UIA

REPORT ON
PHASE II COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
225 221 – 257 CRESCENT STREET, WALTHAM, MA
RELEASE TRACKING NUMBERS: 3-0585, 3-19850
TIER IB PERMIT NO.: W002421
ADMINISTRATIVE CONSENT ORDER: ACO-NE-03-3P005

VOLUME I OF VIII

by

Haley & Aldrich, Inc.
Boston, Massachusetts

on behalf of

The First Republic Corporation of America
New York, New York

For submission to

Massachusetts Department of Environmental Protection
Boston, Massachusetts

File No. 05750-112
March 2005

HALEY & ALDRICH

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC108

Release Tracking Number

3 - 585

COMPREHENSIVE RESPONSE ACTION TRANSMITTAL FORM & PHASE I COMPLETION STATEMENT

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

A. SITE LOCATION:

1. Site Name: Former Waltham Industrial Labs
2. Street Address: 221-257 Crescent Street
3. City/Town: Waltham 4. ZIP Code: 02453-3425

MAR 02 2005

☑ 5. Check here if a Tier Classification Submittal has been provided to DEP for this disposal site.

☐ a. Tier IA ☑ b. Tier IB ☐ c. Tier IC ☐ d. Tier II

6. If applicable, provide the Permit Number: W002421

B. THIS FORM IS BEING USED TO: (check all that apply)

☐ 1. Submit a **Phase I Completion Statement**, pursuant to 310 CMR 40.0484.

☐ 2. Submit a **Revised Phase I Completion Statement**, pursuant to 310 CMR 40.0484.

☐ 3. Submit a **Phase II Scope of Work**, pursuant to 310 CMR 40.0834.

☐ 4. Submit an **interim Phase II Report**. This report does not satisfy the response action deadline requirements in 310 CMR 40.0500.

☑ 5. Submit a **final Phase II Report and Completion Statement**, pursuant to 310 CMR 40.0836.

☐ 6. Submit a **Revised Phase II Report and Completion Statement**, pursuant to 310 CMR 40.0836.

☑ 7. Submit a **Phase III Remedial Action Plan and Completion Statement**, pursuant to 310 CMR 40.0862.

☐ 8. Submit a **Revised Phase III Remedial Action Plan and Completion Statement**, pursuant to 310 CMR 40.0862.

☐ 9. Submit a **Phase IV Remedy Implementation Plan**, pursuant to 310 CMR 40.0874.

☐ 10. Submit a **Modified Phase IV Remedy Implementation Plan**, pursuant to 310 CMR 40.0874.

☐ 11. Submit an **As-Built Construction Report**, pursuant to 310 CMR 40.0875.

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(All sections of this transmittal form must be filled out unless otherwise noted above)

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC108

COMPREHENSIVE RESPONSE ACTION TRANSMITTAL FORM & PHASE I COMPLETION STATEMENT
Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

Release Tracking Number 3 - 585

MAR 0 2 2005

B. THIS FORM IS BEING USED TO (cont.): (check all that apply)

☐ 12. Submit a **Phase IV Final Inspection Report and Completion Statement**, pursuant to 310 CMR 40.0878 and 40.0879.

Specify the outcome of Phase IV activities: (check one)

☐ a. Phase V Operation, Maintenance or Monitoring of the Comprehensive Remedial Action is necessary to achieve a Response Action Outcome.

☐ b. The requirements of a Class A Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.

☐ c. The requirements of a Class C Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.

☐ d. The requirements of a Class C Response Action Outcome have been met. Further Operation, Maintenance or Monitoring of the remedial action is necessary to ensure that conditions are maintained and that further progress is made toward a Permanent Solution. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.

☐ 13. Submit a **Revised Phase IV Final Inspection Report and Completion Statement**, pursuant to 310 CMR 40.0878 and 40.0879.

☐ 14. Submit a **periodic Phase V Inspection & Monitoring Report**, pursuant to 310 CMR 40.0892.

☐ 15. Submit a **Remedy Operation Status**, pursuant to 310 CMR 40.0893.

☐ 16. Submit a **periodic Inspection & Monitoring Report to maintain a Remedy Operation Status**, pursuant to 310 CMR 40.0893(2).

☐ 17. Submit a **Termination of a Remedy Operation Status**, pursuant to 310 CMR 40.0893(5).

☐ 18. Submit a **final Phase V Inspection & Monitoring Report and Completion Statement**, pursuant to 310 CMR 40.0894.

Specify the outcome of Phase V activities: (check one)

☐ a. The requirements of a Class A Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement (BWSC104) will be submitted to DEP.

☐ b. The requirements of a Class C Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.

☐ c. The requirements of a Class C Response Action Outcome have been met. Further Operation, Maintenance or Monitoring of the remedial action is necessary to ensure that conditions are maintained and/or that further progress is made toward a Permanent Solution. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.

☐ 19. Submit a **Revised Phase V Inspection & Monitoring Report and Completion Statement**, pursuant to 310 CMR 40.0894.

☐ 20. Submit a **Post-Response Action Outcome Inspection & Monitoring Report**, pursuant to 310 CMR 40.0897.

(All sections of this transmittal form must be filled out unless otherwise noted above)

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC108

COMPREHENSIVE RESPONSE ACTION TRANSMITTAL FORM & PHASE I COMPLETION STATEMENT

Release Tracking Number 3 - 585

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

C. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> *if Section B indicates that a* ***Phase I, Phase II, Phase III, Phase IV or Phase V Completion Statement*** *is being submitted*, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> *if Section B indicates that a* ***Phase II Scope of Work*** *or a* ***Phase IV Remedy Implementation Plan*** *is being submitted*, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> *if Section B indicates that an* ***As-Built Construction Report, Phase V Inspection and Monitoring Report,*** *or a* ***Remedy Operation Status*** *is being submitted*, the response action(s) that is (are) the subject of this submittal (i) is (are) being implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: 3195

2. First Name: Paul 3. Last Name: Ozarowski

4. Telephone: (617) 886-7347 5. Ext: ______ 6. FAX: (617) 886-7647

7. Signature: Paul P. Ozarowski

8. Date: 03/01/2005 (mm/dd/yyyy)

9. LSP Stamp: COMMONWEALTH OF MASSACHUSETTS PAUL P. OZAROWSKI No. 3195 REGISTERED LICENSED SITE PROFESSIONAL

MAR 02 2005

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC108

COMPREHENSIVE RESPONSE ACTION TRANSMITTAL FORM & PHASE I COMPLETION STATEMENT

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

Release Tracking Number: 3 - 585

D. PERSON UNDERTAKING RESPONSE ACTIONS:

1. Check all that apply: ☐ a. change in contact name ☐ b. change of address ☐ c. change in the person undertaking response actions
2. Name of Organization: The First Republic Corporation of America

MAR 0 2 2005

3. Contact First Name: Miles 4. Last Name: Berman
5. Street: 302 Fifth Avenue 6. Title: Vice President
7. City/Town: New York 8. State: NY 9. ZIP Code: 10001-3604
10. Telephone: (212) 279-6100 11. Ext.: ______ 12. FAX: (212) 629-6848

E. RELATIONSHIP TO SITE OF PERSON UNDERTAKING RESPONSE ACTIONS:

☑ 1. RP or PRP ☑ a. Owner ☐ b. Operator ☐ c. Generator ☐ d. Transporter

☐ e. Other RP or PRP Specify: ______

☐ 2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

☐ 3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

☐ 4. Any Other Person Undertaking Response Actions Specify Relationship: ______

F. REQUIRED ATTACHMENT AND SUBMITTALS:

☑ 1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.

☑ 2. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of any Phase Reports to DEP.

☑ 3. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the availability of a Phase III Remedial Action Plan.

☐ 4. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the availability of a Phase IV Remedy Implementation Plan.

☐ 5. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of any field work involving the implementation of a Phase IV Remedial Action.

☐ 6. Check here if any non-updatable information provided on this form is incorrect, e.g. Site Name. Send corrections to the DEP Regional Office.

☐ 7. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC108

COMPREHENSIVE RESPONSE ACTION TRANSMITTAL FORM & PHASE I COMPLETION STATEMENT

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

Release Tracking Number 3 - 585

G. CERTIFICATION OF PERSON UNDERTAKING RESPONSE ACTIONS:

1. I, Miles Berman, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: [signature] Signature

3. Title: Vice President

4. For: The First Republic Corporation of America (Name of person or entity recorded in Section D)

5. Date: 2/25/05 (mm/dd/yyyy)

☐ 6. Check here if the address of the person providing certification is different from address recorded in Section D.

7. Street: ______

8. City/Town: ______ 9. State: ______ 10. ZIP Code: ______

11. Telephone: ______ 12. Ext.: ______ 13. FAX: ______

YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO $10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (DEP USE ONLY:)

MAR 0 2 2005

ATTACHMENT
BWSC-108 COMPREHENSIVE RESPONSE ACTION TRANSMITTAL FORM
SECTION F: REQUIRED ATTACHMENT

Phase II - Comprehensive Site Assessment Report
Phase III - Remedial Action Plan
Former Waltham Industrial Labs
221-257 Crescent Street
Waltham, Massachusetts
Release Tracking Nos. 3-0585, 3-19850
Tier IB Permit No. W002421

MAR 02 2005

Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you must submit a statement identifying the applicable provisions thereof.

- MADEP BWSC Tier I Permit, Tier IB Permit No. W002421, effective date: 12 May 1999.
- NOTICE OF NONCOMPLIANCE WITH THE MCP, 18 November 2002, NON-NE-02-3P-016.
- Haley & Aldrich, Inc., RESPONSE TO NOTICE OF NONCOMPLIANCE NON-NE-02-3P-016), Former Waltham Industrial Labs, 225 Crescent Street, Waltham, Massachusetts, Permit Number: W002421, Release Tracking Number: 3-0585, dated 20 December 2002.
- Administrative Consent Order, ACO#NE-03-3P005, 18 July 2003.
- MADEP Decision to Grant Permit Extension with Conditions, Transmittal # W047982, Permit No. W002421, 18 March 2004.
- Waltham Conservation Commission, Order of Conditions, 15 May 2000, MA DEP File No. 316-0423.
- Waltham Conservation Commission, Order of Conditions, 4 September 2003, MA DEP File No. 316-0499.

Paul P. Ozarowski is the LSP for the project. The LSP seal and signature are provided on the Comprehensive Response Action Transmittal Form & Phase II/Phase III Completion Statement (BWSC-108). The attached Supplemental Phase II Comprehensive Site Assessment Report contains material facts, data, and other information that support the LSP Opinion that the response actions that are the subject of this submittal (i) have been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) are appropriate and reasonable to accomplish the purposes of such response actions as set forth in the applicable provisions of M.G.L.c.21E and 310 CMR 40.0000 and (iii) comply with the identified provisions of all orders, permits, and approvals identified in this submittal, with the exception that due to the complexity of this disposal site, the Performance Standards required for a Phase

II – Comprehensive Site Assessment (310 CMR 40.0833) could not be completed within two years of the effective date of the Tier IB Permit, thereby delaying Phase II through IV submittals and an RAO Statement beyond required Response Action Deadlines at 310 CMR 40.0550.

The Phase II Comprehensive Site Assessment and the Phase III Remedial Action Plan presented herein are being submitted in accordance with the deadlines stipulated in ACO-NE-03-3P005 and Decision to Grant Tier IB Extension, 18 March 2004.

Haley & Aldrich, Inc.
465 Medford St.
Suite 2200
Boston, MA 02129-1400

Tel: 617.886.7400
Fax: 617.886.7600
HaleyAldrich.com

HALEY & ALDRICH

1 March 2005
File No. 05750-112

MAR 0 2 2005

City of Waltham
Health Department
119 School Street
Waltham, Massachusetts 02451

Subject: Notice of the Availability of Phase II and Phase III Reports
Former Waltham Industrial Labs
221 to 257 Crescent Street
Waltham, Massachusetts

Ladies and Gentlemen:

Pursuant to the Massachusetts Contingency Plan (MCP) 40.1403(3)(3), the purpose of this letter is to notify the City of Waltham of the availability of a Phase II – Comprehensive Site Assessment Report and Phase III – Remedial Action Plan for the Former Waltham Industrial Labs disposal site Release Tracking Nos: 3-0585, 3-19850. These documents are being submitted to the Massachusetts Department of Environmental Protection on 1 March 2005.

An appointment to review the Phase II and Phase III Reports can be made by contacting the DEP at (617) 654-6500. Alternatively, a copy of the documents is being provided to the City of Waltham Conservation Commission. If there are any questions or comments, please do not hesitate to call or write.

Sincerely yours,
HALEY & ALDRICH, INC.

Paul P. Ozarowski

Paul P. Ozarowski, LSP
Vice President

Enclosure
G:\05750\112\PhaseII\PhaseIIReportMar05\healthnotice.doc

Haley & Aldrich, Inc.
465 Medford St.
Suite 2200
Boston, MA 02129-1400

Tel. 617.886.7400
Fax: 617.886.7600
HaleyAldrich.com

HALEY & ALDRICH

1 March 2005
File No. 05750-112

MAR 0 2 2005

Office of the Mayor
City of Waltham
City Hall
610 Main Street
Waltham, Massachusetts 02452

Subject: Notice of the Availability of Phase II and Phase III Reports
Former Waltham Industrial Labs
221 to 257 Crescent Street
Waltham, Massachusetts

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Portland
Maine

Providence
Rhode Island

Rochester
New York

San Diego
California

Santa Barbara
California

Tucson
Arizona

Washington
District of Columbia

Ladies and Gentlemen:

Pursuant to the Massachusetts Contingency Plan (MCP) 40.1403(3)(3), the purpose of this letter is to notify the City of Waltham of the availability of a Phase II – Comprehensive Site Assessment Report and Phase III – Remedial Action Plan for the Former Waltham Industrial Labs disposal site Release Tracking Nos: 3-0585, 3-19850. These documents are being submitted to the Massachusetts Department of Environmental Protection on 1 March 2005.

An appointment to review the Phase II and Phase III Reports can be made by contacting the DEP at (617) 654-6500. Alternatively, a copy of the documents is being provided to the City of Waltham Conservation Commission. If there are any questions or comments, please do not hesitate to call or write.

Sincerely yours,
HALEY & ALDRICH, INC.

Paul P. Ozarowski

Paul P. Ozarowski, LSP
Vice President

Enclosure
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Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

N/A - C

BWSC108

COMPREHENSIVE RESPONSE ACTION TRANSMITTAL FORM & PHASE I COMPLETION STATEMENT

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

Release Tracking Number: 3 - 19850

A. SITE LOCATION:

1. Site Name: Former Underground Gasoline Storage Tanks

2. Street Address: 221-257 Crescent Street

MAR 02 2005

3. City/Town: Waltham 4. ZIP Code: 02453-3425

☑ 5. Check here if a Tier Classification Submittal has been provided to DEP for this disposal site.

☐ a. Tier IA ☐ b. Tier IB ☐ c. Tier IC ☑ d. Tier II

6. If applicable, provide the Permit Number: ______

B. THIS FORM IS BEING USED TO: (check all that apply)

☐ 1. Submit a **Phase I Completion Statement**, pursuant to 310 CMR 40.0484.

☐ 2. Submit a **Revised Phase I Completion Statement**, pursuant to 310 CMR 40.0484.

☐ 3. Submit a **Phase II Scope of Work**, pursuant to 310 CMR 40.0834.

☐ 4. Submit an **interim Phase II Report**. This report does not satisfy the response action deadline requirements in 310 CMR 40.0500.

☑ 5. Submit a **final Phase II Report and Completion Statement**, pursuant to 310 CMR 40.0836.

☐ 6. Submit a **Revised Phase II Report and Completion Statement**, pursuant to 310 CMR 40.0836.

☐ 7. Submit a **Phase III Remedial Action Plan and Completion Statement**, pursuant to 310 CMR 40.0862.

☐ 8. Submit a **Revised Phase III Remedial Action Plan and Completion Statement**, pursuant to 310 CMR 40.0862.

☐ 9. Submit a **Phase IV Remedy Implementation Plan**, pursuant to 310 CMR 40.0874.

☐ 10. Submit a **Modified Phase IV Remedy Implementation Plan**, pursuant to 310 CMR 40.0874.

☐ 11. Submit an **As-Built Construction Report**, pursuant to 310 CMR 40.0875.

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NORTHEAST REGIONAL OFFICE

(All sections of this transmittal form must be filled out unless otherwise noted above)

MAR 0 2 2005

B. THIS FORM IS BEING USED TO (cont.): (check all that apply)

☐ 12. Submit a **Phase IV Final Inspection Report and Completion Statement**, pursuant to 310 CMR 40.0878 and 40.0879.

Specify the outcome of Phase IV activities: (check one)

☐ a. Phase V Operation, Maintenance or Monitoring of the Comprehensive Remedial Action is necessary to achieve a Response Action Outcome.

☐ b. The requirements of a Class A Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.

☐ c. The requirements of a Class C Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.

☐ d. The requirements of a Class C Response Action Outcome have been met. Further Operation, Maintenance or Monitoring of the remedial action is necessary to ensure that conditions are maintained and that further progress is made toward a Permanent Solution. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.

☐ 13. Submit a **Revised Phase IV Final Inspection Report and Completion Statement**, pursuant to 310 CMR 40.0878 and 40.0879.

☐ 14. Submit a **periodic Phase V Inspection & Monitoring Report**, pursuant to 310 CMR 40.0892.

☐ 15. Submit a **Remedy Operation Status**, pursuant to 310 CMR 40.0893.

☐ 16. Submit a **periodic Inspection & Monitoring Report to maintain a Remedy Operation Status**, pursuant to 310 CMR 40.0893(2).

☐ 17. Submit a **Termination of a Remedy Operation Status**, pursuant to 310 CMR 40.0893(5).

☐ 18. Submit a **final Phase V Inspection & Monitoring Report and Completion Statement**, pursuant to 310 CMR 40.0894.

Specify the outcome of Phase V activities: (check one)

☐ a. The requirements of a Class A Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement (BWSC104) will be submitted to DEP.

☐ b. The requirements of a Class C Response Action Outcome have been met. No additional Operation, Maintenance or Monitoring is necessary to ensure the integrity of the Response Action Outcome. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.

☐ c. The requirements of a Class C Response Action Outcome have been met. Further Operation, Maintenance or Monitoring of the remedial action is necessary to ensure that conditions are maintained and/or that further progress is made toward a Permanent Solution. A completed Response Action Outcome Statement and Report (BWSC104) will be submitted to DEP.

☐ 19. Submit a **Revised Phase V Inspection & Monitoring Report and Completion Statement**, pursuant to 310 CMR 40.0894.

☐ 20. Submit a **Post-Response Action Outcome Inspection & Monitoring Report**, pursuant to 310 CMR 40.0897.

(All sections of this transmittal form must be filled out unless otherwise noted above)

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC108

COMPREHENSIVE RESPONSE ACTION TRANSMITTAL FORM & PHASE I COMPLETION STATEMENT

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

Release Tracking Number 3 - 19850

C. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> *if Section B indicates that a* ***Phase I, Phase II, Phase III, Phase IV or Phase V Completion Statement*** *is being submitted*, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> *if Section B indicates that a* ***Phase II Scope of Work*** *or a* ***Phase IV Remedy Implementation Plan*** *is being submitted*, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> *if Section B indicates that an* ***As-Built Construction Report, Phase V Inspection and Monitoring Report,*** *or a* ***Remedy Operation Status*** *is being submitted*, the response action(s) that is (are) the subject of this submittal (i) is (are) being implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: 3195

2. First Name: Paul 3. Last Name: Ozarowski

4. Telephone: (617) 886-7347 5. Ext.: ______ 6. FAX: (617) 886-7647

7. Signature: Paul P. Ozarowski

8. Date: 03/01/2005 (mm/dd/yyyy)

9. LSP Stamp: COMMONWEALTH OF MASSACHUSETTS PAUL P. OZAROWSKI No. 3195 REGISTERED LICENSED SITE PROFESSIONAL

MAR 02 2005

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

COMPREHENSIVE RESPONSE ACTION TRANSMITTAL FORM & PHASE I COMPLETION STATEMENT

Pursuant to 310 CMR 40.0484 (Subpart D) and 40.0800 (Subpart H)

BWSC108

Release Tracking Number

3 - 19850

D. PERSON UNDERTAKING RESPONSE ACTIONS:

1. Check all that apply: ☐ a. change in contact name ☐ b. change of address ☐ c. change in the person undertaking response actions

2. Name of Organization: The First Republic Corporation of America

MAR 0 2 2005

3. Contact First Name: Miles 4. Last Name: Berman

5. Street: 302 Fifth Avenue 6. Title: Vice President

7. City/Town: New York 8. State: NY 9. ZIP Code: 10001-3604

10. Telephone: (212) 279-6100 11. Ext.: 12. FAX: (212) 629-6848

E. RELATIONSHIP TO SITE OF PERSON UNDERTAKING RESPONSE ACTIONS:

☑ 1. RP or PRP ☑ a. Owner ☐ b. Operator ☐ c. Generator ☐ d. Transporter

☐ e. Other RP or PRP Specify:

☐ 2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

☐ 3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

☐ 4. Any Other Person Undertaking Response Actions Specify Relationship:

F. REQUIRED ATTACHMENT AND SUBMITTALS:

☑ 1. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.

☑ 2. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of any Phase Reports to DEP.

☐ 3. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the availability of a Phase III Remedial Action Plan.

☐ 4. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the availability of a Phase IV Remedy Implementation Plan.

☐ 5. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of any field work involving the implementation of a Phase IV Remedial Action.

☐ 6. Check here if any non-updatable information provided on this form is incorrect, e.g. Site Name. Send corrections to the DEP Regional Office.

☐ 7. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.

ATTACHMENT
BWSC-108 COMPREHENSIVE RESPONSE ACTION TRANSMITTAL FORM
SECTION F: REQUIRED ATTACHMENT

Phase II - Comprehensive Site Assessment Report
Former Gasoline USTs Location
221-257 Crescent Street
Waltham, Massachusetts
Release Tracking Nos. 3-19850

MAR 0 2 2005

Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you must submit a statement identifying the applicable provisions thereof.

- Administrative Consent Order, ACO#NE-03-3P005, 18 July 2003.
- MADEP Decision to Grant Permit Extension with Conditions, Transmittal # W047982, Permit No. W002421, 18 March 2004.
- Waltham Conservation Commission, Order of Conditions, 15 May 2000, MA DEP File No. 316-0423.
- Waltham Conservation Commission, Order of Conditions, 4 September 2003, MA DEP File No. 316-0499.

Paul P. Ozarowski is the LSP for the project. The LSP seal and signature are provided on the Comprehensive Response Action Transmittal Form & Phase II Completion Statement(BWSC-108). The attached Supplemental Phase II Comprehensive Site Assessment Report contains material facts, data, and other information that support the LSP Opinion that the response actions that are the subject of this submittal (i) have been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) are appropriate and reasonable to accomplish the purposes of such response actions as set forth in the applicable provisions of M.G.L.c.21E and 310 CMR 40.0000 and (iii) comply with the identified provisions of all orders, permits, and approvals identified in this submittal, with the exception that due to the complexity of this disposal site and related disposal sites on the property (RTN 3-0585), the Performance Standards required for a Phase II – Comprehensive Site Assessment (310 CMR 40.0833) could not be completed within two years of the effective date of the Tier classification, thereby delaying the Phase II submittal and an RAO Statement beyond required Response Action Deadlines at 310 CMR 40.0550.

The Phase II Comprehensive Site Assessment presented herein is being submitted in accordance with the deadlines stipulated in ACO-NE-03-3P005 and a Decision to Grant Tier IB Extension, 18 March 2004 for RTN 3-0585.

Haley & Aldrich, Inc.
465 Medford St.
Suite 2200
Boston, MA 02129-1400

Tel: 617.886.7400
Fax: 617.886.7600
HaleyAldrich.com

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ALDRICH

1 March 2005
File No. 05750-112

City of Waltham
Health Department
119 School Street
Waltham, Massachusetts 02451

MAR 0 2 2005

Subject: Notice of the Availability of Phase II and Phase III Reports
Former Waltham Industrial Labs
221 to 257 Crescent Street
Waltham, Massachusetts

Ladies and Gentlemen:

Pursuant to the Massachusetts Contingency Plan (MCP) 40.1403(3)(3), the purpose of this letter is to notify the City of Waltham of the availability of a Phase II – Comprehensive Site Assessment Report and Phase III – Remedial Action Plan for the Former Waltham Industrial Labs disposal site Release Tracking Nos: 3-0585, 3-19850. These documents are being submitted to the Massachusetts Department of Environmental Protection on 1 March 2005.

An appointment to review the Phase II and Phase III Reports can be made by contacting the DEP at (617) 654-6500. Alternatively, a copy of the documents is being provided to the City of Waltham Conservation Commission. If there are any questions or comments, please do not hesitate to call or write.

Sincerely yours,
HALEY & ALDRICH, INC.

Paul P. Ozarowski

Paul P. Ozarowski, LSP
Vice President

Enclosure
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1 March 2005
File No. 05750-112

Office of the Mayor
City of Waltham
City Hall
610 Main Street
Waltham, Massachusetts 02452

MAR 0 2 2005

Subject: Notice of the Availability of Phase II and Phase III Reports
Former Waltham Industrial Labs
221 to 257 Crescent Street
Waltham, Massachusetts

Ladies and Gentlemen:

Pursuant to the Massachusetts Contingency Plan (MCP) 40.1403(3)(3), the purpose of this letter is to notify the City of Waltham of the availability of a Phase II – Comprehensive Site Assessment Report and Phase III – Remedial Action Plan for the Former Waltham Industrial Labs disposal site Release Tracking Nos: 3-0585, 3-19850. These documents are being submitted to the Massachusetts Department of Environmental Protection on 1 March 2005.

An appointment to review the Phase II and Phase III Reports can be made by contacting the DEP at (617) 654-6500. Alternatively, a copy of the documents is being provided to the City of Waltham Conservation Commission. If there are any questions or comments, please do not hesitate to call or write.

Sincerely yours,
HALEY & ALDRICH, INC.

Paul P. Ozarowski

Paul P. Ozarowski, LSP
Vice President

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Washington *District of Columbia*

1 March 2005
File No. 05750-112

HALEY & ALDRICH

Massachusetts Department of Environmental Protection
Northeast Regional Office
1 Winter Street
Boston, Massachusetts 02108

MAR 02 2005

Attention: Richard J. Chalpin

Subject: Phase II Comprehensive Site Assessment
Former Waltham Industrial Labs and Former Gasoline USTs Release
221 - 257 Crescent Street, Waltham, Massachusetts
Release Tracking Numbers 3-0585, 3-19850
Tier IB Permit Number: W002421
ACO# NE-03-3P005

OFFICES

Ladies and Gentlemen:

On behalf of our client, The First Republic Corporation of America (FRCA) (the property owner), Haley & Aldrich, Inc., (Haley & Aldrich) is providing this Phase II - Comprehensive Site Assessment Report for the subject disposal sites. The disposal sites are the Former Waltham Industrial Labs, and the Former Gasoline USTs Release, both located within the historic Waltham Watch Company mill complex. Copies of the BWSC-108 Transmittal Forms accompanying this report are provided in Appendix A. A Phase III - Remedial Action Plan for RTN 3-0585 has also been prepared and is provided under separate cover.

Please do not hesitate to contact us if you have questions or comments on the results of our Phase II activities.

Sincerely yours,
HALEY & ALDRICH, INC.

for Jenny Liu
Staff Scientist

John P. Fitzgerald, P.G.
Senior Environmental Geologist

Paul P. Ozarowski, P.E., LSP
Vice President

c: Mr. Miles Berman; The First Republic Corporation of America
Mr. Michael Finnell; Waltham Engineering Center
Waltham Conservation Commission

Enclosures

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1. INTRODUCTION

1.1 Disposal Site Name and Location

The Former Waltham Industrial Labs disposal site (Release Tracking Number RTN: 3-0585, Tier IB Permit No.: W002421) is located within the historic Waltham Watch Company mill complex at 225 Crescent Street, Waltham, Massachusetts. The historic mill complex is now occupied by the Waltham Engineering Center (WEC), 241 Crescent Street. The WEC occupies the eastern bank of the Charles River immediately upstream (south) of the Prospect Street bridge in Waltham. The Project Locus (Figure 1) shows the location of the property and the surrounding topography and nearby topographic features. The latitude and longitude of the property is shown on the Project Locus (Figure 1).

A surveyed Property Plan showing subsurface exploration locations is provided as Figure 2. The former Waltham Industrial Labs was located in Buildings 16, 17, 18, and 19 of the mill complex. In addition, release(s) of oil and chlorinated solvents in soil and groundwater adjacent to Building 27 (Release Tracking Number 3-20575) were identified following Immediate Response Actions at a former ethyl acetate underground storage tank (UST) location. This release is located primarily beneath the riverside access drive between Building 27 and the Charles River. This release near Building 27 was subsequently linked to the Former Waltham Industrial Labs disposal site (3-0585). The general areas of Building 27 and Buildings 16, 17, 18, and 19 are shown on Figure 2. The former Waltham Industrial Labs and the linked Building 27 releases are the disposal site and the focus of this Preliminary Phase II – Comprehensive Site Assessment.

A former gasoline underground storage tank facility, located in the central portion of the property is a separate release (RTN: 3-19850) currently in Phase II. This Phase II – Comprehensive Site Assessment Report also includes evaluation of this separate disposal site, which overlies the limits of the Waltham Industrial Labs and linked Building 27 disposal site, as shown on Figure 30, as these are linked under the terms of Administrative Consent Order ACO# NE-03-3P005, which was executed for these disposal sites on 17 July 2003.

1.2 Disposal Site History (Release Tracking Numbers RTN: 3-0585 and 3-19850, Tier IB Permit No.: W002421)

The property has over a 150-year history of industrial use. Waltham Watch Company originally purchased the land from the Bemis family in 1854. Prior to 1854, the land was used as farmland. Waltham Watch Company and its corporate predecessors owned the site and conducted watch manufacturing activities from 1854 to 1954.

Based on review of historical Watch Company plans, Waltham Watch conducted watch manufacturing, assembly, and plating and gilding of parts. The historical plans document the use of underground storage tanks (USTs) for the storage of varsol, ethyl acetate, gasoline, and fuel oils. Gasoline "washes" are identified, as well as a kerosene /trichloroethylene "distillery" in Building 27. Review of the historical plans suggests that kerosene/gasoline were used as a degreasing agent (shown on a 1930 plan) prior to trichloroethylene which appears to have been initially used on the site circa 1940 (as identified on a 1944 plan of the facility). During World War II, some of the factory was used for the production of radio components and other instrumentation for the war effort.

The First Republic Corporation of America (FRCA) purchased the property in 1961. Waltham Industrial Labs conducted electroplating operations at the disposal site from approximately 1959 to 30 March 1984, when it ceased operations.

Waltham Industrial Labs conducted electroplating on the site. The company electroplated zinc, tin, copper, cadmium, chromium, nickel, and black oxide onto aluminum, brass, steel, and novelty items such as shoes. According to historical Watch Company Plans, plating, gilding and hardening were also conducted in Buildings 16, 17, 18, and 19 during the first half of the 20th century.

During the period 1984 through 1988, FRCA conducted remedial actions at the former Waltham Industrial Labs, in accordance with DEQE requisite actions and concurrence. Electroplating sludge and contaminated soils were removed from crawlspaces beneath the floor in Buildings 18 and 19. DEQE then allowed the backfilling of the crawlspaces and the construction of a concrete slab-on-grade floor in Buildings 18 and 19. In addition, surficial soils to an approximate depth of 4 in. were excavated from an unlined trench located in the basement of Building 16 and containerized for disposal. The basement trench was backfilled with concrete so that remaining sub-slab soils were not exposed. Visually contaminated soils observed in a sump associated with the unlined trench were also excavated. The sump was also filled with concrete. Haley & Aldrich documented the remedial work in a letter report dated 22 May 1987. DEQE considered the remedial response adequate and required two rounds of follow up groundwater sampling and testing. Haley & Aldrich documented the results of the sampling in two reports dated 30 November 1987 and 29 February 1988.

During 1988, reports of discoloration and efflorescence on interior and exterior brick wall surfaces of Building 16 prompted some testing of indoor air quality and covering of interior wall surfaces with gypsum wall board and exterior brick surface with vinyl siding. Follow-up air quality testing in Buildings 16, 18, 19 and 27 has been conducted as part of the Phase II activities presented herein.

DEQE suspended oversight of response actions at the disposal site in November 1989. The former Waltham Industrial Labs site was included on the CERCLIS list (MAD0010142927) due to the historical disposal of electroplating sludge in the crawlspaces. As a result of the listing, Roy F. Weston completed a Site Inspection Prioritization in 1996. Weston conducted a site visit, and compiled operational and regulatory histories and previous studies. The work included sampling and analysis of sediment samples collected off the field stone retaining wall in front of the former Waltham Industrial Labs facility. Based on the results of the Weston work, the site is not proposed for listing on the National Priorities List.

The former Waltham Industrial Labs disposal site was listed as default Tier IB under the Massachusetts Contingency Plan on 16 April 1998. A Tier Classification Submittal and Tier IB Permit Application submitted to MADEP is dated 5 February 1999. The Former Waltham Industrial Labs disposal site is now classified as Tier IB (Permit W002421), effective 12 May 1999.

A previously-unidentified UST was encountered on 11 August 2000 during trench excavation activities (conducted for purposes of installing a natural gas utility service pipeline) along the property riverside access drive. One 425-gallon gasoline UST and one 515-gallon gasoline UST, located near the boiler room for the facility, were removed on 18 August 2000 (Figure 2).

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The release identified at this UST location involved conduct of an Immediate Response Action. A 72-Hour Reporting Condition was identified during the UST removals (headspace > 100 ppmv in jar samples). An Assessment-Only IRA Completion Report, dated 15 June 2001, was prepared and filed for this release, along with an IRA Completion Statement. A Phase I – Initial Site Investigation Report and Tier Classification, dated 20 August 2001, has been submitted to MADEP for this release. The site is a Tier II Disposal Site based on the results of the completed Numerical Ranking System Scoresheet. A Phase II – Comprehensive Site Assessment Scope of Work, dated 20 August 2001, was provided to MADEP for RTN 3-19850. This scope of work has been completed.

The Former Gasoline USTs is a separate release, currently in MCP Phase II, within the limits of the Waltham Industrial Labs and linked Building 27 area disposal site. This Phase II Report herein addresses the Waltham Industrial Labs and linked Building 27 area disposal site (RTN 3-0585), and the Former Gasoline UST disposal site (RTN 3-19850).

1.3 Additional Release Tracking Numbers on the Property

Two early Release Tracking Numbers were assigned to the Waltham Engineering Center associated with a surficial release of oil from the boiler room at the facility in 1994. Ransom Environmental assisted Waltham Engineering Center with the assessment of the following 2 Hour Releases: 3-10526, which was achieved a Response Action Outcome on 7 April 1994 and 3-11217 which achieved an RAO on 28 June 1995. Monitoring wells MW101 and MW102, shown on Figure 2 were installed during the assessment of the release of fuel oil at the boiler room. Our assessment of the former gasoline UST location near the boiler room utilized these existing monitoring wells during Phase I and II assessments of that release (RTN 3-19850).

During the period following submittal of the original Phase II Scope of Work for RTN 3-0585 in March 2000, a total of five abandoned underground storage tanks were removed from areas of the property that were outside the original limits of the Waltham Industrial Labs disposal site, as was known in 1999. Several reporting conditions, including RTN 3-19850 previously discussed, were identified during the assessments conducted during the tank removals. The locations of these additional disposal sites on the Waltham Engineering Center property are shown on Figure 3. The following paragraphs summarize activities conducted in response to RTNs not previously discussed:

RTN: 3-19582

This RTN was assigned to track response actions associated with a release of ethyl acetate from a former abandoned 275-gallon underground storage tank (UST) (Figure 3). The UST was removed from the ground on 25 May 2000. Approximately 4 cy of soil from the tank grave were excavated and disposed of as a Limited Removal Action (LRA). Following completion of an Assessment-only Immediate Response Action (IRA), a Class A-2 Response Action Outcome Statement, dated 31 May 2001, was prepared and filed for soil at the over-excavated former UST location.

RTN: 3-20575

During the implementation of the Assessment-only IRA at the former ethyl acetate UST location (RTN 3-19582), two test borings/monitoring wells (HA-102(MW) and HA-103B(MW) were installed, downgradient of the release, in the riverside access drive

(Figure 2). These wells were located to evaluate the potential extent of ethyl acetate contamination between the former ethyl acetate UST and the Charles River. Ethyl acetate was not identified in soil or groundwater at these locations.

Oil and chlorinated solvent contamination in both soil and groundwater was encountered at these locations. This contamination is not attributable to the former ethyl acetate UST. As such, the presence of trichloroethylene (TCE) in soil and vinyl chloride in groundwater was reported to MADEP on 2 April 2001 as a separate release requiring further evaluation. DEP assigned RTN: 3-20575 to track response actions at this location. This disposal site was linked to the former Waltham Industrial Labs disposal site (RTN 3-0585) on 29 March 2003, and the results of assessment activities completed at this location are included herein.

1.4 Known or Suspected Sources of Contamination

Multiple known or suspected sources of oil and hazardous material (OHM) contamination have been identified at the disposal site (Figure 3). Some of these sources were previously known or suspected based on historical information, while others were discovered during the conduct of Phase II assessment activities or other intrusive subsurface activities conducted at the subject property such as the removal of the abandoned USTs at the site. Figure 3 identifies the locations of the known or suspected sources of contamination.

The known or suspected sources of contamination, as shown on Figure 3, include the following:

- Potential historical discharge of process and wastewaters associated with electroplating operations conducted by the Former Waltham Industrial Labs to a former drainage swale, along the southern exterior wall of Building 16, with potential overland flow to surface water catch basins and possibly directly to the Charles River (Figure 3): This activity may have been the source of some of the sediment contamination (metals) identified in the Charles River, opposite and downstream of the former Waltham Industrial Labs disposal site.

- Discharge of electroplating wastes and process waters from the Former Waltham Industrial Labs operation to the former unlined trench and sump in the basement of Building 16: During the operation of the former Waltham Industrial Labs, material was allowed to flow through the first floor of Building 16 into the unlined basement trench and sump. This activity may be the source of volatile organic compounds (VOCs), metals, and cyanide in soils, groundwater, and sediment beneath and proximal to Building 16.

- Electroplating/degreasing operations and discharge of electroplating sludges and wastewaters to unlined crawlspaces in Buildings 18 and 19: These activities are the source of VOCs, petroleum hydrocarbons, metals, and cyanide in soils, groundwater, and sediment beneath and proximal to Building 18/19.

- Release of chlorinated solvents and petroleum from a former kerosene/ trichloroethylene (TCE) "Distillery" at Building 27 (RTN 3-20575, rolled into RTN 3-0585): This historical operation is the likely source of TCE and petroleum in soils and groundwater between Building 27 and the Charles River.

- Abandoned USTs that have been removed, including two "varsol" tanks, an ethyl acetate tank (RTN 3-19582), and two gasoline tanks (RTN 3-19850): No reportable conditions were identified during the removal or followup confirmation soil sampling conducted at the former varsol UST location. A Response Action Outcome (RAO) Statement was filed for soil at the former ethyl acetate location (RTN 3-19582) on 8 June 2001. The former gasoline USTs location is a separate disposal site (RTN 3-19850), that is currently in Phase II and addressed herein. A gasoline "still house", in the vicinity of two abandoned gasoline USTs was identified on a historical plan of the Waltham Watch Company. Additional significant releases of petroleum were not identified during additional assessment completed as part of the Phase II Comprehensive Site Assessment conducted for the gasoline USTs disposal site (RTN 3-19850).

1.4.1 Drainage Swale

A DEQE Inspection conducted on 3 and 9 April 1984 identified a "runoff channel" south of Building 16 and near a storm drain and the Charles River. The approximate location of the drainage swale is shown on Figure 3, south of Building 16. During the history of the former Waltham Industrial Labs, there was potential for overland flow of wastewaters from former plating operations in Building 16, to surface water catch basins near the facility, with possible direct discharge to the Charles River, if the catch basins were clogged or filled. An asphalt berm along the river now prevents overland flow of surface water directly into the river from the parking surfaces.

1.4.2 Building 16 Trench and Sump

The former Waltham Industrial Labs conducted electroplating and likely degreasing activities in Building 16. An unlined trench and sump excavated through the concrete basement floor into the soil underlying the basement of Building 16 was identified during a DEQE Inspection conducted on 3 and 9 April 1984 (Figure 3). This unlined trench and sump received wastewaters, piped through the floor, from the electroplating operations upstairs on the first floor of Building 16.

According to a 1944 facility plan, Waltham Watch Company used Buildings 16 and 17 for "hardening" and Buildings 18 and 19 were used for "gilding". From approximately 1959 to 30 March 1984, Waltham Industrial Labs electroplated zinc, tin, copper, cadmium, chromium, nickel and black oxide onto aluminum, steel, brass in Building 16. Remedial response actions undertaken by FRCA from 1985 through 1988 included the removal of overtly-contaminated soils which were exposed in trenches, sumps, and pits in the basement floor of Building 16. Soils exposed at the completion of excavation in the trench in the basement of Building 16 were backfilled with concrete so that no soils were exposed in the trench, sump, and pit. This work is documented in a letter report by Haley & Aldrich to DEQE, dated 22 May 1987. Residual metals, cyanide, and solvents have been identified to remain in soil and groundwater in this area.

1.4.3 Buildings 18 and 19 Crawlspaces

Electroplating and degreasing operations of the former Waltham Industrial Labs in Buildings 18 and 19 historically discharged electroplating sludges and wastewaters to unlined crawlspaces in the buildings. During December 1985 to February 1986, FRCA conducted response actions in the buildings, including the removal of the electroplating waste sludges and impacted shallow soils. The crawlspaces were backfilled with soil and broken concrete, and a concrete slab-on-grade floor was constructed. Soils were not removed from crawlspaces that were not observed to contain electroplating sludges or exhibit visual evidence of overtly-contaminated soils. This work is documented in a letter report by Haley & Aldrich to DEQE dated 22 May 1987. Chlorinated solvents, petroleum, metals, and cyanide have been identified to remain in soil and groundwater beneath Buildings 18/19.

1.4.4 Former Abandoned USTs/Gasoline Still House

A total of five USTs identified on 1930 and/or 1944 plans of the Waltham Watch Company property were found to be abandoned for some time. FRCA removed the following five abandoned USTs from the subject property in May and August 2000: two varsol tanks, an ethyl acetate tank (RTN 3-19582), and two gasoline tanks (RTN 3-19850). See Figure 3 for the locations of former USTs on the Property.

1. Two varsol tanks:

   Two 750-gallon varsol USTs, formerly located in the courtyard east of Building 27 were removed on 25 to 26 May 2000 (Figure 3). Field PID screening and confirmatory soil sampling was conducted by Haley & Aldrich during the monitoring of the removal of the USTs from the ground. No MCP reportable conditions were identified during the removal of the varsol tanks or as a result of the analysis of confirmation soil samples collected from the UST excavation. No visual or PID evidence of contamination was observed during removal of fill pipelines from the east side of Building 27 to the UST locations.

2. One ethyl acetate tank (RTN 3-19582)

   One 275-gallon ethyl acetate UST was removed on 25 May 2000, from the courtyard area at the rear of Building 27 (Figure 3). According to a 1944 fire insurance plan of the former Waltham Watch Factory, the former 275-gallon UST was used historically for the storage of ethyl acetate. An IRA condition (soil screening greater than 100 ppm on a photoionization detector) was identified during the UST removal. Response actions, including limited soil removal and assessment of the extent of soil and groundwater contamination were completed. A RAO was filed for soil at RTN 3-19582 on 8 June 2001.

3. Two gasoline tanks (RTN 3-19850)

   A previously-unidentified UST was encountered on 11 August 2000 during trench excavation activities (conducted for purposes of installing a natural gas utility service pipeline) along the property riverside access drive. A Watch Factory plan dated May 26, 1930 and identified in September 2000 was obtained from Waltham Engineering Center. This 1930 plan showed two gasoline USTs at the location where the gas line excavation encountered the USTs. Based on the illustration of the two USTs on the 1930 plan, but not on the 1944 plan, the USTs were likely abandoned by 1944. One 425-gallon gasoline UST and one 515-gallon gasoline UST, located near the boiler room for the facility, were removed on 18 August 2000 (Figure 3). The release identified at this UST location involved conduct of Immediate Response Actions. An IRA Completion Statement was filed for RTN 3-19850 in June 2001, and results of the Phase II investigation of this disposal site are included herein.

Other abandoned USTs or releases associated with USTs shown on the historic plans have not been located nor identified in the field.

4. UST between Buildings 16 and 18 on 1930 Plan

A UST is identified on a 1930 plan between Building 16 and Buildings 18/19. Subsurface exploration HA-13(OW) was completed in this area to assess potential releases attributable to a UST in this area. Based on the 1930 plan and evidence of limited petroleum contaminated soil and groundwater in this area, a UST likely existed in this area, but was likely removed (See exploration HA-13(MW).

5. Former AST for Heating Oil in Building 16

The Waltham Fire Department issued a permit to "Waltham Labs" on 16 November 1970 for a 500-gallon above ground tank to contain heating oil at 225 Crescent Street. This tank was located in the basement of Building 16 on a concrete block above the former trench to the east of the sump shown on Figure 3. It is understood that this oil storage tank was used by Waltham Industrial Labs to fuel a heater for its processes. The tank was removed by Dependable Waste Oil Service of Merrimack Valley, Inc. on 19 May 1988. It is not believed that the AST is a significant source of contamination at the site; however, the former AST is listed as a potential source of the Extractable Petroleum Hydrocarbons (EPH) detected in soil beneath Building 16.

6. Gasoline Still House

A "Gasoline Still House" was identified on a 1930 plan in close proximity to the two abandoned gasoline USTs (removed August 2000) discussed above. Historical plans and maps of the former Watch Company were reviewed to obtain information about the use of the former gasoline UST installations. Readily-available Sanborn Insurance Co. plans and a 1944 fire insurance map of the watch factory were reviewed prior to UST removal in August 2000. Neither the USTs nor the gasoline still house were identified in this part of the property on the 1944 plan. However, upon later locating the 1930 plan, it was found that the two gasoline tanks apparently served a "gasoline still house" next to a former blacksmith shop and forge which were demolished between 1930 and 1944. The gasoline still house and the location of the two gasoline USTs shown on the 1930 plan are included in this Phase II report for disposal site RTN: 3-19850.

release mechanisms have been identified based on evaluation of the results of the most recent site assessment activities. The secondary sources of contamination are soil, groundwater, surface water, and sediment. Potential release mechanisms remain the same and include wind, leaching, volatilization, erosion/runoff, seepage, leaching, groundwater flow and bio-uptake.

1.6.3 Fate and Transport

Fate and transport issues at the site have been re-evaluated since the June 2003 Preliminary Phase II Report. Section V. Environmental Fate and Transport of Oil and Hazardous Materials presents the results of the fate and transport evaluation.

1.6.4 Potential Exposure Media

Potential exposure media that may contribute to complete exposure pathways based on the expanded data set have been revised. Soil, dust, groundwater, indoor air, sediment and plants/animals are now considered as potential exposure media. Surface water and outdoor air are considered not to contribute to complete exposure pathways.

1.6.5 Potential Routes of Exposure, Exposure Pathways and Receptors

Routes of exposure, exposure pathways and receptors have been re-evaluated during the completion of a Method 3 Human Health Risk Characterization and Stage II – Environmental Risk Characterization. The results of these evaluations are compiled in Sections VI, VII, and VIII of this final Phase II – Comprehensive Site Assessment Report.

1.6.6 Summary of Conclusions of June 2003 Preliminary Phase II Report

Several data gaps were identified during the compilation of the Preliminary Phase II Report issued to MADEP in June 2003. The following summarizes the conclusions presented at that time and summarizes the data gaps that are addressed in this final Phase II – Comprehensive Site Assessment presented herein. The following preliminary conclusions were based on the available data set and information obtained prior to issuing the Preliminary Phase II Report in June 2003:

- The former Waltham Industrial Labs occupied buildings in the historic Waltham Watch Company. The watch factory operated for approximately 100 years. Both the watch factory and the former Waltham Industrial Labs conducted electroplating operations. Plating wastes, degreasers and petroleum products were generated, used and stored on the property. The former Waltham Industrial Labs ceased operations at Buildings 16, 17, 18, and 19 on 30 March 1984. This conclusion has not changed since our June 2003 Preliminary Phase II Report was issued.

- Based on historical plans of the watch factory, industrial plating, fuel storage, degreaser use and storage was generally concentrated in buildings along the river front. Watch company operations and assembly operations were housed in the buildings closer to Crescent Street. The types of oil and hazardous materials detected are consistent with the history of the site use. This conclusion has been confirmed further in that deep subsurface explorations conducted at the northern, eastern, and southern areas of the property to confirm the extent of VOCs in groundwater in bedrock, showed no credible evidence of contamination. See Section IV – Nature and Extent of Contamination.

- The site is underlain by urban fill, organic silts in some areas, fluvial/glaciofluvial deposits, glacial till and bedrock (likely Cambridge argillite). The property fronts on the Charles River. Depth to groundwater is approximately 2 to 3 ft below grade adjacent to the river. Groundwater flow is generally to the west towards the river, but there is potential for flow reversal if the level of the Charles is controlled at a high level. Bedrock thought to exist beneath the property is the Cambridge argillite or a pebble conglomerate within the same Boston basin stratigraphy. Bedrock associated with the Salem block (metavolcanics) was expected on the opposite side of the Charles River (opposite side of the Northern Border Fault). This conclusion has been further confirmed based on the scope of bedrock subsurface explorations conducted during 2004. See Section III - Site Hydrogeological Characteristics for the results of the bedrock subsurface exploration program.

- Remedial response actions conducted at the site were successful in removing sources of oil and hazardous material and potential sources of oil and hazardous material from the disposal site. Remedial actions included the removal of electroplating sludges and contaminated soils from former crawlspaces in Building 18 and 19, and a trench/sump in Building 16 (1985-1988). The crawlspaces were backfilled and a new concrete floor was constructed throughout the first floor of Buildings 18 and 19 following the removal. During May and August 2000, two Varsol USTs, two gasoline USTs, and an ethyl acetate UST were removed from the property as potential threats of release or point sources of soil and groundwater contamination. No reportable release was identified at the former Varsol location; a Response Action Outcome was achieved for soils at the ethyl acetate UST location (RTN: 3-19582); and the former gasoline USTs location is currently in Phase II (RTN: 3-19850). This Phase II Report also serves as the Phase Submittal for RTN: 3-19850. A disposal site detail plan for the Former Gasoline UST Location is provided as Figure 6.

- Levels of residual metals, solvents and petroleum in the soil and groundwater at the disposal site have not been reduced to background. This conclusion has not changed since our June 2003 Preliminary Phase II Report.

- Dissolved cadmium has been identified in groundwater samples collected from monitoring wells located directly west and south of Building 16. Building 16 was the location of former discharge of electroplating process and wastewater to former unlined sump and trench. The detected concentration of dissolved cadmium in groundwater in three monitoring wells exceeds the Upper Concentration Limit of 100 ug/l. The eastern and southeastern, upgradient extent of the cadmium contamination in groundwater required further delineation. Additional monitoring of cadmium and disposal site-related metals in groundwater was required in this area of the property. Additional groundwater quality monitoring results presented in this report continue to show concentrations of cadmium that exceed the UCL. See Section IV – Nature and Extent of Contamination.

- A Conceptual Site Model was developed for the releases addressed by this disposal site. The Conceptual Site Model is illustrated in Figure 13 of the June 2003 Preliminary Phase II Report, and is discussed in summary form, in Section 1.06 of this report. A revised Conceptual Site Model is presented in Section VI of this final Phase II Report.

- A condition of "No Significant Risk" is believed to exist at the disposal site for current building occupants in Buildings 16, 18, 19 and 27 with respect to the types and concentrations of VOCs detected in indoor air, based on the existing Phase II data set. This June 2003 conclusion was based on our opinion that tetrachloroethylene (PCE) was not a compound of concern in indoor air at Buildings 18 and 19, based on the information collected to date, knowledge of the disposal site, and professional judgment. *Under an alternative interpretation,* that PCE was a compound of concern in indoor air at Buildings 18 and 19, a condition of "No Significant Risk" would <u>not</u> be found to exist at the disposal site for current building occupants in Buildings 18 and 19. The potential carcinogenic risk based on a 30-year exposure period would be due to the detection of PCE in indoor air, at concentrations <u>below</u> background. Additional indoor air testing and risk assessment has been conducted and is presented in this final Phase II – Comprehensive Site Assessment.

- *Under the alternative interpretation,* that PCE is a compound of concern in indoor air at Buildings 18 and 19, a condition of "No Imminent Hazard" exists at the disposal site for current building occupants in Buildings 18 and 19, with respect to the types and concentrations of VOCs detected in indoor air, based on the existing Phase II data set. An Imminent Hazard Evaluation is not needed to support our opinion that a condition of "No Significant Risk" is believed to exist at the disposal site for current building occupants in Buildings 18 and 19. This conclusion is based on our opinion that PCE is not a compound of concern in indoor air at Buildings 18 and 19. Additional indoor air testing and risk assessment has been conducted and is presented in this final Phase II - Comprehensive Site Assessment.

- No contamination of surface water in the adjacent Charles River attributable to the disposal site has been identified, and no further sampling of surface water in the Charles River is necessary. This conclusion has not changed since our June 2003 Preliminary Phase II Report.

- No LNAPL or DNAPL has been identified in site groundwater monitoring wells that have been gauged during the assessment activities. Levels of chlorinated VOCs detected in soil were well less than 10,000 mg/kg (equal to 1 percent of soil mass), which can indicate the potential for DNAPL (EPA Fact Sheet, January 1992). Levels of cis-1,2-DCE, TCE, and vinyl chloride were well below the calculated soil saturation limit (C_{sat}) for each compound. This conclusion has not changed since our June 2003 Preliminary Phase II Report.

- The following data gaps were identified on the land portion of the disposal site that required further assessment and evaluation: 1. vertical extent of VOCs in soils adjacent to Building 27 and possibly Building 18; 2. northern extent of VOCs in fill soils and groundwater; 3. further assessment of the source of PCE in indoor air at Buildings 18, 19 and 16; 4. lateral extent of cadmium in groundwater. These data gaps have been addressed since our June 2003 Preliminary Site Assessment. See Section IV - Nature and Extent of Contamination.

- The Charles River has a long industrial history. However, concentrations of metals and volatile organic compounds attributable to the disposal site in sediment and river bottom soils increase nearest the disposal site. The horizontal and vertical extent of metals and VOC contamination in the soils and sediments in the bottom of the Charles River requires additional assessment. Confirmation testing of hexavalent chromium results was to be conducted. These data gaps have also been addressed. See Section IV - Nature and Extent of Contamination.

- The outcome of the Preliminary Phase II - Comprehensive Site Assessment Report was that further assessment of the nature and extent of metals, volatile organic compounds and petroleum contamination in the Charles River is needed, as well as limited additional assessment of identified data gaps on the land portion of the disposal site. Assessment, human health and environmental risk characterization activities are now complete. The revised conclusions of the Phase II - Comprehensive Site Assessment are provided in Section IX - Phase II Comprehensive Site Assessment Conclusions.

2. SUPPLEMENTAL PHASE II FIELD EXPLORATION AND SAMPLING PROGRAMS

2.1 General

A Supplemental Phase II – Comprehensive Site Assessment Scope of Work was included in the Preliminary Phase II – Comprehensive Site Assessment Report, dated 2 June 2003, which was submitted to MADEP. The Supplemental Scope of Work included tasks necessary to fill data gaps identified in the assessment of the nature and extent of contamination at the site.

The data gaps identified in the preliminary conclusions presented in that report included: the vertical extent of volatile organic compound (VOC) contamination in soils and groundwater adjacent to Building 27 and possibly west of Building 18; the northern extent of VOCs in fill soils and groundwater on the property; further assessment of the source of PCE in indoor air in Buildings 18, 19, and 16; and the lateral extent of cadmium in groundwater south of Building 16. The Supplemental Scope of Work also indicated that the horizontal and vertical extent of metals and VOC contamination in soils and sediment in the bottom of the Charles River required additional assessment.

In addition to the data gaps listed above, evaluation of the sediment and soil data set from the Charles River (including data available as of the summer of 2003) indicated that a Stage II – Environmental Risk Characterization would be required to be conducted. The field program required for the Stage II – Environmental Risk Characterization was presented in a Supplemental Phase II – Comprehensive Site Assessment Scope of Work document dated 24 October 2003. The Stage II Scope of Work included additional chemical and ecological sampling of river bottom sediments, bioassay testing, benthic macroinvertebrate community analysis, fish survey, fish collection, and fish tissue analysis for use in the human health risk evaluation.

A third Supplemental Phase II – Scope of Work, dated 14 January 2004 was submitted to MADEP. This final scope of work presented a planned bedrock exploration program. The scope of work included completion of a geophysical survey to investigate the potential for bedrock features that may impact contaminant migration, and a bedrock drilling and groundwater testing program.

The following discussion summarizes the field exploration and sampling programs completed at the site since the submittal of the Preliminary Phase II – Comprehensive Site Assessment in June 2003. This section describes the means and methods of the completed exploration programs. Detailed discussion of the data resulting from these programs is provided in Section IV – Nature and Extent of Contamination.

2.2 Overview of Completed Field Tasks

Field programs completed since the June 2003 Preliminary Phase II Report focused on evaluating the extent of contamination, especially vertically, and further evaluation of the risk that conditions at the site and in the Charles River may pose to human health and the environment. Test boring and monitoring well installation programs were completed during the fall of 2003 and the spring and fall of 2004. Additional seasonal groundwater sampling rounds were conducted to allow evaluation of groundwater quality with time. Ecological sampling of the Charles River, including a sampling and survey of macroinvertebrates and fish in the Charles River, was conducted in the fall of 2003. Additional indoor air sampling and analysis was conducted. Bedrock fracture trace analysis and a geophysical survey were also completed early in 2004 to provide data for the siting of bedrock wells both on-site and off-site on the opposite bank on the Charles River. A bedrock test boring and well installation program was conducted in the late fall 2004 at the Mt. Feake Cemetery, located opposite the site on the west bank of the Charles River.

2.3 Permitting

Since additional test borings were planned to be conducted within the mapped flood zone and buffer zone of the Charles River and river bottom soil samples were planned to be collected from a barge in the Charles River resource, an Abbreviated Notice of Intent was filed with the Waltham Conservation Commission prior to undertaking the Fall 2003 exploration program. After filing the Abbreviated Notice of Intent on 3 July 2003, two public hearings were held, and an Order of Conditions dated 4 September 2003 was subsequently issued by the Waltham Conservation Commission. After minor corrections to the Order of Conditions were made, the Order was provided to Haley & Aldrich on 10 September 2003. Haley & Aldrich recorded the Order of Conditions at the Middlesex Registry of Deeds on 11 September 2003. The Order of Conditions was issued to allow test boring activities to be conducted in the resource areas of the Charles River and to sample river bottom soils opposite the disposal site.

Fish collection, identification, and sampling were planned as part of the Stage II Environmental Risk Characterization. Prior to conducting this work, a Scientific Collectors Permit was obtained by the electrofishing subcontractor (Aquatec Biological Services, Burlington, Vermont) from the Massachusetts Department of Fisheries and Wildlife to conduct ecological sampling and to conduct an electrofishing survey of this reach of the Charles River. The electrofishing survey was conducted on 31 October 2003. A copy of the collectors permit is included in Section 5 of the Stage II Environmental Risk Characterization which is appended to this document.

During the summer of 2004, an access agreement was negotiated between the property owner and the City of Waltham to allow drilling of test borings and installation of groundwater monitoring wells at the Mt. Feake Cemetery. The license agreement was signed on 9 September 2004. Upon acceptance of the agreement by both parties, the City of Waltham was then provided with a required 14-day notification of the start of the work. The off-site exploration program was completed during the month of October 2004.

2.4 Fall 2003 Subsurface Exploration Program – HA-700 Series Test Borings

The Preliminary Phase II - Comprehensive Site Assessment and Supplemental Scope of Work, dated 2 June 2003 included a proposed test boring and groundwater monitoring well installation program to further evaluate the horizontal and vertical extent of contamination. A total of five subsurface explorations were conducted on the property during the period 25 September to 3 October 2003. Monitoring wells designated HA-703(MW), and HA-704(MW) were completed as relatively shallow (19 ft) explorations which were installed to evaluate the horizontal and vertical extent of cadmium in groundwater south of Building 16. These borings were advanced through the fill and alluvial deposits into the glacial till. Approximately 2 ft of organic deposits were identified in HA-704(MW) at a depth of 9 to 11 ft. Monitoring wells HA-702(MW) (44 ft), and HA-705A (MW) (26 ft) are deeper installations to evaluate the vertical and horizontal extent of trichloroethylene contamination near Building 27 and downgradient of Buildings 18/19. Monitoring well HA-702(MW) was completed at a depth of 44 ft in bedrock (argillite). HA-705A(MW) was completed in glacial till at a depth of 26 ft. The locations of the completed test borings and monitoring wells are shown on Figure 4.

The test boring and groundwater monitoring well installation program was completed during the period 25 September 2003 through 3 October 2003. The test boring contractor was New Hampshire Boring, Inc. Due to the presence of numerous subsurface utilities on the former factory site, test borings were initially advanced to a depth below typical subsurface utility installations using a Vactor (vacuum truck). The borings were then completed with conventional truck mounted drilling tools. This non-intrusive method to advance the borings to a depth below possible utilities is used on the site to avoid damage to abandoned and active subsurface utilities and structures. Drill cuttings generated during the Vactor work and the conventional drilling were containerized in DOT drums for off-site disposal. Uniform Hazardous Waste Manifests for drum disposal of Investigation-Derived Waste (IDW) are provided in Appendix L.

Test borings were advanced using a casing and roller bit drilling technique. The drilling was monitored and samples were collected by Haley & Aldrich personnel. Split-spoon samples were collected on a continuous basis and monitored for the presence of VOCs with a photoionization detector (PID) utilizing a 10.2 eV lamp. Soil samples that were retrieved from the split-spoon sampler as each boring was advanced were described and documented on Test Boring Reports prepared for each exploration location. Test Boring Reports are included in Appendix B.

Test boring HA-701(MW) is located along the riverside access drive near the northern limits of the property. This test boring and monitoring well was completed to assess the northern extent of TCE contamination in miscellaneous fill detected during previous assessment activities. Approximately 12 ft of miscellaneous fill was encountered overlying glacial till. The test boring was advanced to a depth of 22 ft and a monitoring well was installed with a total depth of 18.4 ft. See the Monitoring Well Installation Reports included with the respective test boring reports in Appendix B. Photoionization detector readings for samples collected from the boring were very low (Table I). No odors or other evidence of contamination were identified in the soil samples collected during the advancement of the test boring. The Test Boring Report for HA-701(MW) is included in Appendix B.

The vertical extent of chlorinated solvent contamination near the source at Building 27 was also a scope item to be competed during this field mobilization. Test boring HA-702(MW) is located downgradient of Building 27 in the riverside access road. Approximately 12 ft of miscellaneous fill was encountered. Soil samples collected from the fill material yielded a strong solvent, petroleum odor and a sheen was observed on the wet split-spoon sampler. Approximately 5 ft of alluvial deposits were encountered beneath the miscellaneous fill. No odor was reported to be associated with the deeper alluvial deposits. The Test Boring Report for HA-702(MW) is provided in Appendix B.

Glacial till was encountered in HA-702(MW) from a depth of 17 ft to 37 ft below the ground surface. The glacial till is described as a dense to very dense yellow brown silty sand with gravel. No odor or other evidence of contamination was observed. PID readings from soil samples collected from the test boring ranged from 152 ppm in the sample collected from 5 to 7 ft to 330 ppm in a sample of the glacial till collected from 35 to 36 ft in the boring. The probable top of bedrock in the test boring [HA-702(MW)] was reported to be 37 ft. The Test Boring Report for HA-702(MW) is provided in Appendix B.

Bedrock in exploration HA-702(MW) was cored. The bedrock at this location is described as gray, green, aphanitic to coarse grained argillite with close, primarily open joints. Approximately 5 ft of rock was cored and the exploration was terminated at a depth of 44 ft. A groundwater monitoring well was installed in the completed test boring. The monitoring well was screened in the bedrock from a depth of 39 to 44 ft. The well screen was isolated within the bedrock using a 4 ft thick bentonite seal above the well screen and sand pack followed by cement grout backfill around the well riser to the concrete road box pad. The construction details of the monitoring well are shown on the Monitoring Well Installation Report provided with the Test Boring Report for HA-702(MW) in Appendix B.

