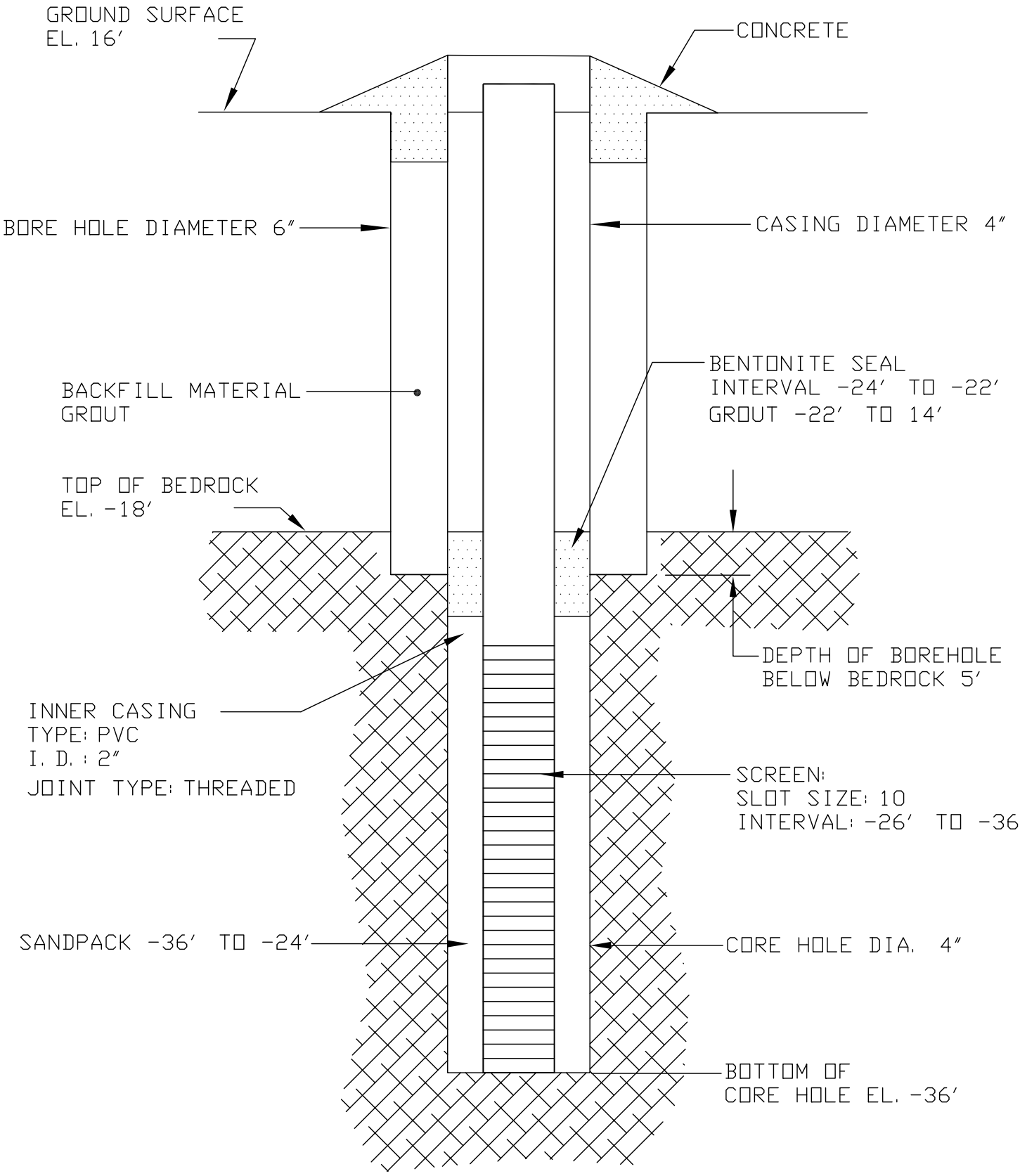

Zinc for MW-100, M-BR1 cluster
MW-100
MW-BR1
SWPC
Zinc concentration (mg/L)
0.25
0.20
0.15
0.10
0.05
0.00
1/1/2000
5/15/2001
9/27/2002
2/9/2004
6/23/2005
11/5/2006
3/19/2008
8/1/2009
Sample date


1,1-DCE Concentrations in MW-Cd
1,1-DCE
SWPC
1,1-DCE Concentration (ug/L)
250
200
150
100
50
0
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Sample Date

Appendix B

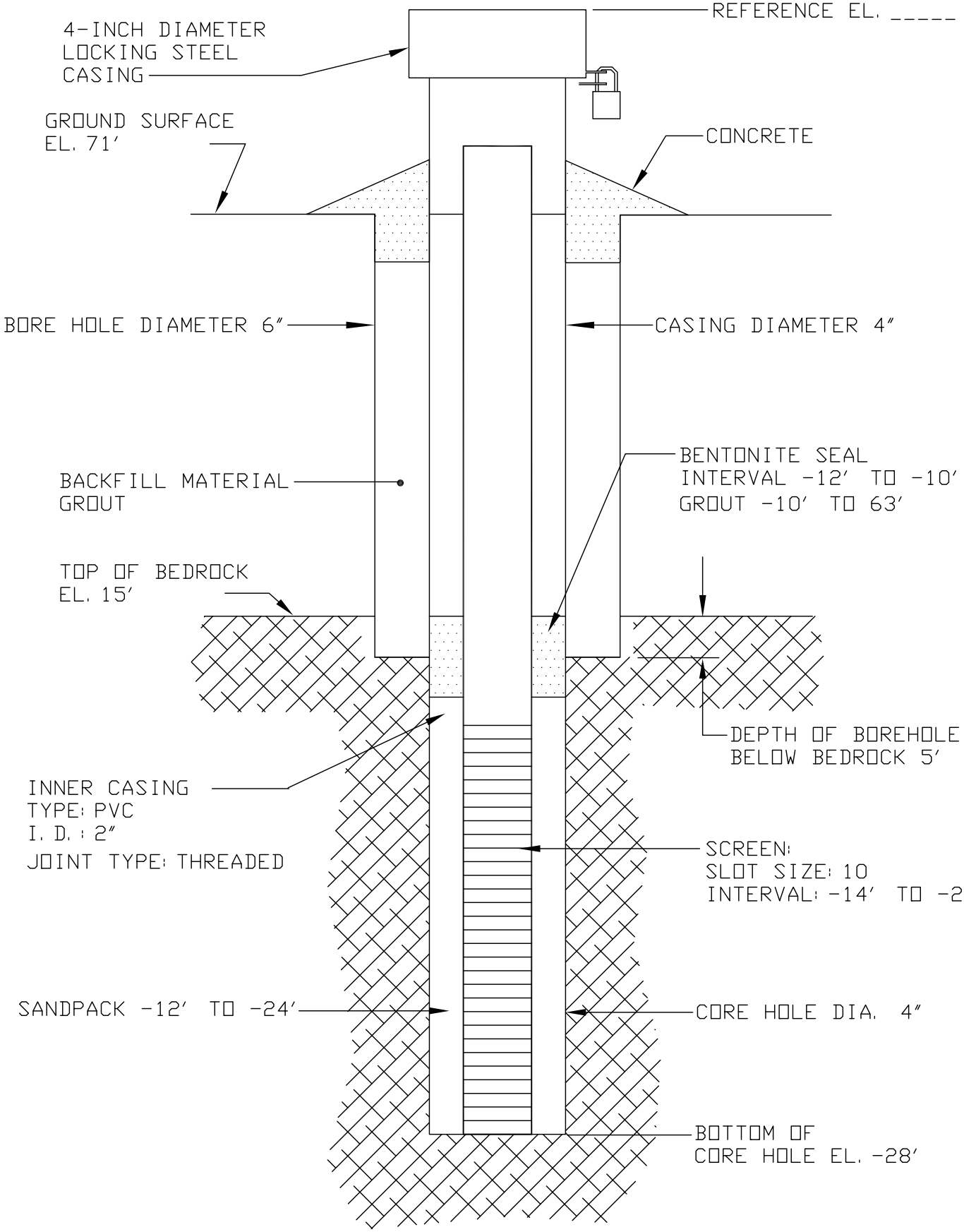
Monitor Well Completion Diagrams

MONITOR WELL INSTALLATION DETAIL
FOR WELL IN BEDROCK
MONITOR WELL I.D. MW-BR18



NOT TO SCALE

MONITOR WELL INSTALLATION DETAIL
FOR WELL IN BEDROCK
MONITOR WELL I.D. MW-BR19



NOT TO SCALE

EXHIBIT A 4

SCOPE OF SERVICES

Environmental Monitoring, Laboratory Analysis and Reporting - Wallingford Landfill

BACKGROUND

The 82-acre Wallingford Landfill is located on the west side of South Cherry Street and Pent Road in the southeast portion of Wallingford, Connecticut. The landfill is bounded to the north by the Wallingford Sewage Treatment Plant and the Town of Wallingford Recycling and Leaf Composting Area, to the east by South Cherry Street and Pent Road, to the south by undeveloped land (the former Barberino property) which is owned by the Connecticut Resources Recovery Authority (CRRA), and to the west by the Quinnipiac River. A residential trailer park was formerly located on the former Barberino property. A general location plan showing the CRRA Wallingford Landfill and the former Barberino property is included as **Figure 1**.

Prior to September 4, 1988, the landfill was operated by the Town of Wallingford. Since that time, the CRRA has leased the landfill property from the Town of Wallingford consistent with the start-up operations of the Wallingford waste to energy facility, converting municipal solid waste to electricity and ash residue. From September 1988 to November 1995, ash residue as well as solid waste was placed at the landfill. Since November 1995, there have been no daily activities at the landfill except for the operation of a resident drop off area and bulky waste transfer station at the front of the landfill by the Town. Otherwise, the site is inspected, maintained and monitored on a routine basis.

A detailed site plan showing sampling locations is included as **Figure 2**. The landfill consists of the following waste management units, all of which have been closed:

(a) MSW/Non-Processible Emergency by-pass Landfill (NPEL) Area: These disposal areas are located in the south-central portion of the site and have been utilized for the disposal of municipal solid waste (MSW) and non-processible/bulky wastes from the Wallingford Resource Recovery Facility. MSW disposal was conducted under private/town operations, while operation of the NPEL was overseen by CRRA.

(b) RCRA Metal Hydroxide Cell: This cell, which is located in the northwest corner of the site, was operated between November 1980 and January 1984 for the disposal of approximately 3.8 million pounds of K063 hazardous waste and 0.2 million pounds of F006 hazardous wastes. A pre-RCRA metal hydroxide cell, located adjacent to the RCRA-regulated unit, was utilized for the disposal of similar metal hydroxide materials prior to November 1980.

(c) Ash Residue Disposal Landfill: This disposal area is located in the southern section of the property, approximately 150 feet northwest of the intersection of Pent Road and Oliver Creek Road. The Connecticut Department of Environmental Protection

(CTDEEP) issued the permit for ash disposal on February 24, 1989, and the last load of ash residue was unloaded in this area on November 2, 1995. Grading of the final cover was completed in November 1996.

(d) Former Bulky Waste Landfill: This area is located in the northeastern portion of the property near the intersection of Ball and South Cherry Streets. The CTDEEP issued the permit for the bulky waste landfill on December 12, 1975, and the area was closed and given final cover in June 1992.

The site is equipped with various environmental control systems, including

(a) A passive landfill gas venting system along the northern and western property lines, and

(b) A stormwater collection and discharge system (overall site).

There is also an active resident drop-off area for MSW and bulky waste that is operated by the Town of Wallingford.

The landfill has various environmental permits, with specific sampling programs and reporting requirements associated with the various control systems and permits. Copies of all site-specific permits applicable to the environmental monitoring program, specifically groundwater discharge permit LF0000028 and RCRA Stewardship Permit DEP/HWM/CS-148-004 are included in **Appendix A**.

The former Barberino Property is bounded to the north by the Town of Wallingford Landfill, to the south by Cytec Industries, Inc. (formerly American Cyanamid) and to the east by Pent Road. The Quinnipiac River is located immediately west of the site. Environmental monitoring at the former Barberino property has been conducted since April 1993 to assess impacts to surface water and groundwater by leachate-impacted groundwater migrating onto the site from the Wallingford Landfill. CRRA purchased the former Barberino property in September 2001.

SCOPE OF SERVICES

Consultant's work shall be inclusive of all environmental monitoring and reporting required at the Wallingford Landfill and former Barberino property, unless otherwise indicated. Monitoring and reporting will be required for a three (3) year period starting July 1, 2013 and ending June 30, 2016.

Costs for monitoring work shall also include but are not limited to sample bottle preparation and delivery, sample collection, laboratory analysis, and reporting as further described in this Scope of Services.

The environmental media to be sampled under this Scope of Services include groundwater and surface water. All sampling at the Wallingford Landfill will be performed to meet the requirements of all applicable permits issued to the Wallingford Landfill/CRRA by the federal, state, and local permitting authorities, as applicable. Refer to **Appendix A** for site-specific permit information and for a copy of the Wallingford Landfill's approved Water Quality Monitoring Plan,

dated March 12, 2010. All sample analyses shall be conducted by an analytical testing laboratory certified to perform such analyses by the State of Connecticut. The analytical testing laboratory will be subcontracted directly by the Consultant and approved by CRRA.

All work will be conducted pursuant to all applicable state and federal regulations and guidelines concerning groundwater, and surface water sampling, monitoring and analysis. Consultant is to be familiar with and have reviewed all applicable landfill permits and requirements for site monitoring issued by CTDEEP (and EPA, where applicable). Consultant shall be familiar with representative past monitoring reports prepared for the Wallingford Landfill and the former Barberino property, and shall prepare monitoring reports consistent in format with past monitoring reports. Consultant shall provide summary tables of data results, and reference, as applicable, drinking water standards and Connecticut Remediation Standards for monitoring wells (i.e., Surface Water Protection Criteria), and surface water Numerical Criteria contained in the Connecticut Water Quality Standards.

In accordance with the approved Groundwater Monitoring Plan for the Wallingford Landfill and the former Barberino property, Consultant shall conduct the monitoring program for the sampling points and parameters as summarized in **Tables 1 through 3**, on a semi-annual basis except as otherwise indicated. If one or more monitoring points are inaccessible for regularly scheduled monitoring, the Consultant shall make arrangements to sample the location(s) at other times. If it is not possible to sample in a timely manner within the monitoring event timeframe, CRRA will not be charged for sample collection and laboratory analysis for those portions of work <u>not</u> completed.

The environmental monitoring will include but not necessarily be limited to the following elements:

- Preparation for sampling, including bottle preparation, field parameter measurement equipment, sample collection equipment, and means of access to sampling points.

- Completion of field (RCRA) data sheets for each sample point, modified as applicable for each type of sample point.

- Completion of a synoptic groundwater measurement event at all forty-five monitoring wells that are in the monitoring well network on the first day of each semi-annual monitoring event to determine the groundwater elevations. The synoptic groundwater measurement event is to be completed prior to any purging and sampling activities.

- Measuring of field parameters, and collection of samples in bottles for laboratory analysis and appropriate field and laboratory QA/QC in accordance with applicable CTDEEP and EPA regulations and guidance.

- Preservation and transport of samples to the laboratory.

- Analytical laboratory analyses of collected samples.

- Entering analytical results and other pertinent sample and/or laboratory test data into a database. Provide an electronic copy of the database to CRRA at the end of each calendar year to accompany the annual report, and after the completion of the April 2016 sampling event (i.e., the final sampling event under this Scope of Services).

- Data review and verification, cursory check for outliers, extreme exceedances and notification to CRRA of unusual results or "Significant Environmental Hazard" conditions under Public Act 98-134.

- Preparation of graphs and tables of data results, maps of sampling locations, groundwater elevation contours and isopleths of monitoring results as appropriate.

- Preparation of summary reports on status of each sample point and site environmental conditions.

- Preparation of draft semi-annual and annual reports for CRRA review and comment prior to report finalization.

- Finalization, duplication, and distribution of reports following incorporation of CRRA comments.

The Consultant is responsible for maintaining clear access to all wells (i.e., by cutting back brush and trimming weeds and grass). Consultant is also responsible for maintaining well markers (i.e., stakes, flagging, and I.D. numbers) to assist field personnel in locating and identifying the wells.

The environmental monitoring program is outlined by task and description below. The format of the Not-To-Exceed Bid Price Form is consistent with the task listing that follows.

TASK 1: SEMI-ANNUAL ENVIRONMENTAL MONITORING, ANALYSIS, REPORTING AND ANNUAL REPORTING

Environmental permits issued to CRRA for the Wallingford Landfill require that semi-annual monitoring of the ground water be completed at the Landfill and at the former Barberino property. The activities under Task 1 of this Scope of Services describe these semi-annual monitoring activities.

Task 1.1: Sampling and Documentation of Field Activities

Sampling Schedule

Semi-annual environmental sampling of site groundwater and surface water is to be performed in the following months:

- April
- October

Sampling of groundwater and surface water can begin on the 1st day of the sampling month and must be completed by the last day of the sampling month.

Monitoring of Groundwater Wells

There are twenty-one (21) groundwater monitoring wells at the Wallingford Landfill and the former Barberino property that are monitored on a semi-annual basis. **Table 1** summarizes the characteristics of each well. Consultant is responsible for supplying all equipment to the site as required for each semi-annual monitoring event and its storage at a safe off-site location by Consultant's arrangement.

Due to the presence of the closed RCRA cell at the Wallingford Landfill, the Consultant shall develop and maintain a site-specific safety and health plan in accordance with 29 CFR 1910.120(b)(4). Additionally, the Consultant shall ensure that all sampling personnel "receive a minimum of 24 hours of instruction off the site, and the minimum of one day actual field experience under the direct supervision of a trained, experienced supervisor," as required by 29 CFR 1910.120(e)(3)(ii). The Consultant shall also ensure that on-site supervisory personnel are trained in accordance with 29 CFR 1910.120(e)(4), and that all personnel (sampling personnel and supervisory personnel) are provided with annual refresher training under 29 CFR 1910.120(e)(8).

The following items are also highlighted for each semi-annual sampling event:

- Keyed-alike well locks will be provided for all wells by CRRA.
- Access to some wells is by foot only, because of location and/or restrictions of vehicle use. Specifically, vehicles are NOT to be driven over the RCRA metal hydroxide cell or the pre-RCRA metal hydroxide cell.
- Consultant shall complete a "Monitoring Well Field Data Sheet" which summarizes well elevation data, well condition, purge data, observed water yield and quality comments, sampling data, and results of measured field parameters. An example of the proposed "Monitoring Well Field Data Sheet" is to be submitted for approval by CRRA before the first sampling event, at the initiation of the monitoring contract.
- On the first day of each semi-annual sampling event, prior to any purging and sampling activities, complete a synoptic groundwater measurement event to determine the groundwater elevations at all forty-five (45) monitoring wells that are in the monitoring well network (includes 24 non-sampled wells). Measure water elevation data at all monitoring wells prior to well purging using decontaminated equipment (depth to water, depth to bottom, depth of sample) referenced to top of PVC (or casing) and record on the data sheet.

- Provide an in-line meter (or equivalent methodology which mitigates exposure to the atmosphere) to concurrently measure pH, temperature, specific conductivity, dissolved oxygen (DO), and redox potential (RP), as applicable, during purging. Also, provide a device to measure turbidity. A minimum of four (4) readings of each parameter shall be taken and recorded during purging.

- Perform purging using dedicated bladder pump equipment [at four (4) of the sampled wells], or Consultant-supplied peristaltic pump with dedicated tubing [at seventeen (17) of the sampled wells] at low flow rates, not taking the first reading until at least one pump volume plus one discharge tubing volume have passed. The purged groundwater may be discarded to the ground at the landfill. Sampling personnel are to monitor the drawdown in the wells and ensure that the drawdown is maintained at less than or equal to 0.3 feet during the entire purging and sampling process. Wells shall be purged at a rate of less than or equal to 300 ml/minute. Field parameter readings shall be recorded at a minimum of three minute intervals, until turbidity is stabilized such that three consecutive reading are within 10% of each other for readings >10 NTU, or readings are within 2 NTU of each other for readings <10 NTU. Per EPA's SOP, if the turbidity has not stabilized after four hours of purging, collect samples and provide full explanation of attempt to achieve stabilization. Provide a summary of periodic readings and time of reading for all parameters.

- Sample collection should proceed from high parameter volatility to low parameter volatility at a low flow rate. Samples for volatile parameters should be transferred slowly to the sample container to eliminate creation of air bubbles. Samples are to be collected in proper containers and properly preserved in the field.

- No filtering of samples is to occur, <u>except</u> where analysis of dissolved metals is specified. Where analysis of dissolved metals is specified, sample filtration is to be performed <u>in the field</u> during sample collection with an in-line 0.45-micron filter.

- Record all observations relating to the well sampling and any deviations from the sampling plan.

<u>Surface Water Sampling</u>

Surface water sampling consists of grab sample collection from as many as ten (10) surface water sampling locations at the former Barberino property on a semi-annual basis (April and October). The ten surface water sampling locations are designated as:

- SW-1
- SW-2
- SW-3
- SW-4
- SW-5
- SW-6
- SW-9
- SW-10
- SW-11
- SW-12

Surface water sampling shall consist of the collection of one grab sample from each surface water sampling location. A field data sheet shall be completed for each sample location. Field measurements of water temperature, air temperature, pH, specific conductance, and dissolved oxygen shall be recorded. Sampling equipment (i.e., peristaltic pump, dipper sampler, etc.), time and date of sample collection, sampler's name, depth of water, sample identification, and other pertinent information shall also be recorded on the field data sheet. In order to prevent the inadvertent collection of sediments during surface water sampling, surface water samples are to be collected only from those locations where the depth of water is at least one inch. All surface water samples collected for analysis of metals will be filtered in the field prior to acid preservation.

Preparation for Sampling

This task includes coordination between field monitoring personnel and the analytical laboratory for the bottle order, bottle delivery, sample preservation and chain of custody to complete the required sampling.

Sample collection scheduling shall allow enough time for completion of the sample analyses by the laboratory so that the monitoring reports can be assembled, reviewed, finalized and submitted in a timely manner according to permit requirements as further discussed below.

Consultant is responsible for coordinating equipment blanks, field blanks, trip blanks and duplicate samples as part of the sampling quality assurance program. In addition to any other approved EPA or CTDEEP protocols, equipment blanks and field blanks are required for each day of sampling where non-dedicated equipment is used, with laboratory-supplied reagent water poured over the sampling equipment at the beginning of the sampling day and at the end of the sampling day and collected for analysis. Duplicate samples are to be collected at one groundwater well location from the Wallingford Landfill, and one surface water location from the former Barberino property for each semi-annual sampling event and analyzed for all the same parameters as the primary samples.

As mentioned previously, four of the monitoring wells at the Wallingford Landfill are equipped with dedicated 2-inch diameter bladder pumps (Marschalk brand SS/Teflon bladder pumps). All four pumps are owned by CRRA. The Consultant shall supply all equipment necessary to operate the bladder pumps. Such equipment may include, but not necessarily be limited to, bladder pump controllers, oil-less air compressors, inert gas packs to drive the pump bladders, pneumatic hoses, fittings, and a portable generator. It is the Consultant's responsibility to maintain the CRRA-owned pumps in good working or-

der. This Scope of Services does not include costs associated with repairs to CRRA-owned pumps and equipment that may be necessary due to normal wear and tear. If the CRRA-owned pumps require maintenance, repair or replacement, the Consultant must notify CRRA, provide a price quote for the necessary work, and proceed with the work only after receiving approval from CRRA.

The Consultant shall also provide the peristaltic pump required for sampling those monitoring wells equipped solely with dedicated tubing for purging and sampling. The Consultant will also supply equipment required for measurement of field parameters. Field equipment calibration and decontamination shall be the responsibility of the Consultant. The Consultant shall supply any other equipment necessary to adequately and properly complete the work.

Field Measurements and Collection of Samples

This task includes measuring selected parameters in the field and collecting samples in laboratory-supplied bottles, varying with the sampling point's parameter matrix. Refer to **Table 2** for a summary of field and laboratory parameter requirements for each sampling point at the Wallingford Landfill and former Barberino property. **Table 1** provides summaries of monitoring well completion details with total well depth and screened interval depth of each monitoring well.

Consultant shall follow the "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846" (latest edition) and "RCRA Groundwater Monitoring" Draft Technical Guidance (latest edition) as well as all applicable CTDEEP and USEPA regulations. Procedures described herein are not intended to be comprehensive, but to provide a clarification or to supplement the referenced regulations as they might pertain to certain site conditions. The various subsections below describe particulars for sampling at various types of sample locations.

Sampling methods described herein are to be utilized by Consultant during water quality monitoring events including monitoring of groundwater and surface water. Specific items that shall be performed during all water quality monitoring events and summarized in the monitoring reports include the following:

- Documentation of Field Activities
- Sample Handling
- Decontamination Procedures
- Monitoring and Sampling Techniques
- Field Quality Control Checks

Documentation of Field Activities shall include listing the procedures used to record data about the sampling event, the sampling locations, the samples themselves, and the handling and transport of the samples.

Sample Handling shall detail the source of the sample containers, sample preservation methods, and the chain-of-custody protocol that is followed from time of sample collection until sample acceptance by the laboratory performing the analysis.

Decontamination Procedures shall provide general data on field and in-house decontamination. Non-dedicated equipment used for purging, sampling, and filtering (to be completed only for analysis of dissolved metals) is to be decontaminated (unless replaced) between each sampling location. For the groundwater monitoring wells equipped with bladder or Grundfos submersible pumps, each pump is effectively "dedicated" to each sampling location. It is recommended in those instances where pumps are dedicated to individual wells, that they receive a thorough in-house decontamination as conditions warrant.

Monitoring and Sampling Techniques for groundwater and surface water locations shall include a description of the fundamental procedures for collection of samples. Specific procedures to be addressed include water level measurement; purging calculations, sample collection equipment and techniques utilized; and monitoring of field parameters (i.e., pH, temperature, specific conductivity, etc.) and their results. Surface water monitoring and sample techniques shall describe equipment purging (if applicable), monitoring of field parameters, method of filtering for dissolved metals and sample collection techniques.

Field Quality Control Checks shall describe typical QA/QC samples and their use. Monitoring events will include duplicate samples. Duplicate samples will be collected at one (1) ground water monitoring well on the Wallingford Landfill, and at one (1) surface water monitoring location on the former Barberino property.

Except where sample analysis in accordance with methods in 40 CFR Part 136 is required by permits, the methodologies to be utilized should be consistent with 40 CFR Part 258, Subpart E, Section 258.53 through 258.56, and as further detailed in EPA 530-R-93-017, "Solid Waste Disposal Facility Criteria - Technical Manual," November 1993; CTDEEP's "Solid Waste Management Program Description", July 1993; USEPA's "RCRA Ground Water Monitoring Technical Enforcement Guidance Document", September 1986; and US EPA Region I Standard Operating Procedure GW-001 – "Low Stress (Low Flow) Purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells" (January 19, 2010 – Revision 3).

Task 1.2: Laboratory Analysis

All sample analyses required under this Scope of Services shall be performed by a laboratory certified for such analyses by the Connecticut Department of Public Health or, in advance of any use, a laboratory approved in writing by the CTDEEP. The laboratory shall analyze all samples submitted from the same monitoring event at one time, such that duplicate samples and blanks are analyzed under the same conditions.

Preservation and Transport of Samples to Laboratory

Samples shall be properly preserved and kept cool. They shall be transported to the laboratory the same day they are collected per coordination with the lab by the Consultant's field personnel. Container types, preservatives and maximum holding times shall be per CTDEEP Reasonable Confidence Protocols (RCP), SW-846 (latest edition), or 40 CFR 136, as applicable. Consultant is to coordinate re-sampling, at no additional cost to CRRA, if re-sampling is necessary due to loss of sample in bottle transport or in laboratory handling, or if the maximum holding times are exceeded.

Analytical Methods and Detection Limits

Where published by CTDEEP, laboratory analyses will be conducted in accordance with Reasonable Confidence Protocol (RCP) analytical methods. In those circumstances where an RCP method has not been published by CTDEEP, the applicable method from the most-recent edition of EPA SW-846 ("Test Methods for Evaluating Solid Waste, Physical/Chemical Methods") will be utilized. In the absence of RCP and SW-846 analytical methods, the laboratory analytical procedure from the most recent edition of "Standard Methods for the Examination of Water and Wastewater" will be utilized.

The minimum detection limit for each analyzed parameter in groundwater monitoring well samples will have to be less than or equal to that parameter's Groundwater Protection Criterion (GWPC) or its Surface Water Protection Criteria (SWPC) from the State's Remediation Standard Regulations, whichever is lower. For surface water samples, the minimum detection limits need to be at least as low as the Chronic Aquatic Life Criteria (CALC) from the State's Surface Water Quality Standards.

Monitoring parameters for surface water and groundwater samples are summarized in **Table 2.** Analytical results for each parameter shall be reported together with the analytical method, method detection limits, date of analysis, and initials of analyst. The value of each parameter shall be reported to the maximum level of accuracy and precision possible.

Review of Lab Results, Quality Control Procedures and Invoices

Consultant is responsible for ensuring lab analyses are performed as required by the parameter list and that MDL limits are met. A summary of the lab's QA/QC procedures and results, including matrix spikes and surrogate recovery analyses, are to be reviewed by the Consultant and included in the semi-annual report. The laboratory must also provide signed "Laboratory Analysis QA/QC Certification Forms" that certify that all reported data meet the CTDEEP's requirements for "reasonable confidence." Consultant is to review the laboratory invoices for consistency with actual sample parameter analyses requested and completed.