Two groundwater monitoring wells were installed to assess the southern extent of cadmium contamination in groundwater. Test borings HA-703(MW) and HA-704(MW) were both advanced to a depth of 19 ft. Miscellaneous fill was encountered to depths of 7 and 9 ft respectively, followed by alluvial/glaciofluvial deposits to 18ft and 13 ft, respectively. Glacial till was encountered beneath the alluvial/glaciofluvial deposits. A slight petroleum odor was noted in the fill at HA-704, otherwise no indications of soil or groundwater contamination were observed. Groundwater monitoring wells were installed in the completed test borings. The screened interval in both wells extends from 3 ft to 19 ft below ground surface. The construction details of the monitoring wells are provided in the Monitoring Well Installation Reports included with the Test Boring Reports in Appendix B.

2.5 River Bottom Sampling

A river bottom soil sampling program was conducted in the Charles River during the period 29 September to 2 October 2003. The bottom soils were sampled from a barge utilizing a tripod drilling rig and Geoprobe sampler. New Hampshire Boring, Inc. conducted the drilling work. Sample locations are designated SS-24 through SS-39, which are shown on Figure 3. The logs for the river bottom soil samples are included in Appendix B. Please note that explorations designated as SS-31, SS-37, and SS-38 were not conducted.

Sample recovery was problematic in some instances given dense glaciofluvial and glacial till soils in the river bottom and also some liquefaction of soils in the sampling tool resulting in poor recovery. The Geoprobe sampler utilized a 4 ft long sampling tube. The deepest samples collected were from approximately 4 ft below the river bottom. Depth to bottom (mudline) measurements were also collected. A river bottom contour map was generated using depth to bottom measurements compiled from several sediment sampling rounds (Figure 8). The estimated topography of the river bottom shows a deep area (approximately 10.5 ft) north of Building 18. This area is where river water was pumped from the river for factory processes. This area of the river bottom is also has the highest concentrations of some metals contamination (e.g. Sediment sample SS-5). Several abandoned outfalls are also located in the field stone retaining wall at that location (Figures 3 and 8). A deep channel (approximately 11.5 ft) extends downstream and under the Prospect Street Bridge (Figure 8).

In general soft organic sediments were encountered in the upper 0.4 to 0.6 ft in four of the sampling locations (SS-25, SS-27, SS-28, and SS-29). Alluvial soils were more commonly identified on the river bottom at the nine remaining locations. Glaciofluvial soils and glacial till was found beneath the alluvial soils. The alluvial soils were generally described as brown, well graded sands with gravel. The glacial deposits were typically gray to brown in color and described as silty sands with gravel. Petroleum odors were identified in samples collected from SS-25, SS-32, SS-33, SS-35 and SS-36. Unidentified chemical odors were reported in the samples collected at SS-28 and SS-34. Test boring logs describing the conditions encountered at each designated river bottom location are provided in Appendix B. Laboratory Data Reports presenting the testing methods, QA/QC and results are provided in Appendix C.

2.6 Site Monitoring Well Location and Elevation Survey

Haley & Aldrich conducted a site well head elevation survey on 22 October 2003. The locations of newly installed monitoring wells were established and plotted on the project site plan. Well head elevations were measured for newly installed groundwater monitoring wells and the elevations of pre-existing monitoring wells were checked and corrected for movement, if necessary.

Depth to groundwater in individual groundwater monitoring wells was also measured at the time of the survey. Measured elevations are reported with respect to the North American Vertical Datum (NAVD) 1988. Groundwater monitoring well elevations are tabulated with groundwater level monitoring data in Table II.

2.7 Groundwater Monitoring/Gauging for NAPL

Pre-existing and newly installed groundwater monitoring wells were gauged to obtain groundwater level information and to test for the presence of non-aqueous phase liquids (NAPL). Groundwater elevations were calculated using the depth to groundwater data and the elevation data obtained during the site well head elevation survey. A summary of groundwater monitoring results obtained during this field program and historical monitoring programs conducted on site is provided in Table II.

Groundwater surface elevations calculated from depth to groundwater measurements collected in July 2004 for monitoring wells on the site were used to compile a groundwater surface elevation contour plans (Figures 9A, 9B, and 9C). The shallow groundwater elevation contour plan shows that groundwater generally moves from Crescent Street, west to the Charles River (Figure 9A). The approximate groundwater gradient across the site is 0.007 ft/ft.

Monitoring well HA-702(MW) is located between Building 27 and the Charles River in the riverside access drive (Figures 2 and 5). The test boring was completed through the surficial deposits and into the bedrock encountered at depth of approximately 39 ft. A monitoring well screen was installed in the bedrock, followed by a bentonite seal and grout surrounding the well riser to the ground surface. Based on field soil photoionization detector (PID) headspace screening data and laboratory analytical results for soil samples collected from test boring HA-702(MW), there was concern for the potential for the presence of NAPL at this location.

Monitoring well HA-702(MW) was gauged and monitored for the potential presence of NAPL on 16 October 2003. An 11.7 eV PID was inserted into the well riser as the well cap was opened. A reading of 50 ppm was recorded for the air in the well riser upon opening. This reading quickly dissipated as the well remained open. Depth to water in the well was measured at 2.7 ft below grade. Depth to the bottom of the well was 43.6 ft. Some silt had collected in the bottom of the well screen since the well installation was completed. The depth to water and well depth measurements were made with an oil/water interface probe.

The surface of the groundwater in the well and the well bottom were gauged with the oil-water interface probe. No NAPL response was detected on the groundwater surface or deep in the well using the oil-water interface probe. A clear plastic well bailer was then inserted into the well. Groundwater from the top of the water column in the well was sampled using the bailer and retrieved to visually check for NAPL on the top of the water column. Likewise, a sample of the water column from the well bottom was collected using the clear plastic bailer to visually check for product. No apparent product was observed in these samples of the water column from the well and no discernable readings in headspace of the bailer with the PID. The bailer retrieved from the well bottom contained approximately 1 ft of liquefied silt from the well bottom. No layering, odors, or discoloration was observed in the silty water.

The purged groundwater was placed in a 5-gallon bucket and then containerized for disposal off site. The only evidence of contamination was a very small wispy sheen approximately 1 in. long and 0.5 in. wide on the surface of the purged groundwater in the bucket. No odors or PID readings were noted in the headspace of the bucket. A section of Waterra tubing was installed in the well and the well was purged until about 5-gallons were removed from the well. The total well volume is approximately 7-gallons. Well recharge was rapid and the well was not evacuated.

HA-702(MW) was drilled using casing and roller-bit drilling method. This method utilizes wash water when drilling. Monitoring well HA-702(MW) was sampled on 3 November 2003. An additional 10 well volumes (approximately 70 gallons) was purged from this monitoring well and the gauging protocol above was utilized to check for NAPL a second time prior to sampling the groundwater for analysis. No evidence of NAPL was identified during this second gauging event.

During the history of assessment activities conducted to date on the property, NAPL has not been identified in groundwater monitoring wells on the site.

2.8 Ecological Sampling and Analysis Program

Aquatec Biological Sciences, Williston, Vermont (Aquatec) was retained to conduct ecological sampling and analytical services. Haley & Aldrich personnel assisted with, and monitored the sampling programs. Samples were collected from a boat. Macroinvertebrate sampling was conducted on 29 October 2003 using a Petite Ponar dredge. Sampling was conducted at six locations, as shown and as designated on Figure 3. Three replicate samples were collected at each of the six locations. Samples were collected from the river bottom upstream of the site, adjacent to the site, and downstream from the site (Figure 3).

Samples collected with the dredge were sieved in the field using a USGS #35 sieve. The organisms and debris remaining in the sieve were placed in labeled jars and preserved with 70% ethanol. The samples were analyzed at Aquatec's laboratory facility. Debris in samples collected adjacent to the site include metallic watch parts and other small metal pieces.

The results of Aquatec's analyses are provided in Section 3 of the Stage II – Environmental Risk Characterization appended to this document. Aquatec reported that more than 2,400 macroinvertebrates were identified in the replicate samples from the six locations. The densities of the macroinvertebrates ranged from 1,725/sq. meter at ECO-2 and ECO-4 to a high of 13,090/sq. meter at ECO-5. Tubificid worms dominated the macroinvertebrate community at five of the six locations. Chironomidae (midges) dominated at ECO-5.

A Stage II Environmental Risk Characterization was completed using the results of the ecological sampling. The results of the environmental risk characterization are summarized in Section VIII of this Phase II - Comprehensive Site Assessment Report. The complete Stage II Environmental Risk Characterization is provided in Appendix D.

2.9 Fish Survey and Collection Program

Aquatec was also subcontracted to conduct a fish survey and collection program in three areas, or reaches, of the Charles River near the Property. The three reaches of the river were selected for analysis based on the following criteria: an upstream or control reach located along the western upstream bank of the river well upstream from the site, a reach adjacent to the fieldstone retaining wall at the disposal site, and a downstream reach along the eastern bank of the river and downstream from the Prospect Street Bridge. The locations and designations of each of the reaches that fish were sampled from are shown on Figure 7.

Aquatec obtained a Scientific Collectors Permit from the Massachusetts Department of Fisheries and Wildlife for the conduct of the work. The sampling was completed using a Coffelt electrofishing boat and Coffelt VVP-15 electro shocker. The electrofishing was conducted using 220 Volts AC resulting in 5-8 amps electroshocking. The electrofishing was conducted by Phil Downey, Ph.D. fisheries biologist with Aquatec. Additional details of the methods can be found in the Aquatec Report provided in Section 4 of the Stage II - Environmental Risk Characterization (Appendix D). Haley & Aldrich personnel assisted Aquatec personnel during the conduct of the fish survey and fish sample collection.

The electrofishing survey and collection was conducted on the evening of 31 October 2003. Aquatec personnel were assisted by a Haley &Aldrich Scientist. A total of 181 fish representing 12 species were collected during the sampling event. The fish communities sampled in all three reaches were dominated by various sunfish and largemouth bass. The catch per unit effort (fish/hour) at all three locations was comparable: 164 fish/hour Reach A (adjacent to the site), and at Reach B (the upstream control); 138 fish per hour at Reach C (downstream from the Prospect Street bridge). Collected fish were weighed and measured. An external examination of the fish caught did not detect unusual incidence of abnormalities or parasitism. The Aquatec report presenting the results of the macroinvertebrate sampling and the electrofishing survey and collection is provided in Section 3 of the Stage II - Environmental Risk Characterization (Appendix D).

A number of fish of varying species and habitats were retained for fish tissue analysis. The fish included game fish, bottom feeding fish and fish typically associated with higher areas of the water column. The fish tissue preparation and analysis was conducted by Woods Hole Group. The fish tissue analysis is included in the human health risk characterization prepared for the disposal site. The results of the fish tissue analysis are summarized in Table III. The Woods Hole Group laboratory data reports presenting the fish tissue data are included in Appendix E.

2.10 Former Building 16 Drainage Swale Sampling

A DEQE Inspection conducted on 3 and 9 April 1984 identified a "runoff channel" south of Building 16 and near a storm drain and the Charles River. The approximate location of the drainage swale is shown on Figure 3, south of Building 16. During the history of the former Waltham Industrial Labs, there was potential for overland flow of wastewaters from former plating operations in Building 16, to surface water catchbasins near the facility, with possible direct discharge to the Charles River, if the catch basins were clogged or filled. An asphalt berm along the river now prevents overland flow of surface water directly into the river from the parking surfaces.

To assess the potential historical use of the drainage swale for overland flow and discharge of metal plating solutions, several shallow soil samples were collected in the area of the former swale location. The samples were collected on 7 October 2003. The shallow soil samples were collected by driving a split spoon sampler through the asphalt pavement into the shallow soils. Soil samples from a depth of 0.5 to 1.0 ft we collected. A series of shallow soil samples were collected along the length of the presumed drainage swale to assess the shallow soil quality approaching the river. The locations of the shallow soil samples (designated TS-1 through TS-5) are shown on Figure 4.

The soil samples were containerized in laboratory provided glassware and submitted to Alpha Analytical, Westborough, Massachusetts, a MADEP certified analytical testing laboratory for analysis. The soil samples were analyzed for Cd, Ni, Zn, Sn, Fe, Cu, and Total Cyanide. The results of the testing are summarized in Table IV. The laboratory data reports presenting the results and the laboratory QA/QC are provided in Appendix F. A detailed discussion of the data results is included in Section IV Nature and Extent of Contamination.

2.11 Abandoned Outfall Sampling

During the conduct of previous assessment activities, pipes were observed exiting the fieldstone retaining wall along the Charles River. A total of 19 pipe locations in the wall were identified from a boat. Some of the pipe locations had multiple pipes exiting the wall. Table V describes the pipes observed at each location. The current status of these pipes is not known, some are abandoned and some likely are tied to stormwater catchbasins at the facility that collect and discharge roof runoff and pavement runoff on the site.

The outfalls were revisited on 7 November 2003 to observe the outfalls and sample any contents remaining in the pipes for evidence of past direct discharge of wastes. The majority of the pipes viewed were underwater at the time and did not contain soil that could be sampled. Discharge was only observed at the City of Waltham outfall (Pipe Location No. 1 on the Site Plan). It was flowing at an estimated rate of 45 gallons per minute.

Soil material in a pipe at Pipe Location No. 4 was sampled for VOCs and metals. The results of the testing are summarized in Table V. The soil material contained 1700 ug/kg TCE, low levels of xylene, and elevated levels of zinc (2,600 ug/kg), lead (840 ug/kg), copper (790 ug/kg), chromium (240 ug/kg, and arsenic (99 ug/kg).

2.12 Surficial Soil Sampling - Building 17 Tunnel/Pipe Chase

A tunnel/pipe chase runs beneath Building 17 and is accessible through the basement of Building 16. The tunnel runs to the south and the north from the basement ("STUNNEL" and "NTUNNEL" on Figure 4). This tunnel is referred to on historical facility plans as a "wire tunnel" and the tunnel originally extended approximately 315 ft from Building No. 20 ("the Case Wing"), beneath Building 17, and south to the former Building No.13 ("the Dial Building"), as shown on a 1930 facility plan. The tunnel intersects the north wall and the south wall of the basement in Building 16. The wire tunnel is open to the basement of Building 16, and the tunnel is large enough to walk through.

Surficial soil samples collected from this pipe chase in June 1986 historically showed levels of tin above default MCP Upper Concentration Limits (UCLs – 10,000 ppm). The samples were collected as composite samples combining surficial soils sampled from seven separate locations from 16 to 27 ft inside the tunnel opening to the north and surficial soils sampled from seven separate locations from 14 ft to 27 ft from the tunnel opening to the south. The sample collected from soils in the north chase showed elevated levels of tin (North-Comp 14,120 mg/kg), as did the sample collected from the south chase (South-Comp 114,049 mg/kg). The samples were analyzed by the laboratory in June 1986 for metals using FAA (flame atomic absorption) analysis.

The tunnel areas were revisited on 23 December 2003 to see if the soil in the pipe chase was underlain by a concrete floor and to resample, if no floor was identified, since a release of tin to the environment may have occurred. This work was outlined in a Scope of Work dated 15 October 2001.

Both the North section of the tunnel/pipe chase and the South section were viewed. The floor of both the North section and the South section were observed to be sand and gravel. Hand excavation of the sand and gravel with a spade to a depth approaching 2 ft did not encounter a buried slab or floor. Water (likely groundwater) entered the hand excavation at the completion depth of the hand excavation in the North section. Gravel soils in the South section were more compact and dense, but a floor was not encountered. Groundwater was not encountered at the completion depth of the hand excavation completed in the South section.

A composite sample was collected from each hand excavation and containerized for submittal to the analytical laboratory for tin analysis. The samples were submitted to Alpha Analytical Laboratories, Westborough, Massachusetts for tin analysis using EPA Method 6010 (inductively coupled plasma atomic emission spectrometry). Alpha Analytical is a MADEP certified analytical laboratory. The results of the analysis showed low levels of tin. The analytical results for the soil sample collected from the south chase (designated, "South Comp 03") showed 71 mg/kg tin. The analytical results for the soil sample collected from the North chase (designated, "North Comp 03") showed 24 mg/kg.

The samples that were collected during the sampling described above were grab samples collected from the completed hand excavations. During the June 1986 sampling round, approximately seven locations in each chase/tunnel were sampled and the soils were then combined to produce the sample that was submitted the laboratory for analysis. The original soil samples were collected as composite samples combining soil from seven locations from 16 to 27 ft from the tunnel opening to the north, and soil from seven locations from 14 ft to 27 ft from the tunnel opening to the south.

To better replicate the sampling technique used in the initial June 1986 tunnel soil sampling event, Haley & Aldrich resampled the tunnel soils for tin on 19 August 2004. A total of four grab soil samples were collected from soils exposed in the North tunnel from 16 to 27 ft from the tunnel opening. A total of four grab soil samples were collected from exposed soils in the South tunnel from 14 to 27 ft from the tunnel opening. The soil samples were submitted to Alpha Analytical Laboratory on 19 August 2004 to be analyzed for tin. Tin in the surficial soils of the South tunnel ranged from 19 mg/kg to 280 mg/kg. Tin in the surficial soils of the North tunnel ranged from ND to 36 mg/kg. The results of the tin analysis are presented in Table IV. Laboratory data reports presenting the laboratory results are included in Appendix F.

2.13 Field Headspace Screening of Soil Samples

Soil samples were collected on a continuous basis during the advancement of the test borings. The headspaces of jar samples containing soil samples were screened in the field for the presence of volatile organic compounds (VOCs) using a HNu photoionization detector (PID) with an 11.7 eV lamp. The results of the PID screening are compiled in Table I. Soil samples for laboratory analysis were selected based in part on the PID screening data and field observations.

2.14 Soil Sample Selection and Analysis

Selected soil samples collected during subsurface exploration programs were submitted for laboratory analysis. Soil samples were selected during test boring advancement. Soil samples showing elevated PID screening data were selected for analysis. Also staining and olfactory evidence of contamination was considered in sample selection. Test borings were also advanced to depths where PID readings and visual/olfactory evidence of contamination suggested that the vertical extent of contamination in the boring had been determined. Deep "clean" samples were submitted to confirm the vertical extent in these cases.

Soil samples selected for analysis were collected in glassware provided by the laboratory. The soil samples were stored in a sample refrigerator and transported in a cooler to the analytical laboratory. The contract laboratory for this phase of the project is Alpha Analytical, Westborough, Massachusetts, which is a MADEP certified laboratory. Selected samples from the 700 and 800-series subsurface exploration phases of work were submitted for VOC analysis, and /or selected potentially site-related metals analysis (cadmium, iron, nickel, tin, and zinc). The results of the soil sampling and analysis are summarized in Table IV. Laboratory Data Reports documenting the analyses are compiled in Appendix F.

2.15 Groundwater Sampling and Analysis

Installed monitoring wells were sampled following well development. In addition, previously installed groundwater monitoring wells have been sampled during several rounds to evaluate potential seasonal changes in groundwater quality. The groundwater quality data collected during Phase II are summarized with historical site groundwater quality data in Table VI.

A minimum of at least three well volumes of standing water were purged prior to collection of the sample in glassware supplied by the contract laboratory. Groundwater samples were collected using dedicated Waterra tubing and foot valves. Slow pump sampling was also conducted during groundwater sampling. A duplicate groundwater sample was collected from monitoring well HA-19A(MW) using slow pump purging to test for variation in the quantity of dissolved cadmium in groundwater as a function of well purging. No significant difference as a result of purging technique was observed.

Groundwater samples were collected directly into the groundwater sample containers, containing the appropriate sample preservatives. The samples are placed in a cooler with ice for transport to the analytical testing laboratory under chain of custody documentation. Deviations noted upon receipt at the laboratory are reported with the resulting laboratory data report. Field QA/QC measures included collection of duplicate groundwater samples and analysis of trip blanks, which were included in the shipment of samples to the laboratory. Groundwater samples were submitted to Alpha Analytical, Westborough, Massachusetts, a MADEP certified analytical laboratory, for analysis. Due to the proximity of the Charles

River, purged groundwater produced during well development was containerized in 55-gallon drums for disposal.

Selected groundwater samples were submitted for the following analyses: VOCs, selected potentially site-related dissolved metals (LIST). The results of the groundwater sampling and analyses are summarized in Table VI. Laboratory data reports presenting the results of the analyses and laboratory QA/QC information are included in Appendix G.

2.16 2004 Supplemental Phase II Field Exploration and Sampling Programs – Bedrock Investigation

The results of the supplemental Phase II field program, completed in the Fall of 2003, indicated that additional assessment work was required to evaluate the extent of chlorinated solvent contamination identified near Building 27 (Figure 5). More specifically, it was necessary to better define the extent of trichloroethylene (TCE) in deep glacial till soils and in bedrock groundwater.

A Supplemental Scope of Work outlining a deep glacial till soil and bedrock field investigation program was prepared and submitted to MADEP on 14 January 2004. The Supplemental Scope of Work was primarily directed at identifying the horizontal and vertical extent of TCE in deep glacial till soils and groundwater in fractured bedrock, both on the Waltham Engineering Center Property and in off site locations on the opposite bank of the Charles River. The Supplemental Scope of Work also included a revised Schedule for the completion of Phase II.

The Supplemental Scope of Work presented planned tasks to be completed to develop a better understanding of the deep glacial till soil and bedrock conditions beneath the site and source area. In addition, locations were proposed to evaluate the horizontal and vertical extent beyond the Charles River.

2.16.1 Review of Areal and Local Bedrock Geology

According to the available geologic literature, the bedrock beneath the Waltham Engineering Center Property consists of Cambridge argillite, while the Dedham granite/granodiorite/volcanic rocks (Dedham Group), intruded by diabase, reportedly underlies elevated areas to the northwest of the Charles River, in the vicinity of the Mt. Feake Cemetery. Bedrock exposures of argillite are not generally present in the site vicinity. Large exposures of the Dedham Group are seen in the cemetery on the opposite bank of the Charles River.

The Cambridge argillite is described in published references as argillite with minor interbedded sandstone and quartzite. The argillite is laminated to massively bedded with poorly developed bedding plane partings. It also exhibits locally imperfect slatey cleavage.

The phase of the Dedham granite mapped in proximity to the site is a quartz diorite and diorite. The diorite is fine to medium grained, and dark gray to black in color. A diabase intrusive body is also mapped near the Mt Feake Cemetery. The diabase is described as coarse grained, mottled light and dark gray. Most intrusions of diabase were described during the regional mapping as pipes at the intersections of faults.

The Cambridge argillite and the Dedham Group are separated by a regional fault, known locally as the Northern Border Fault or "Basin Fault," according to Kaye (1980), and Newton, (1975). The Dedham Group is thrust over the older Boston basin rocks. Near the site, the Northern Border Fault is oriented northeast-southwest, and is inferred to underlie the Charles River. The fault is not exposed at the ground surface at this location or in other areas of Boston and the width and character of this fault near the site have not been determined. However, descriptions of the fault from bedrock tunnel projects suggest that it is possible to pinpoint the contact between the two units, and that it is a tight fault contact (See Section III). Glaciofluvial processes and the subsequent Charles River in the site locale have however, preferentially eroded the less resistant faulted rocks along the fault contact as the glacial fluvial channel and subsequent river bed developed.

Based on the local topography and the results of investigations conducted at the site to date, groundwater migrating through overburden soils beneath the site flows to the west/northwest and north, similar to the flow of the Charles River, which is located immediately west of the Property. Groundwater flow in bedrock will follow permeable features in the rock including faults and fractures.

2.16.2 Fracture Trace Analysis and Field Mapping

A bedrock fracture trace analysis was conducted to evaluate potential preferential fault and fracture directions in the bedrock that could influence the direction of groundwater flow in bedrock. In addition, the information could be used to support a planned geophysical survey that was undertaken to identify bedrock topographic features or fractures that may serve as preferential pathways for the migration of chlorinated solvent contamination.

On 3 March 2004, field mapping of structural features in bedrock exposures near the Property was performed. Two bedrock exposures were identified to the northwest of the Charles River in the Mt Feake Cemetery, approximately 1,000 ft from the site. No other outcrops were encountered within an approximate 1-mile radius of the Property. The mapped outcrops varied in length from about 100 to 300 ft, and ranged in height from about 20 to 30 ft. In general, the rock types encountered included diabase, with lesser granitic intrusions associated with the Dedham granite. The general location of each outcrop is shown in a summary fracture trace memorandum, 17 March 2004 and included in Appendix H. The field mapping data are presented with the fracture trace analysis results memorandum provided in Appendix H.

At each outcrop, structural features such as foliation planes and natural rock fractures, herein termed "joints", were measured to determine the orientation (strike and dip), as well as joint spacing, extent, termination characteristics, large-scale surface morphology, roughness, weathering, infilling, and aperture.

The field mapping data (dip direction and dip format) are presented in a summary memorandum dated 17 March 2004. The results of the field mapping indicated that at least four individual joint sets (designated J1 through J4) were observed at the two outcrops that were mapped. Of these sets, J1, J2, and J4 were the most frequent and pervasive. Set J1 has an average strike azimuth of 103 degrees and dip of 81 degrees, set J2 has an average strike azimuth of 45 and dip of 89, set J3 has an average strike azimuth of 229 and dip of 35, and set J4 has an average strike azimuth of 166 and dip of 78. Occasional fracture zones were also observed, and were typically parallel to either joint set J1 or J2. These fracture zones varied from about 4 to 6 inches wide, and from about 10 to over 20 ft in length (Appendix H).

The cumulative strike measurements for sets J1, J2, and J4 suggest a strong east-west trend (J1), a strong northeast-southwest trend (J2), and a lesser north-south trend (J3). It is noted that the azimuth of J2 is generally similar to the local orientation of the Charles River and the regional fault that is mapped along the River in this area (Appendix H).

2.16.3 Aerial Photograph Analysis

Large-scale structural features such as closely spaced joints or faults often result in well-defined linear or curvilinear expressions in the landscape (fracture traces or lineaments). These expressions may include variations in vegetation, topography, and soil tonal alignments, as well as linear segments in rivers and streams, and elongated lakes. Where present, such features are often visible through analysis of aerial photographs.

For the purpose of this study, 1" = 2000' scale stereo-paired aerial photographs of the project vicinity were obtained from National Aerial Resources, and examined for evidence of fracture traces. The linear features observed are shown graphically Figure 1 of the fracture trace summary memorandum in Appendix H. The fracture traces identified follow a northeast-southwest trend, which is consistent with the orientation of the Charles River and the regional fault ("Northern Border Fault") mapped by others (Kaye, 1980, Newton, 1975). These results are generally similar to joint set orientations J1 and J2 obtained from the field mapping

2.16.4 Geophysical Survey

A geophysical survey of the Waltham Engineering Center Property was proposed to better understand the bedrock conditions with the potential to affect the migration of chlorinated solvent contamination at the site including the depth to bedrock, bedrock surface topography, and bedrock features, such as faults and fractures. The bedrock information obtained would be used to site the bedrock wells in locations in the vicinity of target bedrock features that may be preferential pathways for the migration of contaminants.

Hager Geoscience, Inc. of Woburn, Massachusetts was subcontracted to conduct the geophysical survey. Both seismic and ground penetrating radar geophysical techniques were used on the site. A copy of the Hager Geoscience, Inc. report presenting the results of the geophysical survey is provided in Appendix H.

Hager Geoscience mobilized to the site on 30 March 2004 and conducted the work during a period ending 16 April 2004. The objectives of the geophysical program were to map the bedrock surface and to identify seismic low velocity zones that could represent fractures in the bedrock that may serve as preferential pathways for the migration of dissolved contamination in groundwater in bedrock.

Seismic reflection and ground-penetrating radar (GPR) geophysical techniques were applied on site. Approximately, 2,600 lineal feet of seismic and 1,450 lineal feet of subsurface exploration log with continuous samples for the adjacent bedrock boring had been produced previously.

Soil samples retrieved during the sampling were documented and described on test boring logs completed for each exploration. Copies of the test boring reports describing the conditions encountered at each location are provided in Appendix B. The headspace of jar samples of each sampled depth interval was screened with a photoionization detector (PID) with an 11.7 eV lamp. The PID headspace screening data is summarized in Table I. Test Boring Reports for each subsurface exploration are provided in Appendix B. Drill casing wash water, steam cleaning rinseate, monitoring well purge water, and soil drill cuttings were containerized in DOT approved drums for chemical characterization and off-site disposal. Cyn Environmental removed the drums from the enclosed on-site storage area.

2.16.6 Bedrock Coring

The 800-series as-drilled subsurface explorations locations are shown on Figure 2. Bedrock borings and deep overburden borings were both advanced to refusal on the bedrock surface. Borings completed as glacial till locations "T" were then completed with monitoring wells. Bedrock "R" designated locations were then cored with an NX, 2.0 in. dia. core barrel. The retrieved core was described, documented, and logged on the Core Boring Report (Appendix B). Relative rock quality was calculated and recorded. At the completion of the coring, the length of the core run was reamed to the finish diameter of the boring with a roller bit. Each of the test borings involved coring three core barrel lengths into the bedrock, for a total of 15 feet of bedrock coring and reaming at each bedrock location.

2.16.7 Packer Testing

Packer testing of the completed core run intervals was conducted to evaluate the potential for fractured areas of rock with higher permeability, or discernable differences in permeability among rock types. A packer is used to isolate sections of the borehole, thereby allowing sampling of groundwater entering a discrete section of the borehole. Samples of groundwater from the sections of the borehole that were isolated were collected and screened for volatile organic compounds (VOCs) in the Haley & Aldrich screening laboratory. The packer test samples collected from HA-807R(MW) were analyzed at a analytical laboratory (Alpha Analytical). The sample collecting and screening was conducted to evaluate whether or not higher levels of contamination existed in areas of fractured rock. Packer testing and VOC screening was also conducted to evaluate the vertical extent of contamination on a near real-time basis. This allowed decisions to be made regarding the completion depths of boreholes during the drilling program.

The results of the packer testing are summarized in Table VII. Low levels of VOCs were detected in the several of water samples from bedrock intervals in bedrock explorations HA-801R(MW) and HA-805(MW). Followup groundwater sampling from these wells showed no detected VOCs. The low levels of VOCs detected in the screening samples may reflect contamination of the screening water samples from pumps and equipment during the drilling and packer testing or possibly diffuse levels of VOCs near the site. However, groundwater samples collected from these wells following well development and purging showed no VOCs above the method detection limit. In several cases, the borehole sections were not productive and samples could not be collected. Screening Laboratory Data Reports are provided in Appendix I.

2.16.8 Well Clusters

Clusters of wells of different depths were completed during this phase of work. The clusters are monitoring wells with screened intervals in the following geologic units beneath the site: bedrock, glacial till, and in one case, shallow overburden soils. Monitoring wells with "R" designations are installed in bedrock. "T" designated monitoring wells are installed in deep glacial till above the bedrock surface. The "S" designated monitoring well in the HA-802 (MW) cluster was installed in shallow over burden soils and the well screen intersects the groundwater table. Well clusters were installed to assess groundwater quality differences between overburden and bedrock groundwater. Well clusters also allow monitoring of potential vertical groundwater gradients that may be present and influencing the groundwater flow and groundwater quality.

During the completion of the test boring program, the deeper bedrock subsurface exploration within a proposed cluster was drilled first and soils were sampled with a split-spoon sampler on a continuous basis with depth through the soil profile to the bedrock surface. Adjacent glacial till borings and shallow overburden borings therefore were not sampled since the geology and screening data were previously documented during advancement of the adjacent bedrock exploration.

2.16.9 Bedrock Monitoring Well Installation

At several locations, weathered bedrock was encountered beneath the glacial till. Weathered bedrock was removed with the roller bit until competent bedrock was encountered. The bedrock core runs were then initiated. Bedrock was cored at each bedrock well location from the top of the competent bedrock surface to a depth of 15 ft into the bedrock (3 separate - 5 ft core lengths). At the completion of the bedrock coring, the borehole was enlarged with a roller bit to allow installation of the groundwater monitoring well screen and sand pack material around the monitoring well annulus.

Groundwater Monitoring Well Installation Reports documenting the construction details of the monitoring wells install during this phase of work on the site are compiled with respective Test Boring Reports in Appendix B. In bedrock monitoring wells, a 15-ft long well screen was inserted into the completed and reamed bedrock boreholes. Sand pack was then installed around the slotted well screen and a bentonite seal was placed above the sand pack. The well annulus, between the riser and borehole wall from the sand pack to the ground surface was backfilled with bentonite or cement grout. The monitoring wells were completed at the ground surface with cement surface seals and flush mounted road way boxes identifying the installations as "Groundwater Monitoring Wells".

2.16.10 Glacial Till and Shallow Overburden Monitoring Well Installations

To evaluate the vertical extent of chlorinated solvent contamination, both shallow and deeper overburden wells were installed in clusters with the bedrock wells. Clusters were conducted where the vertical extent needed further evaluation or in areas where contamination was encountered in the overburden during completion of the bedrock boring. A shallow overburden groundwater monitoring well was completed in the parking lot at the north end of the property [HA-802S (MW)]. The purpose of this shallow overburden well was to evaluate the northern extent of trichloroethylene contamination, detected in previous field programs, in the shallow overburden along the riverside access road at the northern end of the property. Additional shallow overburden wells were not installed during this phase, since the shallow overburden is believed to be adequately characterized near the source area.

Deep overburden wells were installed near the source area to evaluate the vertical extent of trichloroethylene in the overburden and near the top of bedrock in the source area (Figures 3 and 5). Monitoring well HA-806T (MW) was installed as a deep overburden well in the source area and near a bedrock well installed during a previous phase of work with elevated levels of chlorinated solvent contamination in groundwater [HA-702(MW)]. During the advancement of test boring HA-808R, southeast of the source area, volatile organic compounds were detected in the overburden based on field PID screening results. A glacial till overburden well was installed at this location to evaluate the quality of groundwater in the till above bedrock at this location [HA-808T (MW)] (Figures 3 and 5).

2.16.11 Off-Site Bedrock Monitoring Well Installations

The results of previous phases of the comprehensive site assessment has shown the presence of chlorinated solvents in the samples of sediment and river bottom soils collected from the Charles River adjacent to the disposal site. The horizontal extent of chlorinated solvent contamination therefore remained an unknown prior to conducting this phase of work. It was considered not practical to drill bedrock explorations in the Charles River and to install monitoring wells or temporary groundwater sampling points. Therefore, it was planned to step further downgradient and off-site to evaluate the horizontal and vertical extent of chlorinated solvent contamination.

The off-site explorations were planned for the City of Waltham Mount Feake Cemetery property located opposite the disposal site on the Charles River (Figure 3). The proposed locations for the bedrock groundwater monitoring wells were selected based on extrapolation of seismic low velocity zones, identified during the geophysical survey conducted on the disposal site property. Seismic low velocity zones were extrapolated from beneath the disposal site across the river to the cemetery property. The locations were then marked and surveyed in the field (Figure 10). The locations were sited at elevations above the mapped flood zone of the Charles River.

An access license agreement was negotiated with City of Waltham officials to conduct the test boring program and to install temporary groundwater monitoring wells (groundwater monitoring until July 2005) for collection of groundwater samples and for groundwater monitoring purposes. The license agreement was signed on 9 September 2004. The City of Waltham was then provided with a required 14-day notification of the start of the work.

Drilling in the cemetery was initiated on 4 October 2004. A total of 4 bedrock monitoring wells were planned and designated HA-803R(MW), HA-804R(MW), HA-809R(MW) and HA-810R(MW) (Figure 2). Since contamination attributable to the disposal site could not occur at an elevation higher than the river elevation, the bedrock explorations were advanced without sampling to an elevation consistent with the river elevation. After that point, the explorations were cored on a continuous basis. Core boring reports presenting the subsurface conditions encountered are provided in Appendix B. Following completion of the coring the boreholes were reamed with a roller bit.

HA-803R(MW) was drilled to a depth of 102.3 ft below ground surface. A 20 ft long slotted PVC well screen was installed from 80 to 100 ft. HA-804R(MW) was drilled to a completion depth of 70.0 ft below ground surface. A 14.5 ft slotted PVC well screen was installed from 55 ft to 69.4 ft in the completed test boring. HA-809R(MW) was drilled to a depth of 82.0 ft below ground surface. A 14.5-ft slotted PVC well screen was installed from 67 ft to 81.5 ft in the completed test boring. HA-810R(MW) was drilled to a depth of 83.5 ft. A 15 ft slotted PVC well screen was installed from 68 ft to 83 ft below ground surface in the completed test boring. The annulus surrounding the well risers was filled with cement grout to just below the ground surface. The wells are protected at grade with roadway boxes. The construction details of the off site bedrock monitoring wells are compiled on Observation Well Installation Reports provided in Appendix B.

2.16.12 Groundwater Monitoring Well Elevation Survey

Haley & Aldrich measured the as-drilled locations and elevations of the HA-800 series monitoring wells located on the Property and installed as part of the Building 27 bedrock investigation on 10 August 2004. Measured elevations are reported with respect to the North American Vertical Datum (NAVD) 1988. A round of groundwater level monitoring was conducted on 10 August 2004. No Non-Aqueous Phase Liquid (NAPL) was identified during the groundwater monitoring event or during previous groundwater level monitoring events. Ground surface elevations for the locations of off-site monitoring wells were surveyed to confirm the locations as being above the mapped Flood Zone.

2.17 Indoor Air Quality Testing

The following indoor air testing program was completed since earlier testing programs that are compiled in the June 2003 Preliminary Phase II Report. An indoor air sampling round was conducted on 5 February 2004 to 6 February 2004. Samples were collected from the interior first floor of Buildings 18/19, the second floor of Building 18/19, the basement of Building 16, and the first floor and loading dock of Building 16. Indoor air has not been sampled in Building 27 since the submission of the June 2003 Preliminary Phase II Report. The results of air testing in site buildings is presented in Tables VIII, IX, and X. The indoor air sampling locations are shown on Figure 4 and Figure 5.

Three samples were collected in the Basement of Building 16: one near the location of the former trench sump (IAQ-16 02/05/04), and two at the entrances to the North and South Chase (IAQ-16 North Chase 02/05/04, and IAQ-16 South Chase 02/05/04. These samples were located to attempt to identify the source or chlorinated solvents in indoor air in the basement, including tetrachloroethylene (PCE). PCE has not been identified in site soils and groundwater in significant concentrations. However, PCE has been identified as a significant compound in indoor air in the basement of Building 16. The pipe chases and a tunnel at the east end of the basement of Building 16 extend to other areas of the large facility, and these tunnels are drafty and move air. The summa canisters designated "IAQ-16 South Chase 02/05/04" and "IAQ-16 North Chase 02/05/04" were positioned in the openings of the south and north pipe chase respectively.

The source of indoor PCE was also assessed in Buildings18/19. Building 18/19 was occupied at the time of the sampling round with tenants. These samples were also located to attempt to identify the source or chlorinated solvents in indoor air on the first floor of Building 18/19, including tetrachloroethylene (PCE). PCE has <u>not</u> been identified in site soils and groundwater in significant concentrations. However, PCE has been identified in indoor air in on the first floor of Building 18/19. Since light industrial tenants occupied the first floor of Building 18/19, it is possible that use of PCE in the building was the source of PCE detected in air sampling rounds. The second floor of Building 18/19 housed a small research laboratory, a light machine shop operation that constructed shelving and racks, and formerly a screen printing operation.

Two summa canisters were located on the first floor of Buildings 18/19 in the same historical air sampling locations as previous rounds (designated IAQ-18 02/05/04 and IAQ-19 02/05/04). A total of three summa canisters were located on the second floor of the Building. Two were located in the then recently vacated former screen printing space. One canister was placed adjacent to a former spray booth in the space (IAQ-18 Former Spray Booth 02/05/04) and a second canister was located near the central portion of the office space (IAQ-18 Former Printer 02/05/04). A third canister was placed in a common hallway area on the second floor of Building 18 (IAQ-18 Common Area 02/05/04). The air sampling locations are shown on Figure 4.

Air samples were collected in certified pre-cleaned 6-Liter Summa canisters equipped with flow controllers integrated over an 8-hour sampling interval. In order to avoid disruption of tenant operations and in an attempt to minimize impacts from routine use of chemicals and solvents, whole air samples were collected overnight, outside of regular business hours.

The summa canisters were subsequently sent to Columbia Analytical Services of Simi Valley, California for analysis. The samples were analyzed by combined gas chromatography/mass spectrometry (GC/MS) for VOCs. The analyses were performed according to methodology outlined in EPA Method TO-14A.

The results of the indoor air quality analyses for Buildings 18 and 19 are summarized in Table VIII. The laboratory data report presenting the analytical results and the laboratory QA/QC information are provided in Appendix J. A more detailed discussion of air quality at the disposal site is included in Section IV - Nature and Extent of Contamination.

2.18 Outdoor Air Quality Testing

In order to investigate a potential outdoor source of PCE to indoor air, one outdoor air quality sample was collected. The site is located in an urban area, small laboratory and light industrial operations are located within the Waltham Engineering Center and commercial operations are located in the site vicinity (e.g. autobody shop south of the site). Also during visits to the site during the work week, chemical odors associated with nearby current operations are periodically detected.

One summa canister designated "OAQ-S1 02/05/04" was placed on a dormer roof top of a rear entry to the Waltham Engineering Center. The roof top collection point was selected to

3. SITE HYDROGEOLOGICAL CHARACTERISTICS

3.1 General

The Waltham Engineering Center is a historic mill complex located directly abutting the Charles River. A 15 to 20 ft wide access drive lies between the mill buildings and a fieldstone retaining wall at the river edge (Figure 2). The access drive is paved and is underlain by cobblestones and urban fill. A chain-link fence is situated along the top of the fieldstone retaining wall and runs much of the length of the retaining wall. The fence is absent along some areas at the southern end of the property, from near Building 16 to the southern corner of the property.

The Charles River is approximately 400 ft wide opposite the Waltham Engineering Center. The Waltham Mt. Freake Cemetery (green space) is located on the opposite side of the river. The current in the river at this point is typically barely perceptible, and flow is to the north. The Moody Street dam constructed in 1814 prior to the construction of the watch factory is located approximately 0.4 miles downstream of the subject site, and created the wider, "Lake District" of the Charles River. There is also a fish ladder at the Moody Street dam to assist in fish migration.

The hydrogeologic characteristics of the site are related to the facility's location directly on a river bank. The area is underlain by organic, fluvial and glaciofluvial materials deposited during the evolution of the Charles River. Also, based on review of facility plans, most storage and use of oil and hazardous material occurred in areas or buildings adjacent to the riverside access drive. Releases of oil and hazardous material therefore originated in close proximity to the river, and have not involved transport for long distances with groundwater flow.

3.2 Site Topography

The grade on the property generally slopes from Crescent Street west toward the Charles River. Paved parking areas generally slope to storm drains at locations across the property and along an asphalt berm constructed at the edge of the pavement on the river side access drive bordering the Charles River, to prevent direct runoff of from pavement into the Charles River. The berm was constructed sometime in the late 1980s or early 1990s. Occasional flooding of the Charles River onto the paved surfaces of the site and into the low basements of some of the riverside buildings has occurred in the past. The 100-year flood line is shown on Figure 2. The typical elevation of the Charles River is approximately El. 35 ft (NGVD 1988).

The topography on the opposite site of the Charles River is higher (Figure 1). The increased elevation in the Mt. Feake Cemetery is present since it is on the opposite, uplifted, side of the Northern Border Fault – a thrust fault bordering the Boston Basin. The fault is not exposed, but is represented by the topographic low that glaciofluvial processes and the Charles River advanced during development of the geomorphology of the area.

3.3 Site Geology

3.3.1 Overview

The site is located in a complex geological area at the edge of the Boston Basin. The bedrock underlying the property is sedimentary Cambridge argillite and pebble conglomerates attributable to the Boston Basin. There are no exposures of this bedrock in the site vicinity. The bedrock on the opposite side of the Charles River is related to the Dedham Group, a package of granites, granodiorites, gabbros and volcanic rocks. These different bedrock groups are separated by a major structural feature – the Northern Border Fault which occurs beneath the Charles River adjacent to the site. This fault is a west to northwest dipping fault where the older rocks of the Dedham Group (approximately 610 my) are thrust easterly-southeasterly over the younger Cambridge argillite (540-590 my). The Northern Border Fault is marked by the abrupt change in elevation in the immediate suburbs north and west of Boston and Cambridge. The fault is not exposed at the ground surface, but several bedrock tunnel projects have crossed the fault. In the Malden Tunnel, fault gouge, breccia and silicification are absent, but close space jointing in the argillite for 540m south of the fault and 262m in the bedrock north of the fault is attributed to the faulting (Billings and Rahm, 1966). This suggests that the Northern Border Fault beneath the Charles River may not be a large open preferential pathway for groundwater flow, but that the bedrock on either side of the fault has been jointed and fractured to a greater extent within several hundred meters of the fault. The higher amount of jointed and fractured rock resulted in preferential erosion and development of the Charles River bed.

The surficial geology of site was deposited in an eroded bedrock channel. A dense, sandy glacial till was deposited, followed by glaciofluvial sands and gravels. Organic silts and fluvial sands attributable to the early Charles River depositional environment have also been identified in test borings at the site. Finally, areas of the river front were filled behind a field stone retaining wall at the site. The exact age of the fieldstone retaining wall and filling are not known, but it was constructed sometime after the initial construction of the factory in the 1850's and the late 1890's.

A graphical visualization of the site geology is presented as Figure 11. The outlines of the mill complex buildings are superimposed on the geology interpreted from the results of the test boring programs conducted on the property. Test boring logs documenting the conditions encountered are provided in Appendix B. Based on the results of the test boring programs, the following subsurface units were encountered with increasing depth below ground surface:

3.3.2 Miscellaneous Fill

A thickness of approximately 4.0 ft to 16 ft of miscellaneous fill was encountered in test borings completed on the property. The miscellaneous fill is described as dark brown, coarse to fine sand and gravel, with traces of asphalt, wood, cinders, ash, furnace slag, and bricks. Surficial cobblestone pavements and large argillite boulders (possible building foundation remnants) have been encountered in the fill in excavations at the site. The miscellaneous fill was thinnest near and beneath Buildings 18 and 19 where 4 to 5 ft of fill was reported. The fill was thickest at HA-802R(MW) located in the northern parking lot adjacent to Prospect Street. Up to 12

3.3.8 Bedrock - On Site - Boston Basin Lithologies

Prior to the completion of the HA-700 series test borings in September 2003, depth to bedrock and bedrock type was not known for the site. HA-702(MW) was conducted to assess the vertical extent of TCE contamination attributable to the adjacent Building 27. HA-702(MW) encountered the top of bedrock at 37 ft below the grade of the riverside access drive. Bedrock was cored for a 5 ft interval and the boring was completed at 44 ft. The bedrock encountered in the boring was a gray green argillite (Cambridge argillite). A well screen and sand pack were installed within the bedrock and the borehole was grouted to the surface. Soil and groundwater samples collected from this boring location subsequently showed an elevated concentration of TCE in the deep glacial till and in groundwater from the bedrock well.

These results prompted an expanded deep glacial till and bedrock subsurface exploration program to further evaluate the vertical and horizontal extent of chlorinated solvent contamination. The 800-series test borings were then conducted in the spring and fall of 2004. The bedrock phase test borings were located based on the results of a geophysical survey and the borings were also placed in areas removed from the source area to investigate the possibility of contaminant migration along geologic surfaces opposite that of area groundwater flow directions.
Depth to bedrock beneath the property ranged from 39.5 ft in HA-806T(MW) located near Building 27 in the riverside access drive to 56.5 ft in HA-802R(MW) located in the northern parking lot. A contour plan showing the estimated bedrock surface beneath the property is provided as Figure 12B. The contour plan shows that the bedrock surface dips steeply in the northern end of the site towards the river channel beneath the Prospect Street Bridge. This slope is consistent with the eroded fault that formed the Charles River channel.

The bedrock encountered in the borings was consistent with Boston Basin geology and consisted of argillite and conglomerate. Test borings HA-801R(MW), HA-805R(MW), and HA-806T(MW) encountered exclusively argillite to the completion depth of the borings. Conglomerate was encountered in HA-802R(MW) and HA-807R(MW). Interbedded argillite and conglomerate were encountered in test boring HA-808R(MW). The argillite is described as hard to moderately hard, fresh, dark gray and green, fine grained argillite. The conglomerate was described as hard to very hard, fresh, gray-green with very coarse multicolored clasts in a fine grained matrix.

Some open joints, red iron staining, and clay infillings of joints were observed. Packer testing of intervals in the borings for sample collection purposes resulted in small quantities of groundwater from fractured bedrock (e.g. HA-801R(MW), approximately 1 gallon per hour in the packer interval). In general, the conglomerate appeared to be somewhat more permeable with rapid drill water loss observed during drilling at HA-802R(MW) and HA-807R(MW). These two locations at the north end of the site may also be closer to the inferred Northern Border Fault location and as a result more jointing of the bedrock may be expected.

3.4 Bedrock - Off Site - Dedham Group

Trichloroethylene contamination was identified in river soils opposite the Building 27 release area. It was not considered practical or feasible to install bedrock groundwater monitoring

4. NATURE AND EXTENT OF CONTAMINATION

4.1 General

This section discusses the nature and extent of oil and hazardous materials at the disposal site based on the cumulative information obtained from historical research, field explorations, subsurface explorations, geophysical exploration, groundwater elevations, and chemical analyses of soil, groundwater, indoor air, outdoor air, sediment, surface water, and fish tissue samples, as described in this report and in previous reports submitted to DEP, including a Preliminary Phase II – Comprehensive Site Assessment, dated 2 June 2003. The following discussion is comprehensive and updates the nature and extent of contamination to reflect our current understanding of site conditions based on field exploration work completed since June 2003.

The recently completed work has focused on the horizontal and vertical extent of TCE contamination in soils and groundwater near Building 27, continued monitoring of dissolved cadmium concentrations in groundwater downgradient of Building 16, and conduct of ecological sampling and an environmental risk characterization of the conditions in the adjacent Charles River.

4.2 Nature of Sources

Several sources of contamination at the disposal site have been delineated. The following discussion outlines what is known about site sources.

4.2.1 Continuing Source of Cadmium – Building 16 Former Trench and Sump

After a long period of low and stable concentrations (1985 to 2000), dissolved cadmium concentrations in groundwater from monitoring wells downgradient of Building 16 have been increasing and currently exceed Upper Concentration Limits (UCLs). The exact mechanism for these increasing concentrations is not known. July 2004 corresponds with a period of slightly higher groundwater elevations, which may have liberated cadmium in soils, but a consistent trend is not seen. It is believed that the source of the cadmium in groundwater is residual soil contamination remaining beneath the former trench area under Building 16. Heavily contaminated soils were removed from the trench prior to patching the trench with concrete during remedial plating waste removal activities conducted in 1985. The trench was originally approximately 100 ft long and 1 ft. (or less) wide, and it was located along the south wall of the basement (Figure 3). Residual cadmium levels remain in soil beneath Building 16 in the vicinity of the former trench and sump. Shallow soil samples collected along the former drainage swale south of Building 16 also showed cadmium ranging from 17 mg/kg to 700 mg/kg (see soil samples TS-1 through TS-5 in Table IV). Other areas of elevated cadmium concentrations in soil in the vicinity of Building 16 have not been identified during assessment activities. Residual cadmium concentrations in soil in the vicinity of the former trench and sump in Building 16 are believed to be acting as a continuing and on-going source of groundwater contamination.

4.2.2 Mitigated Source - Buildings 18/19 Former Crawlspaces

Electroplating and degreasing operations of the former Waltham Industrial Labs in Buildings 18 and 19 historically discharged electroplating sludges and wastewaters to crawlspaces in the building. During December 1985 to February 1986, FRCA conducted response actions in the building, including the removal of the electroplating waste sludges and impacted shallow soils. The crawlspaces were backfilled with soil and broken concrete, and a concrete slab-on-grade floor was constructed. Soils that were not observed to contain electroplating sludges or exhibit visual evidence of overtly-contaminated soils were not removed from crawlspaces. This work is documented in a letter report by Haley & Aldrich to DEQE (now DEP) dated 22 May 1987.

Chlorinated solvents, petroleum, metals, and cyanide have been identified to remain in soil and groundwater beneath Buildings 18/19. Vinyl chloride (12 mg/kg) and TCE (8 mg/kg) were identified in glaciofluvial soils in test boring HA-7A completed through the floor of Building 18. Levels of metals in soil beneath Building 18/19 are below applicable Method 1 standards (Table IV). Based on groundwater quality data extending back to 1985, levels of metals and VOCs in downgradient wells are not increasing and remain below Method 1 GW-3 standards. Therefore, the residual soil contamination remaining after removal of plating wastes from the former crawlspaces is not acting as a continuing source of significant groundwater contamination.

4.2.3 Mitigated Source - Former Gasoline USTs

One 425-gallon gasoline UST and one 515-gallon gasoline UST, located near the boiler room for the facility, were removed on 18 August 2000 (Figures 3 and 6). One of the two previously-unidentified USTs was encountered on 11 August 2000 during trench excavation activities (conducted for purposes of installing a natural gas utility service pipeline) along the property riverside access drive. The Former Gasoline USTs is a separate release that is currently in MCP Phase II (RTN3-19850) that is addressed in this Phase II - Comprehensive Site Assessment.

It was not considered feasible or practical at the time of the tank removal to remove contaminated soils from the tank grave, due to the close proximity of the Charles River and the difficulty in containing wet contaminated soils.

However, groundwater monitoring and sampling of wells located between the former tank grave and the Charles River has shown significant reduction in groundwater contamination since the removal of the USTs (Figure 6). Levels of groundwater contamination are currently below Method 1 GW-3 standards.

Sediment sampling results indicate the presence of gasoline-related constituents, VPH carbon ranges and benzene, toluene, ethylbenzene, and xylene (BTEX), immediately downgradient of the former UST. Sheens on sediment samples and petroleum odors are observed during sampling of the river bottom at this location. It is believed that this contamination is a result of fuels released historically from the USTs directly and not a result of current residual groundwater contamination moving through sediments. The removal of the USTs effectively mitigated groundwater contamination. The former UST location therefore is not acting as a continuing source of significant groundwater contamination.

4.2.4 Residual Contamination - Former TCE Distillery Contaminated Soils (Section needs to be edited to be consistent with current interpretation)

During conduct of assessment activities at the former ethyl acetate UST location (RTN 3-19582), a release of solvents and petroleum was identified in the subsurface at Building 27 (RTN: 3-20575, subsequently linked with 3-0585) (Figure 3). Based on review of the 1944 Waltham Watch Company plan, this release is likely attributable to or associated with a former "Kerosene/Trichloroethene (TCE) Distillery" shown on the ground floor of Building 27 in the 1944 plan. Historical plans indicate that a portion of Building 27 and a previous generation of building(s) have had a long history of storage and use of oil and hazardous material in this vicinity. A 1930 plan indicates that previous uses of this building, include a "Benzine Cleaning and Oil Storage" operation, the presence of an "Oil Tank" in a room at the grade of the riverside access drive, a "Kerosene Washing" operation and associated "Kerosene Stge", for kerosene storage. A 1944 plan shows that use of the Building 27 room changed to "Trichloroethylene & Ethyl Acetate Distilling". The operation of the "Trichloroethylene & Ethyl Acetate Distilling" likely used the former 275-gallon UST to store ethyl acetate (described in Section 1 above).

Elevated concentrations of TCE are identified in soil and groundwater between Building 27 and the river. Figure 13 is a subsurface profile showing chlorinated VOC concentrations. Elevated concentrations of TCE are also found in groundwater from shallow bedrock at location HA-702(MW) (16,000 ug/l). Figure 14 is a visualization of the distribution of TCE contamination in soils, sediments and groundwater across the property.

The actual historical release mechanism is not known. The first floor held the former distillery and several above ground storage tanks (ASTs). The ASTs were empty, abandoned and removed in 2000. With the exception of the ethyl acetate tank that was removed in 2000, no additional USTs for storage of TCE have been identified on historical plans or during field investigations in the vicinity of Building 27.

There are no identified floor drains in the rooms that formerly housed the distillery and ASTs, and no other penetrations of the floor have been observed. An access tunnel (at at-grade basement elevation) passes under the 5-story brick building from the riverside access drive to the Building 27 courtyard. The floor of the tunnel is currently concrete pavement. It directs surface water to a catch basin location in central portion of the tunnel. This catch basin currently directs stormwater to the river. The construction date and details of this catch basin are not known; however, screening of the catchbasin with a PID and visual observations have not identified evidence of contamination in the catch basin interior.

There is some staining of the southern wall of the tunnel suggesting that, historically, liquids from the first floor of Building 27 dripped down the wall into the tunnel. There is also some suggestion of historical surficial dumping of TCE on the riverside drive. Several borings north of the access tunnel show elevated TCE in shallow fill soils, but not in soils at depth.

Therefore, the most likely release mechanism is historical surficial spilling of TCE onto the riverside access drive (which was a cobblestone roadway historically) and in

the Building 27 tunnel, and potential release to the catch basin utility in the tunnel. It is currently not feasible to do additional exploratory work to identify the release mechanism. Under the tunnel, a storm drain line exists. Adjacent to the tunnel, the potentially impacted soils are beneath a 5-story brick building and the riverside access drive is underlain by active subsurface utilities, including a gas line, high pressure sprinkler line and a sewer line.
Monitoring and sampling of test borings and groundwater monitoring wells at Building 27 have not identified evidence of DNAPL beneath the riverside access drive or in areas surrounding Building 27. DNAPL does not appear to be acting as a source of groundwater contamination.

The source of the groundwater contamination at Building 27 is believed to be residual soil contamination beneath Building 27 and the roadway. Residual soil levels are unlikely to result in increasing concentrations in groundwater. Downgradient of the former kerosene/trichloroethene (TCE) distillery (Building 27), concentrations of chlorinated VOCs have generally been consistent, if not decreasing, in downgradient monitoring wells (HA-102(MW), HA-103B(MW), HA-301(MW), HA-501(MW), HA-502(MW), HA-504(MW)). Concentrations have increased slightly in the most recent round in well HA-503(MW), and in monitoring wells HA-602A(MW))and HA-702(MW); these well, however, have only been monitored three times and two times, respectively. The monitoring well data, together with the fact that releases to the environmental ceased long ago with the closure of the factory's operations, generally indicate the contaminant plume is in a "steady state." It is therefore unlikely that groundwater concentrations will increase substantially in the future.

The nature and extent of contamination attributable to the above sources is described in detail below on a media specific basis. For details on historical assessment and remedial activities see the June 2003 Preliminary Phase II Comprehensive Site Assessment Report.

4.3 Soil

Phase II field investigations have confirmed and expanded on the results of previous studies conducted in the mid- to late-1980s that identified areas of elevated metals (lead, cadmium, nickel, and zinc), chlorinated VOCs, and petroleum hydrocarbons in site soils. At the completion of the Preliminary Phase II - Comprehensive Site Assessment in June 2003, additional work was needed to adequately delineate the extent of soil contamination at several locations. The vertical extent of VOC contaminated soils at Building 27, and potentially Buildings 18/19, was not fully understood. In addition, the northern extent of VOC contamination in fill soils needed further evaluation. Subsurface exploration programs conducted since the June 2003 Report have filled in these data gaps and delineated the extent of soil contamination at the disposal site.

Soil quality data collected during the Phase II - Comprehensive Site Assessment and previous investigations are presented in Table IV. The summary of site soil contains soil quality data for the Former Waltham Industrial Labs portion of the disposal site. Soils removed during the remedial activities conducted from 1984 to 1988 in Buildings 16, 18, and 19 are not included in the soil quality data table, because the soils were removed for off-site disposal. Table IV contains soil quality data for the release(s) of chlorinated solvents and petroleum identified near Building 27 (RTN 3-20575, now linked to RTN 3-0585). Table IV also contains soil quality data for the former gasoline USTs disposal site (RTN 3-19850), which is a separate release and disposal site that is currently in Phase II and is included in this Phase II

- Comprehensive Site Assessment submittal. Test boring locations are shown on Figure 2. Known and suspected source areas are shown along with subsurface exploration locations on Figure 3.

The following soil samples were presented in the June 2003 Preliminary Phase II – Comprehensive Site Assessment Report. The location and collection of these samples has been subsequently evaluated to develop a data set of sufficient quality for use in a quantitative risk assessment. During this process, the following samples were determined to represent soils that were removed from the disposal site during remedial actions or data of insufficient quality to retain in the Risk Characterization data set. These samples include:

- Sample 1(BLDG 16), collected on 29 June 1988, was not included in the Risk Characterization. This sample was collected by Clean Harbors during remediation of the former pit in the basement of Building 16. Haley & Aldrich did not observe the sample collection; the exact sample location, sample depth, and sample collection techniques, tools, and decontamination procedures are unknown. Since the location and depth of this sample is not known, the sample results are not included in Table IV (see the June 2003 Preliminary Phase II report for sample results).

- Sample B3 S1 (5.5 ft to 7.5 ft bgs), collected on 28 August 1984, was removed from the site during remedial actions in Buildings 18/19, when black oily materials were removed. Interior test boring HA-6 was conducted in October 2000 to confirm TPH levels (as measured as EPH/VPH) at this location, as well as VOC and metals concentrations remaining in place at this location. Therefore, sample HA-6 S1 (5 ft to 7 ft bgs) is used to represent soil quality at this location. This sample has been removed from the site and is therefore not included in Table IV (see the June 2003 Preliminary Phase II report for sample results).

- Samples NORTH-COMP and SOUTH-COMP, collected by hand from approximately 0.0 to 0.1 ft bgs on 12 June 1986, were not used in the Risk Characterization. Tin is the primary compound of concern in these samples. The current analytical method, EPA Method 6010 (inductively coupled plasma atomic mass spectrometry), is considered to be a more appropriate method for tin analysis, compared with the flame atomic absorption (FAA) analytical method used in 1986. Ten additional soil samples were collected in 2003 and 2004 and analyzed for tin by Method 6010 in an attempt to replicate the 1986 results and confirm the presence or absence of a tin "hot spot" in soil. The 2003 and 2004 samples are used to represent tin levels in soil at the tunnel locations in the Risk Characterization. The 1986 samples are retained in Table IV for discussion purposes.

- Analytical results for total petroleum hydrocarbons (TPH) are not used in the Risk Characterization but are retained in Table IV for site assessment purposes. EPH results are used to characterize extractable and total petroleum hydrocarbons in soil in the Risk Characterization, according to DEP guidance (MADEP, 2002). The EPH data set is more extensive and includes areas where TPH analysis was conducted, and EPH is the methodology recommended by DEP to characterize risks due to petroleum hydrocarbons in soil.

- Sample depths for soil samples collected at location B5 have been corrected since the June 2003 Preliminary Phase II report. Sample B5-S1 was collected from 0.33 ft to 2.33 ft below the basement floor slab in Building 16 (not 8.25 ft to 10.25 ft as previously indicated), and sample B5-S3 was collected from 4.33 ft to 6.33 ft below the slab (not 12.25 ft to 14.25 ft as previously indicated) (Table IV). This error was due to the fact that the test boring was conducted from the first floor of Building 16, rather than the basement, so the depths on the test boring log (included in the June 2003 Preliminary Phase II Report) are measured from the first floor.

4.3.1 Metals

The metals contamination in soil is limited to the Former Waltham Industrial Labs portion of the site (Figure 4). The Former Waltham Industrial Labs conducted electroplating operations at the disposal site from approximately 1959 to 30 March 1984, when it ceased operations. Waltham Industrial Labs electroplated zinc, tin, copper, cadmium, chromium, nickel, and black oxide onto aluminum, steel, brass, and novelty items such as shoes. A subsurface profile through Building 16 that presents metals results for soil at this portion of the Former Waltham Industrial Labs disposal site is provided in Figure 16.

In general, the extent of metals contamination in site soils appears to be delineated. To the east, metals contamination does not appear to extend significantly beyond the source areas at Buildings 16, 18, and 19. At test borings HA-12(MW), HA-3(MW), and HA-11, metals were detected at concentrations below MCP RCS-1 Reportable Concentrations (Figure 4). The southeastern extent of cadmium contamination in soil appears to be sufficiently-well defined by test boring HA-19A(MW), where a cadmium level of 1.6 mg/kg shows a significant decrease from the Building 16 source area. Metals contamination in soil does not appear to extend to the location of test boring B6, as 1984 analytical results for samples B6-S1+S2 (0.5 ft to 4.5 ft bgs) and B6-S4+S6 (6.5 ft to 8.5 ft and 10.5 ft to 12.5 ft) show metal levels below both MCP RCS-1 Reportable Concentrations and DEP background levels, with the exception of 44 mg/kg of copper detected in sample B6-S4+S6 above the DEP background level for "natural" soil of 40 mg/kg (Table IV). Iron was also detected in a soil sample at this location at a concentration of 10,100 mg/kg, which is below the DEP background level for "natural" soil of 20,000 mg/kg. DEP background levels are presented in Table XVIII of the Human Health Risk Characterization (Appendix K).

To the north, the majority of metals in soil are delineated by test boring HA-10(MW) (Figure 4). In sample HA-10 S1, collected from 1.6 ft to 2.4 ft bgs, metals were detected at concentrations below MCP RCS-1 Reportable Concentrations and largely below DEP background levels (Table IV). Cadmium and total chromium were not detected. Copper was detected at a level of 1,000 mg/kg and is further delineated by test boring HA-17, which was drilled to delineate the northern extent of copper contamination in soil. The copper level in sample HA-17 S1 (0.5 ft to 2.0 ft bgs) of 180 mg/kg is below the RCS-1 Reportable Concentration of 1,000 mg/kg.

To the south, levels of site-related metals decrease away from the source areas. At test boring HA-1(MW), metals levels in fill soils were below MCP RCS-1 Reportable Concentrations (Table IV) At HA-4(MW) and HA-8(MW), metal levels in soil did not exceed the MCP Method 1 S-2/GW-2 and S-2/GW-3 soil standards, and the majority of metals levels were below RCS-1 Reportable Concentrations.

The western extent of contamination extending into the Charles River is discussed below in Section 4.4.1 about the nature and extent of sediment contamination.

Locations exhibiting elevated metal concentrations were initially identified during previous investigations conducted in 1984 and 1986. During preliminary Phase II investigations, these locations were reassessed and additional explorations were conducted to determine the extent of contamination. In the vicinity of historical electroplating operations and other historical site uses in the Building 16 trench and sump and Buildings 18 and 19 crawlspaces, several areas of elevated cadmium, copper, iron, nickel, tin, and zinc levels exist.

Specifically, the area of the former sump in the basement of Building 16 has elevated levels - often site-wide maximums - of several analyzed metals, including cadmium, chromium, iron, nickel, and zinc. Test boring HA-2, which is located between Building 18 and the Charles River, has elevated levels of copper. Buildings 16, 18, and 19 are known to have been used for historical plating operations and have been the locations of previous remedial actions. In September 1984, Haley & Aldrich collected a sample of the contaminated soil from the sump in the basement of Building 16. Metals detected at significant concentrations in this sample include: cadmium, total chromium, hexavalent chromium, iron, lead, nickel, silver, tin, and zinc. Total cyanide was also detected. This material was representative of the top 4 inches of contaminated soil that was removed from the sump and disposed of off-site prior to the concrete patching of the existing concrete slab. In addition, elevated levels of tin were detected during previous investigations in the utility tunnels beneath Building 17 and adjacent to the basement of Building 16. See Figure 4 for building and exploration locations.

Haley & Aldrich identified six potential "hot spots" in soil based on aluminum, cadmium, copper, iron, lead, and tin levels in soil in localized areas within the Former Waltham Industrial Labs portion of the site. "Hot spot" evaluations described below were performed to determine whether "hot spots" exist at these locations. A "hot spot" is a discrete area where the concentrations of oil or hazardous material (OHM) is substantially higher than the concentrations present in the surrounding area, as defined in the MCP at 310 CMR 40.0006. If a "hot spot" is determined to exist, the average concentration within the "hot spot," as well as the site-wide average concentration, is compared to the MCP Upper Concentration Limit (UCL) in the Public Welfare and Environmental Risk Characterization. If no "hot spot" is found to exist, only the site-wide average concentration for each compound is compared to the UCL. The existence of a "hot spot" has implications for the risk characterization and, ultimately, site closure. Based on the evaluations presented by compound below, these six localized areas were not identified to be "hot spots" according to the MCP definition.

Aside from these discrete locations at or near source areas, metal levels across the site are generally below MCP Method 1 S-2/GW-2 and S-2/GW-3 soil standards, which apply to the MCP soil categories for the disposal sites under current and reasonably foreseeable site activities and uses. These Method 1 soil standards are provided in Table IV for comparison purposes. For the metals discussed below, the Method 1 S-2/GW-2 standards are equal to the Method 1 S-2/GW-3 standards, because the compounds are not volatile. Therefore, only Method 1 S-2/GW-3 standards are discussed below.

The metals of concern at the site consist largely of compounds used in the historical electroplating operations. Within the source areas (specifically, Buildings 16, 18, and 19), the extent of contamination for individual metals varies by compound; this variability may be due to differences in specific sources used/released at specific locations as well as differences in fate and transport characteristics of the compounds. The nature and extent of contamination of individual metal compounds detected in site soil is discussed below.

Aluminum (Al)

The maximum level of aluminum detected in soil samples during previous investigations conducted in the 1980s (B-series borings and NORTH-COMP and SOUTH-COMP samples collected in the wire tunnel in the basement of Building 16) was within 1 percent of the May 1997 DEP Draft background level for non-urban soils of 13,000 mg/kg. For this reason, further analysis of aluminum in soil samples was not proposed in Phase II work scopes. In May 2002, DEP issued a Technical Update with a background level for aluminum in soil of 10,000 mg/kg; the same value applies for both "natural" soil and soil containing coal/wood ash associated with fill material. Compound-specific MCP Reportable Concentrations, Method 1 Standards, and UCLs have not been promulgated for aluminum; therefore, the MCP default UCL for soil of 10,000 mg/kg applies. Although aluminum levels in excess of the UCL were detected at boring B7 (13,200 mg/kg in fill soil from 1.0 ft to 5.0 ft below ground surface, or bgs, and 12,900 mg/kg in natural soil from 9.0 ft to 13.0 ft bgs), these aluminum concentrations are not greater than 10 times the average level in surrounding soils. Therefore, location B7 is *not* deemed a "hot spot" for aluminum according to the MCP definition in 310 CMR 40.0006, and a comparison of the site-wide average level to the UCL is appropriate. The average aluminum level in site-wide soil, 6,415 mg/kg, is below the default UCL of 10,000 mg/kg.

The source of elevated aluminum levels in site soil is not known, especially since the maximum aluminum levels in soil were detected at exterior test boring B7 outside of the source areas. However, aluminum is one of the materials upon which the former Waltham Industrial Labs electroplated other metals, so elevated aluminum levels could potentially be site-related.

Cadmium (Cd)

The extent of cadmium concentrations in site soils is graphically presented in plan view on Figure 17A. A subsurface profile showing metals beneath Building 16 is provided as Figure 16. Cadmium concentrations in soil and groundwater are plotted on a visualization model of site geology on Figure 18.

Results of preliminary Phase II investigations conducted in October 2000 confirmed the finding of previous investigations that an area of elevated cadmium levels exists in the location of the former sump in the basement of Building 16 (Figure 17A). The site-wide maximum cadmium level of 2,400 mg/kg was detected in soil sample HA-5 S2, collected from a depth of 2.0 ft to 4.0 ft bgs at test boring HA-5, which was drilled at the approximate location of the former sump (Figure 4).

In April 2002, additional preliminary Phase II activities confirmed that the elevated cadmium level in soil is isolated to the location of the former sump. Surrounding interior test borings HA-14, HA-15 (within the former trench), and HA-16, which were also conducted inside the basement of Building 16, showed cadmium levels ranging from 11 mg/kg to 200 mg/kg (at HA-15 from 0.5 ft to 2.0 ft below the floor slab) in soil beneath the floor slab to a depth of 6.0 ft (Figure 4).

In October 2003, five shallow soil samples were collected along the approximate location of the former drainage swale south of Building 16. Cadmium levels in these soil samples, designated TS-1 through TS-5 (approximately 0.5 to 1 ft bgs), ranged from 17 mg/kg to 700 mg/kg (Table IV).

The cadmium level of 2,400 mg/kg detected in sample HA-5 S2 is less than 10 times greater than in the average in surrounding soils (Figure 3). Therefore, sample HA-5 S2 is not deemed a "hot spot" for cadmium, and a comparison of the site-wide average soil level to the UCL is appropriate. The average cadmium level in site-wide soil, 92 mg/kg, is below the UCL of 800 mg/kg.

The extent of cadmium contamination in soil appears to be largely limited to the area beneath and the former drainage swale directly south of Building 16 (Figure 17A). Outside these localized areas, cadmium levels elsewhere on site did not exceed the Method 1 S-2/GW-3 standard. Two additional test borings were conducted in September 2003 to the south of Building 16 for purposes of defining the cadmium groundwater plume [HA-703(MW) and HA-704(MW)]. Samples of the fill material and the underlying glaciofluvial soils were submitted for cadmium analysis. Cadmium was not detected in soil these two locations south of Building 16 (Figure 17A).

The elevated cadmium levels in site soil are attributed to the release of plating solutions to the former trench in the basement of Building 16 and are associated with former Waltham Industrial Labs operations. Cadmium was used in the historical electroplating activities at the site.

<u>Copper (Cu)</u>

The extent of copper concentrations in site soils is graphically presented in plan view on Figure 17B. A subsurface profile of Building 16 showing metals beneath this building is provided as Figure 16.

Results of preliminary Phase II investigations conducted in July 2000 indicated that an elevated level of copper was detected at test boring HA-2(MW), which is located between Building 18 and the Charles River (Figure 4). The 14,000 mg/kg of copper detected in fill soil sample HA-2 S1 collected from 1.0 ft to 3.0 ft bgs exceeds the MCP default UCL for soil of 10,000 mg/kg (Table IV). A compound-specific UCL for copper has not been promulgated. The May 2002 DEP background level for copper in soil containing coal/wood ash associated with fill material is 200 mg/kg.

During preliminary Phase II activities conducted in April 2002, test borings HA-9(MW) and HA-10(MW) were conducted approximately 15 ft to the south and 60 ft to the north, respectively, of test boring HA-2(MW) to delineate the extent of the potential copper "hot spot" (Figure 4). Copper results for fill soil samples collected at test boring HA-9(MW) were as follows: 270 mg/kg from 1.7 ft to 2.5 ft bgs, and 330 mg/kg from 6.0 ft to 8.0 ft bgs (Table IV). One fill soil sample was collected at HA-10(MW) that showed 1,000 mg/kg from 1.6 to 2.4 ft bgs (Table IV). In May 2003, an additional test boring, HA-17, was conducted approximately 40 ft to the north of HA-10(MW) to further delineate the northern extent of copper contamination in soil (Figure 3). Fill soil sample HA-17 S1 collected from 0.5 to 2.0 ft bgs showed 180 mg/kg of copper (Table IV).

The copper level of 14,000 mg/kg detected at test boring HA-2 is not greater than 100 times the average levels in surrounding soils and therefore is not automatically considered to be a "hot spot" according to the MCP definition in 310 CMR 40.0006. Since the 14,000 mg/kg copper level is between 10 and 100 times greater than in the average in surrounding soils, the exposure potential of these areas must be considered in the "Hot Spot" Evaluation. According to DEP Risk Guidance and 310 CMR 40.0006, if the potential "hot spot" area is associated with higher exposure potential, then the area is considered to constitute a "hot spot." Soils at location HA-2 are entirely paved and are not considered to have higher exposure potential than surrounding paved soils. Under current site conditions, sample HA-2 S1 is not deemed a "hot spot" for copper according to the MCP definition in 310 CMR 40.0006, and a comparison of the site-wide average level to the UCL is appropriate. The average copper level in site-wide soil, 542 mg/kg, is below the default UCL of 10,000 mg/kg. Potential future exposures to soils at this location are planned to be managed with an Activity and Use Limitation (AUL) to maintain pavement/cover over site soil and mandate a Health & Safety Plan for construction work. If future site conditions result in unpaved soils, and hence different exposure potential, of the soils within this area, the conclusions of this "hot spot" evaluation may change.

The extent of copper contamination is site soils is shown on Figure 17B. The extent of copper contamination, while lower in concentration relative to Reportable Concentrations (RCS-1 = 1,000 mg/kg), appears to be more diffuse and widespread than some other site-related metals (e.g., cadmium). Compound-specific Method 1 Standards and UCLs have not been promulgated for copper. Copper levels in soil at locations B2, B4-OW, and HA-2(MW) were equal to or above RCS-1 Reportable Concentrations, and copper-contaminated sediments have been found in the Charles River (see Sediment discussion below).

The elevated copper levels in site soil are attributed to the former Waltham Industrial Labs operations. Copper was used in the historical electroplating activities at the site.

Iron (Fe)

During previous investigations conducted in 1984 and preliminary Phase II investigations conducted in July 2000, elevated levels of iron were detected in soils located in the former drainage trench and sump in the basement of Building 16. An iron level of 54,000 mg/kg was detected in fill soil sample HA-5 S2 collected from 2.0 ft to 4.0 ft at the location of the former sump (Figure 4). Similarly, 22,400 mg/kg of iron was detected in shallow soil (0.33 ft to 2.33 ft bgs) at boring B5, located next to the former trench that used to drain into the sump. Approximately 4 in. of material was removed from the trench during the remedial activities in February 1986; however, up to 20 in. of the sampled interval could remain in place at B5.

An UCL for iron has not been promulgated. The DEP background level for both "natural" soil and soil containing coal/wood ash associated with fill material is

20,000 mg/kg, which exceeds the MCP default UCL for soil of 10,000 mg/kg. The iron level in sample HA-5 S2 or B5-S2 is not greater than 10 times the average level in surrounding soils. Therefore, these locations are not deemed "hot spots" for iron according to the MCP definition in 310 CMR 40.0006. The average iron level in site-wide soil, 10,318 mg/kg, exceeds the default UCL of 10,000 mg/kg. However, the default UCL is below the DEP background level of 20,000 mg/kg. Iron was detected at boring B6 at a level of 10,100 mg/kg from 0.5 ft to 4.5 ft bgs, which indicates that iron levels in the soils that are not considered to be impacted by the disposal site also exceed the MCP default UCL of 10,000 mg/kg. Iron levels in soil outside the Building 16 trench and sump are below the DEP background level.

Since it is anticipated that the proposed MCP revisions will be promulgated prior to the submittal of a RAO for the Former Waltham Industrial Labs disposal site, and therefore a UCL comparison will no longer be required for iron, the current exceedence of the chemical-specific default UCL for iron in site-wide soil will not drive remedial actions.

The source of elevated iron levels in site soil is not known. Iron was commonly used in 19th century mill complexes. In addition, the miscellaneous fill may contain elevated iron. Elevated iron levels may be related to the historical piping or plumbing in the vicinity of the sump or debris in the fill. The maximum iron level was detected in the former sump (HA-5) and trench (B5), and iron is one of the materials upon which the former Waltham Industrial Labs electroplated other metals; therefore, elevated iron levels may be site-related to some extent.

Lead (Pb)

Previous investigations conducted in 1984 identified elevated levels of lead greater than the UCL in soil beneath former Crawlspace "C" in Building 18 (interior test boring B2). Based on the results of preliminary Phase II interior test borings HA-6, HA-7A, and HA-7C, in which levels of lead did not exceed 180 mg/kg, the elevated lead levels detected in test boring B2 are very localized (Table IV).

The lead level of 28,400 mg/kg detected at test boring B2, from 6.5 to 8.5 ft is not greater than 100 times the average levels in surrounding soils and therefore is not automatically considered to be a "hot spot" according to the MCP definition in 310 CMR 40.0006. Likewise, the average of the elevated lead level at B2 from 2.5 ft to 4.5 ft (11,100 mg/kg) and from 6.5 to 8.5 ft (28,400 mg/kg) is not greater than 100 times the average level in surrounding soils. Since the lead levels at B2 are between 10 and 100 times greater than in the average in surrounding soils, the exposure potential of these areas must be considered in the "Hot Spot" Evaluation. According to DEP Risk Guidance and 310 CMR 40.0006, if the potential "hot spot" area is associated with higher exposure potential, then the area is considered to constitute a "hot spot." Soils at location B2 are beneath a concrete floor slab in Building 18 and entirely paved and are not considered to have higher exposure potential than surrounding soils. Under current site conditions, location B2 is not deemed a "hot spot" for lead according to the MCP definition in 310 CMR 40.0006, and a comparison of the site-wide average level to the UCL is appropriate. The average lead level in site-wide soil, 884 mg/kg, is below the UCL of 6,000 mg/kg. Potential future exposures to soils at this location are planned to be managed with an AUL to maintain pavement/cover over site soil and mandate a Health & Safety Plan for construction work. If future site conditions result in unpaved soils, and hence different exposure potential, of the soils within this area, the conclusions of this "hot spot" evaluation may change.

At the location of the former sump in Building 16, lead was detected in sample HA-5 S1 from 2 ft to 4 ft bgs (950 mg/kg) at a level below the UCL but above the Method 1 S-2/GW-3 soil standard (600 mg/kg). Outside localized areas in Building 18 and the basement of Building 16, lead levels elsewhere on site did not exceed the Method 1 S-2/GW-3 standard.

The elevated lead levels in site soil are attributed to the former Waltham Industrial Labs operations and to the urban fill soils on site. A former pipe shop is shown on historical plans of this portion of the watch factory. The pipe shop may have used lead piping and lead solder materials. Lead can be also be a minor component of brass (copper-zinc alloy), which is one of the materials upon which the former Waltham Industrial Labs electroplated other metals.

Nickel (Ni)

The extent of nickel concentrations in site soils is graphically presented in plan view on Figure 17C. A subsurface profile of Building 16 showing metals beneath this building is provided as Figure 16.

Results of preliminary Phase II investigations confirmed the finding of previous investigations that an area of elevated nickel levels in soil exists in the location of the former sump in the basement of Building 16 (Figure 4). A nickel level of 1,700 mg/kg was detected at the approximate location of the former sump at test boring HA-5 from 2.0 ft to 4.0 ft bgs (Figure 17C). Nickel levels elsewhere on site did not exceed the Method 1 S-2/GW-3 standard (Table IV).

Low levels of nickel ($<$ 15 mg/kg) below the RCS-1 Reportable Concentration (300 mg/kg) were identified in the fill material and glaciofluvial soils sampled in test borings HA-703(MW) and HA-704(MW) completed in September 2003. TS-series shallow soil samples collected in the former drainage swale adjacent to Building 16 showed nickel levels ranging from 31 mg/kg to 640 mg/kg (below Method 1 S-2/GW-3 standard).

The elevated nickel levels in soils beneath Building 16 are attributed to the former Waltham Industrial Labs operations. Nickel was used in the historical electroplating activities at the site.

Silver (Ag)

During previous investigations conducted in 1984 and 1986, the maximum silver level detected in site soil was 5.65 mg/kg in sample SOUTH-COMP, collected from the utility tunnel adjacent to the basement of Building 16. This silver level is well below the RCS-1 Reportable Concentration of 100 mg/kg. The DEP background level for silver in soil containing coal/wood ash associated with fill material is 5 mg/kg. Therefore, silver is not considered to be a significant compound of concern.

Tin (Sn)

Elevated levels of tin were detected during previous investigations in the utility tunnels, so-called "wire tunnels" beneath Building 17 (1986 sample NORTH-COMP) and adjacent to the basement of Building 16 (1986 sample SOUTH-COMP). The south and north wire tunnel locations designated "STUNNEL" and "NTUNNEL" on Figure 4. Tin levels of 14,120 mg/kg and 114,049 mg/kg in these shallow (0 to 0.1 ft) soil samples (NORTH-COMP and SOUTH-COMP, respectively) exceed the default MCP UCL for soil of 10,000 mg/kg (Table IV). Compound-specific MCP Reportable Concentrations, Method 1 Standards, and UCLs have not been promulgated for tin.

At the time of the submission of the Preliminary Phase II Report in June 2003, it was not known whether the tunnels from which these samples were collected were lined with concrete and, if so, whether the samples were representative of subsurface soils or soils located above a concrete liner (and hence possibly more representative of dust released from historical operations than subsurface conditions).

The tunnel areas were revisited on 23 December 2003 to see if the soil in the pipe chase was underlain by a concrete floor and to resample, if no floor was identified, since a release of tin to the environment may have occurred. This work was outlined in a Scope of Work dated 15 October 2001. Both the North section of the tunnel/pipe chase and the South section were viewed. The floor of both the North section and the South section were observed to be sand and gravel. Hand excavation of the sand and gravel with a spade to a depth approaching 2 ft. did not encounter a buried slab or floor. Water (likely groundwater) entered the hand excavation at the completion depth of the hand excavation in the North section. Gravel soils in the South section were more compact and dense, but a floor was not encountered. Groundwater was not encountered at the completion depth of the hand excavation completed in the South section.

A composite sample was collected from each hand excavation and containerized for submittal to the analytical laboratory for tin analysis. The samples were submitted to Alpha Analytical Laboratories, Westborough, Massachusetts for tin analysis using EPA Method 6010 (inductively coupled plasma atomic emission spectrometry). Alpha Analytical is a MADEP certified analytical laboratory. The results of the analysis showed low levels of tin. The analytical results for the soil sample collected from the south chase (designated "SOUTH-COMP 03") showed 71 mg/kg tin. The analytical results for the soil sample collected from the North chase (designated "NORTH-COMP 03") showed 24 mg/kg (Table IV).

The samples that were collected during the sampling described above were grab samples collected from the completed hand excavations. During the June 1986 historical sampling round, approximately seven locations in each chase/tunnel were sampled and the soils were then combined to produce the samples that were submitted the laboratory for analysis (samples "NORTH COMP" and "SOUTH COMP"). The original soil samples were collected as composite samples combining soil from seven locations from 16 to 27 ft from the tunnel opening to the north (NORTH COMP), and by combining soil from seven locations from 14 ft to 27 ft from the tunnel opening to the south (SOUTH COMP).

To better replicate the sampling technique used in the initial June 1986 tunnel soil sampling event, Haley & Aldrich resampled the tunnel soils for tin on 19 August 2004. A total of four grab soil samples were collected from soils exposed in the North tunnel from 16 to 27 ft from the tunnel opening (samples NTUNNEL1 through NTUNNEL4). A total of four grab soil samples were collected from exposed soils in the South tunnel from 14 to 27 ft from the tunnel opening (samples STUNNEL1 through STUNNEL4). The soil samples were submitted to Alpha Analytical Laboratory on 19 August 2004 to be analyzed for tin. Tin in the surficial soils of the South tunnel ranged from 19 mg/kg to 280 mg/kg. Tin in the surficial soils of the North tunnel ranged from ND to 36 mg/kg. Tin samples collected in 2003 are designated "NORTH-COMP 03" and "SOUTH-COMP 03". Tin samples collected in 2004 are designated "NTUNNEL1" through "NTUNNEL4" and "STUNNEL1" through "STUNNEL4." The results of the tin analysis are presented in Table IV.

As discussed above, the 1986 samples "NORTH-COMP" and "SOUTH-COMP" were not used in the Risk Characterization. Tin is the primary compound of concern in these samples. The current analytical method, EPA Method 6010 (inductively coupled plasma atomic mass spectrometry), is considered to be a more appropriate method for tin analysis, compared with the flame atomic absorption (FAA) analytical method used in 1986. The ten additional soil samples collected in 2003 and 2004 were analyzed for tin by Method 6010 in an attempt to replicate the 1986 results and confirm the presence or absence of a tin "hot spot" in soil. The 2003 and 2004 samples are used to represent tin levels in soil at the tunnel locations in the "hot spot" evaluation. Therefore, these 2003-2004 samples locations are not deemed a "hot spot" for tin according to the MCP definition in 310 CMR 40.0006. The average tin level in site-wide soil, 28 mg/kg, does not exceed the default UCL of 10,000 mg/kg. Compound-specific Method 1 Standards and UCLs have not been promulgated for tin.

<u>Zinc (Zn)</u>

The extent of zinc concentrations in site soils is graphically presented in plan view on Figure 17D. Subsurface profiles of Building 16 and Building 18/19 showing metals beneath these buildings are provided as Figures 16 and 15, respectively.

Results of preliminary Phase II investigations did not find the presence of the elevated levels of zinc detected previously in Building 18 at test borings B2 and B3 (Figure 4). Sample B2-S1 (2.5 ft to 4.5 ft bgs), collected in August 1984, showed a zinc levels of 3,900 mg/kg (Table IV). This zinc level exceeds the Method 1 S-2/GW-3 soil standard of 2,500 mg/kg (equal to the RCS-1 Reportable Concentration). Soil samples collected in October 2000 at preliminary Phase II test borings HA-6, HA-7A, and HA-7C showed zinc levels ranging from 71 mg/kg to 1,100 mg/kg, all below the Method 1 S-2/GW-3 standard.

One preliminary Phase II soil sample, HA-5 S2, collected in October 2000 from 2.0 ft to 4.0 ft bgs in the approximate location of the former sump in the basement of Building 16 showed an elevated zinc level (6,200 mg/kg). TS-series shallow soil samples collected in the former drainage swale adjacent to Building 16 showed zinc levels ranging from 150 mg/kg to 2,600 mg/kg (Table IV). Zinc results at locations HA-703(MW) and HA-704(MW) ranged from 29 to 120 mg/kg, indicating that the area of zinc contamination is limited in extent to the vicinity of the former Waltham

Industrial Labs. The average zinc level in site-wide soil, 6,200 mg/kg, does not exceed the UCL of 10,000 mg/kg.

The elevated zinc levels in site soil are attributed to the former Waltham Industrial Labs operations. Zinc was used in the historical electroplating activities at the site.

4.3.2 Volatile Organic Compounds

There are three potential source areas of VOC contamination at the site: the former Waltham Industrial Labs' Buildings 18/19 release area and Building 16 release area, and the Building 27 release area (Figure 3). Solvents are suspected to have been used historically in the former Waltham Industrial Labs source areas, where they may have been disposed of directly into the subsurface in the former crawlspaces (Buildings 18 and 19) and trench, sump, and pit (Building 16 basement). Solvents were historically used in the former TCE Distillery identified on historical plans (1944) for Building 27, and may have been historically released via leaks, spills or discharge to the ground surface, or possibly by historic disposal in a catch basin.

Chlorinated VOCs, namely TCE and its degradation products cis-1,2-dichloroethylene (cis-1,2-DCE) and vinyl chloride, are the primary VOCs of concern at the disposal site. Other VOCs detected in site soil include petroleum-related VOCs such as benzene, ethylbenzene, toluene, and xylene (BTEX) and C9-C10 aromatic hydrocarbons.

Since submittal of the Preliminary Phase II Report in June 2003, site assessment activities have focused on the vertical extent of chlorinated solvent contamination in soils at Buildings 16, 18/19 and Building 27, as well as the horizontal extent at north end of the site near Building 27 and in off site bedrock (cemetery explorations).

A subsurface profile (showing soil quality results for chlorinated VOCs at the Former Waltham Industrial Labs, Building 18 and 19) is provided in Figure 19.

The horizontal extent of solvent contamination at Buildings 16, 18, and 19 is well defined and is presented in the June 2003 Preliminary Phase II Report. At the former Waltham Industrial Labs, TCE was detected in soil at levels below the Method 1 S-2/GW-2 standard of 20 mg/kg (ranging from 0.510 mg/kg to 17 mg/kg) in most explorations conducted at or in the vicinity of Buildings 16, 18, and 19 (Table IV). The highest TCE level detected at the former Waltham Industrial Labs, 17 mg/kg, was detected in fill soils inside the basement of Building 16 at test boring HA-14 from 3.0 ft to 6.0 ft bgs. The detection of TCE is attributable to historical uses of solvents at the site (Figure 14)

The highest vinyl chloride level detected at the former Waltham Industrial Labs, 12 mg/kg, was found at depth inside Building 18/19 at test boring HA-7A from 10.0 ft to 12.0 ft in the fluvial outwash deposit (Figure 19). The corresponding TCE level detected in this soil sample is 8 mg/kg. Given the indoor location in which the drilling was conducted, it was not feasible to collect a deeper sample to assess whether the VOC contamination extended to the glacial till.

In order to evaluate the vertical extent of VOC contamination downgradient of Buildings 18/19, test boring HA-705A(MW) was conducted in October 2003. This boring was located downgradient of Buildings 18/19 in the riverside access drive (Figures 4 and 19). The boring was completed at a depth of 26 ft below the ground surface in glacial till. PID headspace readings of jars samples did not suggest contamination at depth (Table I). Soil samples collected from the test boring showed low levels of TCE and 1,1,1-trichlorethane (1,1,1-TCA) in the fill material from 2 ft to 3 ft below grade (Table IV). Deeper soil samples collected from 13 ft to 15 ft in the glaciofluvial soils and from 19 ft to 21 ft in the glacial till were non-detect for VOCs.

To the east, the extent of VOC-contaminated soils does not appear to extend beyond Buildings 16, 18, and 19 at the former Waltham Industrial Labs. VOCs were not detected in soil samples collected from test boring HA-3(MW), HA-12(MW), or HA-19A(MW). Samples collected from HA-11 and B6-OW were not analyzed for VOCs. Samples were submitted for analysis of VOCs based on PID field screening results and information about site history and contamination. A composite fill sample HA-11 C1, collected from 6.0 ft to 6.4 ft and 7.0 ft to 8.2 ft bgs, exhibited a PID result of 6.0 ppm compared to a background reading of 0.5 ppm.

The southern extent of VOC contamination in soil appears to be sufficiently well delineated. At test boring HA-18, a low level of TCE (0.63 mg/kg) was detected in a shallow fill soil sample collected from 0.9 ft to 2.0 ft bgs. Although this TCE level exceeds the RCS-1 Reportable Concentration (0.4 mg/kg), it is well below the Method 1 S-2/GW-2 Standard of 20 mg/kg, for comparison purposes. TCE was not detected in deeper soil samples collected in the fluvial sand stratum to a depth of 13.0 ft. A subsurface profiles showing soil quality results for chlorinated VOCs near Building 27 provided in Figure 13. A visualization of trichloroethylene in site soil, groundwater and sediment is presented in Figure 14.

The highest TCE levels were detected in fill soils between Building 27 and the Charles River. The maximum TCE level detected at the disposal site, 190 mg/kg, was detected in fill soils from 1.0 ft to 2.4 ft bgs at test boring HA-501(MW). Approximately 20 ft to the south at test boring HA-502(MW), a fill soil sample collected from 1.0 ft to 3.0 ft bgs resulted in a TCE level of 140 mg/kg. Test boring HA-503(MW), which is located further to the south and nearest the former TCE Distillery, showed non-detected levels of TCE in fill soils from 2.0 ft to 4.0 ft bgs, and 3 mg/kg TCE in deeper fill soils from 5.0 ft to 7.0 ft bgs. Approximately 35 ft to the south of HA-503(MW) and the former TCE Distillery, test boring HA-504(MW) exhibited 4,500 mg/kg in shallow fill soils from 1.0 ft to 3.0 ft bgs, and 100 mg/kg in deeper fill soils from 6.0 ft to 8.0 ft bgs. The shallow contamination may potentially be attributable to spills at the rear of Building 27 or historical filling with contaminated soils that may have originated from another source. Field observations of the miscellaneous fill at HA-502(MW) from 2.0 ft to 3.3 ft bgs indicate "light gray blue ashes and apparent watch parts."

At the northern end of Building 27, the extent of VOC contamination in soil is considered to be decreasing, but still inadequately delineated by test boring HA-603A(MW). The maximum TCE level (190 mg/kg) was detected in shallow fill soils (1.0 ft to 4.5 ft bgs) at test boring HA-501. At test boring HA-603, which is located approximately 65 ft to the north of HA-501, the TCE level had decreased to 14 mg/kg in shallow fill soils (1.0 ft to 3.0 ft). This TCE level is below the Method 1 S-2/GW-2 Standard of 20 mg/kg and Method 1 S-2/GW-3 Standard of 100 mg/kg. At northernmost test boring HA-603A(MW), a low TCE concentration (0.13 mg/kg) below the current RCS-1 Reportable Concentration (0.4 mg/kg) was detected in deeper fluvial/glacial till soils from 11.0 ft to 13.0 ft bgs.

In addition to being detected in fill soils, TCE also appeared at depth in the naturally-deposited glacial till samples (Figure 13). In some cases, such as at test boring HA-503(MW), TCE concentrations appear to be greater at depth. The highest TCE level detected at test boring HA-503(MW), 29 m/kg, was detected in glacial till from 12.0 ft to 14.0 ft bgs. At test boring HA-502(MW), the highest TCE levels were detected in shallow fill soils, but TCE levels in the underlying soils increase with depth: 0.1 mg/kg TCE was detected in fluvial sand from 11.5 ft to 13.5 ft bgs; 0.11 mg/kg TCE was detected in glacial till from 13.5 ft to 14.0 ft bgs; and 2.2 mg/kg TCE was detected in glacial till from 14.0 ft to 16.0 ft bgs. Lower levels of TCE were detected in glacial till from 12.0 ft to 14.0 ft bgs at both HA-501(MW) (0.013 mg/kg) and HA-504(MW) (0.073 mg/kg). The deeper contamination may be attributable to spills or release(s) from the former TCE Distillery or potential vertical migration of such spills.

In order to assess the vertical extent of soil contamination in the vicinity of Building 27, several deeper test borings were conducted during the 700-series test boring program in September 2003. Test boring HA-702(MW) is a downgradient boring completed in bedrock. The test boring encountered bedrock at a depth of 37 ft. Soil samples collected during completion of the boring showed 12 mg/kg TCE in the shallow fill from 2 to 4 ft below grade, and 170 mg/kg TCE in a sample of glacial till collected from above the bedrock surface. Test boring HA-701(MW), located north of Building 27 on the access road was completed at a depth of 22 ft in glacial till. Relatively low levels of TCE were identified in the fill at this location (2.2 mg/kg from 2.0 ft to 3.5 ft, and 0.35 mg/kg from 10.0 ft to 12.0 ft ft). TCE was not detected in the glacial till from 20 ft to 22 ft at test boring HA-701(MW).

Based on the results of the 700-series test boring program, more information was required regarding the extent of TCE contamination in deep glacial till soils and bedrock. The 800-series test borings were located based on a geophysical survey to identify preferential pathways in the bedrock surface for the migration of dissolved contamination, potential DNAPL. A total of 5 locations were selected surrounding the Building 27 Area in the north end of the property. These 800-series boring were conducted in June 2004. TCE was detected in soil samples collected at test boring HA-806T(MW) from 6 ft to 8 ft bgs (0.92 mg/kg) and from 12.0 ft to 14.0 ft in glacial till (70 mg/kg). This boring was conducted adjacent to the source area. A TCE level of 11 mg/kg was detected from 6 ft to 8 ft in fill at location HA-807R(MW), located north of the source area. TCE was not detected in glacial till above bedrock in this location (44.0 ft to 44.5 ft). Test boring cluster HA-808 is located southeast of the source area (Figure 5). TCE was not detected in the fill material at this location; however, 0.82 mg/kg TCE was detected in glacial till in this boring at a depth of 28.0 ft to 28.9 ft. TCE was not detected in the HA-801 test boring cluster at the north end of the site, or at HA-801R(MW) located upgradient of the source area in the eastern portion of the site (Figure 3).

TCE levels in soils across the site are well below the UCL of 5,000 mg/kg.

The distribution of cis-1,2-DCE was similar to that of its parent compound TCE. The maximum concentration of cis-1,2-DCE at the disposal site, 36 mg/kg, was also detected in fill soils from 1.0 ft to 2.4 ft bgs at test boring HA-501(MW). At the Building 27 release area, cis-1,2-DCE was detected in soil samples in which TCE was detected. Levels of cis-1,2-DCE in site soils did not exceed the MCP Method 1 S-2/GW-2 standard of 500 mg/kg.

At the Building 27 release area, the highest level of vinyl chloride, 10 mg/kg, was detected at HA-503(OW) in a sample collected from 8.0 ft to 12.0 ft bgs that consisted of fill and natural soils (organic deposits and glacial till) (Figure 5). Vinyl chloride was not detected in soil samples submitted from the 700-series and 800-series test boring programs. The extent of vinyl chloride contamination in soil in the vicinity of Building 27 is difficult to discern, because the detection limit for vinyl chloride was elevated (likely related to elevated levels of TCE detected in the samples). While some detected results and detection limits for vinyl chloride in site soils exceeded the MCP Method 1 S-2/GW-2 standard of 0.4 mg/kg, vinyl chloride levels (detected and ND) did not exceed the MCP UCL of 20 mg/kg.

At the Building 27 release area, the eastern extent of VOC contamination is delineated by HA-101(MW) and HA-801R(MW). PID headspace readings in HA-101(MW) were consistent with background for soil samples collected from 0 to 12 ft bgs; therefore, soil samples were not submitted for laboratory analysis. VOCs were not detected in a groundwater sampled collected from HA-101(MW). VOCs were not detected in soil samples submitted from HA-801R(MW).

The western extent of contamination extending into the Charles River is discussed below in Section 4.8.4 about the nature and extent of sediment contamination.

4.3.3 Petroleum Hydrocarbons

Petroleum hydrocarbons in site soils are related to former USTs at the site, former kerosene and gasoline washes at the site, use of petroleum in the plating operations at the former industrial labs, and residual petroleum in the urban fill at the site. Figures 20A, 20B, and 20C show concentrations of VPH C5-C8 aliphatic petroleum hydrocarbons, C9-C10 aromatic hydrocarbons and EPH C11-C22 aromatic hydrocarbons, respectively, and provide a general extent of petroleum hydrocarbons in soil across the disposal site.

The highest levels of petroleum contamination in site soils are at the Former Gasoline USTs location (RTN 3-19850). These previously unidentified USTs were discovered during utility installation in August 2000. One 425-gallon gasoline UST and one 515-gallon gasoline UST were removed; however, it was considered impractical to remove impacted soil at the time due to the proximity of the Charles River and because excavation would involve removal of soils from below the groundwater table.

A total of six samples collected from the UST grave were submitted for VOCs analysis, Volatile Petroleum Hydrocarbons (VPH - carbon ranges only), and Extractable Petroleum Hydrocarbons (EPH – carbon ranges and target analytes) analyses. The results of the analyses are summarized in Table IV.

At the former Waltham Industrial Labs, petroleum-contaminated soils were found beneath Building 18 (test borings HA-6, HA-7A, and HA-7C) and at the location of the former sump in the basement of Building 16 (test boring HA-5), as shown in Figure 4. Petroleum contamination in soil was also identified between Buildings 17 and 19 (test boring HA-3(MW)) and between Buildings 19 and 16 (test boring HA-13(MW)). The source of petroleum contamination at HA-3(MW) and HA-13(MW) is not specifically known, but a 1930 plan indicates that historical USTs may have existed at or near these locations. Low levels of petroleum contamination were detected in explorations conducted along the access drive adjacent to the Charles River.

EPH carbon ranges and target analytes were detected at the highest levels in the former sump area in Building 16. At test boring HA-5, C11-C22 aromatic hydrocarbons were detected at a level of 8,900 mg/kg, and C19-C36 aliphatic hydrocarbons were detected at a level of 8,200 mg/kg, which exceed Method 1 S-2/GW-2 standards of 2,000 and 5,000, respectively (Table IV).

EPH levels above Method 1 S-2/GW-2 standards were also detected beneath Building 18 (Table IV). In test boring HA-7A, C11-C22 aromatic hydrocarbons were detected at a level of 3,400 mg/kg, while C19-C36 aliphatic hydrocarbons were detected at a level of 5,300 mg/kg. The source of residual EPH contamination in soil beneath Building 18 is thought to be release of a heavy petroleum product to the former crawlspace B. During 1985-1986 remedial actions in crawlspaces A and B, oil staining was observed at the soil surface remaining following removal of metal hydroxide sludge in this area (visibly black oily soils were removed). See the Building 18/19 profile (Figure 19). However, no oil staining was observed in the crawlspaces in Building 19, either before or after the 1985-86 remedial actions.

At the Building 27 release area, VPH carbon range levels in soil ranged from non-detected to low levels below Method 1 S-2/GW-2 and S-2/GW-3 Standards. The highest VPH levels were detected at test boring HA-503 from 2.0 ft to 4.0 ft bgs: C5-C8 aliphatics (150 mg/kg) and C9-C10 aromatics (140 mg/kg) were detected in sample HA-503 S1 at levels that exceed the RCS-1 Reportable Concentrations (0.1 mg/kg) but not the Method 1 S-2/GW-2 and S-2/GW-3 Standards of 0.5 mg/kg (for both carbon ranges). VPH results for remaining soil samples collected at the Building 27 release area did not exceed RCS-1 Reportable Concentrations.

At the Building 27 release area, test borings HA-102(MW) and HA-103B(MW) had been conducted in December 2000 to confirm the extent of the release at the former ethyl acetate UST (RTN 3-19582). As part of preliminary Phase II activities, test borings HA-501(MW) through HA-504(MW) were conducted in April 2002 and soil samples were analyzed for petroleum hydrocarbons, which were suspected to be used at the former Kerosene/TCE Distillery. Based on the April 2002 field and analytical results, test borings HA-602, HA-602A(MW), HA-603, and HA-603A(MW) were conducted in January 2003 to delineate the northern and southern extent of contamination in soil and groundwater (Figure 5).

At the Building 27 release, the highest petroleum hydrocarbons levels were detected in soils nearest to the suspected source: the former Kerosene/TCE Distillery (Figure 3). The highest EPH/VPH levels were detected in shallow fill soils at test boring HA-503(MW), located directly to the west of the former distillery. Petroleum hydrocarbon levels decrease to the north and south of the source area.

One EPH carbon range was detected at levels above Method 1 S-2/GW-2 standards to the west of the former Kerosene/TCE Distillery at Building 27 (Table IV). In test boring HA-501(MW), C11-C22 aromatic hydrocarbons were detected at a level of 2,100 mg/kg in fill soils from 2.0 ft to 4.0 ft bgs. EPH levels decrease with depth at this location.

4.3.4 Cyanide

Based on our knowledge of site history to date, a source of cyanide at the Building 27 release area is not likely. Gilding took place in Buildings 18 and 19 at the Waltham Watch Company, and electroplating took place in Buildings 16, 17, 18, and 19 at the former Waltham Industrial Labs through 30 March 1984. Therefore, only soils in the vicinity of the Former Waltham Industrial Labs have been analyzed for cyanide. Cyanide was used on site historically and is a common plating industry compound. Cyanide was detected in a sample of the metal hydroxide sludge/contaminated soil collected from the Building 16 sump that received electroplating waste discharge. However, levels of cyanide in soils remaining beneath Building 18 and 19 were found to be low.

Total cyanide levels in soil at the former Waltham Industrial Lab range from non-detect to 96 mg/kg, which is less than the RCS-1 Reportable Concentration and Method 1 S-2/GW-3 standard for physiologically available cyanide (PAC) of 100 mg/kg. Reportable Concentrations and Method 1 soil standards have not been promulgated for total cyanide.

During preliminary Phase II field investigations, samples were analyzed for physiologically available cyanide (PAC) in addition to total cyanide. Preliminary Phase II results showed non-detected levels of total cyanide at exterior test borings HA-1(MW) through HA-4(MW), HA-8(MW), HA-10(MW), HA-11, and HA-13(MW) and at the location of the former sump in Building 16 (test boring HA-5), as shown in Table IV. Total cyanide was detected at levels below the RCS-1 Reportable Concentration and Method 1 S-2/GW-3 standard for PAC (100 mg/kg) in six of the six soil samples collected from interior test borings in Building 18/19 (HA-6, HA-7A, and HA-7C) and in a sample collected immediately to the west of Building 18 at test boring HA-9(MW). Physiologically available cyanide was detected in three of the six samples collected inside Building 18/19 at levels up to 8.2 mg/kg (Table IV). The Phase II results indicate that low levels of cyanide contamination in soils is limited to the known source areas in Buildings 16, 18, and 19 and appears at slightly higher concentrations in the fluvial outwash deposits than in overlying fill soils.

4.4 Groundwater

Groundwater quality data collected during the Phase II – Comprehensive Site Assessment and previous investigations are presented in Table VI. Table VI contains groundwater quality data for the Former Waltham Industrial Labs portion of the disposal site and groundwater quality data for the release(s) of chlorinated solvents and petroleum identified near Building 27 (RTN 3-20575, linked to RTN 3-0585 on 2 April 2002). Table VI also contains groundwater quality data for the former gasoline USTs disposal site (RTN 3-19850), which is a separate release and disposal site that is currently in Phase II. However, this release is included in this Phase II – Comprehensive Site Assessment. Groundwater quality results for metals in groundwater, cadmium in groundwater total chlorinated VOCs in groundwater and vinyl chloride in groundwater are presented graphically in Figures 21, 22, 23 and 24, respectively.

Groundwater moves to the west and northwest across the Property to the Charles River (Figures 9A, 9B and 9C). Based on review of historical plans, manufacturing, metal plating, and degreasing operations were focused primarily along the western side of the Property adjacent to the riverside access road. The eastern portion of the factory housed assembly operations which apparently did not impact the environment. In addition, historical operations in the southern end of the property were also low impact, for example, parking, bike shops, a rescue station, and a carpentry shop. The extent of groundwater contamination therefore extends from the source areas mentioned above to the Charles River. There is very little distance between the source areas and river for attenuation of groundwater plumes.

Work completed at the site since submittal of the June 2003 Preliminary Phase II Report has assessed deep groundwater contamination in glacial till and bedrock. Additional temporal monitoring of groundwater quality over time was also conducted, especially at the cadmium release location outside of Building 16, the TCE Release at Building 27, and additional groundwater monitoring at the Former Gasoline UST location (RTN: 3-19850).

Increases in the concentrations has been observed for several compounds after decreasing for a number of years following the 1985–1986 waste removal response actions in source areas at the Former Waltham Industrial Labs. At Building 16 concentrations of dissolved cadmium have shown increases in recent sampling events. The reason for these changes following what appeared to be a decreasing trend over time in the concentrations of several compounds of concern is not understood. The Former Waltham Industrial Labs ceased operations at the disposal site on 30 March 1984. There are no known continuing point sources of groundwater contamination. The most likely source is that residual soil contamination remaining beneath a former trench in the basement of Building 16 is acting as a source of increasing cadmium groundwater contamination. Based on review of temporal groundwater quality data, the cadmium is now reaching downgradient wells.

As mentioned above, due to the location of relatively low environmental impact assembly operations in the eastern and southern portion of the site, the groundwater quality in the eastern and southern portions of the site is good. Monitoring wells HA-805T(MW) and HA-805R(MW) were installed in June 2004 to assess the potential for chlorinated solvent contamination in groundwater in deep till and bedrock. VOCs were not detected in groundwater samples collected from these monitoring wells. With respect to shallow groundwater quality in the south, the extent of groundwater contamination appears to be delineated by monitoring well HA-8(MW). In May 2002, VPH carbon ranges, EPH carbon ranges and target analytes, metals, cyanide, and VOCs other than cis-1,2-DCE and TCE were not detected at HA-8(MW). Detected concentrations of cis-1,2-DCE (0.7 ug/l) and TCE (5 ug/l) were well below the RCGW-2 Reportable Concentrations of 30,000 ug/l and 300 ug/l, respectively.

The upgradient (eastern) extent of contamination east of the Former Waltham Industrial Labs by the location of monitoring well B6-OW, which was sampled in 1985, 1987, 1988, 2000, 2002, and most recently in June 2004 (VOCs ND) and has consistently resulted in non-detected or low contaminant concentrations (Figure 4). At well B6-OW, VOCs, VPH carbon ranges, EPH carbon ranges and target analytes, dissolved metals, and cyanide (total and physiologically available) have recently and historically ranged from non-detected to detectable concentrations well below applicable MCP RCGW-2 Reportable Concentrations. An exception is one hexavalent chromium result detected at B6-OW in 1984 (214 ug/l) at a concentration greater than the Method 1 GW-3 Standard of 100 ug/l; however, hexavalent chromium was not detected in four subsequent sampling rounds. The 1984 detection of hexavalent chromium at this location is judged to be an anomaly, as confirmed by subsequent analyses. Hexavalent chromium was not detected at any of the monitoring wells after 1985.

At the Building 27 release area, the eastern extent of contamination is delineated by HA-101(MW) and a bedrock monitoring well (HA-801R(MW)). VOCs and petroleum hydrocarbons are the compounds of concern at this release. VOCs were not detected in a shallow groundwater sample collected from HA-101(MW). Bedrock monitoring well HA-801R(MW) was sampled in July 2004. The groundwater sample showed no VOCs with the exception of 1.2 ug/l chloroform which is likely a laboratory or sampling artifact.

The northern extent of groundwater contamination is now well delineated. A cluster of monitoring wells was installed in the northern parking lot in June 2004. Monitoring wells HA-802S(MW), HA-802T(MW) and HA-802R(MW) screen shallow groundwater, groundwater at the base of glacial till and groundwater in bedrock in the northern-most portion of the site. Groundwater samples from these monitoring wells were non-detect for VOCs, with the exception of 1.3 ug/l chloroform in the sample from HA802R(MW) which is likely a laboratory or sampling artifact. Low levels of TCE and cis-1,2-DCE were detected in two rounds of sampling from HA-701(MW) located in the riverside access drive north of Building 27 (Figures 5, 13, and 14).

At the former Waltham Industrial Labs portion of the disposal site, monitoring well HA-10(MW) is believed to delineate the northern extent of groundwater contamination for metals, cyanide and petroleum hydrocarbons. In April 2002, January 2003 (shorter analyte list) and November 2003(shorter analyte list), concentrations of dissolved metals, cyanide, VPH carbon ranges, and EPH carbon ranges and target analytes at HA-10(MW) ranged from non-detected to low concentrations below RCGW-2 Reportable Concentrations. However, the vinyl chloride concentration detected at HA-10(MW) increased from 16 ug/l in April 2002 to 47 ug/l in January 2003 and increased again to 68 ug/l in November 2003, which exceeds the Method 1 GW-2 Standard of 2 ug/l; the cis-1,2-DCE concentration also increased, while the TCE concentration decreased over this period. This increase in concentrations of the breakdown products of TCE may indicate that degradation and natural attenuation is occurring.

4.4.1 Metals

Metals contamination in groundwater at the site is generally limited to groundwater in the vicinity of Buildings 16, 18/19 where historic plating operations occurred. During previous investigations conducted in the 1980s, dissolved cadmium and lead concentrations in groundwater were elevated. In general, concentrations of dissolved metals in site groundwater have decreased substantially since the 1985 – 1986 remedial activities that removed plating sludges from the buildings. However, in July 2000 dissolved cadmium showed an increasing trend in groundwater concentrations at two monitoring wells (B4-OW and HA-1(MW)) which over three additional sampling events. HA-19A was installed to assist in the delineation of the cadmium plume. Elevated concentrations of cadmium were also detected in this monitoring well. The highest concentration of cadmium in groundwater was detected in monitoring well

HA-1(MW) collected in June 2004 (888 ug/l) which exceeds the UCL of 100 ug/l. Analytical results for metals in groundwater are summarized in Table VI.

The reason for this increase is not well understood, however the impacted monitoring wells closely parallel the former trench along the southern wall of Building 16 and the highest groundwater concentrations have been identified in HA-1(MW) located approximately downgradient of the former sump. Approximately 4 inches (7 drums) of material were removed from this trench and sump during the 1985-86 remedial work, however, it appears residual soil contamination below Building 16 is acting as a continuing source of increasing groundwater contamination. Figure 25 shows cadmium concentrations in groundwater with time.

Dissolved cadmium concentrations exceed the UCL (100 ug/l) at three monitoring wells on site: B4-OW, HA-1(MW), and HA-19A(MW). The purpose of well HA-19A(MW), which was installed most recently in March 2003, was to delineate the southeastern extent of cadmium contamination in soil and groundwater at the site. In June 2004, well HA-1(MW) showed the highest cadmium concentration, 888 ug/l. Lower concentrations of 392 ug/l and 106 ug/l detected in samples from HA-19A(MW) and B4-OW, respectively, also exceed the UCL (Table VI). Figure 22 shows the distribution of cadmium in groundwater at the site.

Observation well B4-OW was installed in 1985 and has one of the longest time-series of groundwater quality data at the disposal site. Well B4-OW is located between Building 16 and the Charles River. In 1985, dissolved cadmium was identified at well B4-OW at an elevated concentration of 190 ug/l, which exceeds the current MCP UCL of 100 ug/l. However, concentrations declined after 1985-1986 remedial activities in Building 16 and ranged from 35 ug/l to 62 ug/l between 1987 and July 2000 (Table VI). These cadmium concentrations were below the current UCL but exceeded the Method 1 GW-3 standard of 10 ug/l.

Monitoring well HA-1(MW) was installed as part of Phase II activities in July 2000. At HA-1(MW) in July 2000, dissolved cadmium was detected at a concentration of 57 ug/l, which exceeds the Method 1 GW-3 Standard (10 ug/l) but is below the UCL (100 ug/l).

Since July 2000, higher dissolved cadmium concentrations have been detected at B4-OW and HA-1(MW). At HA-1(MW), which has showed the highest dissolved cadmium concentration to date, dissolved cadmium concentrations of 620 ug/l, 430 ug/l, 460 ug/l (avg. of sample and sample duplicate), 529 ug/l, and 888 ug/l were detected in April 2002, January 2003, April 2003, November 2003, and June 2004 respectively. At B4-OW, dissolved cadmium concentrations of 170 ug/l, 220 ug/l, 160 ug/l, 317 ug/l, and 392 ug/l were detected in April 2002, January 2003, April 2003, November 2003, and June 2004, respectively. Well HA-19A(MW) exhibited 190 ug/l, 174 ug/l, and 106 ug/l of dissolved cadmium in groundwater in April 2003, November 2003 and June 2004 and is now showing a decreasing trend. Figure 25 shows trends of cadmium concentrations in groundwater with time.

Phase II results indicate that cadmium and nickel were the only dissolved metals detected at concentrations above Method 1 GW-3 standards, which are considered to be protective of aquatic receptors, during the most recent sampling event conducted at each monitoring well (April/May 2002, January 2003, April 2003, June 2004). Other dissolved metals detected in the most recent sampling round at each well include arsenic, total chromium, copper, lead, and zinc, at concentrations below Method 1 GW-3 Standards. Dissolved hexavalent chromium, mercury, and tin were not detected in the on-site monitoring wells in the most recent sampling round at each well. Aluminum, iron, and silver analyses have not been conducted in recent sampling rounds.

Dissolved nickel was also detected at a concentration of 200 ug/l, which exceeds the Method 1 GW-3 Standard (80 ug/l), in May 2002 at monitoring well HA-1(MW). The concentration of nickel in samples from this well also remained elevated (147 ug/l, and 165 ug/l in November 2003 and June 2004. This was an increase from the previous sampling round in July 2000, when 50 ug/l of dissolved nickel was detected. Dissolved nickel concentrations have not exceeded the UCL (1000 ug/l) historically or recently.

An elevated dissolved lead concentration detected at well B9-OW in 1987 (790 ug/l) exceeds the current UCL (300 ug/l). The well was destroyed some time following the 1987 monitoring event, but subsequent sampling and analyses in surrounding wells have shown that this elevated lead concentration in groundwater no longer exists (Table VI). Dissolved lead concentrations at well B4-OW have been non-detected since 1987. At nearby well HA4-MW, the dissolved lead concentration was 7.3 ug/l in July 2000 (average of a non-detected result and 12 ug/l in a duplicate sample). Dissolved lead was not detected at well HA-8(MW) in May 2002.

Metals contamination in groundwater appears to be limited in extent and remains primarily in the vicinity of the Building 16 former trench and sump area (Figure 21). At wells HA3-MW and B6-OW, located upgradient and to the east of Buildings 18 and 19, July 2000 and May 2002 results were non-detected for all dissolved metals analyzed, with the exception of 29 ug/l of dissolved copper detected at B6-OW in May 2002. This concentration is four orders of magnitude below the RCGW-2 Reportable Concentration for copper of 50 mg/L. Metals contamination that may have originated at Building 18/19 is believed to be no longer impacting groundwater between Building 18 and the Charles River. Concentrations of metals downgradient of Building 18/19 (B1-OW, HA-2(MW), and HA-9(MW)) have been less than RCGW-2 Reportable Concentrations and Method 1 GW-3 standards in sampling rounds conducted (Table VI).

4.4.2 Volatile Organic Compounds

The chlorinated VOCs detected in groundwater at the disposal site are attributed to historical site operations and uses. TCE was used primarily in the early to mid 20th century as a degreasing agent prior to plating operations. Building 16 was used by Waltham Industrial Labs for electroplating process lines. Review of an August 30, 1974 plan showing the proposed electroplating process line (which we understood to have been constructed) suggests that some degreasing occurred in Building 16 while Waltham Industrial Labs used the space through 1984. Electroplating/degreasing operations at Buildings 18 and 19 are believed to be the source of VOCs in groundwater beneath and proximal to Building 18/19.

In addition to the TCE Distillery at Building 27 shown on a 1944 Plan, earlier historical plans indicate that a portion of Building 27 had a long history of storage and use of oil and hazardous material. The "Trichloroethylene & Ethyl Acetate Distilling" room is shown on a 1944 plan. Review of the historical plans suggests that kerosene/gasoline were used as a degreasing agent prior to trichloroethylene use which appears to have been used on the site circa 1940. The former TCE distilling room is currently vacant and not used.

There are two potential source areas of chlorinated solvent contamination at the site: the former Waltham Industrial Labs, and the Building 27 release area. Solvents were used historically in these source areas, where they may have been disposed of directly into the subsurface in the former crawlspaces (Buildings 18 and 19) and trench, sump, and pit (Building 16 basement), or released via leaks and spills from the former TCE Distillery identified on historical plans for Building 27. There may be potential for migration of contaminants via groundwater flow and preferential migration pathways along the riverfront: numerous known and unknown utilities along the access drive run parallel to the Charles River in a north-south direction and are intersected by other utilities oriented perpendicular to the River. However, there are distinct concentration gradients at the two potential source areas, which are therefore are considered to be two separate releases of VOCs in groundwater.

Chlorinated VOCs, including TCE and its degradation products cis-1,2-DCE and vinyl chloride, are the primary VOCs of concern at the disposal site. Concentrations of TCE and vinyl chloride in groundwater are presented graphically in Figures 23, and 24. Other VOCs detected in site groundwater include benzene, toluene, ethylbenzene, and xylenes (BTEX) and C9-C10 aromatic hydrocarbons. These VOCs are present in the vicinity of the Former Gasoline USTs disposal site.

After decreasing for a number of years following the 1985 – 1986 waste removal response actions in source areas at the Former Waltham Industrial Labs, VOC contamination in groundwater at some monitoring wells (B1-OW and B4-OW) was observed to increase during the period Spring 2002 to Fall 2003. Recent sample results (winter 2003, and Spring 2004 show that VOC concentrations have dropped back to down to near Summer 2000 levels. The reason for the period of increasing VOC concentrations is not understood. There are no known continuing sources of VOC contamination in groundwater. Observation wells B1-OW and B4-OW were installed in 1984 (B1-OW) and 1985 (B4-OW) and have the longest time-series of groundwater quality data at the property. Cis-1,2-DCE and vinyl chloride concentrations have increased slightly at HA-10(MW), while TCE concentrations have decreased insignificantly. VOC concentrations have not changed significantly in recent sampling rounds at B6-OW (not detected - ND), HA-1(MW), and HA-2(MW). In June 2004, VOCs were not detected in groundwater sampled from HA-1(MW) and VOC concentrations were lower in HA-2 (vinyl chloride (14 ug/l) (Figure 24).

Observation well B1-OW is located between Building 18/19 and the Charles River (Figure 4). TCE, cis-1,2-DCE, and vinyl chloride concentrations increased at B1-OW from July 2000 to April 2002, and again from April 2002 to January 2003 (Table VI). Between September 1984 and July 2000, TCE concentrations ranged from 7 ug/l to 360 ug/l at B1-OW. In April 2002 and January 2003, TCE concentrations increased to 1,000 ug/L and 1,040 ug/l (average of two duplicate samples), respectively. In November 2003 and June 2004 VOCs dropped in samples collected from this monitoring well (*e.g.* TCE 27 ug/l) (Figure 26A).

Observation well B4-OW is located between Building 16 and the Charles River (Figure 4). TCE concentrations fell from 540 ug/l in May 1985 to 50 ug/l in September 1987 and remained between 30 ug/l and 62 ug/l until July 2000. From July 2000 to April 2002, TCE, cis-1,2-DCE, and vinyl chloride concentrations increase-d at observation well B4-OW (not sampled in January 2003), although the highest vinyl chloride concentration (300 ug/l) was detected in July 1998 (Table VI). These concentrations dropped during the January 2003 round and climbed again in the June 2004 round. This periodic cyclic suggests some seasonal variation in groundwater quality downgradient of Building 16 (Figure 26B).

In addition, tetrachloroethylene (PCE) was detected in groundwater at B4-OW in January 2003 for the first time in Haley & Aldrich's history of groundwater sampling at the property (Table VI). PCE was not detected in subsequent sampling rounds conducted in November 2003 and June 2004. The low concentration of PCE (2 ug/l) detected at B4-OW is three orders of magnitude below the Method 1 GW-2 Standard of 3,000 ug/l. A source of PCE at the disposal site is not known, however small concentrations have been detected and are likely attributable to some use of PCE in the same historical operations.

Monitoring wells at the Building 27 release area have been sampled during two to three monitoring rounds. VOC concentrations including cis-1,2-DCE, TCE, and vinyl chloride concentrations have shown slight fluctuations at different wells (Figures 26C and 26D). Based on the analytical data for samples collected in May 2002 and January 2003, concentrations of chlorinated VOCs to the north of the former TCE Distillery (at wells HA-501(MW) and HA-502(MW)) may be decreasing over time. The same conclusion cannot be drawn for wells located closer to the source area (wells HA-102(MW), HA-103B(MW), and HA-503(MW) which show mixed results from the last two sampling rounds.

The maximum concentration of TCE detected in site groundwater is at the source area near Building 27 and was reported to be 51,000 ug/l in sample HA-503(MW) collected at monitoring well HA-503(MW) in June 2004 (Table VI). However, a TCE concentration of 44,000 ug/l was reported for a duplicate sample (HA-503(MW) collected at monitoring well HA-503(MW) in June 2004. In addition, a concentration of 18,000 ug/l was detected in groundwater from bedrock monitoring well HA-702(MW), and a concentration of 38,000 ug/l was detected in glacial till monitoring well HA-806T(MW) with a well screen above the bedrock surface.

In the monitoring wells directly north and south of HA-503(MW),(HA-102(MW), HA-103(MW), and HA-504(MW)), and a sample collected from beneath a pipe at the former ethyl acetate UST, the breakdown products of TCE (cis-1,2-DCE and/or vinyl chloride) were detected at higher concentrations than TCE, implying that some natural attenuation is occurring.

The highest vinyl chloride concentration detected in site groundwater in June 2004 was also at HA-503(MW) (Figure 24). For vinyl chloride, the sample and duplicate results were: 5,000 ug/l and 3,700 ug/l, both well above the Method 1 GW-2 Standard of 2 ug/l. Indoor air quality testing has been conducted in Building 27 (Section 4.04). Monitoring well HA-102(MW), most recently sampled in June 2004, showed vinyl chloride results of the same order of magnitude: 2,200 ug/l of vinyl chloride were detected (Table VI). TCE was not detected, and 3,900 ug/l of cis-1,2-DCE was detected at well HA-102(MW) in June 2004.

Recently completed exploration programs have focused on stepping away from the source area and delineating the horizontal and vertical extent of TCE contamination. The 800-series test boring program was conducted to assess the extent of TCE in groundwater in deep glacial till soils and bedrock. Deep explorations were completed on site and in off site locations. Four bedrock monitoring wells were completed in the Mt. Feake Cemetery on the opposite bank of the Charles River. TCE has been identified in river bottom soils, so installation of monitoring wells on the opposite bank of the Charles River was considered to be a practical means of installing downgradient monitoring wells.

TCE was not detected in the following 800-series groundwater samples: HA-801R(MW), HA-802 well cluster, HA-803R(MW), HA-804R(MW) HA-805 well cluster, HA-809R(MW) and HA-810R(MW). These monitoring wells are located away from the source area and/or off-site and show no evidence of contamination from the disposal site. Deep monitoring wells in the vicinity of the source area did show some TCE contamination. HA-807T(MW) and HA-807R(MW) located north of the source on the riverside access road showed 150 ug/l and 170 ug/l respectively in the groundwater in glacial till above the bedrock and in groundwater in bedrock.

Southeast of the source area samples collected from well cluster HA-808T(MW) and HA-808R(MW) showed 4.8 ug/l in bedrock groundwater, and a slightly different chemical profile for the groundwater sample collected from the glacial till at this location. PCE, 1,1,2-TCA, 1,1-DCA,1,1-DCE, cis-1,2-DCE and vinyl chloride were detected as well as 2,600 ug/l TCE. Glacial till groundwater monitoring well HA-806T(MW) installed in glacial till above bedrock immediately downgradient of the source area at Building 27 showed 38,000 ug/l TCE and 3,700 ug/l cis-1,2-DCE.

4.4.3 Petroleum Hydrocarbons

The principal source of petroleum hydrocarbons in groundwater at the property is the former Gasoline UST location (RTN 3-19850). Release of petroleum from these former USTs impacted soils, groundwater and sediment. Relatively low levels of petroleum contamination in groundwater can also be found at the Building 27 release location and in groundwater in the vicinity of the former Waltham Industrial Labs.

Phase II assessment results confirmed that a release of petroleum hydrocarbons occurred in the vicinity of Building 27. It is believed that this release(s) occurred historically, possibly at the "Kerosene Washing/Kerosene Stg" at Building 27 shown on a 1930 Plan. Historical plans indicate that a portion of Building 27 and a previous generation of building(s) have had a long history of storage and use of oil and hazardous material in this vicinity. Previous uses of this building, or previous buildings that occupied this same area, include a "Benzine Cleaning and Oil Storage" operation, the presence of an "Oil Tank" in a room at the grade of the riverside access drive (both shown on a 1903 plan), a "Kerosene Washing" operation and associated "Kerosene Stge"(for kerosene storage) is shown on a 1930 plan. The "Trichloroethylene & Ethyl Acetate Distilling" room is shown on the later 1944 plan. Review of the historical plans suggests that kerosene/gasoline were used as a degreasing agent prior to trichloroethylene use which appears to have been used on the site circa 1940. No known continuing sources of petroleum contamination in groundwater exist at Building 27.