Task 1.3: Semi-Annual Reports - Water Quality Monitoring

The Stewardship Permit specifies that finalized water quality monitoring reports must be submitted to the CTDEEP within sixty (60) calendar days of the date of sampling.

Sampling shall be arranged to allow for a reasonable laboratory turnaround time for analysis and compiling of lab results, writing draft report, reviewing draft report, finalizing report and distributing report to appropriate parties.

The semi-annual reports shall include in the monitoring results an indication of parameters that exceed criteria appropriate to the sampling point of classification. This will include state and federal limits for maximum contaminant levels not to be exceeded in the aquifer(s) at the relevant point of compliance (per Subtitle D requirements), groundwater and surface water protection criteria per CTDEEP regulations in accordance with the classifications of the same, and acute aquatic life criteria for surface water locations.

The semi-annual reports must include assessment of conditions of the groundwater monitoring wells and other sampling locations as applicable. The semi-annual reports will also include a summary table of groundwater well construction details, and site maps which show groundwater contours in both the shallow overburden and the deep overburden aquifers across the two sites. The groundwater contours shall be developed on an AutoCAD drawing of the sites that includes site features and topography. CRRA will provide an AutoCAD disk of the sites for use by Consultant upon request.

During April and October, ground water elevation data will also be collected at all other available wells in the project vicinity as described in Task 1.4, regardless of whether or not the well is in the sampling program. The measured groundwater elevations at the additional well locations will be included on the groundwater contour maps. A Monitoring Well Field Data Sheet shall also be completed for each additional well.

Each semi-annual report shall fully document the field activities and the laboratory work details, be formatted to support the annual report, and provide interim results and an update on impacts and exceedances. CRRA shall be notified immediately of any significant variation from past results or exceedances of "Significant Environmental Hazard" reporting guidelines under Public Act 98-134.

A copy of the draft semi-annual report, including sampling details and supporting analytical data, sample chains of custody, Monitoring Well Field Data Sheets, and a site map of groundwater elevations and possibly isopleths of results, is due to CRRA for review a minimum of fourteen (14) calendar days before the final report is due to the CTDEEP. CRRA shall also be allowed sufficient time to review any other reports or forms prior to submittal to CTDEEP.

Finalized semi-annual reports are to be printed by the Consultant on double-sided pages. The report distribution and addresses will be provided. Six (6) finalized hard-copies of each report plus one electronic copy (PDF format) are required to be generated by the Consultant. Consultant is responsible for mailing hard-copies of reports directly to recipients, as well as for submission of the electronic copy of each final report to USEPA.

Task 1.4: Non-Sampled Well Condition Survey and Water Elevations

There are twenty-four (24) ground water monitoring wells included in this monitoring program that are not part of the semi-annual sampling program as outlined herein. During the April and October sampling events, the ground water elevation shall be measured at each of the ten non-sampled wells, and a Monitoring Well Field Data Sheet (as described in Task 1.1) shall be completed to document each well's condition. The groundwater elevations obtained at the non-sampled well locations should be used to supplement the groundwater contour maps developed as part of the applicable semi-annual environmental monitoring report. Copies of the Monitoring Well Field Data Sheets shall be included in the applicable environmental monitoring report.

Task 1.5: Annual Dioxins and Furans Monitoring, Lab Analysis and Reporting

The groundwater discharge permit and the Stewardship Permit require that two (2) wells (MW-3 and MW-200) be sampled for dioxins and furans annually, in April of each monitoring year. Dioxins and furans are to be analyzed via EPA Method 8280. The Consultant will be responsible for sampling for dioxins and furans concurrent with the regular semi-annual (April) sampling at these two wells.

The laboratory analytical results of the annual dioxin and furan monitoring, including calculations of the 2,3,7,8-TCDD toxicity equivalence, are to be summarized in the April semi-annual report, including copies of the laboratory analytical reports.

Task 1.6: Annual Reports - Water Quality Monitoring

The annual report shall address the zone of influence of the discharge (defined as the area of soil and groundwater within which the treatment of the leachate by soils and mixing of leachate with groundwater occurs and could be reasonably expected to occur, and therefore within which some degradation of groundwater quality is anticipated to occur). The annual reports shall also provide an overall assessment of site conditions for the calendar year, including but not limited to the following:

(a) Map depicting all groundwater and surface water monitoring locations, groundwater withdrawal locations, and the locations of the collection, treatment, and conveyance of stormwater;

(b) Evaluation of groundwater and surface water quality, including graphical representations of monitoring results for at least the past six (6) years;

(c) Condition of all monitoring wells and the need for repair or replacement of any wells;

(d) Evaluation of the extent and potential extent of the leachate discharge to groundwater, and whether any impact on the surface water quality to any surface waters bodies including wetlands was detected or could reasonably be expected to occur;

(e) Written request for modification of the groundwater and/or surface water monitoring program, as warranted by the data generated through the monitoring.

All annual reports are to be submitted as a draft to CRRA at least fourteen (14) calendar days prior to the submittal deadline of March 1st specified in the Stewardship Permit. CRRA shall be supplied with electronic copies of all information included in the final annual report, as well as groundwater contour maps and other miscellaneous site plans in AutoCAD files.

Finalized annual reports are to be printed by the Consultant on double-sided pages. The report distribution and addresses will be provided. Six (6) finalized hard-copies of the annual report plus one electronic copy (PDF format) are required to be generated by the Consultant. Consultant is responsible for mailing hard-copies of reports directly to recipients, as well as for submission of the electronic copy of each final report to USEPA.

TASK 2: QUALITY ASSURANCE PROJECT PLAN REVISION

On September 16, 2009, the Connecticut Department of Energy & Environmental Protection issued Stewardship Permit No. DEP/HWM/CS-148-004 to CRRA to govern post-closure and corrective action activities at the Wallingford Landfill. Under the Stewardship Permit, revision of the Quality Assurance Project Plan (QAPP) and submission of the

QAPP to the CT-DEEP for approval is required. As stated in the Stewardship Permit, the QAPP will be prepared in accordance with the Quality Assurance Guidance for Conducting Brownfields Site Assessments, US EPA OSWER Directive No. 9230.0-83P, and will incorporate Connecticut's Reasonable Confidence Protocols.

Under this task, CRRA will provide the Consultant with the current QAPP dated March 10, 2010. Within 45 days of the contract award, the Consultant will provide a revised draft QAPP to CRRA for review. Revisions will reflect all quality assurance modifications (i.e., personnel designations, subcontracted analytical testing laboratory, sampling and laboratory analytical standard operating procedures, etc.) specific to the Consultant and its subcontracted analytical testing laboratory.

After CRRA comments and revisions have been incorporated into the plan, the Consultant will submit the final QAPP to the CTDEEP directly, with one hard-copy submitted to CRRA. Consultant will also provide CRRA with electronic QAPP files (PDF, Microsoft Word and Microsoft Excel formats, as applicable). The final QAPP is to be submitted to CTDEEP prior to the Consultant undertaking the October 2013 monitoring event.

TABLE 1
Summary of Monitoring Well Construction

Wallingford Landfill and Former Barberino Property
Wallingford, Connecticut

Well Number	Dedicated Sampling Apparatus	Ground Elevation (feet)	Top of Steel Elevation (feet)	Measured Well Depth[b] (feet)	Well Bottom Elevation (feet)	Date of Installation
Wallingford Landfill						
MW-1A	Tubing	58.50	62.37	26.77	35.60	09/01/81
MW-2A	Tubing	59.50	61.13	32.05	29.08	11/01/88
MW-3	Tubing	22.60	23.59	11.90	11.69	09/01/81
MW-4R	Tubing	42.10	43.87	22.17	21.70	07/01/92
MW-5	Tubing	25.80	27.48	9.95	17.53	09/01/81
MW-9	Tubing	43.90	46.01	33.15	12.86	05/01/86
MW-10	Tubing	36.20	36.82	40.75	-3.93	05/01/86
MW-10A	Tubing	37.00	37.23	20.40	16.83	05/01/86
MW-11	Bladder Pump	49.80	51.12	72.55	-21.43	11/01/88
MW-13	Bladder Pump	61.00	65.68	37.45	28.23	12/01/88
MW-100	Bladder Pump	51.70	53.90	40.62	13.28	11/01/83
MW-101R	Bladder Pump	54.50	55.84	40.37	15.47	07/01/92
MW-200	Tubing	29.10	30.64	14.45	16.19	12/01/88
Former Barberino Property						
CEE-3	Tubing	N/A	31.46	13.88	17.58	11/11/92
CEE-4	Tubing	N/A	30.37	14.54	15.83	03/26/93
CEE-5	Tubing	N/A	37.82	14.13	23.69	03/25/93
CEE-6	Tubing	N/A	34.95	14.02	20.93	03/29/93
CEE-7	Tubing	N/A	30.88	14.87	16.01	03/26/93
CEE-8	Tubing	N/A	29.05	14.80	14.25	03/29/93
CEE-9	Tubing	N/A	27.99	14.52	13.47	03/26/93
CEE-10	Tubing	N/A	32.15	14.82	17.33	03/29/93

[a] Historical depth to bottom of well casing
[b] As measured from top of steel casing
N/A = Not Available

Table 2
Monitoring Parameters

Wallingford Landfill and Former Barberino Property
Wallingford, Connecticut

Parameters	Wallingford Landfill	Former Barberino Property	
	13 Wells	8 Wells	10 Surface Water
Field Parameters:			
Depth to Water	S	S	-
Water Elevation (msl)	S	S	-
pH	S	S	S
Temperature	S	S	S
Specific Conductance	S	S	S
Dissolved Oxygen	S	S	S
Redox Potential	S	S	S
Turbidity	S	S	S
Inorganic Leachate Indicator Parameters:			
Total Dissolved Solids (TDS)	S	S	S
Alkalinity, Total	S	S	S
Hardness	S	S	S
Biochemical Oxygen Demand (BOD5)	S	S	-
Chemical Oxygen Demand (COD)	S	S	S
Chloride	S	S	S
Nitrate (N)	S	S	-
Ammonia (N)	S	S	S
Sulfate, Total	S	S	S
Cyanide, Total	S	S	-
Metals[1]:			
Aluminum	-	-	S
Arsenic	S	S	S
Barium	-	-	S
Beryllium	-	-	S
Cadmium	-	-	S
Chromium, Total	S	S	S
Copper	S	S	S
Iron	S	S	S
Lead	S	S	S
Magnesium	-	-	S
Manganese	S	S	S
Mercury	-	-	S
Nickel	S	S	S
Potassium	S	S	S
Selenium	-	-	S
Sodium	S	S	-
Vanadium	-	-	S
Zinc	S	S	S
Dioxins / Furans:			
Method 1613B	A[2]	-	-

S = Tested Semi-Annually in April and October A = Tested Annually in April

Notes:

1. Groundwater samples to be analyzed for total metals concentrations. Surface water samples to be analyzed for dissolved metals concentrations.
2. MW-3 and MW-200 only.

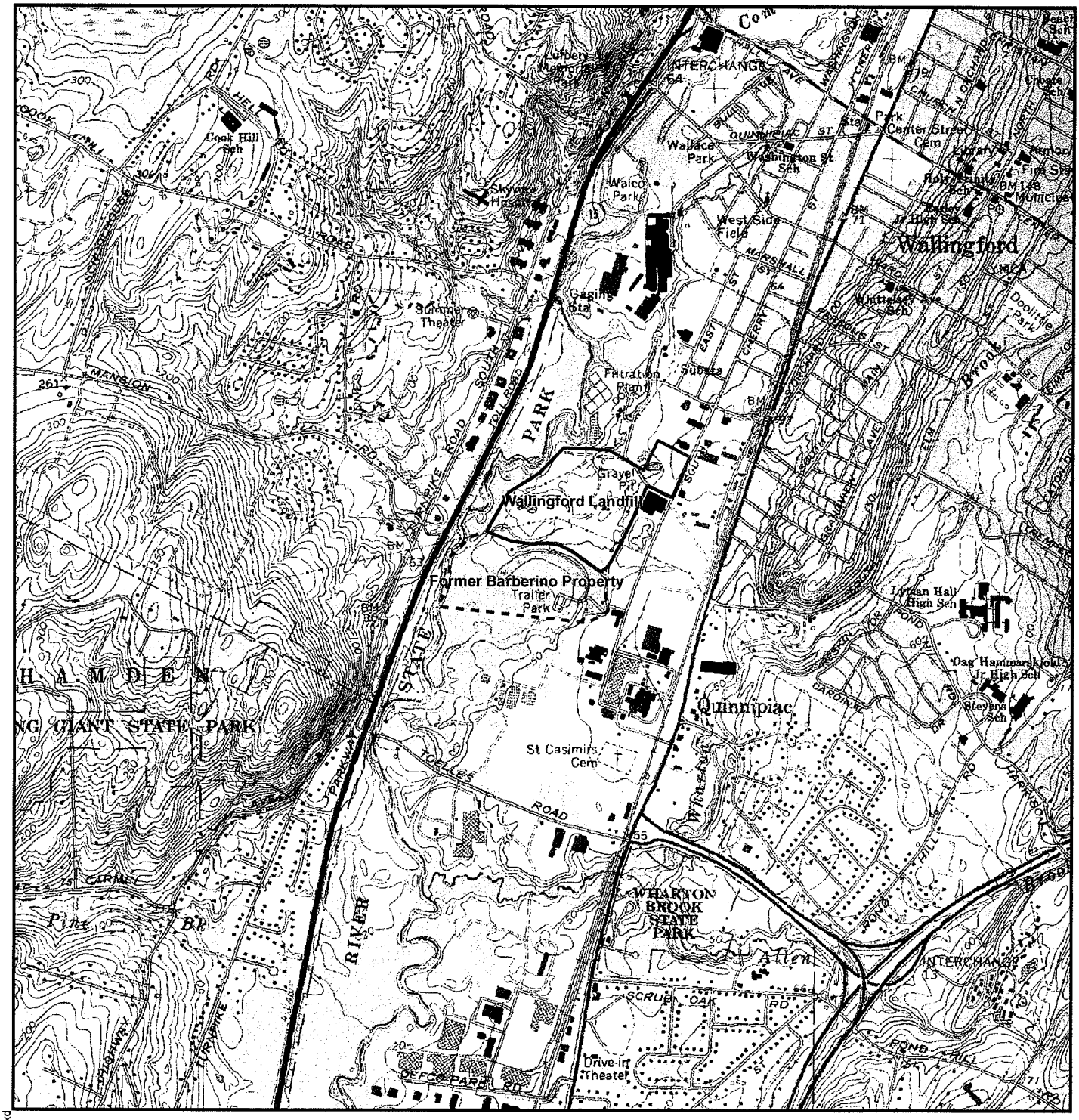
FIGURES

Figure 1: Site Location Plan

Figure 2: Water Quality Monitoring Site Plan

APPENDIX A - Permits

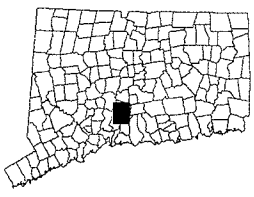
DEP/HWM/CS-148-004	**Stewardship Permit** **(Dated September 16, 2009)** **52 Pages**
LF0000028	**Discharge of Sanitary Landfill Leachate to Ground Water** **(Dated July 18, 1989)** **6 Pages**
No Number	**Approved Water Quality Monitoring Plan** **(Dated March 12, 2010)** **28 Pages**



Legend

Approx. Site Boundary

- Wallingford Landfill
- Former Barberino Property



MAP REFERENCES:
USGS 7.5 Minute Topographic Map
Wallingford, CT 1984

0 1,000 2,000
Feet

Scale 1" = 2000'

Site Location

CRRA Wallingford Landfill
Wallingford, Connecticut

FIGURE 1

March 2009

G:\P2007\00073\V10\Wetlands\GIS\SiteLocation_mapping.mxd

LEGEND

- WALLINGFORD LANDFILL PROPERTY BOUNDARY
- FORMER BARBERINO PROPERTY BOUNDARY
- MONITORING WELL
- SURFACE WATER SAMPLING LOCATION

NOTE:
THIS MAP HAS BEEN COMPILED FROM OTHER MAPS, DEEDS, AND/OR SOURCES OF INFORMATION. THIS MAP SHOULD NOT BE CONSTRUED AS A PROPERTY SURVEY, NOR USED FOR CONSTRUCTION PURPOSES.

WILBUR CROSS PARKWAY
QUINNIPIAC RIVER
MW-100
MW-100A
MW-101R
MW-101A
DSN002 INV. 8" PVC
MW-2A
MW-1B
MW-11
MW-11A
CLOSED METAL HYDROXIDE SLUDGE CELL
LEAF COMPOSTING AREA
MW-1A
MW-1
CLOSED BULKY WASTE AREA
MW-4R
MW-3
MW-3A
WALLINGFORD LANDFILL
CLOSED MUNICIPAL SOLID WASTE AREA
TOWN COLLECTION AREA
ROAD
CLOSED EMERGENCY BY-PASS/NON-PROCESSIBLES AREA
MW-5
MW-CDM-5
DX-1
MW-200
DSN003 INV. 18" RCP
LYSIMETER O
MW-13
PENT
S. STREET
CLOSED ASH RESIDUE DISPOSAL AREA
CLOSED ASH RESIDUE DISPOSAL AREA
MW-10A
CDM-4-S (DESTROYED)
CDM-4D (DESTROYED)
MW-10
CDM-3D
OLIVER CREEK
(DESTROYED) CDM-2S
MW-12,12A
CDM-2D (DESTROYED)
CDM-1S
SW-11
FENCE POST
CEE-2
SW-1
CEE-1
SW-10
MW-9,9A (37.40)
CEE-3
CEE-4
SW-2
SW-9
S. CHERRY
ROAD
MW-CDM-1S
MW-CDM-1D
SW-8
SW-7
SW-3
CEE-7
22
SW-4
FORMER BARBERINO PROPERTY
CEE-5
SW-6
SW-5
CEE-6D
CEE-6
CEE-8
CEE-10
CEE-10D
SW-12
FORMER TRAILER PARK SUPPLY WELL (ABANDONED)
CEE-9D
CEE-9
POLE WCD-7074
POLE WCD-7070
POLE A-8
N/F CYTEC/ AMERICAN CYANAMID
CYTEC/ AMERICAN CYANAMID PRODUCTION WELL

SITE PLAN

WALLINGFORD LANDFILL AND
FORMER BARBERINO PROPERTY

PENT ROAD
WALLINGFORD, CT

REVISIONS

NO.	DATE	DESCRIPTION

JLW DESIGNED	ZAB APPROVED	1" = 150' SCALE	
DML DRAWN	2/12/10 DATE		FIG. 2
JLW CHECKED	CRR0148.GW PROJECT NO.		SHEET NO.

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Mr. Peter W. Egan
Director of Environmental Affairs
Connecticut Resource Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, CT 06103

September 16, 2009

Re: Transmittal Letter- Stewardship Permit
EPA ID No. CTD991288960
Permit No. DEP/HWM/CS-148-004

Dear Mr. Egan:

The Commissioner of the Department of Environmental Protection ("DEP') has made a final permit decision in accordance with Chapters 439 and 446k of the Connecticut General Statutes ("CGS") to issue the Stewardship Permit to the Connecticut Resources Recovery Authority ("CRRA") for the Wallingford Landfill. This permit became effective on the date it was signed by the Commissioner and shall expire ten (10) years from that date. Included with this letter you will find the signed Stewardship Permit.

The permit regulates and authorizes CRRA to complete post-closure care inclusive of water quality monitoring, and landfill gas decomposition monitoring; and environmental investigation and cleanup ("corrective action" measures) at the Wallingford Landfill. The permit does not authorize CRRA to accept waste or to operate the facility. The permit requires CRRA to complete the post-closure care and corrective action activities in accordance with a schedule, fulfill its cleanup obligations, and provide financial assurance for environmental cleanup.

The draft Stewardship Permit was public noticed on July 2, 2009 and the comment period closed at the end of the business day on August 17, 2009. The DEP received comments from the United States Environmental Protection Agency dated August 17, 2009 addressing the draft permit. The comments have been evaluated and are addressed by the DEP in the Response to Comments, Attachment A pursuant to Section 22a-449(c)-110(a)(2)(a)(KKK) of the Regulations of Connecticut State Agencies, incorporating 40 CFR 124.179(a). The Response to Comments specifies which provisions of the draft permit have been changed in the final permit decision, the reasons for the change to the final permit and also provides the reasons for not making other revisions which were requested.

The permit includes a Compliance Schedule, Section III, which identifies the submittals that CRRA must complete within specific timeframes. Failure to fulfill these conditions may result in violations, suspension or revocation of the permit.

The permit is transferrable upon the Commissioner's written authorization, provided the Permittee and potential transferee have complied with the requirements set forth for permit transfer in the permit and CGS Section 22a-6o.

If you have any questions or need additional information regarding this transmittal letter, please contact Lauren Kostiuk of my staff at (860) 424-3155 or e-mail Lauren.Kostiuk@ct.gov.

Sincerely,

Diane W. Duva

Diane W. Duva
Assistant Director
Waste Engineering and Enforcement Division
Bureau of Materials Management and Compliance Assurance

Encl.(3): Stewardship Permit
Certificate of Stewardship
Response to Comments, Attachment A

cc: Stuart Gray, Chief Hazardous Waste Unit, Compliance Enforcement Section, EPA Region I, 1 Congress Street, Suite 1100 (CHW), Boston, MA 02114-2023
James Chow, EPA Region I, 1 Congress Street, Suite 1100 (CHW), Boston, MA 02114-2023

ATTACHMENT A
RESPONSE TO COMMENTS

Connecticut Resources Recovery Authority, Wallingford Landfill
Stewardship Permit No. DEP/HWM/CS-148-004

Comments from the United States Environmental Protection Agency ("US EPA") Dated August 17, 2009, Followed by DEP Responses

1. Page 10 – Section II.A.5. notes that an Ecological Risk Assessment (ERA) shall be prepared and submitted for the CTDEP's review and approval but a schedule for the submission of the ERA could not be found in either Section II or in Section III (Compliance Schedule). If one has not been submitted, a schedule for the submission of the ERA similar to the one provided in the CRRA Shelton draft stewardship permit should be included.

   Comment not accepted.

   The Permittee has submitted a Screening Level Ecological Risk Assessment dated May 5, 2009 for the Commissioner's review and written approval. After review of this document, the Commissioner will instruct the Permittee if additional studies and activities need to be conducted, they need to further evaluate site-relates environmental risks, or they need to identify and implement appropriate remedial activities.

   This condition has been revised to state: "Pursuant to RCSA Section 22a-133k-1 et. seq., the Permittee has prepared and submitted for the Commissioner's review and written approval a Screening Level Ecological Risk Assessment dated May 5, 2009 evaluating the potential for ecological receptors to be exposed to contaminants. The Permittee is required to conduct additional studies and activities, as identified by the Commissioner in writing, pursuant to the Commissioner's review of the Screening Level Ecological Risk Assessment, and as necessary to further evaluate site-related environmental risk or identify and implement appropriate remedial activities.

2. Page 20 – Section III.A.1 – Consultant – In addition to the naming and designation of the "Consultant" as required in the compliance schedule, the language in this condition should be revised to include clearer language noting that the CTDEP will be notified in writing for approval whenever there is a change in the "Consultant" during the life of the permit.

   Comment accepted.

   The condition has been revised to state: "The Permittee shall designate and assign an environmental compliance expert who may be a full-time employee of the Permitee, and/or retain one or more qualified consultants, acceptable to the Commissioner to prepare the documents required by Condition Nos. II.B.2. and III.C.2. and shall, by that date, notify the Commissioner in writing of the identity of such environmental compliance expert and/or consultants. The Permiteee shall assign such environmental compliance expert and/or retain such qualified consultant, acceptable to the Commissioner, until Condition No. III.C.1. of this permit is fully complied with. The Permittee shall notify the Commissioner in writing of the identity of any environmental compliance expert or consultant otherthan the one approved by the Commissioner, within ten (10) days after assigning or retaining any environmental compliance expert or consultant for the purpose of addressing the actions required by this permit. The Permittee shall submit to the Commissioner a description of the assigned environmental compliance expert's

and/or consultant's education, experience and training which is relevant to the work required by this permit within ten (10) days after a request for such a description. Nothing in this paragraph shall preclude the Commissioner from finding a previously acceptable environmental compliance expert or consultant unacceptable."

CERTIFICATE OF STEWARDSHIP

The Commissioner of Environmental Protection has made a final administrative decision to issue a Stewardship Permit to the **Connecticut Resources Recovery Authority** for the Wallingford Landfill, EPA ID No. CTD991288960, located on Pent Road, Wallingford, Connecticut.

This permit is for the continuation of facility post-closure care inclusive of water quality monitoring, landfill decomposition gas monitoring; and corrective action activities, meaning environmental investigation and remediation, at the facility and may be transferred upon the written authorization of the Commissioner. Opportunity for public comment has been provided in accordance with state and federal requirements.

This action is based on the obligation to initiate and complete post-closure care and environmental clean-up work required by state laws and regulations, including RCRA Corrective Action and Closure, and requires compliance with Connecticut's Solid Waste Management Regulations and Hazardous Waste Management Regulations, as well as state and federal guidance.

September 16, 2009

Amey W. Marrella
Commissioner

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Stewardship Permit

Pursuant to Chapters 439 and 446k of the Connecticut General Statutes, a permit is issued to:

Permittee:
Connecticut Resources Recovery Authority
Wallingford Landfill
Pent Road, Wallingford, CT 06492

Facility Identification:
EPA ID No. CTD991288960
Permit Number: DEP/HWM/CS-148-004

To perform site-wide environmental investigation and cleanup ("post-closure care" and "corrective action measures") at the hazardous and solid waste disposal facility in accordance with Connecticut General Statutes ("CGS") Sections 22a-6, 22a-449(c) and 22a-454, and Section 22a-449(c)-110 of the Regulations of Connecticut State Agencies ("RCSA") as specified in the conditions set forth in this permit.

This permit regulates and authorizes the Permittee to perform post-closure care and corrective action measures at the facility. The permit does not authorize operation of a hazardous and solid waste management facility in the sense of treating, storing, or disposing of hazardous and solid wastes generated off-site.

All terms in this permit are defined in the permit or if not defined in the permit are as defined in Section 22a-449(c)-100 of the RCSA or in Title 40 of the Code of Federal Regulations ("CFR") Parts 260, 261, 262, 264, 268, 270, 273 or 279.

This permit is based on the information described in the Resource Conservation and Recovery Act ("RCRA") Part A filed by the applicant on November 19, 1980 and the Stewardship application filed on April 16, 2009. The Permittee must keep records of all data used to complete the permit application and any supplemental information submitted for the effective term of this permit. The permit application and RCRA Part A filing are incorporated by reference as part of the permit. Any false statements or inaccuracies contained in the information submitted by the Permittee may result in the suspension, revocation or modification of this permit and civil or criminal enforcement action.

The Permittee shall comply with all terms and conditions contained in the following sections of the permit: Section I (Standard Facility Conditions) pages 1 through 9; Section II (Authorized Activities) pages 10 through 17; Section III (Compliance Schedule) pages 18 through 19; Appendices A-1, and B-1; and the information contained in the Permittee's permit application, except where the application is superseded by the more stringent conditions contained herein. Any violation of any provision of this permit may subject the Permittee to enforcement action pursuant to the CGS including but not limited to Sections 22a-6a and 22a-131.

This permit is transferrable upon the Commissioner's written authorization, provided the Permittee and potential transferee have complied with the requirements set forth in CGS Section 22a-6o.

This permit may be revoked, suspended, modified, transferred, or reissued, in order to comply with applicable law. The Commissioner may also modify this permit when it is deemed necessary to do so.

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The Permittee shall submit a revised permit application to the Commissioner at least one hundred and eighty (180) calendar days before making any changes to any of the permitted areas or activities. Any application shall be approved in writing by the Commissioner prior to the Permittee implementing such change. The Permittee shall submit an application for a renewal of this permit to the Commissioner at least one hundred eighty (180) calendar days prior to its expiration date.

The terms and conditions of the permits listed below are hereby superseded with the terms and conditions of this permit. Subsequently, the permits listed below are hereby revoked for administrative purposes.

1. Permit to Operate No. 148-2-B-O issued on November 14, 1986;
2. Permit to Operate No. 148-4-L-O issued on November 14, 1986; and
3. Permit Modification No. 148-L issued on November 15, 1988.

In the event of a conflict between any previously issued solid waste permit and the terms and conditions of this permit, the terms and conditions of this permit shall supersede.

Condition No. 4 of Groundwater Discharge Permit No. LF0000028 issued on July 18, 1989 is superseded by the requirements of this permit.

This permit is hereby in effect and shall expire ten (10) years from this date.