In contrast, petroleum hydrocarbons in groundwater at the Former Waltham Industrial Labs portion of the disposal site were found during preliminary Phase II activities to be detected at low concentrations below both Method 1 GW-2 standards, which are considered to be protective of indoor air quality, and Method 1 GW-3 standards, which are considered to be protective of aquatic receptors (Table VI). No obvious sources of petroleum contamination have been identified in this portion of the site. Petroleum was likely used and released from these buildings. Test boring HA-13 was located near a potential UST location, however no abandoned UST was identified in that location.

Petroleum hydrocarbons were analyzed using MADEP EPH (carbon ranges and target analytes) and VPH (carbon ranges only) methodologies. Groundwater quality data for EPH and VPH are presented in Table VI for the Former Waltham Industrial Labs portion of the disposal site and for the release(s) of chlorinated solvents and petroleum identified near Building 27. Petroleum hydrocarbon (EPH and VPH) results in groundwater are presented in Figures 27A, and 27B.

One 425-gallon gasoline UST and one 515-gallon gasoline UST, located near the boiler room for the facility, were removed on 18 August 2000 (Figure 6). One of these two previously-unidentified USTs were encountered on 11 August 2000 during trench excavation activities (conducted for purposes of installing a natural gas utility service pipeline) along the property riverside access drive. In September 2000, after the UST removals were completed, Waltham Engineering Center personnel located a historical Waltham Watch Company plan, which showed the encountered USTs. The plan was dated May 26, 1930 and identifies the former USTs as gasoline tanks. A "gasoline still house" is also identified on the plan, adjacent to the former UST locations (Figure 6).

At the time of the tank removal, soil contamination was present in the UST grave, however, given the close proximity of the Charles River, and the old field stone retaining wall, and the need to excavate below the water table, it was considered not practical at the time to excavate soils from below the water table at the former tank grave.

No non-aqueous phase liquid (NAPL) has been found in this portion of the disposal site or on the Property in general. However, based on the results of sediment sampling, petroleum contamination in the sediments opposite the former UST location suggest that historical release of fuel, possibly from this location, impacted the sediment. NAPL or free phase petroleum is no longer impacting the sediment at this location.

HA-300 and HA-400 series test borings and monitoring wells were installed during assessment activities to monitor groundwater quality between the UST grave and the Charles River. Total EPH and Total VPH groundwater quality with time is presented in Figures 27A and 27B. Groundwater monitoring conducted following the UST removals in August of 2000, shows a rapid decrease in petroleum contamination in groundwater with time between Winter 2000 and a November 2003 groundwater sampling round (Figures 27A and 27B).

Groundwater quality data for the Former Gasoline USTs location is presented in Table VI. Groundwater was last sampled at this location in November 2003. The latest groundwater sampling round shows that as a result of removing of the two USTs from the ground, groundwater has improved to point where it does not exceed Method 1 GW-3 for comparison purposes (Table VI).

At the Former Waltham Industrial Labs, EPH carbon ranges and target analytes were not detected during groundwater sampling round(s) conducted at wells B4-OW, B6-OW, HA-1(MW), HA-4(MW), HA-8(MW), HA-9(MW), and HA-12(MW). Wells B4-OW, HA-1(MW), and HA-4(MW) (destroyed after July 2000 sampling round) are in the vicinity of Building 16 (Figure 4). Well HA-8(MW) is used to define the southern extent of disposal site contamination in groundwater, while well B6-OW defines the upgradient extent of disposal site contamination to the east (Figure 2). Low concentrations of C19-C36 aliphatics and C11-C22 aromatics below Method 1 GW-2 and GW-3 standards previously detected at wells B1-OW (C11-C22 aromatics only), HA-2(MW), and HA-10(OW) were not detected in April 2002 or January 2003 (well HA-10(OW)). Wells B1-OW, HA-2(MW), HA-9(MW), and HA-10(MW) are located between Building 18 and the Charles River.

EPH carbon ranges were detected in May 2002 at two monitoring wells at the Former Waltham Industrial Labs: HA-3(MW) and HA-13(MW). At monitoring well HA-3(MW), C19-C36 aliphatics and C11-C22 aromatics were detected at concentrations of 860 ug/l and 1,700 ug/l, respectively. At monitoring well HA-13(MW), C19-C36 aliphatics and C11-C22 aromatics were detected at concentrations of 710 ug/l and 400 ug/l, respectively. These concentrations are well below the Method 1 GW-3 standard of 20,000 ug/l and 30,000 ug/l for C19-C36 aliphatics and C11-C22 aromatics, respectively. The Method 1 GW-2 Standard for C11-C22 aromatics is 50,000 ug/l (the GW-2 standard is not applicable for the less volatile C19-C36 aliphatic hydrocarbon range). Monitoring well HA-3(MW) is located between Buildings 17 and 19 (Figure 4). Monitoring well HA-13(MW) is located between Buildings 18 and 16. Historical information suggests that historical usage of petroleum products may have taken place in the area between Buildings 17 and 19. A plan dated 26 May 1930 shows a 120-gallon gasoline UST between Building 19 and Building 17 and a 500-gallon gasoline UST between Building 18 and 16.

At the Former Waltham Industrial Labs, VPH carbon ranges were not detected in the following monitoring wells in April/May 2002: B6-OW, HA-1(MW), HA-2(MW), HA-3(MW), HA-8(MW), and HA-12(MW) (Table VI). At a subset of these wells sampled previously, low concentrations of VPH had previously been detected in July 2000. Low concentrations of VPH carbon ranges were detected at remaining monitoring wells sampled in April/May 2002: B1-OW, B4-OW, HA-9(MW), HA-10(MW), and HA-13(MW) (Table VI). These wells are located between Buildings 16 or 18 and the Charles River, or between Buildings 16 and 18 (HA-13(MW)). Detected results were below Method 1 GW-2 and GW-3 Standards with the exception of C5-C8 aliphatics at B1-OW which increased from 330 ug/l in July 2000 to 2,500 ug/l in April 2002. The Method 1 GW-2 and GW-3 standards for C5-C8 aliphatics are 1,000 ug/l and 4,000 ug/l, respectively.

In summary, at the Former Waltham Industrial Labs, concentrations of petroleum hydrocarbon carbon ranges detected in groundwater samples during the most recent sampling event do not exceed MCP Method 1 GW-2 or GW-3 standards, with the exception of C5-C8 aliphatic hydrocarbons at well B1-OW (exceeds GW-2 standard). The extent of petroleum contamination in groundwater at the Former Waltham Industrial Labs portion of the disposal site is considered to be delineated.

At the Building 27 release area, EPH carbon ranges were detected in the most recent sampling event (June 2004) at the following monitoring wells: HA-102(MW), HA-103B(MW), HA-503(MW), and HA-504(MW). In the most recent sampling round conducted at each well, EPH concentrations did not exceed Method 1 GW-2 or GW-3 standards, with the exception of C9 to C18 aliphatic hydrocarbons in a groundwater sample from HA-503(MW) (Table VI).

The maximum concentration of C5-C8 aliphatics detected in site groundwater was reported to be 18,000 ug/l in sample HA-503(MW) collected June 2004 (Table VI). At HA-503(MW), C9-C12 aliphatics were detected in May 2002 but were not detected in January 2003. C9-C10 aromatics were detected in June 2004 at a concentration of 2,600 ug/l, which is below Method 1 GW-3 Standards. VPH concentrations at HA-504(MW) showed significant decreases in the most recent sampling event. From May 2002 to June 2004: C5-C8 aliphatics decreased from 86 ug/l to 48 ug/l and then increased in June 2004 to 67.5 ug/l; C9-C12 aliphatics, which had previously exceeded the Method 1 GW-2 Standard (1,000 ug/l), decreased from 4,600 ug/l to 24 ug/l and increased in June 2004 to 274 ug/l. C9-C10 aromatics, which had previously exceeded the Method 1 GW-2 Standard (5,000 ug/l), decreased from 5,200 ug/l to 47 ug/l and was reported as non-detect in June 2004 (Table VI).

Low concentrations of C5-C8 aliphatics below Method 1 GW-2 Standards were detected at HA-103B(MW)(Table VI). VPH carbon ranges were not detected during groundwater sampling round(s) conducted at wells HA-502(MW) and HA-603A(MW) (October 2003), and VPH and EPH carbon ranges were not detected in groundwater sampled from location HA-701(MW), which define the northern extent of petroleum hydrocarbon contamination in groundwater. EPH carbon ranges were not detected in groundwater collected from bedrock monitoring well HA-702(MW). VPH C5-C8 aliphatic hydrocarbons were detected in groundwater from this well at a concentration of 4,370 ug/l (June 2004).

In summary, at the Building 27 release area, the lateral extent of VPH/EPH contamination in groundwater appears to be sufficiently-well defined and is similar in extent to the areal extent of TCE.

4.4.4 Cyanide

Cyanide was used on the site historically and is a common plating industry compound. The detection of cyanide in site groundwater samples both historically and during preliminary Phase II activities is consistent with site history. No new cyanide in groundwater data has been collected since the June 2003 Preliminary Phase II Report was issued. The following summarizes the recent nature and extent of cyanide in groundwater, which was comprehensively presented in that report.

As part of Phase II activities, groundwater samples were analyzed for total cyanide and physiologically available cyanide (PAC). Physiologically available cyanide (PAC) refers to those species of cyanide that are relevant for human health risk assessment. In July 2000, groundwater samples collected for cyanide analyses were both preserved with NaOH and unpreserved: total cyanide analysis was conducted with NaOH preservation, while PAC analysis was conducted both with and without NaOH preservation. PAC analytical results for NaOH-preserved samples were consistently higher than results for samples that were not preserved (Table VI).

The contract laboratory provided information (16 August 2000 letter from Groundwater Analytical) regarding the results and the changes in speciation due to sample preservation. The laboratory contacted MADEP regarding preservation of PAC samples. MADEP indicated that preservation of PAC water samples is preferred due to concern over the loss of dissolved HCN. By raising pH of the sample, HCN is converted to the cyanide anion. However, the laboratory was concerned that by raising the pH, the cyanide species is changed as well. Based on the laboratory's research and conclusions, the lab prefers PAC water samples to be collected unpreserved in amber bottles with no headspace (see 16 August 2000 letter). This sample method is inconsistent with the method expressed by MADEP. Haley & Aldrich therefore used both preserved and unpreserved sample collection methods to allow later comparison of the results. Both PAC results are presented in this report (Table VI).

After the conduct of remedial activities in 1985-1986, the maximum concentrations of both total and physiologically available cyanide were detected at wells B4-OW and HA4-MW in July 2000. This is consistent with the historical discharge of electroplating solutions to the trench in the basement floor of Building 16. In July 2000, total cyanide was detected at a concentration of 4,200 ug/l in both wells (Table VI). The result for HA-4(MW) is an average of two duplicate samples (4,900 ug/l and 3,500 ug/l). Total cyanide was not detected at well B4-OW in a subsequent sampling round (April 2002). Monitoring well HA4-MW has been destroyed and was not sampled after July 2000. Lower concentrations of total cyanide, 40 ug/l and 10 ug/l, were detected at wells HA-9(MW) and HA-12(MW), respectively, in April 2002.

Phase II results show that concentrations of total cyanide appear to be decreasing over time. In the most recent sampling round (April and May 2002), total cyanide was not detected at the following monitoring wells: B1-OW, B4-OW, B6-OW, HA-1(MW), HA-2(MW), HA-8(MW), HA-10(MW), and HA-13(MW). Total cyanide has been detected in the most recent groundwater samples collected at monitoring wells HA-3(MW), HA-4(MW), HA-9(MW), and HA-12(MW). This suggests that cyanide contamination is groundwater is not widespread and is largely limited to the former source areas and the area between Building 17 and 19 (Figure 4). The source of cyanide contamination at HA-3(MW) and HA-12(MW) is not known; however it likely migrated from former source areas associated with former plating operations at Buildings 16, 17, 18, or 19.

During the most recent sampling round conducted at each well, the maximum concentration of PAC detected was detected at well HA4-MW: PAC concentrations of 300 ug/l with NaOH-preservation and 80 ug/l without preservation were detected in July 2000 (well has since been destroyed). In May 2002, PAC was detected at a concentration of 20 ug/l at well HA-3(MW). The Method 1 GW-3 standard for physiologically available cyanide is 10 ug/l. PAC results at the site have not exceeded the UCL of 2000 ug/l. PAC analysis was not conducted at wells HA-9(MW) and HA-12(MW).

Elevated concentrations of cyanide in site groundwater detected prior to the most recent sampling round (April and May 2002) may be attributable to incorporation of silt in the groundwater samples. Slow pump well purging techniques were used during the April/May 2002 sampling event to reduce the incorporation of silt in groundwater samples. The reduced cyanide concentrations in the groundwater samples collected in April and May 2002 may have resulted, at least in part, from the slow pump techniques which reduces silt in the groundwater sample.

4.5 Indoor Air

Indoor air quality testing has been conducted on a regular basis at the disposal site to generate a temporal data set and to insure the protection of tenants occupying the spaces. Historical air quality data is presented and discussed in depth in the Preliminary Phase II – Comprehensive Site Assessment submitted in June 2003. That historical data is summarized here and new data and conclusions of the nature and extent of Indoor Air contamination is presented below. Air quality sampling locations are shown on Figures 4 and 5. Air quality data is summarized in Tables VIII, IX, and X. Laboratory Data Reports presenting the laboratory data and laboratory QA/QC are presented in Appendix J.

4.5.1 Building 16

Four indoor air sampling events were conducted in Building 16 in March 2000, March 2002, February 2003, and February 2004. Sample locations included the loading dock and first floor in March 2000, and February 2004 and the basement during all four sampling events (Figure 4). Each of the four sampling events was conducted during the winter (or the coldest months of the year in New England); therefore, the results are considered to be conservative and representative of "worst-case" conditions.

The first floor and basement of Building 16 are currently unoccupied. The basement space is used sporadically by Waltham Engineering Center maintenance staff for limited storage and access to other indoor spaces. The basement has a concrete floor slab that appears to be in good condition, as no cracks were observed during indoor air sampling events. The loading dock is accessed from the first floor and is constructed with concrete block walls and has no basement. An exterior garage door and an interior door connecting the loading dock to Building 16 were closed during the indoor air sampling events.

Results of the March 2000 indoor air sampling event in Building 16 indicate that the method detection limits (MDLs) achieved were protective of potential risk to human health, and that cyanide (both aerosol and vapor phases) and metals were not detected at concentrations above the MDLs (Table IX). The interior walls of Building 16 are currently covered with drywall sheathing. Therefore, a migration pathway from the interior building walls to indoor air does not appear to exist for cyanide and metals associated with reported residues on the brick walls from historical electroplating operations. Since MDLs protective of human health have been achieved and cyanide and metals compounds were not detected, the extent of cyanide and metals contamination is considered to be adequately delineated. Based on results of Phase II sampling and analysis, cyanide and metals are not considered to be compounds of concern for indoor air.

Because VOCs were detected in groundwater in well B4-OW prior to the conduct of Phase II field investigations, the March 2000, March 2002, February 2003, February 2004 indoor air sampling and testing programs in Building 16 included sampling for VOCs. Analytical results indicate that VOCs were detected above MDLs in one or more samples collected during the four sampling events (Table IX).

A final round of indoor air testing in Building 16 was conducted in February 2004. The following discussion summarizes the results of 2004 air testing in Building 16.

Loading Dock – First Floor of Building 16

- VOCs were not detected in the loading dock air sample collected during the February 2004 sampling event.

Building 16 - First Floor

- The VOCs detected on the first floor are believed to be unrelated to subsurface soil and groundwater contamination. These compounds have been detected in the basement air samples discussed below. However, these compounds have not been detected in soil or groundwater at the site (Tables IV and VI).

Building 16 - Basement

- VOC concentrations in the basement have generally decreased since the 2002 sampling event. A number of compounds have not been detected in basement air since 2000. The exceptions are two compounds that were not detected during the three previous rounds of indoor air sampling: trans-1,2-DCE which may be due to the breakdown of trichloroethylene (TCE) and/or PCE, and vinyl acetate, which may be related to ambient air quality (see outdoor air discussion below).

- PCE concentrations have decreased since the 2003 sampling event to a level consistent with that detected in 2002. PCE concentrations in air have fluctuated over time.

- TCE concentrations have decreased slightly since the 2003 sampling event to a level consistent with the 2002 sampling event. TCE concentrations in air have fluctuated over time.

- Concentrations of VOCs that were detected in recent groundwater (trans-1,2-DCE, PCE, and TCE), and are therefore considered to be potentially site-related, were observed to be slightly higher in the sample collected in the south chase (tunnel). However, PCE concentrations were not observed to be significantly different from the results at the north chase (tunnel) or Basement during the 2004 sampling event.

Among the 17 VOCs detected in indoor air in Building 16, three compounds, trans-1,2-dichloroethylene (trans-1,2-DCE), PCE, and TCE, were determined to be potentially site-related, based on a comparison with DEP background values, the detection and concentration of compounds in soil and groundwater, a survey of other indoor sources of VOCs, and outdoor air sampling results (Table IX). See the Human Health Risk Characterization (Appendix K) for a determination of COC within Building 16.

4.5.2 Buildings 18 and 19

Four indoor air sampling events (September 2000, March 2002, February 2003, and February 2004) were conducted on the first floor of Buildings 18 and 19 to evaluate potential impacts to indoor air quality. In February 2004, several air quality samples were collected on the second floor of Buildings 18/19 to evaluate concentration patterns and to assess the potential for indoor sources of contamination, specifically PCE. At the time of the 2004 sampling round light industrial and small laboratories occupied space in the building as tenants. Several spaces were visited and tenants interviewed regarding chemical use and an obvious source of PCE was not identified in spaces proximal to Buildings 18/19. Three of the four sampling events were conducted during the winter, while the third sampling event was conducted in the fall; therefore, the results are considered to be conservative and representative of "worst-case" conditions. The analytical results for indoor air quality testing in Buildings 18 and 19 are summarized in Table VIII.

An interior brick partition divides Building 18 and Building 19; however, an open entry is located in the partition. Therefore, the two buildings share exterior walls and air/vapor migration between the two buildings does occur. There is no basement beneath the buildings. There is a concrete floor slab that was constructed on top of fill soil placed in former source areas following the 1985 - 1986 waste removal response actions. The concrete floor slab, constructed in 1987 throughout the first floor of Buildings 18 and 19, appears to be in good condition; no cracks were observed during indoor air sampling events. The first floor of Buildings 18 and 19 was occupied by a commercial/light industrial tenant (Panametrics, Inc.). However, the space has since been vacated (Fall 2004).

A final round of indoor air testing on the first and second floors of Building 18/19 was conducted in February 2004. Samples were collected on the second floor to investigate potential indoor sources of air quality contaminants including the PCE, since PCE has not been significant in soil and groundwater at the site. The following discussion summarizes the results of 2004 air testing in Building 18/19.

<u>Building 18/19 - First Floor</u>

There is no basement area in Buildings 18/19. The first floor level samples were collected at the same locations in the space as previous rounds. The first floor was occupied at the time of the sampling round by a light industrial tenant (Panametrics).

Indoor sources of air contamination on the first floor were identified for the two compounds detected at higher concentrations on the first floor compared with the second floor (1,4-dichlorobenzene and methylene chloride). TCE concentrations in first floor air have decreased over time since 2000 (Table VIII).

Second Floor – Former Printing Area/Spray Booth and Common Hallway Area

The second floor area above Building 18 prior to the sampling round in 2004 was occupied by a small screen printing operation. This tenant had vacated the premises prior to the sampling round. The screen-printing tenant had utilized inks and a spray booth as well as cleaning agents. Two samples were collected in these spaces. A third sample was collected in a common hallway near space over the first floor of Building 19. Second floor air quality was not tested during air sampling rounds conducted prior to February 2004.

Levels of 2-butanone (MEK) were found to be highest in the former printing space. TCE, acetone, xylenes, and ethylbenzene were slightly higher in the common area sample.

During the February 2004 indoor air sampling event, the majority of VOCs detected in 2000 were either not detected, or were detected at higher concentrations on the second floor compared with the first floor, implying that indoor source contribution may be greater than potential subsurface contribution from soil or groundwater. TCE concentrations on both levels were below the MADEP background value of 4.49 ug/m^3 in February 2004. PCE was not detected in 2004 in the indoor air samples collected on the first or second floors of Buildings 18/19.

Based on the information collected to date, knowledge of the disposal site, and professional judgment, we do not believe that the concentrations of PCE detected in indoor air in Buildings 18 and 19 have a significant contribution from subsurface soil or groundwater. We believe there is likely to be another source of PCE, either indoors within Buildings 18 or 19 or outdoors in ambient air. The PCE concentrations detected in indoor air are below the DEP background value, which implies that the same concentrations of PCE might be expected in the absence of a contaminated disposal site.

Among the twenty VOCs detected in indoor air in Buildings 18/19, only TCE was determined to be potentially site-related, based on a comparison with DEP background values, the detection and concentration of compounds in soil and groundwater, a survey of other indoor sources of VOCs, and outdoor air sampling results (Table VIII). See the Human Health Risk Characterization (Appendix K) for a determination of COC within Buildings 18/19.

4.5.3 Building 27

Additional air sampling rounds have not been conducted in the Building 27 space above the disposal site since issuing of the Preliminary Phase II – Comprehensive Site Assessment Report in June 2003. The two sampling events were conducted during the winter, and the outside air temperature was notably cold during the February 2003 sampling event. Therefore, the results are considered to represent "worst-case" conditions. The following summary presents the indoor air quality findings at the Building 27 disposal site.

In March 2002, an indoor air sampling program was undertaken in the first floor of Building 27 to evaluate potential impacts to indoor air quality from the migration of TCE and vinyl chloride in subsurface soil and groundwater. The analytical results for indoor air quality testing in Building 27 are summarized in Table X.

The first floor of Building 27 was occupied by a commercial/light industrial tenant (Panametrics, Inc.) during each of the air sampling rounds conducted in the interior space. The space was used as a stockroom for products and packing materials. The first floor has a concrete floor slab on top of fill soil. There is no basement beneath Building 27. During the previous indoor air sampling event, Haley & Aldrich personnel observed a crack up to approximately 1-inch in width in the floor of Building 27, at the base of the wall next to the courtyard access tunnel. The former TCE "Distillery" was located on the south side of the Building 27 courtyard access tunnel. Refer to Figure 5 for the air sampling location in Building 27.

Analytical results for the 15-16 March 2002 sampling event indicate a concentration of 16 ug/m^3 of TCE in indoor air; vinyl chloride was not detected in indoor air in Building 27 (Table X). The DEP indoor air background value for TCE is 4.49 ug/m^3.

In February 2003, a second indoor air sampling event was conducted to confirm the March 2002 results and to test for additional VOCs and MADEP Air-Phase Petroleum Hydrocarbons (APH), because VPH and EPH carbon ranges were detected in soil and groundwater, at concentrations above Method 1 GW-2 Groundwater Standards, within 30 ft of Building 27 (Tables IV and VI, respectively). The indoor air analyses included selected site-related VOCs (1,1-dichloroethane, cis-1,2-DCE, TCE, and vinyl chloride) by EPA Method TO-15 and MADEP APH target analytes. PCE has not been detected in soil or groundwater at the Building 27 release area and therefore was not included in the indoor air analyte list.

Analytical results for the 4-5 February 2003 sampling event confirmed the results of the previous winter's sampling event. TCE was detected at the same concentration as it was detected in March 2002: 16 ug/m^3 (Table X). No VOCs other than TCE were detected during the February 2003 sampling event. A laboratory duplicate analyzed showed the same results. The results of APH analysis showed low concentrations of several APH target analytes (benzene, toluene, xylenes, and C9-C12 aliphatics) below DEP background concentrations (Table X). The indoor air concentration of C9-C12 aliphatics (70 ug/m^3, the average of a sample result of 66 ug/m^3 and a laboratory duplicate result of 74 ug/m^3) was below the MADEP background value of 90 ug/m^3. However, C9-C12 aliphatics were retained as a COC as a conservative measure, because no definitive indoor source was identified, and the VPH carbon range was detected in soil and groundwater within 30 ft of Building 27.

TCE and C9-C12 aliphatics were determined to be potentially site-related, based on a comparison with DEP background values, the detection and concentration of compounds in soil and groundwater, a survey of other indoor sources of VOCs, and outdoor air sampling results. The retention of C9-C12 aliphatics as a compound of concern is considered to be conservative, because the APH results are consistent with background, and an open barrel containing compressor/waste oil was observed in Building 27 during the February 2003 indoor air sampling event and could have contributed to concentrations of C9-C12 aliphatics in indoor air. See the Human

Health Risk Characterization (Appendix K) for a determination of COC within Building 27.

4.6 Outdoor Air

One outdoor air sample was collected over an 8-hour period during the night of 5-6 February 2004. This sample was collected to assess whether or not indoor air quality could be impacted by outdoor sources of contamination. The results of the analysis are presented in Table XI. Acetone (13 ug/m^3), vinyl acetate (2.1 ug/m^3) and 2-butanone (1.6 ug/m^3) were detected in the sample. These concentrations are below DEP Allowable Ambient Air Limits (AALs).

The source or sources of the contaminants in the ambient outdoor air sample are not known. These data indicate that the ambient air concentrations in the sample collected concurrently with project samples are lower than the MADEP Allowable Ambient Limits (AALs) for ambient air based on annual average concentrations. The AALs are health-based ambient air toxic guidelines that are used in permitting stationary sources.

The remaining project samples were collected indoors. Indoor air results are consistent with ambient air for acetone, 2-butanone (MEK), and vinyl acetate. No qualification of the data set is recommended as a result of the ambient air sample data.

4.7 Evidence for Historical Direct Discharge of Contaminants

Two tasks conducted during Phase II were conducted to investigate the potential for historical direct discharge of contamination from the former Waltham Industrial Labs or the prior Waltham Watch Company operations. The first task involved collection of shallow soil samples from an area directly south of Building 16 where a reported drainage swale may have directed plating wastes to a catch basin and/or the Charles River. The second task included a visual assessment and sampling of solid materials remaining in abandoned outfall pipes present in the fieldstone retaining wall.

A DEQE Inspection conducted on 3 and 9 April 1984 identified a "runoff channel" south of Building 16 and near a storm drain and the Charles River. The approximate location of the drainage swale is shown on Figure3, south of Building 16. During the history of the former Waltham Industrial Labs, there was potential for overland flow of wastewaters from former plating operations in Building 16, to surface water catchbasins near the facility, with possible direct discharge to the Charles River, if the catch basins were clogged or filled. An asphalt berm along the river now prevents overland flow of surface water directly into the river from the parking surfaces.

During the conduct of previous assessment activities, pipes were observed exiting the fieldstone retaining wall along the Charles River. A total of 19 pipe locations in the wall were identified from a boat. Some of the pipe locations had multiple pipes exiting the wall. Table V describes the pipes observed at each location. The current status of these pipes is not known, some are abandoned and some likely are tied to stormwater catchbasins at the facility that collect and discharge roof runoff and pavement runoff on the site.

To assess the potential for overland flow of plating wastes, a series of shallow soil samples were collected along the length of the presumed drainage swale to assess the shallow soil quality approaching the river. The locations of the shallow soil samples (designated TS-1 through TS-5) are shown on Figure 4. The samples were submitted for selected metals and total cyanide analysis. The results of the sampling and analysis are presented in the soil quality data set summarized in Table IV. The samples were designated "TS-1" (located furthest east) to "TS-5" located closest to the river.

In general, a decreasing trend from highest contaminant levels at the east end, to lowest contaminant levels near the river is seen. For example, cyanide ranges from 28 mg/kg at TS-1 to 8.2 mg/kg at TS-5. Ni, Zn, and Cd in general also show a similar trend. The presence of these disposal site related contaminants in the shallow soils at elevated concentrations near a source in the east, to lower concentrations near the river, generally supports the concept that plating wastes were discharged to the ground surface south of Building 16 and may have flowed overland towards the river.

The outfalls were revisited on 7 November 2003 to observe the outfalls and sample any contents remaining in the pipes for evidence of past direct discharge of wastes. The majority of the pipes viewed were underwater at the time and did not contain soil that could be sampled.

During the outfall sampling program, only one pipe was identified with material that could be sampled. This pipe is designated "P-4" and is shown as outfall location number 4 on Figure 3. This location is in the vicinity of Building 27. The sample was analyzed for VOCs, SVOCs, and metals. The results of the pipe sampling and analysis are presented in Table V. TCE (1.7 mg/kg) and xylenes (0.37 mg/kg) were detected in the pipe sample. In addition, arsenic (99 mg/kg), chromium (240 mg/kg), copper (790 mg/kg), lead (840 mg/kg), mercury 0.48 mg/kg, silver 4.1 mg/kg, and zinc (2,600 mg/kg) were detected at elevated concentrations.

The presence of site related VOCs, and metals in an abandoned pipe suggests that contaminants were discharged directly to the river during the history of the facility.

4.8 Sediment

During sediment sampling and analytical programs conducted as part of Phase II activities, sediment contamination has been detected in an area of the Charles River located adjacent to the disposal site. Elevated levels of site-related metals, cyanide, petroleum hydrocarbons and chlorinated VOCs detected in sediment samples collected to the west of the disposal site are believed to be related to known or suspected releases at the Former Waltham Industrial Labs, historical release of petroleum at the Former Gasoline USTs location, and at the release(s) of chlorinated solvents and petroleum hydrocarbons identified near Building 27 in river bottom sediment and soil samples. It is not known to what extent the site-related sediment contamination in the Charles River is due to historical disposal of electroplating wastes directly into the Charles River, via overland flow (e.g., at the drainage swale), or off-site migration of contaminated media from land into the river via outfalls, utilities, or other potential conduits. As discussed above, the results of Phase II assessment activities suggest overland flow of wastes to the river as well as historical discharge of contaminants from outfalls.

4.8.1 Summary of Stage I Environmental Screening

The results of the Stage I Environmental Screening, which is presented in Section 8.3 of this Phase II report, indicated that:

- A Significant Risk of Harm is not "readily apparent".

- A complete exposure pathway *does not exist* and is not anticipated to exist in the future for surface water. In addition, an effects-based screening indicates that current surface water quality data do not pose a significant risk to the environment.

- A complete exposure pathway potentially exists for sediment. The results of an effects-based screening indicate that a "potentially significant exposure" exists, because screening-level sediment quality benchmarks and local conditions were exceeded.

- A Stage II Environmental Risk Characterization is necessary for sediment exposure pathways.

Due to sediment conditions identified during the Stage I, a Stage II Environmental Risk Characterization was conducted for the site, the results of which are presented herein (Appendix D). A Stage II Environmental Risk Characterization is a quantitative, site-specific characterization of the risk of harm to ecological receptors.

4.8.2 Sediment Sampling Programs

Phase II sediment sampling and analyses were performed during four separate field mobilizations in October 2000, May 2002, January 2003, and September-October 2003. In addition, sediment samples were collected for chemical analyses as part of the ecological sampling program conducted in October 2003. Sediment sampling locations, and locations that were concurrent with surface water sampling locations in October 2000 and May 2002, are shown on Figure 3.

Approximately 79 sediment samples have been collected from 43 locations adjacent to, upstream, cross-stream and down stream of the site (Figure 3). Since June 2003, two field mobilizations have involved sediment sampling. Sediment samples were collected from locations SS-24 through SS-30, SS-32 through SS-36 and SS-39 during a barge mounted Geoprobe sampling event in September-October 2003. Samples ECO-1 through ECO-6 were collected during ecological sampling activities completed in October 2003. The majority of the sediment samples have been collected from the upper foot of sediments to assess risks to benthic organisms; however, some sediment and river bottom soil samples have been collected at greater depths for purposes of characterization and delineation. For purposes of the Stage II Environmental Risk Characterization included in this Phase II submittal (Appendix D), sediment samples collected in the upper 6 inches to one foot of the sediment are considered most representative of aquatic organism's potential exposures.

Sediment quality data are presented in Table XII. The sediment data are compared to the consensus-based Threshold Effect Concentration (TEC) and the Probable Effect Concentration (PEC) in Table XII. Where TEC values were not available, U.S. EPA Sediment Quality Benchmark (SQB) values were used. See the Environmental Risk Characterization (Appendix D) for a description of and reference for the TEC/SQB and PEC.

The depth from water surface to the sediment interface ranged from 4.4 ft at station ECO-6 to 11.5 ft at station SS-30 (Figures 3 and 8). A thin layer (less than 6 in. thick) of organic sediment was present at most sediment sampling locations. Hard glacial till or gravel was encountered below the organic sediments. See Appendix B (September and October 2003 sediment sampling events) and the Preliminary Phase II Report (October 2000 and May 2002 sediment and river bottom sampling events) for river bottom soil boring logs and sediment sampling records.

A sheen was observed on sediment samples collected at locations ECO-1 through ECO-4, SS-32, SS-33, and SS-36. A petroleum odor was noted for shallow sediment samples at locations ECO-2, SS-25, SS-32, and SS-33, and an unspecified odor was noted for shallow sediments at ECO-1 and ECO-3. A possible chemical odor was noted for deeper sediments or river bottom soils at locations SS-28 and SS-34. This information is recording on boring logs and sampling records.

Possible watch parts were observed in sediment samples collected at station ECO-1 from 0 to 0.5 ft below the sediment interface. This observation was possible due to the process of sorting and picking of organisms from the sample. The sorting and picking process requires that the sample is placed in shallow sorting trays, spread out and examined, often under magnification, to collect the organisms. This detailed examination may allow for the identification of these watch parts that would normally not be noticed due to the size of the parts and other debris within the sample.

The presence of watch parts may influence analytical results in samples from this area. Since sample preparation for metal analysis includes acid digestion of the sample (EPA Method 3051), the metal concentrations measured in analytical testing, when in the environment, may not be biologically available. See the Environmental Risk Characterization (Appendix D) for a detailed discussion.

The results of earlier sediment sampling programs are presented in detail in the Preliminary Phase II – Comprehensive Site Assessment, dated 2 June 2003. The historical results are summarized here with the results of the October 2003 sediment sampling program and ECO-sampling program.

4.8.3 Metals

Elevated levels of heavy metals (cadmium, copper, lead, mercury, nickel, silver, and zinc) were detected in sediment samples collected in the Charles River adjacent to and west of the WEC property during Phase II sampling events conducted in October 2000, May 2002, January 2003, and September-October 2003. These metals were detected in the area adjacent to the site as well as upstream, cross-stream, and downstream locations. In particular, cadmium, chromium, copper, lead, mercury, and zinc appear to be a wide-spread contaminant in the Charles River. There may be other sources of metals contamination upstream of the site that are not related to historic activities at the disposal site. Sediment sampling locations are shown on Figure 3. Metals concentrations in sediment are shown graphically and compared to ecological screening criteria on Figure 5 of the Stage II Environmental Risk Characterization included herein in Appendix D.

The elevated metals levels identified adjacent to the property generally increase adjacent to (west) and downstream (north) of the Former Waltham Industrial Lab portion of the disposal site. As there are no known or suspected sources of metals contamination at the Building 27 release or the former gasoline USTs disposal site, it is believed that the source of site-related metals contamination in sediments is the Former Waltham Industrial Labs (Buildings 16, 18/19). Areas of elevated metals levels in sediment generally correspond to known or suspected source areas, although exact sediment migration pathways and depositional areas are not known. The highest metals levels were generally detected in shallow (to a depth of 6 in.) sediment samples.

Sampling locations SS-5 and SS-12 are located approximately 60 ft and 95 ft, respectively, to the north and downstream of Building 18/19 (Figure 3). Metals-contaminated sediment appears to have migrated further downstream, as shown in the analytical results for sampling location SS-13. Location SS-13 is approximately 350 ft to the north and downstream of Building 18/19 (Figure 3). Elevated metals levels were also detected at location SS-4, which is located directly west of Building 18/19 and approximately 60 ft to the north and downstream of Building 16. Slightly lower but elevated metals levels found at location SS-7 could potentially be attributable to the drainage swale and possible overland flow location south of Building 16 (Figure 3). Contaminant levels detected at SS-3, which is located near a storm drain discharge pipe (identified as outfall #19 on Figure 3), are higher than concentrations in neighboring upstream (SS-2) and downstream (SS-7) samples. Upstream sediment samples collected to the south of location SS-3 are not believed to be influenced by the disposal site and are considered to represent local conditions in the Charles River.

Statistical and graphic evaluation of the eight inorganic constituents detected above the TEC (cadmium, chromium, copper, lead, mercury, nickel, silver, zinc) were undertaken to discern between site related constituents and concentrations from local conditions. These evaluations included graphical distribution analysis (box plots, stem and leaf plots, ordered concentration graphs) and statistical summaries to identify concentrations that may be greater than the local sediment conditions. The evaluations are presented in the Environmental Risk Characterization (Appendix D).

In general the statistical distribution of the sediment COC appear to be represented by a two-parameter log-normal distribution. The frequency of detection, minimum, mean (with standard deviation) and maximum of sediment quality data are summarized in Table IV of Appendix D. Based on the frequency of detection and comparison of the mean and maximums from the area adjacent to the site to other areas, the following seven inorganic constituents were identified as being potentially site related:

- Cadmium
- Chromium
- Copper
- Lead
- Nickel
- Silver
- Zinc

Based on maximum and mean sample concentrations, mercury is not identified as a potential site related COC. Mercury has been detected at higher concentrations (both maximum and arithmetic mean) upstream of the site.

Using natural breaks in the data sets for each of the seven remaining inorganic chemicals of potential concern (COPC), elevated concentrations that deviate from the general distribution can be identified (Attached Section 1 of Appendix D, Figures 1-1 through 1-7). Natural breaks are qualitatively identified concentrations that depart from the typically straight line of the order concentration lines. These breaks can be associated with the extended tail of a log-normal distributed data set. Often a natural break identifies data points that may represent a distinct data population.

Based on the evaluation of natural breaks in the sediment concentrations, the following concentrations are considered elevated above local conditions:

Inorganic	Natural Break
Cadmium	> 11 mg/kg
Chromium	> 160 mg/kg
Copper	> 560 mg/kg
Lead	> 960 mg/kg
Nickel	> 74 mg/kg
Silver	> 8.8 mg/kg
Zinc	> 660 mg/kg

These concentrations represent the high end tails of the sediment concentration distributions. Results greater than these values are identified on Figure 5 of Appendix D. Based on this figure, the elevated inorganic sediment sample concentrations generally are present adjacent to the site. This further supports that these concentrations do not represent Local Conditions and suggests that these breaks are reasonable estimates of elevated metals that may be associated with the disposal site. See the Environmental Risk Characterization (Appendix D) for further discussion.

4.8.4 Volatile Organic Compounds

During a previous study conducted by Roy F. Weston (Weston) in 1996, VOCs were not detected in sediment samples collected adjacent to the Former Waltham Industrial Labs disposal site. The Weston report entitled, "Final Site Inspection Prioritization Report for Waltham Industrial Lab, Waltham, Massachusetts CERCLIS No. MAD001014927, TDD No. 96-01-0002," dated 11 July 1997, was prepared for EPA as part of the Superfund Technical Assessment and Response Team work and was subsequently sent to DEP for the RTN 3-0585 file. The Weston data are summarized in our original Phase II – Comprehensive Site Assessment Scope of Work, dated 24 March 2000.

However, preliminary Phase II activities conducted in 2000 through 2002 confirmed the presence of elevated concentrations of VOCs in soil and groundwater, particularly in the vicinity of Building 27, and VOC analysis of sediment samples was added to a subsequent Supplemental Scope of Work, dated 20 December 2002. Sediment samples collected during the third Phase II sediment sampling event conducted in January 2003 were analyzed for VOCs. Sediment quality data for detected VOCs at the entire disposal site are summarized in Table XII. Figure 6 of the Stage II – Environmental Risk Characterization presented herein in D shows the distribution of VOCs in sediment opposite the disposal sites and compares the data to ecological screening criteria.

Based on Phase II results, the lateral extent of VOC contamination in sediments is well defined to the south (upstream), southwest and west. VOCs were not detected in surficial (0.0 to 0.5 ft) or deeper sediment samples collected to depths up to 2.0 ft from locations upstream (SS-20 and SS-21), adjacent to (SS-22), approximately 150 ft west of (SS-15), or downstream from (SS-16) the Former Waltham Industrial Labs portion of the disposal site. VOCs were also not detected in samples SS-27, SS-17, SS-29, SS-30, and ECO-6, which generally define the western, northwestern and northern extent of VOC contamination in sediment (Figure 6 of Appendix D).

Chlorinated VOCs were detected in sediment samples collected adjacent to (SS-23), approximately 140 ft west of (SS-18), and downstream from (SS-19) the Building 27 release area. Location SS-23, directly adjacent to the disposal site at the downstream end of the former TCE Distillery, showed the highest levels of chlorinated VOCs detected in sediment. Levels of cis-1,2-DCE and TCE were highest in the deeper of two samples collected at location SS-23: 73 mg/kg of cis-1,2-DCE and 26 mg/kg of TCE were detected in sample SS-23 S2 (1.0 ft to 2.0 ft), compared with 31 mg/kg of cis-1,2-DCE and 7.3 mg/kg of TCE in sample SS-23 S1 (0.0 to 0.5 ft). At location SS-18, 3.8 mg/kg of cis-1,2-DCE was detected from 1.0 ft to 2.0 ft below the sediment surface (VOCs were non-detect from 0 to 0.5 ft). At location SS-19, 0.98 mg/kg TCE was detected from a depth of 0.0 to 0.5 ft (VOCs were non-detect from 1 ft to 2 ft). Location SS-28 showed TCE in shallow sediment and deeper river bottom soils (18 mg/kg and 17 mg/kg), cis-1,2-DCE (46 mg/kg and 3.700 mg/kg), and low concentrations of 1,1-DCE (0.11 mg/kg). In the vicinity of the Former Waltham Industrial Labs, ECO-1 showed elevated chlorinated VOCs (TCE 8.600 mg/kg) and cis-1,2-DCE (3.300 mg/kg), 4-methy-2-pentanone (74 mg/kg), and elevated petroleum related VOCs. E

4.8.5 Petroleum Hydrocarbons

As stated in our 15 October 2001 and 16 April 2002 Supplemental Scope of Work documents, analyses for petroleum hydrocarbons and polycyclic aromatic hydrocarbons (PAHs) were not planned to be conducted for sediment samples during Phase II assessment activities at that time for the following reasons:

- Accumulations of non-aqueous phase liquid (NAPL) have not been detected in groundwater monitoring wells on the property.

- It is our interpretation that 310 CMR 40.0904(2)(c), points 1 and 2, refer to hazardous materials but not oil;

- Although 310 CMR 40.0904(2)(c), point 5, refers to oil and/or hazardous material, the Charles River has a high volume of boat traffic, including this section of the river, and a long history of discharge to surface water and sediments. Therefore, it is not possible to separate site-related contributions of contaminants from current release of contaminants associated with stormwater or use of the river or contamination resulting from past runoff of OHM from or with site soil into the river.

- EPH target analyte data for site groundwater indicate that there is unlikely to be migration of PAHs at concentrations of potential ecological significance, as addressed by 310 CMR 40.0904(2)(c), point 6. Only three PAHs were detected in site groundwater (fluoranthene, 2-methylnaphthalene, and pyrene), as of April 2002 (results when the June 2003 report was prepared); six PAHs have been detected in groundwater at frequencies ranging from 1 to 3 monitoring wells as of the June 2004 sampling event (Table VI).

- During a previous study conducted by Weston in 1996, PAH results ranged from low to non-detected levels. The Weston report is described in Section 4.8 above, and the data are summarized in our original Phase II – Comprehensive Site Assessment Scope of Work, dated 24 March 2000. In addition, levels of PAHs reported by Weston were lower than the results of sediment analyses conducted in other sections of the Charles River (Newton and Watertown) by EPA/Charles River Watershed Association, also presented in our 24 March 2000 Scope of Work document.

However, based on our review of preliminary Phase II groundwater quality data collected at the Building 27 release portion of the disposal site (Table VI), and due to the presence of the Former Gasoline USTs disposal site and the need to evaluate ecological risk for the disposal site at large, we re-evaluated our proposed sampling program, and analyses for volatile petroleum hydrocarbons (VPH) of sediment samples was added to the 20 December 2002 Supplemental Scope of Work. The results of sediment sampling for VPH are compiled in Table XII and Figure 7 of the Stage II – Environmental Risk Characterization presented herein in Appendix D graphically shows VPH results in sediment.

The extent of VPH contamination in sediment is generally limited to the sediments immediately downgradient of the Former Gasoline UST location (Figure 7 of Appendix D). The highest concentrations were detected at SS-33, from 0.0 to 1.0 ft. C5 to C8 aliphatic petroleum hydrocarbons were detected at 167 mg/kg, C9 to C10 aromatic hydrocarbons were detected at 45.5 mg/kg and C9 to C12 aliphatic hydrocarbons were detected at 98.7 mg/kg. The levels of VPH drop quickly with distance from the fieldstone retaining wall and source area. Sample SS-34, located approximately 50 ft from the fieldstone retaining wall showed 2.76 mg/kg C5-C8 aliphatic hydrocarbons and non-detect for the remaining two carbon ranges.

4.8.6 Cyanide

Sediment sampling locations are shown on Figure 3. The sediment quality data are summarized in Table XII. Additional sampling of sediments for cyanide contamination was conducted during the September-October 2003 Geoprobe river bottom sampling program. Samples were analyzed for total cyanide, and free cyanide if total cyanide is detected. A concentration of 0.88 mg/kg was detected in shallow sediment at location SS-25 located opposite Buildings 18/19. A concentration of 0.32 mg/kg was detected in shallow sediment at location SS-28, and a maximum concentration of 0.33 mg/kg was detected at SS-38. Both locations are off Building 27. Free cyanide was not detected in the four 2003 samples in which total cyanide was detected.

Elevated levels of cyanide (total and physiologically available) were detected in sediment samples collected in the Charles River adjacent to and west/northwest of the former Waltham Industrial Labs disposal site during preliminary Phase II sampling

Cram's Cove at location SW-10, followed by the concentration at location SW-6 downstream of the site and the Prospect Street Bridge, cyanide concentrations are considered to represent local conditions in this section of the Charles River.

4.10 Contamination in Fish - Charles River

Three fish sampling reaches were selected in the Charles River (Figure 7). The three reaches were located upstream of the site, downstream of the site, and adjacent to the site, respectively, to assess possible differences between potentially site-related metals contamination in fish caught adjacent to the site versus fish not likely to be exposed to site sediment contamination.

"Reach A" was located across from a boat launch approximately 1,000 ft upstream of the site and along the opposite (western) river bank. Reach A was located outside the limits of site-related impacts to sediment quality.

"Reach B" was located adjacent to the site and extended from approximately ECO-1 to ECO-3 along the eastern river bank.

"Reach C" was located approximately 500 ft downstream of the site and the Prospect Street Bridge along the eastern river bank. Reach C was located outside the limits of site-related impacts to sediment quality.

Each reach was approximately 100 meters in length and was sampled for 23 to 24 minutes. Fish were collected using a boat-based electrofishing equipment during the evening and early night.

According to Phil Downey, Ph.D., a senior fisheries biologist with Aquatec, the sampling reaches were adequate to capture conditions within each of the areas; although there may be some migration of fish between reaches, those fish caught in the reach closest to the site (Reach B) have likely spent most of their lifespan in areas near the site and have, therefore, been more exposed to site contamination than fish caught in Reach A and Reach C. The Moody Street Dam downstream of the site is equipped with a fish ladder but may prevent fish from moving further downstream. Thus, migratory eels may not migrate to the ocean when they mature (as they theoretically would), and fish with habitat in the general area surrounding the site are unlikely to move very far downstream.

Fish captured from each sampling reach were identified, weighed, measured and any deformities, erosions, lesions, or tumors (DELTs) noted. Whole fish specimens were submitted to the Woods Hole Group of Raynham, Massachusetts for metals analysis by EPA Method 6020A and mercury analysis by EPA Method 7471A. Based on feeding guild, select fish from each reach were either homogenized whole body or filleted in the laboratory prior to analysis for the purposes of evaluating human health exposures. All fillet tissue samples and select whole body fish samples were collected for use in the Human Health Risk Characterization and are discussed in Appendix K. Whole body or total fish samples are used in the Environmental Risk Characterization. Samples were intended to represent both water column and bottom feeder species.

Fish tissue sample data are summarized in Table III. Three reaches were sampled: Reach A, upstream of the site; Reach B adjacent to the site; and Reach C, downstream of the site. Reach A and Reach C were intended to represent reference locations. Each whole body

5. ENVIRONMENTAL FATE AND TRANSPORT OF OIL AND HAZARDOUS MATERIALS

5.1 General

This section provides information on the environmental fate and transport of oil and hazardous materials detected at the site. As discussed in the previous section, the general categories of OHM detected at the site consist of metals, VOCs, petroleum hydrocarbons, PAHs, and cyanide. The contamination at the disposal site is attributable to historical site uses as a mill complex, as an electroplating facility, and as a result of releases from abandoned USTs. Known and suspected sources of contamination identified on the site are shown on Figure 3.

5.2 Summary of Physiochemical Properties

Environmental fate and transport are governed by the physical and chemical properties of both the detected compounds and water as well as by site features, meteorological conditions, and hydrogeology, including properties of the soil and bedrock. Physical and chemical properties include the following: molecular weight; octanol-water partition coefficient (k_{ow}); organic-carbon partition coefficient (k_{oc}); water solubility; vapor pressure; and Henry's Law constant. Table XIV summarizes the physiochemical characteristics for contaminants detected at the site. An explanation of some of these properties is provided below.

The adsorption coefficient, commonly referred to as the organic-carbon partition coefficient (k_{oc}), is a measure of the tendency of a chemical to be adsorbed by soil and sediment. The k_{oc} is a ratio of the equilibrium concentration of a chemical in organic carbon to that in water. The octanol-water partition coefficient (k_{ow}) is a measure of hydrophobicity, or the tendency of a chemical to partition from water to organic material. The k_{ow} is a ratio of the equilibrium concentration of a chemical in octanol to that in water. In general, the higher these partition coefficients, the greater likelihood of sorption onto soil particles. High k_{oc} and high k_{ow} values indicate that a chemical prefers to absorb onto an organic medium (such as soil and sediment) and is not very mobile. Low k_{oc} and low k_{ow} values indicate that a chemical prefers water and therefore is relatively mobile.

Water solubility is the maximum mass of a chemical that can dissolve in a specific volume of water at a particular pressure and temperature. Compounds with high water solubility will likely remain dissolved in the water column. In contrast, low water solubility implies an elevated k_{ow}, indicating that the chemical prefers an organic medium. A chemical detected at concentrations exceeding 1 percent of its solubility limit is an indication that the chemical may be present in separate-phase (USEPA, 1992).

Vapor pressure is the maximum pressure that a chemical can exert on the atmosphere. A chemical's tendency to partition into the atmosphere is controlled by its vapor pressure. A chemical with a high vapor pressure has a corresponding high volatility.

Henry's Law constant, an air-water partition coefficient, is an indicator of the extent a chemical will partition to air versus water at equilibrium. It is a ratio of a chemical's concentration in air to its concentration in water at equilibrium. The higher the Henry's Law constant, the more likely the chemical is to volatilize than remain in water.

5.3 Fate and Transport Characteristics of Compounds of Concern

In general, the oil and hazardous materials detected at the site are classified as VOCs, metals, petroleum hydrocarbons, PAHs, and cyanide. The primary compounds of concern at the site, based on the concentrations detected and their toxicity to potential human and/or ecological receptors, are chlorinated VOCs and electroplating metals.

5.3.1 Metals

The fate and transport of metals detected at the site (including arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc) are controlled by a number of variables, including sorption processes in the soil column such as cation and anion exchange capacity, organic content, and pH and Eh of the groundwater environment. A metal's chemical form and speciation, which in turn depends on the source and soil and groundwater chemistry, influences fate and transport characteristics and mobility. In general, metals tend to absorb to soil particles and are persistent in the environment.

5.3.2 Volatile Organic Compounds

Based on the physiochemical properties of the VOCs detected at the site, the following are the characteristics of this general class of compounds:

- low to moderate molecular weights,
- low water solubilities,
- high vapor pressures,
- moderate Henry's Law constants,
- low water-carbon partition coefficients, and
- low to moderate octanol-water partition coefficients.

These physiochemical properties suggest that the VOC compounds generally do not adsorb strongly to soils, migrate slowly in groundwater, and volatilize readily into soil gas or the atmosphere; therefore these VOCs are not typically considered to be persistent in the environment. VOCs are also not readily bioaccumulated, as indicated by their relatively low octanol-water partition coefficients.

The primary VOCs of concern at the site are chlorinated VOCs. The chlorinated VOCs detected most frequently in site soil and groundwater are TCE and its breakdown products, cis-1,2-DCE and vinyl chloride. Chlorinated VOCs are dense, aliphatic, halogenated compounds that are slightly water soluble and volatile; therefore, primary mechanisms affecting fate and transport will be dissolution and volatilization. Because chlorinated solvents are volatile, they are more likely to be present in groundwater than in surface water. Volatilization of these compounds will occur quickly from surface water and unpaved surface soils. In deep soils or groundwater where volatilization is inhibited, chlorinated VOCs may persist and may undergo abiotic or anaerobic degradation to other chlorinated alkenes (such as cis-1,2-DCE, vinyl chloride, and ethene). Information regarding mobility of chlorinated solvents can be inferred from k_{ow} and k_{oc} values. Based on k_{oc} and log k_{ow} values, TCE exhibits moderate mobility and vinyl chloride exhibits high mobility (Table XIV).

Chlorinated compounds in pure form are generally denser than water and therefore would be expected to move vertically downward in groundwater systems when the compounds exist in a separate phase as dense non-aqueous phase liquids (DNAPLs). The potential for DNAPLS to be present in the subsurface at the disposal site was evaluated according to guidelines developed by the U.S. Environmental Protection Agency (USEPA, 1992). Specifically, the site data were compared to the following conditions:

- Condition 1: Are concentrations of DNAPL-related chemicals in groundwater present at concentrations greater than 1 percent of the compound solubility? (Note: Since TCE and associated daughter products are the principal compounds detected, it was assumed that co-solvency effects were negligible, such that pure solubility, rather than effective solubility, applies to this assessment.)
- Condition 2: Are concentrations of DNAPL-related chemicals in soils greater than 10,000 mg/kg?
- Condition 3: Are potential concentrations of DNAPL-related chemicals in groundwater (calculated from water/soil partitioning relationships and soil quality data) greater than pure phase solubility?
- Condition 4: Do concentrations of DNAPL-related chemicals in soil and groundwater increase with depth or appear in anomalous upgradient/cross-gradient locations?

Site data were evaluated with respect to the above conditions as follows:

Condition 1

Dissolved chlorinated VOCs have been detected in monitoring wells at concentrations exceeding 1 percent pure phase solubility; however, the dissolved chlorinated VOC concentrations are less than 1 percent of pure phase water solubility levels in most of the monitoring wells. For example, the published solubility value for TCE is 1,100,000 ug/l, which results in a 1 percent solubility value of 11,000 ug/l. The maximum concentration of TCE detected in a suspected source area (near the kerosene/TCE distillery building) ranges from 3,500 ug/l, which does not exceed the solubility criterion, to over 50,000 ug/l, which does exceed the criterion. At other locations, TCE concentrations were well below 1 percent of the solubility limit.

Based on these data, additional wells were installed near this source area to evaluate TCE concentrations at greater depths in the glacial till (HA-806T(MW) screened in glacial till near the bedrock surface) and bedrock (HA-702(MW)). Although TCE concentrations in these wells exceed the 1 percent criterion, deep wells in this area were gauged with an interface probe (lowered to the full depth of the wells), and there was no evidence of DNAPL. In addition, no evidence of immiscible solvents has been observed in water pumped from monitoring wells during sampling programs and pumping tests.

The published solubility value for cis-1,2-DCE is 3,500,000 ug/l, which results in a 1 percent solubility criterion of 35,000 ug/l. The maximum reported concentration of cis-1,2-DCE in site groundwater was 21,000 ug/l at monitoring well HA-102(MW) in December 2000. A cis-1,2-DCE result of 5,600 ug/l was reported for a field duplicate of this sample. The average of this groundwater sample and duplicate sample is 13,300 ug/l. Concentrations ranging from 10,000 to 12,000 ug/l were observed in well HA-503(MW). Neither the individual sample results nor the averages of the samples and duplicates exceed 1 percent of the solubility for cis-1,2-DCE (35,000 ug/l). Note that this compound is likely the result of degradation of TCE, rather than release of the compound as a pure solvent.

The published solubility value for vinyl chloride is 2,760,000 ug/l, which results in a 1 percent solubility criterion of 27,600 ug/l. The maximum reported concentration of vinyl chloride in site groundwater was 6,100 ug/l at monitoring well HA-102(MW) in December 2000. A vinyl chloride result of 1,500 ug/l was reported for a field duplicate of this sample. The average of this groundwater sample and duplicate is 3,800 ug/l, which is less than the average (4,350 ug/l) of a sample (5,000 ug/l) and duplicate (3,700 ug/l) collected at well HA-503(MW) in June 2004. Reported vinyl chloride results for site groundwater samples were well below the 1 percent solubility criterion for vinyl chloride (27,600 ug/l). Note that this compound is likely the result of degradation of TCE, rather than release of the compound as a pure solvent.

Condition 2

Levels of chlorinated VOCs detected in soil were much less than 10,000 mg/kg (equal to 1 percent of soil mass).

Levels of cis-1,2-DCE, TCE, and vinyl chloride were well below the calculated soil saturation limit (C_{sat}) for each compound. The soil saturation limit corresponds to the concentration in soil at which the absorptive limits of the soil particles, the solubility limits of the soil pore water, and the saturation of soil pore air have been reached. Levels in soil above C_{sat} may indicate the presence of NAPL (USEPA, 1996). The calculated C_{sat} values for the three compounds ranged from 1,200 mg/kg to 1,300 mg/kg.

The soil saturation limits for TCE, cis-1,2-DCE, and vinyl chloride were calculated according to the EPA Soil Screening Guidance: Technical Background Document, dated May 1996. The calculated C_{sat} for TCE is 1,300 mg/kg. The maximum TCE level detected in site soil was 190 mg/kg at test boring HA-501(MW) in fill soils from 1.0 ft to 4.5 ft bgs (sample HA-501 C1). The calculated C_{sat} for cis-1,2-DCE and vinyl chloride is 1,200 mg/kg. The maximum cis-1,2-DCE level detected in site soil was 36 mg/kg in sample HA-501 C1. The maximum vinyl chloride level detected in site soil was 12 mg/kg at test boring HA-7A in fluvial outwash soils from 10.0 ft to 12.0 ft bgs (sample HA-7A S5). Therefore, the levels of TCE, cis-1,2-DCE, and vinyl chloride in site soils have not exceeded the soil saturation limit, or the level above which free product may be anticipated to be present.

Condition 3

Because cis-1,2-DCE and vinyl chloride are considered to be the result of TCE degradation, rather than release of pure solvent, this condition was evaluated for TCE alone. Using solutions outlined in the EPA guidance document, the estimated pore-water concentrations derived from soil quality data and water/soil partitioning relationships is approximately 890 mg/l, which does not exceed the pure phase solubility of TCE (1,100 mg/l).

Condition 4

Concentrations of DNAPL-related compounds in soil generally decrease with increasing depth, with the exception of locations HA-7A and HA-9, both of which are in the Building 18/19 area, and borings HA-503 and HA-702 in the Building 27 area. For example, TCE concentrations decrease with depth in soil samples from borings HA-2 (Building 18/19), HA-4 (Building 16), HA-8, and HA-10 (both in Building 18/19). In the Building 27 area, chlorinated concentrations are generally lower in deeper samples in borings HA-501, HA-502, and HA-504.

The concentrations of TCE and other DNAPL-related compounds generally follow the hydraulic gradient, wherein the highest concentrations are detected downgradient of the source areas, or within those source areas, and lower concentrations are detected at cross-gradient locations. TCE and other chlorinated compounds were detected anomalously at one upgradient location (wells HA-808T(MW) and HA-808R(MW)). This may indicate upgradient migration of DNAPL that occurred at the time of the release. To further evaluate the potential presence of DNAPL, site monitoring wells, including wells HA-808T(MW) and HA-808R(MW), were gauged to their full depth with an interface probe, and no evidence of DNAPL was found. In addition, no evidence of immiscible solvents was observed in water that has been pumped from monitoring wells during sampling programs and pumping tests.

In summary, data collected to date at the site generally indicate the possible absence of DNAPL per the EPA criteria cited above. Given the site history, pure phase solvents may have been released at the source areas originally, however, and a few areas of the site indicated the potential presence of DNAPL based on the anomalies cited above. For these reasons, additional work, including installation of the HA-700-series and HA-800-series monitoring wells and gauging of the monitoring wells for DNAPL, was completed to further evaluate the potential presence of DNAPLs. Based on this additional work, combined with the results of previous investigations, DNAPLs do not currently appear to be present in the site subsurface.

5.3.3 Petroleum Hydrocarbons

Based on the physiochemical properties of the petroleum hydrocarbons detected at the site (principally EPH carbon range materials), the following are the characteristics of these compounds:

- moderate molecular weights,
- moderate water solubilities,

- high vapor pressures,
- high Henry's Law constants, and
- moderate to high water-carbon partition coefficients

These physiochemical properties suggest that the extractable petroleum hydrocarbons generally adsorb to soils, migrate in groundwater, and, in their lighter form, volatilize readily into soil gas or the atmosphere. Therefore, EPH constituents are more persistent than other, more volatile compounds, including VPH constituents.

5.3.4 Polycyclic Aromatic Hydrocarbons

Based on the physiochemical properties of the PAHs detected as EPH target analytes at the site, the following are the characteristics of these compounds:

- high molecular weights,
- low water solubilities,
- low vapor pressures,
- low Henry's Law constants,
- high water-carbon partition coefficients, and
- moderate to high octanol-water partition coefficients.

These physiochemical properties suggest that the PAH compounds are more persistent in the environment than other more volatile compounds: they generally adsorb strongly to soils, migrate slowly in groundwater, and do not volatilize readily into soil gas or the atmosphere. An exception to this is naphthalene, which has a relatively high vapor pressure, compared to the other PAH compounds; therefore, naphthalene is more readily volatilized into the soil gas and atmosphere. Based on the octanol-water partition coefficient, PAH compounds could potentially bioaccumulate. However, the bioavailability of PAHs in an aquatic environment is influenced by the association of these compounds with particulate material, and bioaccumulation may not occur because the PAHs are typically sorbed onto the particles within the water.

5.3.5 Cyanide

The fate and transport of cyanide detected at the site is controlled by a number of variables, including sorption processes in the soil column (such as cation/anion exchange capacity), organic content and pH and Eh of the groundwater environment. Analysis for physiologically available cyanide and free cyanide were conducted at the site in addition to total cyanide to assess potential risks to human and ecological receptors, respectively.

5.4 Existing and Potential Migration Pathways

Environmental media that represent potential migration pathways at the Disposal Site consist of soil, sediment, and groundwater. The potential for migration of oil and/or hazardous materials by media is outlined below:

5.4.1 Soil

There is no identified potential for migration of contaminants through the ground surface associated with the soil on the site. The soils at the site are covered with either unbroken asphalt pavement, or with concrete floor slabs of the existing buildings. There is currently no access to site soils, with the exception of a grass courtyard outside the area of impacted soils. Soils are not exposed, or accessible and are not currently acting as a source of dust. Therefore, the soils at the site do not currently present a potential human exposure to OHM at the site.

If site soils are exposed at the surface during or following future intrusive subsurface activities (e.g., construction or utility excavations), potential human receptors may be exposed to site soils. Surface runoff of site soils to surface water in the Charles River is not anticipated, because the pavement slopes to site storm drains at various locations around the buildings. An asphalt berm was constructed at the edge of pavement bordering the Charles River to prevent direct runoff to the Charles River.

There is a potential for soil contamination at the water table to leach to groundwater at the site. The source of the cadmium is the former uncontrolled discharges of process waters and wastewaters to the former trench in the basement of Building 16. The trench was decommissioned during the remediation of the facility in 1986; however, soils beneath the trench in contact with groundwater may be contributing to the cadmium identified in groundwater samples. Fate and transport of cadmium in groundwater is discussed further in the subsequent section 5.4.2.

5.4.2 Groundwater

Known potential point sources of groundwater contamination have been removed from the property, including heavily impacted soils at the groundwater table in former source areas beneath buildings (Building 16 trench and sump; Buildings 18 and 19 crawlspaces). Additionally, abandoned USTs on the property were removed as threats of contamination - two former gasoline USTs, two varsol USTs, and an ethyl acetate UST (Figure 3). No reportable releases were identified during the removal of the varsol USTs. Impacted soils were removed from the ethyl acetate UST grave resulting in a Response Action Outcome for RTN 3-19582. The former gasoline USTs location is a separate release currently in Phase II that is addressed with this submittal.

Based on groundwater quality information from the northern and southern extents of the site (HA-802 well cluster and well HA-603A(MW) to the north, and well HA-8(MW) to the south), significant groundwater contamination is not moving off site. Since the point sources of contamination have been removed, groundwater quality is anticipated to improve with time, and distance from the former sources, and through natural attenuation, biodegradation, dispersion, and dilution. Concentrations of site COCs have not been observed to increase substantially, with the possible exception of cadmium in groundwater near Building 16, where concentrations in groundwater samples collected from monitoring wells appear to have increased recently, to concentrations that exceed the UCL. The following subsections describe temporal trends in concentrations of cadmium, chlorinated VOCs, and petroleum hydrocarbons, respectively.

5.4.2.1 Cadmium

Residual levels of cadmium in soil and groundwater in the vicinity of Buildings 16, 18, and 19 are likely a continuing source of cadmium to groundwater through infiltration and leaching, and to river sediments, through groundwater migration and adsorption on the organic-rich sediments, based on the following data, observations, and interpretations:

- The highest concentrations of cadmium in soil samples and in Charles River sediments are concentrated around the suspected plating source areas associated with Building 16 and 18/19. Soil samples from locations B5 and HA-5, near the former trench and sump in Building 16, have the highest cadmium concentrations. Locations SS-4, SS-5, SS-7, SS-11, and SS-12 typically have the highest concentrations in sediment. Cadmium concentrations in sediment typically decline with distance upstream (to the south), off-shore (to the west) and downstream (to the north).

- If past direct discharges of plating wastes (associated with the trench at Building 16 or other utilities) to the river were the sole source of cadmium in river sediments, the concentrations should be consistently highest in the shallowest sediment samples. This is true for locations SS-5 and SS-12; however, cadmium concentrations in the deeper sampling intervals at these two locations are considerably higher than those detected upstream, downstream, and further offshore. In addition, at locations SS-4 and SS-7, the opposite is true – the deeper samples have higher concentrations than the shallow samples. In SS-11 the cadmium concentrations in the two sampling intervals are equal.

- Near Buildings 16, 18, and 19, the hydraulic gradient generally is west, toward the Charles River.

- Based on time-concentration plots for the period of 1985 to 2004, dissolved cadmium concentrations in groundwater are increasing in wells HA-1(MW) and B4-OW, which are located near the Building 16 trench, where electroplating wastes were discharged. Cadmium concentrations appear to be decreasing in well HA-19A(MW); however, this well is upgradient of HA-1(MW) and B4-OW, which show increasing trends. Based on the hydraulic gradient, groundwater concentrated in cadmium migrates toward the section of the river where the highest levels of cadmium have been detected in sediments.

- Based on the proximity of the source areas to the river, there is little opportunity for attenuation of metals, including cadmium, by reduction/oxidation (redox) processes or adsorption to soils upgradient of the river sediments; therefore, it is reasonable to assume that a complete migration pathway exists wherein cadmium migrates with the groundwater and adsorbs onto river sediments as the groundwater discharges to the river.

5.4.2.2 Chlorinated Volatile Organic Compounds

Regarding chlorinated VOC-contaminated groundwater near Building 16, it is unlikely that the presence of residual VOC contaminated soils remaining beneath Building 16 will result in increasing concentrations of VOCs in groundwater, surface water, or sediments, based on the following:

- Residual levels of chlorinated VOC contamination remain in Building 16, based on the chlorinated VOCs detected in shallow soils from HA-5 S2 [the former sump], HA-15, and HA-16.
- Groundwater monitoring conducted at well B4-OW since 1985, shows low but variable concentrations of VOCs. VOC concentrations occur within a range and have not increased consistently during that time.
- In well B4-OW, which is adjacent to the Building 16 and a former drainage swale, concentrations of cis-1,2-DCE and TCE vary over the period of 1998 to 2004, but cis-1,2-DCE concentrations (a daughter product of TCE) have increased in the three sampling rounds between January 2003 and June 2004, suggesting that some degradation is occurring.
- Similarly, vinyl chloride (also a daughter product of TCE) is variable, but concentrations have generally increased since January 2000, further suggesting that some degradation is occurring.

The monitoring well data, together with the fact that releases to the environment ceased long ago with the closure of the Waltham Industrial Labs operations, generally indicate the contaminant plume is in a "steady state." It is therefore unlikely that concentrations of VOCs in groundwater will increase substantially in the future.

Regarding chlorinated VOC-contaminated groundwater near Buildings 18 and 19, there does not appear to be an ongoing source of contamination, based on the following data and interpretations:

- Well B1-OW clearly shows the passage of a concentration peak between 2000 and 2004 for cis-1,2-DCE, TCE, and total chlorinated VOCs. This behavior is typical of fairly permeable aquifers, following source remediation/removal, where clean groundwater from upgradient sources replaces the residual contaminant plume. This may be related to the remediation of the Building 18/19 crawlspaces between 1984 and 1988.
- Remaining chlorinated concentrations in B1-OW are in the range of 100 to 500 ug/L. Concentrations are expected to continue to decline; therefore, in our opinion the chlorinated VOC-contaminated soils beneath Buildings 18 and 19 would not constitute an uncontrolled source (as defined in the MCP at 310 CMR 40.1003(5)(a)).

- The plume itself is not considered a source per 310 CMR 40.1003(5)(b)).

Downgradient of the former kerosene/trichloroethene (TCE) distillery (Building 27), concentrations of chlorinated VOCs have generally been consistent, if not decreasing, in downgradient monitoring wells (HA-102(MW), HA-103B(MW), HA-301(MW), HA-501(MW), HA-502(MW), HA-504(MW)). Concentrations have increased slightly in the most recent round in well HA-503(MW), and in monitoring wells HA-602A(MW), and HA-702(MW); these wells, however, have only been monitored three times and two times, respectively. Therefore, the monitoring well data, together with the fact that releases to the environmental ceased long ago with the closure of the factory's operations, generally indicate the contaminant plume is in a "steady state." It is therefore unlikely that groundwater concentrations will increase substantially in the future. It is our opinion that the groundwater data collected in the Phase II are therefore sufficient for evaluating risk under both current and future conditions.

5.4.2.3 Volatile Petroleum Hydrocarbons and Extractable Petroleum Hydrocarbons

Based on concentration trends for EPH, VPH, and gasoline constituents (benzene, ethylbenzene, toluene and xylenes (BTEX)) in wells near the former gasoline USTs, there is no evidence that residual petroleum contamination serves as an ongoing source of contamination, as defined in the MCP, based on the following observations:

- BTEX and VPH carbon range concentrations were relatively stable over the period of 2001 to 2004 in well MW102, which is cross-gradient to the former USTs.

- VPH carbon ranges and BTEX concentrations were stable or declining over the period of 2002 to 2004, in downgradient wells HA-302(MW), HA-303(MW), HA-402(MW), and HA-403(MW).

- Total VPH concentrations in groundwater samples declined approximately by a factor of 10 between 2002 and 2003 in wells HA-302(MW) and HA-402(MW).

- Total EPH concentrations in groundwater samples declined by over a factor of 10 (from over 10,000 ug/L in 2002 to less than 1,000 ug/L in 2003) in wells HA-303(MW) and HA-402(MW).

- Well B1-OW clearly shows the passage of a benzene concentration peak between 2002 and 2003; this behavior is characteristic of permeable aquifers following source remediation/removal, where clean groundwater from upgradient sources replaces the residual contaminant plume.

- The plume itself is not considered a source per 310 CMR 40.1003(5)(b)).

Oil and hazardous materials at the site would be expected to migrate in groundwater in a downgradient direction, towards the Charles River. As estimated in the Haley & Aldrich 5 December 1985 Report, the amount of dilution of groundwater underflow from the site by the waters of the Charles River is calculated to be 99.999 percent. As a result of this dilution, surface water quality as a result of the disposal site would be expected to be below the reporting detection limits of laboratory equipment. Based on the results of the surface water sampling and analysis conducted, groundwater at the disposal site is not acting as a source of surface water contamination (Table XIII).

5.4.3 Indoor Air

The potential for migration of volatile compounds from the subsurface to indoor air within Buildings 16, 18, 19, and 27 was evaluated. See the Method 3 Human Health Risk Characterization (Appendix K) for a discussion of the potential risks associated with the inhalation of volatilized constituents in site soil or groundwater.

5.4.3.1 Building 16

Results of the March 2000 indoor air sampling event in Building 16 indicate that the method detection limits (MDLs) achieved were protective of potential risk to human health, and that cyanide (both aerosol and vapor phases) and metals were not detected at concentrations above the MDLs (Table IX). The interior walls of Building 16 are currently covered with drywall sheathing. Therefore, a migration pathway from the interior building walls to indoor air does not appear to exist for cyanide and metals associated with reported residues on the brick walls from historical electroplating operations.

Because VOCs were detected in groundwater in well B4-OW prior to the conduct of preliminary Phase II field investigations, the March 2000, March 2002, February 2003, and February 2004 indoor air sampling and testing programs in Building 16 included sampling for VOCs. Indoor air sampling events included the loading dock, basement, and first floor of Building 16, but only the basement was included in all four rounds of sampling to focus on potential subsurface migration of VOCs into the building. Review of the indoor air quality data for Building 16 indicates that 17 VOCs were detected above laboratory reporting limits in one or more samples collected during the four sampling events from Winter 2000 to Winter 2004 (Table IX). Among these 17 VOCs, only 12 compounds have been detected in Building 16 indoor air after March 2000. Among these VOCs detected in indoor air in Building 16, only three VOCs, trans-1,2-dichloroethylene (trans-1,2-DCE), PCE, and TCE, were determined to be potentially site-related, based on a comparison with DEP background values, the detection and concentration of compounds in soil and groundwater, a survey of other indoor sources of VOCs inside Building 16, and outdoor air sampling results. See Section 4.5.1 for a detailed discussion of potential compounds of concern at Building 16. Therefore, soil-to-indoor air and groundwater-to-indoor air migration pathways are considered to exist at Building 16.

5.4.3.2 Buildings 18 and 19

Soil-to-indoor air and groundwater-to-indoor air migration pathways may potentially exist at Buildings 18 and 19 based on the VOC results for soil and groundwater samples collected near the buildings. A basement does not exist at Buildings 18 and 19. In September 2000, March 2002, February 2003, indoor air samples were collected on the first floor only. In February 2004, indoor air samples were collected on both the first and second floors to evaluate concentration patterns and potential indoor sources of VOCs.

Review of the indoor air quality data for Buildings 18/19 indicates that twenty VOCs were detected above laboratory reporting limits in one or more samples collected during the four sampling events from Winter 2000 to Winter 2004 (Table X).

During the February 2004 indoor air sampling event, the majority of VOCs detected in 2000 were either not detected, or were detected at higher concentrations on the second floor compared with the first floor, implying that indoor source contribution may be greater than potential subsurface contribution from soil or groundwater. Haley & Aldrich observed the storage of chemicals within Buildings 18/19 (see Section 4.5.2 for a detailed discussion).

TCE concentrations have decreased steadily over the four years of indoor air sampling on the first floor of Buildings 18/19, declining by an order of magnitude from 2000 to 2004 (Table VIII). In February 2004, TCE concentrations on both the first and second floors were below the DEP background value of 4.49 ug/m^3. After being detected at concentrations below background (11 ug/m^3) for three years, PCE was not detected in 2004 in the indoor air samples collected on the first or second floors of Buildings 18/19 (Table VIII). Among the twenty VOCs detected in indoor air in Buildings 18/19, only TCE was determined to be potentially site-related, based on a comparison with DEP background values, the detection and concentration of compounds in soil and groundwater, a survey of other indoor sources of VOCs, and outdoor air sampling results. See Section 4.5.2 for a detailed discussion of potential compounds of concern at Buildings 18 and 19. Therefore, soil-to-indoor air and groundwater-to-indoor air migration pathways are considered to exist at Buildings 18 and 19.

5.4.3.3 Buildings 27

In March 2002, an indoor air sampling program was undertaken in Building 27 to evaluate potential impacts to indoor air quality from the migration of TCE and vinyl chloride in subsurface soil and groundwater. Analytical results for the March 2002 sampling event indicate a concentration of 16 ug/m^3 of TCE in indoor air in the first floor if Building 27; vinyl chloride was not detected in indoor air in Building 27. There is no basement beneath Building 27. In February 2003, a second indoor air event was conducted to confirm the March 2002 results and to test for additional VOCs (1,1-dichloroethane and cis-1,2-DCE) and MADEP Air-Phase Petroleum Hydrocarbons (APH), because VPH and EPH carbon ranges were detected in soil and groundwater, at concentrations above Method 1 GW-2 Groundwater Standards, within 30 ft of Building 27. In February 2003, TCE was the only VOC detected, at the same concentration as it was detected in March 2002 (16 ug/m^3). Low concentrations of several APH target analytes (benzene, toluene, xylenes, and C9-C12 aliphatics) were detected below MADEP background concentrations (Table X).

TCE and C9-C12 aliphatics were determined to be potentially site-related, based on a comparison with DEP background values, the detection and concentration of compounds in soil and groundwater, a survey of other indoor sources of VOCs, and outdoor air sampling results. An open barrel containing compressor/waste oil was observed in Building 27 during the February 2003 indoor air sampling event and could have contributed to concentrations of C9-C12 aliphatics in indoor air. See Section 4.5.3 for a detailed discussion of potential compounds of concern at Building 27. Therefore, soil-to-indoor air and groundwater-to-indoor air migration pathways are considered to exist at Building 27.

5.4.3.4 Building 17

A subsurface soil/groundwater-to-indoor air migration pathway is not considered to exist for Building 17. Volatile constituents were not detected in groundwater within 30 ft of Building 17 at concentrations greater than RCGW-2 Reportable Concentrations. TCE was the only VOC detected in groundwater in June 2004, the most recent sampling event, at monitoring wells HA-3(MW), HA-12(MW), HA-19A(MW), and HA-703(MW) at concentrations ranging from 0.56 ug/l to 1.1 ug/l, two to three orders of magnitude below the RCGW-2 Reportable Concentration of 300 ug/l (Table VI). VPH and EPH were not detected in groundwater at HA-12(MW). EPH carbon range C11-C22 aromatics were detected at HA-3(MW) (1700 ug/l) at a concentration below the RCGW-2 Reportable Concentration (30,000 ug/l); C19-C36 aliphatics were detected at HA-3(MW) at concentrations below RCGW-2 and are considered to be immobile and not sufficiently volatile to be a concern for potential vapor migration to indoor air (MADEP, 2002). Locations HA-19A(MW) and HA-703(MW) were conducted to delineate other parameters and were not tested for VPH/EPH. In soils within 30 ft of Building 17, VOCs were not detected HA-12(MW) or HA-19W(MW). Low levels of VPH/EPH below RCS-1 Reportable Concentrations were limited to test boring HA-3(MW) (Table IV). Therefore, the potential soil-to-indoor air and groundwater-to-indoor air migration pathways are not considered to be complete for Building 17.

5.4.4 Outdoor Air

There is no known potential for migration of contamination from soil or groundwater to outdoor air. On-site soils are paved with asphalt, limiting migration of volatile contaminants to outdoor air. The pavement also serves to prevent migration of contaminated particulates through transport as dust.

An outdoor air sample was collected on 5-6 February 2004 to investigate possible contaminants in ambient outdoor air that may impact the result in interior spaces. The results of the analysis are presented in Table XI. Acetone (13 ug/m3), vinyl acetate (2.1 ug/m3) and 2-butanone (1.6 ug/m3) were detected in the sample. These concentrations are below DEP Allowable Ambient Air Limits (AALs).

The source or sources of the contaminants in the ambient outdoor air sample are not known. These data indicate that the ambient air concentrations in the sample collected concurrently with project samples are lower than the MADEP Allowable Ambient Limits (AALs) for ambient air based on annual average concentrations. The AALs are health-based ambient air toxic guidelines that are used in permitting stationary sources.

5.4.5 Sediment

Identified sediment and soil contamination in the bottom of the Charles River is attributable to possible direct discharge of metals plating process and waste waters potentially through historical outfalls or overland flow of materials into the Charles River. It is also possible that site soils from behind the fieldstone retaining wall at the edge of the Charles River may have eroded into the river, due to wave action or fluctuation of water levels in the Charles. The presence of VOCs in sediment and river bottom soils is attributable to migration of VOCs in groundwater from source areas within the disposal site.

There has been no substantial release of contaminants from sediments to surface water. Surface water analyses have not identified elevated levels of site-related contaminants. However, some migration of contaminants from sediments to surface water likely occurs. For example, sheens are periodically generated while disturbing the sediment during sampling opposite the disposal site.

5.4.6 Surface Water

The Charles River borders the property to the west. Site soils, which are entirely paved or covered by buildings, are not subject to transport via erosion into the Charles River, with the possible exception of erosion of soils from behind the fieldstone retaining wall at the edge of the Charles. The mechanism for this erosion may be wave action caused by motorized watercraft or fluctuation of water levels in the Charles River. Some local low points are present in the pavement of the riverside access drive adjacent to the fieldstone retaining wall. The low points indicated this erosion may be persistent (i.e., occurring since the roadway was last repaved). There is also a void observed below the 1986 concrete patch in the floor slab of the basement of Building 16, suggesting that soils may have been eroded with fluctuating river levels.

The asphalt pavement on the roadways and parking areas slopes to site storm drains at various locations around the buildings. An asphalt berm was constructed at the edge of pavement bordering the Charles River to prevent direct runoff to the Charles River. Occasional flooding of the Charles River onto the pavement between the buildings and river, and into the basement of Building 16, has occurred during heavy precipitation events.

As estimated in the Haley & Aldrich 5 December 1985 Report, the amount of dilution of groundwater underflow from the site by the waters of the Charles River is calculated to be 99.999 percent. As a result of this dilution, surface water quality as a result of the disposal site would be expected to be below the reporting detection limits of laboratory equipment. Based on the results of the surface water sampling and analysis conducted, groundwater at the disposal site is not acting as a source of surface water contamination (Table XIII).

5.4.7 Food Chain Pathways

There is a potential for food chain pathways to exist for compounds that are considered to bioaccumulate, such as cadmium and mercury. Site-related contamination in sediments in the Charles River may be ingested or absorbed by potential ecological receptors in the Charles River, including fish, benthic invertebrates, and other aquatic biota and vegetation inhabiting or utilizing sediments. Fish, birds, and mammals may ingest other potential ecological receptors and be exposed to bioaccumulating compounds in their food sources. Humans who ingest fish caught in the Charles River in the vicinity of the disposal site may potentially be exposed to bioaccumulating compounds in sediment.

6. CONCEPTUAL SITE MODEL AND EXPOSURE ASSESSMENT

6.1 General

The conceptual site model (CSM) is based on historical information regarding site uses and releases and field and analytical data obtained through field and subsurface exploration programs conducted at the disposal sites. The CSM is constantly evaluated for its validity in light of new site information. The CSM includes information on:

- Potential sources and release areas
- Potential fate and transport characteristics
- Potential affected media
- Potential migration pathways
- Potential receptors
- Potential exposure pathways

A stem-and-leaf diagram of the conceptual site model is presented in Figure 28.

6.2 Primary Sources and Primary Release Mechanisms

Multiple known or suspected sources of OHM contamination have been identified at the disposal site. A detailed discussion of these potential sources is provided in Section 4. Some of these sources were previously known or suspected based on historical information, while others were discovered during the conduct of Phase II assessment activities or other intrusive subsurface activities conducted at the subject property (e.g., gas utility line installation). Figure 3 identifies the locations of the known or suspected sources of contamination.

The Conceptual Site Model, presented as Figure 28, identifies the following potential Primary Sources and Primary Release Mechanisms:

- **Historical Electroplating Operations in Buildings 18 and 19.** Electroplating was conducted in these buildings as part of the historical watch factory operations and as part of the former Waltham Industrial Labs operations. **Primary Release Mechanism:** Electroplating wastes and sludges were released to or improperly disposed of in former unlined crawlspaces in the buildings when the former Waltham Industrial Labs occupied the facility from approximately 1959 to March 1984.

- **Historical Electroplating Operations in Building 16.** Electroplating was conducted in the first floor of Building 16 as part of the former Waltham Industrial Labs operations. **Primary Release Mechanism:** Discharge or release of electroplating wastes and process waters to unlined trench and sump in the basement of Building 16.

- **Former Drainage Swale south of Building 16.** A former drainage swale existed in the pavement to the south of Building 16. According to a DEQE (now MADEP) inspection trip summary sheet regarding 3 and 9 April 1984 DEQE inspections, while Waltham Industrial Labs conducted electroplating at this location, a pipe exited the south wall of Building 16. The pipe reportedly discharged electroplating wastes to the swale until 1975 when discharge was re-routed to the building sewer. Surface water and other materials entering the swale were directed toward a former catch basin approximately 15 to 20 ft from the Charles River. DEQE observed the swale or "runoff channel" during inspections conducted on 3 and 9 April 1984. DEQE indicated in the trip summary sheet that a "runoff channel at the base of the south wall" was observed. DEQE noted a storm drain at the end of the runoff channel under the fire escape that existed at that time on the south wall of Building 16. DEQE further stated that, "Some plating waste was discharged to the river. On April 9th (1984), the stormdrain grating was partially plugged with dirt and debris. If the drain were plugged, plating waste flowing in the trench next to the wall would flow across the 10' wide driveway into the river". **Primary Release Mechanism:** Potential discharge of plating wastes and process waters to drainage swale south of Building 16, until 1975. Potential for overland flow of materials to catchbasin or directly to the Charles River, if the catchbasin was full or obstructed.

- **Historical Use of Chlorinated Solvents in Buildings 16, 18, and 19.** Degreasing operations associated with the historical watch factory and the former Waltham Industrial Labs utilized degreasing operations that likely used Trichloroethylene (TCE). **Primary Release Mechanism:** Discharge of TCE-containing wastes to crawlspaces in Buildings 18 and 19 and the unlined trench in the basement of Building 16.

- **Historical Kerosene and TCE Distillery – Building 27.** Kerosene and TCE were stored and distilled in Building 27 historically, as shown on 1930 and 1944 plans of the former Waltham Watch Company. **Primary Release Mechanism:** Potential surficial spills or release of TCE to the ground surface. Potential release to and leakage from storm water drains or other historical utilities. The actual specific release mechanism is not known.

- **Former Abandoned Underground Storage Tanks.** Plans of the former Waltham Watch Company dated 1944 and/or 1930 illustrate two varsol tanks, an ethyl acetate tank (RTN 3-19582), and two gasoline tanks (RTN 3-19850), which have been removed from the site during May and August 2000. Associated historical gasoline "washes" and gasoline "still house" were also shown on the 1930 plan. **Primary Release Mechanism:** No reportable releases were identified during removal of the varsol tanks. Potential release mechanisms for the ethyl acetate UST and gasoline USTs include overfilling, surficial spilling of product during use of the storage tank facilities, failure of UST piping, and ultimately failure of the USTs.

6.3 Secondary Sources and Secondary Release Mechanisms

Figure 28 illustrates the identified potential Secondary Sources and Secondary Release Mechanisms.

- **Soil.** Soil is impacted by potential releases at the disposal site. **Secondary Release Mechanisms:** transport of fugitive dust released from site soils by wind; leaching/percolation/infiltration through contaminated soils to groundwater; volatilization of contaminants from site soils to air; bio-uptake of contamination from soils; and minor erosion of contaminated fill soils through the fieldstone retaining wall due to wave action and changing river levels.

- **Groundwater.** Groundwater is impacted by releases of oil and hazardous material at the site. **Secondary Release Mechanisms:** transport with the flow of groundwater through the subsurface, potentially to surface water and sediment; volatilization of contaminants from groundwater to air; bio-uptake of contaminated groundwater.

- **Surface Water.** Sampling and analysis conducted during Phase II has not identified site-related contamination in surface water. As estimated in the Haley & Aldrich 5 December 1985 Report, the amount of dilution of groundwater flowing from the site by the waters of the Charles River is calculated to be 99.999 percent. As a result of this dilution, surface water quality as a result of the disposal site would be expected to be below the reporting detection limits of laboratory equipment.

- **Sediment.** Sediment and river bottom soils in the Charles River are contaminated with metals, petroleum hydrocarbons, and volatile organic compounds that are attributable to the disposal site. **Secondary Release Mechanisms:** leaching to surface water; and bio-uptake by plants and animals.

6.4 Fate and Transport Characteristics

The Fate and Transport characteristics of compounds of concern at the disposal site are discussed in Section 5. The oil and hazardous materials detected at the site consist of the following classes of compounds:

- **Metals**
- **Volatile Organic Compounds**
- **Petroleum Hydrocarbons**
- **Polycyclic Aromatic Hydrocarbons**
- **Cyanide**

6.5 Potential Exposure Media

The potential Primary and Secondary Sources of contamination and the potential Primary and Secondary Release Mechanisms result in the following potentially affected media in the vicinity of the disposal site (Figure 28). Potential exposure media that contribute to complete exposure pathways based on existing site data are listed in bold-faced text.

- **Soil**
- **Dust**
- **Groundwater**
- Outdoor Air
- **Indoor Air**
- Surface Water
- **Sediment**

- Plants/Animals

The potential migration pathways from the disposal site (soil, groundwater, sediment, or direct discharge/release) to surface water are believed to be incomplete, based on existing site data. See Section 5 for a discussion of existing and potential migration pathways by media.

6.6 Potential Routes of Exposure

Review Figure 28 for the identified potential Exposure Routes, which include the following:

- **Ingestion/uptake** of soil, groundwater, sediment, and plants/animals as food.

- **Incidental ingestion** of soil.

- **Inhalation** of fugitive dust released from soil, or volatile contaminants migrating from soil or groundwater to indoor air.

- **Dermal contact** with soil or groundwater.

The potential exposure routes for surface water are believed to be incomplete, based on existing site data. See Section 5 for a discussion of existing and potential migration pathways by media.

6.7 Potential Exposure Pathways

An exposure pathway is the path that oil and hazardous materials take from the source to the receptor of concern. An exposure pathway consists of:

- Source
- Migration Pathway
- Exposure Point
- Exposure Route
- Receptor

In order for a complete exposure pathway to exist, all of these elements must exist. Potentially complete exposure pathways for potential human receptors and environmental receptors are shown in Figure 28. Potential human exposure pathways are discussed in the Human Health Risk Characterization (Appendix K) and are summarized below. Potential environmental exposure pathways are discussed in the Environmental Risk Characterization (Appendix K) and are summarized below.

6.8 Potential Human Receptors

Review Figure 28 for the identified potential Human Receptors. A Human Health Exposure Assessment is provided in the Human Health Risk Characterization (Appendix K). The potential exposure routes for which a complete exposure pathway may exist are listed below by receptor.

7. METHOD 3 RISK CHARACTERIZATION FOR HUMAN HEALTH, PULBIC WELFARE AND SAFETY

7.1 General

A Method 3 Risk Characterization for Human Health, Public Welfare and Safety was completed for the Former Waltham Industrial Labs disposal site and the Former Gasoline USTs Release disposal site, located on the WEC property at 221 to 257 Crescent Street in Waltham, Massachusetts (Figure 1). This Risk Characterization addresses risks related to two disposal sites regulated under the MCP, with three associated RTNs:

- Former Waltham Industrial Labs (RTN 3-0585)
- Former Gasoline USTs Release (RTN 3-19850)
- Building 27 Chlorinated Solvent Release (RTN 3-20575 linked to RTN 3-0585)

Hereinafter "site" refers collectively to the area within the limits of two disposal sites: the Former Waltham Industrial Labs disposal site (including the Building 27 Chlorinated Solvent Release, which is linked under the MCP) and the Former Gasoline USTs Release disposal site (Figure 2). The individual release areas may be referenced throughout the Risk Characterization as separate locations or exposure points for clarity. Since a receptor may be exposed to contamination at more than one disposal site on the WEC property, it is appropriate to assess cumulative risks associated with multiple releases for each receptor.

7.2 Hazard Identification

7.2.1 General

Hazard identification involves the identification of the compounds of concern (COC) among constituents detected at the site, the media in which these compounds were detected, and the hazards associated with potential exposures to these compounds. COC are those constituents that are potentially site-related and whose data are of sufficient quality for use in a quantitative risk assessment.

Haley & Aldrich reviewed the chemical analytical results for soil, groundwater, indoor air, outdoor air, surface water, sediment, and fish tissue, and developed a list of COC to evaluate potential risks under current and reasonably foreseeable site conditions.

Soil, groundwater, indoor air, and fish tissue quality data collected at the site are used to evaluate the distribution and extent of contamination at the site and compare site concentrations to background levels. The result of this evaluation is used to develop appropriate exposure scenarios and to select applicable data sets to be used as the basis for calculating EPC for each potentially complete exposure pathway. The distribution of constituents is discussed in detail in Section 4 herein and the Method 3 Risk Characterization.

7.2.2 Hot Spot Evaluation

In addition, the analytical data for site soil and groundwater were evaluated for the presence of "hot spots" considering the spatial patterns and concentrations of detected compounds. A "hot spot" is a discrete area where the concentrations of OHM are substantially higher than the concentrations in the surrounding area, as defined in the MCP at 310 CMR 40.0006. If a "hot spot" is determined to exist, the average concentration within the "hot spot," as well as the site-wide average concentration, is compared to the UCL in the Public Welfare Risk Characterization. If no "hot spot" is found to exist, only the site-wide average concentration for each compound is compared to the UCL. "Hot spots" are evaluated as separate exposure points in the Human Health Risk Characterization.

The site-wide soil quality data set was reviewed for the presence of "hot spots." Haley & Aldrich identified six potential "hot spots" in soil based on aluminum, cadmium, copper, iron, lead, and tin levels in soil in localized areas within the Former Waltham Industrial Labs portion of the site. Based on the evaluation presented in the Risk Characterization, there are no "hot spots" identified in site soil according to the definition in 310 CMR 40.0006.

The groundwater quality data set was reviewed for the presence of "hot spots." Haley & Aldrich identified two "hot spots" in groundwater based on: (a) cadmium concentrations in a localized area beneath and near Building 16 (former Waltham Industrial Labs), and (b) TCE concentrations beneath the riverfront access drive between Building 27 and the Charles River. Based on this evaluation, groundwater within the area represented by monitoring wells B4-OW, HA-1(MW), and HA-19A(MW) was determined to constitute a "hot spot" for cadmium, and groundwater within the area represented by monitoring wells HA-503(MW), HA-702(MW), and HA-806T(MW) constitutes a "hot spot" for TCE.

7.2.3 Compounds of Concern

According to DEP guidance, compounds that are detected at levels consistent with background levels may be excluded from evaluation in the Risk Characterization. By definition, compounds at concentrations equal to or below background are considered to be present at levels that pose No Significant Risk per 310 CMR 40.0902(3). Therefore, compounds detected above laboratory reporting limits and DEP background values were included as COC. Compounds detected in soil and groundwater with low frequency and at low concentrations were conservatively retained as COC in the Risk Characterization.

The following COC were identified in the Risk Characterization:

- COC in soil consist of VOCs, metals, petroleum hydrocarbons, cyanide, and PAHs, as EPH target analytes.
- COC in groundwater consist of VOCs, metals, petroleum hydrocarbons, cyanide, and PAHs, as EPH target analytes.
- COC in indoor air consist of VOCs and petroleum hydrocarbons.

No COC have been identified for surface water, sediment, or fish tissue. These media are not considered to contribute to a complete exposure pathway for human receptors. Surface water has not been impacted by releases at the site, based on the results of surface water sampling conducted during site assessment activities in the Charles River. Sediment is not considered to contribute to a complete exposure pathway, because the presence of a retaining wall along the river bank, typical depth to sediment (5 ft to 11 ft), and annual average water temperature make wading generally infeasible. Acute health risks have not been identified for accidental or infrequent direct contact exposures to sediment. Fish tissue samples show no statistically significant difference among levels of constituents detected in fish sampling reaches upstream of the site, along the site, and downstream of the site, and the constituent levels in fish tissue along the site are consistent with site-specific background levels.

Elevated concentrations of COC in site exposure media are considered to be related to the long history of use of the site, residual petroleum and solvent contamination associated with releases from former USTs, and the quality of the fill material used historically at the site. No current and on-going sources of subsurface contamination have been identified at the site.

7.3 Dose-Response Assessment

The dose-response assessment evaluates the potential noncarcinogenic (threshold) and carcinogenic (non-threshold) effects of the identified COC, and describes the effects observed in humans and/or laboratory animals following the inhalation, ingestion, or dermal application of a specific dose of a COC. The information from the dose-response assessment is used in conjunction with information from the exposure assessment to estimate the cumulative receptor risk posed by the COC.

Chronic, subchronic, and acute noncancer toxicity values were used in the Risk Characterization. Noncancer and cancer toxicity values were obtained from the EPA Integrated Risk Information System (IRIS), Health Effects Assessment Summary Tables (HEAST), EPA regional risk documents, DEP Guidance Documents, and ATSDR and NIOSH for acute values.

7.4 Exposure Assessment

Exposure assessment is an evaluation of the potential for a complete pathway to exist by which humans may be exposed to site contaminants. A potential for human health risk could exist if a complete pathway for human exposure to the identified COC exists. An exposure pathway is considered to be complete when the following five elements are documented:

1) a contaminant source;
2) a contaminant release and transport mechanism;
3) a point of exposure;
4) a route of exposure; and
5) an identified receptor population.

An exposure pathway may be deemed incomplete and eliminated from further evaluation if any one of the five elements has not existed in the past, does not exist in the present, nor is likely to exist in the future. The presence of a complete pathway does not automatically mean that exposure will result in negative health consequences.

7.4.1 Applicable Soil and Groundwater Categories

The identification of applicable soil and groundwater categories to be used in a Method 3 Risk Characterization is required by the MCP. The categories, which are based on receptor and potential exposure information, are considered to be general indicators of exposure potential in a Method 3 Risk Characterization.

7.4.1.1 Groundwater

Groundwater at the site is categorized as GW-2 and GW-3. Depth to groundwater at the site ranges from approximately 2 ft to 3 ft below ground surface in monitoring wells installed within the riverside access drive to approximately 9 ft to 10 ft below ground surface in upgradient monitoring well B6-OW (Figure 2). The level of the Charles River is artificially controlled by the Moody Street Dam located approximately 1 mile downstream (north) of the property. Groundwater flow across the property has been observed to be to the west, towards the Charles River. There is a potential to artificially reverse the local groundwater flow direction when the level of the Charles River is maintained at a high position relative to the property. Locally, groundwater beneath the site is anticipated to flow along varied preferential flow paths provided by the presence of numerous active and abandoned underground utilities and other subsurface obstructions.

Category GW-1 does not apply to the site. Groundwater at the site is not considered to be within a Current or Potential Drinking Water Source Area, as defined in 310 CMR 40.0006. The site is not proximal to a public drinking water supply source. The site is not located within 500 ft of a Zone II Area, an Interim Wellhead Protection Area, a Zone A Area, or a Potentially Productive Aquifer. No private water supply wells were identified within 500 ft of the site, and an Alternative Public Water Supply is available.

7.4.1.2 Soil

Residences are not located on site. However, residences and the Ezra Fitch School are located within 500 ft of the site. In the foreseeable future, a paved recreational walkway may be constructed in the current location of the riverfront access drive. Therefore, children and adults are assumed to be present, visit, or trespass on the site. Site soil is categorized based on high frequency/low intensity use of paved (potentially accessible) soil by children and adults. Soils on the disposal site are located entirely beneath the pavement or buildings, with the exception of a grass courtyard outside the area of impacted soils. Under current and reasonably foreseeable site activities and uses, site soils are categorized as S-2 and S-3. These categories are also considered to be protective of an adult who works on site such as an occupant in a commercial/light industrial building or a utility worker (adult receptor of low frequency/high intensity).

7.4.2 Exposure Scenarios

The current property use is in transition as the Owner explores redevelopment possibilities for the WEC Property. The Risk Characterization evaluates exposure scenarios that represent the current (pre-redevelopment) and reasonably foreseeable activities and uses within the disposal site limits, at the time of writing. For clarity, "current" is used to describe the existing site conditions prior to any redevelopment

In general, the averaging period, or period of time over which the total intake of contaminants is averaged, can be adjusted to calculate the ADD for an acute exposure (AP = instantaneous up to several days), subchronic exposure (AP = several days up to 7 years), chronic exposure (AP = 7 years to somewhat less than the lifetime), and for a lifetime exposure (AP = 70 years). In the latter case, the value calculated is known as the Lifetime Average Daily Dose (LADD). The ADD and LADD values are then compared with appropriate toxicity values discussed in the Dose-Response Assessment and a ratio calculated to provide numerical estimates of the non-carcinogenic and carcinogenic levels of risk, respectively, and the potential for adverse health effects to occur due to exposure to the COC.

7.5 Human Health Risk Characterization

To estimate noncancer risk, the Hazard Index for each compound is calculated by dividing the ADD computed in the exposure assessment by the appropriate RfD, RfC, or ATC given in the dose-response assessment. The Hazard Index for all exposure routes and media are summed for each exposure scenario. This sum is the Total Site Hazard Index for a particular receptor (Cumulative Receptor Noncancer Risk) and is compared with the MCP Cumulative Receptor Noncancer Risk Limit of one (1).

For carcinogens, risk is estimated as the incremental probability of an individual developing cancer over a lifetime (70 years) as a result of exposure to the potential carcinogen at the identified exposure points. The excess lifetime cancer risk (ELCR) for each compound is calculated by multiplying the lifetime average daily dose (LADD) estimated in the exposure assessment by the CSF given in the dose-response assessment. The ELCR for all exposure routes and media are summed for each exposure scenario. This sum is the Total Site Carcinogenic Risk for a particular receptor (Cumulative Receptor Cancer Risk) and is compared with the MCP Cumulative Receptor Cancer Risk Limit of 1×10^{-5} (1 in 100,000).

If no Cumulative Receptor Cancer Risk and no Cumulative Receptor Noncancer Risk is greater than the Cumulative Receptor Risk Limits specified at 310 CMR 40.0993(6), then a condition of "No Significant Risk" of harm to human health exists at the disposal site.

Cumulative receptor risks were calculated for the following receptors under current and/or reasonably foreseeable site activities and uses:

- Commercial Building Occupant in Building 16;
- Commercial Building Occupant in Buildings 18/19;
- Commercial Building Occupant in Building 27;
- Maintenance Worker;
- Utility Worker A;
- Utility Worker B;
- Utility Worker C;
- Construction Worker A;
- Construction Worker B; and
- Construction Worker C.

Risks to the Visitor/Security Personnel and Commercial Building Occupant in Hotel/Office Space were evaluated qualitatively based on quantitative risk estimates for a receptor with equal or greater exposure potential, under current and/or reasonably foreseeable site activities and uses:

A summary of Hazard Index and ELCR values for each applicable exposure route and estimated Total Site Noncancer and Cancer Risk values for each exposure scenario is provided in Table XV and described below.

7.5.1 Current Site Activities and Uses

For the Commercial Building Occupant in Building 16, who may be exposed to COC in indoor air, the Total Site Hazard Index is 4 x 10^{-3} and does not exceed the MCP Cumulative Noncancer Risk Limit of one (1). The Total Site Carcinogenic Risk is 4 x 10^{-6} and does not exceed the MCP Cumulative Cancer Risk Limit of 1 x 10^{-5} (1 in 100,000).

For the Commercial Building Occupant in Buildings 18/19, who may be exposed to COC in indoor air, the Total Site Hazard Index is 3 x 10^{-3} and does not exceed the MCP Cumulative Noncancer Risk Limit of one (1). The Total Site Carcinogenic Risk is 4 x 10^{-7} and does not exceed the MCP Cumulative Cancer Risk Limit of 1 x 10^{-5} (1 in 100,000).

For the Commercial Building Occupant in Building 27, who may be exposed to COC in indoor air, the Total Site Hazard Index is 1 x 10^{-1} and does not exceed the MCP Cumulative Noncancer Risk Limit of one (1). The Total Site Carcinogenic Risk is 3 x 10^{-6} and does not exceed the MCP Cumulative Cancer Risk Limit of 1 x 10^{-5} (1 in 100,000).

For the Maintenance Worker, who may be exposed to COC in indoor air on a part-time basis inside Buildings 16, 18, 19, and 27, the Total Site Hazard Index is 2 x 10^{-2} and does not exceed the MCP Cumulative Noncancer Risk Limit of one (1). The Total Site Carcinogenic Risk is 3 x 10^{-6} and does not exceed the MCP Cumulative Cancer Risk Limit of 1 x 10^{-5} (1 in 100,000).

For the Visitor, it is inferred that the Total Site Hazard Index does not exceed the MCP Cumulative Noncancer Risk Limit, and that the Total Site Carcinogenic Risk does not exceed the MCP Cumulative Cancer Risk Limit, based on risk estimates for the Maintenance Worker.

For the Utility Worker A, who may be involved in emergency utility maintenance activities and exposed to COC in site-wide soil and site-wide groundwater excluding "hot spots," the Total Site Hazard Index is 2 x 10^{-2} and does not exceed the MCP Cumulative Noncancer Risk Limit of one (1). The Total Site Carcinogenic Risk is 2 x 10^{-7} and does not exceed the MCP Cumulative Cancer Risk Limit of 1 x 10^{-5} (1 in 100,000).

For the Utility Worker B, who may be involved in emergency utility maintenance activities and exposed to COC in site-wide soil and groundwater within the cadmium "hot spot," the Total Site Hazard Index is 2 x 10^{-2} and does not exceed the MCP Cumulative Noncancer Risk Limit of one (1). The Total Site Carcinogenic Risk is 2 x 10^{-8} and does not exceed the MCP Cumulative Cancer Risk Limit of 1 x 10^{-5} (1 in 100,000).

For the Utility Worker C, who may be involved in emergency utility maintenance activities and exposed to COC in site-wide soil and groundwater within the TCE "hot spot," the Total Site Hazard Index is 2 x 10^{-2} and does not exceed the MCP Cumulative Noncancer Risk Limit of one (1). The Total Site Carcinogenic Risk is 2 x 10^{-8} and does not exceed the MCP Cumulative Cancer Risk Limit of 1 x 10^{-5} (1 in 100,000).

7.5.2 Reasonably Foreseeable Site Activities and Uses

For the Commercial Building Occupant in a Hotel or Office, it is inferred that the Total Site Hazard Index does not exceed the MCP Cumulative Noncancer Risk Limit, and that the Total Site Carcinogenic Risk does not exceed the MCP Cumulative Cancer Risk Limit, based on risk estimates for the current Commercial Building Occupant of Building 27.

For the Construction Worker A, who may be involved in planned (non-emergency) excavation activities and exposed to soil and groundwater within the former Waltham Industrial Labs area of the disposal site, the Total Site Hazard Index is six (6), which exceeds the MCP Cumulative Noncancer Risk Limit of one (1). The Total Site Carcinogenic Risk is 3 x 10^{-7} and does not exceed the MCP Cumulative Cancer Risk Limit of 1 x 10^{-5} (1 in 100,000). The noncancer risk is due to the incidental ingestion of elevated lead levels in natural soil in the Waltham Industrial Labs portion of the site (Table C-9 in Section 3 of this Appendix).

For the Construction Worker B, who may be involved in planned (non-emergency) excavation activities and exposed to soil and groundwater within the former Gasoline USTs disposal site, the Total Site Hazard Index is 4 x 10^{-1} and does not exceed the MCP Cumulative Noncancer Risk Limit of one (1). The Total Site Carcinogenic Risk is 2 x 10^{-7} and does not exceed the MCP Cumulative Cancer Risk Limit of 1 x 10^{-5} (1 in 100,000).

For the Construction Worker C, who may be involved in planned (non-emergency) excavation activities and exposed to soil and groundwater within the Building 27 area of the disposal site, the Total Site Hazard Index is one (1) and does not exceed the MCP Cumulative Noncancer Risk Limit of one (1). The Total Site Carcinogenic Risk is 2 x 10^{-6} and does not exceed the MCP Cumulative Cancer Risk Limit of 1 x 10^{-5} (1 in 100,000).

7.6 Public Welfare Risk Characterization

Risk of harm to public welfare was characterized in accordance with 310 CMR 40.0994. A condition of "No Significant Risk" of harm to public welfare has been achieved at the Former Gasoline USTs Release disposal site (RTN 3-19850) for current and reasonably foreseeable site activities and uses. A condition of "No Significant Risk" of harm to public welfare has not been achieved at the Former Waltham Industrial Labs disposal site (RTN 3-0585), due to the exceedence of the UCL for cadmium in a groundwater "hot spot," and the exceedence of the default UCL for iron in site-wide soil.

The cadmium "hot spot" in groundwater near Building 16 shall be the focus of remedial actions at the disposal site. Since it is anticipated that the proposed MCP revisions will be promulgated prior to the submittal of a RAO for the Former Waltham Industrial Labs disposal site, and therefore a UCL comparison will no longer be required for iron, the current exceedence of the chemical-specific default UCL for iron in site-wide soil will not drive remedial actions.

7.7 Safety Risk Characterization

Risk of harm to safety was characterized in accordance with 310 CMR 40.0960(3). A fence runs along much of the property boundary. The WEC property is patrolled by security personnel part time. Under current site activities and uses, no known rusted or corroded drums or containers, open pits, lagoons, or other dangerous structures exist at the site, nor is there any apparent threat of fire or explosion, including the presence of explosive vapors resulting from the release of COC. Disposal site soils are currently located beneath asphalt pavement or building footprints. Based on these observations, a condition of "No Significant Risk" of harm to safety exists at the site as defined in 310 CMR 40.0960(3).

7.8 Summary of Risk Characterization to Human Health, Pubic Welfare and Safety

In accordance with the requirements of 310 CMR 40.0000 Subpart I of the Massachusetts Contingency Plan, a Method 3 Characterization of Risk to Human Health, Public Welfare, and Safety has been completed for the Former Waltham Industrial Labs disposal site (RTN 3-0585) and the Former Gasoline USTs Release disposal site (RTN 3-19850), located on the Waltham Engineering Center property at 221 to 257 Crescent Street in Waltham, Massachusetts.

In summary, for current and reasonably foreseeable site activities and uses, a condition of "No Significant Risk" of harm to human health and safety exists at both disposal sites. A condition of "No Significant Risk" of harm to public welfare has been achieved at the Former Gasoline USTs Release disposal site (RTN 3-19850). A condition of "No Significant Risk" of harm to public welfare has not been achieved at the Former Waltham Industrial Labs disposal site (RTN 3-0585).

Results of the Human Health Risk Characterization indicate that, for current site activities and uses, a condition of "No Significant Risk" of harm to human health exists at the disposal sites for the commercial building occupant in existing office/light industrial space, maintenance worker, site visitor, security personnel, utility worker, trespasser, angler in the Charles River, and boater/rower in the Charles River. Therefore, a condition of "No Substantial Hazard to Human Health" also exists at the disposal sites.

Results of the Human Health Risk Characterization indicate that, for reasonably foreseeable site activities and uses, a condition of "No Significant Risk" of harm to human health exists at the disposal sites for the commercial building occupant in a future hotel/office space, future groundskeeper, and future walkway user.

Human health risks in excess of the MCP Cumulative Noncancer Risk Limit exist for the future construction worker who works on a 6-month excavation project at the Waltham Industrial Labs portion of the disposal site (RTN 3-0585). Risks to the construction worker are due to the incidental ingestion of elevated lead levels in natural soil located primarily beneath Buildings 18, 19, and 16. This exposure and therefore risk can be mitigated with the implementation of a Health and Safety Plan. An AUL is planned for the site to require a Health and Safety Plan, including air monitoring and use of Personal Protective Equipment if necessary, a Site Security Plan to prohibit trespassing during construction-related excavation activities, and a Soil Management Plan. Cumulative risk results were equal to or below the MCP Cumulative Risk Limits for the future construction worker at the Gasoline USTs Release disposal site (RTN 3-19850), and the future construction worker at the Building 27 Release portion of the disposal site (RTN 3-0585). Therefore, a condition of "No Significant Risk" of harm to human health exists at the disposal sites for the future construction worker.

An AUL is planned to require that site soils remain beneath asphalt pavement, buildings, or other covering, or beneath a geotextile marker barrier and an approximately 1 ft-thick clean soil cover. In addition, the AUL is planned to prohibit any residential activities and uses, including single/two-family residential use, other land uses considered to result in similar exposures (e.g., daycare, school, or playground), and multi-family residential use (e.g., apartment buildings or townhouses), and fruit and vegetable gardening. Therefore, unrestricted maximum potential site activities and uses are not evaluated in the Risk Characterization.

There is currently a fish advisory for this section of the Charles River due to contaminants unrelated to the site. The results of Phase II sampling efforts in the Charles River indicate the presence of metals in the tissue of fish at statistically similar levels upstream of, adjacent to, and downstream of the site. Therefore, the additional contribution of the site to human health risk due to the ingestion of fish tissue is likely minimal above existing background levels. It is neither feasible nor required to reduce constituent concentrations to pristine conditions below background.

Results of the Safety Risk Characterization indicate that a condition of “No Significant Risk” to safety exists at the site for current and future site activities and uses.

Results of the Public Welfare Risk Characterization indicate that a condition of “No Significant Risk” of harm to public welfare has been achieved at the Former Gasoline USTs Release disposal site (RTN 3-19850) for current and future site activities and uses. A condition of “No Significant Risk” to public welfare has not been achieved at the Former Waltham Industrial Labs disposal site (RTN 3-0585) for current and future site activities and uses. Based on the results of the Phase II Comprehensive Site Assessment, there is likely to be an on-going source of groundwater contamination at the site for cadmium at Building 16 (former drainage trench and sump). Dissolved cadmium is present in groundwater at this location (cadmium “hot spot”) in excess of the UCL.

Remedial actions are planned to mitigate residual cadmium contamination contributing to groundwater concentrations in excess of the UCL. The feasibility of remedial alternatives is presented in the Phase III report, which is being submitted to DEP concurrently with the Phase II report to which this Risk Characterization is appended. Since it is anticipated that the proposed MCP revisions will be promulgated prior to the submittal of a RAO for the Former Waltham Industrial Labs disposal site, and therefore a UCL comparison will no longer be required for iron, the current exceedence of the chemical-specific default UCL for iron in site-wide soil will not drive remedial actions.

As a result of planned remedial actions in the Building 16 area, the contaminated media at this portion of the site are expected to improve in the future. In other areas of the site, natural attenuation will likely improve groundwater quality over time. Therefore, current data sets used in this Risk Characterization are likely to overestimate future risks following completion of remedial actions and given natural attenuation over time. The results of the Risk Characterization will be revisited upon completion of remedial actions and revised or updated if necessary.

8. METHOD 3 ENVIRONMENTAL RISK CHARACTERIZATION

8.1 Introduction

This section summarizes the results and conclusions of a Method 3 Environmental Risk Characterization that was completed for the Former Waltham Industrial Labs disposal site and the Former Gasoline USTs Release disposal site, located on the Waltham Engineering Center (WEC) property at 221 to 257 Crescent Street in Waltham, Massachusetts (Figure 1). The Stage II Environmental Risk Characterization was conducted in accordance with 310 CMR 40.0995 and is included as Appendix D of this Phase II – Comprehensive Site Assessment. This Environmental Risk Characterization addresses risks related to three disposal sites regulated under the Massachusetts Contingency Plan (MCP), with three associated Release Tracking Numbers (RTNs). Release tracking numbers RTN 3-0585 and RTN 3-20575 were linked under the MCP. The following RTNs are addressed with this Phase II and risk submittal.

- Former Waltham Industrial Labs (RTN 3-0585)
- Former Gasoline USTs Release (RTN 3-19850)
- Building 27 Chlorinated Solvent Release (RTN 3-20575 linked to RTN 3-0585)

Due to the potential for oil and/or hazardous material (OHM) from different releases, both from the site and from other off-site sources, to commingle and influence the environmental assessment of the Charles River, the three release areas are being addressed together as part of this Environmental Risk Characterization.

8.2 Approach

Under the MCP, Environmental Risk Characterizations are conducted as a two-tiered process. The Stage I Environmental Screening determines the exposure pathways that require further assessment. The objective of the Stage I Environmental Screening is to identify and document conditions which do not warrant a Stage II Environmental Risk Characterization; these conditions include (a) the absence of a potentially significant exposure pathway (and therefore a condition of no significant risk of harm to site biota and habitats clearly exists), or (b) the presence of readily apparent environmental harm (and therefore a condition of no significant risk to site biota and habitats clearly does not exist). A Stage II Environmental Risk Characterization is required for exposure pathways for which the risk of harm cannot be ruled out during Stage I.

Since the disposal sites are almost entirely paved and no undeveloped open space exists on the disposal sites, the media of potential concern in the Environmental Screening and Risk Characterization are sediment and surface water. Therefore, the Stage I Screening and Stage II Environmental Risk Characterization were conducted for the aquatic habitat of the Charles River.

8.3 Stage I Environmental Screening

The following section presents the Stage I Environmental Screening conducted for the disposal sites in accordance with 310 CMR 40.0995(3). First, available evidence was evaluated to determine whether there is current or potential future exposure of Environmental Receptors to contamination at or from the disposal site. Thereafter, disposal site conditions were evaluated to determine whether significant environmental harm is "readily apparent" as defined in the MCP at 310 CMR 40.0995(3)(b)(1).. Finally, each current and potential future exposure pathway identified was evaluated to determine whether it could result in potentially significant exposures. The Stage I Screening was conducted in Summer 2003 and therefore only considered data collected up to that date. Based on these results and the need for additional site delineation, subsequent sediment sampling was conducted in September and October 2003.

A. Available evidence was evaluated to determine whether there is current or potential future exposure of Environmental Receptors to contamination at or from the disposal site. The evaluated evidence includes records from site reconnaissance and field programs, analytical sediment and surface water quality data, and the potential for the transport of oil and/or hazardous materials from site groundwater to surface water or sediments. The result of this evaluation indicates that there is current and potential future exposure of Environmental Receptors to site-related contamination in sediments but *not* in surface water, as supported by the following evidence:

- The analytical sediment quality data indicate elevated concentrations of compounds of potential concern in sediments adjacent to and downstream of the disposal site.

- The analytical groundwater quality data and the presence of potential migration pathways indicate the potential for the transport of OHM in the groundwater to sediments.

- The analytical surface water quality data indicate non-detected to low concentrations of compounds of potential concern in surface water adjacent to and downstream of the disposal site, despite an analytical groundwater quality data set that indicates the potential for the transport of OHM in the groundwater to surface water. Based on historical information, there was potential overland flow to surface water catch basins and possibly directly to the Charles River. Based on results of surface water sampling in the Charles River at points upstream from the site, downstream from the site, and along the riverfront area adjacent to the site, it appears that surface water has not been significantly impacted by releases at the disposal site. Although a complete exposure pathway is not considered to exist for surface water, an effects-based screening was conducted as a conservative measure.

- Current or past visible evidence that OHM at or from the disposal site have come to be located in surface water does not exist. The data collected to date do not indicate the presence of non-aqueous phase liquids. No evidence of sheens related to the disposal site has been observed on the water surface in the Charles River.

- A slight sheen has appeared at the water surface upon disturbance of the sediments during sediment sampling programs conducted by Haley & Aldrich. It is not clear whether the sheen is due to the disturbance of organic matter or to contamination in the sediments. It is not uncommon for a visible sheen to appear upon disturbance of organic matter (up to 22 percent organic carbon was detected in sediments). However, a chemical odor, product sheen, and high PID readings were recorded during sediment sampling next to the retaining wall adjacent to Buildings 18/19 and 27. The sheen was not reported to persist on the water surface.

- Records or visible evidence of fish kills or distressed vegetation or wildlife were not observed on or along the Charles River at or near the disposal sites.

The Preliminary Conceptual Site Model presented in our Preliminary Phase II report dated 2 June 2003 included potential ecological receptors. Potential primary ecological receptors include benthic macroinvertebrates, plants, and fish. Potential secondary ecological receptors include fish and pisciverous birds and mammals. A preliminary exposure assessment identifies two complete ecological exposure pathways that may pose an unacceptable risk to ecological receptors:

- Exposure of aquatic organisms to sediment-associated constituents.

- Exposure of fish, avian species, and terrestrial mammals to constituents bioaccumulating in aquatic based prey.

B. Disposal site conditions were evaluated to determine whether significant environmental harm is "readily apparent" as defined in the MCP at 310 CMR 40.0995(3)(b)(1). The result of this evaluation indicates that "readily apparent harm" does not exist in any environmental medium due to contamination at or from the disposal site, as supported by the following evidence:

- Visible evidence of stressed biota attributable to the release at the disposal site (e.g., fish kills, abiotic conditions) was not observed.

- OHM attributable to the disposal site were not detected in surface water at concentrations that exceed Massachusetts Surface Water Standards promulgated in 314 CMR 4.00.

- Visible presence of oil, tar, or other non-aqueous phase hazardous material over an area equal to or greater than 1,000 square feet in sediment within one foot of the sediment surface was not observed.

C. Each current and potential future exposure pathway identified above (item A) was evaluated to determine whether it could result in potentially significant exposures. According to the MCP, any potential exposure identified above in item A must be considered a "potentially significant exposure" unless it can be ruled out as such using:

1. U.S.EPA Ambient Water Quality Criteria (AWQC) and Massachusetts Surface Water Standards promulgated in 314 CMR 4.00;
2. MCP Freshwater Sediment Screening Benchmarks (MADEP Technical Update, May 2002); or
3. site size, location, and/or landscape characteristics specifically adopted by MADEP as screening criteria.

The result of this evaluation indicates that a "potentially significant exposure" exists for sediment. However, "potentially significant exposure" does not exist for surface water, as supported by the following evidence:

- Surface water quality data (Table XIII) do not exceed the AWQC with one exception:

  Total cyanide was detected in one surface water sample (SW-6) collected downstream of the site and the Prospect Street Bridge at a concentration of 0.007 mg/L, which exceeds the chronic AWQC for free cyanide (0.0052 mg/L) but not the acute AWQC for free cyanide (0.022 mg/L). Since total cyanide includes other cyanide components in addition to free cyanide, it is likely that the concentration of free cyanide in sample SW-6 was less than 0.007 mg/L. The source of the cyanide detected in sample SW-6 is not known. Several large outfalls, including the Masters Brook Drain, discharge to the Charles River in the vicinity of the Prospect Street Bridge, suggesting that an alternative source of cyanide may exist. Total cyanide was detected at a concentration of 0.010 mg/L in a surface water sample (SW-10) collected 950 feet upstream from the disposal site at Cram's Cove, indicating that upstream sources of cyanide exist. Total cyanide was not detected in surface water samples collected adjacent to the disposal site (detection limit = 0.005 mg/L). Therefore, a "potentially significant exposure" *does not exist* for surface water.

- Sediment quality data (Table XII) exceed MCP Freshwater Sediment Screening Benchmarks, the consensus-based threshold effect concentrations (TECs) from MacDonald et al (2000), for a number of compounds of potential concern. Sediment quality data collected from upstream locations considered to represent "local conditions"[1] also exceed the MCP Freshwater Sediment Screening Benchmarks. The 95 percent confidence interval of the mean for upstream samples was used to represent local conditions, according to U.S.EPA's Guidance Manual to Support the Assessment of Contaminated Sediments in Freshwater Ecosystems, December 2002 (MADEP does not provide detailed guidance on the averaging to be used to represent local conditions). However, results for sediment samples that appear to be impacted by contamination from the disposal site exceed levels representative of local conditions. Therefore, a "potentially significant exposure" exists for sediment pathways.

- The Charles River is not a pristine water body and the habitat quality has been degraded over a long history of industrial and other anthropogenic uses. However, the contaminant concentrations in sediments adjacent to and downstream of the disposal site show site-related contaminants at levels in excess of "local conditions" that may pose an additional risk to potential environmental receptors.

The results of the Stage I Environmental Screening indicate that:

- Significant risk of harm is not "readily apparent".

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[1] From the MADEP Guidance for Disposal Site Risk Characterization (April 22, 1996 update): "Local conditions are levels of OHM present consistently and uniformly throughout the surface water body, or throughout a larger section of a river that contains the area potentially affected by contamination at or from the site ... Hot spots and localized contamination are not considered local conditions." Local conditions may include sources that do not conform to the MCP definition of background, such as other disposal sites, permitted discharges, and many non-point sources.

- A complete exposure pathway does not exist and is not anticipated to exist in the future for surface water. In addition, an effects-based screening indicates that current surface water quality data do not pose a significant risk to the environment.

- A complete exposure pathway potentially exists for sediment. The results of an effects-based screening indicate that a "potentially significant exposure" exists, because screening-level sediment quality benchmarks and local conditions were exceeded.

- A Stage II Environmental Risk Characterization is necessary for sediment exposure pathways.

Therefore, a condition of no significant risk of harm to site biota and habitats cannot be concluded based on the results of the Stage I Environmental Screening. Under the MCP, a Stage II Environmental Risk Characterization is required for exposure pathways for which the risk of harm cannot be ruled out during Stage I. The Stage II Environmental Risk Characterization is presented in Appendix D of this Phase II report and is summarized in the remainder of this section.

8.4 Stage II Environmental Risk Characterization

To characterize potential risks due to site-related sediment contamination and focus our evaluation of the feasibility of remedial alternatives, Haley & Aldrich conducted a Stage II Environmental Risk Characterization for the disposal sites. This section summarizes the Stage II Environmental Risk Characterization conducted for the disposal sites in accordance with 310 CMR 40.0995(4) and MADEP Risk Guidance.

8.4.1 Ecological Conceptual Exposure Model

To evaluate the potential environmental exposures an environmental conceptual exposure model was developed. The development of the conceptual exposure model is part of the problem formulation step of ecological risk assessments. Problem formulation includes selection of the specific effects on organisms (assessment endpoints) that will be quantified in the risk characterization and identification of the measurement endpoints that will be used to represent those effects.

Three areas at the site have been identified that may have releases that could result in current or future exposure of environmental receptors to contaminants. These areas include releases of electroplating metals to soil and groundwater, chlorinated compounds in groundwater, and former underground storage tank (UST) releases. In each case, the potential or documented releases have the potential or appear to have introduced contaminates to the sediments of the Charles River.

Other influences to the Charles River are present in this urbanized area. These include outfalls from stormwater collection systems, non-point urban sources and other industrial areas upstream of the site.

Under current conditions and Haley & Aldrich's understanding of potential foreseeable site development, the site will be maintained for commercial/light industrial or mixed commercial-office space use (e.g., hotel, office, retail space).

Soils on site are either beneath buildings, paved, or have maintained landscaping, thus limiting the potential for wildlife exposure from either direct exposure to or transport of contaminated materials from wind or surface water run-off. Future development of the property as naturalized area is unlikely.

Based on the current and foreseeable site use, potential for significant exposure to site-related contaminants in soil, either directly or indirectly, is considered unlikely for environmental receptors. Contaminated soils are at depth or under cover, thus significantly limiting direct contact or migration of contaminates in air or from erosion from surface water flow.

There is a potential for the discharge of contaminated groundwater into the Charles River. This may result in accumulation of contaminants in the sediments or introduction of contaminants to the surface water. Select sediment samples collected as part of this investigation appear to be contaminated, and site groundwater may potentially discharge to the surface water. However, results from the surface water sampling conducted as part of Phase II activities indicate that surface water in the Charles River has not been significantly impacted by releases at the site, and surface water does not contribute to a complete exposure pathway.

There is a potential for the exposure of aquatic organisms to contaminants that have accumulated in sediments. Benthic organisms may be exposed to contaminated sediments through direct contact associated with living within or on the sediments (benthic macroinvertebrates) or from foraging in the area (bottom feeding fish). Other aquatic organisms may be exposed indirectly to the contaminants by consumption of benthic organisms that may have bioaccumulated contaminants from the sediment.

Piscivorous wildlife may be exposed to sediment contaminants from the consumption of aquatic organisms that have bioaccumulated contaminants. Direct contact of wildlife to the sediments during foraging is considered unlikely due to the river bank morphology and water depth. The river bank adjacent to the site does not have wading areas and is several feet deep which would limit, if not completely preclude, foraging from potential receptors such as raccoons and blue herons. As such, direct contact of wildlife to the sediments during foraging is considered unlikely.

Due to the potential of site related contaminants to have accumulated in sediments adjacent to the site, and due to the potential for continued release of chlorinated compounds and BTEX to the adjacent sediments, an evaluation of the potential exposures of environmental receptors is warranted. Sediment represents the sole media for which potential environmental exposure to site-related contamination has been identified.

Environmental receptors that may be potentially exposed directly or indirectly to contaminants in sediment are summarized in the table below:

Environmental Receptor	Exposure Mechanism	Potential Site-Related Stressor(s)	Potentially Complete
Aquatic Organisms			
Benthic Invertebrates	Direct Contact	VOCs, EPH/VPH, Metals in Sediment/Pore Water	Yes
Fish	Direct Contact	VOCs, EPH/VPH, Metals in Sediment/Pore Water	Yes
Fish	Consumption of Benthic Invertebrates	Metals in Prey Tissue	Yes
Terrestrial Organisms			
Avian/Wildlife	Direct Contact	VOCs, Metals in Sediment/Pore Water	No[1]
Avian/Wildlife	Consumption of aquatic prey.	Metals in Prey Tissue	Yes

1. The measured depth from the water surface to the sediment interface ranged from 4.4 ft to 11.5 ft. It is considered unlikely that significant exposure to the sediments would occur.