September 16, 2009
Date

Amey W. Marrella
Amey W. Marrella
Commissioner

STEWARDSHIP PERMIT
Connecticut Resources Recovery Authority
Wallingford Landfill

Pent Road
Wallingford, CT

EPA ID No. CTD991288960
Permit No. DEP/HWM/CS-148-004

SECTION I

Stewardship Permit
Standard Facility Conditions

Connecticut Resources Recovery Authority
Wallingford Landfill

EPA ID No. CTD991288960
Permit No. DEP/HWM/CS-148-004

Table of Contents
Section I – Standard Facility Conditions

CRRA Wallingford Landfill
Pent Road
Wallingford, CT

EPA ID No. CTD991288960
Permit No. DEP/HWM/CS-148-004

STEWARDSHIP PERMIT
SECTION I
STANDARD FACILITY CONDITIONS

A. EFFECT OF PERMIT

Except as is provided in the Regulations of Connecticut State Agencies (RCSA) Section 22a-449(c)-110(a)(2) and except for any federally enforceable requirement(s), compliance with this permit during its term constitutes compliance, for purposes of enforcement, with Connecticut General Statutes (CGS) Section 22a-449(c). This permit may be modified, revoked and reissued, or terminated during its term as set forth in RCSA Section 22a-449(c)-110(a)(1), which incorporates by reference Title 40 of the Code of Federal Regulations (40 CFR) Parts 270.41, 270.42 and 270.43.

The Permittee shall perform post-closure care inclusive of surface and groundwater monitoring , landfill decomposition gas monitoring and corrective action in accordance with its applications (Application Nos. 200901180 and 199500989) received by the Department of Environmental Protection ("Department') on April 16, 2009 and September 2, 1992 respectively and the requirements of this permit. In the event of a conflict between the Permittee's application and the requirements of this permit, the requirements of this permit shall take precedence and apply.

The issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of federal, state or local law or regulations.

Term (Duration) - The effective date of this permit is the date on which the permit is signed by the Commissioner. This permit is in effect for a term of ten (10) years and may be renewed at the end of the term, in accordance with the requirements described in Condition No. I.E.2., "Duty to Reapply."

In accordance with 40 CFR 270.73(a), upon issuance of this permit the Permittee's Interim Status granted under Resource Conservation and Recovery Act ("RCRA") is hereby terminated. In addition, upon the Commissioner's determination that the Permittee has satisfied the requirements of this permit, a Certificate of Completion shall be issued to the Permittee.

B. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstances is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

C. CONFIDENTIAL INFORMATION

The Permittee may claim that any information required to be submitted by this permit contains or constitutes confidential information in accordance with CGS Section 1-210(b).

D. IMMINENT HAZARD ACTIONS

Notwithstanding any provision of this permit, enforcement actions may be brought pursuant to Section 7003 of the Resource Conservation and Recovery Act (RCRA), CGS Section 22a-6, or any other applicable law.

E. DUTIES AND REQUIREMENTS

1. Duty to Comply. The Permittee shall comply with all conditions of this permit except that the Permittee need not comply with the conditions of this permit to the extent and for the duration such noncompliance is authorized in an Emergency Permit that explicitly authorizes any such noncompliance. Noncompliance by the Permittee with the terms of this permit, except under the terms of an Emergency Permit, shall constitute a violation of this permit and any applicable laws or regulations and is grounds for enforcement action, for permit termination, revocation and reissuance or for denial of a permit renewal. Emergency Permit as used herein shall mean Emergency Permit as identified in RCSA Section 22a-449(c)-110(a)(1) incorporating 40 CFR 270.61.

   A violation of this permit for purposes of state and federal law constitutes a violation of a RCRA permit.

2. Duty to Reapply. This permit shall expire ten (10) years after the effective date of this permit. If the Permittee wishes to continue engaging in an activity regulated by this permit after the expiration date of this permit, the Permittee shall apply for renewal of this permit one hundred eighty (180) calendar days prior to the date of expiration of the permit, in accordance with the requirements of RCSA Sections 22a-449(c)-104 and 22a-449(c)-110 incorporating 40 CFR 264.101 and 270.10(h) and any other applicable law.

3. Obligation for Post-Closure Care and Corrective Action. The Permittee is required to continue this permit for any period necessary to comply with the post-closure care and corrective action requirements of this permit.

4. Need to Halt or Reduce Activity Not a Defense. It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce any activity authorized by this permit in order to maintain compliance with the conditions of this permit, unless otherwise required to do so by another state or federal authority.

5. Duty to Mitigate. In the event of noncompliance with this permit, the Permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent its noncompliance from having significant adverse impacts on human health or the environment. No action taken by the Permittee pursuant to this section of this permit shall affect or limit the Commissioner's authority under any other statute or regulation.

6. Permit Actions. This permit may be modified, revoked and reissued, or terminated as provided for in 40 CFR 270.41, 270.42 or 270.43, and in accordance with all applicable law, including but not limited to, CGS Sections 22a-6g and 6h and RCSA Sections 22a-3a-5 and 22a-449(c)-110. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any condition of this permit.

7. Property Rights. This permit does not convey any property rights of any sort, or any exclusive privilege to the Permittee.

8. Duty to Provide Information. The Permittee shall furnish to the Commissioner, within the timeframe specified by the Commissioner, any information which the Commissioner may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee shall also furnish to the Commissioner, upon request, copies of records required to be kept by this permit.

9. Post-Closure Maintenance. The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance, at a minimum, includes effective performance, adequate funding, adequate operator staffing and training and adequate laboratory and process controls, including appropriate laboratory quality assurance procedures. This provision requires the operation of backup, auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.

10. Inspection and Entry. The Permittee shall allow the Commissioner, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:
    (a) Enter at reasonable times upon the Site where a regulated activity is located or conducted, or where records must be kept under the conditions of this permit;

    (b) Have access to and copy, at reasonable times, any records that shall be kept under the conditions of this permit;

    (c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, and operations regulated or required under this permit; and

    (d) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by RCRA, any substance or parameters at any location.

11. Security. Pursuant to RCSA Section 22a-449(c)-104 incorporating 40 CFR 264.14, the Permittee shall prevent the unknowing entry, and minimize the possibility for unauthorized entry, of persons or livestock onto the active portion of the Facility. The Permittee shall secure the Facility to the extent necessary to protect human health.

12. Monitoring and Records.
    (a) The Permittee shall ensure that samples and measurements taken for the purpose of monitoring are representative of the monitored activity.

    (b) The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit (i.e. records from groundwater monitoring and groundwater surface elevations), the certification required by RCSA Section 22a-449(c)-104 incorporating 40 CFR 264.73(b)(9), and records of all data used to complete the application for this permit, for the Post-Closure Period. This period may be extended by request of the Commissioner at any time.

(c) Records for monitoring information shall include:
- (i) The date, exact place and time of sampling or measurements;
- (ii) The individual(s) or company who performed the sampling or measurements;
- (iii) The date(s) analyses were performed;
- (iv) The individual(s) or company who performed the analyses;
- (v) The analytical techniques or methods used; and
- (vi) The results of such analyses.

13. Operating Record. The Permittee shall maintain, in writing, the following information in the Facility's operating record until termination of this permit:

(a) Records and results of inspections as required by this permit, except this data need only be kept for three (3) years from the date of any such inspection;

(b) Monitoring, testing or analytical data, and corrective action where required by 40 CFR 264 Subpart F or any regulatory section noted in 40 CFR 264.73(b)(6);

(c) All post-closure and corrective action cost estimates, as applicable, under RCSA Section 22a-449(c)-104 and 40 CFR 264.142 and 40 CFR 264 Subpart H; and

(d) Any other information required by this permit or by any applicable law to be maintained in the Facility operating record.

14. Signatory Requirements. The Permittee's application and all reports or information submitted to the Commissioner by the Permittee pursuant to this permit shall be signed by the person specified in and contain the certification prescribed in RCSA Section 22a-449(c)-110 incorporating 40 CFR 270.11.

15. Transfers. This permit is not transferable to any person without the advanced written authorization of the Commissioner. The Commissioner may request any information deemed necessary regarding the potential transferee. Before any such transfer, the Permittee and any proposed transferee shall fully comply with the requirements of CGS Section 22a-6o. The Commissioner may require modification or revocation and reissuance of this permit to change the name of the Permittee and as an incident to any such transfer, incorporate such other requirements, as the Commissioner deems necessary.

In advance of transferring ownership or operation of its Facility prior to the termination of this permit, the Permittee shall notify the prospective new owner or operator in writing of the requirements of this permit, 40 CFR 264 through 270, and of the RCSA Section 22a-449(c)100 et. al. The Permittee shall provide such prospective new owner or operator with a copy of this permit.

The Permittee's failure to notify the new Permittee of the requirements of this permit in no way relieves the new Permittee of his obligations to comply with all applicable requirements.

If the transfer of the property takes place and the Permittee retains the permit, an access agreement between the Permittee and the prospective new owners of the Facility shall be

approved by the Commissioner prior to the sale of the Facility/Site. The agreement shall include the anticipated times, locations and frequency of access needed in order for the Permittee to complete closure, post-closure care and corrective action activities and conduct inspection, operation and management activities for all remedial systems. A copy of the Post Closure Plan, referenced in Condition No.II.A.1.. of this permit, shall be provided to the prospective new owner prior to transfer of the property.

16. Reporting Requirements.

(a) Anticipated Non-Compliance. The Permittee shall give as much advance written notice as possible to the Commissioner of any planned changes in the Facility or activity, which may result in non-compliance with any requirement of this permit.

(b) Compliance Schedules. Except where otherwise provided for in this permit, reports of compliance and non-compliance with, or any progress reports on, interim and final requirements contained in any Compliance Schedule (Section III) of this permit, shall be submitted no later than fourteen (l4) calendar days following each schedule date, to the extent such reports are required herein.

(c) Twenty-four Hour Reporting.

(i) The Permittee or designee shall orally report to the Commissioner any condition resulting from remedial activity or waste related activity at its Facility, irrespective of whether such activity is in compliance with the requirements of this permit, which does or may pose an imminent and substantial endangerment to human health or the environment, immediately but not later than twenty-four (24) hours from the time the Permittee becomes aware or should be aware of the circumstances causing such endangerment.

The report to the Commissioner shall include:

(A) Name, address, and telephone number of the Permittee;
(B) Name, address, and telephone number of the Facility;
(C) Date, time and type of incident;
(D) Description of the occurrence and its cause;
(E) Name and quantity of waste(s) or constituents thereof involved;
(F) The extent of injuries, if any;
(G) An assessment of actual or potential hazards to human health and the environment;
(H) Estimated quantity and disposition of recovered waste that resulted from the incident;
(I) All information concerning the release of any waste or constituents thereof that may cause an endangerment to public drinking water supplies; and
(J) All information concerning a release or discharge of waste or constituents thereof or of a fire or explosion from the Facility, which could threaten human health or the environment

(ii) A written submission shall also be provided within five (5) calendar days of the time the Permittee becomes aware of the circumstances described

in subdivision (i) above. The written submission shall contain a description of the endangerment and its cause; the period of endangerment including exact dates and times, if the endangerment has been abated, and if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reccurrence of the endangerment. The Permittee shall maintain in the operating record of its Facility a copy of all such written reports. The Commissioner may waive the five (5) day written notice requirement in favor of a written report within fifteen (15) days of the incident requiring reporting.

(iii) Nothing in this section shall effect or relieve the Permittee of its obligations under CGS Sections 22a-6u or 22a-450.

(d) Other Noncompliance. The Permittee shall report all instances of noncompliance with this permit not otherwise required to be reported by this permit to the Commissioner along with any other required monitoring report, no later than thirty (30) days from or after the date the Permittee is aware, or reasonably should have been aware of any such noncompliance. Any such report shall contain, at a minimum, the information listed in Condition No. I.E.16.(c)(i) of this permit.

(e) Other Information. When the Permittee becomes aware that it failed to submit any relevant facts or information in a permit application, or submitted incorrect information in a permit application, report or other document provided to the Commissioner regarding this permit, it shall submit such relevant facts or correct information to the Commissioner within thirty (30) calendar days of becoming aware of such facts or information.

17. Computation of Time.

(a) Except as is expressly provided for in this permit, the computation of time periods set forth in this permit shall be as follows:

(i) Any time period scheduled to begin on the occurrence of an act or event shall begin on the day after the act or event.

(ii) Any time period scheduled to begin before the occurrence of an act or event shall be computed so that the period ends on the day before the act or event.

(iii) If the final day of any time period falls on a Saturday, Sunday or a federally or state recognized legal holiday or state mandated furlough day, the time period shall be extended to the next working day.

(b) Submission of Reports. Where this permit requires the submission of a written report, a notification or other information or documentation to the Commissioner, the report or notification shall be deemed submitted on the date such report, notification or other information is received by the Department.

18. Availability, Retention and Disposition of Records. The Permittee shall ensure that all records required under RCSA Sections 22a-449(c)-100 to 119 et. seq. or this permit, including all plans, are furnished upon request, and made available at all reasonable times

for inspection, by any officer, employee, or representative of the Department or the U.S. Environmental Protection Agency ("EPA").

The retention period for all records required under RCSA Sections 22a-449(c)-100 to 119 and this permit is extended automatically during the course of any unresolved enforcement action regarding the Facility or as requested by the Commissioner or Regional Administrator of EPA.

19. Additional Requirements. Requirements not included in this permit, which become effective by statute or regulation, and not made specifically inapplicable to facilities with a permit, shall apply to the Permittee's Facility. In the event of any conflict between this permit and any such requirement, the Permittee shall comply with the more stringent requirement. If the Permittee does not fully comply with the more stringent requirement, the Department may enforce either requirement.

20. Federal, State and Local Laws. Nothing in this permit shall be construed to prohibit any federal, state or political subdivision thereof from imposing any requirements to the extent authorized by law which are more stringent than those imposed by this permit. In addition, nothing in the permit shall relieve the Permittee of its obligation to comply with any other applicable federal, state, or local statute, regulation or ordinance.

21. Modification of the Compliance Schedule.

(a) The Permittee may request to modify the submittal due dates of the Compliance Schedule (Section III) of this permit at any time. Such requests shall be submitted for the Commissioner's review and written approval and shall include sufficient justification for such request(s).

(b) The Commissioner may grant extensions of submittal due dates based on the Permittee's demonstration that sufficient justification for the extension exists. Extensions to due dates, which this permit explicitly defines as being due by a certain time or during a certain time interval, may be granted by the Commissioner if sufficient justification for the extension is demonstrated by the Permittee.

F. DEFINITIONS

Any term not otherwise defined herein shall be defined as that term is defined in RCSA 22a-449(c)-100 thru 119 incorporating 40 CFR 264 through 279.

1. "Annual" means that sampling and analysis shall occur no later than December 31st of the calendar year. The results of such sampling and analysis shall be submitted to the Commissioner no later than March 1st of the subsequent year.

2. "Ash Residue Area" means the 7.5-acre area located along the southern section of the Facility that was formerly used for the disposal of ash residue generated by the Connecticut Resources Recovery Authority ("CRRA") Wallingford Waste to Energy Facility.

3. "CFR" means the Code of Federal Regulations in effect on the date that this permit is issued.

4. "Commissioner" means the Commissioner of Environmental Protection as defined in CGS Section 22a-2 or the Commissioner's duly authorized designee.

5. "Emergency By-pass/Non-Processibles Area" means the 6-acre area located southwest of and adjacent to the Municipal Solid Waste Area of the Facility that was formerly used for the disposal of emergency by-pass waste and non-processible waste from the CRRA Wallingford Waste to Energy Facility.

6. "Facility" shall mean, pursuant to 40 CFR 260.10, all contiguous land, structures, other appurtenances, and improvements on the land, used for treating, storing or disposing of hazardous and solid waste and all contiguous property under control of the owner or operator.

   For the purposes of this permit, Facility shall mean the 82-acre parcel of land located on Pent Road in Wallingford, CT and subject to the requirements of this permit. Facility does not include the Former Barberino Property.

7. "Former Barberino Property" means the 45-acre parcel of land to the south of the Facility, and that formerly consisted of a trailer park and residential dwellings.

8. "Former Bulky Waste Area" means the 5-acre area located in the northeastern portion of the Facility Property near the intersection of Ball and South Cherry Streets that was formerly used by the Town of Wallingford for the disposal of bulky solid wastes.

9. "Hazardous Waste" or "Hazardous Wastes" shall mean hazardous waste as identified or listed as hazardous waste pursuant to 42 U.S.C. Section 6901 et. seq. and RSCA Section 22a-449(c)-101.

10. "Metal Hydroxide Sludge Cell Area" means the 3-acre area located along the northern flank of the Emergency Bypass/Non-Processibles Area of the Facility that was formerly used for the disposal of approximately 4 million pounds of hazardous wastes (EPA hazardous waste codes K063 and F006) from local industries.

11. "Municipal Solid Waste Area" means the 36-acre area located in the south central portion of the Facility that was formerly used by the Town of Wallingford for the disposal of municipal solid wastes.

12. "Period of Active Remediation" shall mean the period of time prior to the completion of remedial activity conducted pursuant to this permit, with the exception of that period when the only remaining activity is post-remediation monitoring and monitored natural attenuation.

13. "Permittee" shall mean the person responsible for the overall operation of the Facility who has been issued a license by the Commissioner. As used herein "person" is defined in Section 22a-423, Chapter 446k, of the CGS and "license" is defined in Section 4-166, Chapter 54 of the CGS.

14. "Post-Closure Period" means a minimum of thirty (30) years from the date of certification of closure of the Facility. This period shall be extended or shortened by the Commissioner in accordance with 40 CFR 264.117(a)(2).
For the purposes of this permit, the start date of the post-closure period is February 28, 2005.
Please note: For sites in which waste will remain in place, the post-closure period shall be extended at the Commissioner's discretion. In the event the waste is removed, an alternate post-closure period may be approved by the Commissioner.

15. "Quarterly" means that sampling and analysis shall occur once every three (3) consecutive months in a calendar year (i.e. January, April, July, and October). The results of the sampling and analysis shall be submitted to the Commissioner within sixty (60) calendar days of the date of sampling.

16. "Semi-annual" means that sampling and analysis shall occur during the months of April and October each calendar year. The results of the sampling and analysis shall be submitted to the Commissioner within sixty (60) calendar days of the date of sampling.

17. "Site" means the same or geographically contiguous property which may be divided by public and private right-of-way, provided the entrance and exit between the properties is at a cross-road intersection, and access is by crossing opposed to going along, the right-of-way. Non-contiguous properties owned by the same person but connected by a right-of-way that he controls and to which the public does not have access, is also considered part of the Site property.

    For the purposes of this permit, there are six areas that comprise the Site: "Ash Residue Area", "Emergency Bypass/Non-Processibles Area", "Former Bulky Waste Area", "Metal Hydroxide Sludge Cell Area", "Municipal Solid Waste Area", and "Former Barberino Property". Herein after the term "Site" shall refer to all six areas.

SECTION II

Stewardship Permit
Authorized Activities

Connecticut Resources Recovery Authority
Wallingford Landfill

EPA ID No. CTD991288960
Permit No. DEP/HWM/CS-148-004

CRRA Wallingford Landfill
Pent Road
Wallingford, CT

EPA ID No. CTD991288960
Permit No. DEP/HWM/CS-148-004

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Section II – Authorized Activities

SECTION II
AUTHORIZED ACTIVITIES

A. POST-CLOSURE REQUIREMENTS

1. Post-Closure Care Plan. The Permittee shall perform post-closure care of the Site in accordance with the Post-Closure Plan, included in Connecticut Resources Recovery Authority's ("CRRA") application (included in Appendix A-1 of this permit). Herein after, the "approved Post-Closure Plan".

2. Modifications to Approved Post-Closure Plan. The Permittee shall submit a written notification or request for a permit modification to authorize a change in the approved Post-Closure Plan in accordance with the applicable requirements of 40 CFR 124 and 40 CFR 270. The written notification or request must include a copy of the amended post-closure plan for the Commissioner's review and written approval.

3. Copy of Post-Closure Plan. The Permittee shall ensure that a copy of the approved Post-Closure Plan is kept at CRRA Headquarters or at an alternate location acceptable to the Commissioner, until the Post-Closure Care Period has been completed and certified in accordance with the requirements of this permit.

4. Completion of Post-Closure Period.
   (a) The Permittee shall notify the Commissioner in writing two (2) calendar years prior to the anticipated end date of the Post-Closure Period for the Ash Residue Area.

   (b) Within sixty (60) calendar days after the completion of the Post-Closure Period, the Permittee shall submit to the Commissioner by registered mail, a certification signed by both the Permittee and by an independent registered professional engineer stating that the post-closure care for the Site, was performed in accordance with the specifications in the approved Post-Closure Plan. Documentation supporting the independent, registered professional engineer's certification shall be furnished to the Commissioner upon request.

5. Ecological Risk Assessment. Pursuant to RCSA Section 22a-133k-1 et.seq., the Permittee has prepared and submitted for the Commissioner's review and written approval a Screening Level Ecological Risk Assessment dated April 6, 2009 evaluating the potential for ecological receptors to be exposed to contaminants. The Permittee is required to conduct additional studies and activities, as identified by the Commissioner in writing, pursuant to the Commissioner's review of the Screening Level Ecological Risk Assessment, and as necessary to further evaluate site-related environmental risk or identify and implement appropriate remedial activities.

6. Notification Requirements for Newly Discovered Releases.
   (a) The Permittee shall notify the Commissioner in writing of any newly discovered release(s) of solid or hazardous waste or hazardous waste constituents discovered during the course of post-closure care, groundwater monitoring, environmental audits, or other means, within fifteen (15) calendar days of the date of discovery.

(b) If the Commissioner determines that further investigation of the Site is needed, the Permittee shall be required to prepare a plan for further investigation within sixty (60) calendar days of notification by the Commissioner.

7. Inspections.

(a) The Permittee shall inspect the Facility for malfunctions, deterioration, and discharges, which may lead to any release of hazardous or solid wastes. The Permittee shall remedy any deterioration which an inspection reveals, to ensure that the problem does not lead to an environmental hazard. Where a hazard is imminent or has already occurred, remedial action shall be taken immediately.

(b) The Permittee shall ensure inspections are performed on a quarterly basis by a registered professional engineer. Such inspections shall include, but not be limited to:

(i) Odors and dust control;
(ii) Conditions of the access road;
(iii) Erosion, settling, subsidence or other events that may affect the grading;
(iv) Integrity of the final cover soils and vegetation;
(v) Drainage control;
(vi) Leachate seeps; and
(vii) Groundwater monitoring systems.

(c) The Permittee shall record all inspections in an inspection log. The inspection logs shall include: the date and time of the inspection, the name of the inspector and company or affiliation, a notation of the observations made, and the date and nature of any repairs. Such records shall be kept for at least three (3) years from the date of inspection or for longer if a more stringent condition applies, and maintained in either an electronic format with a copy available to the Commissioner upon request, or a written copy in the Facility's Operating Record.

8. Maintenance of Final Cover. The Permittee shall ensure that the final cover for the Site is properly maintained and repaired when necessary in accordance with the approved Post-Closure Plan. Proper maintenance shall include, but not be limited to, ensuring that:

(a) Established vegetation is cut to the proper length to ensure that the root depth is less than six (6) inches for the Metal Hydroxide Sludge Cell Area.

(b) For areas in which erosion has occurred, the lost material shall be replaced and the area re-seeded; and

(c) Obstructions to the drainage structures are removed and properly disposed.

9. Landfill Decomposition Gas Monitoring.

(a) The Permittee shall conduct gas monitoring in accordance with the requirements of 40 CFR 258.23 and the "Wallingford Landfill Gas Monitoring Plan" revised October 2004 and approved by the Department on December 10, 2004. Herein after, the "approved Gas Monitoring Plan".

(b) The Permittee shall ensure that, at a minimum, in addition to the soil gas probes along the east and north sides of the Site, the methane concentrations within on-site structures are monitored as specified in the approved Gas Monitoring Plan.

(c) The Permittee shall perform soil gas monitoring on a quarterly basis as specified in the approved Gas Monitoring Plan, unless otherwise approved in writing by the Commissioner.

(d) The Permittee shall submit a written notification or request for a permit modification to authorize a change in the approved Wallingford Landfill Gas Monitoring Plan in accordance with the applicable requirements of 40 CFR 124 and 40 CFR 270. The written notification or request must include a copy of the amended Wallingford Landfill Gas Monitoring Plan for the Commissioner's review and written approval

10. Public Participation Plan. The Permittee shall develop and implement a Public Participation Plan. Such plan shall, at a minimum, include provisions for:
(a) A public notice prior to the start of or completion of remedial activities or the completion of post-closure care inclusive of landfill decomposition gas monitoring, and surface and groundwater monitoring at the Site or area affected by the Site or any portion thereof consistent with Condition No. II.A.11. of this permit and the requirements of CGS Section 22a-134(i);
(b) The submittal of a copy of such notice to the Commissioner ten (10) calendar days prior to the date of the publication; and
(c) The submittal of a written summary of all comments received and responses thirty (30) calendar days after the end of the comment period.

The Commissioner shall review the summary of the comments and the Permittee's responses and shall either: adopt the responses, adopt the responses with modifications, or reject the responses and prepare a response to each comment.

In the event of substantial changes in the remedial or post-closure care approach, the Commissioner may require an additional opportunity for public comment with respect to such changes.

11. Public Notice Requirements. The Permittee shall provide public notice of any proposed remediation and the Commissioner's tentative determination that remediation and/or post-closure care inclusive of landfill gas decomposition and groundwater monitoring is complete. Each public notice must provide a forty-five (45) calendar day comment period and a public information meeting no earlier than thirty (30) calendar days from the date of the public notice and no later than forty five (45) calendar days after the public notice.
(a) Prior to the commencement of any proposed remedial action, the public notice shall summarize the investigations undertaken, the results of the investigations, clearly identify the proposed remedial activities, and include an address and telephone number for a contact person. The Permittee shall:
(i) Publish the notice in a newspaper having substantial circulation in the municipality in which the Site or the affected area is located;

(ii) Broadcast the notice on a radio station during the high volume listening times on the same day the notice is published;

(iii) Provide a copy of the notice to the Chief Elected Official and the Director of Health of the municipality where the Site or affected area is located;

(iv) Provide a copy of the notice to the owner or operator of the Site (if the Permittee is not the Site owner or operator) and to all persons on the Facility mailing list maintained pursuant to 40 CFR 124.10(c)(1)(ix); and

(v) Erect and maintain a sign at least six (6) feet by four (4) feet for at least thirty (30) calendar days in a legible condition at the Site, clearly visible from the public highway and including the words "ENVIRONMENTAL CLEAN_UP IN PROGRESS AT THIS SITE. FOR FURTHER INFORMATION CONTACT:", and a telephone number at which any interested person may obtain additional information about the remediation.

(b) Prior to the Commissioner's final determination that remediation and/or post-closure care inclusive of landfill gas decomposition and groundwater monitoring is complete, the Permittee shall:

(i) Publish the notice in a newspaper having substantial circulation in the municipality in which the Site or the affected area is located;

(ii) Broadcast the notice on a radio station during the high volume listening times on the same day the notice is published;

(iii) Provide a copy of the notice to the owner or operator of the Site (if the Permittee is not the Site owner or operator) and to all persons on the Facility mailing list maintained pursuant to 40 CFR 124.10(c)(1)(ix); and

(iv) Include a summary of the basis for the Commissioner's determination.

(c) Upon the completion of the public comment period the Commissioner shall make a final determination. If the final determination is that post-closure care and/or remediation is complete then the Stewardship Permit will be terminated and a Certificate of Completion will be issued.

B. WATER QUALITY MONITORING REQUIREMENTS

1. Water Quality Monitoring Plan. The Permittee shall perform surface and groundwater monitoring in accordance with the Groundwater Monitoring Plan, included in the CRRA's application (included in Appendix B-1 of this permit) until it is superseded by the approval of a revised Groundwater Monitoring Plan submitted pursuant to Condition No. II.B.2. of this permit. Herein after, the "approved Water Quality Monitoring Plan".

   The Permittee shall complete all surface and groundwater monitoring in accordance with the approved Water Quality Monitoring Plan.

2. Revised Water Quality Monitoring Plan. The Permittee shall prepare and submit for the Commissioner's review and written approval a revised water quality monitoring plan for the site that incorporates the requirements under CGS Section 22a-430 and the Groundwater Discharge Permit (Permit No. LF0000028) issued March 4, 1988 and modified on July 18, 1989.

3. Modifications to Approved Water Quality Monitoring Plan. The Permittee shall submit a written notification or request for a permit modification to authorize a change in the approved Water Quality Monitoring Plan in accordance with the applicable requirements of 40 CFR 124 and 270. The written notification or request must include a copy of the amended water quality monitoring plan for the Commissioner's review and written approval.

4. Copy of Approved Water Quality Monitoring Plan. The Permittee shall ensure that a copy of the approved Water Quality Monitoring Plan is kept at CRRA Headquarters or at an alternate location acceptable to the Commissioner, until the surface and groundwater monitoring has been completed and certified in accordance with the requirements of this permit.

5. Proper Operation and Maintenance. The Permittee shall at all times properly operate and maintain all monitoring wells which are installed or used by the Permittee to achieve compliance with this permit. Proper maintenance, at a minimum, includes inspections to detect existing and potential problems and adequate funding to maintain proper conditions and repair any problems at the Site.

6. Quality Assurance Project Plan. The Permittee shall prepare and submit for the Commissioner's review and written approval a Quality Assurance Project plan ("QAPP"), prepared in accordance with the document titled: *Quality Assurance Guidance for Conducting Brownfields Site Assessments*, US Environmental Protection Agency OSWER Directive No. 9230.0-83P, and incorporating Connecticut's Reasonable Confidence Protocols. The Permittee shall ensure that the data is of sufficient quality to make decisions regarding investigation, potential remediation, and monitoring of the Site.

7. Monitoring Frequency. The Permittee shall perform surface and groundwater monitoring on a semi-annual basis. Upon the Commissioner's approval of the Ecological Risk Assessment, the Permitte may re-evaluate the Water Quality Monitoring Plan. If such re-evaluation results in proposed changes to the approved Water Quality Monitoring Plan, the Permittee shall submit written notification of such changes and an amended plan for the Commissioner's review and written approval.