8.4.2 Methods

To measure of risk to benthic communities, the macroinvertebrate community adjacent to the site was compared to other areas of the Charles River not impacted by the site. Consistent with MADEP guidance, we believe that the overall community quality and contribution to the health of the Charles River is the appropriate measure. The measurement of benthic macroinvertebrate community quality will use three separate lines of evidence:

- Sediment screening assessment,
- Growth and survival of surrogate populations using ex-situ bioassay testing, and
- Resident benthic macroinvertebrate community analysis.

Each line of evidence allows for evaluation of different aspects of the environment that may influence the macroinvertebrate community of the Charles River.

To measure the potential risk to fish populations from direct contact and the potential risk to avian or wildlife feeding on fish from the area, direct analysis of fish tissue burden of inorganic constituents was measured along with the evaluation of gross deformities, erosions, lesions and tumors.

If concentrations detected in fish tissue from fish adjacent to the site are determined to be significant (greater than background), then toxicity information can be used to evaluate the potential affect on individual fish or predators. If concentrations of inorganic constituents in fish tissue cannot be distinguished statistically from background, then it is assumed that the site is not contributing to significant risk to the fish or their potential predators.

Based on results of the surface water sampling and analysis conducted during Phase II activities, surface water in the Charles River has not been significantly impacted by releases at the site, and surface water does not contribute to a complete exposure pathway.

The Charles River in the area of the site was divided into four study areas: adjacent to the site, upstream, cross-stream, and downstream. The area adjacent to the site is compared to the other areas to evaluate the potential site-related impact to the environmental condition. Areas upstream and cross-stream represent local conditions and, based on site assessment results, have not been impacted from site activities. The area downstream can be used to evaluate whether site impacts, if any, have extended beyond the immediate river bank and near-bank area adjacent to the site. Sediment quality data, bioassay testing, macroinvertebrate community survey, and fish tissue quality data were collected from these areas to evaluate the environmental conditions. The results are presented below (Section 8.3).

8.4.3 Results

8.4.3.1 Sediment Screening

Approximately 79 sediment samples were collected from 43 locations adjacent to, upstream, cross-stream and down stream of the site (Figure 3). Possible watch parts were observed in sediment samples collected at station ECO-1 from 0 to 0.5 ft below the sediment interface. These watch parts were identified in the sediment adjacent to the fieldstone retaining wall. This observation was possible due to the process of sorting and picking of organisms from the sample. The sorting and picking process required that the sample be placed in shallow sorting trays, spread out and examined, often under magnification, to collect the organisms. This detailed examination resulted in the identification of these watch parts that would normally not be noticed due to the size of the parts and other debris within the sample.

The presence of watch parts may influence the analytical results in samples from this area. Since sample preparation for metal analysis includes acid digestion of the sample, the metal concentrations measured in analytical testing may not be biologically available. The preparation of the sediment samples for analysis was performed using 3051 subjects the sample (and potential watch parts) to a heated nitric acid digestion. Due to this acid digestion, the watch parts may contribute metals to the subsequent aliquot used in the analysis that otherwise would not be released in the environment at the same rate, if at all.

In the environment these watch parts may not be bioaccessible; in that the watch parts would not be consumed by many of the benthic receptors. If consumed by benthic receptors, the bioavailablity of the metals from the watch parts are likely not similar to the concentrations derived from the acid digestion during chemical analysis. This is discussed further in the uncertainty section and should be considered when comparing sediment analytical data with bioassay results and macroinvertebrate community. There is the potential that analytical sediment concentrations for metals are not representative of the biologically accessible and available concentrations.

Compounds of concern (COC) in sediment were identified using two methods: (1) sediment benchmark screening, and (2) evaluation of relative sediment concentrations. These two methods combined were used to identify COC, or constituents in sediment that may be site related and which may pose potential risk to environmental receptors.

Sediment results were compared to the consensus-based Threshold Effect Concentration (TEC) and the Probable Effect Concentration (PEC), both from MacDonald et al (2000). Where TEC values were not available, EPA Sediment Quality Benchmarks (SQB) (EPA, 1996) were used. Concentrations less than the TEC/SQB are considered unlikely to contribute to significant risk to aquatic organisms. Concentrations greater than the TEC/SQB may result in a negative response and require further evaluation. Concentrations greater than the PEC are considered likely to result in negative effects to aquatic organisms and require further evaluation.

In addition, statistical and graphic evaluation of the inorganic constituents detected above the TEC were undertaken to discern between site related constituents and concentrations from local conditions. These evaluations included graphical distribution analysis (box plots, stem and leave plots, ordered concentration graphs) and statistical summaries to identify concentrations that may be greater than the local sediment conditions. Details of this evaluation are provided in Appendix D.

The sediment screening results are presented in Appendix D, Section 1, Figures 1-5 through 1-7. Each figure identifies sediment sample results greater than the screening criteria and further identifies concentrations which are elevated relative to the local concentrations.

Organic Compounds

Locations with VOCs detected in one or more sediment samples are shown in Appendix D, Figure 6. Based on figure, the chlorinated compounds and petroleum related aromatic compounds are detected in sediment samples collected adjacent to the site. Based on sediment concentrations of organic compounds greater than the TEC/SQB, an area adjacent to the site can be defined wherein there is a potential risk to aquatic organisms.

The aromatic compounds detected in sediment samples are localized to the near river bank area. The extent of aromatic compounds appears to correspond to the Petroleum Hydrocarbon results shown in Appendix D, Figure 7. EPH/VPH petroleum hydrocarbon samples were only collected from 13 locations. As such, further evaluation of the relationship between these results and the aromatic hydrocarbons in not reasonable at this time.

The extent of chlorinated compounds in sediment appears to extend further from the river bank. The area of potential risk to aquatic organisms as shown in Appendix D, Figure 6 extends out toward the center of the river to include SS-18. There were no detected concentrations of VOCs above the TEC/SQB, however, it is noted that cis-1,2-dichlorothene, for which there is no TEC, was detected in the deeper sediment sample and that the reporting limits at this location are elevated. As such, this location was conservatively included in the area of potential risk.

Inorganic Compounds

Inorganic constituents detected above the TEC/PEC, including mercury, are shown on Appendix D, Figure 5. Based on this figure, the elevated inorganic compound concentrations are generally present in sediments adjacent to the site. An area adjacent to the site can be defined where sediment concentrations of inorganic compounds appear to be greater than the PEC and are elevated relative to other areas (i.e., local conditions).

Site COC

Based on the screening evaluation, an area adjacent to the site has twelve COC which are present at sufficient concentrations greater than the screening benchmark values and local conditions to warrant further investigation of the potential risk to aquatic organisms. In summary, the twelve COC identified in the sediment screening evaluation are as follows:

- Benzene
- Xylenes, (o-Xylene and p/m-Xylene)
- Toluene
- 1,1,1-Trichloroethane
- Trichloroethylene
- Cadmium
- Chromium
- Copper
- Lead
- Nickel
- Silver
- Zinc

This screening evaluation of the sediment quality data is used in combination with the bioassay testing and benthic macroinvertebrate survey to evaluate the risk of harm to aquatic organisms due to potential exposures to site-related COC in sediment.

8.4.3.2 Bioassay Testing

Sediment samples were collected from six (6) locations in October of 2003 and used in sediment toxicity testing using *Hyalella azteca* 10-day growth and survival. Samples from ECO-4, ECO-5 and ECO-6 are reference samples from upstream, cross-stream and downstream, respectively, of the site. These reference samples are outside of the area identified as potential site-related impacted sediments under the screening evaluation above. ECO-1, ECO-2 and ECO-3 were collected adjacent to the site and within the area identified by the sediment screening evaluation as potential areas of risk.

Based on comparison of the survival of test organism among the field samples, a reduction in survival is evident in parent and field duplicate samples collected at ECO-2. Survival rates at ECO-3 and ECO-5, although lower than the laboratory control, are within performance metrics for the test method and similar to each other. Survival of test organism in samples from

9. SUBSTANTIAL HAZARD EVALUATION

9.1 Substantial Hazard Evaluation for Human Health

A Substantial Hazard Evaluation for Human Health was conducted in accordance with 310 CMR 40.0956. A Substantial Hazard Evaluation for Health focuses on possible exposures to Human Receptors under current uses of the disposal site and surrounding environment.

A condition of "No Significant Risk" of harm to human health exists under current site activities and uses. Therefore, a condition of "No Substantial Hazard to Human Health" exists at the disposal site.

9.2 Substantial Hazard Evaluation for the Environment

A Substantial Hazard Evaluation for the Environment was conducted in accordance with 310 CMR 40.0956. A Substantial Hazard Evaluation for the Environment focuses on possible exposures to Environmental Receptors under current uses of the disposal site and surrounding environment. According to 310 CMR 40.0956(2)(d):

> *(2) The focus of an Ecological Substantial Hazard Evaluation shall be on any environmental resource areas, such as wetlands, aquatic and terrestrial habitats, and fisheries, that exist at a site. A condition of No Substantial Hazard to the Environment would exist if steps have been taken to eliminate or mitigate any of the following conditions affecting an environmental resource at a site: ...*
> *(d) Continuing discharge of contaminated groundwater to surface water where surface water and/or sediment concentrations of Oil and/or Hazardous Material attributable to the release already pose a significant risk;...*

9.2.1 Building 16 Area (Former Waltham Industrial Labs Disposal Site)

There is likely an on-going source of groundwater contamination at the site for cadmium at Building 16 (former drainage trench and sump). At the Building 16 area, dissolved cadmium concentrations in groundwater are above the UCL (average concentration within the cadmium "hot spot," as defined in 310 CMR 40.0006) and have been detected in increasing concentrations over recent monitoring rounds. At this location, steps have not yet been taken to adequately mitigate residual cadmium in the former source area or flow of contaminated groundwater to the river.

A condition of "No Significant Risk" of harm to the environment has not been achieved for metals-contaminated sediments at location ECO-1, which is downgradient of the Former Waltham Industrial Labs (including the Building 16 and Buildings 18/19 release areas), under current site conditions.

Since steps have not yet been taken to adequately eliminate or mitigate a continuing discharge of residual cadmium contamination in groundwater to sediment, and contaminant concentrations in groundwater may not decline in the future, a condition of "No Substantial Hazard to the Environment" does not exist at the Building 16 Area of the Former Waltham Industrial Labs disposal site.

9.2.2 Buildings 18/19 Area (Former Waltham Industrial Labs Disposal Site)

There does not appear to be an on-going source of groundwater contamination at Buildings 18 and 19. Source materials were removed from the Buildings18/19 crawlspaces between 1984 and 1988. Metals concentrations in groundwater have decreased since source materials were removed. At monitoring well B1-OW, dissolved metals concentrations in groundwater have decreased since 1985 to generally non-detectable concentrations. Monitoring well B1-OW shows the passage of a concentration peak between 2000 and 2004 for cis-1,2-DCE, TCE, and total chlorinated VOCs. This behavior is typical of fairly permeable aquifers, following source remediation/removal, where clean groundwater from upgradient sources replaces the residual contaminant plume. Remaining chlorinated VOC concentrations at B1-OW are in the range of 100 to 500 ug/L. Concentrations of metals and VOCs are expected to continue to decline at the Buildings 18/19 area.

A condition of "No Significant Risk" of harm to the environment has not been achieved for sediments at location ECO-1, which is downgradient of the Former Waltham Industrial Labs (including the Building 16 and Buildings 18/19 release areas), under current site conditions.

Since steps have been taken to eliminate or mitigate a continuing discharge of contaminated groundwater to surface water, and contaminant concentrations in groundwater are expected to continue to decline in the future, a condition of "No Substantial Hazard to the Environment" exists at the Buildings 18/19 Area of the Former Waltham Industrial Labs disposal site.

9.2.3 Gasoline USTs Disposal Site

There is no evidence that residual petroleum contamination serves as an on-going source of contamination at the Former Gasoline USTs disposal site. The source (one 425-gallon and one 525-gallon gasoline UST) have been removed. Thereby, the concentrations of contaminants in the groundwater in this area have been reduced substantially over the time since the USTs were removed on 18 August 2000, to concentrations less than Method 1 GW-3 standards. VPH and EPH carbon range and BTEX concentrations were stable or declining over the period of 2002 to 2004 in wells downgradient of the Gasoline USTs Release (HA-302(MW), HA-303(MW), HA-402(MW), and HA-403(MW)). Remaining petroleum hydrocarbon concentrations are expected to continue to decline.

A condition of "No Significant Risk" of harm to the environment has not been achieved for sediments at location ECO-2, which is adjacent to and downgradient to the Gasoline USTs disposal site, under current site conditions.

Since steps have been taken to eliminate or mitigate a continuing discharge of contaminated groundwater to surface water, and contaminant concentrations in groundwater are expected to continue to decline in the future, a condition of "No Substantial Hazard to the Environment" exists at the Gasoline USTs disposal site.

9.2.4 Building 27 Area (Former Waltham Industrial Labs Disposal Site)

Downgradient of the former kerosene/TCE distillery (Building 27), concentrations of chlorinated VOCs in groundwater have generally been consistent in downgradient monitoring wells (HA-102(MW), HA-103B(MW), HA-301(MW), HA-501(MW), HA-502(MW), and HA-504(MW)). Therefore, the contaminant plume appears to be in a "steady state" such that concentrations are unlikely to increase significantly in the future; however, VOC-contaminated groundwater continues to discharge to surface water.

A condition of "No Significant Risk" of harm to the environment exists at location ECO-3, which is adjacent to and downgradient of the Building 27 Area and Former Kerosene/TCE Distillery under current site conditions. Average concentrations of compounds of concern within the TCE "hot spot" in groundwater do not exceed UCLs (Table XVI). Since releases to the environment ceased long ago, and "steady state" conditions have been reached, it is unlikely that groundwater concentrations at Building 27 (and thereby downgradient sediment concentrations) will increase substantially in the future. The area identified as posing a condition of "Significant Risk to the Environment" (Figure 29), based on the biological evaluation of bioassay results and macroinvertebrate community analysis, does not include ECO-3 and is not hydraulically downgradient from the Building 27 Area, as shown by groundwater elevation contours in shallow overburden, glacial till, and bedrock (Figures 9A, 9B and 9C). The bioassay results and macroinvertebrate communities are not significantly different at locations ECO-3 and ECO-4, the latter of which is located in an area outside the disposal site that lacks evidence of site-related groundwater discharge to surface water.

Since a condition of "No Significant Risk" of harm to the environment exists at and downgradient of the Building 27 Area (Former Kerosene/TCE Distillery) of the Former Waltham Industrial Labs Disposal Site, a condition of "No Substantial Hazard to the Environment" exists at the Building 27 Area of the Former Waltham Industrial Labs disposal site.

9.3 Summary

A Substantial Hazard Evaluation for Human Health and the Environment was conducted in accordance with 310 CMR 40.0956. A condition of "No Substantial Hazard to Human Health" exists at the disposal site. A condition of "No Substantial Hazard to the Environment" exists at the Gasoline USTs disposal site, and the Buildings 18/19 Area and the Building 27 Area of the Former Waltham Industrial Labs disposal site. A condition of "No Substantial Hazard to the Environment" does not exist at the Building 16 Area of the Former Waltham Industrial Labs disposal site, because a condition of "No Significant Risk" of harm to the environment has not been achieved for downgradient, metals-contaminated sediments under current site conditions, and steps have not yet been taken to adequately eliminate or mitigate a continuing discharge of cadmium-contaminated groundwater to sediment in this area.

10. PHASE II - COMPREHENSIVE SITE ASSESSMENT CONCLUSIONS

The Phase II – Comprehensive Site Assessment Scopes of Work, dated 24 March 2000, 15 October 2001, 16 April 2002, 20 December 2002, June 2003, October 2003, and January 2004 are completed. The delineation of the nature and extent of contamination at the disposal site is complete. The physical characteristics of the site and potential migration pathways are considered to be sufficiently-well understood, and the current analytical data set is adequate and has been used to complete a MCP Method 3 Risk Characterization, including a Stage II Environmental Risk Characterization.

10.1 Conclusions

The following conclusions are based on the complete data set and the information obtained:

- The Waltham Watch Company and its corporate predecessors operated a watch factory on land located west of Crescent Street and south of Prospect Street, bordering the Charles River, in Waltham from 1854 to 1954. The factory consisted of over 30 former and existing, adjoining and separate, buildings on the property located at 221-257 Crescent Street.

- From approximately 1959 through 30 March 1984, the former Waltham Industrial Labs occupied Buildings 16, 17, 18, and 19 in the historic Waltham Watch Company. Both the watch factory and the former Waltham Industrial Labs conducted electroplating operations in Buildings 18 and 19. Waltham Industrial Labs also conducted electroplating in Buildings 16 and 17. Plating wastes, degreasers and petroleum products were generated, used, and stored on the property.

- Based on historical plans of the watch factory, industrial plating, fuel storage, and degreaser use and storage was generally concentrated in buildings along the river front. Watch company operations and assembly operations were housed in the buildings closer to Crescent Street. Low environmental impact in the northern most and eastern portion of the Property along Prospect Street and Crescent Street has been confirmed based on the results of HA-800 series test borings. The types of oil and hazardous materials detected along the riverside access drive are consistent with the history of the disposal site.

- A Conceptual Site Model has been developed for the releases addressed by this Disposal Site. The Conceptual Site Model is illustrated in Figure 28 and is discussed in summary form, in Section 6 of this report.

- The site is underlain by urban fill soils, organic silts in some areas, fluvial/glaciofluvial deposits, glacial till and bedrock (Cambridge argillite, and conformable pebble conglomerates). Approximately 40 ft of overburden has been deposited on the bedrock surface beneath the site. The Boston Basin Northern Border Fault is located beneath the Charles River. The older Dedham Group granites, and metavolcanic rocks exposed high on the opposite side of the Charles River have been thrust over the Boston Basin rock along the fault. This fault is not exposed near the site. This fault has been observed in a Boston tunnel project (the Malden Tunnel) as a tight fault, however a greater degree of jointing is found in the bedrock on both sides of the fault.

- The Property fronts on the Charles River. Depth to groundwater is approximately 2 to 3 ft below grade adjacent to the river. Groundwater flow is generally to the west and northwest towards the river, but there is potential for flow reversal if the level of the Charles is controlled at a high level. Similar flow directions are observed for groundwater in glacial till and bedrock.

- Remedial response actions conducted at the site were successful in removing several sources of oil and hazardous material and several potential sources of oil and hazardous material from the disposal site. Remedial actions included the removal of electroplating sludges and contaminated soils from former crawlspaces in Building 18 and 19, and a trench/sump in Building 16 (1985-1988). The crawlspaces were backfilled and a new concrete floor was constructed throughout the first floor of Buildings 18 and 19 following the removal. During May and August 2000, two Varsol USTs, two gasoline USTs, and an ethyl acetate UST were removed from the property as potential threats of release or point sources of soil and groundwater contamination (See Preliminary Phase II – Comprehensive Site Assessment dated June 2003, previously submitted to DEP for data). No reportable release was identified at the former Varsol location; a Response Action Outcome was achieved for soils at the ethyl acetate UST location (RTN: 3-19582). The Former Gasoline USTs location (RTN: 3-19850) is addressed with this Phase II submittal.

- Levels of residual metals, solvents, and petroleum in the soil and groundwater at the disposal site have not been reduced to background.

- No LNAPL or DNAPL has been identified in site groundwater monitoring wells that have been gauged during the assessment activities. Levels of chlorinated VOCs detected in soil were well less than 10,000 mg/kg (equal to 1 percent of soil mass), which can indicate the potential for DNAPL (EPA Fact Sheet, January 1992). Levels of cis-1,2-DCE, TCE, and vinyl chloride were well below the calculated soil saturation limit (C_{sat}) for each compound. We therefore conclude that neither LNAPL nor DNAPL currently exist at the disposal site.

- Dissolved cadmium has been identified in groundwater samples collected from monitoring wells located directly west and south of Building 16. Building 16 was the location of former discharge of electroplating process and wastewater to former unlined sump and trench. The detected concentration of dissolved cadmium in groundwater in three monitoring wells exceeds the Upper Concentration Limit of 100 ug/l. Concentrations of cadmium in groundwater are observed to be increasing. The current limits of the cadmium plume have been delineated. However, due to the increasing concentrations of cadmium, and impact on sediment in the Charles River, this release is considered to be a Substantial Hazard to the Environment pursuant to 310 CMR 40.0956(2).

- No contamination of surface water in the adjacent Charles River attributable to the disposal site has been identified.

- The horizontal and vertical extent of TCE and daughter products released from the Building 27 release has been delineated to the extent feasible. No contamination attributable to the disposal site was identified in off-site bedrock groundwater monitoring wells installed on property across the Charles River. Therefore, the monitoring well data, together with the fact that releases to the environment ceased long ago with the closure of the factory's operations, generally indicate the contaminant plume is in a "steady state." It is therefore unlikely that groundwater concentrations will increase substantially in the future. It is our opinion that the groundwater data collected in the Phase II are therefore sufficient for evaluating risk under both current and future conditions.

- The lateral extent of the contamination attributable to the combined Waltham Industrial Labs disposal site and linked TCE Distillery disposal site at Building 27 (RTN 3-0585) is shown graphically on Figure 30. The lateral extent of contamination attributable to the Former Gasoline USTs Location (RTN: 3-19850), also shown on Figure 30, occurs within the larger area defined for RTN-0585. Vertical limits of the disposal sites are described in the Phase II Report.

- The Charles River has a long industrial history. However, concentrations of metals and volatile organic compounds attributable to the disposal site in sediment and river bottom soils increase nearest the disposal site. The horizontal extent of sediment contamination attributable to the disposal site has been delineated in a Stage II Environmental Risk Assessment.

- Metals concentrations in shallow soils remaining below pavement in the location of a former drainage swale south of Building 16, and the presence of compounds of concern in a soil sample from an abandoned outfall, suggest that contamination historically was discharged directly to the river.

- Former Gasoline USTs Location (3-19850): In the USTs area, the USTs were removed, and as a result, a substantial reduction in the concentrations of petroleum contaminants in the groundwater in this area was observed over the time since the USTs were removed in August 2000, to concentrations less than Method 1, GW-3 standards. Therefore, a condition of No Substantial Hazard to the Environment exists at this location.

- The results of the Human Health Risk Characterization indicate that, for current site activities and uses, a condition of "No Significant Risk" of harm to human health exists at the disposal sites for the commercial building occupant in existing office/light industrial space (Buildings 16, 18, 19, and 27), maintenance worker, site visitor, security personnel, utility worker, trespasser, angler in the Charles River, and boater/rower in the Charles River.

- The results of the Human Health Risk Characterization indicate that, for reasonably foreseeable site activities and uses, a condition of "No Significant Risk" of harm to human health exists at the disposal sites for the commercial building occupant in a future hotel/office space, future construction worker, future groundskeeper, and future walkway user, with implementation of an Activity and Use Limitation (AUL).

- An AUL is planned to require that site soils remain beneath asphalt pavement, buildings, or other covering, or beneath a geotextile marker barrier and an approximately 1 ft-thick clean soil cover. In addition, the AUL is planned to prohibit any residential activities and uses, including single/two-family residential use, other land uses considered to result in similar exposures (e.g., daycare, school, or playground), and multi-family residential use (e.g., apartment buildings or townhouses), and fruit and vegetable gardening. The results of the Human Health Risk Characterization for reasonably foreseeable site activities and uses are contingent upon the assumptions of the above-described AUL.

- A condition of "No Substantial Hazard to Human Health" exists at the disposal sites, since a condition of "No Significant Risk" of harm to human health exists, given current exposures to oil and hazardous materials and existing site uses.

- The results of Phase II sampling efforts in the Charles River indicate the presence of metals in the tissue of fish at statistically similar levels upstream of, adjacent to, and downstream of the site. As such, the tissue burden of inorganic compounds in fish is not attributable to the site sediment conditions and is consistent with local conditions. The concentrations of inorganic compounds in fish tissue, while not attributable to the site sediment conditions, were not further evaluated and may still pose risk of harm. There is currently a fish advisory for this section of the Charles River due to contaminants unrelated to the site. Therefore, the additional contribution of the site to human health risk due to the ingestion of fish tissue is likely minimal above existing background levels.

- The conclusions of the Stage II Environmental Risk Characterization indicate that a condition of "No Significant Risk" of harm to the environment does not exist given current sediment conditions adjacent to the Former Waltham Industrial Labs disposal site (RTN 3-0585) and the Former Gasoline USTs Release disposal site (RTN 3-19850). Based on the sediment screening evaluation, bioassay testing, and macroinvertebrate community assessment, the area of Charles River sediment for which a condition of "No Significant Risk" does not exist appears to be limited to the near river bank area and extends from upstream of location ECO-1 to the downstream portion of the site between locations ECO-2 and ECO-3 (Figure 29).

- The conclusions of the Stage II Environmental Risk Characterization indicate that there is no risk to fish from direct contact or feeding on benthic organisms. The fish body burden of inorganic compounds adjacent to the site is less than or similar to those captured and tested at reference reaches and is consistent with local conditions. As such, the tissue burden of inorganics in fish is not attributable to the site sediment conditions. Based on this, a condition of "No Significant Risk" of harm to fish adjacent to the site exists.

- The conclusions of the Stage II Environmental Risk Characterization indicate that there is no significant risk to aquatic feeding wildlife as a result of the site conditions. The fish body burden of inorganic contaminants adjacent to the site is less than or similar to those captured and tested at reference reaches and is consistent with local conditions. As such, the tissue burden of inorganic contaminants in fish is not attributable to the site sediment conditions. Based on this, a condition of "No Significant Risk" of harm to wildlife that may consume fish adjacent to the site exists.

- Based on the results of a Method 3 Risk Characterization, a condition of "No Significant Risk" of harm to safety exists at the site as defined in 310 CMR 40.0960(3).

- Results of the Public Welfare Risk Characterization indicate that a condition of "No Significant Risk" of harm to public welfare has been achieved at the Former Gasoline

USTs Release disposal site (RTN 3-19850) for current and future site activities and uses. A condition of "No Significant Risk" to public welfare has not been achieved at the Former Waltham Industrial Labs disposal site (RTN 3-0585) for current and future site activities and uses. Based on the results of the Phase II Comprehensive Site Assessment, there is likely to be an on-going source of groundwater contamination at the site for cadmium at Building 16 (former drainage trench and sump). Dissolved cadmium is present in groundwater at this location (cadmium "hot spot") in excess of the UCL. In addition, there may be a continuing discharge of contaminated groundwater to Charles River sediment from cadmium at Building 16. The conditions constitute a condition of "Substantial Hazard to the Environment" per 310 CMR 40.0956(2)(d).

- Remedial actions are planned to mitigate the source of groundwater contamination, including the dissolved cadmium "hot spot" concentrations in excess of the UCL at Building 16. The feasibility of remedial alternatives is presented in the Phase III report, which is being submitted to DEP concurrently with the Phase II report. Since it is anticipated that the proposed MCP revisions will be promulgated prior to the submittal of a RAO for the Former Waltham Industrial Labs disposal site, and therefore a UCL comparison will no longer be required for iron, the current exceedence of the chemical-specific default UCL for iron in site-wide soil will not drive remedial actions.

10.2 Outcome of Phase II - Comprehensive Site Assessment:

Former Waltham Industrial Labs and TCE Distillery Release (RTN: 3-0585): Comprehensive Remedial Actions are necessary at the site to achieve a Response Action Outcome as described in 310 CMR 40.1000. A Phase III study for the identification, evaluation and selection of Comprehensive Remedial Action Alternatives as described in 310 CMR 40.0850 is necessary to select a remedial action alternative. A Phase III Report is being submitted with this Phase II - Comprehensive Site Assessment Report under a separate cover.

Former Gasoline UST Location (RTN: 3-19850): The requirements of a Class A-3 Response Action Outcome under 310 CMR 40.1000 have been met for the portion of this disposal site located on the Property (the land). The Stage II Environmental Risk Assessment conducted for this combined Phase II Comprehensive Site Assessment concluded that an area of Charles River sediment is present for which a condition of "No Significant Risk" does not exist. As illustrated in Figure 30, the limits of this area completely contain the river portion of the Gasoline UST disposal site. Therefore, Comprehensive Remedial Response Actions to be undertaken pursuant to the portion of the Gasoline UST disposal site in the Charles River will be addressed under RTN: 3-0585, the Former Waltham Industrial Labs disposal site. A Phase III study for the identification, evaluation and selection of Comprehensive Remedial Action Alternatives as described in 310 CMR 40.0850 is necessary to select a remedial action alternative. A Phase III Report is being submitted with this Phase II - Comprehensive Site Assessment Report under a separate cover. A Response Action Outcome Statement, supported by information provided in this Phase II report shall be submitted for the land portion of the disposal site.

11. LIMITATIONS

This report has been prepared for the exclusive use of The First Republic Corporation of America and the Massachusetts Department of Environmental Protection, in conjunction with the environmental assessment of the property and for compliance with the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000. The conclusions provided are based solely on the scopes of work conducted and the sources of information referenced in this report.

TABLE I
PHOTOIONIZATION DETECTOR HEADSPACE SCREENING DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221-257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NUMBER: 3-0585, 3-19850

Sample ID	Sample Date	Top of Sample Depth (ft)	Bottom of Sample Depth (ft)	Soil Type	PID Reading (ppm)
B1-OW S3	8/28/1984	4.5	6.5	Fluvial	3.4
B1-OW S5	8/28/1984	12	14	Fluvial	15.6
B2 S1	8/28/1984	2.5	4.5	Fill	1.4
B2 S3	8/28/1984	6.5	8.5	Fluvial	3.2
B2 S5	8/28/1984	11	13	Fluvial	6
B3 S1	8/28/1984	5.5	7.5	Fill	7.8
B4-OW S2	8/29/1984	3	5	Fill	134
B4-OW S7	8/29/1984	11	13	Fluvial	0.6
B5 S1	8/31/1984	0.33	2.33	Fill	11.8
B5 S3	8/31/1984	4.33	6.33	Fill	2.6
B6-OW COMP S1/S2	8/31/1984	0.5	4.5	Fill	0.3
B6-OW COMP S4/S6	8/31/1984	6.5	12.5	Fill	3.8
B7 COMP S1/S2	8/31/1984	1	5	Fill	0.5
B7 COMP S5/S6	8/31/1984	9	13	Fluvial	7.2
HA-1(MW) S2	7/17/2000	3	5	Fill	0.6
HA-1(MW) S3	7/17/2000	5	7	Fill	22
HA-1(MW) S4	7/17/2000	7	9	Fill/Fluvial	0.8
HA-1(MW) S5	7/17/2000	9	11	Organic/Fill	9
HA-2(MW) S1	7/18/2000	1	3	Fill	2.8
HA-2(MW) S3	7/18/2000	5	7	Fill	3
HA-2(MW) S4	7/18/2000	7	9	Fill	5
HA-2(MW) S5	7/18/2000	9	11	Organic/Fluvial	15
HA-3(MW) S2	7/18/2000	3	5	Fill	0.6
HA-3(MW) S3	7/18/2000	5	6.8	Fill	10.8
HA-3(MW) S4	7/18/2000	9	11	Fluvial	18
HA-3(MW) S5	7/18/2000	11	13	Fluvial/Till	11.2
HA-3(MW) S6	7/18/2000	13	15	Till	5
HA-4(MW) S1	7/17/2000	1	2.5	Fill	1.2
HA-4(MW) S2	7/17/2000	3	5	Fill	2.2
HA-4(MW) S3	7/17/2000	5	7	Fill	30
HA-4(MW) S4	7/17/2000	7	9	Fill/Organic	0.6
HA-4(MW) S5	7/17/2000	9	11	Fluvial	0.8
HA-5 S2	10/22/2000	2	4	Fill	18
HA-6 S1	10/21/2000	5	7	Fill/Fluvial	3
HA-6 S2	10/21/2000	7	9	Fluvial	5.2
HA-6 S3	10/21/2000	9	9.9	Fluvial	6.8
HA-7A S1A	10/21/2000	3	4	Fill	48
HA-7A S3	10/21/2000	6	8	Fluvial	11.2
HA-7A S5	10/22/2000	10	12	Fluvial	14
HA-7C S1A	10/22/2000	3	4	Fill	4.4
HA-7C S3	10/22/2000	6	7.9	Fill/Fluvial	23
HA-8(MW) S1	4/8/2002	2.1	3.6	Fill	1
HA-9(MW) S1	4/8/2002	1.7	2.5	Fill	3.6
HA-9(MW) S2	4/8/2002	3	5	Fill	5.2
HA-9(MW) S3	4/10/2002	6	8	Fill	2.5
HA-9(MW) S6	4/10/2002	12	13.5	Fluvial	3.5
HA-10(MW) S1	4/8/2002	1.6	2.4	Fill	5.5
HA-11 C1	4/8/2002	6	8.2	Fill	6
HA-12(MW) S1	4/9/2002	2	4	Fill	4
HA-12(MW) S2	4/9/2002	7.5	8.9	Fill	12
HA-13(MW) S4	4/10/2002	9.5	10	Organic	19
HA-14 0.5-3.0	4/22/2002	0.5	3	Fill	2
HA-14 3.0-6.0	4/22/2002	3	6	Fill	150

TABLE I
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PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221-257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NUMBER: 3-0585, 3-19850

Sample ID	Sample Date	Top of Sample Depth (ft)	Bottom of Sample Depth (ft)	Soil Type	PID Reading (ppm)
HA-15 0.5-2.0	4/22/2002	0.5	2	Fill	2
HA-15 2.0-6.0	4/22/2002	2	6	Fill	4
HA-16 0.5-3.0	4/22/2002	0.3	3	Fill	6
HA-16 3.0-6.0	4/22/2002	3	6	Fill	80
HA-17 S1	3/19/2003	0.5	2	Fill	0.8
HA-18 S1	3/19/2003	0.9	2	Fill	3
HA-18 S2	3/26/2003	7	9	Fluvial	5
HA-18 S4	3/26/2003	11	13	Fluvial	0.6
HA-19A(MW) S1	3/20/2003	0.8	2.2	Fill	1.2
HA-19A(MW) S4	3/26/2003	15	17	Till	1.4
HA-102(MW) S2	12/15/2000	3	5	Fill	210
HA-102(MW) S3	12/15/2000	5	7	Fill	280
HA-103 S3	12/15/2000	5	7	Fill	280
HA-301(MW) S2	12/18/2000	3	5	Fill	7.6
HA-301(MW) S3	12/18/2000	5	7	Fill	3
HA-301(MW) S6	12/18/2000	12	14	Fill/Organic	3.6
HA-302(MW) S2	12/19/2000	3	5	Fill	260
HA-302(MW) S4	12/19/2000	5	7	Fill	260
HA-302(MW) S5A	12/19/2000	10	11	Fluvial	84
HA-302(MW) S6	12/19/2000	11	13	Fluvial	8.8
HA-303(MW) S2	12/18/2000	3	5	Fill	1.8
HA-303(MW) S3	12/18/2000	5	7	Fill	450
HA-303(MW) S5	12/18/2000	9	11	Organic	60
HA-303(MW) S6	12/18/2000	11	13	Fluvial	48
HA-402(MW) S2	4/12/2002	2	4	Fill	130
HA-402(MW) S3	4/12/2002	6	8	Fill	280
HA-501(MW) C1	4/18/2002	1	4.5	Fill	6
HA-501(MW) S5	4/19/2002	12	14	Till	60
HA-502(MW) S1	4/17/2002	1	3	Fill	6
HA-502(MW) S4A	4/18/2002	13.5	14	Till	25
HA-502(MW) S5	4/18/2002	14	16	Till	60
HA-503(MW) S6	4/18/2002	12	14	Till	170
HA-504(MW) S1	4/18/2002	1	3	Fill	11
HA-504(MW) S3	4/19/2002	6	8	Fill	50
HA-504(MW) S5	4/19/2002	10	11	Organic	2
HA-504(MW) S6	4/19/2002	12	14	Till	3
HA-601 S1	1/27/2003	2	3	Fill	-
HA-602 S1	3/18/2003	0.5	2	Fill	4
HA-602A(MW) S1	3/18/2003	0.9	2.5	Fill	8.5
HA-602A(MW) S9	3/24/2003	19	21	Till	9
HA-603	3/17/2003	1	3	Fill	0.6
HA-603A(MW) S4	3/25/2003	11	13	Fluvial	1.4
HA-701(MW) S1	9/26/2003	5	7	Fill	0.8
HA-701(MW) S2	9/26/2003	7	9	Fill	1.9
HA-701(MW) S3	9/26/2003	10	12	Fill	0.1
HA-701(MW) S4	9/26/2003	12	14	Till	0
HA-701(MW) S5	9/26/2003	15	17	Till	0.1
HA-701(MW) S6	9/26/2003	17	19	Till	0
HA-701(MW) S7	9/26/2003	20	22	Till	0
HA-701(MW) V1	9/22/2003	2	3.5	Fill	2.4
HA-702(MW) DRUM	11/24/2003	NA	NA	NA	18
HA-702(MW) S1	9/25/2003	5	7	FILL	150.5
HA-702(MW) S4	9/25/2003	12	14	TILL	133.5
HA-702(MW) S5	9/25/2003	15	17	TILL	9.5
HA-702(MW) S6	9/25/2003	17	19	TILL	128.5

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FORMER WALTHAM INDUSTRIAL LABS
221-257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NUMBER: 3-0585, 3-19850

Sample ID	Sample Date	Top of Sample Depth (ft)	Bottom of Sample Depth (ft)	Soil Type	PID Reading (ppm)
HA-702(MW) S7	9/25/2003	19	21	TILL	88.5
HA-702(MW) S8	9/25/2003	21	22	TILL	66.5
HA-702(MW) S9	9/25/2003	23	25	TILL	98.5
HA-702(MW) S10	9/25/2003	25	27	TILL	0
HA-702(MW) S11	10/2/2003	29	31	TILL	213.5
HA-702(MW) S12	10/2/2003	31	33	TILL	303.5
HA-702(MW) S13	10/2/2003	33	35	TILL	328.5
HA-702(MW) S14	10/2/2003	35	36	Till	328.5
HA-702(MW) V1	9/22/2003	2	4	Fill	7.6
HA-703(MW) S2	9/30/2003	7	9	Alluvial	0.1
HA-703(MW) S3	9/30/2003	9	11	Alluvial	0.6
HA-703(MW) S4	9/30/2003	11	13	Alluvial	0.5
HA-703(MW) S5	9/30/2003	13	15	Alluvial	0.5
HA-703(MW) S6	9/30/2003	15	17	Fluvial	0.3
HA-703(MW) S7	9/30/2003	17	18	Fluvial	0.5
HA-703(MW) S7A	9/30/2003	18	19	Till	0
HA-703(MW) V1	9/23/2003	2	3	Fill	0.4
HA-704(MW) S1	9/29/2003	5	7	Fill	0.5
HA-704(MW) S2	9/29/2003	7	9	Fill	0.5
HA-704(MW) S3	9/29/2003	9	11	Organics	0.2
HA-704(MW) S4	9/29/2003	11	13	Aluvial	0.2
HA-704(MW) S5	9/29/2003	13	15	Till	0.2
HA-704(MW) S6	9/29/2003	15	16	Till	0.2
HA-704(MW) S7	9/29/2003	17	19	Till	-
HA-704(MW) V1	9/23/2003	2	3	Fill	0.2
HA-705 V1	9/22/2003	2	3	Fill	1.4
HA-705A(MW) S1	10/3/2003	9	11	Fill	2.5
HA-705A(MW) S2	10/3/2003	11	13	Aluvial	4
HA-705A(MW) S3	10/3/2003	13	15	Till	4.5
HA-705A(MW) S4	10/3/2003	15	17	Till	4.5
HA-705A(MW) S5	10/3/2003	17	19	Till	2
HA-705A(MW) S6	10/3/2003	19	21	Till	0.2
HA-705A(MW) S7	10/3/2003	24	26	Till	0
HA-801R(MW) S1	6/16/2004	4	6	Fluvial	ND
HA-801R(MW) S2	6/16/2004	6	6.6	Fluvial	ND
HA-801R(MW) S3	6/16/2004	8	10	Fluvial	ND
HA-801R(MW) S4	6/16/2004	10	12	Fluvial	ND
HA-801R(MW) S5	6/16/2004	12	14	Fluvial	ND
HA-801R(MW) S6	6/16/2004	14	16	Fluvial	ND
HA-801R(MW) S7	6/16/2004	16	18	Fluvial	ND
HA-801R(MW) S8	6/16/2004	20	22	Fluvial	ND
HA-801R(MW) S9	6/16/2004	22	24	Fluvial	ND
HA-801R(MW) S10	6/16/2004	24	26	Fluvial	ND
HA-801R(MW) S11	6/16/2004	26	28	Fluvial	ND
HA-801R(MW) S12	6/16/2004	28	30	Fluvial	ND
HA-801R(MW) S13	6/16/2004	30	32	Fluvial	ND
HA-801R(MW) S14	6/16/2004	33	33.5	Till	ND
HA-801R(MW) S15	6/16/2004	34	36	Till	ND
HA-801R(MW) S16	6/16/2004	36	38	Till	ND
HA-801R(MW) S17	6/16/2004	38	39.25	Till	ND
HA-801R(MW) S18	6/16/2004	40	40.8	Till	ND
HA-802R(MW) S1	6/1/2004	6	8	Fill	ND
HA-802R(MW) S2	6/1/2004	8	10	Fill	ND
HA-802R(MW) S3	6/1/2004	10	12	Fill	ND

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221-257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NUMBER: 3-0585, 3-19850

Sample ID	Sample Date	Top of Sample Depth (ft)	Bottom of Sample Depth (ft)	Soil Type	PID Reading (ppm)
HA-802R(MW) S4	6/1/2004	12	14	Fill	ND
HA-802R(MW) S5	6/1/2004	14	16	Fill	ND
HA-802R(MW) S6	6/1/2004	16	18	Fluvial	ND
HA-802R(MW) S7	6/1/2004	18	20	Fluvial	ND
HA-802R(MW) S8	6/1/2004	20	22	Fluvial	ND
HA-802R(MW) S9	6/1/2004	22	24	Fluvial	ND
HA-802R(MW) S10	6/1/2004	24	26	Fluvial	ND
HA-802R(MW) S11	6/1/2004	26	28	Fluvial	ND
HA-802R(MW) S12	6/1/2004	28	30	Fluvial	ND
HA-802R(MW) S13	6/1/2004	30	32	Fluvial	ND
HA-802R(MW) S14	6/1/2004	32	33.5	Fluvial	ND
HA-802R(MW) S15	6/1/2004	34	36	Fluvial	ND
HA-802R(MW) S16	6/1/2004	36	38	Fluvial	ND
HA-802R(MW) S17	6/1/2004	38	40	Fluvial	ND
HA-802R(MW) S18	6/1/2004	40	42	Fluvial	ND
HA-802R(MW) S19	6/1/2004	42	44	Fluvial	ND
HA-802R(MW) S20	6/1/2004	44	46	Glaciolacustrine	ND
HA-802R(MW) S21	6/1/2004	46	48	Glaciolacustrine	ND
HA-802R(MW) S22	6/1/2004	48	50	Glaciolacustrine	ND
HA-802R(MW) S23	6/1/2004	50	52	Till	ND
HA-802R(MW) S24	6/1/2004	52	52.8	Till	ND
HA-802R(MW) S25	6/3/2004	54	56	Till	ND
HA-802T(MW) S2	6/21/2004	16	18	Fluvial	ND
HA-805R(MW) S1	6/10/2004	6	8	Till	ND
HA-805R(MW) S2	6/10/2004	8	10	Till	ND
HA-805R(MW) S3	6/10/2004	10	12	Till	ND
HA-805R(MW) S4	6/10/2004	12	12.9	Till	ND
HA-805R(MW) S5	6/10/2004	14	16	Till	ND
HA-805R(MW) S6	6/10/2004	16	16.9	Till	ND
HA-805R(MW) S7	6/10/2004	18	20	Till	ND
HA-805R(MW) S8	6/10/2004	20	22	Till	ND
HA-805R(MW) S9	6/10/2004	22	24	Till	ND
HA-805R(MW) S10	6/10/2004	24	24.7	Till	ND
HA-805R(MW) S11	6/10/2004	26	28	Till	ND
HA-805R(MW) S12	6/10/2004	28	30	Till	ND
HA-805R(MW) S13	6/10/2004	32	33	Till	ND
HA-805R(MW) S14	6/10/2004	34	35.5	Till	ND
HA-805R(MW) S15	6/10/2004	36	36.5	Till	ND
HA-805R(MW) S16	6/10/2004	38	39.4	Till	ND
HA-805R(MW) S17	6/10/2004	40	40.75	Till	ND
HA-805R(MW) S18	6/10/2004	42	42.8	Till	ND
HA-805R(MW) S19	6/10/2004	44	44.25	Till	ND
HA-805T(MW) S1	6/24/2004	6	8	Fill	ND
HA-805T(MW) S2	6/24/2004	42	42.1	Till	ND
HA-806T(MW) S1	6/28/2004	6	8	Fluvial	>1500
HA-806T(MW) S2	6/28/2004	8	10	Fluvial	992
HA-806T(MW) S3	6/28/2004	10	12	Fluvial	206
HA-806T(MW) S4	6/28/2004	12	14	FL_TILL	>10000
HA-806T(MW) S5	6/28/2004	14	16	Till	1400
HA-806T(MW) S6	6/28/2004	16	18	Till	3700
HA-806T(MW) S7	6/28/2004	18	20	Till	315
HA-806T(MW) S8	6/28/2004	21	23	Till	407
HA-806T(MW) S9	6/28/2004	23	25	Till	795
HA-806T(MW) S10	6/28/2004	25	27	Till	855
HA-806T(MW) S11	6/28/2004	27	28.8	Till	280

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FORMER WALTHAM INDUSTRIAL LABS
221-257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NUMBER: 3-0585, 3-19850

Sample ID	Sample Date	Top of Sample Depth (ft)	Bottom of Sample Depth (ft)	Soil Type	PID Reading (ppm)
HA-806T(MW) S12	6/28/2004	29	31	Till	78
HA-806T(MW) S13	6/28/2004	31	32.9	Till	11
HA-806T(MW) S14	6/28/2004	33	34.6	Till	70
HA-806T(MW) S15	6/28/2004	35	35.9	Till	17
HA-806T(MW) S16	6/28/2004	37	37.1	Till	8
HA-806T(MW) S17	6/28/2004	41	41.75	Bedrock	26.1
HA-807R(MW) S1	6/25/2004	6	8	Fill	8.2
HA-807R(MW) S2	6/25/2004	8	10	Fill	<1
HA-807R(MW) S3	6/25/2004	10	12	Fill	2.5
HA-807R(MW) S4	6/25/2004	12	14	Fill	1.8
HA-807R(MW) S5	6/25/2004	14	14.5	Fluvial	ND
HA-807R(MW) S6	6/25/2004	16	18	Fluvial	ND
HA-807R(MW) S7	6/25/2004	18	20	Fluvial	ND
HA-807R(MW) S8	6/25/2004	20	22	Fluvial	ND
HA-807R(MW) S9	6/25/2004	22	24	Fluvial	ND
HA-807R(MW) S10	6/25/2004	24	26	Fluvial	ND
HA-807R(MW) S11	6/25/2004	26	28	Fluvial	ND
HA-807R(MW) S12	6/25/2004	28	30	Till	ND
HA-807R(MW) S13	6/25/2004	30	32	Till	2
HA-807R(MW) S14	6/25/2004	32	34	Till	ND
HA-807R(MW) S15	6/25/2004	34	36	Till	5.2
HA-807R(MW) S16	6/25/2004	36	38	Till	6.5
HA-807R(MW) S17	6/25/2004	38	40	Till	19.1
HA-807R(MW) S18	6/25/2004	40	42	Till	17.6
HA-807R(MW) S19	6/25/2004	42	42.7	Till	16.1
HA-807R(MW) S20	6/30/2004	44	44.5	Till	ND
HA-808R(MW) S1	6/7/2004	6	8	Till	ND
HA-808R(MW) S2	6/7/2004	8	10	Till	ND
HA-808R(MW) S3	6/7/2004	10	12	Till	ND
HA-808R(MW) S4	6/7/2004	12	13.5	Till	ND
HA-808R(MW) S5	6/7/2004	14	16	Till	ND
HA-808R(MW) S6	6/7/2004	16	18	Till	ND
HA-808R(MW) S7	6/7/2004	18	20	Till	ND
HA-808R(MW) S8	6/7/2004	20	21.3	Till	ND
HA-808R(MW) S9	6/7/2004	22	24	Till	ND
HA-808R(MW) S10	6/7/2004	24	24.75	Till	5.5
HA-808R(MW) S11	6/7/2004	26	26.8	Till	7.1
HA-808R(MW) S12	6/7/2004	28	28.9	Till	43.4
HA-808R(MW) S13	6/7/2004	30	31.4	Till	14.3
HA-808R(MW) S14	6/7/2004	32	33.9	Till	2.7
HA-808R(MW) S15	6/7/2004	34	35.2	Till	11.5
HA-808R(MW) S16	6/7/2004	36	36.4	Till	<1
HA-808R(MW) S17	6/7/2004	38	39.75	Till	ND
HA-808T(MW) S1	6/23/2004	6	8	Fill	ND
HA-EA-S1	5/30/2000	5	5.1	Fill	9
HA-EA-S1B	9/1/2000	4	4.1	Fill	ND
HA-EA-S2	5/30/2000	4	4.1	Fill	1
HA-EA-S2B	9/1/2000	4	4.1	Fill	0.2
HA-EA-S3	5/30/2000	NA	NA	Fill	160
HA-EA-S3B	9/1/2000	3.5	3.6	Fill	3.5
HA-EA-S4	6/13/2000	5	5.1	Fill	0.2
HA-EA-S5	6/13/2000	4	4.1	Fill	0.2
HA-EA-S6	6/13/2000	3	3.5	Fill	0.2
HA-EA-S7	6/13/2000	NA	NA	Fill	400
HA-EA-S8	6/13/2000	NA	NA	Fill	4

TABLE I
PHOTOIONIZATION DETECTOR HEADSPACE SCREENING DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221-257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NUMBER: 3-0585, 3-19850

Sample ID	Sample Date	Top of Sample Depth (ft)	Bottom of Sample Depth (ft)	Soil Type	PID Reading (ppm)
HA-V1	5/26/2000	10	11	Fill	0.2
HA-V2	5/26/2000	9	10	Fill	0.2
HA-V3	5/26/2000	10	10.1	Fill	0.2
HA-V4	5/26/2000	9	10	Fill	0.2
HA-V5	5/26/2000	9	11	Fill	0.2
HA-V6	5/26/2000	6	6.1	Fill	0.2
S-2	8/18/2000	6	6.1	Fill	5.8
S-3	8/18/2000	3	3.1	Fill	52.8
S-4	8/18/2000	3	3.1	Fill	6.8
S-5	8/18/2000	3	3.1	Fill	1275
S-6	8/18/2000	3	3.1	Fill	4.7

NOTES AND ABBREVIATIONS:
1. ND: Not Detected
2. ppm: Parts per million.

TABLE II
GROUNDWATER ELEVATION DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

MONITORING WELL DESIGNATION	SCREENED GEOLOGIC UNIT	MONITORING DATE	DEPTH OF GROUNDWATER (feet)	GROUNDWATER ELEVATION (feet)
B1-OW	FILL	28-Jul-00	2.81	35.08
		29-Dec-00	2.68	35.21
		13-Feb-01	2.75	35.14
		13-Jan-02	2.55	35.34
		3-May-02	2.08	35.81
		15-Jan-03	2.63	35.26
		11-Mar-03	2.34	35.55
		22-Oct-03	3.00	34.88
		10-Nov-03	2.70	35.18
		27-Jul-04	3.08	34.80
B4-OW	FILL	28-Jul-00	2.64	35.08
		29-Dec-00	2.44	35.28
		13-Feb-01	2.59	35.13
		13-Jan-02	2.40	35.32
		3-May-02	2.06	35.66
		15-Jan-03	2.40	35.32
		11-Mar-03	2.12	35.60
		16-Apr-03	1.65	36.07
		22-Oct-03	2.70	35.00
		10-Nov-03	2.45	35.25
		27-Jul-04	2.88	34.82
B6-OW	FILL	28-Jul-00	10.01	36.74
		29-Dec-00	10.09	36.66
		3-May-02	9.94	36.81
		22-Oct-03	10.15	36.60
		10-Nov-03	10.02	36.73
		27-Jul-04	9.99	36.76
B9-OW	FILL	13-Feb-01	5.34	32.39
		10-Nov-03	2.38	35.32
HA-1(MW)	FILL	28-Jul-00	5.55	35.18
		31-Jul-00	5.51	35.22
		29-Dec-00	5.39	35.34
		13-Feb-01	5.45	35.28
		13-Jan-02	5.27	35.46
		3-May-02	5.05	35.68
		15-Jan-03	5.39	35.34
		11-Mar-03	5.13	35.60
		16-Apr-03	4.70	36.03
		22-Oct-03	5.76	34.93
		10-Nov-03	5.42	35.27
		27-Jul-04	5.77	34.92
HA-2(MW)	FILL	28-Jul-00	2.51	35.00
		31-Jul-00	2.37	35.14
		29-Dec-00	2.32	35.19
		12-Feb-01	2.39	35.12
		13-Jan-02	2.18	35.33
		3-May-02	1.91	35.60
		11-Mar-03	1.98	35.53
		22-Oct-03	2.65	34.85
		10-Nov-03	2.30	35.20
		27-Jul-04	2.70	34.80
HA-3(MW)	FILL	28-Jul-00	7.02	35.31
		31-Jul-00	7.00	35.33
		29-Dec-00	7.00	35.33

TABLE II
GROUNDWATER ELEVATION DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

MONITORING WELL DESIGNATION	SCREENED GEOLOGIC UNIT	MONITORING DATE	DEPTH OF GROUNDWATER (feet)	GROUNDWATER ELEVATION (feet)
		13-Feb-01	7.04	35.29
		3-May-02	6.63	35.70
		11-Mar-03	6.72	35.61
		22-Oct-03	7.30	35.01
		10-Nov-03	7 30	35.01
		27-Jul-04	7.29	35.02
HA-4(MW)	FILL	28-Jul-00	2.79	35.56
		31-Jul-00	3.19	35.16
		29-Dec-00	2.97	35.38
		13-Feb-01	3.20	35.15
HA-8(MW)	FILL	13-Jan-02	2.21	35.35
		3-May-02	1.99	35.57
		11-Mar-03	2.04	35.52
		22-Oct-03	2.60	34.92
		10-Nov-03	2.60	34.92
		27-Jul-04	2.66	34.86
HA-9(MW)	FILL	13-Jan-02	2.40	35.33
		3-May-02	2.13	35.60
		15-Jan-03	2.52	35.21
		11-Mar-03	2.11	35.62
		22-Oct-03	2.80	34.90
		10-Nov-03	2.50	35.20
		27-Jul-04	2.86	34.84
HA-10(MW)	FILL	13-Jan-02	2.35	35.32
		3-May-02	2.01	35.66
		15-Jan-03	2.45	35.22
		11-Mar-03	2.10	35.57
		22-Oct-03	2.80	34.86
		10-Nov-03	2.41	35.25
		27-Jul-04	2.87	34.79
HA-12(MW)	FILL	3-May-02	6.50	35.70
		11-Mar-03	6.51	35.69
		22-Oct-03	7.11	35.05
		10-Nov-03	6.80	35.36
		27-Jul-04	7.10	35.06
HA-13(MW)	FILL	13-Jan-02	3.80	35.44
		3-May-02	3.08	36.16
		11-Mar-03	3.65	35.59
		22-Oct-03	4.30	34.92
		10-Nov-03	3.96	35.26
		27-Jul-04	4.35	34.87
HA-19A(MW)	FILL	16-Apr-03	6.53	36.04
		22-Oct-03	7.55	35.02
		10-Nov-03	7.31	35.26
		27-Jul-04	7.60	34.97
HA-101(MW)	FILL	29-Dec-00	6.12	35.54
		3-May-02	5.82	35.84
		10-Nov-03	6.21	35.45
		28-Jul-04	6.61	35.05
HA-102(MW)	FILL	29-Dec-00	2.65	35.30
		13-Feb-01	3.08	34.87
		13-Jan-02	2.44	35.51

TABLE II
GROUNDWATER ELEVATION DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

MONITORING WELL DESIGNATION	SCREENED GEOLOGIC UNIT	MONITORING DATE	DEPTH OF GROUNDWATER (feet)	GROUNDWATER ELEVATION (feet)
		3-May-02	2.24	35.71
		11-Mar-03	2.32	35.63
		22-Oct-03	2.90	34.98
		10-Nov-03	2.62	35.26
		27-Jul-04	3.00	34.88
HA-103B(MW)	FILL	29-Dec-00	2.73	35.22
		13-Feb-01	3.10	34.85
		13-Jan-02	2.63	35.32
		3-May-02	2.42	35.53
		11-Mar-03	2.47	35.48
		22-Oct-03	3.02	34.91
		10-Nov-03	2.82	35.11
		27-Jul-04	3.10	34.83
HA-301(MW)	FILL	29-Dec-00	2.62	35.17
		13-Feb-01	2.70	35.09
		13-Jan-02	2.48	35.31
		3-May-02	2.17	35.62
		11-Mar-03	2.31	35.48
		22-Oct-03	2.85	34.93
		10-Nov-03	2.63	35.15
		27-Jul-04	2.98	34.80
HA-302(MW)	FILL	29-Dec-00	2.32	35.18
		13-Feb-01	2.45	35.05
		13-Jan-02	2.25	35.25
		3-May-02	2.00	35.50
		11-Mar-03	2.11	35.39
		22-Oct-03	2.65	34.88
		10-Nov-03	2.41	35.12
		27-Jul-04	2.77	34.76
HA-303(MW)	FILL	29-Dec-00	2.61	35.14
		13-Feb-01	2.67	35.08
		13-Jan-02	2.48	35.27
		3-May-02	2.18	35.57
		11-Mar-03	2.32	35.43
		22-Oct-03	2.90	34.88
		10-Nov-03	2.55	35.23
		27-Jul-04	2.96	34.82
HA-402(MW)	FILL	13-Jan-02	2.15	35.37
		3-May-02	1.90	35.62
		11-Mar-03	1.96	35.56
		22-Oct-03	2.55	34.90
		10-Nov-03	2.25	35.20
		27-Jul-04	2.62	34.83
HA-403(MW)	FILL	13-Jan-02	2.58	35.34
		3-May-02	2.35	35.57
		11-Mar-03	2.52	35.40
		22-Oct-03	3.00	34.89
		10-Nov-03	2.72	35.17
HA-501(MW)	FILL	13-Jan-02	2.04	35.56
		3-May-02	2.04	35.56
		14-Jan-03	2.10	35.50
		11-Mar-03	1.90	35.70
		22-Oct-03	2.50	34.98

TABLE II
GROUNDWATER ELEVATION DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

MONITORING WELL DESIGNATION	SCREENED GEOLOGIC UNIT	MONITORING DATE	DEPTH OF GROUNDWATER (feet)	GROUNDWATER ELEVATION (feet)
		10-Nov-03	2.24	35.24
		27-Jul-04	2.60	34.88
HA-502(MW)	FILL	13-Jan-02	2.21	35.57
		3-May-02	2.13	35.65
		14-Jan-03	2.35	35.43
		11-Mar-03	2.12	35.66
		22-Oct-03	2.70	35.00
		10-Nov-03	2.40	35.30
		27-Jul-04	2.80	34.90
HA-503(MW)	FILL	13-Jan-02	2.49	35.35
		3-May-02	2.13	35.71
		14-Jan-03	2.62	35.22
		11-Mar-03	2.35	35.49
		22-Oct-03	2.90	34.85
		10-Nov-03	2.48	35.27
		27-Jul-04	2.98	34.77
HA-504(MW)	FILL	13-Jan-02	2.20	35.38
		3-May-02	1.94	35.64
		14-Jan-03	2.29	35.29
		11-Mar-03	2.08	35.50
		22-Oct-03	2.55	34.94
		10-Nov-03	2.30	35.19
		27-Jul-04	2.66	34.83
HA-602A(MW)	FILL	22-Oct-03	2.75	34.89
		10-Nov-03	2.44	35.20
		27-Jul-04	2.82	34.82
HA-603A(MW)	FILL	22-Oct-03	3.80	35.09
		10-Nov-03	3.51	35.38
		27-Jul-04	3.87	35.02
HA-701(MW)	FILL	22-Oct-03	4.31	34.98
		10-Nov-03	4.00	35.29
		27-Jul-04	4.40	34.89
HA-702(MW)	BEDROCK	22-Oct-03	2.80	34.97
		10-Nov-03	2.55	35.22
		27-Jul-04	2.90	34.87
HA-703(MW)	FILL	22-Oct-03	9.10	35.21
		10-Nov-03	8.90	35.41
		27-Jul-04	9.10	35.21
HA-704(MW)	FILL	22-Oct-03	5.15	34.90
		10-Nov-03	4.76	35.29
		27-Jul-04	5.15	34.90
HA-705A(MW)	TILL	22-Oct-03	2.70	34.74
		10-Nov-03	2.22	35.22
		27-Jul-04	2.58	34.86
HA-801R(MW)	BEDROCK	27-Jul-04	15.88	35.30
		10-Aug-04	16.18	35.00

TABLE II
GROUNDWATER ELEVATION DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

MONITORING WELL DESIGNATION	SCREENED GEOLOGIC UNIT	MONITORING DATE	DEPTH OF GROUNDWATER (feet)	GROUNDWATER ELEVATION (feet)
HA-802R(MW)	BEDROCK	27-Jul-04	12.47	34.94
		10-Aug-04	13.20	34.21
		6-Sep-04	13.20	34.21
HA-802S(MW)	FILL	27-Jul-04	13.22	34.89
		10-Aug-04	13.60	34.51
		6-Sep-04	13.75	34.36
HA-802T(MW)	TILL	27-Jul-04	12.82	34.93
		10-Aug-04	46.40	1.35
		6-Sep-04	13.50	34.25
HA-805R(MW)	BEDROCK	27-Jul-04	6.45	35.11
		10-Aug-04	6.74	34.82
HA-805T(MW)	TILL	27-Jul-04	6.47	35.24
		10-Aug-04	6.81	34.90
HA-806T(MW)	TILL	27-Jul-04	3.12	34.84
		10-Aug-04	3.50	34.46
HA-807R(MW)	BEDROCK	27-Jul-04	3.95	34.75
		10-Aug-04	4.28	34.42
HA-807T(MW)	TILL	27-Jul-04	3.85	34.81
		10-Aug-04	4.23	34.43
HA-808R(MW)	BEDROCK	27-Jul-04	7.57	34.97
		10-Aug-04	7.98	34.56
HA-808T(MW)	TILL	27-Jul-04	7.39	34.93
		10-Aug-04	7.72	34.60
MW-101	FILL	31-Jul-00	3.49	35.18
		6-Oct-00	3.75	34.92
		29-Dec-00	3.36	35.31
		13-Jan-02	3.26	35.41
		3-May-02	3.01	35.66
		22-Oct-03	3.60	35.06
		10-Nov-03	3.50	35.16
		27-Jul-04	3.78	34.88
MW-102	FILL	31-Jul-00	2.65	35.14
		6-Oct-00	2.89	34.90
		29-Dec-00	2.59	35.20
		13-Feb-01	2.86	34.93
		3-May-02	2.05	35.74
		22-Oct-03	2.80	34.97
		10-Nov-03	2.52	35.25
		27-Jul-04	2.92	34.85
RIVER_REF_021301	RIVER	13-Feb-01	2.18	35.22
RIVER_REF_102203	RIVER	22-Oct-03	1.66	34.97
RIVER_REF_111003	RIVER	10-Nov-03	1.55	35.08

TABLE III
FISH TISSUE QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19650

Reach ID	REACH-A	REACH-A	REACH-A	REACH-A	REACH-A	REACH-A	REACH-A	REACH-A	REACH-A
Sample ID	REACH-A-BF-56	REACH-A-BF-57	REACH-A-BF-58	REACH-A-HH-17	REACH-A-HH-3	REACH-A-HH-7	REACH-A-WC-13	REACH-A-WC-15	REACH-A-WC-19
Sampling Date	10/31/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003
Inorganic (mg/kg)									
CADMIUM	0.0095	ND (0.0077)	0.012	ND (0.0056)	ND (0.0066)	ND (0.0063)	ND (0.0082)	ND (0.0085)	ND (0.0075)
CHROMIUM	0.81	0.52	3.6	0.18	0.19	0.18	2.7	0.8	0.66
COPPER	0.83	0.61	0.7	0.82	0.27	0.77	0.54	0.41	0.42
LEAD	0.18	0.12	0.26	0.16	0.014	0.037	0.64	0.55	0.3
MERCURY	0.044	0.078	0.093	0.1	0.25	0.21	0.076	0.072	0.087
NICKEL	0.13	0.095	1.5	0.48	0.14	0.19	1.1	1.2	0.76
SILVER	ND (0.0058)	ND (0.0077)	ND (0.0081)	ND (0.0056)	0.0066	ND (0.0063)	ND (0.0082)	ND (0.0085)	ND (0.0075)
ZINC	23	21	31	17	6.5	6.9	21	18	22
Lipid Content (%)									
PERCENT LIPID	13	9.2	9.4	0.49	0.64	0.19	0.82	1.9	1.7

Notes and Abbreviations:
1. ND: Not detected above indicated laboratory reporting limit.

TABLE III
FISH TISSUE QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Reach ID	REACH-B	REACH-B	REACH-B	REACH-B	REACH-B	REACH-B	REACH-B	REACH-B	REACH-B
Sample ID	REACH-B-BF-46	REACH-B-BF-49	REACH-B-BF-50	REACH-B-HH-1	REACH-B-HH-2	REACH-B-HH-5	REACH-B-WC-32	REACH-B-WC-4	REACH-B-WC-6
Sampling Date	10/31/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003
Inorganic (mg/kg)									
CADMIUM	0.049	0.2	0.012	ND (0.0071)	ND (0.0075)	ND (0.0069)	ND (0.0067)	0.01	0.076
CHROMIUM	0.62	0.31	0.69	0.18	0.16	0.15	0.41	0.54	0.38
COPPER	0.62	0.88	0.87	1.2	0.49	0.46	0.34	0.58	0.64
LEAD	0.38	0.72	0.29	0.047	0.015	0.15	0.22	0.3	0.48
MERCURY	0.16	0.093	0.098	0.26	0.12	0.094	0.052	0.094	0.1
NICKEL	0.17	0.22	0.16	0.15	0.62	0.47	0.3	0.44	0.77
SILVER	ND (0.0074)	0.011	0.0089	ND (0.0071)	ND (0.0075)	ND (0.0069)	ND (0.0067)	ND (0.007)	ND (0.0062)
ZINC	22	27	39	7.2	22	22	12	16	20
Lipid Content (%)									
PERCENT LIPID	6.8	2	6.3	0.41	0.36	0.37	3	1.8	0.95

Notes and Abbreviations:
1. ND: Not detected above indicated laboratory reporting limit

TABLE III
FISH TISSUE QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Reach ID	REACH-C	REACH-C	REACH-C	REACH-C	REACH-C	REACH-C	REACH-C	REACH-C	REACH-C
Sample ID	REACH-C-BF-38	REACH-C-BF-46	REACH-C-BF-47	REACH-C-HH-1	REACH-C-HH-2	REACH-C-HH-5	REACH-C-WC-11	REACH-C-WC-6	REACH-C-WC-7
Sampling Date	10/31/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003	10/31/2003
Inorganic (mg/kg)									
CADMIUM	0.07	0.029	0.035	ND (0.0062)	ND (0.008)	ND (0.0071)	0.01	0.015	0.05
CHROMIUM	0.3	0.48	0.51	0.16	0.19	0.13	0.21	0.3	0.25
COPPER	0.57	0.78	0.82	0.88	0.39	0.29	0.87	0.53	2.4
LEAD	0.93	1.8	0.81	0.12	0.028	0.29	0.97	1.5	1.3
MERCURY	0.16	0.091	0.17	0.24	0.24	0.087	0.11	0.089	0.095
NICKEL	0.062	0.35	0.24	0.18	0.16	0.53	0.49	0.44	0.69
SILVER	ND (0.0072)	ND (0.0052)	ND (0.008)	ND (0.0062)	ND (0.008)	ND (0.0071)	ND (0.0069)	ND (0.0079)	0.012
ZINC	21	38	48	8.2	8.7	24	21	20	27
Lipid Content (%)									
PERCENT LIPID	14	4.6	7.2	0.23	0.71	0.18	0.53	1.8	2.1

Notes and Abbreviations:
1. ND: Not detected above indicated laboratory reporting limit.

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location	Method 1 Standard	Method 1 Standard	B1-OW	B1-OW	B2	B2	B2	B4A	B4-OW	B4-OW	B5	B5	B6-OW
Sample ID			B1-OW S3	B1-OW S5	B2 S1	B2 S3	B2 S5	B4A S2	B4-OW S2	B4-OW S7	B5 S1	B5 S3	B6-OW COMP S1/S2
Sample Medium			Fluvial	Fluvial	Fill	Fluvial	Fluvial	Fill	Fill	Fluvial	Fill	Fill	Fill
Depth	S-2/GW-2	S-2/GW-3	4 5 to 6 5	12 to 14	2.5 to 4.5	6 5 to 8 5	11 to 13	3 to 5	3 to 5	11 to 13	0.33 to 2.33	4 33 to 6.33	0 5 to 4.5
Date			8/28/1984	8/28/1984	8/28/1984	8/28/1984	8/28/1984	6/21/1985	8/29/1984	8/29/1984	8/31/1984	8/31/1984	8/31/1984
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs													
1,1,1-TRICHLOROETHANE	500	500	--	--	--	--	--	0.026	--	--	--	--	--
1,1,2,2-TETRACHLOROETHANE	0 2	0 6	--	--	--	--	--	ND(0.001)	--	--	--	--	--
1,1-DICHLOROETHYLENE	0 1	2	--	--	--	--	--	0.028	--	--	--	--	--
1,2,3-TRICHLOROPROPANE	N/A	N/A	--	--	--	--	--	--	--	--	--	--	--
1,2,4-TRIMETHYLBENZENE	N/A	N/A	--	--	--	--	--	--	--	--	--	--	--
1,3,5-TRIMETHYLBENZENE	N/A	N/A	--	--	--	--	--	--	--	--	--	--	--
4-ISOPROPYLTOLUENE	N/A	N/A	--	--	--	--	--	--	--	--	--	--	--
4-METHYL-2-PENTANONE (MIBK)	70	70	--	--	--	--	--	ND(0 005)	--	--	--	--	--
BENZENE	60	60	--	--	--	--	--	ND(0.001)	--	--	--	--	--
CARBON TETRACHLORIDE	4	10	--	--	--	--	--	ND(0 001)	--	--	--	--	--
CHLOROFORM	10	200	--	--	--	--	--	ND(0 001)	--	--	--	--	--
CIS-1,2-DICHLOROETHYLENE	500	500	--	--	--	--	--	--	--	--	--	--	--
ETHYL ACETATE	N/A	N/A	--	--	--	--	--	--	--	--	--	--	--
ETHYLBENZENE	1000	500	--	--	--	--	--	ND(0.001)	--	--	--	--	--
ISOPROPYLBENZENE	N/A	N/A	--	--	--	--	--	--	--	--	--	--	--
NAPHTHALENE	1000	1000		--	--	--	--	--	--	--	--	--	--
N-BUTYLBENZENE	N/A	N/A	--	--	--	--	--	--	--	--	--	--	--
N-PROPYLBENZENE	N/A	N/A	--	--	--	--	--	--	--	--	--	--	--
SEC-BUTYLBENZENE	N/A	N/A	--	--		--	--	--	--	--	--	--	--
TETRACHLOROETHYLENE	30	30	--	--	--	--	--	ND(0.001)	--	--	--	--	--
TOLUENE	500	1000	--	--	--	--	--	ND(0.001)	--	--	--	--	--
TRANS-1,2-DICHLOROETHYLENE	800	1000	--	--	--	--	--	0.025	--	--	--	--	--
TRICHLOROETHYLENE	20	100	--	--	--	--	--	0.023	--	--	--	--	--
VINYL CHLORIDE	0.4	0.5	--	--	--	--	--	ND(0.0025)	--	--	--	--	--
XYLENES, MIXTURE	N/A	N/A	--	--	--	--	--	ND(0.001)	--	--	--	--	--
TOTAL CONCENTRATION OF VOCs			--	--	--	--	--	0.102	--	--	--	--	--
VPH													
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	500	500	--	--	--	--	--	--	--	--	--	--	--
MADEP C9-C10 AROMATIC HYDROCARBONS	500	500	--	--	--	--	--	--	--	--	--	--	--
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	2500	2500	--	--	--	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF VPH			--	--	--	--	--	--	--	--	--	--	--

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location	Method 1 Standard	Method 1 Standard	B1-OW	B1-OW	B2	B2	B2	B4A	B4-OW	B4-OW	B5	B5	B6-OW
Sample ID			B1-OW S3	B1-OW S5	B2 S1	B2 S3	B2 S5	B4A S2	B4-OW S2	B4-OW S7	B5 S1	B5 S3	B6-OW COMP S1/S2
Sample Medium			Fluvial	Fluvial	Fill	Fluvial	Fluvial	Fill	Fill	Fluvial	Fill	Fill	Fill
Depth	S-2/GW-2	S-2/GW-3	4.5 to 6.5	12 to 14	2.5 to 4.5	6.5 to 8.5	11 to 13	3 to 5	3 to 5	11 to 13	0.33 to 2.33	4.33 to 6.33	0.5 to 4.5
Date			8/28/1984	8/28/1984	8/28/1984	8/28/1984	8/28/1984	6/21/1985	8/29/1984	8/29/1984	8/31/1984	8/31/1984	8/31/1984
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EPH													
2-METHYLNAPHTHALENE	1000	1000	--	--	--	--	--	--	--	--	--	--	--
ACENAPHTHENE	2500	2500	--	--	--	--	--	--	--	--	--	--	--
ACENAPHTHYLENE	2500	1000	--	--	--	--	--	--	--	--	--	--	--
ANTHRACENE	2500	2500	--	--	--	--	--	--	--	--	--	--	--
BENZO(A)ANTHRACENE	1	1	--	--	--	--	--	--	--	--	--	--	--
BENZO(A)PYRENE	0.7	0.7	--	--	--	--	--	--	--	--	--	--	--
BENZO(B)FLUORANTHENE	1	1	--	--	--	--	--	--	--	--	--	--	--
BENZO(G,H,I)PERYLENE	2500	2500	--	--	--	--	--	--	--	--	--	--	--
BENZO(K)FLUORANTHENE	10	10	--	--	--	--	--	--	--	--	--	--	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	10	10	--	--	--	--	--	--	--	--	--	--	--
DIBENZ(A,H)ANTHRACENE	0.7	0.7	--	--	--	--	--	--	--	--	--	--	--
FLUORANTHENE	2000	1000	--	--	--	--	--	--	--	--	--	--	--
FLUORENE	2000	2000	--	--	--	--	--	--	--	--	--	--	--
INDENO(1,2,3-CD)PYRENE	1	1	--	--	--	--	--	--	--	--	--	--	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	2000	2000	--	--	--	--	--	--	--	--	--	--	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	5000	5000	--	--	--		--	--	--	--	--	--	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	2500	2500	--	--	--	--	--	--	--	--	--	--	--
NAPHTHALENE	1000	1000	--	--	--	--	--	--	--	--	--	--	--
PHENANTHRENE	2500	100	--	--	--	--	--		--	--	--	--	--
PYRENE	2000	2000	--	--	--	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF EPH			---	---	---	---	---	---	---	---	---	---	---
TPH													
LUBRICATING OIL	N/A	N/A	--	--	--	--	--	--	65	--	--	--	--
OIL AND GREASE	2000	2000	1200	2400	89900	17400	1700	--	90	80	540	390	240
TOTAL CONCENTRATION OF TPH			1200	2400	89900	17400	1700	---	155	80	540	390	240
METALS													
ALUMINUM	N/A	N/A	4700	1600	3300	4800	3500	--	7500	4800	7300	7600	9000
ARSENIC	30	30	--	--	--	--	--	--	--	--	--	--	--
CADMIUM	80	80	0.76	ND(0.12)	5.7	1.7	0.48	--	17	ND(0.105)	550	240	ND(0.105)
CHROMIUM	2500	2500	21	9.8	3200	880	43	--	19	27	3300	620	14
CHROMIUM (HEXAVALENT COMPOUNDS)	600	600	0.054	0.98	0.39	0.11	0.042	--	0.038	0.35	3.2	0.065	0.066
COPPER	N/A	N/A	310	27	1200	100	120	--	1200	11	150	25	190
IRON	N/A	N/A	13000	2400	15400	12600	9500	--	13300	6600	22400	12800	10100
LEAD	600	600	420	4.8	11100	28400	190	--	340	4.3	410	290	100
MERCURY	60	60	--	--	--	--	--	--	--	--	--	--	--
NICKEL	700	700	18	9.1	50	34	17	--	48	18	470	100	13
SILVER	200	200	ND(0.105)	0.56	2.9	ND(0.115)	ND(0.2)	--	ND(0.12)	ND(0.095)	ND(0.1)	ND(0.455)	1.2
TIN	N/A	N/A	20	ND(0.6)	26	18	ND(0.5)	--	8.3	ND(0.55)	90	16	3.3
ZINC	2500	2500	400	45	3900	1500	170	--	200	48	2500	820	140
Cyanide													
CYANIDE, PHYSIOLOGICALLY AVAILABLE	100	100	--	--	--	--	--	--	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	1.9	ND(0.145)	42	28	1.8	--	4.1	ND(0.14)	29	69	ND(0.14)

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit
2. --: Analysis not conducted.
3. N/A: Not available
4. This table presents compounds detected in at least one sample
5. Bold results were detected above the laboratory reporting limit
6. Shaded results are detected compounds that exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS 3-0585, 3-19850

Location Sample ID Sample Medium Depth Date Unit	Method 1 Standard S-2/GW-2 mg/kg	Method 1 Standard S-2/GW-3 mg/kg	B6-OW B6-OW COMP S4/S6 Fill 6 5 to 12 5 8/31/1984 mg/kg	B7 B7 COMP S1/S2 Fill 1 to 5 8/31/1984 mg/kg	B7 B7 COMP S5/S6 Fluvial 9 to 13 8/31/1984 mg/kg	HA-1(MW) HA-1(MW) S2 Fill 3 to 5 7/17/2000 mg/kg	HA-1(MW) HA-1(MW) S3 Fill 5 to 7 7/17/2000 mg/kg	HA-1(MW) HA-1(MW) S4 Fill / Fluvial 7 to 9 7/17/2000 mg/kg	HA-1(MW) HA-1(MW) S5 Organic / Fluvial 9 to 11 7/17/2000 mg/kg	HA-2(MW) HA-2(MW) S1 Fill 1 to 3 7/18/2000 mg/kg	HA-2(MW) HA-2(MW) S3 Fill 5 to 7 7/18/2000 mg/kg
VOCs											
1,1,1-TRICHLOROETHANE	500	500	--	--	--	--	ND(0 215)	--	ND(0 0025)	--	ND(0 135)
1,1,2,2-TETRACHLOROETHANE	0 2	0.6	--	--	--	--	ND(0.215)	--	ND(0.0025)	--	ND(0 135)
1,1-DICHLOROETHYLENE	0 1	2	--	--	--	--	ND(0 215)	--	ND(0 0025)		ND(0.135)
1,2,3-TRICHLOROPROPANE	N/A	N/A	--	--	--	--	ND(0.215)	--	ND(0 0025)	--	ND(0 135)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	--	--	--	--	ND(0.215)	--	ND(0 0025)	--	ND(0.135)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	--	--	--	--	ND(0.215)	--	ND(0.0025)	--	ND(0.135)
4-ISOPROPYLTOLUENE	N/A	N/A	--	--	--	--	ND(0 215)	--	ND(0 0025)	--	ND(0 135)
4-METHYL-2-PENTANONE (MIBK)	70	70	--	--	--	--	ND(2 15)	--	ND(0.027)	--	ND(1.35)
BENZENE	60	60	--	--	--	--	ND(0.215)	--	ND(0 0025)	--	ND(0.135)
CARBON TETRACHLORIDE	4	10	--	--	--	--	ND(0 215)	--	ND(0.0025)	--	ND(0.135)
CHLOROFORM	10	200	--	--	--	--	ND(0.215)	--	ND(0.0025)	--	ND(0.135)
CIS-1,2-DICHLOROETHYLENE	500	500	--	--	--	--	ND(0.215)	--	ND(0.0025)	--	0.63
ETHYL ACETATE	N/A	N/A	--	--	--	--	--	--	--	--	--
ETHYLBENZENE	1000	500	--	--	--	--	ND(0.215)	--	ND(0.0025)	--	ND(0.135)
ISOPROPYLBENZENE	N/A	N/A	--	--	--	--	ND(0.215)	--	ND(0 0025)	--	ND(0 135)
NAPHTHALENE	1000	1000	--	--	--	--	0.85	--	ND(0.0025)	--	ND(0 135)
N-BUTYLBENZENE	N/A	N/A	--	--	--	--	ND(0 215)	--	ND(0 0025)	--	ND(0.135)
N-PROPYLBENZENE	N/A	N/A	--	--	--	--	ND(0 215)	--	ND(0 0025)	--	ND(0.135)
SEC-BUTYLBENZENE	N/A	N/A	--	--	--	--	ND(0.215)	--	ND(0.0025)	--	ND(0.135)
TETRACHLOROETHYLENE	30	30	--	--	--	--	ND(0.215)	--	ND(0 0025)	--	ND(0.135)
TOLUENE	500	1000	--	--	--	--	ND(0.215)	--	ND(0 0025)	--	ND(0 135)
TRANS-1,2-DICHLOROETHYLENE	800	1000	--	--	--	--	ND(0.215)	--	ND(0 0025)	--	ND(0 135)
TRICHLOROETHYLENE	20	100	--	--	--	--	2	--	ND(0.0025)	--	0.51
VINYL CHLORIDE	0 4	0 5	--	--	--	--	ND(0 43)	--	ND(0.0055)	--	ND(0 275)
XYLENES, MIXTURE	N/A	N/A	--	--	--	--	ND(0 215)	--	ND(0.0025)	--	ND(0.135)
TOTAL CONCENTRATION OF VOCs			--	--	--	--	2.85	--	--	--	1.14
VPH											
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	500	500	--	--	--	--	--	ND(0.65)	--	--	ND(0.5)
MADEP C9-C10 AROMATIC HYDROCARBONS	500	500	--	--	--	--	--	ND(0.65)	--	--	ND(0 5)
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	2500	2500	--	--	--	--	--	ND(0.65)	--	--	1.6
TOTAL CONCENTRATION OF VPH			--	--	--	--	--	--	--	--	1.6

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location Sample ID Sample Medium Depth Date Unit	Method 1 Standard S-2/GW-2 mg/kg	Method 1 Standard S-2/GW-3 mg/kg	B6-OW B6-OW COMP S4/S6 Fill 6.5 to 12.5 8/31/1984 mg/kg	B7 B7 COMP S1/S2 Fill 1 to 5 8/31/1984 mg/kg	B7 B7 COMP S5/S6 Fluvial 9 to 13 8/31/1984 mg/kg	HA-1(MW) HA-1(MW) S2 Fill 3 to 5 7/17/2000 mg/kg	HA-1(MW) HA-1(MW) S3 Fill 5 to 7 7/17/2000 mg/kg	HA-1(MW) HA-1(MW) S4 Fill / Fluvial 7 to 9 7/17/2000 mg/kg	HA-1(MW) HA-1(MW) S5 Organic / Fluvial 9 to 11 7/17/2000 mg/kg	HA-2(MW) HA-2(MW) S1 Fill 1 to 3 7/18/2000 mg/kg	HA-2(MW) HA-2(MW) S3 Fill 5 to 7 7/18/2000 mg/kg
EPH											
2-METHYLNAPHTHALENE	1000	1000	--	--	--	--	--	ND(0.305)	--	ND(0.335)	--
ACENAPHTHENE	2500	2500	--	--	--	--	--	ND(0.305)	--	ND(0.335)	--
ACENAPHTHYLENE	2500	1000	--	--	--	--	--	ND(0.305)	--	ND(0.335)	--
ANTHRACENE	2500	2500	--	--	--	--	--	ND(0.305)	--	ND(0.335)	--
BENZO(A)ANTHRACENE	1	1	--	--	--	--	--	ND(0.305)	--	ND(0.335)	--
BENZO(A)PYRENE	0.7	0.7	--	--	--	--	--	ND(0.305)	--	ND(0.335)	--
BENZO(B)FLUORANTHENE	1	1	--	--	--	--	--	ND(0.305)	--	ND(0.335)	--
BENZO(G,H,I)PERYLENE	2500	2500	--	--	--	--	--	ND(0.305)	--	ND(0.335)	--
BENZO(K)FLUORANTHENE	10	10	--	--	--	--	--	ND(0.305)	--	ND(0.335)	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	10	10	--	--	--	--	--	ND(0.305)	--	ND(0.335)	--
DIBENZ(A,H)ANTHRACENE	0.7	0.7	--	--	--	--	--	ND(0.305)	--	ND(0.335)	--
FLUORANTHENE	2000	1000	--	--	--	--	--	ND(0.305)	--	ND(0.335)	--
FLUORENE	2000	2000	--	--	--	--	--	ND(0.305)	--	ND(0.335)	--
INDENO(1,2,3-CD)PYRENE	1	1	--	--	--	--	--	ND(0.305)	--	ND(0.335)	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	2000	2000	--	--	--	--	--	ND(18.5)	--	**92**	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	5000	5000	--	--	--	--	--	ND(18.5)	--	**57**	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	2500	2500	--	--	--	--	--	ND(18.5)	--	ND(20)	--
NAPHTHALENE	1000	1000	--	--	--	--	--	ND(0.305)	--	ND(0.335)	--
PHENANTHRENE	2500	100	--	--	--	--	--	ND(0.305)	--	ND(0.335)	--
PYRENE	2000	2000	--	--	--	--	--	ND(0.305)	--	ND(0.335)	--
TOTAL CONCENTRATION OF EPH			--	--	--	--	--	--	--	149	--
TPH											
LUBRICATING OIL	N/A	N/A	--	--	--	--	--	--	--	--	--
OIL AND GREASE	2000	2000	60	990	800	--	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			60	990	800	--	--	--	--	--	--
METALS											
ALUMINUM	N/A	N/A	**3200**	**13200**	**12900**	--	--	--	--	--	--
ARSENIC	30	30	--	--	--	**11**	**27**	--	--	**18**	--
CADMIUM	80	80	ND(0.1)	ND(0.11)	2.3	**2**	**23**	--	--	**2.8**	--
CHROMIUM	2500	2500	17	17	810	**35**	**50**	--	--	ND(7.5)	--
CHROMIUM (HEXAVALENT COMPOUNDS)	600	600	**0.064**	ND(0.006)	ND(0.0055)	--	--	--	--	--	--
COPPER	N/A	N/A	**44**	**930**	**130**	**160**	**210**	--	--	**14000**	--
IRON	N/A	N/A	**6400**	**18300**	**16900**	--	--	--	--	--	--
LEAD	600	600	7.4	**290**	**8.1**	**130**	**240**	--	--	**130**	--
MERCURY	60	60	--	--	--	**2**	**1.5**	--	--	**4.7**	--
NICKEL	700	700	**13**	**16**	**90**	**22**	**43**	--	--	ND(7.5)	--
SILVER	200	200	**1.5**	**2**	**0.81**	--	--	--	--	--	--
TIN	N/A	N/A	ND(0.5)	**29**	ND(0.49)	ND(29)	ND(33)	--	--	ND(36.5)	--
ZINC	2500	2500	**40**	**280**	**94**	**120**	**480**	--	--	**2400**	--
Cyanide											
CYANIDE, PHYSIOLOGICALLY AVAILABLE	100	100	--	--	--	ND(0.55)	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	3.5	0.41	8.7	ND(0.55)	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table presents compounds detected in at least one sample
5. Bold results were detected above the laboratory reporting limit.
6. Shaded results are detected compounds that exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location	Method 1 Standard	Method 1 Standard	HA-2(MW)	HA-2(MW)	HA-3(MW)	HA-3(MW)	HA-3(MW)	HA-3(MW)	HA-3(MW)	HA-4(MW)	HA-4(MW)	HA-4(MW)
Sample ID			HA-2(MW) S4	HA-2(MW) S5	HA-3(MW) S2	HA-3(MW) S3	HA-3(MW) S4	HA-3(MW) S5	HA-3(MW) S6	HA-4(MW) S1	HA-4(MW) S2	HA-4(MW) S3
Sample Medium			Fill	Organic / Fluvial	Fill	Fill	Fluvial	Fluvial / Glacial Till	Glacial Till	Fill	Fill	Fill
Depth	S-2/GW-2	S-2/GW-3	7 to 9	9 to 11	3 to 5	5 to 6.8	9 to 11	11 to 13	13 to 15	1 to 2.5	3 to 5	5 to 7
Date			7/18/2000	7/18/2000	7/18/2000	7/18/2000	7/18/2000	7/18/2000	7/18/2000	7/17/2000	7/17/2000	7/17/2000
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs												
1,1,1-TRICHLOROETHANE	500	500	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
1,1,2,2-TETRACHLOROETHANE	0.2	0.6	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
1,1-DICHLOROETHYLENE	0.1	2	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
1,2,3-TRICHLOROPROPANE	N/A	N/A	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
1,2,4-TRIMETHYLBENZENE	N/A	N/A	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
1,3,5-TRIMETHYLBENZENE	N/A	N/A	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
4-ISOPROPYLTOLUENE	N/A	N/A	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
4-METHYL-2-PENTANONE (MIBK)	70	70	--	ND(1.3)	--	--	ND(1.35)	--	ND(1.3)	--	ND(1.45)	--
BENZENE	60	60	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
CARBON TETRACHLORIDE	4	10	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
CHLOROFORM	10	200	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
CIS-1,2-DICHLOROETHYLENE	500	500	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
ETHYL ACETATE	N/A	N/A	--	--	--		--	--	--	--	--	--
ETHYLBENZENE	1000	500	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
ISOPROPYLBENZENE	N/A	N/A	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
NAPHTHALENE	1000	1000		ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
N-BUTYLBENZENE	N/A	N/A	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
N-PROPYLBENZENE	N/A	N/A	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
SEC-BUTYLBENZENE	N/A	N/A	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
TETRACHLOROETHYLENE	30	30	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
TOLUENE	500	1000	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
TRANS-1,2-DICHLOROETHYLENE	800	1000	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
TRICHLOROETHYLENE	20	100	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	6.1	--
VINYL CHLORIDE	0.4	0.5	--	ND(0.26)	--	--	ND(0.275)	--	ND(0.265)	--	ND(0.285)	--
XYLENES, MIXTURE	N/A	N/A	--	ND(0.13)	--	--	ND(0.135)	--	ND(0.13)	--	ND(0.145)	--
TOTAL CONCENTRATION OF VOCs			---	---	---	---	---	---	---	---	6.1	---
VPH												
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	500	500	--	--	--	ND(0.6)	--	6.8	--	--	--	14
MADEP C9-C10 AROMATIC HYDROCARBONS	500	500	--	--	--	ND(0.6)	--	8.2	--	--	--	ND(0.5)
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	2500	2500	--	--	--	ND(0.6)	--	11	--	--	--	ND(0.5)
TOTAL CONCENTRATION OF VPH			---	---	---	---	---	26	---	---	---	14

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location Sample ID Sample Medium Depth Date Unit	Method 1 Standard S-2/GW-2 mg/kg	Method 1 Standard S-2/GW-3 mg/kg	HA-2(MW) HA-2(MW) S4 Fill 7 to 9 7/18/2000 mg/kg	HA-2(MW) HA-2(MW) S5 Organic / Fluvial 9 to 11 7/18/2000 mg/kg	HA-3(MW) HA-3(MW) S2 Fill 3 to 5 7/18/2000 mg/kg	HA-3(MW) HA-3(MW) S3 Fill 5 to 6.8 7/18/2000 mg/kg	HA-3(MW) HA-3(MW) S4 Fluvial 9 to 11 7/18/2000 mg/kg	HA-3(MW) HA-3(MW) S5 Fluvial / Glacial Till 11 to 13 7/18/2000 mg/kg	HA-3(MW) HA-3(MW) S6 Glacial Till 13 to 15 7/18/2000 mg/kg	HA-4(MW) HA-4(MW) S1 Fill 1 to 2.5 7/17/2000 mg/kg	HA-4(MW) HA-4(MW) S2 Fill 3 to 5 7/17/2000 mg/kg	HA-4(MW) HA-4(MW) S3 Fill 5 to 7 7/17/2000 mg/kg
EPH												
2-METHYLNAPHTHALENE	1000	1000	--	--	--	--	--	ND(0.26)	--	--	ND(0.325)	--
ACENAPHTHENE	2500	2500	--	--	--	--	--	**0.76**	--	--	ND(0.325)	--
ACENAPHTHYLENE	2500	1000	--	--	--	--	--	ND(0.26)	--	--	ND(0.325)	--
ANTHRACENE	2500	2500	--	--	--	--	--	ND(0.26)	--	--	ND(0.325)	--
BENZO(A)ANTHRACENE	1	1	--	--	--	--	--	ND(0.26)	--	--	ND(0.325)	--
BENZO(A)PYRENE	0.7	0.7	--	--	--	--	--	ND(0.26)	--	--	ND(0.325)	--
BENZO(B)FLUORANTHENE	1	1	--	--	--	--	--	ND(0.27)	--	--	ND(0.325)	--
BENZO(G,H,I)PERYLENE	2500	2500	--	--	--	--	--	ND(0.26)	--	--	ND(0.325)	--
BENZO(K)FLUORANTHENE	10	10	--	--	--	--	--	ND(0.26)	--	--	ND(0.325)	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	10	10	--	--	--	--	--	ND(0.26)	--	--	ND(0.325)	--
DIBENZ(A,H)ANTHRACENE	0.7	0.7	--	--	--	--	--	ND(0.26)	--	--	ND(0.325)	--
FLUORANTHENE	2000	1000	--	--	--	--	--	**4.3**	--	--	ND(0.325)	--
FLUORENE	2000	2000	--	--	--	--	--	ND(0.26)	--	--	ND(0.325)	--
INDENO(1,2,3-CD)PYRENE	1	1	--	--	--	--	--	ND(0.26)	--	--	ND(0.325)	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	2000	2000	--	--	--	--	--	**530**	--	--	ND(16.5)	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	5000	5000	--	--	--	--	--	**260**	--	--	ND(16.5)	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	2500	2500	--	--	--	--	--	**130**	--	--	ND(16.5)	--
NAPHTHALENE	1000	1000	--	--	--	--	--	ND(0.26)	--	--	ND(0.325)	--
PHENANTHRENE	2500	100	--	--	--	--	--	**1.6**	--	--	ND(0.325)	--
PYRENE	2000	2000	--	--	--	--	--	**4.1**	--	--	ND(0.325)	--
TOTAL CONCENTRATION OF EPH			--	--	--	--	--	930.76	--	--	--	--
TPH												
LUBRICATING OIL	N/A	N/A	--	--	--	--	--	--	--	--	--	--
OIL AND GREASE	2000	2000	--	--	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			--	--	--	--	--	--	--	--	--	--
METALS												
ALUMINUM	N/A	N/A	--	--	--	--	--	--	--	--	--	--
ARSENIC	30	30	ND(2.95)	--	ND(2.95)	--	--	ND(2.7)	--	**30**	--	**26**
CADMIUM	80	80	**1.8**	--	**1.7**	--	--	ND(0.27)	--	**1.2**	--	**1.1**
CHROMIUM	2500	2500	ND(6)	--	**35**	--	--	**20**	--	**14**	--	**12**
CHROMIUM (HEXAVALENT COMPOUNDS)	600	600	--	--	--	--	--	--	--	--	--	--
COPPER	N/A	N/A	**250**	--	**440**	--	--	**64**	--	**220**	--	**180**
IRON	N/A	N/A	--	--	--	--	--	--	--	--	--	--
LEAD	600	600	**34**	--	**98**	--	--	ND(5.5)	--	**430**	--	**380**
MERCURY	60	60	**3.2**	--	**0.34**	--	--	ND(0.0275)	--	**0.48**	--	**0.65**
NICKEL	700	700	**16**	--	**69**	--	--	**14**	--	ND(6.5)	--	ND(5.5)
SILVER	200	200	--	--	--	--	--	--	--	--	--	--
TIN	N/A	N/A	ND(29.5)	--	ND(29.5)	--	--	ND(27)	--	ND(31.5)	--	ND(28.5)
ZINC	2500	2500	**140**	--	**270**	--	--	ND(27)	--	**85**	--	**77**
Cyanide												
CYANIDE, PHYSIOLOGICALLY AVAILABLE	100	100	ND(0.6)	--	--	--	--	ND(0.55)	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	ND(0.6)	--	--	--	--	ND(0.55)	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table presents compounds detected in at least one sample
5. Bold results were detected above the laboratory reporting limit
6. Shaded results are detected compounds that exceed one or more of the numerical standards listed
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS 3-0585, 3-19850

Location Sample ID Sample Medium Depth Date Unit	Method 1 Standard S-2/GW-2 mg/kg	Method 1 Standard S-2/GW-3 mg/kg	HA-7C HA-7C S3 Fill / Fluvial 6 to 7.9 10/22/2000 mg/kg	HA-8(MW) HA-8(MW) S1 Fill 2.1 to 3.6 4/8/2002 mg/kg	HA-8(MW) HA-8(MW) C1 Fill 6 to 9 4/9/2002 mg/kg	HA-8(MW) HA-8(MW) C2 Fluvial 11 to 15 4/9/2002 mg/kg	HA-9(MW) HA-9(MW) S1 Fill 1.7 to 2.5 4/8/2002 mg/kg	HA-9(MW) HA-9(MW) S2 Fill 3 to 5 4/8/2002 mg/kg	HA-9(MW) HA-9(MW) S3 Fill 6 to 8 4/10/2002 mg/kg	HA-9(MW) HA-9(MW) S6 Fluvial 12 to 13.5 4/10/2002 mg/kg	HA-10(MW) HA-10(MW) S1 Fill 1.6 to 2.4 4/8/2002 mg/kg	HA-10(MW) HA-10(MW) C1 Fill 6 to 10 4/11/2002 mg/kg
EPH												
2-METHYLNAPHTHALENE	1000	1000	ND(0.28)	ND(0.285)	ND(0.29)	--	--	--	ND(0.3)	--	--	ND(0.305)
ACENAPHTHENE	2500	2500	ND(0.28)	ND(0.285)	ND(0.29)	--	--	--	ND(0.3)	--	--	ND(0.305)
ACENAPHTHYLENE	2500	1000	ND(0.28)	ND(0.285)	ND(0.29)	--	--	--	ND(0.3)	--	--	ND(0.305)
ANTHRACENE	2500	2500	ND(0.28)	ND(0.285)	ND(0.29)	--	--	--	1.4	--	--	ND(0.305)
BENZO(A)ANTHRACENE	1	1	ND(0.28)	0.66	ND(0.29)	--	--	--	2.2	--	--	ND(0.305)
BENZO(A)PYRENE	0.7	0.7	ND(0.28)	0.66	ND(0.29)	--	--	--	1.7	--	--	ND(0.305)
BENZO(B)FLUORANTHENE	1	1	ND(0.28)	0.8	ND(0.27)	--	--	--	1.9	--	--	ND(0.305)
BENZO(G,H,I)PERYLENE	2500	2500	ND(0.28)	ND(0.285)	ND(0.29)	--	--	--	0.69	--	--	ND(0.305)
BENZO(K)FLUORANTHENE	10	10	0.62	ND(0.285)	ND(0.29)	--	--	--	1	--	--	ND(0.305)
CHRYSENE (1,2-BENZPHENANTHRACENE)	10	10	0.6	0.68	ND(0.29)	--	--	--	2.2	--	--	ND(0.305)
DIBENZ(A,H)ANTHRACENE	0.7	0.7	ND(0.28)	ND(0.285)	ND(0.29)	--	--	--	ND(0.3)	--	--	ND(0.305)
FLUORANTHENE	2000	1000	ND(0.28)	1.2	ND(0.29)	--	--	--	4.7	--	--	ND(0.305)
FLUORENE	2000	2000	ND(0.28)	ND(0.285)	ND(0.29)	--	--	--	ND(0.3)	--	--	ND(0.305)
INDENO(1,2,3-CD)PYRENE	1	1	ND(0.28)	ND(0.285)	ND(0.29)	--	--	--	0.86	--	--	ND(0.305)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	2000	2000	1700	42	ND(17.5)	--	--	--	91	--	--	250
MADEP C19-C36 ALIPHATIC HYDROCARBONS	5000	5000	2900	58	ND(17.5)	--	--	--	110	--	--	540
MADEP C9-C18 ALIPHATIC HYDROCARBONS	2500	2500	200	ND(17)	ND(17.5)	--	--	--	ND(18)	--	--	280
NAPHTHALENE	1000	1000	ND(0.28)	ND(0.285)	ND(0.29)	--	--	--	ND(0.3)	--	--	ND(0.305)
PHENANTHRENE	2500	100	ND(0.28)	ND(0.285)	ND(0.29)	--	--	--	4.6	--	--	ND(0.305)
PYRENE	2000	2000	ND(0.28)	1.1	ND(0.29)	--	--	--	3.8	--	--	ND(0.305)
TOTAL CONCENTRATION OF EPH			4801.22	105.1	--	--	--	--	226.05	--	--	1070
TPH												
LUBRICATING OIL	N/A	N/A	--	--	--	--	--	--	--	--	--	--
OIL AND GREASE	2000	2000	--	--	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			--	--	--	--	--	--	--	--	--	--
METALS												
ALUMINUM	N/A	N/A	--	--	--	--	--	--	--	--	--	--
ARSENIC	30	30	--	30	--	ND(0.6)	4.8	--	3.7	--	6.9	--
CADMIUM	80	80	2.5	35	--	ND(0.29)	ND(0.355)	--	4	--	ND(0.3)	--
CHROMIUM	2500	2500	24	15	--	12	ND(7)	--	65	--	ND(6)	--
CHROMIUM (HEXAVALENT COMPOUNDS)	600	600	ND(0.6)	0.26	--	ND(0.055)	0.73	--	ND(0.06)	--	0.24	--
COPPER	N/A	N/A	120	880	--	ND(11.5)	270	--	330	--	1000	--
IRON	N/A	N/A	--	6200	--	9600	2800	--	8900	--	6000	--
LEAD	600	600	30	440	--	ND(6)	33	--	73	--	460	--
MERCURY	60	60	--	0.91	--	ND(0.018)	0.59	--	4.9	--	2.7	--
NICKEL	700	700	21	61	--	ND(6)	ND(7)	--	24	--	22	--
SILVER	200	200	--	--	--	--	--	--	--	--	--	--
TIN	N/A	N/A	ND(30.5)	--	--	--	--	--	--	--	--	--
ZINC	2500	2500	270	140	--	ND(29)	120	--	840	--	180	--
Cyanide												
CYANIDE, PHYSIOLOGICALLY AVAILABLE	100	100	4.1	--	--	--	--	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	48	ND(0.5)	--	--	--	--	96	--	ND(0.6)	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table presents compounds detected in at least one sample.
5. Bold results were detected above the laboratory reporting limit.
6. Shaded results are detected compounds that exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

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SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS 3-0585, 3-19850

Location	Method 1 Standard	Method 1 Standard	HA-11	HA-11	HA-12(MW)	HA-12(MW)	HA-13(MW)	HA-13(MW)	HA-13(MW)	HA-14	HA-14	HA-15
Sample ID			HA-11 S1	HA-11 C1	HA-12(MW) S1	HA-12(MW) S2	HA-13(MW) C1	HA-13(MW) S3	HA-13(MW) S4	HA-14 0.5-3.0	HA-14 3.0-6.0	HA-15 0.5-2.0
Sample Medium			Fill	Fill	Fill	Fill	Fill	Fill	Organic	Fill	Fill	Fill
Depth	S-2/GW-2	S-2/GW-3	0 to 2	6 to 8.2	2 to 4	7.5 to 8.9	2 to 4	8 to 9.5	9.5 to 10	0.5 to 3	3 to 6	0.5 to 2
Date			4/8/2002	4/8/2002	4/9/2002	4/9/2002	4/10/2002	4/10/2002	4/10/2002	4/22/2002	4/22/2002	4/22/2002
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs												
1,1,1-TRICHLOROETHANE	500	500	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
1,1,2,2-TETRACHLOROETHANE	0.2	0.6	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
1,1-DICHLOROETHYLENE	0.1	2	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
1,2,3-TRICHLOROPROPANE	N/A	N/A	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
4-ISOPROPYLTOLUENE	N/A	N/A	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
4-METHYL-2-PENTANONE (MIBK)	70	70	--	--	--	ND(0.032)	--	ND(1.35)	ND(2.05)	--	ND(3.1)	ND(1.25)
BENZENE	60	60	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
CARBON TETRACHLORIDE	4	10	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
CHLOROFORM	10	200	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
CIS-1,2-DICHLOROETHYLENE	500	500	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	2.3	ND(0.125)
ETHYL ACETATE	N/A	N/A	--	--	--	--	--	--	--	--	--	--
ETHYLBENZENE	1000	500	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
ISOPROPYLBENZENE	N/A	N/A	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
NAPHTHALENE	1000	1000	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
N-BUTYLBENZENE	N/A	N/A	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
N-PROPYLBENZENE	N/A	N/A	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
SEC-BUTYLBENZENE	N/A	N/A	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
TETRACHLOROETHYLENE	30	30	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
TOLUENE	500	1000	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
TRANS-1,2-DICHLOROETHYLENE	800	1000	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
TRICHLOROETHYLENE	20	100	--	--	--	ND(0.003)	--	0.6	ND(0.205)	--	17	0.94
VINYL CHLORIDE	0.4	0.5	--	--	--	ND(0.0065)	--	ND(0.265)	ND(0.405)	--	ND(0.6)	ND(0.25)
XYLENES, MIXTURE	N/A	N/A	--	--	--	ND(0.003)	--	ND(0.135)	ND(0.205)	--	ND(0.31)	ND(0.125)
TOTAL CONCENTRATION OF VOCs			--	--	--	--	--	0.6	--	--	19.3	0.94
VPH												
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	500	500	--	--	--	ND(0.5)	--	47	--	--	--	--
MADEP C9-C10 AROMATIC HYDROCARBONS	500	500	--	--	--	ND(0.5)	--	25	--	--	--	--
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	2500	2500	--	--	--	ND(0.5)	--	37	--	--	--	--
TOTAL CONCENTRATION OF VPH			--	--	--	--	--	109	--	--	--	--

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location Sample ID Sample Medium Depth Date Unit	Method 1 Standard S-2/GW-2 mg/kg	Method 1 Standard S-2/GW-3 mg/kg	HA-11 HA-11 S1 Fill 0 to 2 4/8/2002 mg/kg	HA-11 HA-11 C1 Fill 6 to 8.2 4/8/2002 mg/kg	HA-12(MW) HA-12(MW) S1 Fill 2 to 4 4/9/2002 mg/kg	HA-12(MW) HA-12(MW) S2 Fill 7.5 to 8.9 4/9/2002 mg/kg	HA-13(MW) HA-13(MW) C1 Fill 2 to 4 4/10/2002 mg/kg	HA-13(MW) HA-13(MW) S3 Fill 8 to 9.5 4/10/2002 mg/kg	HA-13(MW) HA-13(MW) S4 Organic 9.5 to 10 4/10/2002 mg/kg	HA-14 HA-14 0.5-3.0 Fill 0.5 to 3 4/22/2002 mg/kg	HA-14 HA-14 3.0-6.0 Fill 3 to 6 4/22/2002 mg/kg	HA-15 HA-15 0.5-2.0 Fill 0.5 to 2 4/22/2002 mg/kg
EPH												
2-METHYLNAPHTHALENE	1000	1000	--	ND(0.255)	--	ND(0.275)	ND(0.275)	ND(0.29)	--	--	ND(0.345)	ND(0.295)
ACENAPHTHENE	2500	2500	--	ND(0.255)	--	ND(0.275)	ND(0.275)	ND(0.29)	--	--	ND(0.345)	ND(0.295)
ACENAPHTHYLENE	2500	1000	--	ND(0.255)	--	ND(0.275)	ND(0.275)	ND(0.29)	--	--	ND(0.345)	ND(0.295)
ANTHRACENE	2500	2500	--	ND(0.255)	--	ND(0.275)	ND(0.275)	ND(0.29)	--	--	ND(0.345)	ND(0.295)
BENZO(A)ANTHRACENE	1	1	--	ND(0.255)	--	ND(0.275)	ND(0.275)	ND(0.29)	--	--	ND(0.345)	ND(0.295)
BENZO(A)PYRENE	0.7	0.7	--	ND(0.255)	--	ND(0.275)	ND(0.275)	ND(0.29)	--	--	ND(0.345)	ND(0.295)
BENZO(B)FLUORANTHENE	1	1	--	ND(0.255)	--	ND(0.275)	ND(0.275)	ND(0.29)	--	--	ND(0.345)	ND(0.295)
BENZO(G,H,I)PERYLENE	2500	2500	--	ND(0.255)	--	ND(0.275)	ND(0.275)	ND(0.29)	--	--	ND(0.345)	ND(0.295)
BENZO(K)FLUORANTHENE	10	10	--	ND(0.255)	--	ND(0.275)	ND(0.275)	ND(0.29)	--	--	ND(0.345)	ND(0.295)
CHRYSENE (1,2-BENZPHENANTHRACENE)	10	10	--	ND(0.255)	--	ND(0.275)	ND(0.275)	ND(0.29)	--	--	ND(0.345)	ND(0.295)
DIBENZ(A,H)ANTHRACENE	0.7	0.7	--	ND(0.255)	--	ND(0.275)	ND(0.275)	ND(0.29)	--	--	ND(0.345)	ND(0.295)
FLUORANTHENE	2000	1000	--	ND(0.255)	--	ND(0.275)	ND(0.275)	ND(0.29)	--	--	ND(0.345)	ND(0.295)
FLUORENE	2000	2000	--	ND(0.255)	--	ND(0.275)	ND(0.275)	ND(0.29)	--	--	ND(0.345)	ND(0.295)
INDENO(1,2,3-CD)PYRENE	1	1	--	ND(0.255)	--	ND(0.275)	ND(0.275)	ND(0.29)	--	--	ND(0.345)	ND(0.295)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	2000	2000	--	ND(15.5)	--	ND(16.5)	ND(16.5)	**680**	--	--	**190**	ND(17.5)
MADEP C19-C36 ALIPHATIC HYDROCARBONS	5000	5000	--	ND(15.5)	--	ND(16.5)	**40**	**1000**	--	--	**360**	**68**
MADEP C9-C18 ALIPHATIC HYDROCARBONS	2500	2500	--	ND(15.5)	--	ND(16.5)	ND(16.5)	**96**	--	--	ND(20.5)	ND(17.5)
NAPHTHALENE	1000	1000	--	ND(0.255)	--	ND(0.275)	ND(0.275)	ND(0.29)	--	--	ND(0.345)	ND(0.295)
PHENANTHRENE	2500	100	--	ND(0.255)	--	ND(0.275)	ND(0.275)	ND(0.29)	--	--	ND(0.345)	ND(0.295)
PYRENE	2000	2000	--	ND(0.255)	--	ND(0.275)	ND(0.275)	ND(0.29)	--	--	ND(0.345)	ND(0.295)
TOTAL CONCENTRATION OF EPH			--	--	--	--	40	1776	--	--	550	68
TPH												
LUBRICATING OIL	N/A	N/A	--	--	--	--	--	--	--	--	--	--
OIL AND GREASE	2000	2000	--	--	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			--	--	--	--	--	--	--	--	--	--
METALS												
ALUMINUM	N/A	N/A	--	--	--	--	--	--	--	--	--	--
ARSENIC	30	30	**3.5**	**1.4**	**5.6**	--	**6.4**	**3.5**	--	**1.8**	**6**	**1.8**
CADMIUM	80	80	ND(0.28)	ND(0.265)	**1.1**	--	ND(0.29)	**2.1**	--	**77**	**130**	**200**
CHROMIUM	2500	2500	ND(5.5)	ND(5.5)	**49**	--	ND(6)	**130**	--	**100**	**280**	**210**
CHROMIUM (HEXAVALENT COMPOUNDS)	600	600	ND(0.055)	ND(0.055)	**5.7**	--	ND(0.055)	ND(0.06)	--	**0.13**	ND(0.07)	**0.37**
COPPER	N/A	N/A	ND(11.5)	**22**	**270**	--	**200**	**470**	--	ND(11.5)	**50**	ND(12)
IRON	N/A	N/A	**7000**	**3500**	**10000**	--	**5000**	**9600**	--	**2200**	**4500**	**8700**
LEAD	600	600	**19**	ND(5.5)	**150**	--	**140**	**42**	--	**26**	**220**	**87**
MERCURY	60	60	**0.45**	**0.5**	**1.1**	--	**0.93**	**1.5**	--	**0.08**	**0.52**	**0.11**
NICKEL	700	700	ND(5.5)	ND(5.5)	**51**	--	ND(6)	**38**	--	**13**	**86**	**74**
SILVER	200	200	--	--	--	--	--	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--	--	--	--	--	--
ZINC	2500	2500	ND(28)	ND(26.5)	**430**	--	**100**	**110**	--	**240**	**510**	**390**
Cyanide												
CYANIDE, PHYSIOLOGICALLY AVAILABLE	100	100	--	--	--	--	--	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	ND(0.55)	--	--	ND(0.5)	ND(0.55)	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit
   Value in parentheses is one-half the reporting limit
2. --: Analysis not conducted
3. N/A: Not available.
4. This table presents compounds detected in at least one sample
5. Bold results were detected above the laboratory reporting limit
6. Shaded results are detected compounds that exceed one or more of the numerical standards listed
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS 3-0585, 3-19850

Location Sample ID Sample Medium Depth Date Unit	Method 1 Standard S-2/GW-2 mg/kg	Method 1 Standard S-2/GW-3 mg/kg	HA-102(MW) HA-102(MW) S3 Fill 5 to 7 12/15/2000 mg/kg	HA-103 HA-103 S3 Fill 5 to 7 12/15/2000 mg/kg	HA-301(MW) HA-301(MW) S2 Fill 3 to 5 12/18/2000 mg/kg	HA-301(MW) HA-301(MW) S3 Fill 5 to 7 12/18/2000 mg/kg	HA-301(MW) HA-301(MW) S8 Fill / Organic 12 to 14 12/18/2000 mg/kg	HA-302(MW) HA-302(MW) S2 Fill 3 to 5 12/19/2000 mg/kg	HA-302(MW) HA-302(MW) S4 Fill 5 to 7 12/19/2000 mg/kg	HA-302(MW) HA-302(MW) S5A Fluvial 10 to 11 12/19/2000 mg/kg
VOCs										
1,1,1-TRICHLOROETHANE	500	500	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
1,1,2,2-TETRACHLOROETHANE	0.2	0.5	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
1,1-DICHLOROETHYLENE	0.1	2	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
1,2,3-TRICHLOROPROPANE	N/A	N/A	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
4-METHYL-2-PENTANONE (MIBK)	70	70	ND(25.5)	ND(1.25)	ND(1.25)	ND(1.3)	ND(1.3)	ND(55)	ND(28.5)	ND(1.45)
BENZENE	60	60	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
CARBON TETRACHLORIDE	4	10	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
CHLOROFORM	10	200	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
CIS-1,2-DICHLOROETHYLENE	500	500	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
ETHYL ACETATE	N/A	N/A	ND(25.5)	ND(1.25)	ND(1.25)	ND(1.3)	ND(1.3)	ND(55)	ND(28.5)	ND(14.5)
ETHYLBENZENE	1000	500	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
ISOPROPYLBENZENE	N/A	N/A	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
NAPHTHALENE	1000	1000	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
N-BUTYLBENZENE	N/A	N/A	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
N-PROPYLBENZENE	N/A	N/A	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
SEC-BUTYLBENZENE	N/A	N/A	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
TETRACHLOROETHYLENE	30	30	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(0.55)	ND(2.85)	ND(0.145)
TOLUENE	500	1000	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.145)	ND(5.5)	ND(2.85)	ND(0.145)
TRANS-1,2-DICHLOROETHYLENE	800	1000	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
TRICHLOROETHYLENE	20	100	ND(2.55)	ND(0.125)	0.65	0.8	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
VINYL CHLORIDE	0.4	0.5	ND(5)	ND(0.25)	ND(0.25)	ND(0.26)	ND(0.255)	ND(11)	ND(5.5)	ND(0.285)
XYLENES, MIXTURE	N/A	N/A	ND(2.55)	ND(0.125)	ND(0.125)	ND(0.13)	ND(0.13)	ND(5.5)	ND(2.85)	ND(0.145)
TOTAL CONCENTRATION OF VOCs			---	---	0.65	0.8	---	---	---	---
VPH										
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	500	500	–	–	2.2	1.9	ND(0.5)	720	2500	28
MADEP C9-C10 AROMATIC HYDROCARBONS	500	500	–	–	1.9	32	ND(0.5)	180	410	3
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	2500	2500	–	–	ND(0.65)	14	ND(0.5)	250	770	8.4
TOTAL CONCENTRATION OF VPH			---	---	4.1	47.9	---	1150	3680	39.4

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location Sample ID Sample Medium Depth Date Unit	Method 1 Standard S-2/GW-2 mg/kg	Method 1 Standard S-2/GW-3 mg/kg	HA-302(MW) HA-302(MW) S6 Fluvial 11 to 13 12/19/2000 mg/kg	HA-303(MW) HA-303(MW) S2 Fill 3 to 5 12/18/2000 mg/kg	HA-303(MW) HA-303(MW) S3 Fill 5 to 7 12/18/2000 mg/kg	HA-303(MW) HA-303(MW) S5 Organic 9 to 11 12/18/2000 mg/kg	HA-303(MW) HA-303(MW) S6 Fluvial 11 to 13 12/18/2000 mg/kg	HA-402(MW) HA-402(MW) S2 Fill 2 to 4 4/12/2002 mg/kg	HA-402(MW) HA-402(MW) S3 Fill 6 to 8 4/12/2002 mg/kg	HA-403(MW) HA-403(MW) C1 Fill 6 to 10 4/12/2002 mg/kg
VOCs										
1,1,1-TRICHLOROETHANE	500	500	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	ND(0.9)	ND(0.135)	ND(0.275)
1,1,2,2-TETRACHLOROETHANE	0.2	0.6	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	ND(0.9)	ND(0.135)	ND(0.275)
1,1-DICHLOROETHYLENE	0.1	2	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	ND(0.9)	ND(0.135)	ND(0.275)
1,2,3-TRICHLOROPROPANE	N/A	N/A	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	ND(0.9)	ND(0.135)	ND(0.275)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	3.5	ND(0.135)	ND(0.275)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	7.9	ND(0.135)	ND(0.275)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	ND(0.9)	0.51	ND(0.275)
4-METHYL-2-PENTANONE (MIBK)	70	70	ND(1.45)	ND(47.5)	ND(48.5)	ND(1.25)	ND(1.25)	ND(9)	ND(1.35)	ND(2.75)
BENZENE	60	60	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	8.5	ND(0.135)	ND(0.275)
CARBON TETRACHLORIDE	4	10	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	ND(0.9)	ND(0.135)	ND(0.275)
CHLOROFORM	10	200	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	ND(0.9)	ND(0.135)	ND(0.275)
CIS-1,2-DICHLOROETHYLENE	500	500	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	25	0.45	0.58
ETHYL ACETATE	N/A	N/A	ND(1.45)	ND(47.5)	ND(48.5)	ND(1.25)	ND(1.25)	-	-	-
ETHYLBENZENE	1000	500	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	2	ND(0.135)	ND(0.275)
ISOPROPYLBENZENE	N/A	N/A	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	ND(0.9)	ND(0.135)	ND(0.275)
NAPHTHALENE	1000	1000	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	ND(0.9)	ND(0.135)	ND(0.275)
N-BUTYLBENZENE	N/A	N/A	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	ND(0.9)	ND(0.135)	ND(0.275)
N-PROPYLBENZENE	N/A	N/A	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	ND(0.9)	ND(0.135)	ND(0.275)
SEC-BUTYLBENZENE	N/A	N/A	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	ND(0.9)	0.27	ND(0.275)
TETRACHLOROETHYLENE	30	30	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	ND(0.9)	ND(0.135)	ND(0.275)
TOLUENE	500	1000	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	24	ND(0.135)	ND(0.275)
TRANS-1,2-DICHLOROETHYLENE	800	1000	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	ND(0.9)	ND(0.135)	ND(0.275)
TRICHLOROETHYLENE	20	100	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	35	ND(0.135)	0.82
VINYL CHLORIDE	0.4	0.5	ND(0.295)	ND(9.5)	ND(0.95)	ND(0.25)	ND(0.25)	ND(1.8)	ND(0.275)	ND(0.55)
XYLENES, MIXTURE	N/A	N/A	ND(0.145)	ND(4.75)	ND(4.85)	ND(0.125)	ND(0.125)	33.3	ND(0.135)	ND(0.275)
TOTAL CONCENTRATION OF VOCs			--	--	--	--	--	139.2	1.23	1.4
VPH										
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	500	500	3.6	380	31	1100	8.9	47	200	34
MADEP C9-C10 AROMATIC HYDROCARBONS	500	500	2.1	190	6.3	210	1.1	46	93	53
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	2500	2500	ND(0.65)	81	15	400	2.6	28	140	53
TOTAL CONCENTRATION OF VPH			5.7	651	52.3	1710	12.6	121	433	140

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS 3-0585, 3-19850

Location	Method 1 Standard	Method 1 Standard	HA-302(MW)	HA-303(MW)	HA-303(MW)	HA-303(MW)	HA-303(MW)	HA-402(MW)	HA-402(MW)	HA-403(MW)
Sample ID			HA-302(MW) S6	HA-303(MW) S2	HA-303(MW) S3	HA-303(MW) S5	HA-303(MW) S6	HA-402(MW) S2	HA-402(MW) S3	HA-403(MW) C1
Sample Medium			Fluvial	Fill	Fill	Organic	Fluvial	Fill	Fill	Fill
Depth	S-2/GW-2	S-2/GW-3	11 to 13	3 to 5	5 to 7	9 to 11	11 to 13	2 to 4	6 to 8	6 to 10
Date			12/19/2000	12/18/2000	12/18/2000	12/18/2000	12/18/2000	4/12/2002	4/12/2002	4/12/2002
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EPH										
2-METHYLNAPHTHALENE	1000	1000	ND(0.305)	ND(0.285)	ND(0.27)	ND(0.305)	ND(0.28)	**5**	ND(0.265)	ND(0.27)
ACENAPHTHENE	2500	2500	ND(0.305)	ND(0.285)	ND(0.27)	ND(0.305)	ND(0.28)	ND(0.335)	ND(0.265)	ND(0.27)
ACENAPHTHYLENE	2500	1000	ND(0.305)	ND(0.285)	ND(0.27)	ND(0.305)	ND(0.28)	ND(0.335)	ND(0.265)	ND(0.27)
ANTHRACENE	2500	2500	ND(0.305)	ND(0.285)	ND(0.27)	ND(0.305)	ND(0.28)	ND(0.335)	ND(0.265)	ND(0.27)
BENZO(A)ANTHRACENE	1	1	ND(0.305)	ND(0.285)	ND(0.27)	ND(0.305)	ND(0.28)	ND(0.335)	ND(0.265)	ND(0.27)
BENZO(A)PYRENE	0.7	0.7	ND(0.305)	ND(0.265)	ND(0.27)	ND(0.305)	ND(0.28)	ND(0.335)	ND(0.265)	ND(0.27)
BENZO(B)FLUORANTHENE	1	1	ND(0.305)	ND(0.285)	ND(0.27)	ND(0.305)	ND(0.28)	**0.71**	ND(0.265)	ND(0.27)
BENZO(G,H,I)PERYLENE	2500	2500	ND(0.305)	ND(0.285)	ND(0.27)	ND(0.305)	ND(0.28)	ND(0.335)	ND(0.265)	ND(0.27)
BENZO(K)FLUORANTHENE	10	10	ND(0.305)	ND(0.265)	ND(0.27)	ND(0.305)	ND(0.28)	ND(0.335)	ND(0.265)	ND(0.27)
CHRYSENE (1,2-BENZPHENANTHRACENE)	10	10	ND(0.305)	ND(0.265)	ND(0.27)	ND(0.305)	ND(0.28)	**1.7**	ND(0.265)	ND(0.27)
DIBENZ(A,H)ANTHRACENE	0.7	0.7	ND(0.305)	ND(0.265)	ND(0.27)	ND(0.305)	ND(0.28)	ND(0.335)	ND(0.265)	ND(0.27)
FLUORANTHENE	2000	1000	ND(0.305)	**0.68**	ND(0.27)	ND(0.305)	ND(0.28)	ND(0.335)	ND(0.265)	ND(0.27)
FLUORENE	2000	2000	ND(0.305)	ND(0.285)	ND(0.27)	ND(0.305)	ND(0.28)	ND(0.335)	ND(0.265)	ND(0.27)
INDENO(1,2,3-CD)PYRENE	1	1	ND(0.305)	ND(0.265)	ND(0.27)	ND(0.305)	ND(0.28)	ND(0.335)	ND(0.265)	ND(0.27)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	2000	2000	ND(18.5)	**47**	**100**	ND(18)	ND(16.5)	**370**	**61**	**150**
MADEP C19-C36 ALIPHATIC HYDROCARBONS	5000	5000	ND(18.5)	**58**	**54**	ND(18)	ND(16.5)	**410**	**97**	**200**
MADEP C9-C18 ALIPHATIC HYDROCARBONS	2500	2500	ND(18.5)	**190**	**410**	ND(18)	ND(16.5)	**200**	**230**	**510**
NAPHTHALENE	1000	1000	ND(0.305)	ND(0.285)	ND(0.27)	ND(0.305)	ND(0.28)	**6.3**	ND(0.265)	ND(0.27)
PHENANTHRENE	2500	100	ND(0.305)	ND(0.285)	ND(0.27)	ND(0.305)	ND(0.28)	**0.7**	ND(0.265)	ND(0.27)
PYRENE	2000	2000	ND(0.305)	ND(0.285)	ND(0.27)	ND(0.305)	ND(0.28)	ND(0.335)	ND(0.265)	ND(0.27)
TOTAL CONCENTRATION OF EPH			--	295.68	564	--	--	994.41	388	860
TPH										
LUBRICATING OIL	N/A	N/A	--	--	--	--	--	--	--	--
OIL AND GREASE	2000	2000	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			--	--	--	--	--	--	--	--
METALS										
ALUMINUM	N/A	N/A	--	--	--	--	--	--	--	--
ARSENIC	30	30	--	--	--	--	--	--	--	--
CADMIUM	80	80	--	--	--	--	--	--	--	--
CHROMIUM	2500	2500	--	--	--	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	600	600	--	--	--	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--	--	--	--
LEAD	600	600	ND(6)	**25**	**13**	--	--	--	--	--
MERCURY	60	60	--	--	--	--	--	--	--	--
NICKEL	700	700	--	--	--	--	--	--	--	--
SILVER	200	200	--	--	--	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--	--	--	--
ZINC	2500	2500	--	--	--	--	--	--	--	--
Cyanide										
CYANIDE, PHYSIOLOGICALLY AVAILABLE	100	100	--	--	--	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table presents compounds detected in at least one sample.
5. Bold results were detected above the laboratory reporting limit.
6. Shaded results are detected compounds that exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location	Method 1 Standard	Method 1 Standard	HA-501(MW)	HA-501(MW)	HA-501(MW)	HA-502(MW)	HA-502(MW)	HA-502(MW)	HA-502(MW)	HA-503(MW)
Sample ID			HA-501(MW) C1	HA-501(MW) C3	HA-501(MW) S5	HA-502(MW) S1	HA-502(MW) C1	HA-502(MW) S4A	HA-502(MW) S5	HA-503(MW) S1
Sample Medium			Fill	Organic / Fluvial	Glacial Till	Fill	Fluvial	Glacial Till	Glacial Till	Fill
Depth	S-2/GW-2	S-2/GW-3	1 to 4.5	10 to 12	12 to 14	1 to 3	11.5 to 13.5	13.5 to 14	14 to 16	2 to 4
Date			4/18/2002	4/19/2002	4/19/2002	4/17/2002	4/18/2002	4/18/2002	4/18/2002	4/17/2002
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs										
1,1,1-TRICHLOROETHANE	500	500	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	ND(0.28)
1,1,2,2-TETRACHLOROETHANE	0.2	0.6	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	ND(0.28)
1,1-DICHLOROETHYLENE	0.1	2	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	ND(0.28)
1,2,3-TRICHLOROPROPANE	N/A	N/A	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	ND(0.28)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	2.3
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	0.67
4-ISOPROPYLTOLUENE	N/A	N/A	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	1.5
4-METHYL-2-PENTANONE (MIBK)	70	70	ND(43.5)	ND(0.0455)	ND(0.034)	ND(17)	ND(0.0365)	ND(1.25)	ND(1.25)	ND(2.8)
BENZENE	60	60	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	ND(0.28)
CARBON TETRACHLORIDE	4	10	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	ND(0.28)
CHLOROFORM	10	200	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	ND(0.28)
CIS-1,2-DICHLOROETHYLENE	500	500	36	0.033	0.088	3.4	0.34	0.91	0.79	ND(0.28)
ETHYL ACETATE	N/A	N/A	--	--	--	--	--	--	--	--
ETHYLBENZENE	1000	500	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	ND(0.28)
ISOPROPYLBENZENE	N/A	N/A	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	ND(0.28)
NAPHTHALENE	1000	1000	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	ND(0.28)
N-BUTYLBENZENE	N/A	N/A	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	3.2
N-PROPYLBENZENE	N/A	N/A	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	0.81
SEC-BUTYLBENZENE	N/A	N/A	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	1.6
TETRACHLOROETHYLENE	30	30	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	ND(0.28)
TOLUENE	500	1000	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	ND(0.28)
TRANS-1,2-DICHLOROETHYLENE	800	1000	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	ND(0.28)
TRICHLOROETHYLENE	20	100	190	0.024	0.013	140	0.1	1.1	2.2	ND(0.28)
VINYL CHLORIDE	0.4	0.5	ND(8.5)	ND(0.009)	ND(0.007)	ND(3.4)	0.045	ND(0.25)	ND(0.25)	ND(0.55)
XYLENES, MIXTURE	N/A	N/A	ND(4.35)	ND(0.0045)	ND(0.0035)	ND(1.7)	ND(0.0035)	ND(0.125)	ND(0.125)	ND(0.28)
TOTAL CONCENTRATION OF VOCs			226	0.057	0.101	143.4	0.485	2.01	2.99	10.08
VPH										
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	500	500	32	ND(0.55)	--	22	ND(0.55)	--	--	150
MADEP C9-C10 AROMATIC HYDROCARBONS	500	500	ND(0.65)	ND(0.55)	--	ND(0.55)	ND(0.55)	--	--	140
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	2500	2500	ND(0.65)	ND(0.55)	--	ND(0.55)	ND(0.55)	--	--	130
TOTAL CONCENTRATION OF VPH			32	---	---	22	---	---	---	420