8. Future Corrective Action. If the Commissioner determines that the surface and groundwater monitoring data indicates the soil and/or groundwater remediation was not effective, the Permittee shall within one hundred eighty (180) days of the Commissioner's notice, submit for the Commissioner's review and written approval, a plan for additional soil and groundwater characterization and establishment of a corrective action program consistent with the objectives of 40 CFR 264.100.

9. Completion of Water Quality Monitoring. Within sixty (60) calendar days after the completion of surface and groundwater monitoring (i.e the end of the Post-Closure Period), the Permittee shall submit to the Commissioner by registered mail, a certification signed by both the Permittee and by an independent registered professional engineer stating that the surface and groundwater monitoring for the Site was performed in accordance with the specifications in the approved Water Quality Monitoring Plan. Documentation supporting the independent, registered professional engineer's certification shall be furnished to the Commissioner upon request.

C. FINANCIAL RESPONSIBILITY

1. The Permittee shall submit for the Commissioner's review and written approval written estimate(s) of the current cost for performing post-closure care inclusive of surface and groundwater monitoring and landfill decomposition gas monitoring of the Site for the Post-Closure Period and in accordance with the requirements of this permit. The Permittee shall ensure that such written estimates are prepared in accordance with the methodology specified in RCSA 22a-449(c)-104 incorporating 40 CFR 264.142(a) and 40 CFR 264.144(a), as applicable. Note: a fifteen percent (15%) contingency shall be applied to the estimates for unforeseeable elements or events which may increase the cost of performing corrective action.

2. Upon request by the Permittee, the Commissioner may approve periodic reductions in the amount of financial assurance commensurate with the completion of corrective action activities. Such request shall include a revised cost estimate and demonstration of completed work activities which equates to at least a fifteen percent (15%) reduction in the estimate costs.

3. The Permittee shall maintain such financial assurances in effect until the Commissioner notifies the Permittee in writing that it is no longer required to maintain such a mechanism for financial assurances as provided for in Condition No II.C.4. of this permit.

4. Within sixty (60) calendar days after receiving the certifications, submitted pursuant to Condition Nos. II.A.4. and II.B.8., that post-closure care inclusive of surface and groundwater monitoring and landfill decomposition gas monitoring of the Site has been completed in accordance with the approved Post-Closure Plan, approved Water Quality Monitoring Plan and/or approved Gas Monitoring Plan, the Commissioner will notify the Permittee in writing that it is no longer required to maintain financial assurance for post-closure care of the Site, unless the Commissioner has reason to believe that post-closure care has not been performed and/or completed in accordance with the approved Post-Closure Plan, approved Water Quality Monitoring Plan, and/or approved Gas Monitoring Plan. The Commissioner shall provide the Permittee with a detailed written statement of any such reason(s) to believe that post-closure care has not been performed and/or completed in accordance with the approved Post-Closure Plan, approved Water Quality Monitoring Plan, and/or approved Gas Monitoring Plan.

5. If the Permittee fails to perform any of the terms or conditions of this permit, the financial assurance shall be available to the Commissioner to perform such terms or conditions of this permit provided that, prior to drawing upon any mechanism(s) for financial assurance, the Commissioner shall notify Permittee, in writing, of the alleged failure to perform and provide Permittee with a reasonable period of not less than fifteen (15) calendar days in which to remedy the alleged non-performance.

D. MISCELLANEOUS

1. The Permittee shall not operate the Facility in any manner that stores, treats, or disposes of hazardous or solid wastes or in any way manages hazardous or solid wastes other than hazardous or solid wastes that may be generated during Facility maintenance, authorized closure and/or corrective action activities. Such waste shall be managed in accordance with all applicable regulations. The Permittee shall comply with all applicable requirements of RCSA Section 22a-449(c)-102 incorporating 40 CFR Part 262 "Standards Applicable to Generators of Hazardous Waste".

PART 1: POST-CLOSURE PLAN

1. GENERAL REQUIREMENTS

1.1 Location and Number of Post Closure Plans

There are three Post-Closure Plans for the Wallingford Landfill. The Plans are assigned to the following at the indicated locations:

Peter W. Egan
Director of Environmental Affairs and Development
Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, CT 06103

The Honorable William W. Dickinson, Jr.
Mayor, Town of Wallingford
Wallingford Town Hall
45 South Main Street, Room 310
Wallingford, CT 06492

Connecticut Resources Recovery Authority Environmental Files
Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, CT 06103

1.2 Identification and Location of Person Responsible for Facility During Post-Closure Period

The person responsible for the Wallingford Landfill during the post-closure period is Peter W. Egan, CRRA Director of Environmental Affairs and Development. Mr. Egan is located as follows:

Peter W. Egan
Director of Environmental Affairs and Development
Connecticut Resources Recovery Authority
100 Constitution Plaza, 6th Floor
Hartford, CT 06103
(860) 757-7725

1.3 Procedures for Updating Post-Closure Plan

When updates of the Post-Closure Plan are required, CRRA prepares the update and distributes copies to the appropriate personnel at CRRA Headquarters and the Town of Wallingford. In addition, copies of the updated Plan are forwarded to the United States Environmental Protection Agency ("USEPA") and the Connecticut Department of Environmental Protection ("CTDEP").

1.4 General Description of the Closed Facility

The Wallingford Landfill is located along the Quinnipiac River, approximately one mile north of the Wallingford/North Haven town line. The site is bounded on the north by the Wallingford Sewage Treatment Plant, on the east by South Cherry Street and Pent Road, on the south by the Former Barberino Property, which is now vacant land that is owned by CRRA, and on the west by the Quinnipiac River. Industrial land use occurs on the east side of South Cherry Street and Pent Road. The site location is shown in Exhibit 1.

The Town of Wallingford began to operate the Wallingford Landfill on an 82-acre parcel in the early 1950s. A mix of solid waste streams was disposed at the Landfill. The streams were segregated and disposed in specific areas of the Landfill. The Town of Wallingford holds the solid waste permit to operate the Landfill, which it operated until September 1988. Beginning in September 1988, the Connecticut Resources Recovery Authority ("CRRA") operated the Landfill under lease from the Town of Wallingford. Pursuant to the lease between CRRA and the Town, CRRA is responsible for the post-closure maintenance and monitoring of the Landfill.

The Wallingford Landfill is closed and is no longer accepting waste. The final area of the Landfill was closed in 2002 and Connecticut Department of Environmental Protection ("CTDEP") certification of closure was received in February 2005.

In 2001, in order to gain control of a leachate plume from the Wallingford Landfill, CRRA acquired the "Barberino" property located south of the Landfill. The Former Barberino Property is now an integral part of the Wallingford Landfill; however, no landfilling activities have ever been conducted on the Former Barberino Property.

1.4:1 Wallingford Landfill

The 82-acre Wallingford Landfill is divided into five parts as follows:

(a) The 36-acre Municipal Solid Waste (MSW) Area located in the south central portion of the landfill. The Town of Wallingford began to dispose of MSW in this part of the Landfill in the early 1950's. The MSW Area stopped receiving waste in 1988 and was closed by the Town;

(b) The 6-acre Emergency Bypass/Non-Processibles Area southwest of and adjacent to the MSW Area. CRRA submitted an application to CTDEP in December 1988 for expansion of the MSW Area to allow non-processibles and emergency by-pass of solid waste from the CRRA Wallingford Waste-to-Energy Facility. CTDEP approved the permit application for the Emergency By-Pass/Non-Processibles Area and operations began in the expansion area in July 1989. This Area stopped receiving waste in 2000 and was closed with grading of the final cover completed in July 2002.

(c) The 7.5-acre Ash Residue Area, which is located in the southern section of the property approximately 150 feet northwest of the intersection of Pent Road and Oliver Creek Road. On June 30,

1988, CRRA submitted a permit application entitled "Application for Permit Modification, Wallingford Landfill, Wallingford, Connecticut" for the disposal of ash residue. Subsequently, following completion of initial site preparations, a proposed final grading plan for the ash landfill was submitted to CTDEP in February 1989. The as-built plan was approved by CTDEP and a permit for ash disposal was issued on February 24, 1989. The last load of ash residue was unloaded in this area on November 2, 1995 and grading of the final cover was completed in November 1996.

(d) The 5-acre Former Bulky Waste Area located in the northeastern portion of the property near the intersection of Ball and South Cherry Streets. In 1975, the Town of Wallingford submitted maps, letters and plans to the CTDEP for the bulky waste disposal area to be constructed and operated on the landfill property. The CTDEP permitted the bulky waste landfill on December 12, 1975. The bulky waste disposal area was closed and given final cover in June 1992.

(e) The closed, 3-acre Metal Hydroxide Sludge Cell Area (EPA wastes F006 and K063), used by local industries. The Metal Hydroxide Sludge Cell Area consists of approximately three acres along the northern flank of the Emergency By-Pass/Non-Processibles Area and was certified closed on May 6, 1986. Between November 1980 and January 1984, 4 million pounds of waste were deposited in the metal hydroxide sludge cell; 3.8 million pounds are listed as EPA waste number K063 "Sludge from Lime Treatment of Spent Pickling Liquor from Steel Finishing Operations." The remaining 0.2 million pounds are classified as F006, "Wastewater Treatment Sludge from Electro Plating Operations." The Town of Wallingford's RCRA permit application for the cell indicated that annual quantities of sludge would be 120 tons for F006 and 1,400 tons for K063. Town records indicate that only about 28 percent of the estimated F006 and 42 percent of the estimated K063 were filled. A non-hazardous metal hydroxide cell is located adjacent to the RCRA cell and operated prior to 1980. The non-hazardous cell accepted similar materials as the RCRA cell, however, RCRA permitting was not required at the time of construction. The non-hazardous cell is also inactive and no longer accepts waste materials. As with the other cells it too has been capped.

Prior to September 4, 1988, the Town of Wallingford operated the landfill. Since that time, CRRA has leased the landfill property from the Town of Wallingford consistent with the start-up operations of the Wallingford Waste-to-Energy Facility, converting municipal solid waste to ash residue. From September 1988 to November 1995, ash residue as well as MSW by-pass/non-processible wastes were placed at the landfill. Since 2000, there have been no daily activities at the landfill except for the operation by the Town of a resident drop off area and bulky waste transfer station at the front (eastern portion) of the landfill.

In 2004, while preparing closure documentation for the Emergency By-Pass/Non-Processible Area, CRRA discovered that some previously closed portions of the Landfill were never recorded as such in the local land records. To finalize closure of the areas not recorded in the land records, CRRA prepared a closure plan showing all existing closed areas of the Landfill along with closure notices for the historic MSW Area, the Bulky Waste Area, the Emergency By-Pass/Non-Processibles Area and the Ash Residue Area. In January 2005, CRRA recorded all remaining required closure documentation for these areas of the Wallingford Landfill in the Town of Wallingford land records and subsequently provided certified copies of such to CTDEP for its review and written approval. On February 23, 2005, CTDEP issued a letter approving final closure of all previously uncertified areas of the Wallingford Landfill.

1.4.2 Former Barberino Property

CRRA purchased the Former Barberino Property in 2001 in order to gain the right of possession of the southern edge of the leachate plume from the Wallingford Landfill. CRRA conducted a Phase I Environmental Site Assessment (ESA) at the Former Barberino Property prior to purchasing the site. Prior to CRRA's purchase, the Former Barberino Property was developed with a trailer park and residential dwellings. The trailer park was developed on-site sometime between 1951 and 1957. Aerial photographs indicate the presence of agricultural and residential structures by 1934. The 1914 USGS 7.5 minute New Haven Quadrangle topographic map indicates that the site was undeveloped and the property was not used for industrial purposes at that time.

The Phase I ESA identified two possible waste-oil dumping areas on the northeast corner of the site. Surficial soil sampling was completed which indicated the presence of poly-chlorinated biphenyl's (PCBs) (specifically Arochlor 1260), total petroleum hydrocarbons (TPH), polynuclear aromatic hydrocarbons and some metals in the soil. Excavation activities were completed on two separate occasions in 2001. Residual PCB concentrations are less than 1 milligram per kilogram (mg/Kg). Additionally, samples of the wastewater and sludge collected from the trailer park septic tank indicated the presence of low concentrations of total pollutant metals, volatile organic compounds, semi-volatile organic compounds and TPH. PCBs were not identified in the either sample collected from the septic tank. All structures on the 45-acre lot have been demolished and the site is currently vacant.

1.5 Documentation of Facility Relative to 100-Year Flood Plan Level

In accordance with the Flood Insurance Study of the Town of Wallingford, dated June, 1990, by the Federal Emergency Management Agency ("FEMA"), the Metal Hydroxide Sludge Area located at an approximate elevation of 52 feet NGVD, is above the 100-year flood elevation of 28 feet NGVD.

1.6 Description of Groundwater Monitoring Activities and Frequencies

Pursuant to the Groundwater Discharge Permit (LF0000028) for the Wallingford Landfill, quarterly monitoring of groundwater is required. Pursuant to the lease be-

tween the Town of Wallingford and CRRA for the Landfill, the quarterly groundwater monitoring is CRRA's responsibility. In addition to submitting quarterly reports of the monitoring, CRRA also is required to submit an annual report summarizing the results of the quarterly monitoring.

The monitoring program requires the quarterly sampling of 22 monitoring wells on site. Of the 22 wells, 15 are screened in the upper aquifer and 7 are screened in the lower aquifer. The wells are analyzed for 33 parameters.

The current off-site monitoring includes 10 shallow wells, 3 deep wells and 10 surface water locations, all on the Former Barberino Property. A quarterly monitoring program was initiated in April 1993 at the Former Barberino Property. Since FY 2005, surface water monitoring has been conducted semi-annually (April and October).

CRRA uses a consultant to conduct the groundwater monitoring. The consultant currently used is HRP Associates. On a periodic basis, CRRA conducts a competitive bid process to select a consultant to conduct the groundwater monitoring.

1.7 Description of the Maintenance Activities and Frequencies for the Final Containment Structures and Facility Monitoring Equipment

There are no containment structures or facility monitoring equipment at the Wallingford Landfill.

1.8 Documentation of the Notice on the Deed

Documentation on the land records that the land was used to manage hazardous wastes and that the area has restricted use in included in Exhibit 2.

2. INSPECTION PROCEDURES AND SCHEDULE

2.1 Inspection Procedures

2.1.1 Quarterly Landfill Inspections

Pursuant to the Solid Waste Permit (148-4-L) for the Wallingford Landfill, quarterly landfill inspections by a professional engineer are required. Pursuant to the lease between the Town of Wallingford and CRRA for the Landfill, the quarterly landfill inspections are CRRA's responsibility.

The inspections cover subject such as

- odors,
- dust control,
- final cover soils, vegetation and grading,
- drainage and erosion control,
- leachate seeps,
- access roads
- groundwater monitoring, and
- gas collection and monitoring.

The landfill inspections are conducted by David Bodendorf, CRRA's Senior Environmental Engineer and reports of the inspections are submitted to CTDEP.

2.1.2 Quarterly Gas Monitoring

Also pursuant to the Solid Waste Permit, the lease and the Wallingford Landfill Gas Monitoring Plan (revised October 2004 and approved by CTDEP December 10, 2004), CRRA is responsible for conducting quarterly gas (methane) monitoring of the Landfill. The monitoring includes all on-site structures and a series of soil gas monitoring probes on the east and north sides of the Landfill.

CRRA uses a consultant to conduct the quarterly gas monitoring. The consultant currently used is Malcolm Pirnie, Inc. The quarterly reports of the gas monitoring are submitted to CTDEP.

2.1.3 Quarterly Groundwater Monitoring

Pursuant to the Groundwater Discharge Permit (LF0000028) for the Wallingford Landfill, quarterly monitoring of groundwater is required. Pursuant to the lease between the Town of Wallingford and CRRA for the Landfill, the quarterly groundwater monitoring is CRRA's responsibility. In addition to submitting quarterly reports of the monitoring, CRRA also is required to submit an annual report summarizing the results of the quarterly monitoring. The Groundwater Monitoring Plan for the Wallingford provides a detailed description of the subject.

The monitoring program requires the quarterly sampling of 22 monitoring wells on site. Of the 22 wells, 15 are screened in the upper aquifer and 7 are screened in the lower aquifer. The wells are analyzed for 33 parameters.

The current off-site monitoring includes 10 shallow wells, 3 deep wells and 10 surface water locations, all on the Former Barberino Property. A quarterly monitoring program was initiated in early 1993 at the Former Barberino Property. Since FY 2005, surface water monitoring has been conducted semi-annually (April and October).

CRRA uses a consultant to conduct the groundwater monitoring. The consultant currently used is HRP Associates. On a periodic basis, CRRA conducts a competitive bid process to select a consultant to conduct the groundwater monitoring.

2.1.4 Stormwater Semi-Annual Comprehensive Site Compliance Evaluations and Annual Monitoring

Pursuant to the "General Permit for the Discharge of Stormwater Associated with Industrial Activities" (Issued 10/01/02, Modified 07/15/03 and Re-Issued 10/02/08), as registered by Permit No. GSI000499 for the Wallingford Landfill, Comprehensive Site Compliance Evaluations are performed semi-annually and stormwater samples are taken and analyzed on an annual basis. The results of the annual sampling and analysis are reported to CTDEP. During the

Comprehensive Site Compliance Evaluations, there must be visual inspection of potential sources of pollution for evidence of, or the potential for, pollutants entering the stormwater drainage system. Structural stormwater management measures, erosion control measures and other structural pollution prevention measures must be observed to ensure that they are operating correctly.

The Comprehensive Site Compliance Evaluations are conducted by David Bodendorf, CRRA's Senior Environmental Engineer or Christopher Shepard, CRRA's Environmental Engineer.

2.2 Statement as to Where the Inspection Schedule and Logs Will Be Kept

The inspection schedule and logs will be kept at CRRA Headquarters, 100 Constitution Plaza, 6th Floor, Hartford, Connecticut 06103.

3. ADDITIONAL REQUIREMENTS FOR LANDFILLS

3.1 List of Hazardous Wastes Placed in Each Cell

Hazardous wastes were placed in the Metal Hydroxide Sludge Area/Cell. Between November 1980 and January 1984, 4 million pounds of waste were deposited in the Area/Cell; 3.8 million pounds are listed as EPA waste number K063 "Sludge from Lime Treatment of Spent Pickling Liquor from Steel Finishing Operations." The remaining 0.2 million pounds are classified as F006, "Wastewater Treatment Sludge from Electro Plating Operations."

3.2 Description of the System for Controlling Run-On and Run-Off

There are two point source stormwater discharge points from the Wallingford Landfill. The two discharge points are sampled annually. One is a 6-inch PVC pipe outlet from the stone trench of a passive gas venting system. This trench also collects overland flow of stormwater from a portion of the MSW and the Bulky Waste Areas at the north end of the site. The second discharge point is from a swale around the Ash Residue Area. This swale discharges to the west, beyond the south side of the Phase III sub-area where the stormwater combines with runoff from the southern portion of the Emergency Bypass/Non-Processible Area.

During FY 2001, the open, deep swales of the passive gas venting systems were replaced with vertical stone trenches equipped with piped exhausts. As part of this project, a piped storm drainage system was installed to manage stormwater in this area of the Landfill.

An evaluation of the volume and flow rate of surface infiltration was conducted to determine the drainage requirements for the final landform for those areas of the Landfill with synthetic covers, including the Metal Hydroxide Sludge Area/Cell. Based on this evaluation, the measures that were proposed and approved for both surface and subsurface drainage will handle all surface infiltration with a significant factor of safety.

3.3 Procedures for Maintenance and Repair of the Final Cover

The primary maintenance activity of the final cover required at those portions of the Wallingford Landfill that have a synthetic cover (i.e., the Metal Hydroxide Sludge Area/Cell), consists of cutting the vegetative growth in order to limit the root depth to less than six inches and eliminate any observed obstructions of drainage facilities.

Repair of the cover typically consists of replacement of any lost material and re-seeding. Drainage facility repair consists of removal and proper disposal of any obstruction objects. If the obstruction object is silt or soil material that has eroded off the surface of the Landfill, the material is used to repair the erosional feature and the area is re-seeded. However, since the last area of the Landfill that was closed was closed over seven years ago, the vegetative cover is mature and there are seldom erosional features that require repair.

3.4 Procedures for Monitoring and Maintenance of the Leak Detection System

There is leak detection system at the Wallingford Landfill.

3.5 Procedures for Operation of the Leachate Collection/Removal System

There is no leachate collection/removal system at the Wallingford Landfill.

3.6 Procedures for Maintenance of the Groundwater Monitoring System

The groundwater monitoring system is inspected during the quarterly landfill inspections and the periodic groundwater monitoring events (see Section 2.1.3 and the Groundwater Monitoring Plan for additional details). During these both of these types of inspections, any damage to the wells or impairment to the drainage system is noted and corrective action is immediately undertaken if warranted.

3.7 Procedures for Ensuring Compliance with 40 CFR 264 Subpart F

A quarterly groundwater monitoring program has been instituted at the Wallingford Landfill (see Section 2.1.3 and the Groundwater Monitoring Plan for additional details). The groundwater monitoring program will continue throughout the post-closure period. If any statistically significant change to the groundwater is detected, appropriate action will be taken immediately.

3.8 Procedures for Preventing Erosion of the Final Cap Due to Run-On and Run-Off

The final grading of the Landfill was designed with a three percent slope on the top surface and side slope of 3:1, which is conducive to preventing excess run-on and promoting run-off. In addition, the Landfill is designed so that run-off from disposal areas is collected in swales and diverted away from disposal areas to the two point source stormwater discharge points for the Wallingford Landfill (see Section 3.2) from which it is discharged to off-site wetlands/surface waters.

The final cap has an established vegetative cover to protect it from erosion. The condition of the vegetation is one of the items monitored during the quarterly landfill

inspections (see Section 2.1.1). In the event the inspector identifies the presence of deep-rooting plants or bare spots, corrective action is immediately taken. In addition, vehicular access is prohibited from the top of the Landfill disposal areas, including the Metal Hydroxide Sludge Area/Cell.

3.9 Procedures for the Protection and Maintenance of Benchmarks

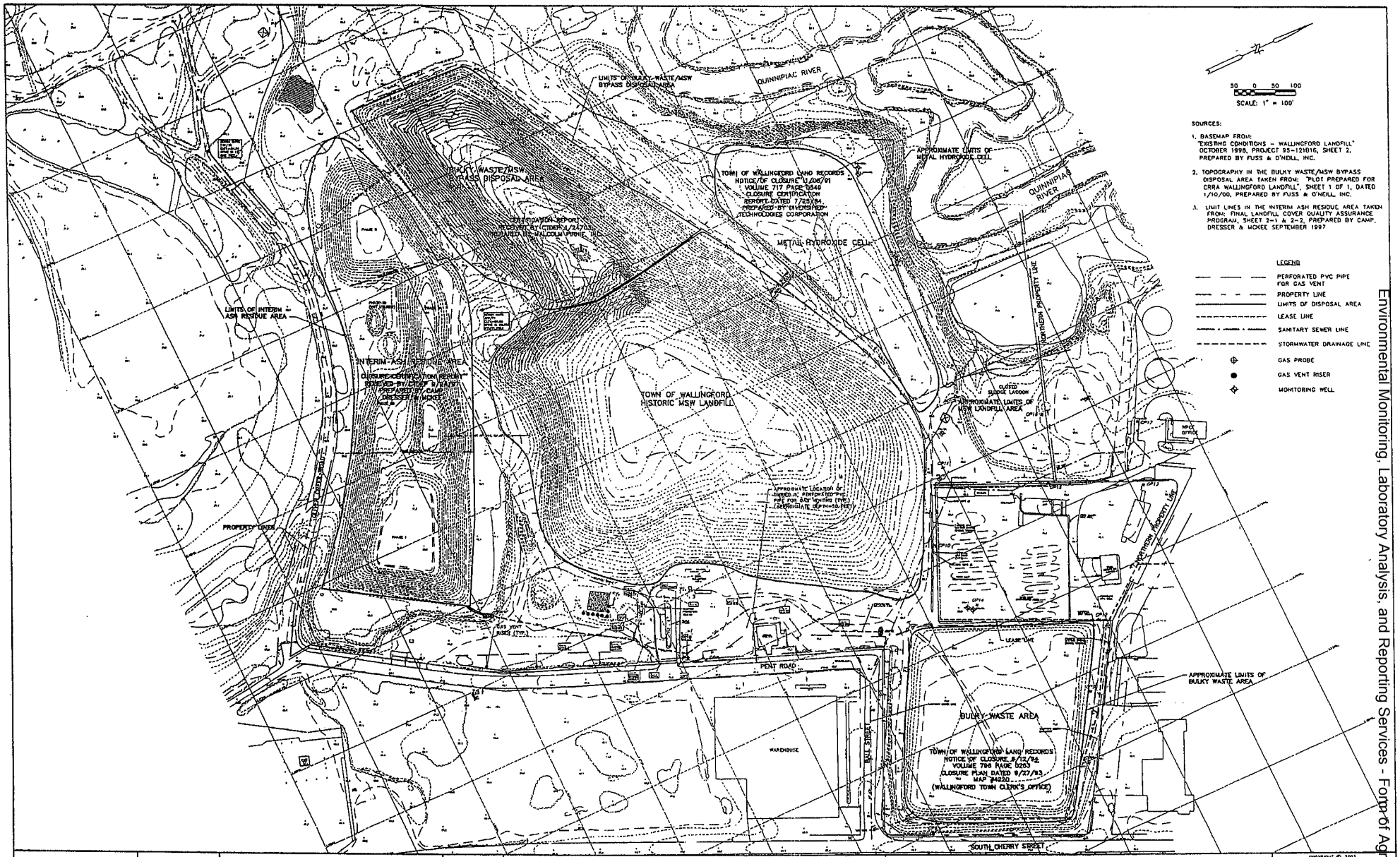
During the quarterly landfill inspections (see Section 2.1.1), the benchmarks are checked to assure that no damage to the permanently surveyed benchmarks has occurred. In the event that a problem is noted, corrective action will be undertaken as soon as possible.

3.10 Procedures for Inspecting Weekly and After Storms

The Wallingford Landfill, including the Metal Hydroxide Sludge Area/Cell, is subject to four different types of inspections/monitoring, including landfill inspections on a quarterly basis (see Section 2.1.1), quarterly landfill gas monitoring (see Section 2.1.2), quarterly groundwater monitoring (see Section 2.1.3) and semi-annual stormwater evaluations (see Section 2.1.4). Based on the results of all of these types on inspections over the past ten years and on the maturity of the cover systems for all of the landfill units, CRRA does not consider it necessary to conduct weekly inspections of the Metal Hydroxide Sludge Area/Cell or inspections of the Area/Cell after storms.

EXHIBIT 1
TO
POST-CLOSURE PLAN

SITE PLAN



MALCOLM PIRNIE

NO.	BY	DATE	REVISIONS
1	MVT	11/19/02	ADDED PROPOSED GAS PROBES AND TEST PITS.
2	MVT	3/25/03	REVISED MANHOLES AND LEASE LINE.
			MODIFIED DRAWING

DES VED
DWN MVT
CHD MB

CONNECTICUT RESOURCES RECOVERY AUTHORITY (CRRA)
WALLINGFORD, CONNECTICUT

WALLINGFORD LANDFILL
CLOSURE MAP

DATE OCTOBER 2003

SHEET 1 OF 1

CAD REF. NO. 1878-070

EXHIBIT 2
TO
POST CLOSURE PLAN

DOCUMENTATION OF THE NOTICE ON THE DEED

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CERTIFICATION

This is to certify that a Notice has been recorded on the Land Records of the Town of Wallingford that a certain specified portion of the Wallingford Landfill has been used for the management of hazardous waste and that as a consequence thereof the future use of said portion is restricted. The Notice was filed in the Grantor Index in the name of Town of Wallingford. In addition, in accordance with the requirements of 40 CFR 264.119(b)(1), a notation was placed on the original deeds of the Wallingford Landfill premises directing title searchers to the Volume and Page of said Notice.

Dated at Wallingford, Connecticut this 8th day of November, 1991.

RECEIVED FOR RECORD NOV 15 1991
AT 4 H 42 M P M AND RECORDED BY
Kathryn J. Wall TOWN CLERK

THE TOWN OF WALLINGFORD

BY: William W. Dickinson Jr.
William W. Dickinson, Jr.
Its Mayor
Duly Authorized

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N O T I C E

The TOWN OF WALLINGFORD hereby gives notice pursuant to the provisions of 40 CFR 264.119 of the Federal Regulations as follows:

1. That from on or about November, 1980 to on or about January, 1984, a certain part of the Wallingford Landfill ("Landfill") was used for the management of hazardous wastes;

2. That as a consequence thereof the future use of such part of the Landfill is restricted pursuant to the provisions of 40 CFR Subpart G of the Federal Regulations;

3. That the said part of the Landfill is particularly described on a map entitled "Closure of the Regulated and Unregulated Metal Hydroxide Site," dated July 25, 1984, prepared by Diversified Technologies Corporation, which map is on file in the office of the Town Clerk and to which reference may be had;

4. That the Town of Wallingford has filed said map and a record of the type, location and quantity of hazardous wastes disposed of within said site with the Wallingford Planning and Zoning Commission and with the Regional Administrator of the United States Environmental Protection Agency; and

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5. That the derivative deeds for the premisees known as the Wallingford Landfill are V 114 P 425; V 239 P 517; V 280 P 531; V 284 P 64; V 292 P 588; V 337 P 506; and V 338 P 364; all on file in the Office of the Town Clerk, Town of Wallingford.

Dated at Wallingford, Connecticut this 8th day of November, 1991.

RECEIVED FOR RECORD NOV 15 1991
AT 4 H 40 M P M AND RECORDED BY
Kathryn J Wall TOWN CLERK

THE TOWN OF WALLINGFORD

BY: William W Dickinson Jr
William W. Dickinson, Jr.
Its Mayor

SECTION III

Stewardship Permit
Compliance Schedule

Connecticut Resources Recovery Authority
Wallingford Landfill

EPA ID No. CTD991288960
Permit No. DEP/HWM/CS-148-004

SECTION III
COMPLIANCE SCHEDULE

A. All conditions set forth in Section III.A. of this permit shall be conducted within thirty (30) calendar days of the effective date of this permit. Otherwise, the Permittee may be subject to formal enforcement actions.

1. Consultant. The Permittee shall designate and assign an environmental compliance expert who may be a full-time employee of the Permitee, and/or retain one or more qualified consultants, acceptable to the Commissioner to prepare the documents required by Condition Nos. II.B.2. and III.C.2. and shall, by that date, notify the Commissioner in writing of the identity of such environmental compliance expert and/or consultants. The Permitee shall assign such environmental compliance expert and/or retain such qualified consultant, acceptable to the Commissioner, until Condition Nos. II.B.2. and III.C.1. of this permit is fully complied with. The Permittee shall notify the Commissioner in writing of the identity of any environmental compliance expert or consultant other than the one approved by the Commissioner, within ten (10) days after assigning or retaining any environmental compliance expert or consultant for the purpose of addressing the actions required by this permit. The Permittee shall submit to the Commissioner a description of the assigned environmental compliance expert's and/or consultant's education, experience and training which is relevant to the work required by this permit within ten (10) days after a request for such a description has been made. Nothing in this paragraph shall preclude the Commissioner from finding a previously acceptable environmental compliance expert or consultant unacceptable.

2. Cost Estimate. The Permittee shall submit for the Commissioner's review and written approval the cost estimate for performing post-closure care inclusive of surface and groundwater monitoring and landfill decomposition gas monitoring in accordance with the requirements of Condition No. II.C.1. of this permit.

B. All conditions set forth in Section III.B. of this permit shall be conducted within one hundred twenty (120) calendar days of the effective date of this permit. Otherwise, the Permittee may be subject to formal enforcement actions.

1. Public Participation Plan. The Permittee shall submit for the Commissioner's review and written approval the public participation plan prepared in accordance with the requirements of Condition No. II.A.10. of this permit.

C. All conditions set forth in Section III.C. of this permit, shall be conducted within one hundred eighty (180) calendar days of the effective date of this permit. Otherwise, the Permittee may be subject to formal enforcement actions.

1. Revised Water Quality Monitoring Plan. The Permittee shall submit for the Commissioner's review and written approval a revised Water Quality Monitoring Plan prepared in accordance with the requirements of Condition No. II.B.2. of this permit.

2. Quality Assurance Project Plan. The Permittee shall submit for the Commissioner's review and written approval a Quality Assurance Project Plan prepared in accordance with the requirements of Condition No. II.B.6. of this permit.

D. All conditions set forth in Section III.D. of this permit, shall be conducted within three hundred sixty five (365) calendar days of the effective date of this permit. Otherwise, the Permittee may be subject to formal enforcement actions.

1. Progress Reports. The Permittee shall submit a progress report for the Commissioner's review describing the actions which the Permittee has taken to date to comply with the terms and conditions of this permit and annually thereafter until all actions required by this Permit have been completed to the Commissioner's satisfaction.

E. All conditions set forth in Section III.E. of this permit, shall be conducted within the timeframe specified. Otherwise, the Permittee may be subject to formal enforcement actions.

1. Financial Assurance. Within one hundred fifty (150) calendar days of the Commissioner's written approval of the cost estimate submitted in accordance with Condition No. III.A.2. of this permit, the Permittee shall establish and continually maintain financial assurance using one or more financial assurance mechanisms prescribed by the Commissioner for post-closure care inclusive of surface and groundwater monitoring and landfill decomposition gas monitoring of the Site or areas affected by the Site.

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

IN THE MATTER OF : *APPLICATION NO.: 200901180*

STEWARDSHIP PERMIT FOR
CT RESOURCES RECOVERY AUTHORITY
WALLINGFORD LANDFILL : *SEPTEMBER 16, 2009*

FINAL DECISION

I have reviewed the hearing officer's Proposed Final Decision in this matter, which adopts the agreed draft decision of the parties. This agreement, is attached to his decision as Attachment A. I affirm his decision and accept his recommendation to issue the requested permit, a copy of which is attached to the Proposed Final Decision as Attachment B.

Amey W. Marrella

Amey W. Marrella, Commissioner

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PERMIT

Connecticut Resource Recovery Authority
179 Allyn Street
Hartford, Conn. 06103

Re: DEP/WPC-148-113
Facility: Wallingford Landfill
Town of Wallingford
Quinnipiac River Watershed

Attention: Dennis J. Martin

This PERMIT modification is issued in accordance with Section 22a-430 of the Connecticut General Statutes, as amended. The Commissioner of Environmental Protection (hereinafter "the Commissioner") has found that the discharge from the operation and maintenance of the Wallingford Sanitary Landfill, as described below, will not cause pollution of the waters of the state.

Description - Sanitary Landfill Leachate (Code 305002)
Discharge Location - Groundwaters in the watershed of the Quinnipiac River (Basin Code 5200)
Present/Future Water Quality Standard - GB/GC
Average Daily Discharge Rate - 27,300 gallons per day
Disposal Area Design Size 42.6 (acres)

The Commissioner, acting under Section 22a-430, hereby permits the Connecticut Resource Recovery Authority to operate and maintain a sanitary landfill with the resultant leachate discharged to the groundwaters of the state in accordance with the following conditions:

1) The sanitary landfill shall be operated and maintained in accordance with plans and specifications approved by the Assistant Director of Water Compliance on February 16, 1988. The sanitary landfill site consists of an 82 - acre parcel of land adjacent to the east bank of the Quinnipiac River and south of the Wallingford Sewage Treatment Plant. This permit allows landfilling to occur in a 32.1 - acre parcel as shown on plate No. 2, Landfill Expansion Study, Wallingford Landfill, Proposed Horizontal Expansion prepared by Fuss & O'Neill, Consulting Engineers, Revised November 4, 1987, in a 3.1 acre parcel as shown on the plan entitled As-Built Plan, By-Pass Area, Southwest Corner-Wallingford Landfill prepared by Fuss & O'Neill, Inc. dated February 1989 and in a 7.4 acre ash/residue disposal area as shown on plate No. 3, Groundwater Monitoring Program, Wallingford Landfill, prepared by Fuss & O'Neill, Consulting Engineers, dated December, 1988.

2) The groundwaters shall be monitored as follows:

A) Groundwater monitoring shall be conducted at the following locations; as identified on plate No. 3 of the report entitled "Groundwater Monitoring Program", prepared by Fuss & O'Neill, Inc. revised December, 1988.

W-1:	Well #1	(up-gradient)
W-2:	Well #1A	(up-gradient)
W-3:	Well #1B	
W-4:	Well #2A	
W-5:	Well #3	
W-6:	Well #3A	
W-7:	Well #4	
W-8:	Well #5	
W-9:	Well #9	
W-10:	Well #9A	
W-11:	Well #10	MW4R
W-12:	Well #10A	MW101R
W-13:	Well #11	
W-14:	Well #11A	
W-15:	Well #100	
W-16:	Well #100A	
W-17:	Well #101	
W-18:	Well #101A	
W-19:	Well #12	
W-20:	Well #12A	
W-21:	Well #13	
W-22:	Well #200	
W-23:	LC-1	
W-24:	DX-1	

B) Groundwater samples from each of the monitoring locations described in paragraph 2(A) shall be collected quarterly (four times per year) and analyzed for the following parameters:

1.	Water level	(706)	
2.	Total Dissolved Solids (TDS)	(613)	
3.	Total Suspended Solids (TSS)	(614)	
4.	Alkalinity	(602)	
5.	COD	(303)	
6.	BOD-20 day	(302)	
7.	Dissolved Iron	(134)	
8.	Dissolved Manganese	(139)	
9.	Ammonia	(201)	
10.	Nitrate	(204)	
11.	Chloride	(502)	
12.	Sodium	(620)	
13.	Hardness	(606)	
14.	T.O.C.	(306)	
15.	pH	(609)	
16.	Conductivity	(611)	
17.	Volatile Organics (EPA Methods 8010 & 8020	(892)	
18.	Aluminum	(101)	
19.	Arsenic	(103)	
20.	Barium	(104)	
21.	Cadmium	(140)	
22.	Chromium-Total	(109)	
23.	Copper	(111)	
24.	Potassium	(142)	
25.	Lead	(136)	
26.	Magnesium	(135)	
27.	Mercury	(117)	
28.	Nickel	(119)	
29.	Vanadium	(126)	
30.	Selenium	(120)	
31.	Silver	(122)	
32.	Sulfates	(507)	
33.	Zinc	(138)	

In addition at groundwater monitoring locations W-1, W-5, W-22, W-23, and W-24 groundwater samples shall be analyzed for the following parameters annually (in the July Sampling period):

34. Total Dioxins and Furans (EPA Method 8280) (985)
35. PCB's (582)

C) Following measurement of the water level in the monitoring wells, the wells shall be pumped immediately prior to sampling until at least three (3) times the volume of water standing in the well is evacuated to insure that a representative sample of the groundwater is obtained. All ground water samples shall be filtered in the field to remove excess suspended solids except for those samples to be analyzed for volatile organic compounds. The samples shall be analyzed by a laboratory certified by the State Health Department. All samples shall be placed in the appropriate container for the test to be conducted.

3) The pollutant load from the landfill, as defined by the Ultimate Oxygen Demand (U.O.D.) of the leachate will be added to and accounted for, in the NPDES Permit No. CT0100617 for the Town of Wallingford Water Pollution Control Facility after installation of facilities as required by Order No. 1262. The Connecticut Resource Recovery Authority shall be considered in compliance with this permit for Ultimate Oxygen Demand if the following condition is met:

Total average monthly quantity of ultimate oxygen demand as given in paragraph 2A of NPDES Permit No. CT0100617 is less than or equal to the summation of average monthly quantity ultimate oxygen demand for discharge Serial No. 001 - NPDES Permit No. CT0100617 (Wallingford Water Pollution Control Facility) and the Average Monthly Quantity Ultimate Oxygen Demand for the Wallingford Landfill, DEP/WPC-148-113 as calculated in paragraph 5 below.

A) The average monthly quantity of U.O.D. shall be computed as kg/day. The U.O.D. is defined as: U.O.D. = BOD_{20} + 4.6 (NH_3). BOD_{20} = Biochemical Oxygen Demand (20 Day); NH_3 = Ammonia. The Wallingford Landfill pollutant load is defined by the Ultimate Oxygen Demand (U.O.D.) of the leachate. The U.O.D. of the leachate shall be determined as the arithmetic average of the U.O.D. for monitor wells W-3, W-5, W-10A, W-100 and W-101 using computed groundwater flow at the time of sampling as follows:

1. The July monitoring data shall be used to compute the average monthly U.O.D. to determine compliance for the June 1 to September 30 period.

2. The October monitoring data shall be used to compute the average monthly U.O.D. to determine compliance for the October 1 to October 30 period.

3. The January monitoring data shall be used to compute the average monthly U.O.D. to determine compliance for the November 1 to March 31 period.

4. The April monitoring data shall be used to compute the average monthly U.O.D. to determine compliance for the April 1 to May 31 period.

5. The U.O.D. analysis of Wells 3, 5, 10A, 100, and 101 shall be averaged based on the relative transmissivities at the individual wells in accordance with the formula below:

$$E_{average} = E_3(T/T_{Total}) + \ldots\ldots + E_{101}(T_{101}/T_{Total})$$

Where $E_{average}$ = average chemical quality
E_3 = quality at Well 3
T_3 = transmissivity at Well 3
T_{Total} = transmissivity at pertinent observation wells (i.e. wells 3, 5, 10A, 100 and 101)

6. Transmissivities (see Analyses of Wallingford Landfill Ultimate Oxygen Demand, Dec. 1987 and letter dated Jan. 14, 1988, prepared by Fuss & O'Neill)

Well	Transmissivity
3	146
5	327
10A	86
100	105
101	118

7. Leachate Flow Determination

   a. Flow to River (Q) = K (permeability) x A(area of downgradient system) x i(hydraulic gradient)

   b. However, A area = b(saturated thickness) x W(width of plume)

   c. Therefore Q = K x b x W x i or TWI

   d. W = 1970' (effective): T = defined in F above.

4) The sampling, testing and pollutant load determination performed according to paragraphs 2 and 3 shall be done according to this schedule:

SAMPLES SHALL BE COLLECTED IN THE FOLLOWING MONTHS	RESULTS SHALL BE REPORTED BY:
JANUARY	FEBRUARY 28
APRIL	MAY 31
JULY	AUGUST 31
OCTOBER	NOVEMBER 30

The results shall be reported to the Director of the Solid Waste Unit and Director of the Water Compliance Unit of the Department of Environmental Protection at 122 Washington Street, Hartford, Connecticut 06106. A copy of the sampling results shall also be sent to the Health Officer of the Town of Wallingford. A copy of the pollutant load determination shall also be sent to the Environmental Coordinator of the Town of Wallingford.

5) Beginning on December 31, 1988 and annually on that date thereafter, a summary report of the monitoring program shall be submitted for the review and approval of the Commissioner. The report shall include an assessment of changing trends in leachate concentration or constituents, impact on adjacent surface waters, changes in plume location, changes in the ground water levels, and potential impact on nearby water supply wells.

6) The zone of influence of the discharge which is hereby permitted is restricted to property owned by the Town of Wallingford. The zone of influence is defined as the soil and groundwater area needed to allow the treatment of leachate by soils and mixing of leachate with groundwaters and in which the groundwaters could be in violation of pertinent Federal and State drinking water standards.

7) Prior to disposing of ash/residue in any section of the 7.4 acre interim ash disposal area other than the shaded area shown on the as-built plan of the ash residue disposal area submitted on December 9, 1988, by Fuss & O'Neill, Inc., submit verification that the site has been prepared in accordance with the plans and specifications approved by the Assistant Director of Water Compliance on February 16, 1988.

This PERMIT requires the payment of an annual compliance determination fee as set forth in Section 22a-430-7 of the Regulations of State Agencies.

This PERMIT modification is issued under Section 22a-430 and shall expire on March 4, 1993.

The Commissioner reserves the right to make appropriate revisions to the permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the Clean Water Act or the Connecticut General Statutes. The PERMIT as modified or reissued under this paragraph may also contain any other requirements of the Clean Water Act or Connecticut General Statutes then applicable.

This permit shall be subject to the following sections of the Regulations of Connecticut State Agencies which are hereby incorporated into this permit:

Section 22a-430-3 General Conditions

(a)Definitions
(b)General
(c)Inspection and Entry
(d)Effect of a Permit
(e)Duty
(f)Proper Operation and Maintenance
(g)Sludge Disposal
(h)Duty to Mitigate

(i)Facility Modifications; Notification
(j)Monitoring, Records and Reporting Requirements
(k)Bypass
(l)Conditions Applicable to POTWs
(m)Effluent Limitation Violations (Upsets)
(n)Enforcement
(o)Resource Conservation
(p)Spill Prevention and Control
(q)Instrumentation, Alarms, Flow Recorders
(r)Equalization

22a-430-4 Procedures and Criteria

(a)Duty to Apply
(b)Duty to Reapply
(c)Application Requirements
(d)Preliminary Review
(e)Tentative Determination
(f)Draft Permits, Fact Sheets
(g)Public Notice, Notice of Hearing
(h)Public Comments
(i)Final Determination
(j)Public Hearings
(k)Submission of Plans and Specifications. Approval.
(l)Establishing Effluent Limitations and Conditions
(m)Case by Case Determinations
(n)Permit Issuance or Renewal
(o)Permit Transfer
(p)Permit Revocation, Denial or Modification
(q)Variances
(r)Secondary Treatment Requirements
(s)Treatment Requirements for Metals and Cyanide
(t)Discharges to POTWs - Prohibitions

Your attention is especially drawn to the notification requirements of subsection (i)(2), (i)(3), (j)(6), (j)(9)(C), (j)(11)(C), (D), (E), and (F), (k)(3) and (4) and (l)(2) of Section 22a-430-3.

Entered as a Permit modification of the Commissioner of the Department of Environmental Protection on the 18th day of July, 1989.

John W. Anderson
Deputy Commissioner

APPLICATION NO. 84-273
PERMIT NO. LF0000028
ORDER NO. WC9051M

Water Quality Monitoring Plan
Stewardship Permit DEP/HWM/CS-148-004

CRRA- Wallingford Landfill
EPA ID No. CTD991288960
Pent Road
Wallingford, Connecticut

March 12, 2010

Prepared For:

Connecticut Resources Recovery Authority
100 Constitution Plaza
Hartford, Connecticut 06106

Prepared By:

HRP Associates, Inc
197 Scott Swamp Road
Farmington, Connecticut

Revised 3/12/10

REVISED WATER QUALITY MONITORING PLAN

Connecticut Resources Recovery Authority
RCRA Stewardship Permit

Wallingford Landfill
(Permit #DEP/HWM/CS-148-004)

INTRODUCTION

This revised plan is being submitted by the Connecticut Resources Recovery Authority (CRRA) pursuant to Condition II.B.2 of the Stewardship Permit that was issued on September 16, 2009. The following sections discuss the background of the project and proposed sampling plan, including the deletion of several wells and analytes across the site.

1.0 GENERAL INFORMATION

On March 8, 1989, the Hazardous Material Management Unit of the Connecticut Department of Environmental Protection (CTDEP) approved the document entitled "Groundwater Monitoring Program, Wallingford Landfill, Wallingford, Connecticut" dated August 1988 subsequently amended by letter on January 5, 1989. The proposed Groundwater Monitoring Program presented an integrated monitoring program for the Metal Hydroxide Sludge disposal area and the historic Municipal Solid Waste (MSW) disposal portion of the Wallingford Landfill. The letter amendment of January 5, 1989 incorporated the groundwater monitoring requirements for the Ash Residue Disposal Area into the groundwater monitoring program for the Landfill.

The groundwater monitoring program for the Wallingford Landfill, as approved in the CTDEP's letter dated March 8, 1989, was also incorporated into a modification of Groundwater Discharge Permit LF0000028 that was issued on July 18, 1989. The modification to the Groundwater Discharge Permit was issued to authorize the discharge of leachate to on-site groundwater from the Ash Residue Disposal Area and from the Non-Processible/MSW By-Pass Disposal Area. Groundwater Discharge Permit LF0000028 expired on March 4, 1993; however, CRRA did submit a timely application for renewal that was not acted upon by CTDEP. It is CRRA's understanding that a renewed Groundwater Discharge Permit is not required for the Wallingford Landfill because the landfill is no longer operational and all solid waste disposal units have been closed.

Environmental monitoring on the Former Barberino Property began in April 1993 to assess potential impacts to the groundwater and surface water from the Wallingford Landfill. CRRA purchased the Former Barberino Property in September 2001 and has continued to sample the groundwater and surface water, even though this monitoring is not required by permit.

Groundwater monitoring activities at the Wallingford Landfill and Former Barberino Property were conducted on a quarterly basis until October 2009. Per the Water Quality Monitoring Plan, included in the Stewardship Permit, the sampling frequency has been reduced from quarterly to semi-annually beginning in 2010. This reduction in sampling frequency is justified by the fact that all landfill units have been closed for at least six years, and that the groundwater plume is well-defined and appears to be stable.

1.1 Site Setting

The Wallingford Landfill is located along the Quinnipiac River, approximately 1.0 mile north of the Wallingford/North Haven town line. The site is bounded on the north by the Wallingford Sewage Treatment Plant and the Town of Wallingford Recycling and Leaf Composting Area, on the east by South Cherry Street and Pent Road, on the south by the Former Barberino Property, which is now vacant land that is owned by CRRA, and on the west by the Quinnipiac River. Cytec Industries (formerly American Cyanamid) is located to the south of the former Barberino property. Industrial land use occurs on the east side of South Cherry Street and Pent Road. The site location is on Figure 1.

Topography on the landfill property ranges from 20 feet above mean sea level (amsl), on the west portion of the site, along the Quinnipiac River to approximately 120 feet amsl at the peak of the landfill. From this point, the land slopes down to the east to an elevation of approximately 40 feet amsl along Pent Road.

1.2 Site Activities

The Town of Wallingford began operation of the 82-acre landfill in the early 1950s and continued operations at the site until September 1988. Beginning in September 1988, CRRA operated the Landfill under a lease agreement with the Town of Wallingford. A mix of solid waste streams was segregated and disposed in specific areas of the Landfill. Pursuant to the lease between CRRA and the Town, CRRA is responsible for the post-closure maintenance and monitoring of the Landfill.

Wallingford Landfill is closed and is no longer accepting waste. The final disposal area of the Landfill was closed in 2002 and CTDEP certification of closure was received in February 2005.

In order to gain control of a leachate plume from the Wallingford Landfill, CRRA acquired the “Barberino” property, located south of the Landfill, in 2001. The Former Barberino Property is therefore part of the “Site,” as defined in the Stewardship Permit that has been issued to CRRA by CTDEP, but it is specifically excluded from the definition of “Facility” because no hazardous waste or solid waste treatment, storage or disposal activities have ever been conducted on the Former Barberino Property.

1.2.1 Wallingford Landfill

The 82-acre Wallingford Landfill is divided into the following five parts, all of which are depicted on the Site Plan in Figure 2.

(a) The 36-acre MSW Area is located in the south central portion of the landfill. The Town of Wallingford began to dispose of MSW in this part of the Landfill in the early 1950’s. The MSW Area stopped receiving waste in 1988 and was closed by the Town.

(b) The 6-acre Emergency Bypass/Non-Processibles Area is located southwest of and adjacent to the MSW Area. CRRA submitted an application to CTDEP in December 1988 for expansion of the MSW Area to allow for disposal of non-processibles and emergency by-pass of

solid waste from the CRRA Wallingford Waste-to-Energy Facility. CTDEP approved the permit application for the Emergency By-Pass/Non-Processibles Area and operations began in the expansion area in July 1989. This Area stopped receiving waste in 2000 and was closed, with grading of the final cover, in July 2002.

(c) The 7.5-acre Ash Residue Area is located in the southern section of the property, approximately 150 feet northwest of the intersection of Pent Road and Oliver Creek Road. On June 30, 1988, CRRA submitted a permit application entitled "Application for Permit Modification, Wallingford Landfill, Wallingford, Connecticut" for the disposal of ash residue generated by the Wallingford Waste-to-Energy Facility. The proposed final grading plan for the ash landfill was submitted to CTDEP in February 1989. The as-built plan was approved by CTDEP and a permit for ash disposal was issued on February 24, 1989. The last load of ash residue was unloaded in this area on November 2, 1995 and grading of the final cover was completed in November 1996.

(d) The 5-acre Former Bulky Waste Area is located in the northeastern portion of the property near the intersection of Ball and South Cherry Streets. In 1975, the Town of Wallingford submitted maps, letters and plans to the CTDEP for the bulky waste disposal area to be constructed and operated on the landfill property. The CTDEP permitted the bulky waste landfill on December 12, 1975. The bulky waste disposal area was closed and given final cover in June 1992.

(e) The closed, 3-acre Metal Hydroxide Sludge Cell Area was used by local industries and received EPA wastes F006 and K063. The Metal Hydroxide Sludge Cell Area consists of approximately 3 acres to the west-northwest of the Emergency By-Pass/Non-Processibles Area and was certified closed on May 6, 1986. Between November 1980 and January 1984, 4 million pounds of waste were deposited in the metal hydroxide sludge cell; 3.8 million pounds are listed as EPA waste number K063 "Sludge from Lime Treatment of Spent Pickling Liquor from Steel Finishing Operations." The remaining 0.2 million pounds are classified as F006, "Wastewater Treatment Sludge from Electro Plating Operations." The Town of Wallingford's RCRA permit application for the cell indicated that annual quantities of sludge would be 120 tons for F006 and 1,400 tons for K063. Town records indicate that only about 28 percent of the estimated F006 and 42 percent of the estimated K063 were filled. A non-hazardous metal hydroxide cell is located adjacent to the RCRA cell and operated prior to 1980. The non-hazardous cell accepted similar materials as the RCRA cell, however, RCRA permitting was not required at the time of construction. The non-hazardous cell is also inactive and no longer accepts waste materials. As with the other cells it too has been capped.

Prior to September 4, 1988, the Town of Wallingford operated the landfill. Since that time, CRRA has leased the landfill property from the Town of Wallingford consistent with the start-up operations of the Wallingford Waste-to-Energy Facility, converting municipal solid waste to ash residue. From September 1988 to November 1995, ash residue as well as solid waste residue

was placed at the landfill. Since 2000, there have been no daily activities at the landfill except for the operation by the Town of a resident drop off area and bulky waste transfer station at the front of the landfill.

1.2.2 Former Barberino Property

CRRA purchased the Former Barberino Property, in 2001, in order to gain the right of possession of the southern edge of the leachate plume from the Wallingford Landfill. Prior to CRRA's purchase, the Former Barberino Property was developed with a trailer park and residential dwellings which were served by an on-site domestic well and septic system. The trailer park was developed on-site between 1951 and 1957. Aerial photographs indicate the presence of agricultural and residential structures by 1934. The 1914 USGS 7.5 minute New Haven Quadrangle topographic map indicates that the site was undeveloped and the property was not used for industrial purposes at that time. All structures on the 45-acre lot have been demolished and the parcel is currently vacant.

No landfill activities have been conducted on the Former Barberino Property.

1.3 Geology and Soils

Bedrock underlying the landfill property is mapped by CTDEP as the Triassic age New Haven Arkose. The New Haven Arkose consists of arkosic conglomerate and sandstone and medium to fine grained feldspathic sandstone and siltstone. Bedding is predominantly lenticular and cut and fill stratification is common in the coarser grained rocks. Interstratified with the sedimentary rocks may be igneous bedrock units. The igneous bedrock is composed of basaltic lava flows with related dikes and sills. Based on the USGS bedrock surface map, bedrock underlying the Site is located approximately 125 to 250 feet below grade and forms a north-south trending valley, surficially, the Quinnipiac River Valley.

Surficial deposits (Stone et al., 1992) underlying the southwestern portion of the Wallingford Landfill property are mapped primarily as terrace alluvium. Terrace alluvium consists of thin deposits of gravel and sand that cap river terraces in the Quinnipiac Valley. The same source reports surficial geology in the northwestern portion of the Wallingford Landfill property, as well as the former Barberino property, as alluvium. This material is generally comprised of gravel, sand, silt, and clay occurring as thin covers on valley floors. Surficial geology in the northeastern portion of the landfill property is described as artificial fill.

According to the National Resource Conservation Service (NRCS) soil map, the area which the Site occupies consists primarily of altered soils. Dumps (Map Unit 302), Udorthents and Urban land (Map Units 306, 307 and 308) make up approximately 47 percent of the Site. These soils are well drained to excessively drained soils that have been disturbed by cutting or filling and are typically covered by buildings and pavement. In the case of the Landfill, the soils have been altered by landfill activities including closure. Approximately 28 percent of the Site consists of soils derived from alluvial material and are within the active Quinnipiac River floodplain – Pootatuck series (Map Unit 102) and Rippowam series (Map Unit 103). Pootatuck soils are moderately well drained while Rippowam soils are poorly drained.

Finally, approximately 25 percent of the Site consists of soils derived from glaciofluvial material and not subject to regular flooding by the Quinnipiac River. These soils include the very poorly drained Timakwa and Natchaug series (Map Unit 17), the moderately drained Deerfield series (Map Unit 24A), and the excessively drained Penwood series (Map Unit 35).

1.4 Hydrogeology

The site is underlain by two overburden aquifers (the upper aquifer and the lower aquifer) separated by a thick varved clay layer. Groundwater flow from the upper aquifer is towards the Quinnipiac River (Figure 3), while flow in the lower aquifer is towards a pumping industrial well located along the southern boundary of the Former Barberino Property (Figure 4). This well is actively operated by Cytec Industries.

The groundwater beneath the Site is mapped by the CTDEP (1993) as "GC" (Figure 5). Groundwater classified as "GC" has been authorized to receive a discharge with approval from CTDEP in accordance with all regulatory requirements. Groundwater in this area is not suitable for human consumption and can be used for assimilation of the authorized discharges (CTDEP, 2002).

The groundwater to the north and south of the Site is mapped by the CTDEP (1993) as "GB." Such groundwater may not be suitable for human consumption without treatment due to waste discharges, spills, leaks of chemicals, or land use impacts (CTDEP, 2002).

One circular area along the southern border of the Former Barberino Property is mapped by the CTDEP (1993) as "GAA" ("GAA" groundwater is defined by CTDEP (2002) as groundwater that is tributary to a public water-supply reservoir and is suitable for drinking without treatment). This area is associated with an abandoned groundwater supply well previously used as a supply well for the trailer park (Henry's Trailer Park) located on the Former Barberino Property. This well was abandoned in accordance with applicable State of Connecticut regulations on November 14, 2002. It is CRRA's understanding that CTDEP is currently considering re-classification of this "GAA" area to "GB," given the site setting and the fact that the domestic supply well has been properly abandoned.

1.5 Surface Water

The nearest surface water bodies are the Quinnipiac River, an intermittent unnamed stream located on the former Barberino Property, and wetlands associated with these two watercourses. The Quinnipiac River flows in a southerly direction along the western side of the Site. The unnamed stream flows in a southwesterly direction off of the former Barberino Property and is a tributary to the Quinnipiac River.

The Quinnipiac River is mapped by the CTDEP (1993) as "C/B". Such inland surface waters are known or presumed to not be suitable for the following designated uses: recreational use, fish and wildlife habitat, agricultural and industrial supply, and other legitimate uses (CTDEP, 2002).

The unnamed tributary is mapped by the CTDEP (1993) as "A." Inland surface waters classified by the CTDEP as "A" are those known or presumed to meet Class "A"

Water Quality Criteria that support the following designated uses: potential drinking water supply; fish and wildlife habitat; recreational use; agricultural, industrial supply and other legitimate uses, including navigation (CTDEP, 2002).

2.0 GROUNDWATER MONITORING SYSTEM

2.1 Summary of Sampling Locations

A total of twenty-one monitoring groundwater monitoring wells are included in the groundwater monitoring system. Located within the upper aquifer, these wells range from approximately 10 to 70 feet deep. Thirteen of the monitoring wells are located on the Wallingford Landfill property, while 8 monitoring wells are located on the Former Barberino Property.

The upper aquifer wells are designated as:

MW-1A	MW-9	MW-100
MW-2A	MW-10	MW-101R
MW-3	MW-10A	MW-200
MW-4R	MW-11	CEE-3 through CEE-10
MW-5	MW-13	

Monitoring well completion details are summarized in Table 1. The locations of the wells are presented on Figures 2 and 3.

2.2 Locations in Relation to Landfill Disposal Areas

The hydrogeologic locations of the twenty-five upper aquifer monitoring wells with respect to the five landfill disposal areas are as follows:

(a) Upgradient of MSW Area:

- MW-13

(b) Downgradient of the Former Bulky Waste Area:

- MW-1A
- MW-2A

(c) Downgradient of the MSW Area and upgradient of the Metal Hydroxide Sludge Cell Area:

- MW-4R

(d) Downgradient of the MSW Area and the Metal Hydroxide Sludge Cell Area:

- MW-11
- MW-100
- MW-101R

(e) Downgradient of the MSW Area and the Emergency Bypass/Non-Processibles Area:

- MW-3

(f) Downgradient of the Emergency Bypass/Non-Processibles Area and the Ash Residue Area:

- MW-5
- MW-9
- MW-10
- MW-10A
- MW-200

(g) Downgradient of the Ash Residue Area (on the Former Barberino Property):

- CEE-3
- CEE-4
- CEE-7
- CEE-8
- CEE-10

(h) Sidegradient of the Ash Residue Area (on the Former Barberino Property):

- CEE-5
- CEE-6
- CEE-9

2.3 Upper and Lower Aquifer Characteristics

Groundwater flow in the upper aquifer is generally to the west/northwest at the eastern and western ends of the landfill and west/southwest beneath the former Barberino property.

As part of the groundwater discharge permitting process for the Ash Residue Disposal Area, the transmissivity (T) of five monitoring wells along the western portion of the landfill were estimated based upon their saturated thicknesses and soil descriptions from their boring logs. These T values have been utilized to estimate quarterly Ultimate Oxygen Demand (UOD) loading to the Quinnipiac River attributable to the discharge of leachate-impacted groundwater to the river. The transmissivity of each of the five wells was estimated to be:

Well	Transmissivity (T), ft^2/day
MW-3	146
MW-5	327
MW-10A	86
MW-100	105
MW-101R	118

During the summer of 1989, Fuss & O'Neill, Inc. completed a "First Determination of the Extent, Degree and Migration of the Landfill Generated Leachate Plume, Wallingford Landfill." This "first determination" was completed for CRRA as a condition of the CTDEP's March 8, 1989 approval of the "Groundwater Monitoring Program" for the Wallingford Landfill. Part of scope of work for the "first determination" included slug testing at certain paired monitoring wells to estimate hydraulic conductivity (K), T, and storativity (S) at each well. The results of the slug testing, as summarized in the September 1992 application for the renewal of the groundwater discharge permit, were as follows:

Well	Aquifer	Hydraulic Conductivity (K), ft/day	Transmissivity (T), ft^2/day	Storativity (S), unitless
MW-9	Upper	0.8	28	0.000004
MW-9A	*Lower*	*0.001*	*0.01*	*0.0043*
MW-11	Upper	0.3	15	0.004
MW-11A	*Lower*	*0.015*	*0.20*	*4.3×10^{-10}*
MW-100	Upper	19.5	58	1×10^{-8}
MW-100A	*Lower*	*0.53*	*4.24*	*0.010*
MW-101	Upper	0.7	22	1×10^{-8}
MW-101A	*Lower*	*2.4*	*9.60*	*1×10^{-7}*
Mean	Upper	5.3	31	
Mean	*Lower*	*0.7*	*3.5*	

As summarized above, hydraulic conductivity and transmissivity in the lower aquifer are generally an order of magnitude less than in the upper aquifer.

Subsurface stratigraphy of the upper aquifer along the landfill property line with the Former Barberino Property was further evaluated by Camp, Dresser & McKee (CDM) during a plume control evaluation performed in 1994. The following excerpt from the CDM Second Quarter 1998 CRRA/Wallingford Landfill Monitoring Report describes their findings:

> *During this study, CDM identified four soil strata of interest (designated Stratum I, II, III and IV) within the unconsolidated layers underlying the landfill. Stratum I consists of either glacial outwash or river alluvium which can generally be classified as widely to narrowly graded fine to coarse sand, with varying amounts of fine gravel and silt. The horizontal hydraulic conductivity value calculated for this stratum was 1×10^{-3} cm/sec. Stratum II can generally be classified as narrowly graded, non-plastic silt to sandy silt. The horizontal hydraulic conductivity values calculated for Stratum II ranged from 5×10^{-2} cm/sec to 2×10^{-3} cm/sec. Stratum III can generally be classified as narrowly graded, non-plastic silt to sandy silt with occasional thin clay lenses. The horizontal hydraulic conductivity value calculated for this stratum was 9×10^{-4} cm/sec. Stratum IV can generally be classified as a varved silt and clay deposit. The horizontal hydraulic conductivity values calculated for this stratum ranged from 1 x l0^{-3} cm/sec to 7×10^{-5} cm/sec. Below this lies an approximately 80 ft thick layer of varved clay, followed by a pervious lower overburden aquifer before finding bedrock.*

3.0 SAMPLING AND ANALYSIS PROCEDURES

The following sections describe the sample collection, preservation and analytical procedures which will be employed to ensure that all collected samples are representative of the sampled media.

3.1 Determination of Groundwater Elevations

A synoptic groundwater measurement will be completed on the first day of each semi-annual monitoring event to determine the groundwater elevations at all sampled monitoring wells prior to any purging and sampling activities. At each monitoring well, the depth to groundwater and the depth to the bottom of the will be measured with either an electronic water level indicator or a steel tape accurate to within 0.01 feet. All measurements will be made relative to the surveyed data point at each well, i.e., the top of the PVC casing (Table 1).

The water level measuring device will be decontaminated between monitoring wells to ensure that cross-contamination does not occur. The decontamination will consist of rinsing the measuring device with deionized water.

3.2 Sample Collection Methods

A total of twenty-one monitoring groundwater monitoring wells are included in the groundwater monitoring system. Located within the upper aquifer, these wells range from approximately 10 to 70 feet deep. Thirteen of the monitoring wells are located on the Wallingford Landfill property, while 8 monitoring wells are located on the Former Barberino Property. All monitoring parameters are listed in Table 2. A well-by-well breakdown is included on Table 3.

The following sample collection procedures will be followed during each sampling event.

- A “Monitoring Well Field Data Sheet” which summarizes well elevation data, well condition, purge data, observed water yield and quality comments, sampling data, and results of measured field parameters will be completed for each well sampled.

- Measure depth to water, depth to bottom, depth of sample using decontaminated equipment referenced to top of PVC (or casing) and record on the data sheet.

- Provide an in-line meter (or equivalent methodology which mitigates exposure to the atmosphere) to concurrently measure pH, temperature, specific conductivity, dissolved oxygen (DO), and redox potential (RP), as applicable, during purging. Also, provide a device to measure turbidity. A minimum of four readings of each parameter shall be taken and recorded during purging.

- Perform purging using dedicated bladder pump equipment [at three of the sampled wells] or a peristaltic pump with dedicated tubing [at 23 of the sampled wells] at low flow rates, not taking the first reading until at least one pump volume plus one discharge tubing volume have passed. The purged groundwater may be discharged to the ground. Sampling personnel are to monitor the

drawdown in the wells and ensure that the drawdown is maintained at less than or equal to 0.3 feet during the entire purging and sampling process. If drawdown cannot be maintained at the lowest achievable flow rate, it should be noted as such on the Monitoring Well Field Data Sheets. Wells shall be purged at a rate of less than or equal to 300 ml/minute. Field parameter readings shall be recorded at a minimum of 5 minute intervals, until turbidity is stabilized such that three consecutive reading are within 10% of each other for readings >10 NTU, or readings are within 2 NTU of each other for readings <10 NTU. Per US EPA Region I Standard Operating Procedure GW-0001 – "Low Stress (Low Flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells" (January 19, 2010 – Revision 3), if the turbidity has not stabilized after four hours of purging, collect samples and provide full explanation of attempt to achieve stabilization. Provide a summary of periodic readings and time of reading for all parameters.

- Sample collection should proceed from high parameter volatility to low parameter volatility at a low flow rate. Samples for volatile parameters should be transferred slowly to the sample container to eliminate creation of air bubbles. Samples are to be collected in proper containers and properly preserved in the field, as summarized in Table 4.

- No filtering of samples is to occur, except where analysis of dissolved metals is specified, i.e. surface water samples. Where analysis of dissolved metals is specified, sample filtration is to be performed in the field during sample collection with an in-line 0.45-micron filter.

- All observations relating to the well sampling, well conditions and any deviations from the sampling plan are to be recorded on the Monitoring Well Field Data Sheet.

3.3 Sample Preservation and Submission

All samples are to be preserved in the field at the time of sample collection, as summarized in Table 4. All sample containers are to be labeled in the field with the sample/well identification, sample date and time, type of preservation, and parameters to be analyzed. Following collection in the proper containers, all samples are to be placed into a cooler with ice/ice packs and maintained at a temperature of 4°C until submitted to the analytical testing laboratory. All samples are to be submitted to the testing laboratory as soon as possible after collection to ensure that all applicable testing method holding times are met. Proper chain of custody protocols will be followed to document the sample collection and submission.

3.4 Laboratory Analyses

All sample analyses will be performed only by environmental testing laboratories that are certified by the State of Connecticut Department of Public Health. Where published by CTDEP, laboratory analyses will be conducted in accordance with Reasonable Confidence Protocol (RCP) analytical methods. In those circumstances where an RCP method has not been published by CTDEP, the applicable method from the most-recent edition of EPA SW-846 ("Test Methods for Evaluating Solid Waste, Physical/Chemical Methods") will utilized. In the absence of RCP and SW-846 analytical methods, the laboratory analytical procedure from the most recent

edition of “Standard Methods for the Examination of Water and Wastewater” will be utilized. Tables 3 and 5 provide a summary of parameters to be analyzed and their acceptable method(s) of analysis.

3.5 Laboratory Reporting of Analytical Results

Laboratory reports must include sampling date, sample identification numbers, analytical results, sample specific reporting limits, preparation date, analysis date, and required RCP information for each sample. When an analyte is not detected or when the result for an analyte is below the reporting limit, the result will be reported as "ND," along with the sample-specific reporting limit. Reporting limits must be corrected to take into account any dilutions that were performed, the exact volume of the sample, and any other factors that would affect the actual reporting limit for specific sample(s). The reasons for any dilutions that were performed must be reported in the narrative that will accompany the RCP Laboratory Analysis QA/QC Certification Form.

The laboratory reports will also include a table listing field sample identification numbers that are cross-referenced to laboratory sample identification numbers, matrix, date of collection, and date of receipt at the laboratory. The laboratory must be able to provide an electronic, as well as hard, copy of all data.

3.6 Quality Assurance/Quality Control

In order to establish and document the reliability and quality of the field and laboratory data, quality assurance/quality control (QA/QC) procedures will be followed both in the field and in the testing laboratory. QA/QC measures are discussed below, but further documented in the Quality Assurance Project Plan (QAPP) that will be submitted to the CTDEP for approval prior to implementation. All field personnel must become familiar with the QAPP prior to performing site sampling activities.

3.6.1 Field Quality Assurance/Quality Control

Monitoring events will include field duplicate samples.

A total of two field duplicate samples will be collected during each semi-annual sampling event to document the precision of the sample collection procedures. One field duplicate sample will be collected from a groundwater monitoring well on the Wallingford Landfill, and one field duplicate sample will be collected from a surface water sample on the Former Barberino Property.

The use of equipment blanks is not necessary because all well purging and sample collection is completed with either dedicated sampling equipment or disposable, one-time-use equipment.

3.6.2 Laboratory Quality Assurance/Quality Control

All laboratory precision and accuracy requirements are documented in the QAPP. Where applicable, the RCP criteria will be met in order to ensure that the analytical testing laboratory provides analytical data of known and documented quality. When appropriate, all laboratory reports will be accompa-

nied by the RCP Laboratory Analysis QA/QC Certification Form and required narrative that provides a detailed explanation of any non-conformances that have occurred.

For those analytical methods for which no RCP criteria have been established, the laboratory will submit QC data deemed equivalent to a similar RCP process. In general, the laboratory reports will include results from the following QC samples:

- Method blank
- Sample duplicate, identified as a duplicate
- Matrix spike and matrix spike duplicate
- Surrogate recovery
- Laboratory control sample

3.7 Minimum Detection Limits

Given the site setting, the discharge of groundwater from the site to the Quinnipiac River will have to comply with the Surface Water Protection Criteria (SWPC) from the State's Remediation Standard Regulations. Therefore, as specified in the QAPP, the minimum detection limits for all groundwater analyses will have to be as low as the SWPC numeric criteria. For surface water samples, the minimum detection limits need to be as low as the Chronic Aquatic Life Criteria (CALC) from the State's Surface Water Quality Standards.

4.0 AMENDMENTS TO MONITORING PLAN

4.1 RECENT AMMENDMENTS TO THE MONITORING PLAN

Tables 2 and 3 detail the parameters and wells to be sampled at the site. In a letter addendum to its Stewardship Permit application dated June 3, 2009, CRRA requested the following revisions to the monitoring plan at the Wallingford Landfill and Former Barberino Property. These requested revisions were accepted by CTDEP through its issuance of the Stewardship Permit.

- Leachate Indicator Parameters:
  - Monitoring the Site groundwater for Total Organic Halides (TOX) has been discontinued.
- Metals:
  - Monitoring the Site groundwater for dissolved iron, manganese, potassium, and sodium has been discontinued (monitoring for total concentrations continues).
  - Monitoring of the following nine dissolved metals at the surface water sampling locations on the Former Barberino Property has been implemented:
    - Arsenic
    - Beryllium
    - Chromium, Total
    - Mercury
    - Nickel
    - Selenium
    - Silver
    - Thallium
    - Vanadium

    Following completion of a Baseline Ecological Risk Assessment (BERA), CRRA may submit a request to CTDEP to cease monitoring those metals that are identified as posing no ecological risk and are decreasing and/or stable in concentration.
- Volatile Organic Compounds:
  - Monitoring the Site groundwater for 1,2-Dibromoethane (EDB) and 1,2-Dibromo-3-Chloropropane (DBCP) via EPA Method 504 has been discontinued.
- Pesticides/Herbicides:
  - Monitoring the Site groundwater for organochlorine pesticides via EPA Method 8081 has been discontinued.
  - Monitoring the Site groundwater for chlorinated herbicides via EPA Method 8151 has been discontinued.
- Polychlorinated Biphenyls:
  - Monitoring the Site groundwater for Polychlorinated Biphenyls (PCBs) has been discontinued.

Additional proposed amendments to the current water quality monitoring plan are discussed in Section 4.2 below.

4.2 ADDITIONAL PROPOSED AMMENDMENTS TO GROUNDWATER MONITORING PLAN

Based on historical data, the Site setting, and the Site's status, CRRA believes that the list of parameters and individual wells can be further reduced while still ensuring that Site groundwater and surface water is effectively monitored. CRRA proposes the elimination of the specific parameters and individual wells as discussed below.

Lower Aquifer:

- Based on historical data and investigations, the lower aquifer exhibits the following characteristics:

    1. As illustrated in Section 2.3, the measured hydraulic conductivity and transmissivity within the lower aquifer is generally an order of magnitude lower than in the upper aquifer.

    2. An approximately 80 ft. thick layer of varved clay layer effectively confines the lower aquifer from the upper aquifer.

    3. A supply well was historically utilized at a trailer park on the former Barberino property. This drinking water supply well was abandoned in accordance with applicable State of Connecticut regulations on November 14, 2002.

    4. When present in the lower aquifer, leachate indicators and metals are generally much lower than in the upper aquifer. Additionally, the concentrations are often at levels that could be considered naturally-occurring.

    The above-mentioned characteristics indicate that monitoring of the lower aquifer is neither representative of the landfill's development over time nor necessary for maintaining compliance with the Stewardship Permit. Therefore, ***CRRA proposes to cease monitoring of the lower aquifer wells (MW-1, MW-3A, MW-9A, MW-11A, MW-12A, MW-100A, MW-101A, CEE-6D, CEE-9D, and CEE-10D).***

Volatile Organic Compounds:

- CRRA has monitored all groundwater monitoring wells at the Wallingford Landfill and Former Barberino Property for VOCs, including acrylamide, via EPA Method 8260 on a quarterly basis since January 1997; VOCs have rarely been detected at the Site. Additionally, those concentrations that were detected have been significantly below the SWPC. There are no structures on the former Barberino Property; therefore, the Volatilization Criteria do no apply to the Site. Additionally, there are no known drinking water wells in the vicinity of the site, so drinking water standards and Groundwater Protection Criteria do not apply to the Site. Given the long monitoring period and the additional information pertaining to the Site setting, VOCs are not Site-specific parameters of concern; accordingly, ***CRRA proposes to cease monitoring the Site groundwater for VOCs (including acrylamide, EDB and DBCP) via EPA Method 8260.***

Leachate Indicator Parameters:

- The site is located in a GB-area and the nearby Quinnipiac is designated as a C/B area. Neither the groundwater nor the surface water is expected to be contributing to the local potable water supply. Therefore, it is not necessary to continue to monitor these secondary drinking water characteristics with limited remedial purpose. Based on historical data, cyanide has not traditionally been detected at the site except in the vicinity of the Metal Hydroxide Sludge Cell. Hardness, along with the other quality parameters, will continue to be monitored for indicators of leachate movement in groundwater ***CRRA proposes to cease monitoring the Site groundwater for specific conductivity (cease lab analysis only), chloride, pH (cease lab analysis only), total organic carbon, total coliform, total cyanide (except for at CEE-10, CEE-9, MW-4R, MW-11, MW-100, and MW-101R), and ammonia (except for MW-4R and in the five wells utilized for the UOD calculations, see Table 3).***

Metals:

- Calcium, magnesium, barium, antimony, thallium, cobalt, selenium, silver, beryllium, cadmium, and vanadium do not have established SWPC. Chromium (hexavalent), copper, and mercury have rarely been detected at the site or have been detected well below the established SWPC. An alternative SWPC based on the highest hydraulic gradient measured at the site between 2006 and 2009 demonstrated that barium has not been detected on the site above the SWPC. Aluminum, chloride, vanadium, and cobalt do not exceed an SWPC calculated based on the proposed additions to the Water Quality Standards. Therefore, ***CRRA proposes to cease monitoring the Site groundwater for aluminum, calcium, magnesium, barium, antimony, thallium, cobalt, mercury, chromium (hexavalent), selenium, silver, beryllium, vanadium, and cadmium.***

Individual Wells:

- Monitoring wells CEE-1, CEE-2, MW-12, and MW-1B are either upgradient/sidegradient of their designated group and/or stabilized in their analysis. Therefore, these wells are redundant and may be eliminated. The areas of concern will continue to be characterized and monitored sufficiently through the remaining group's wells. ***CRRA proposes to cease monitoring the Site groundwater at CEE-1, CEE-2, MW-12, and MW-1B.***

- Wells MW-5 and MW-200, which are downgradient of the Emergency Bypass/Non-Processibles Area and the Ash Residue Area, are located proximal to each other; however, MW-5 most closely resembles the groundwater flow towards the Quinnipiac River due to its topographic position. Well MW-200 is sampled annually in April for dioxins and furans. Due to representative leachate monitoring at MW-5, ***CRRA proposes to reduce groundwater monitoring at MW-200 to annually for dioxins/furans and the leachate indicator parameters.***

Following the completion of additional ecological risk assessment at the Site, CRRA may propose additional modifications to the water quality monitoring program, subject to CTDEP review and approval.

5.0 REPORTING ADJUSTMENTS AND REQUIREMENTS

CRRA is proposing to streamline the reporting process in order to reduce redundancy within the reports and minimize the paperload on the regulatory agencies. The April report will consist of a brief discussion of the event, comprehensive tables, groundwater contour maps, monitoring data sheets, UOD calculations, and RCP laboratory reports. The October report will serve as the semi-annual and annual report. This combined report will provide a background discussion of the Wallingford Landfill/Former Barberino property, an overview of the sampling results for the current year, comprehensive tables, groundwater contour maps, monitoring data sheets, UOD calculations, RCP laboratory reports, updated parameter trend graphs incorporating the current year's data, and general conclusions/recommendations. In an effort to reduce paper usage, CRRA will no longer submit paper copies of the lab reports. CRRA will maintain the paper copies at its office; however, a hard copy of the RCP documentation and an electronic copy (CD) of the laboratory reports will be submitted with the report. Per the Stewardship Permit, surface and groundwater reports will be submitted within 60 days of the sampling event.

TABLE 1
Summary of Monitoring Well Construction
Wallingford, Connecticut

Well Number	Dedicated Sampling Apparatus	Ground Elevation (feet)	Top of Steel Elevation (feet)	Measured Well Depth[b] (feet)	Well Bottom Elevation (feet)	Date of Installation
Wallingford Landfill						
MW-1A	Tubing	58.50	62.37	26.77	35.60	09/01/81
MW-2A	Tubing	59.50	61.13	32.05	29.08	11/01/88
MW-3	Tubing	22.60	23.59	11.90	11.69	09/01/81
MW-4R	Tubing	42.10	43.87	22.17	21.70	07/01/92
MW-5	Tubing	25.80	27.48	9.95	17.53	09/01/81
MW-9	Tubing	43.90	46.01	33.15	12.86	05/01/86
MW-10	Tubing	36.20	36.82	40.75	-3.93	05/01/86
MW-10A	Tubing	37.00	37.23	20.40	16.83	05/01/86
MW-11	Bladder Pump	49.80	51.12	72.55	-21.43	11/01/88
MW-13	Tubing	61.00	65.68	37.45	28.23	12/01/88
MW-100	Bladder Pump	51.70	53.90	40.62	13.28	11/01/83
MW-101R	Bladder Pump	54.50	55.84	40.37	15.47	07/01/92
MW-200	Tubing	29.10	30.64	14.45	16.19	12/01/88
Former Barberino Property						
CEE-3	Tubing	N/A	31.46	13.88	17.58	11/11/92
CEE-4	Tubing	N/A	30.37	14.54	15.83	03/26/93
CEE-5	Tubing	N/A	37.82	14.13	23.69	03/25/93
CEE-6	Tubing	N/A	34.95	14.02	20.93	03/29/93
CEE-7	Tubing	N/A	30.88	14.87	16.01	03/26/93
CEE-8	Tubing	N/A	29.05	14.80	14.25	03/29/93
CEE-9	Tubing	N/A	27.99	14.52	13.47	03/26/93
CEE-10	Tubing	N/A	32.15	14.82	17.33	03/29/93

[a] Historical depth to bottom of well casing
[b] As measured from top of steel casing
N/A = Not Available

Table 2
Monitoring Parameters
Wallingford, Connecticut

Parameters	Wallingford Landfill	Former Barberino Property	
	13 Wells	8 Wells	10 Surface Water
Field Parameters:			
Depth to Water	S	S	-
Water Elevation (msl)	S	S	-
pH	S	S	S
Temperature	S	S	S
Specific Conductance	S	S	S
Dissolved Oxygen	S	S	S
Redox Potential	S	S	S
Turbidity	S	S	S
Inorganic Leachate Indicator Parameters:			
Total Dissolved Solids (TDS)	S	S	S
Alkalinity, Total	S	S	S
Hardness	S	S	S
Biochemical Oxygen Demand (BOD5)	S	S	-
Chemical Oxygen Demand (COD)	S	S	S
Chloride	S	S	S
Nitrate (N)	S	S	-
Ammonia (N)	S	S	S
Sulfate, Total	S	S	S
Cyanide, Total	S	S	-
Metals[1]:			
Aluminum	-	-	S
Arsenic	S	S	S
Barium	-	-	S
Beryllium	-	-	S
Cadmium	-	-	S
Chromium, Total	S	S	S
Copper	S	S	S
Iron	S	S	S
Lead	S	S	S
Magnesium	-	-	S
Manganese	S	S	S
Mercury	-	-	S
Nickel	S	S	S
Potassium	S	S	S
Selenium	-	-	S
Sodium	S	S	-
Vanadium	-	-	S
Zinc	S	S	S
Dioxins / Furans:			
Method 1613B	A[2]	-	-

S = Tested Semi-Annually in April and October A = Tested Annually in April

Notes:

1. Groundwater samples to be analyzed for total metals concentrations. Surface water samples to be analyzed for dissolved metals concentrations.
2. MW-3 and MW-200 only.

Table 3
Well-Specific Monitoring Parameters

Notes:
S= Analyzed semi-annually in April and October
A= Analyzed annually in April

	Wallingford Landfill													Former Barberino Property							
	MW-1A	MW-2A	MW-3	MW-4R	MW-5	MW-9	MW-10	MW-10A	MW-11	MW-13	MW-100	MW-101R	MW-200	CEE-3	CEE-4	CEE-5	CEE-6	CEE-7	CEE-8	CEE-9	CEE-10
Field Parameters																					
Depth to Water	S	S	S	S	S	S	S	S	S	S	S	S	A	S	S	S	S	S	S	S	S
Water Elevation (msl)	S	S	S	S	S	S	S	S	S	S	S	S	A	S	S	S	S	S	S	S	S
pH	S	S	S	S	S	S	S	S	S	S	S	S	A	S	S	S	S	S	S	S	S
Temperature	S	S	S	S	S	S	S	S	S	S	S	S	A	S	S	S	S	S	S	S	S
Specific Conductivity	S	S	S	S	S	S	S	S	S	S	S	S	A	S	S	S	S	S	S	S	S
Dissolved Oxygen	S	S	S	S	S	S	S	S	S	S	S	S	A	S	S	S	S	S	S	S	S
Redox Potential	S	S	S	S	S	S	S	S	S	S	S	S	A	S	S	S	S	S	S	S	S
Turbidity	S	S	S	S	S	S	S	S	S	S	S	S	A	S	S	S	S	S	S	S	S
Leachate Indicator Parameters																					
Alkalinity, Total	S	S	S	S	S	S	S	S	S	S	S	S	A	S	S	S	S	S	S	S	S
Total Dissolved Solids (TDS)	S	S	S	S	S	S	S	S	S	S	S	S	A	S	S	S	S	S	S	S	S
Hardness	S	S	S	S	S	S	S	S	S	S	S	S	A	S	S	S	S	S	S	S	S
Biochemical Oxygen Demand (BOD)	S	S	S	S	S	S	S	S	S	S	S	S	A	S	S	S	S	S	S	S	S
Chemical Oxygen Demand (COD)	S	S	S	S	S	S	S	S	S	S	S	S	A	S	S	S	S	S	S	S	S
Chloride	S	S	S	S	S	S	S	S	S	S	S	S	A	S	S	S	S	S	S	S	S
Nitrate	S	S	S	S	S	S	S	S	S	S	S	S	A	S	S	S	S	S	S	S	S
Ammonia (N)	-	-	S	S	S	-	-	S	-	-	S	S	-	-	-	-	-	-	-	-	-
Cyanide, Total	-	-	-	-	-	-	-	-	S	-	S	S	-	-	-	-	-	-	-	S	S
Sulfate, Total	S	S	S	S	S	S	S	S	S	S	S	S	A	S	S	S	S	S	S	S	S
Total Suspended Solids (TSS)	S	S	S	S	S	S	S	S	S	S	S	S	A	S	S	S	S	S	S	S	S
Metals, Total																					
Arsenic	S	S	S	S	S	S	S	S	S	S	S	S	-	S	S	S	S	S	S	S	S
Chromium, Total	S	S	S	S	S	S	S	S	S	S	S	S	-	S	S	S	S	S	S	S	S
Copper	S	S	S	S	S	S	S	S	S	S	S	S	-	S	S	S	S	S	S	S	S
Iron	S	S	S	S	S	S	S	S	S	S	S	S	-	S	S	S	S	S	S	S	S
Lead	S	S	S	S	S	S	S	S	S	S	S	S	-	S	S	S	S	S	S	S	S
Managanese	S	S	S	S	S	S	S	S	S	S	S	S	-	S	S	S	S	S	S	S	S
Nickel	S	S	S	S	S	S	S	S	S	S	S	S	-	S	S	S	S	S	S	S	S
Potassium	S	S	S	S	S	S	S	S	S	S	S	S	-	S	S	S	S	S	S	S	S
Sodium	S	S	S	S	S	S	S	S	S	S	S	S	-	S	S	S	S	S	S	S	S
Zinc	S	S	S	S	S	S	S	S	S	S	S	S	-	S	S	S	S	S	S	S	S
Dioxins/Furans																					
Method 1613B	-	-	A	-	-	-	-	-	-	-	-	-	A	-	-	-	-	-	-	-	-

Table 4
Required Containers, Preservation Techniques, and Holding Times
Wallingford Landfill and Former Barberino Property
Wallingford, Connecticut

Parameters	Minimum Sample Size	Container†	Preservation	Maximum Holding Time
Inorganic Leachate Indicator Parameters:				
Total Dissolved Solids (TDS)	100 mL	Plastic	Cool to 4 ± 2º C	7 Days
Total Suspended Solids (TSS)	100 mL	Plastic	Cool to 4 ± 2º C	7 Days
Alkalinity, Total	100 mL	Plastic	Cool to 4 ± 2º C	14 Days
Hardness	100 mL	Plastic	Nitric Acid or Sulfuric Acid to pH <2, Cool to 4 ± 2º C	6 Months
Biochemical Oxygen Demand (BOD5)	500 mL	Plastic	Cool to 4 ± 2º C	24 Hours
Chemical Oxygen Demand (COD)	50 mL	Plastic	Sulfuric Acid to pH <2, Cool to 4 ± 2º C	28 Days
Chloride	120 mL	Plastic	Cool to 4 ± 2º C	
Nitrate (N)	50 mL	Plastic	Cool to 4 ± 2º C	48 Hours
Ammonia (N)	250 mL	Plastic	Sulfuric Acid to pH <2, Cool to 4 ± 2º C	28 Days
Sulfate, Total	50 mL	Plastic	Cool to 4 ± 2º C	28 Days
Cyanide, Total	100 mL	Plastic	NaOH to pH >12, Cool to 4 ± 2º C	14 Days
Metals:				
All Total Metals	250 mL	Plastic	Nitric Acid to pH <2, Cool to 4 ± 2º C	180 days
All Dissolved Metals	250 mL	Plastic	Field-Filter with a 0.45 µm Membrane Filter, then Nitric Acid to pH <2, Cool to 4 ± 2º C	180 days; 28 days (Hg)
Dioxins / Furans:				
Polychlorinated Dibenzo-*p*-Dioxins and Polychlorinated Dibenzofurans	1 L	Amber glass bottle with Teflon lined cap	Store at 4 ± 2º C.	1 year

Notes:
† Plastic bottles must be acid rinsed and either high density polyethylene or Teflon

Table 5
Laboratory Analytical Procedures
Wallingford Landfill and Former Barberino Property
Wallingford, Connecticut

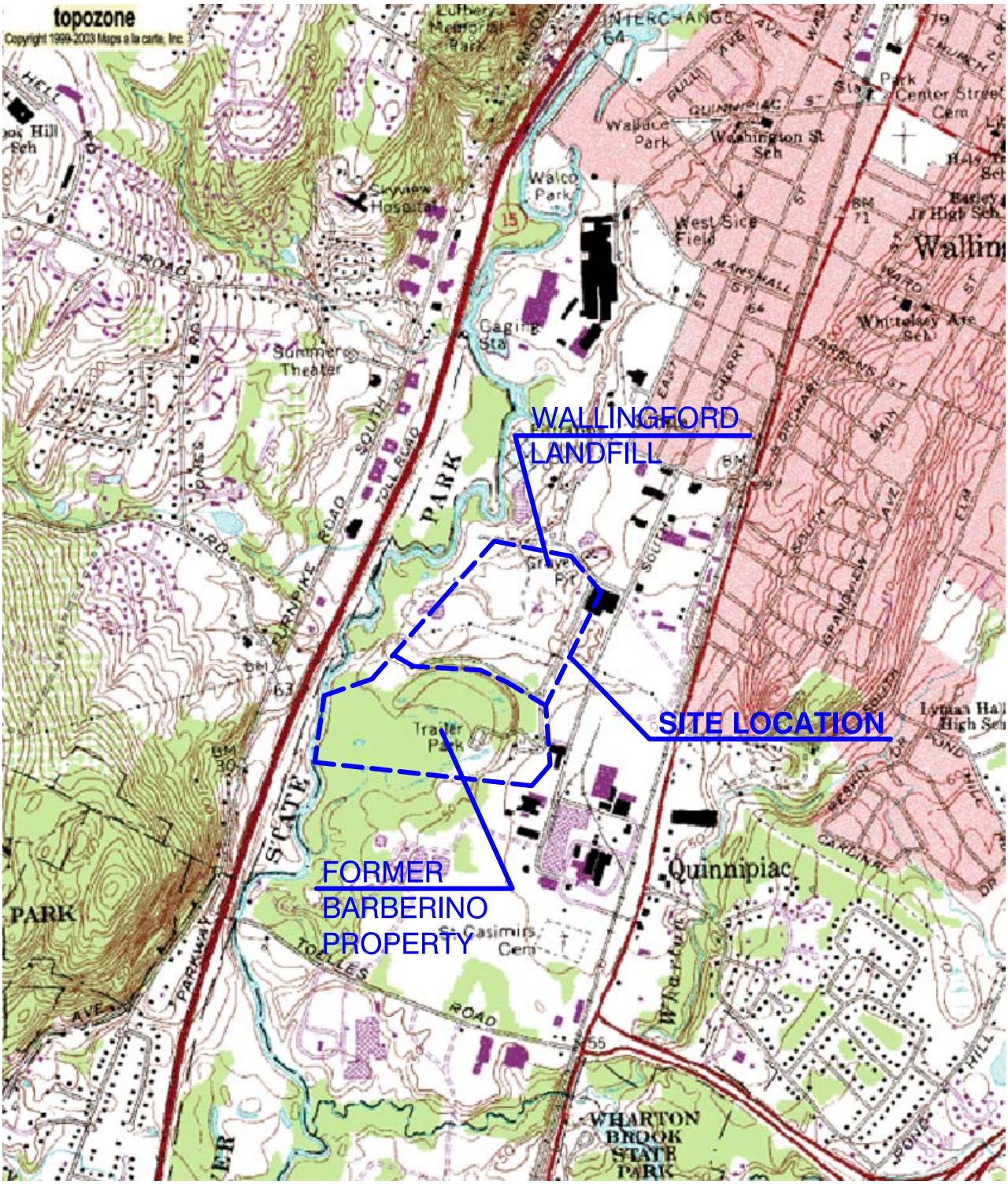
Parameters	RCP Method Number(s)	EPA Method Number	Standard Methods Test Number
Inorganic Leachate Indicator Parameters:			
Total Dissolved Solids (TDS)			SM2540C
Total Suspended Solids (TSS)			SM2540D
Alkalinity, Total			SM2320B
Hardness		200.7	
Biochemical Oxygen Demand (BOD5)			SM5210B
Chemical Oxygen Demand (COD)			SM5220D
Chloride		300.0	
Nitrate (N)		300.0; 9056	
Ammonia (N)		350.1	
Sulfate, Total		300.0	
Cyanide, Total	9010; 9012; 9014		
Metals:			
Aluminum, Dissolved		6010; 6020; 7000	
Arsenic, Total	6010; 6020; 7000		
Arsenic, Dissolved	6010; 6020; 7000		
Barium, Dissolved	6010; 6020; 7000		
Beryllium, Dissolved	6010; 6020; 7000		
Cadmium, Dissolved	6010; 6020; 7000		
Chromium, Total	6010; 6020; 7000		
Chromium, Dissolved	6010; 6020; 7000		
Copper, Total	6010; 6020; 7000		
Copper, Dissolved	6010; 6020; 7000		
Iron, Total		6010; 6020; 7000	
Iron, Dissolved		6010; 6020; 7000	
Lead, Total	6010; 6020; 7000		
Lead, Dissolved	6010; 6020; 7000		
Magnesium, Dissolved		6010; 6020; 7000	
Manganese, Total		6010; 6020; 7000	
Manganese, Dissolved		6010; 6020; 7000	
Mercury, Dissolved	6020; 7470; 7471		
Nickel, Total	6010; 6020; 7000		
Nickel, Dissolved	6010; 6020; 7000		
Potassium, Total		6010; 6020; 7000	
Potassium, Dissolved		6010; 6020; 7000	
Selenium, Dissolved	6010; 6020; 7000		
Silver, Dissolved	6010; 6020; 7000		
Sodium, Total		6010; 6020; 7000	
Sodium, Dissolved		6010; 6020; 7000	
Thallium, Dissolved	6010; 6020; 7000		
Vanadium, Dissolved	6010; 6020; 7000		

Zinc, Total	6010; 6020; 7000		
Zinc, Dissolved	6010; 6020; 7000		
Dioxins / Furans:			
Polychlorinated Dibenzo-*p*-Dioxins and Polychlorinated Dibenzofurans		1613B; 8280B; 8290A	

Note:

Where an RCP Method is specified, that method is to be utilized for sample analyses. The listed EPA Methods and/or Standard Methods Tests will only be used if an RCP Method is not available.

FIGURES



0 0.3 0.6 0.9 1.2 1.5 km

0 0.2 0.4 0.6 0.8 1 mi

UTM 18 680447E 4589876N (NAD27)

USGS Wallingford (CT) Quadrangle

Projection is UTM Zone 18 NAD83 Datum

M=-14.341
G=1.431

FIGURE 1
SITE LOCATION
WALLINGFORD LANDFILL AND
FORMER BARBERINO PROPERTY
PENT ROAD
WALLINGFORD, CONNECTICUT
HRP# CRR0148.GW

J:\C\CRRAU - CT RESOURCES RECOVERY AUTHORITY\WALLINGFORD LANDFILL\CRR0148GW\CAD\FIGURE 1 - SITE LOCATION.dwg, Layout1, 3/12/2010 3:04:39 PM, Adot

LEGEND

- WALLINGFORD LANDFILL PROPERTY BOUNDARY
- FORMER BARBERINO PROPERTY BOUNDARY
- MONITORING WELL
- SURFACE WATER SAMPLING LOCATION
- GROUNDWATER FLOW DIRECTION
- (17.12) GROUNDWATER ELEVATION
- GROUNDWATER CONTOUR
- (BTOP) BELOW TOP OF PUMP

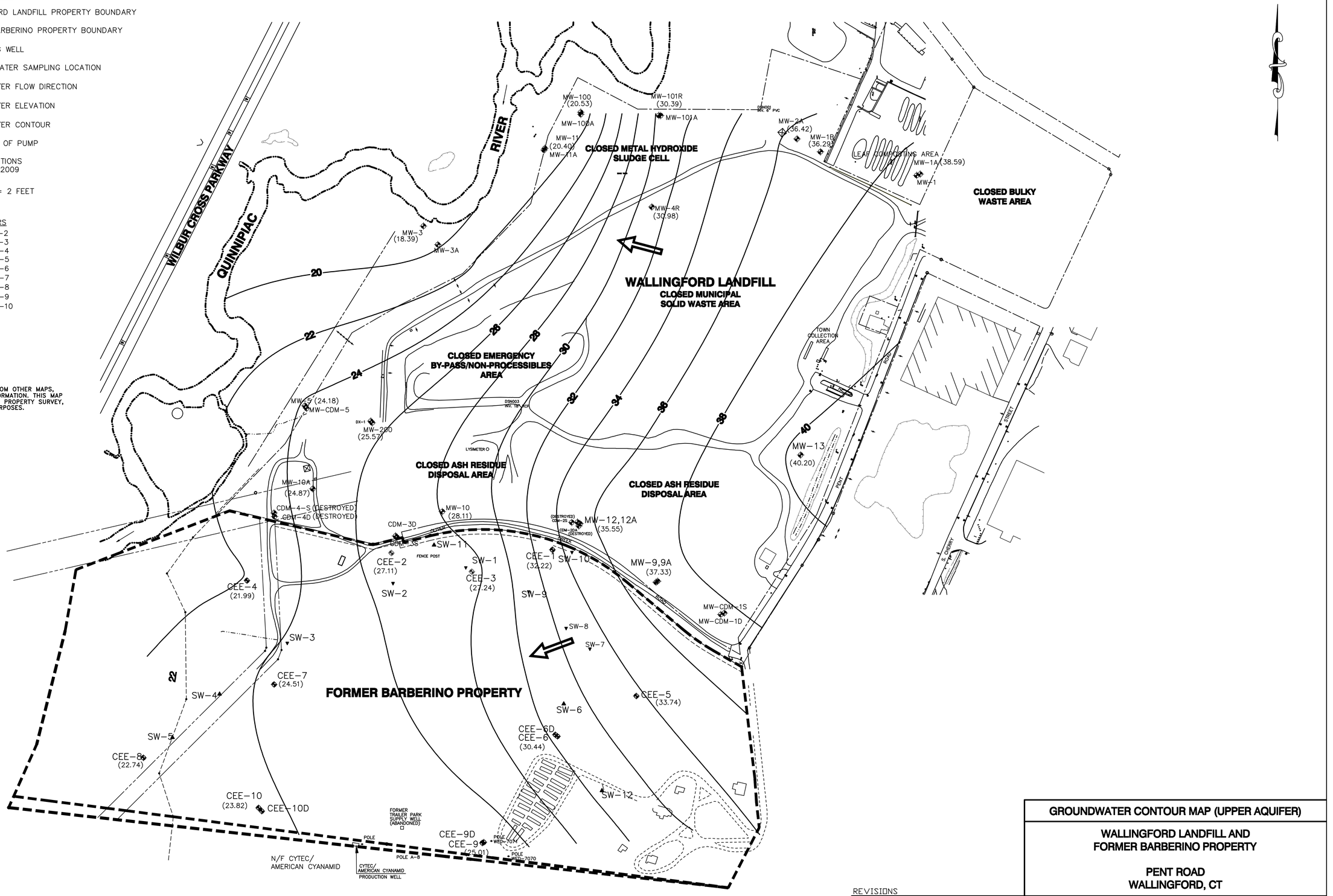
GROUNDWATER ELEVATIONS BASED ON OCTOBER 2009 MEASUREMENTS

CONTOUR INTERVAL = 2 FEET

WELLS USED TO DEVELOP CONTOURS

MW-1A	CEE-2
MW-1B	CEE-3
MW-2A	CEE-4
MW-3	CEE-5
MW-4R	CEE-6
MW-5	CEE-7
MW-9	CEE-8
MW-10	CEE-9
MW-10A	CEE-10
MW-11	
MW-12	
MW-13	
MW-100	
MW-101R	
MW-200	

NOTE:
THIS MAP HAS BEEN COMPILED FROM OTHER MAPS, DEEDS, AND/OR SOURCES OF INFORMATION. THIS MAP SHOULD NOT BE CONSTRUED AS A PROPERTY SURVEY, NOR USED FOR CONSTRUCTION PURPOSES.



REVISIONS		
NO.	DATE	DESCRIPTION

GROUNDWATER CONTOUR MAP (UPPER AQUIFER)

WALLINGFORD LANDFILL AND FORMER BARBERINO PROPERTY

PENT ROAD WALLINGFORD, CT

HRP Associates, Inc.
Environmental/Civil Engineering & Hydrogeology
Creating the Right Solutions Together
Connecticut, New York, South Carolina, Florida, Indiana
197 Scott Swamp Road
Farmington, Connecticut 06032
Ph:(860)674-9570 Fax:(860)674-9624
www.hrpassociates.com

JRC DESIGNED	ZAB APPROVED	1" = 150' SCALE	
DML DRAWN	MARCH 2010 DATE		FIG 2 SHEET NO.
JRC CHECKED	CRR0148.GW PROJECT NO.		

LEGEND

- WALLINGFORD LANDFILL PROPERTY BOUNDARY
- FORMER BARBERINO PROPERTY BOUNDARY
- MONITORING WELL
- SURFACE WATER SAMPLING LOCATION
- GROUNDWATER FLOW DIRECTION
- (17.12) GROUNDWATER ELEVATION
- GROUNDWATER CONTOUR
- (BTOP) BELOW TOP OF PUMP

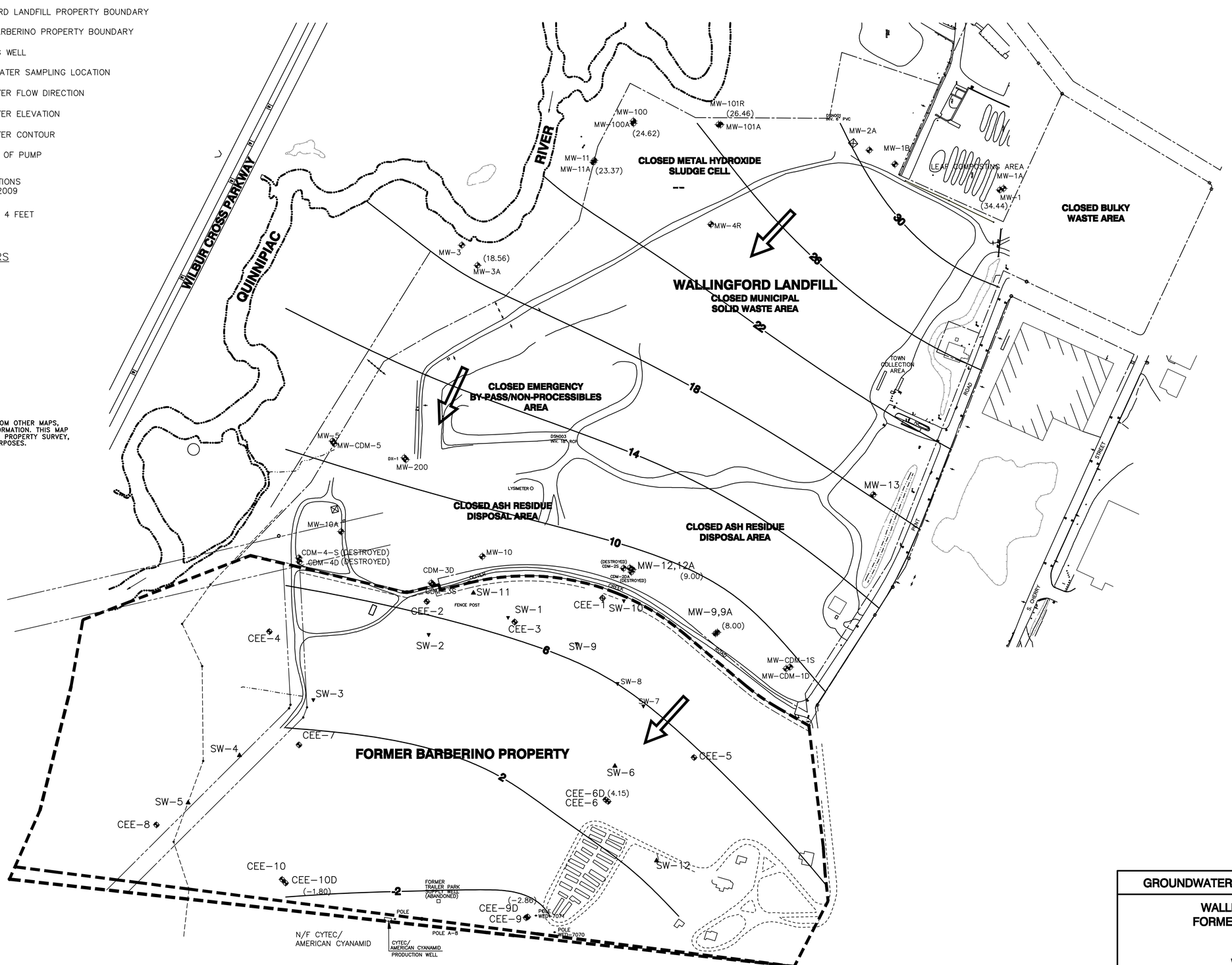
GROUNDWATER ELEVATIONS BASED ON OCTOBER 2009 MEASUREMENTS

CONTOUR INTERVAL = 4 FEET

WELLS USED TO DEVELOP CONTOURS

MW-1
MW-3A
MW-9A
MW-11A
MW-12A
MW-100A
MW-101A
CEE-6D
CEE-9D
CEE-10D

NOTE:
THIS MAP HAS BEEN COMPILED FROM OTHER MAPS, DEEDS, AND/OR SOURCES OF INFORMATION. THIS MAP SHOULD NOT BE CONSTRUED AS A PROPERTY SURVEY, NOR USED FOR CONSTRUCTION PURPOSES.



REVISIONS

NO.	DATE	DESCRIPTION

GROUNDWATER CONTOUR MAP (LOWER AQUIFER)

WALLINGFORD LANDFILL AND FORMER BARBERINO PROPERTY

PENT ROAD WALLINGFORD, CT

HRP Associates, Inc.
Environmental/Civil Engineering & Hydrogeology
Creating the Right Solutions Together
Connecticut, New York, South Carolina, Florida, Indiana
197 Scott Swamp Road
Farmington, Connecticut 06032
Ph:(860)674-9570 Fax:(860)674-9624
www.hrpassociates.com

JRC DESIGNED	ZAB APPROVED	1" = 150' SCALE	
DML DRAWN	MARCH 2010 DATE	FIG 3 SHEET NO.	
JRC CHECKED	CRR0148.GW PROJECT NO.		

J:\C\CRRAU - CT RESOURCES RECOVERY AUTHORITY\WALLINGFORD LANDFILL\CRR0148GW\CAD\OCTOBER 2009 - GROUNDWATER CONTOUR MAP - LOWER AQUIFER.dwg, HRP, 3/12/2010 4:01:41 PM, DWG To PDF.pc3, Plot stamp

CONNECTICUT RESOURCES RECOVERY AUTHORITY

REQUEST FOR SERVICES

[DATE]

[NAME OF CONTACT FOR CONSULTANT]
[NAME OF CONSULTANT]
[ADDRESS 1 OF CONSULTANT]
[ADDRESS 2 OF CONSULTANT]

Re: Agreement for Environmental Monitoring, Laboratory Analysis and Reporting Services at the [NAME OF LANDFILL] Landfill
Request for Services

Dear _____:

This Request will authorize you to provide the Services described below in accordance with the terms and conditions of the "Agreement for Environmental Monitoring, Laboratory Analysis and Reporting Services at the [NAME OF LANDFILL] Landfill" dated [DATE OF AGREEMENT] between CRRA and you.

The Scope of Services, Estimated time of Performance and Estimated Costs set forth below will become a part of the above-referenced Agreement and will be incorporated therein, as an amendment, upon your acceptance of this Request, to be indicated below. The Scope of Services is the product of consultation between CRRA and you and the Estimated Time of Performance and Estimated Costs have been provided by you and deemed acceptable by CRRA.

1. Scope of Services

[PROVIDE DETAILS]

2. Estimated Time of Performance

[PER CONSULTANT]

3. Estimated Costs

[PER CONSULTANT]

These costs are not to be exceeded without CRRA's prior written consent. CRRA shall not pay for any services rendered or expenses incurred by Consultant in excess of those included in this Request unless specifically authorized in advance and in writing by CRRA.

Sincerely,

CONNECTICUT RESOURCES RECOVERY AUTHORITY

By: _____
Title: _____

Accepted and agreed to under the terms of the

Agreement for Environmental Monitoring,
aboratory Analysis and Reporting Services at
the [NAME OF LANDFILL] Landfill

dated [DATE OF AGREEMENT]

[CONSULTANT NAME]

By: _____
Title: _____

NOT-TO-EXCEED CONTRACT PRICE AND COMPENSATION SCHEDULE

[The Not-To-Exceed Contract Price And Compensation Schedule will be added by CRRA based on the Consultant's Not-To-Exceed Bid Price And Payment Rate Schedule Form, as such Form may be modified as a result of negotiations between CRRA and the Consultant.]

CONNECTICUT RESOURCES RECOVERY AUTHORITY

TRAVEL POLICY AND EXPENSE REPORTING

BOARD OF DIRECTORS POLICY AND PROCEDURE NUMBER 032

APPROVED BY CRRA BOARD OF DIRECTORS
SEPTEMBER 29, 2005

TABLE OF CONTENTS

CONNECTICUT RESOURCES RECOVERY AUTHORITY
TRAVEL POLICY AND EXPENSE REPORTING

1. GENERAL STATEMENT

This Travel Policy and Expense Reporting guide presents the policies that all CRRA employees (hereafter "employee(s)") must adhere to in the planning and conducting of their business travel and their reimbursement requests. CRRA requires that all travel expenditures and their accountings meet the Internal Revenue Service requirements of "ordinary, necessary and reasonable" and should be conservative and consistent with the nature of the business assignment. These policies safeguard CRRA and protect the employee from being assessed additional taxable income. All employees are expected to fully comply with the policies and instructions in this guide. Reimbursements for actual and necessary expenses made to Directors of CRRA shall be made consistent with the provisions of this Travel Policy And Expense Reporting guide; however, as stated in the Connecticut General Statutes, Directors shall not be required to obtain pre-approval from the President for any expenses.

2. APPROVALS

Prior written approval by the President or the employee's Division Head at least one (1) week in advance is required for all overnight trips out of state, except in an emergency. It is the obligation of the employee to obtain this prior approval and no reimbursement will be made without this approval.

Prior written approval by the President or the employee's Division Head at least one (1) week in advance is required for all employee trips that are for educational seminars, professional conferences, vendor-initiated field trips, and industry organization events.

To obtain written approval, the employee must complete the overnight travel form, and, if a cash advance is requested, complete a cash advance form that estimates the out-of-pocket expenses, and submit the competed form(s) to the appropriate Division Head or President in as far in advance as possible of departure date.

3. TRANSPORTATION

Transportation expenses should be kept to a minimum. The most direct and practical route should be selected.

3.1 Rental Automobile

Rental car expenses will be paid by CRRA and whenever possible should be billed directly to CRRA to take advantage of CRRA's tax-exempt status and any other discounts available to CRRA.

3.1.1 Insurance

3.1.1.1 Business Use Of A Rental Automobile

Employees on business do not need to purchase additional insurance coverage (collision damage waiver or excess liability) from the rental company. The Corporate Insurance Program covers these risks. Please note that all vehicles must be rented in CRRA's name to have CRRA's policy cover the employee.

3.1.1.2 Personal Use Of A Rental Automobile

Employees are prohibited from using a CRRA rental automobile for personal use. Personal use that is incidental to CRRA business use will be covered by the CRRA insurance policy as long as the vehicle was rented in CRRA's name. Incidental usage is defined as usage of the vehicle that is directly related to business usage (e.g. mileage to get meals on a business trip).

3.2 Business Use Of Employee's Car

3.2.1 Reimbursement Rate

The reimbursement rate for an employee's use of their personal automobile for CRRA business is the IRS approved rate, as adjusted from time to time by the IRS, for employee use of their personal car on business. The above mileage reimbursement allowance for business use of an employee's vehicle is calculated in a manner that takes into account all auto-related expenses, including the cost of carrying insurance (without a deductible). Therefore, CRRA will not reimburse an employee for vehicle damage or personal liability that occurs while a personal automobile is being used on CRRA business if the employee drives their personal vehicle 2,500 miles per year or more. This includes any deductible that may apply. However, if an employee's vehicle is driven on company business 2,500 miles or less annually, and is involved in a motor vehicle accident, CRRA will reimburse the employee through the normal expense reimbursement process for their physical damage deductible up to a maximum of $500.00 per accident. Evidence of the payment of the deductible by the employee must be provided to CRRA in order to receive reimbursement. (Traveling on business does not include any travel involved in commuting to or from work, lunch time errands or anything other than authorized business use). Before an employee seeks the foregoing reimbursement for the use of his personal automobile, the

employee shall provide CRRA with written evidence of his personal automobile insurance with limits as required by the Connecticut General Statutes. The foregoing written proof shall be kept on file in the CRRA Finance Division.

3.2.2 Mileage Calculation

In all travel away from the CRRA office, the employee will be reimbursed using the shortest distance between points. For travel from Hartford to a CRRA facility, the President shall cause the shortest distance to be determined and the President shall cause such determination to be made available to employees. Unless approved by an employee's Division Head, employees shall use the distances determined by the President in all requests for reimbursement for travel from Hartford to a CRRA facility. An employee may request and the employee's Division Head may approve distances other than those determined by the President in extraordinary circumstances when, for reasons beyond the control of the employee, the route of the shortest distance was not reasonably available for use.

In calculating mileage, the normal commute mileage to and from the employee's home to the employee's assigned place of work must be deducted from the total trip mileage. For example, if the total trip mileage equals 100 miles, and normal commute mileage equals 20 miles, CRRA will reimburse the employee for 80 miles. This is in accordance with Internal Revenue Service and State of Connecticut policy.

3.2.3 Tolls/Parking

No receipts are necessary for tolls or parking unless they exceed five ($5.00) dollars.

3.3 Air Travel

All air travel requires prior approval from the CRRA President. For approved travel, CRRA will reimburse employees only for coach accommodations. Employees are encouraged to inquire about discount packages and to take advantage of the least costly route whenever possible. When an employee plans a trip, the reservations should be made as far in advance as practical to obtain the lowest rate. All approved air travel for the previous month shall be reported to the CRRA Board of Directors at its next Board Meeting.

3.4 Taxis

Taxi service may be used when no other form of public transportation is available or when the cost of a taxi is close to the cost of public transportation. Employees are encouraged to use courtesy cars, airport limousines, or buses whenever possible. Since some taxi services do not provide receipts, you should have the back of your business card signed, dated, and the amount of the fare indicated by the driver.

3.5 CRRA Owned Automobiles

Please refer to the CRRA Vehicle Usage Policy adopted by the CRRA Board of Directors at its November 21, 2003, Board of Directors Meeting.

4. MEALS

Permissible expenditures for meals and tips depend on location and circumstances. Only reasonable and customary charges will be allowed and reimbursed by CRRA. An exception may be granted by the President in unusual circumstances. In-state breakfast, lunch, and dinner will not be reimbursed unless they involve a business meeting.

5. LODGING

Lodging accommodations in reasonable and economically priced single occupancy rooms, including customary tips, are reimbursable if the employee has to stay away from home overnight because of unfinished business or an early morning business meeting.

Employees should request government rates at the time of making reservations.

6. INCIDENTALS

The incidentals allowance encompasses such things as gratuities and one telephone call a day of reasonable duration to the employee's home. It is anticipated that the cost of such calls generally will appear on the employee's hotel bill.

7. PERSONAL EXPENSES

Some travel expenses are considered personal and CRRA will not reimburse them. The following, while not all inclusive, lists examples of such personal expenses that are not reimbursable expenses: amusements, athletic events, barbers, books for personal reading, athletic court or gym costs, damage to luggage, fines, hair stylists, magazines, newspapers, movies, and saunas.

8. OTHER BUSINESS EXPENSES

With prior approval of the President, CRRA will reimburse an employee for the incidental costs necessary to further an important CRRA business purpose. Any foregoing expense must be reported to the Board at the Board's next Board of Directors meeting. Any such expense must be documented by showing the following:

- The name(s) of the person or persons and the location and nature of the expense.
- The business relationship with CRRA.
- The specific business reason for the expense.
- The actual business conducted.

CRRA will not reimburse the cost of home entertaining.

9. EXPENSE REPORTING

All expense reporting must be submitted to CRRA using the CRRA expense reimbursement form(s) within twenty working days after the day the employee returns from his/her trip.

10. RECEIPTS

Employees shall obtain receipts for all travel expenses, exclusive of mileage reimbursement. This includes receipts for all meals, airfare, bus fare, taxi, toll or parking charges in excess of $5.00 dollars, limousine, hotel, and registration fees. Travel expenses in excess of the stated guidelines herein will be reimbursed only if all receipts accompany expense vouchers. Expenses submitted without a receipt, except for gratuity and certain transfer charges, may not be reimbursed.

Original receipts are required for all entertainment.

11. EXCEPTIONS

Exceptions to these travel and expense guidelines will be authorized only upon the prior authorization of President when the circumstances warrant. Any such exception to these travel and expense guidelines should be documented and the President should notify the CRRA Board of Directors of such exception at the Board's next Board Meeting.

ORIGINAL

Approved by: Board of Directors
Effective Date: 05/20/04

REVISION 1

Prepared by: Jim Bolduc, Chief Financial Officer
Approved by: Board of Directors
Effective Date: 09/29/05

MONTHLY BILL FORMAT – LUMP SUM TASKS

In the following sub-exhibits are the Monthly Bill Formats for Lump Sum Tasks for each of the CRRA Landfills as follows:

- Exhibit E 1 – Ellington Landfill
- Exhibit E 2 – Hartford Landfill
- Exhibit E 3 – Shelton Landfill
- Exhibit E 4 – Wallingford Landfill

An Agreement for the Services for one of the Landfills will only include the Exhibit for that Landfill.

MONTHLY BILL FORMAT – LUMP SUM TASKS – ELLINGTON LANDFILL

Name of Contractor:	
Contract Number:	
Billing Period:	
Project Name:	**Environmental Monitoring, Laboratory Analysis and Reporting Services – Ellington Landfill**
Purchase Order Number:	

Task	Cost Type	Proposed Costs for Current Fiscal Year	% Complet - ed Current Billing Period	Dollars Earned Current Billing Period	% Complet - ed Year-To-Date
1. Quarterly Monitoring, Analysis, Reporting and Annual Reporting					
1.1 Sampling and Documentation of Field Activities	LS	$	%	$	%
1.2 Quarterly Laboratory Analysis	T&M NTE	SEE TIME AND MATERIALS BILL FORMAT			
1.3 Quarterly Reports - Water Quality Monitoring	LS	$	%	$	%
1.4 Non-Sampled Well Condition Survey & Water Elevations	LS	$	%	$	%
1.5 Annual Reports - Water Quality Monitoring	LS	$	%	$	%
Total Earned During Current Billing Period				$	%

MONTHLY BILL FORMAT – LUMP SUM TASKS – HARTFORD LANDFILL

Name of Contractor:	
Contract Number:	
Billing Period:	
Project Name:	**Environmental Monitoring, Laboratory Analysis and Reporting Services – Hartford Landfill**
Purchase Order Number:	

Task	Cost Type	Proposed Costs for Current Fiscal Year	% Complet - ed Current Billing Period	Dollars Earned Current Billing Period	% Complet - ed Year-To-Date
1. Quarterly Environmental Monitoring, Analysis, Reporting and Annual Reporting (Ground Water, Surface Water and Untreated Leachate					
1.1 Sampling and Documentation of Field Activities	LS	$	%	$	%
1.2 Quarterly Laboratory Analysis	T&M NTE	SEE TIME AND MATERIALS BILL FORMAT			
1.3 Quarterly Reports - Water Quality Monitoring	LS	$	%	$	%
1.4 Non-Sampled Well Condition Survey & Water Elevations	LS	$	%	$	%
1.5 Interim Quarterly Event Monitoring	T&M NTE	SEE TIME AND MATERIALS BILL FORMAT			
1.6 Annual Dioxin/Furan Monitoring, Lab Analysis and Reporting	LS	$	%	$	%
1.7 Annual Reports - Water Quality Monitoring	LS	$	%	$	%
2. Sanitary Discharge Monitoring, Laboratory Analysis and Reporting					
2.1 Sanitary Discharge Sampling	LS	$	%	$	%
2.2 Laboratory Analysis	T&M NTE	SEE TIME AND MATERIALS BILL FORMAT			
2.3 Reporting	LS	$	%	$	%
3. Dike Stability Monitoring and Reporting	LS	$	%	$	%
Total Earned During Current Billing Period				$	%

MONTHLY BILL FORMAT – LUMP SUM TASKS – SHELTON LANDFILL

Name of Contractor:	
Contract Number:	
Billing Period:	
Project Name:	**Environmental Monitoring, Laboratory Analysis and Reporting Services – Shelton Landfill**
Purchase Order Number:	

Task	Cost Type	Proposed Costs for Current Fiscal Year	% Complet - ed Current Billing Period	Dollars Earned Current Billing Period	% Complet - ed Year-To-Date
1. Semi-Annual Monitoring, Analysis, Reporting and Annual Reporting (Ground Water, Surface Water and Untreated Leachate)					
1.1 Sampling and Documentation of Field Activities	LS	$	%	$	%
1.2 Semi-Annual Laboratory Analysis	T&M NTE	SEE TIME AND MATERIALS BILL FORMAT			
1.3 Semi-Annual Reports - Water Quality Monitoring	LS	$	%	$	%
1.4 Non-Sampled Well Condition Survey & Water Elevations	LS	$	%	$	%
1.5 Annual Reports - Water Quality Monitoring	LS	$	%	$	%
1.6 Quality Assurance Project Plan	LS	$	%	$	%
2. Sanitary Discharge Monitoring, Laboratory Analysis and Reporting					
2.1 Sanitary Discharge Sampling	LS	$	%	$	%
2.2 Laboratory Analysis	T&M NTE	SEE TIME AND MATERIALS BILL FORMAT			
2.3 Reporting	LS	$	%	$	%
3. Habitat Mapping	LS	$	%	$	%
Total Earned During Current Billing Period				$	%

MONTHLY BILL FORMAT – LUMP SUM TASKS – WALLINGFORD LANDFILL

Name of Contractor:	
Contract Number:	
Billing Period:	
Project Name:	**Environmental Monitoring, Laboratory Analysis and Reporting Services – Wallingford Landfill**
Purchase Order Number:	

Task	Cost Type	Proposed Costs for Current Fiscal Year	% Complet - ed Current Billing Period	Dollars Earned Current Billing Period	% Complet - ed Year-To-Date
1. Semi-Annual Monitoring, Analysis, Reporting and Annual Reporting					
1.1 Sampling and Documentation of Field Activities	LS	$	%	$	%
1.2 Semi-Annual Laboratory Analysis	T&M NTE	SEE TIME AND MATERIALS BILL FORMAT			
1.3 Semi-Annual Reports - Water Quality Monitoring	LS	$	%	$	%
1.4 Non-Sampled Well Condition Survey & Water Elevations	LS	$	%	$	%
1.5 Annual PCB, Dioxins and Furans Monitoring, Lab Analysis and Reporting	T&M NTE	SEE TIME AND MATERIALS BILL FORMAT			
1.6 Annual Reports - Water Quality Monitoring	LS	$	%	$	%
2. Quality Assurance Project Plan Revision	LS	$	%	$	%
Total Earned During Current Billing Period				$	%

MONTHLY BILL FORMAT - TIME AND MATERIALS TASKS

Name of Contractor:	
Contract Number:	
Billing Period:	
Project Name:	**Environmental Monitoring, Laboratory Analysis and Reporting Services – [Name of Landfill]**
Purchase Order Number:	

TASK (Insert Task Number and Name; Use a separate set of tables for each task.)

Personnel	Title	Work Performed	Hours	Rate	Amount
(Insert Name of Person who worked on Task)					
(Insert Name of Person who worked on Task)					
(Insert Name of Person who worked on Task)					
Subtotal Personnel					

Ancillary Services/Equipment	Units	Rate	Amount
(Insert Name of Ancillary Services/Equipment used for Task)			
(Insert Name of Ancillary Services/Equipment used for Task)			
(Insert Name of Ancillary Services/Equipment used for Task)			
Subtotal Ancillary Services/Equipment			

Subcontractors	Invoice Amount*	Mark-up	Amount
(Insert name of subcontractor who worked on Task)			
(Insert name of subcontractor who worked on Task)			
(Insert name of subcontractor who worked on Task)			
Subtotal Subcontractors			

Subtotal for Task (Insert Task Number)	

TOTAL (Insert billing period for which bill is being submitted)	

* Attach a copy of the subcontractor's invoice.

SEEC FORM 11

NOTICE TO EXECUTIVE BRANCH STATE CONTRACTORS AND PROSPECTIVE STATE CONTRACTORS OF CAMPAIGN CONTRIBUTION AND SOLICITATION BAN

This notice is provided under the authority of Connecticut General Statutes 9-612(g)(2), as amended by P.A. 07-1, and is for the purpose of informing state contractors and prospective state contractors of the following law (italicized words are defined on the following page):

Campaign Contribution and Solicitation Ban
No *state contractor*, *prospective state contractor*, *principal of a state contractor or principal of a prospective state contractor*, with regard to a *state contract* or *state contract solicitation* with or from a state agency in the executive branch or a quasi-public agency or a holder, or principal of a holder of a valid prequalification certificate, shall make a contribution to, or *solicit* contributions on behalf of (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of Governor, Lieutenant Governor, Attorney General, State Comptroller, Secretary of the State or State Treasurer, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee;

In addition, no holder or principal of a holder of a valid prequalification certificate, shall make a contribution to, or solicit contributions on behalf of (i) an exploratory committee or candidate committee established by a candidate for nomination or election to the office of State senator or State representative, (ii) a political committee authorized to make contributions or expenditures to or for the benefit of such candidates, or (iii) a party committee.

Duty to Inform
State contractors and prospective state contractors are required to inform their principals of the above prohibitions, as applicable, and the possible penalties and other consequences of any violation thereof.

Penalties for Violations
Contributions or solicitations of contributions made in violation of the above prohibitions may result in the following civil and criminal penalties:

Civil penalties--$2000 or twice the amount of the prohibited contribution, whichever is greater, against a principal or a contractor. Any state contractor or prospective state contractor which fails to make reasonable efforts to comply with the provisions requiring notice to its principals of these prohibitions and the possible consequences of their violations may also be subject to civil penalties of $2000 or twice the amount of the prohibited contributions made by their principals.

Criminal penalties—Any knowing and willful violation of the prohibition is a Class D felony, which may subject the violator to imprisonment of not more than 5 years, or $5000 in fines, or both.

Contract Consequences
Contributions made or solicited in violation of the above prohibitions may result, in the case of a state contractor, in the contract being voided.

Contributions made or solicited in violation of the above prohibitions, in the case of a prospective state contractor, shall result in the contract described in the state contract solicitation not being awarded to the prospective state contractor, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

The State will not award any other state contract to anyone found in violation of the above prohibitions for a period of one year after the election for which such contribution is made or solicited, unless the State Elections Enforcement Commission determines that mitigating circumstances exist concerning such violation.

Additional information and the entire text of P.A 07-1 may be found on the website of the State Elections Enforcement Commission, www.ct.gov/seec. Click on the link to “State Contractor Contribution Ban.”

Definitions:

"State contractor" means a person, business entity or nonprofit organization that enters into a state contract. Such person, business entity or nonprofit organization shall be deemed to be a state contractor until December thirty-first of the year in which such contract terminates. "State contractor" does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person's capacity as a state or quasi-public agency employee.

"Prospective state contractor" means a person, business entity or nonprofit organization that (i) submits a response to a state contract solicitation by the state, a state agency or a quasi-public agency, or a proposal in response to a request for proposals by the state, a state agency or a quasi-public agency, until the contract has been entered into, or (ii) holds a valid prequalification certificate issued by the Commissioner of Administrative Services under section 4a-100. "Prospective state contractor" does not include a municipality or any other political subdivision of the state, including any entities or associations duly created by the municipality or political subdivision exclusively amongst themselves to further any purpose authorized by statute or charter, or an employee in the executive or legislative branch of state government or a quasi-public agency, whether in the classified or unclassified service and full or part-time, and only in such person's capacity as a state or quasi-public agency employee.

"Principal of a state contractor or prospective state contractor" means (i) any individual who is a member of the board of directors of, or has an ownership interest of five per cent or more in, a state contractor or prospective state contractor, which is a business entity, except for an individual who is a member of the board of directors of a nonprofit organization**,** (ii) an individual who is employed by a state contractor or prospective state contractor, which is a business entity, as president, treasurer or executive vice president, (iii) an individual who is the chief executive officer of a state contractor or prospective state contractor, which is not a business entity, or if a state contractor or prospective state contractor has no such officer, then the officer who duly possesses comparable powers and duties, (iv) an officer or an employee of any state contractor or prospective state contractor who has *managerial or discretionary responsibilities with respect to a state contract,* (v) the spouse or a *dependent child* who is eighteen years of age or older of an individual described in this subparagraph, or (vi) a political committee established or controlled by an individual described in this subparagraph or the business entity or nonprofit organization that is the state contractor or prospective state contractor.

"State contract" means an agreement or contract with the state or any state agency or any quasi-public agency, let through a procurement process or otherwise, having a value of fifty thousand dollars or more, or a combination or series of such agreements or contracts having a value of one hundred thousand dollars or more in a calendar year, for (i) the rendition of services, (ii) the furnishing of any goods, material, supplies, equipment or any items of any kind, (iii) the construction, alteration or repair of any public building or public work, (iv) the acquisition, sale or lease of any land or building, (v) a licensing arrangement, or (vi) a grant, loan or loan guarantee. "State contract" does not include any agreement or contract with the state, any state agency or any quasi-public agency that is exclusively federally funded, an education loan or a loan to an individual for other than commercial purposes.

"State contract solicitation" means a request by a state agency or quasi-public agency, in whatever form issued, including, but not limited to, an invitation to bid, request for proposals, request for information or request for quotes, inviting bids, quotes or other types of submittals, through a competitive procurement process or another process authorized by law waiving competitive procurement.

“Managerial or discretionary responsibilities with respect to a state contract” means having direct, extensive and substantive responsibilities with respect to the negotiation of the state contract and not peripheral, clerical or ministerial responsibilities.

“Dependent child” means a child residing in an individual’s household who may legally be claimed as a dependent on the federal income tax of such individual.

“Solicit” means (A) requesting that a contribution be made, (B) participating in any fund-raising activities for a candidate committee, exploratory committee, political committee or party committee, including, but not limited to, forwarding tickets to potential contributors, receiving contributions for transmission to any such committee or bundling contributions, (C) serving as chairperson, treasurer or deputy treasurer of any such committee, or (D) establishing a political committee for the sole purpose of soliciting or receiving contributions for any committee. Solicit does not include: (i) making a contribution that is otherwise permitted by Chapter 155 of the Connecticut General Statutes; (ii) informing any person of a position taken by a candidate for public office or a public official, (iii) notifying the person of any activities of, or contact information for, any candidate for public office; or (iv) serving as a member in any party committee or as an officer of such committee that is not otherwise prohibited in this section.

AFFIDAVIT CONCERNING NONDISCRIMINATION

[The Consultant's Affidavit Concerning Nondiscrimination that was submitted with the Consultant's Bid will be added by CRRA.]

CONNECTICUT RESOURCES RECOVERY AUTHORITY

AFFIDAVIT CONCERNING CONSULTING FEES

Pursuant to Section 4a-81 of the Connecticut General Statutes, this Affidavit must be completed and properly executed under penalty of false statement by a chief official of the successful statement of qualifications submitter for an Agreement (the "Contractor"). Such chief official of the Contractor must be the person who is properly authorized to execute the Agreement on behalf of the Contractor. This Affidavit must be properly executed at the same time that the Contractor executes the Agreement. If the Contractor fails to execute this Affidavit, the Contractor shall be disqualified for the Agreement.

I, the undersigned, am over the age of eighteen and understand and appreciate the obligation of an oath. I am _____ (title) of _____ (firm name), an entity duly formed and existing under the laws of _____ (name of state or commonwealth) ("Contractor").

I certify that I am authorized to execute and deliver this affidavit on behalf of Contractor, as follows:

1. Contractor seeks to enter into the "ENVIRONMENTAL MONITORING, LABORATORY ANALYSIS, AND REPORTING SERVICES" (the "Agreement") with the Connecticut Resources Recovery Authority ("CRRA");

2. Except as disclosed in Table 1 below and except for a consulting agreement that is with a consultant who is registered under the provisions of Chapter 10 of the Connecticut General Statutes[1] as of the date this Affidavit is submitted, Contractor has not entered into any consulting agreement[2] in connection with the Agreement whereby any duties of the consultant pursuant to said consulting agreement[2] require that consultant pursue communications concerning business of CRRA, whether or not direct contact with CRRA, a CRRA official, a CRRA employee, a state agency, a state or public official, or a state employee was expected or made;

3. Contractor shall amend this Affidavit whenever Contractor enters into any new consulting agreement[2] during the term of the Agreement; and

4. The statements set forth herein are true, to the best of my knowledge and belief, subject to the penalties of false statement.

[1] Pursuant to Section 1-94 of Chapter 10 the Connecticut General Statutes, a lobbyist as defined in the Chapter is required to register with the Office of State Ethics.

[2] Pursuant to Section 41-81 of the Connecticut General Statutes, for the purposes of this Affidavit, "consulting agreement" means "any written or oral agreement to retain the services, for a fee, of a consultant for the purposes of (A) providing counsel to a contractor, vendor, consultant or other entity seeking to conduct, or conducting, business with the state, (B) contacting, whether in writing or orally, any executive, judicial, or administrative office of the state, including any department, institution, bureau, board, commission, authority, official or employee for the purpose of solicitation, dispute resolution, introduction, requests for information, or (C) any other similar activity related to such contract. Consulting agreement does not include any agreements entered into with a consultant who is registered under the provisions of chapter 10 as of the date such affidavit is submitted in accordance with the provisions of this section.

TABLE 1: Disclosure of Consulting Agreements

(If Contractor has not entered into any consulting agreements[2] in connection with the Agreement, Contractor should enter "None" in the space provided for the "Name of Consultant.")

Name of Consultant:		
Name of Consultant's Firm:		
Description of the Basic Terms of the Consulting Agreement:		
Brief Description of the Services Provided:		
Is the Consultant a Former State Employee or Public Official?	☐ Yes	☐ No
If the answer to the question above concerning whether or not the consultant is a former state employee or public official is "Yes," the following information must be provided.		
Name of Former Agency:		
Date Employment Terminated:		

By (Signature): _____

Name (Print): _____

Title: _____

Sworn to before me this _____ day of _____ 20 ____

_____ _____

Notary Public/Commissioner of the Superior Court Commission Expiration Date

CONNECTICUT RESOURCES RECOVERY AUTHORITY

CONTRACTOR'S CERTIFICATION CONCERNING GIFTS

AGREEMENT FOR ENVIRONMENTAL MONITORING, LABORATORY ANALYSIS AND REPORTING SERVICES FOR THE [NAME OF LANDFILL] LANDFILL

(This CERTIFICATION is to be signed by an authorized officer of the Contractor or the Contractor's managing general partner.)

Section 4-252 of the *Connecticut General Statutes* requires that a Contractor (i.e., the successful bidder/proposer/statement of qualifications submitter for an Agreement) complete and properly execute this Certification Concerning Gifts at the same time that the Contractor executes the Agreement. If the Contractor fails to make the required certifications, the Contractor shall be disqualified for the Agreement.

I, _____, a duly authorized officer and/or representative of _____ (firm name) (the "Contractor"), being duly sworn, hereby depose and say that:

1. I am over eighteen (18) years of age and believe in the obligations of an oath; and

2. The Contractor has submitted a bid/proposal/statement of qualifications for the ""Agreement for Environmental Monitoring, Laboratory Analysis and Reporting Services for the [NAME OF LANDFILL] Landfill" (the "Agreement") to the Connecticut Resources Recovery Authority ("CRRA"), has been selected by CRRA as the successful bidder/proposer/statement of qualifications submitter for the Agreement and is prepared to enter into the Agreement with CRRA; and

3. No gifts were made between December, 2012 and the date of execution of the Agreement, by

   (a) The Contractor,

   (b) Any principals and key personnel of the Contractor who participated substantially in preparing the Contractor's bid/proposal/statement of qualifications for or the negotiation of the Agreement, or

   (c) Any agent of the Contractor or principals and key personnel who participated substantially in preparing the Contractor's bid/proposal/statement of qualifications for or the negotiation of the Agreement

   to

   (1) Any public official or employee of CRRA who participated substantially in the preparation of the bid/proposal/qualifications solicitation for or the negotiation or award of the Agreement (such CRRA employees are listed in Table 2 below), or

   (2) Any public official or state employee of any state agency who has supervisory or appointing authority over CRRA (such public officials and state employees are

listed in Table 3 below); and

4. No such principals and key personnel of the Contractor or agent of the Contractor or principals and key personnel knows of any action by Contractor to circumvent the prohibition on gifts by providing for any other principals and key personnel, official, employee or agent of the Contractor to provide a gift to any such public official or state employee; and

5. The Contractor made the bid/proposal/statement of qualifications for the Agreement without fraud or collusion with any person;

6. The information set forth herein is true, to the best of my knowledge and belief, subject to the penalties of false statement.

TABLE 2: CRRA Substantial Participants in the Preparation of the Request for Bids/Proposals for the Agreement

Chris Shepard, Senior Environmental Engineer
Roger Guzowski, Contract and Procurement Manager
Peter Egan, Director of Operations and Environmental Affairs
Tom Kirk, President

TABLE 3: Public Officials and State Employees of State Agencies Who Have Supervisory or Appointing Authority over CRRA

Governor Dannel P. Malloy
Senator Donald E. Williams, Jr., President Pro Tempore of the Senate
Senator John McKinney, Minority Leader of the Senate
Representative Brendan Sharkey, Speaker of the House of Representatives
Representative Lawrence F. Cafero, Jr., Minority Leader of the House of Representatives

Signature: _____

Name (type/print): _____

Title: _____

State Of: _____

County Of: _____

_____, being fully sworn, deposes and says that he/she is the _____ (Title) of _____ (Firm Name), the Contractor herein, that he/she has read the foregoing statement concerning gifts, and, under the penalty of perjury, certifies that each and every part of said statement is true to his/her best knowledge and belief.

Sworn to before me this _____ day of _____ 20 ___

_____
Notary Public/Commissioner of the Superior Court

For the purposes of this Certification Concerning Gifts, the following terms are defined as follows:

"Gift" means anything of value, which is directly and personally received, unless consideration of equal or greater value is given in return. "Gift" shall **not** include:

(1) A political contribution otherwise reported as required by law or a donation or payment as described in subdivision (9) or (10) of subsection (b) of section 9-333b of the *Connecticut General Statutes*;

(2) Services provided by persons volunteering their time, if provided to aid or promote the success or defeat of any political party, any candidate or candidates for public office or the position of convention delegate or town committee member or any referendum question;

(3) A commercially reasonable loan made on terms not more favorable than loans made in the ordinary course of business;

(4) A gift received from (A) an individual's spouse, fiance or fiancee, (B) the parent, brother or sister of such spouse or such individual, or (C) the child of such individual or the spouse of such child;

(5) Goods or services (A) which are provided to the state (i) for use on state property, or (ii) to support an event or the participation by a public official or state employee at an event, and (B) which facilitate state action or functions. As used in this Affidavit Concerning Gifts, "state property" means (i) property owned by the state, or (ii) property leased to an agency in the Executive or Judicial Department of the state;

(6) A certificate, plaque or other ceremonial award costing less than one hundred dollars;

(7) A rebate, discount or promotional item available to the general public;

(8) Printed or recorded informational material germane to state action or functions;

(9) Food or beverage or both, costing less than fifty dollars in the aggregate per recipient in a calendar year, and consumed on an occasion or occasions at which the person paying, directly or indirectly, for the food or beverage, or his representative, is in attendance;

(10) Food or beverage or both, costing less than fifty dollars per person and consumed at a publicly noticed legislative reception to which all members of the General Assembly are invited and which is hosted not more than once in any calendar year by a lobbyist or business organization. For the purposes of such limit, (A) a reception hosted by a lobbyist who is an individual shall be deemed to have also been hosted by the business organization which he owns or is employed by, and (B) a reception hosted by a business organization shall be deemed to have also been hosted by all owners and employees of the business organization who are lobbyists. In making the calculation for the purposes of such fifty-dollar limit, the donor shall divide the amount spent on food and beverage by the number of persons whom the donor reasonably expects to attend the reception;

(11) Food or beverage or both, costing less than fifty dollars per person and consumed at a publicly noticed reception to which all members of the General Assembly from a region of the state are invited and which is hosted not more than once in any calendar year by a lobbyist or business organization. For the purposes of such limit, (A) a reception hosted by a lobbyist who is an individual shall be deemed to have also been hosted by the business organization which he owns or is employed by, and (B) a reception hosted by a business organization shall be deemed to have also been hosted by all owners and employees of the business organization who are lobbyists. In making the calculation for the purposes of such fifty-dollar limit, the donor shall divide the amount spent on food and beverage by the number of persons whom the donor reasonably expects to attend the reception. As used in this subdivision, "region of the state" means the established geographic service area of the organization hosting the reception;

(12) Gifts costing less than one hundred dollars in the aggregate or food or beverage provided at a hospitality suite at a meeting or conference of an interstate legislative association, by a person who is not a registrant or is not doing business with the state of Connecticut;

(13) Admission to a charitable or civic event, including food and beverage provided at such event, but excluding lodging or travel expenses, at which a public official or state employee participates in his official capacity, provided such admission is provided by the primary sponsoring entity;

(14) Anything of value provided by an employer of (A) a public official, (B) a state employee, or (C) a spouse of a public official or state employee, to such official, employee or spouse, provided such benefits are customarily and ordinarily provided to others in similar circumstances; or

(15) Anything having a value of not more than ten dollars, provided the aggregate value of all things provided by a donor to a recipient under this subdivision in any calendar year shall not exceed fifty dollars.

“Participated substantially” means participation that is direct, extensive and substantive, and not peripheral, clerical or ministerial.

“Principals and key personnel” means officers, directors, shareholders, members, partners and managerial employees.

CONNECTICUT RESOURCES RECOVERY AUTHORITY

PRESIDENT'S CERTIFICATION CONCERNING GIFTS

AGREEMENT
FOR
ENVIRONMENTAL MONITORING, LABORATORY ANALYSIS AND REPORTING SERVICES FOR THE [NAME OF LANDFILL] LANDFILL

Awarded To

[NAME OF CONTRACTOR]

(This CERTIFICATION is to be signed by the President of CRRA at the time the Agreement is executed by him/her.)

By submission of this Certification, the President of the Connecticut Resources Recovery Authority ("CRRA") hereby certifies that the selection of the most qualified or highest ranked person, firm or corporation for the "Agreement for Environmental Monitoring, Laboratory Analysis and Reporting Services for the [NAME OF LANDFILL] Landfill" was not the result of collusion, the giving of a gift or the promise of a gift, compensation, fraud or inappropriate influence from any person.

Signature: _____

Name: **Thomas D. Kirk**

Title: **President**

State Of: **Connecticut**

County Of: **Hartford**

Thomas D. Kirk, being fully sworn, deposes and says that he is the President of the Connecticut Resources Recovery Authority, that he has read the forgoing statement concerning collusion, the giving of gifts or the promise of gifts, compensation, fraud or inappropriate influence and, under the penalty of perjury, certifies that each and every part of said statement is true.

Sworn to before me this _____ day of _____ 20_____

_____
Notary Public/Commissioner of the Superior Court