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location Sample ID Sample Medium Depth Date Unit	Method 1 Standard S-2/GW-2 mg/kg	Method 1 Standard S-2/GW-3 mg/kg	HA-501(MW) HA-501(MW) C1 Fill 1 to 4.5 4/18/2002 mg/kg	HA-501(MW) HA-501(MW) C3 Organic / Fluvial 10 to 12 4/19/2002 mg/kg	HA-501(MW) HA-501(MW) S5 Glacial Till 12 to 14 4/19/2002 mg/kg	HA-502(MW) HA-502(MW) S1 Fill 1 to 3 4/17/2002 mg/kg	HA-502(MW) HA-502(MW) C1 Fluvial 11.5 to 13.5 4/18/2002 mg/kg	HA-502(MW) HA-502(MW) S4A Glacial Till 13.5 to 14 4/18/2002 mg/kg	HA-502(MW) HA-502(MW) S5 Glacial Till 14 to 16 4/18/2002 mg/kg	HA-503(MW) HA-503(MW) S1 Fill 2 to 4 4/17/2002 mg/kg
EPH										
2-METHYLNAPHTHALENE	1000	1000	ND(0.325)	ND(0.295)	--	ND(0.255)	ND(0.275)	--	--	**1.7**
ACENAPHTHENE	2500	2500	ND(0.325)	ND(0.295)	--	ND(0.255)	ND(0.275)	--	--	ND(0.55)
ACENAPHTHYLENE	2500	1000	ND(0.325)	ND(0.295)	--	ND(0.255)	ND(0.275)	--	--	ND(0.55)
ANTHRACENE	2500	2500	ND(0.325)	ND(0.295)	--	ND(0.255)	ND(0.275)	--	--	ND(0.55)
BENZO(A)ANTHRACENE	1	1	**1.4**	ND(0.295)	--	**2**	ND(0.275)	--	--	**3.1**
BENZO(A)PYRENE	0.7	0.7	**1.3**	ND(0.295)	--	**2**	ND(0.275)	--	--	ND(0.55)
BENZO(B)FLUORANTHENE	1	1	**1.9**	ND(0.295)	--	**5.8**	ND(0.275)	--	--	**2.5**
BENZO(G,H,I)PERYLENE	2500	2500	ND(0.325)	ND(0.295)	--	**3.8**	ND(0.275)	--	--	ND(0.55)
BENZO(K)FLUORANTHENE	10	10	**1.1**	ND(0.295)	--	**1.4**	ND(0.275)	--	--	**1.3**
CHRYSENE (1,2-BENZPHENANTHRACENE)	10	10	**2.3**	ND(0.295)	--	**2**	ND(0.275)	--	--	**4.8**
DIBENZ(A,H)ANTHRACENE	0.7	0.7	ND(0.325)	ND(0.295)	--	**0.55**	ND(0.275)	--	--	ND(0.55)
FLUORANTHENE	2000	1000	**1.1**	ND(0.295)	--	**3.1**	ND(0.275)	--	--	**7.9**
FLUORENE	2000	2000	ND(0.325)	ND(0.295)	--	ND(0.255)	ND(0.275)	--	--	**1.1**
INDENO(1,2,3-CD)PYRENE	1	1	**0.74**	ND(0.295)	--	**5.5**	ND(0.275)	--	--	ND(0.55)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	2000	2000	**170**	ND(18)	--	**55**	ND(16.5)	--	--	**2100**
MADEP C19-C36 ALIPHATIC HYDROCARBONS	5000	5000	**110**	ND(18)	--	**48**	ND(16.5)	--	--	**3700**
MADEP C9-C18 ALIPHATIC HYDROCARBONS	2500	2500	ND(19.5)	ND(18)	--	ND(15)	ND(16.5)	--	--	**2300**
NAPHTHALENE	1000	1000	ND(0.325)	ND(0.295)	--	ND(0.255)	ND(0.275)	--	--	ND(0.55)
PHENANTHRENE	2500	100	**0.82**	ND(0.295)	--	ND(0.255)	ND(0.275)	--	--	**3.9**
PYRENE	2000	2000	**1.4**	ND(0.295)	--	**2.6**	ND(0.275)	--	--	**3.3**
TOTAL CONCENTRATION OF EPH			292.06	--	--	131.75	--	--	--	8129.6
TPH										
LUBRICATING OIL	N/A	N/A	--	--	--	--	--	--	--	--
OIL AND GREASE	2000	2000	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			--	--	--	--	--	--	--	--
METALS										
ALUMINUM	N/A	N/A	--	--	--	--	--	--	--	--
ARSENIC	30	30	--	--	--	--	--	--	--	--
CADMIUM	80	80	--	--	--	--	--	--	--	--
CHROMIUM	2500	2500	--	--	--	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	600	600	--	--	--	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--	--	--	--
LEAD	600	600	--	--	--	--	--	--	--	--
MERCURY	60	60	--	--	--	--	--	--	--	--
NICKEL	700	700	--	--	--	--	--	--	--	--
SILVER	200	200	--	--	--	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--	--	--	--
ZINC	2500	2500	--	--	--	--	--	--	--	--
Cyanide										
CYANIDE, PHYSIOLOGICALLY AVAILABLE	100	100	--	--	--	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit
Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table presents compounds detected in at least one sample
5. Bold results were detected above the laboratory reporting limit
6. Shaded results are detected compounds that exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location	Method 1 Standard	Method 1 Standard	HA-503(MW)	HA-503(MW)	HA-503(MW)	HA-504(MW)	HA-504(MW)	HA-504(MW)	HA-504(MW)	HA-601	HA-602
Sample ID			HA-503(MW) C1	HA-503(MW) C2	HA-503(MW) S6	HA-504(MW) S1	HA-504(MW) S3	HA-504(MW) S5	HA-504(MW) S6	HA-601 S1	HA-602 S1
Sample Medium			Fill	Fill / Organic	Glacial Till	Fill	Fill	Organic	Glacial Till	Fill	Fill
Depth	S-2/GW-2	S-2/GW-3	5 to 7	8 to 12	12 to 14	1 to 3	6 to 8	10 to 11	12 to 14	2 to 3	0.5 to 2
Date			4/18/2002	4/18/2002	4/18/2002	4/18/2002	4/19/2002	4/19/2002	4/19/2002	1/27/2003	3/18/2003
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs											
1,1,1-TRICHLOROETHANE	500	500	ND(0.125)	ND(0.15)	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
1,1,2,2-TETRACHLOROETHANE	0.2	0.6	ND(0.125)	ND(0.15)	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
1,1-DICHLOROETHYLENE	0.1	2	0.44	ND(0.15)	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
1,2,3-TRICHLOROPROPANE	N/A	N/A	ND(0.125)	ND(0.15)	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	1.7	0.83	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(0.125)	0.49	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
4-ISOPROPYLTOLUENE	N/A	N/A	0.34	ND(0.15)	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
4-METHYL-2-PENTANONE (MIBK)	70	70	ND(1.25)	ND(1.25)	ND(4.85)	ND(1.25)	ND(13)	ND(0.06)	ND(0.0425)	ND(1.7)	ND(1.3)
BENZENE	60	60	ND(0.125)	ND(0.15)	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
CARBON TETRACHLORIDE	4	10	ND(0.125)	ND(0.15)	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
CHLOROFORM	10	200	ND(0.125)	ND(0.15)	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
CIS-1,2-DICHLOROETHYLENE	500	500	3.3	4.8	4.1	0.44	29	ND(0.006)	ND(0.0045)	1.1	0.32
ETHYL ACETATE	N/A	N/A	--	--	--	--	--	--	--	--	--
ETHYLBENZENE	1000	500	ND(0.125)	ND(0.15)	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
ISOPROPYLBENZENE	N/A	N/A	ND(0.125)	ND(0.15)	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
NAPHTHALENE	1000	1000	0.91	ND(0.15)	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
N-BUTYLBENZENE	N/A	N/A	ND(0.125)	ND(0.15)	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
N-PROPYLBENZENE	N/A	N/A	0.45	ND(0.15)	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
SEC-BUTYLBENZENE	N/A	N/A	0.76	ND(0.15)	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
TETRACHLOROETHYLENE	30	30	ND(0.125)	ND(0.15)	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
TOLUENE	500	1000	0.27	0.43	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
TRANS-1,2-DICHLOROETHYLENE	800	1000	0.44	ND(0.15)	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
TRICHLOROETHYLENE	20	100	3	0.64	29	4.5	100	ND(0.006)	0.073	5.4	5.9
VINYL CHLORIDE	0.4	0.5	ND(0.25)	10	ND(0.95)	ND(0.25)	ND(2.6)	ND(0.0125)	ND(0.0085)	ND(0.345)	ND(0.255)
XYLENES, MIXTURE	N/A	N/A	ND(0.125)	0.32	ND(0.485)	ND(0.125)	ND(1.3)	ND(0.006)	ND(0.0045)	ND(0.17)	ND(0.13)
TOTAL CONCENTRATION OF VOCs			11.61	17.51	33.1	4.94	129	---	0.073	6.5	6.22
VPH											
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	500	500	78	39	--	3.5	4	ND(0.7)	--	1.5	3.8
MADEP C9-C10 AROMATIC HYDROCARBONS	500	500	20	34	--	2.4	11	ND(0.7)	--	ND(0.55)	ND(0.55)
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	2500	2500	130	36	--	2.3	6.2	ND(0.7)	--	ND(0.55)	ND(0.55)
TOTAL CONCENTRATION OF VPH			228	109	---	8.2	21.2	---	---	1.5	3.8

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location	Method 1 Standard	Method 1 Standard	HA-503(MW)	HA-503(MW)	HA-503(MW)	HA-504(MW)	HA-504(MW)	HA-504(MW)	HA-504(MW)	HA-601	HA-602
Sample ID			HA-503(MW) C1	HA-503(MW) C2	HA-503(MW) S6	HA-504(MW) S1	HA-504(MW) S3	HA-504(MW) S5	HA-504(MW) S6	HA-601 S1	HA-602 S1
Sample Medium			Fill	Fill / Organic	Glacial Till	Fill	Fill	Organic	Glacial Till	Fill	Fill
Depth	S-2/GW-2	S-2/GW-3	5 to 7	8 to 12	12 to 14	1 to 3	6 to 8	10 to 11	12 to 14	2 to 3	0.5 to 2
Date			4/18/2002	4/18/2002	4/16/2002	4/18/2002	4/19/2002	4/19/2002	4/19/2002	1/27/2003	3/18/2003
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EPH											
2-METHYLNAPHTHALENE	1000	1000	8.9	ND(0.325)	--	ND(0.275)	ND(0.29)	ND(0.35)	--	ND(0.28)	ND(0.27)
ACENAPHTHENE	2500	2500	1.5	ND(0.325)	--	ND(0.275)	ND(0.29)	ND(0.35)	--	ND(0.28)	ND(0.27)
ACENAPHTHYLENE	2500	1000	1.2	ND(0.325)	--	ND(0.275)	ND(0.28)	ND(0.27)	--	ND(0.28)	ND(0.27)
ANTHRACENE	2500	2500	ND(0.26)	ND(0.325)	--	ND(0.275)	ND(0.29)	0.8	--	ND(0.28)	ND(0.27)
BENZO(A)ANTHRACENE	1	1	3	ND(0.325)	--	ND(0.275)	ND(0.29)	1.2	--	ND(0.28)	1.2
BENZO(A)PYRENE	0.7	0.7	4.1	ND(0.325)	--	ND(0.275)	ND(0.29)	0.98	--	ND(0.28)	1.5
BENZO(B)FLUORANTHENE	1	1	2.1	ND(0.325)	--	ND(0.275)	ND(0.29)	1.2	--	ND(0.29)	1.5
BENZO(G,H,I)PERYLENE	2500	2500	ND(0.28)	ND(0.325)	--	ND(0.275)	ND(0.29)	ND(0.35)	--	ND(0.28)	1.1
BENZO(K)FLUORANTHENE	10	10	2.4	ND(0.325)	--	ND(0.275)	ND(0.29)	ND(0.35)	--	ND(0.28)	0.95
CHRYSENE (1,2-BENZPHENANTHRACENE)	10	10	7.2	ND(0.325)	--	0.56	ND(0.29)	1	--	ND(0.28)	1.4
DIBENZ(A,H)ANTHRACENE	0.7	0.7	ND(0.28)	ND(0.325)	--	ND(0.275)	ND(0.29)	ND(0.35)	--	ND(0.28)	ND(0.27)
FLUORANTHENE	2000	1000	1.3	ND(0.325)	--	ND(0.275)	ND(0.29)	2.6	--	0.6	1.7
FLUORENE	2000	2000	1.7	ND(0.325)	--	ND(0.275)	ND(0.29)	ND(0.35)	--	ND(0.28)	ND(0.27)
INDENO(1,2,3-CD)PYRENE	1	1	ND(0.28)	ND(0.325)	--	ND(0.275)	ND(0.29)	ND(0.35)	--	ND(0.28)	0.7
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	2000	2000	1400	290	--	68	60	54	--	ND(16.5)	230
MADEP C19-C36 ALIPHATIC HYDROCARBONS	5000	5000	1100	450	--	61	67	ND(21)	--	ND(16.5)	230
MADEP C9-C18 ALIPHATIC HYDROCARBONS	2500	2500	750	130	--	ND(16.5)	73	ND(21)	--	ND(16.5)	ND(16)
NAPHTHALENE	1000	1000	1.3	ND(0.325)	--	ND(0.275)	ND(0.29)	ND(0.35)	--	ND(0.28)	ND(0.27)
PHENANTHRENE	2500	100	2.5	ND(0.325)	--	ND(0.275)	ND(0.29)	2.7	--	ND(0.28)	1.2
PYRENE	2000	2000	0.73	ND(0.325)	--	ND(0.275)	ND(0.29)	1.7	--	0.58	1.5
TOTAL CONCENTRATION OF EPH			3287.93	870	---	129.56	200	66.18	---	1.18	472.75
TPH											
LUBRICATING OIL	N/A	N/A	--	--	--	--	--	--	--	--	--
OIL AND GREASE	2000	2000	--	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			---	---	---	---	---	---	---	---	---
METALS											
ALUMINUM	N/A	N/A	--	--	--	--	--	--	--	--	--
ARSENIC	30	30	--	--	--	--	--	--	--	--	--
CADMIUM	80	80	--	--	--	--	--	--	--	--	--
CHROMIUM	2500	2500	--	--	--	--	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	600	600	--	--	--	--	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--	--	--	--	--
LEAD	600	600	--	--	--	--	--	--	--	--	--
MERCURY	60	60	--	--	--	--	--	--	--	--	--
NICKEL	700	700	--	--	--	--	--	--	--	--	--
SILVER	200	200	--	--	--	--	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--	--	--	--	--
ZINC	2500	2500	--	--	--	--	--	--	--	--	--
Cyanide											
CYANIDE, PHYSIOLOGICALLY AVAILABLE	100	100	--	--	--	--	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
 Value in parentheses is one-half the reporting limit
2. -- Analysis not conducted.
3. N/A Not available.
4. This table presents compounds detected in at least one sample.
5. Bold results were detected above the laboratory reporting limit.
6. Shaded results are detected compounds that exceed one or more of the numerical standards listed
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS 3-0585, 3-19850

Location	Method 1 Standard	Method 1 Standard	HA-602A(MW)	HA-602A(MW)	HA-603	HA-603A(MW)	HA-701(MW)	HA-701(MW)	HA-701(MW)	HA-702(MW)
Sample ID			HA-602A(MW) S1	HA-602A(MW) S9	HA-603	HA-603A(MW) S4	HA-701(MW) V1	HA-701(MW) S3	HA-701(MW) S7	HA-702(MW) V1
Sample Medium			Fill	Glacial Till	Fill	Fluvial	Fill	Fill	Glacial Till	Fill
Depth	S-2/GW-2	S-2/GW-3	0.9 to 2.5	19 to 21	1 to 3	11 to 13	2 to 3.5	10 to 12	20 to 22	2 to 4
Date			3/18/2003	3/24/2003	3/17/2003	3/25/2003	9/22/2003	9/26/2003	9/26/2003	9/22/2003
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs										
1,1,1-TRICHLOROETHANE	500	500	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.06)	ND(0.0455)	ND(0.037)	ND(0.06)
1,1,2,2-TETRACHLOROETHANE	0.2	0.6	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.06)	ND(0.0455)	ND(0.037)	ND(0.06)
1,1-DICHLOROETHYLENE	0.1	2	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.06)	ND(0.0455)	ND(0.037)	ND(0.06)
1,2,3-TRICHLOROPROPANE	N/A	N/A	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.6)	ND(0.455)	ND(0.37)	ND(0.6)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.29)	ND(0.225)	ND(0.185)	ND(0.3)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.29)	ND(0.225)	ND(0.185)	ND(0.3)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.06)	ND(0.0455)	ND(0.037)	ND(0.06)
4-METHYL-2-PENTANONE (MIBK)	70	70	ND(1.45)	ND(1.25)	ND(3.05)	ND(0.0465)	ND(0.6)	ND(0.455)	ND(0.37)	ND(0.6)
BENZENE	60	60	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.06)	ND(0.0455)	ND(0.037)	ND(0.06)
CARBON TETRACHLORIDE	4	10	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.06)	ND(0.0455)	ND(0.037)	ND(0.06)
CHLOROFORM	10	200	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.09)	ND(0.07)	ND(0.055)	ND(0.09)
CIS-1,2-DICHLOROETHYLENE	500	500	**1.8**	ND(0.125)	ND(0.305)	**0.019**	ND(0.06)	ND(0.0455)	ND(0.037)	**5.6**
ETHYL ACETATE	N/A	N/A	-	-	-	-	-	-	-	-
ETHYLBENZENE	1000	500	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.06)	ND(0.0455)	ND(0.037)	ND(0.06)
ISOPROPYLBENZENE	N/A	N/A	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.06)	ND(0.0455)	ND(0.037)	ND(0.06)
NAPHTHALENE	1000	1000	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.29)	ND(0.225)	ND(0.185)	ND(0.3)
N-BUTYLBENZENE	N/A	N/A	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.06)	ND(0.0455)	ND(0.037)	ND(0.06)
N-PROPYLBENZENE	N/A	N/A	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.06)	ND(0.0455)	ND(0.037)	ND(0.06)
SEC-BUTYLBENZENE	N/A	N/A	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.06)	ND(0.0455)	ND(0.037)	ND(0.06)
TETRACHLOROETHYLENE	30	30	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.06)	ND(0.0455)	ND(0.037)	ND(0.06)
TOLUENE	500	1000	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.09)	ND(0.07)	ND(0.055)	ND(0.09)
TRANS-1,2-DICHLOROETHYLENE	800	1000	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.09)	ND(0.07)	ND(0.055)	ND(0.09)
TRICHLOROETHYLENE	20	100	**4.5**	ND(0.125)	**14**	**0.13**	**2.2**	**0.35**	ND(0.037)	**12**
VINYL CHLORIDE	0.4	0.5	ND(0.295)	ND(0.25)	ND(0.6)	ND(0.0095)	ND(0.115)	ND(0.09)	ND(0.075)	ND(0.12)
XYLENES, MIXTURE	N/A	N/A	ND(0.145)	ND(0.125)	ND(0.305)	ND(0.0045)	ND(0.06)	ND(0.0455)	ND(0.037)	ND(0.06)
TOTAL CONCENTRATION OF VOCs			6.3	---	14	0.149	2.2	0.35	---	17.6
VPH										
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	500	500	**1.9**	ND(0.55)	**6**	ND(0.55)	ND(2.545)	ND(1.66)	ND(1.65)	**10.6**
MADEP C9-C10 AROMATIC HYDROCARBONS	500	500	ND(0.55)	ND(0.55)	ND(0.6)	ND(0.55)	ND(2.545)	ND(1.66)	ND(1.65)	ND(2.345)
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	2500	2500	ND(0.55)	ND(0.55)	ND(0.6)	ND(0.55)	ND(2.545)	ND(1.66)	ND(1.65)	ND(2.345)
TOTAL CONCENTRATION OF VPH			1.9	---	6	---	---	---	---	21.2

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location	Method 1 Standard	Method 1 Standard	HA-602A(MW)	HA-602A(MW)	HA-603	HA-603A(MW)	HA-701(MW)	HA-701(MW)	HA-701(MW)	HA-702(MW)
Sample ID			HA-602A(MW) S1	HA-602A(MW) S9	HA-603	HA-603A(MW) S4	HA-701(MW) V1	HA-701(MW) S3	HA-701(MW) S7	HA-702(MW) V1
Sample Medium			Fill	Glacial Till	Fill	Fluvial	Fill	Fill	Glacial Till	Fill
Depth	S-2/GW-2	S-2/GW-3	0.9 to 2.5	19 to 21	1 to 3	11 to 13	2 to 3.5	10 to 12	20 to 22	2 to 4
Date			3/18/2003	3/24/2003	3/17/2003	3/25/2003	9/22/2003	9/26/2003	9/26/2003	9/22/2003
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EPH										
2-METHYLNAPHTHALENE	1000	1000	ND(0.275)	ND(0.265)	ND(0.275)	ND(0.31)	ND(0.284)	ND(0.2875)	ND(0.281)	ND(0.305)
ACENAPHTHENE	2500	2500	ND(0.275)	ND(0.265)	ND(0.275)	ND(0.31)	ND(0.284)	ND(0.2875)	ND(0.281)	ND(0.305)
ACENAPHTHYLENE	2500	1000	ND(0.275)	ND(0.265)	ND(0.275)	ND(0.31)	ND(0.284)	ND(0.2875)	ND(0.281)	ND(0.305)
ANTHRACENE	2500	2500	ND(0.275)	ND(0.265)	ND(0.275)	ND(0.31)	ND(0.284)	ND(0.2875)	ND(0.281)	ND(0.305)
BENZO(A)ANTHRACENE	1	1	ND(0.275)	ND(0.265)	**2.3**	**0.74**	ND(0.284)	**0.825**	ND(0.281)	ND(0.305)
BENZO(A)PYRENE	0.7	0.7	ND(0.275)	ND(0.265)	**2.2**	**0.67**	ND(0.284)	**0.73**	ND(0.281)	ND(0.305)
BENZO(B)FLUORANTHENE	1	1	ND(0.275)	ND(0.265)	**2.2**	**0.72**	ND(0.284)	**1.42**	ND(0.281)	**0.683**
BENZO(G,H,I)PERYLENE	2500	2500	ND(0.275)	ND(0.265)	**1.3**	ND(0.31)	ND(0.284)	**0.824**	ND(0.281)	ND(0.305)
BENZO(K)FLUORANTHENE	10	10	ND(0.275)	ND(0.265)	**1.4**	ND(0.31)	ND(0.284)	**0.584**	ND(0.281)	ND(0.305)
CHRYSENE (1,2-BENZPHENANTHRACENE)	10	10	ND(0.275)	ND(0.265)	**2.2**	**0.76**	ND(0.284)	**0.942**	ND(0.281)	**0.621**
DIBENZ(A,H)ANTHRACENE	0.7	0.7	ND(0.275)	ND(0.265)	ND(0.275)	ND(0.31)	ND(0.284)	ND(0.2875)	ND(0.281)	ND(0.305)
FLUORANTHENE	2000	1000	ND(0.275)	ND(0.265)	**3.3**	**1.5**	**0.696**	**2.22**	ND(0.281)	**0.754**
FLUORENE	2000	2000	ND(0.275)	ND(0.265)	ND(0.275)	ND(0.31)	ND(0.284)	ND(0.2875)	ND(0.281)	ND(0.305)
INDENO(1,2,3-CD)PYRENE	1	1	ND(0.275)	ND(0.265)	**1.4**	ND(0.31)	ND(0.284)	**0.762**	ND(0.281)	ND(0.305)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	2000	2000	**48**	ND(16)	**76**	**61**	**37.8**	**44.4**	ND(5.6)	**72.8**
MADEP C19-C36 ALIPHATIC HYDROCARBONS	5000	5000	**120**	ND(16)	ND(16.5)	**59**	**17.7**	**43.4**	ND(5.6)	**64.4**
MADEP C9-C18 ALIPHATIC HYDROCARBONS	2500	2500	ND(16.5)	ND(16)	ND(16.5)	ND(18.5)	ND(5.7)	ND(5.75)	ND(5.6)	ND(6.1)
NAPHTHALENE	1000	1000	ND(0.275)	ND(0.265)	ND(0.275)	ND(0.31)	ND(0.284)	ND(0.2875)	ND(0.281)	ND(0.305)
PHENANTHRENE	2500	100	ND(0.275)	ND(0.265)	**1.5**	**0.96**	ND(0.284)	ND(0.2875)	ND(0.281)	ND(0.305)
PYRENE	2000	2000	ND(0.275)	ND(0.265)	**2.8**	**1.3**	**0.606**	**1.55**	ND(0.281)	**0.736**
TOTAL CONCENTRATION OF EPH			168	--	96.6	126.65	95.802	151.957	--	215.594
TPH										
LUBRICATING OIL	N/A	N/A	--	--	--	--	--	--	--	--
OIL AND GREASE	2000	2000	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			--	--	--	--	--	--	--	--
METALS										
ALUMINUM	N/A	N/A	--	--	--	--	--	--	--	--
ARSENIC	30	30	--	--	--	--	--	--	--	--
CADMIUM	80	80	--	--	--	--	--	--	--	--
CHROMIUM	2500	2500	--	--	--	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	600	600	--	--	--	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--	--	--	--
LEAD	600	600	--	--	--	--	--	--	--	--
MERCURY	60	60	--	--	--	--	--	--	--	--
NICKEL	700	700	--	--	--	--	--	--	--	--
SILVER	200	200	--	--	--	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--	--	--	--
ZINC	2500	2500	--	--	--	--	--	--	--	--
Cyanide										
CYANIDE, PHYSIOLOGICALLY AVAILABLE	100	100	--	--	--	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table presents compounds detected in at least one sample.
5. Bold results were detected above the laboratory reporting limit.
6. Shaded results are detected compounds that exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS 3-0585, 3-19650

Location Sample ID Sample Medium Depth Date Unit	Method 1 Standard S-2/GW-2 mg/kg	Method 1 Standard S-2/GW-3 mg/kg	HA-702(MW) HA-702(MW) S1 Fill 5 to 7 9/25/2003 mg/kg	HA-702(MW) HA-702(MW) S14 Glacial Till 35 to 36 10/2/2003 mg/kg	HA-703(MW) HA-703(MW) V1 Fill 2 to 3 9/23/2003 mg/kg	HA-703(MW) HA-703(MW) S2 Fluvial 9 to 11 9/30/2003 mg/kg	HA-704(MW) HA-704(MW) V1 Fill 2 to 3 9/23/2003 mg/kg	HA-704(MW) HA-704(MW) S2 Fluvial 11 to 13 9/29/2003 mg/kg	HA-705 HA-705 V1 Fill 2 to 3 9/22/2003 mg/kg	HA-705A(MW) HA-705A(MW) S2 Fluvial 13 to 15 10/3/2003 mg/kg
VOCs										
1,1,1-TRICHLOROETHANE	500	500	ND(0.044)	ND(0.0395)	--	--	--	--	**0.59**	ND(0.032)
1,1,2,2-TETRACHLOROETHANE	0.2	0.6	ND(0.044)	ND(0.0395)	--	--	--	--	ND(0.05)	ND(0.032)
1,1-DICHLOROETHYLENE	0.1	2	ND(0.044)	ND(0.0395)	--	--	--	--	ND(0.05)	ND(0.032)
1,2,3-TRICHLOROPROPANE	N/A	N/A	ND(0.44)	ND(0.395)	--	--	--	--	ND(0.5)	ND(0.32)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	**0.67**	ND(0.2)	--	--	--	--	ND(0.25)	ND(0.16)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(0.22)	ND(0.2)	--	--	--	--	ND(0.25)	ND(0.16)
4-ISOPROPYLTOLUENE	N/A	N/A	**0.18**	ND(0.0395)	--	--	--	--	ND(0.05)	ND(0.032)
4-METHYL-2-PENTANONE (MIBK)	70	70	ND(0.44)	ND(0.395)	--	--	--	--	ND(0.5)	ND(0.32)
BENZENE	60	60	ND(0.044)	ND(0.0395)	--	--	--	--	ND(0.05)	ND(0.032)
CARBON TETRACHLORIDE	4	10	ND(0.044)	ND(0.0395)	--	--	--	--	ND(0.05)	ND(0.032)
CHLOROFORM	10	200	ND(0.065)	ND(0.06)	--	--	--	--	ND(0.075)	ND(0.048)
CIS-1,2-DICHLOROETHYLENE	500	500	**0.29**	ND(0.0395)	--	--	--	--	ND(0.05)	ND(0.032)
ETHYL ACETATE	N/A	N/A	--	--	--	--	--	--	--	--
ETHYLBENZENE	1000	500	ND(0.044)	ND(0.0395)	--	--	--	--	ND(0.05)	ND(0.032)
ISOPROPYLBENZENE	N/A	N/A	**0.13**	ND(0.0395)	--	--	--	--	ND(0.05)	ND(0.032)
NAPHTHALENE	1000	1000	ND(0.22)	ND(0.2)	--	--	--	--	ND(0.25)	ND(0.16)
N-BUTYLBENZENE	N/A	N/A	**0.53**	ND(0.0395)	--	--	--	--	ND(0.05)	ND(0.032)
N-PROPYLBENZENE	N/A	N/A	**0.29**	ND(0.0395)	--	--	--	--	ND(0.05)	ND(0.032)
SEC-BUTYLBENZENE	N/A	N/A	**0.32**	ND(0.0395)	--	--	--	--	ND(0.05)	ND(0.032)
TETRACHLOROETHYLENE	30	30	ND(0.044)	**0.24**	--	--	--	--	ND(0.05)	ND(0.032)
TOLUENE	500	1000	ND(0.065)	ND(0.06)	--	--	--	--	ND(0.075)	ND(0.048)
TRANS-1,2-DICHLOROETHYLENE	800	1000	ND(0.065)	ND(0.06)	--	--	--	--	ND(0.075)	ND(0.048)
TRICHLOROETHYLENE	20	100	ND(0.044)	**170**	--	--	--	--	**0.34**	ND(0.032)
VINYL CHLORIDE	0.4	0.5	ND(0.09)	ND(0.08)	--	--	--	--	ND(0.1)	ND(0.065)
XYLENES, MIXTURE	N/A	N/A	**0.11**	**0.14**	--	--	--	--	ND(0.05)	ND(0.032)
TOTAL CONCENTRATION OF VOCs			2.52	170.38	--	--	--	--	0.93	--
VPH										
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	500	500	**18.2**	--	--	--	--	--	--	--
MADEP C9-C10 AROMATIC HYDROCARBONS	500	500	**8.53**	--	--	--	--	--	--	--
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	2500	2500	**6.2**	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF VPH			69.83	--	--	--	--	--	--	--

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS 3-0585, 3-19850

Location	Method 1 Standard	Method 1 Standard	HA-702(MW)	HA-702(MW)	HA-703(MW)	HA-703(MW)	HA-704(MW)	HA-704(MW)	HA-705	HA-705A(MW)
Sample ID			HA-702(MW) S1	HA-702(MW) S14	HA-703(MW) V1	HA-703(MW) S2	HA-704(MW) V1	HA-704(MW) S2	HA-705 V1	HA-705A(MW) S2
Sample Medium			Fill	Glacial Till	Fill	Fluvial	Fill	Fluvial	Fill	Fluvial
Depth	S-2/GW-2	S-2/GW-3	5 to 7	35 to 36	2 to 3	9 to 11	2 to 3	11 to 13	2 to 3	13 to 15
Date			9/25/2003	10/2/2003	9/23/2003	9/30/2003	9/23/2003	9/29/2003	9/22/2003	10/3/2003
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EPH										
2-METHYLNAPHTHALENE	1000	1000	ND(0.2905)	--	--	--	--	--	--	--
ACENAPHTHENE	2500	2500	ND(0.2905)	--	--	--	--	--	--	--
ACENAPHTHYLENE	2500	1000	ND(0.2905)	--	--	--	--	--	--	--
ANTHRACENE	2500	2500	ND(0.2905)	--	--	--	--	--	--	--
BENZO(A)ANTHRACENE	1	1	ND(0.2905)	--	--	--	--	--	--	--
BENZO(A)PYRENE	0.7	0.7	ND(0.2905)	--	--	--	--	--	--	--
BENZO(B)FLUORANTHENE	1	1	ND(0.2905)	--	--	--	--	--	--	--
BENZO(G,H,I)PERYLENE	2500	2500	ND(0.2905)	--	--	--	--	--	--	--
BENZO(K)FLUORANTHENE	10	10	ND(0.2905)	--	--	--	--	--	--	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	10	10	ND(0.2905)	--	--	--	--	--	--	--
DIBENZ(A,H)ANTHRACENE	0.7	0.7	ND(0.2905)	--	--	--	--	--	--	--
FLUORANTHENE	2000	1000	ND(0.2905)	--	--	--	--	--	--	--
FLUORENE	2000	2000	ND(0.2905)	--	--	--	--	--	--	--
INDENO(1,2,3-CD)PYRENE	1	1	ND(0.2905)	--	--	--	--	--	--	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	2000	2000	**389**	--	--	--	--	--	--	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	5000	5000	**607**	--	--	--	--	--	--	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	2500	2500	**182**	--	--	--	--	--	--	--
NAPHTHALENE	1000	1000	ND(0.2905)	--	--	--	--	--	--	--
PHENANTHRENE	2500	100	**0.734**	--	--	--	--	--	--	--
PYRENE	2000	2000	ND(0.2905)	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF EPH			1568.734	--	--	--	--	--	--	--
TPH										
LUBRICATING OIL	N/A	N/A	--	--	--	--	--	--	--	--
OIL AND GREASE	2000	2000	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			--	--	--	--	--	--	--	--
METALS										
ALUMINUM	N/A	N/A	--	--	--	--	--	--	--	--
ARSENIC	30	30	--	--	--	--	--	--	--	--
CADMIUM	80	80	--	--	ND(0.215)	ND(0.22)	ND(0.23)	ND(0.225)	--	--
CHROMIUM	2500	2500	--	--	--	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	600	600	--	--	--	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--	--	**120**	--
IRON	N/A	N/A	--	--	**9500**	**15000**	**16000**	**11000**	**9200**	--
LEAD	600	600	--	--	--	--	--	--	--	--
MERCURY	60	60	--	--	--	--	--	--	--	--
NICKEL	700	700	--	--	**9.1**	**11**	**15**	**8.4**	--	--
SILVER	200	200	--	--	--	--	--	--	--	--
TIN	N/A	N/A	--	--	ND(2.15)	ND(2.2)	ND(2.3)	ND(2.25)	--	--
ZINC	2500	2500	--	--	**38**	**37**	**120**	**29**	--	--
Cyanide										
CYANIDE, PHYSIOLOGICALLY AVAILABLE	100	100	--	--	--	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table presents compounds detected in at least one sample.
5. Bold results were detected above the laboratory reporting limit.
6. Shaded results are detected compounds that exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location Sample ID Sample Medium Depth Date Unit	Method 1 Standard S-2/GW-2 mg/kg	Method 1 Standard S-2/GW-3 mg/kg	HA-705A(MW) HA-705A(MW) S6 Glacial Till 19 to 21 10/3/2003 mg/kg	HA-801R(MW) HA-801R(MW) S18 Glacial Till 40 to 40.8 6/16/2004 mg/kg	HA-802T(MW) HA-802T(MW) S2 Fluvial 16 to 18 6/21/2004 mg/kg	HA-802R(MW) HA-802R(MW) S2 Fill 8 to 10 6/1/2004 mg/kg	HA-802R(MW) HA-802R(MW) S25 Glacial Till 54 to 56 6/3/2004 mg/kg	HA-805T(MW) HA-805T(MW) S1 Fill 6 to 8 6/24/2004 mg/kg	HA-805T(MW) HA-805T(MW) S2 Glacial Till 42 to 42.1 6/24/2004 mg/kg
VOCs									
1,1,1-TRICHLOROETHANE	500	500	ND(0.032)	ND(0.031)	ND(0.023)	ND(0.0195)	ND(0.0225)	ND(0.023)	ND(0.034)
1,1,2,2-TETRACHLOROETHANE	0.2	0.6	ND(0.032)	ND(0.031)	ND(0.023)	ND(0.0195)	ND(0.0225)	ND(0.023)	ND(0.034)
1,1-DICHLOROETHYLENE	0.1	2	ND(0.032)	ND(0.031)	ND(0.023)	ND(0.0195)	ND(0.0225)	ND(0.023)	ND(0.034)
1,2,3-TRICHLOROPROPANE	N/A	N/A	ND(0.32)	ND(0.31)	ND(0.23)	ND(0.195)	ND(0.225)	ND(0.23)	ND(0.34)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(0.16)	ND(0.155)	ND(0.115)	ND(0.1)	ND(0.11)	ND(0.115)	ND(0.17)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(0.16)	ND(0.155)	ND(0.115)	ND(0.1)	ND(0.11)	ND(0.115)	ND(0.17)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(0.032)	ND(0.031)	ND(0.023)	ND(0.0195)	ND(0.0225)	ND(0.023)	ND(0.034)
4-METHYL-2-PENTANONE (MIBK)	70	70	ND(0.32)	ND(0.31)	ND(0.23)	ND(0.195)	ND(0.225)	ND(0.23)	ND(0.34)
BENZENE	60	60	ND(0.032)	ND(0.031)	ND(0.023)	ND(0.0195)	ND(0.0225)	ND(0.023)	ND(0.034)
CARBON TETRACHLORIDE	4	10	ND(0.032)	ND(0.031)	ND(0.023)	ND(0.0195)	ND(0.0225)	ND(0.023)	ND(0.034)
CHLOROFORM	10	200	ND(0.048)	ND(0.046)	ND(0.0345)	ND(0.0295)	ND(0.034)	ND(0.0345)	ND(0.05)
CIS-1,2-DICHLOROETHYLENE	500	500	ND(0.032)	ND(0.031)	ND(0.023)	ND(0.0195)	ND(0.0225)	ND(0.023)	ND(0.034)
ETHYL ACETATE	N/A	N/A	--	--	--	--	--	--	--
ETHYLBENZENE	1000	500	ND(0.032)	ND(0.031)	ND(0.023)	ND(0.0195)	ND(0.0225)	ND(0.023)	ND(0.034)
ISOPROPYLBENZENE	N/A	N/A	ND(0.032)	ND(0.031)	ND(0.023)	ND(0.0195)	ND(0.0225)	ND(0.023)	ND(0.034)
NAPHTHALENE	1000	1000	ND(0.16)	ND(0.155)	ND(0.115)	ND(0.1)	ND(0.11)	ND(0.115)	ND(0.17)
N-BUTYLBENZENE	N/A	N/A	ND(0.032)	ND(0.031)	ND(0.023)	ND(0.0195)	ND(0.0225)	ND(0.023)	ND(0.034)
N-PROPYLBENZENE	N/A	N/A	ND(0.032)	ND(0.031)	ND(0.023)	ND(0.0195)	ND(0.0225)	ND(0.023)	ND(0.034)
SEC-BUTYLBENZENE	N/A	N/A	ND(0.032)	ND(0.031)	ND(0.023)	ND(0.0195)	ND(0.0225)	ND(0.023)	ND(0.034)
TETRACHLOROETHYLENE	30	30	ND(0.032)	ND(0.031)	ND(0.023)	ND(0.0195)	ND(0.0225)	ND(0.023)	ND(0.034)
TOLUENE	500	1000	ND(0.048)	ND(0.046)	ND(0.0345)	ND(0.0295)	ND(0.034)	ND(0.0345)	ND(0.05)
TRANS-1,2-DICHLOROETHYLENE	800	1000	ND(0.048)	ND(0.046)	ND(0.0345)	ND(0.0295)	ND(0.034)	ND(0.0345)	ND(0.05)
TRICHLOROETHYLENE	20	100	ND(0.032)	ND(0.031)	ND(0.023)	ND(0.0195)	ND(0.0225)	ND(0.023)	ND(0.034)
VINYL CHLORIDE	0.4	0.5	ND(0.065)	ND(0.06)	ND(0.046)	ND(0.039)	ND(0.045)	ND(0.046)	ND(0.07)
XYLENES, MIXTURE	N/A	N/A	ND(0.032)	ND(0.031)	ND(0.023)	ND(0.0195)	ND(0.0225)	ND(0.023)	ND(0.034)
TOTAL CONCENTRATION OF VOCs			---	---	---	---	---	---	---
VPH									
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	500	500	--	--	--	--	--	--	--
MADEP C9-C10 AROMATIC HYDROCARBONS	500	500	--	--	--	--	--	--	--
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	2500	2500	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF VPH			---	---	---	---	---	---	---

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location Sample ID Sample Medium Depth Date Unit	Method 1 Standard S-2/GW-2 mg/kg	Method 1 Standard S-2/GW-3 mg/kg	HA-705A(MW) HA-705A(MW) S6 Glacial Till 19 to 21 10/3/2003 mg/kg	HA-801R(MW) HA-801R(MW) S18 Glacial Till 40 to 40.8 6/16/2004 mg/kg	HA-802T(MW) HA-802T(MW) S2 Fluvial 16 to 18 6/21/2004 mg/kg	HA-802R(MW) HA-802R(MW) S2 Fill 8 to 10 6/1/2004 mg/kg	HA-802R(MW) HA-802R(MW) S25 Glacial Till 54 to 56 6/3/2004 mg/kg	HA-805T(MW) HA-805T(MW) S1 Fill 6 to 8 6/24/2004 mg/kg	HA-805T(MW) HA-805T(MW) S2 Glacial Till 42 to 42.1 6/24/2004 mg/kg
EPH									
2-METHYLNAPHTHALENE	1000	1000	--	--	--	--	--	--	--
ACENAPHTHENE	2500	2500	--	--	--	--	--	--	--
ACENAPHTHYLENE	2500	1000	--	--	--	--	--	--	--
ANTHRACENE	2500	2500	--	--	--	--	--	--	--
BENZO(A)ANTHRACENE	1	1	--	--	--	--	--	--	--
BENZO(A)PYRENE	0.7	0.7	--	--	--	--	--	--	--
BENZO(B)FLUORANTHENE	1	1	--	--	--	--	--	--	--
BENZO(G,H,I)PERYLENE	2500	2500	--	--	--	--	--	--	--
BENZO(K)FLUORANTHENE	10	10	--	--	--	--	--	--	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	10	10	--	--	--	--	--	--	--
DIBENZ(A,H)ANTHRACENE	0.7	0.7	--	--	--	--	--	--	--
FLUORANTHENE	2000	1000	--	--	--	--	--	--	--
FLUORENE	2000	2000	--	--	--	--	--	--	--
INDENO(1,2,3-CD)PYRENE	1	1	--	--	--	--	--	--	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	2000	2000	--	--	--	--	--	--	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	5000	5000	--	--	--	--	--	--	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	2500	2500	--	--	--	--	--	--	--
NAPHTHALENE	1000	1000	--	--	--	--	--	--	--
PHENANTHRENE	2500	100		--	--	--	--	--	--
PYRENE	2000	2000	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF EPH			--	--	--	--	--	--	--
TPH									
LUBRICATING OIL	N/A	N/A	--	--	--	--	--	--	--
OIL AND GREASE	2000	2000	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			--	--	--	--	--	--	--
METALS									
ALUMINUM	N/A	N/A	--	--	--	--	--	--	--
ARSENIC	30	30	--	--	--	--	--	--	--
CADMIUM	80	80	--	--	--	--	--	--	--
CHROMIUM	2500	2500	--	--	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	600	600	--	--	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--	--	--
LEAD	600	600	--	--	--	--	--	--	--
MERCURY	60	60	--	--	--	--	--	--	--
NICKEL	700	700	--	--	--	--	--	--	--
SILVER	200	200	--	--	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--	--	--
ZINC	2500	2500	--	--	--	--	--	--	--
Cyanide									
CYANIDE, PHYSIOLOGICALLY AVAILABLE	100	100	--	--	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available
4. This table presents compounds detected in at least one sample.
5. Bold results were detected above the laboratory reporting limit.
6. Shaded results are detected compounds that exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location Sample ID Sample Medium Depth Date Unit	Method 1 Standard S-2/GW-2 mg/kg	Method 1 Standard S-2/GW-3 mg/kg	HA-806T(MW) HA-806T(MW) S1 Fluvial 6 to 8 6/28/2004 mg/kg	HA-806T(MW) HA-806T(MW) S4 Fluvial / Glacial Till 12 to 14 6/28/2004 mg/kg	HA-807R(MW) HA-807R(MW) S1 Fill 6 to 8 6/25/2004 mg/kg	HA-807R(MW) HA-807R(MW) S20 Glacial Till 44 to 44.5 6/30/2004 mg/kg	HA-808T(MW) HA-808T(MW) S1 Fill 6 to 8 6/23/2004 mg/kg	HA-808R(MW) HA-808R(MW) S12 Glacial Till 28 to 28.9 6/7/2004 mg/kg	HA-EA-S1 HA-EA-S1 Fill 5 to 5.1 5/30/2000 mg/kg	HA-EA-S1B HA-EA-S1B Fill 4 to 4.1 9/1/2000 mg/kg	HA-EA-S2 HA-EA-S2 Fill 4 to 4.1 5/30/2000 mg/kg
VOCs											
1,1,1-TRICHLOROETHANE	500	500	ND(0.031)	ND(0.24)	ND(0.026)	ND(0.028)	ND(0.03)	ND(0.024)	ND(0.15)	ND(0.22)	ND(0.125)
1,1,2,2-TETRACHLOROETHANE	0.2	0.6	ND(0.031)	ND(0.24)	ND(0.026)	ND(0.028)	ND(0.03)	ND(0.024)	ND(0.15)	ND(0.22)	ND(0.125)
1,1-DICHLOROETHYLENE	0.1	2	ND(0.031)	ND(0.24)	ND(0.026)	ND(0.028)	ND(0.03)	ND(0.024)	ND(0.15)	ND(0.22)	ND(0.125)
1,2,3-TRICHLOROPROPANE	N/A	N/A	ND(0.31)	ND(2.4)	ND(0.26)	ND(0.28)	ND(0.3)	ND(0.24)	--	--	--
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(0.155)	ND(1.2)	ND(0.13)	ND(0.14)	ND(0.15)	ND(0.12)	--	--	--
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(0.155)	ND(1.2)	ND(0.13)	ND(0.14)	ND(0.15)	ND(0.12)	--	--	--
4-ISOPROPYLTOLUENE	N/A	N/A	ND(0.031)	ND(0.24)	ND(0.026)	ND(0.028)	ND(0.03)	ND(0.024)	--	--	--
4-METHYL-2-PENTANONE (MIBK)	70	70	ND(0.31)	ND(2.4)	ND(0.26)	ND(0.28)	ND(0.3)	ND(0.24)	ND(1.25)	ND(2.2)	ND(1.25)
BENZENE	60	60	ND(0.031)	ND(0.24)	ND(0.026)	ND(0.028)	ND(0.03)	ND(0.024)	ND(0.15)	ND(0.22)	ND(0.125)
CARBON TETRACHLORIDE	4	10	ND(0.031)	ND(0.24)	ND(0.026)	ND(0.028)	ND(0.03)	ND(0.024)	ND(0.15)	ND(0.22)	ND(0.125)
CHLOROFORM	10	200	ND(0.046)	ND(0.36)	ND(0.0395)	ND(0.042)	ND(0.045)	ND(0.0355)	ND(0.15)	ND(0.22)	ND(0.125)
CIS-1,2-DICHLOROETHYLENE	500	500	**0.85**	**3.4**	**0.58**	ND(0.028)	ND(0.03)	**0.079**	ND(0.15)	ND(0.22)	ND(0.125)
ETHYL ACETATE	N/A	N/A	--	--	--	--	--	--	--	ND(8)	--
ETHYLBENZENE	1000	500	ND(0.031)	ND(0.24)	ND(0.026)	ND(0.028)	ND(0.03)	ND(0.024)	ND(0.15)	ND(0.22)	ND(0.125)
ISOPROPYLBENZENE	N/A	N/A	ND(0.031)	ND(0.24)	ND(0.026)	ND(0.028)	ND(0.03)	ND(0.024)	--	--	--
NAPHTHALENE	1000	1000	ND(0.155)	ND(1.2)	ND(0.13)	ND(0.14)	ND(0.15)	ND(0.12)	--	--	--
N-BUTYLBENZENE	N/A	N/A	ND(0.031)	ND(0.24)	ND(0.026)	ND(0.028)	ND(0.03)	ND(0.024)	--	--	--
N-PROPYLBENZENE	N/A	N/A	ND(0.031)	ND(0.24)	ND(0.026)	ND(0.028)	ND(0.03)	ND(0.024)	--	--	--
SEC-BUTYLBENZENE	N/A	N/A	ND(0.031)	ND(0.24)	ND(0.026)	ND(0.028)	ND(0.03)	ND(0.024)	--	--	--
TETRACHLOROETHYLENE	30	30	ND(0.031)	**1.2**	ND(0.026)	ND(0.028)	ND(0.03)	ND(0.024)	ND(0.15)	ND(0.22)	ND(0.125)
TOLUENE	500	1000	ND(0.046)	ND(0.36)	ND(0.0395)	ND(0.042)	ND(0.045)	ND(0.0355)	ND(0.15)	ND(0.22)	ND(0.125)
TRANS-1,2-DICHLOROETHYLENE	800	1000	ND(0.046)	ND(0.36)	ND(0.0395)	ND(0.042)	ND(0.045)	ND(0.0355)	ND(0.15)	ND(0.22)	ND(0.125)
TRICHLOROETHYLENE	20	100	**0.92**	**70**	**11**	ND(0.028)	ND(0.03)	**0.82**	ND(0.15)	ND(0.22)	ND(0.125)
VINYL CHLORIDE	0.4	0.5	ND(0.06)	ND(0.48)	ND(0.05)	ND(0.055)	ND(0.06)	ND(0.0475)	ND(0.25)	ND(0.44)	ND(0.25)
XYLENES, MIXTURE	N/A	N/A	**0.068**	ND(0.24)	ND(0.026)	ND(0.028)	ND(0.03)	ND(0.024)	ND(0.15)	ND(0.22)	**0.26**
TOTAL CONCENTRATION OF VOCs			1.838	74.6	11.58	---	---	0.899	---	---	0.26
VPH											
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	500	500	--	--	--	--	--	--	--	--	--
MADEP C9-C10 AROMATIC HYDROCARBONS	500	500	--	--	--	--	--	--	--	--	--
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	2500	2500	--	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF VPH			---	---	---	---	---	---	---	---	---

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location	Method 1 Standard	Method 1 Standard	HA-806T(MW)	HA-806T(MW)	HA-807R(MW)	HA-807R(MW)	HA-808T(MW)	HA-808R(MW)	HA-EA-S1	HA-EA-S1B	HA-EA-S2
Sample ID			HA-806T(MW) S1	HA-806T(MW) S4	HA-807R(MW) S1	HA-807R(MW) S20	HA-808T(MW) S1	HA-808R(MW) S12	HA-EA-S1	HA-EA-S1B	HA-EA-S2
Sample Medium			Fluvial	Fluvial / Glacial Till	Fill	Glacial Till	Fill	Glacial Till	Fill	Fill	Fill
Depth	S-2/GW-2	S-2/GW-3	6 to 8	12 to 14	6 to 8	44 to 44.5	6 to 8	28 to 28.9	5 to 5.1	4 to 4.1	4 to 4.1
Date			6/28/2004	6/28/2004	6/25/2004	6/30/2004	6/23/2004	6/7/2004	5/30/2000	9/1/2000	5/30/2000
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EPH											
2-METHYLNAPHTHALENE	1000	1000	--	--	--	--	--	--	--	--	--
ACENAPHTHENE	2500	2500	--	--	--	--	--	--	--	--	--
ACENAPHTHYLENE	2500	1000	--	--	--	--	--	--	--	--	--
ANTHRACENE	2500	2500	--	--	--	--	--	--	--	--	--
BENZO(A)ANTHRACENE	1	1	--	--	--	--	--	--	--	--	--
BENZO(A)PYRENE	0.7	0.7	--	--	--	--	--	--	--	--	--
BENZO(B)FLUORANTHENE	1	1	--	--	--	--	--	--	--	--	--
BENZO(G,H,I)PERYLENE	2500	2500	--	--	--	--	--	--	--	--	--
BENZO(K)FLUORANTHENE	10	10	--	--	--	--	--	--	--	--	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	10	10	--	--	--	--	--	--	--	--	--
DIBENZ(A,H)ANTHRACENE	0.7	0.7	--	--	--	--	--	--	--	--	--
FLUORANTHENE	2000	1000	--	--	--	--	--	--	--	--	--
FLUORENE	2000	2000	--	--	--	--	--	--	--	--	--
INDENO(1,2,3-CD)PYRENE	1	1	--	--	--	--	--	--	--	--	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	2000	2000	--	--	--	--	--	--	--	--	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	5000	5000	--	--	--	--	--	--	--	--	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	2500	2500	--	--	--	--	--	--	--	--	--
NAPHTHALENE	1000	1000	--	--	--	--	--	--	--	--	--
PHENANTHRENE	2500	100	--	--	--	--	--	--	--	--	--
PYRENE	2000	2000	--	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF EPH			---	---	---	---	---	---	---	---	---
TPH											
LUBRICATING OIL	N/A	N/A	--	--	--	--	--	--	--	--	--
OIL AND GREASE	2000	2000	--	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			---	---	---	---	---	---	---	---	---
METALS											
ALUMINUM	N/A	N/A	--	--	--	--	--	--	--	--	--
ARSENIC	30	30	--	--	--	--	--	--	--	--	--
CADMIUM	80	80	--	--	--	--	--	--	--	--	--
CHROMIUM	2500	2500	--	--	--	--	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	600	600	--	--	--	--	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--	--	--	--	--
LEAD	600	600	--	--	--	--	--	--	--	--	--
MERCURY	60	60	--	--	--	--	--	--	--	--	--
NICKEL	700	700	--	--	--	--	--	--	--	--	--
SILVER	200	200	--	--	--	--	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--	--	--	--	--
ZINC	2500	2500	--	--	--	--	--	--	--	--	--
Cyanide											
CYANIDE, PHYSIOLOGICALLY AVAILABLE	100	100	--	--	--	--	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table presents compounds detected in at least one sample.
5. Bold results were detected above the laboratory reporting limit.
6. Shaded results are detected compounds that exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS 3-0585, 3-19850

Location	Method 1 Standard	Method 1 Standard	HA-EA-S2B	HA-EA-S3	HA-EA-S3B	HA-EA-S4	HA-EA-S5	HA-EA-S6	HA-EA-S7	HA-EA-S8	S-1	S-2	S-3	S-4
Sample ID			HA-EA-S2B	HA-EA-S3	HA-EA-S3B	HA-EA-S4	HA-EA-S5	HA-EA-S6	HA-FA-S7	HA-EA-S8	S-1	S-2	S-3	S-4
Sample Medium			Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill
Depth	S-2/GW-2	S-2/GW-3	4 to 4.1	to	3.5 to 3.6	5 to 5.1	4 to 4.1	3 to 3.5	to	to	6 to 6.1	6 to 6.1	3 to 3.1	3 to 3.1
Date			9/1/2000	5/30/2000	9/1/2000	6/13/2000	6/13/2000	6/13/2000	6/13/2000	6/13/2000	8/18/2000	8/18/2000	8/18/2000	8/18/2000
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs														
1,1,1-TRICHLOROETHANE	500	500	ND(0.195)	ND(0.125)	ND(0.195)	ND(0.155)	ND(0.165)	ND(0.15)	ND(3.05)	ND(0.145)	ND(5.5)	ND(4.9)	ND(0.65)	ND(0.8)
1,1,2,2-TETRACHLOROETHANE	0.2	0.6	ND(0.195)	ND(0.125)	ND(0.195)	ND(0.155)	ND(0.165)	ND(0.15)	ND(3.05)	ND(0.145)	ND(5.5)	ND(4.9)	ND(0.65)	ND(0.8)
1,1-DICHLOROETHYLENE	0.1	2	ND(0.195)	ND(0.125)	ND(0.195)	ND(0.155)	ND(0.165)	ND(0.15)	ND(3.05)	ND(0.145)	ND(5.5)	ND(4.9)	ND(0.65)	ND(0.8)
1,2,3-TRICHLOROPROPANE	N/A	N/A	--	--	--	ND(0.155)	ND(0.165)	ND(0.15)	ND(3.05)	ND(0.145)	7	ND(4.9)	ND(0.65)	ND(0.8)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	--	--	--	ND(0.155)	ND(0.165)	ND(0.15)	ND(3.05)	ND(0.145)	ND(5.5)	ND(4.9)	ND(0.65)	ND(0.8)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	--	--	--	ND(0.155)	ND(0.165)	ND(0.15)	ND(3.05)	ND(0.145)	8.2	ND(4.9)	0.72	ND(0.8)
4-ISOPROPYLTOLUENE	N/A	N/A	--	--	--	ND(0.155)	ND(0.165)	ND(0.15)	ND(3.05)	ND(0.145)	ND(5.5)	ND(4.9)	ND(0.65)	ND(0.8)
4-METHYL-2-PENTANONE (MIBK)	70	70	ND(1.95)	ND(1.25)	ND(1.95)	ND(1.55)	ND(1.65)	ND(1.5)	ND(30.5)	ND(1.45)	170	70	ND(6.5)	ND(8)
BENZENE	60	60	ND(0.195)	ND(0.125)	ND(0.195)	ND(0.155)	ND(0.165)	ND(0.15)	ND(3.05)	ND(0.145)	ND(5.5)	ND(4.9)	ND(0.65)	ND(0.8)
CARBON TETRACHLORIDE	4	10	ND(0.195)	ND(0.125)	ND(0.195)	ND(0.155)	ND(0.165)	ND(0.15)	ND(3.05)	ND(0.145)	ND(0.55)	ND(4.9)	ND(0.65)	ND(0.8)
CHLOROFORM	10	200	ND(0.195)	ND(0.125)	ND(0.195)	ND(0.155)	ND(0.165)	ND(0.15)	ND(30.5)	ND(0.145)	ND(5.5)	ND(4.9)	5.4	2.2
CIS-1,2-DICHLOROETHYLENE	500	500	ND(0.195)	ND(0.125)	ND(0.195)	ND(0.155)	ND(0.165)	ND(0.15)	ND(3.05)	ND(0.145)	ND(5.5)	ND(4.9)	ND(0.65)	ND(0.8)
ETHYL ACETATE	N/A	N/A	ND(8)	300	ND(8)	ND(6)	ND(6.5)	ND(6)	ND(120)	ND(5.5)	--	--	--	--
ETHYLBENZENE	1000	500	ND(0.195)	1.6	ND(0.195)	ND(0.155)	ND(0.165)	ND(0.15)	19	0.52	ND(5.5)	ND(4.9)	ND(0.65)	1
ISOPROPYLBENZENE	N/A	N/A	--	--	--	ND(0.155)	ND(0.165)	ND(0.15)	ND(3.05)	ND(0.145)	ND(5.5)	ND(4.9)	ND(0.65)	ND(0.8)
NAPHTHALENE	1000	1000	--	--	--	ND(0.155)	ND(0.165)	ND(0.15)	ND(3.05)	ND(0.145)	ND(5.5)	ND(4.9)	ND(0.65)	ND(0.8)
N-BUTYLBENZENE	N/A	N/A	--	--	--	ND(0.155)	ND(0.165)	ND(0.15)	ND(3.05)	ND(0.145)	ND(0.55)	ND(4.9)	ND(0.65)	ND(0.8)
N-PROPYLBENZENE	N/A	N/A	--	--	--	ND(0.155)	ND(0.165)	ND(0.15)	ND(3.05)	ND(0.145)	6	ND(4.9)	ND(0.65)	ND(0.8)
SEC-BUTYLBENZENE	N/A	N/A	--	--	--	ND(0.155)	ND(0.165)	ND(0.15)	ND(3.05)	ND(0.145)	ND(5.5)	ND(4.9)	ND(0.65)	ND(0.8)
TETRACHLOROETHYLENE	30	30	ND(0.195)	ND(0.125)	ND(0.195)	ND(0.155)	ND(0.165)	ND(0.15)	ND(3.05)	ND(0.145)	ND(0.55)	ND(4.9)	ND(0.65)	ND(0.8)
TOLUENE	500	1000	ND(0.195)	7.4	ND(0.195)	ND(0.155)	ND(0.165)	ND(0.15)	63	1.3	ND(5.5)	ND(4.9)	2.2	ND(0.8)
TRANS-1,2-DICHLOROETHYLENE	800	1000	ND(0.195)	ND(0.125)	ND(0.195)	ND(0.155)	ND(0.165)	ND(0.15)	ND(3.05)	ND(0.145)	ND(0.55)	ND(4.9)	ND(0.65)	ND(0.8)
TRICHLOROETHYLENE	20	100	0.47	ND(0.125)	0.74	ND(0.155)	ND(0.165)	ND(0.15)	13	ND(0.145)	ND(5.5)	ND(4.9)	39	7.4
VINYL CHLORIDE	0.4	0.5	ND(0.385)	ND(0.25)	ND(0.39)	ND(0.31)	ND(0.325)	ND(0.305)	ND(6)	ND(0.285)	ND(10.5)	ND(10)	ND(1.35)	ND(1.6)
XYLENES, MIXTURE	N/A	N/A	ND(0.195)	7.5	ND(0.195)	ND(0.155)	0.56	0.35	93	2.85	6	ND(4.9)	2.81	1.6
TOTAL CONCENTRATION OF VOCs			0.47	316.5	0.74	---	0.56	0.35	188	4.67	197.2	70	50.13	12.2
VPH														
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	500	500	--	--	--	--	--	--	--	--	1100	680	11	130
MADEP C9-C10 AROMATIC HYDROCARBONS	500	500	--	--	--	--	--	--	--	--	200	220	11	190
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	2500	2500	--	--	--	--	--	--	--	--	210	88	7.2	79
TOTAL CONCENTRATION OF VPH			---	---	---	---	---	---	---	---	1510	988	29.2	399

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location	Method 1 Standard	Method 1 Standard	HA-EA-S2B	HA-EA-S3	HA-EA-S3B	HA-EA-S4	HA-EA-S5	HA-EA-S6	HA-EA-S7	HA-EA-S8	S-1	S-2	S-3	S-4
Sample ID			HA-EA-S2B	HA-EA-S3	HA-EA-S3B	HA-EA-S4	HA-EA-S5	HA-EA-S6	HA-EA-S7	HA-EA-S8	S-1	S-2	S-3	S-4
Sample Medium			Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill
Depth	S-2/GW-2	S-2/GW-3	4 to 4.1	to	3.5 to 3.6	5 to 5.1	4 to 4.1	3 to 3.5	to	to	6 to 6.1	6 to 6.1	3 to 3.1	3 to 3.1
Date			9/1/2000	5/30/2000	9/1/2000	6/13/2000	6/13/2000	6/13/2000	6/13/2000	6/13/2000	8/18/2000	8/18/2000	8/18/2000	8/18/2000
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EPH														
2-METHYLNAPHTHALENE	1000	1000	--	--	--	--	--	--	--	--	**0.61**	**0.67**	**1.2**	ND(0.295)
ACENAPHTHENE	2500	2500	--	--	--	--	--	--	--	--	ND(0.265)	ND(0.265)	ND(0.295)	ND(0.295)
ACENAPHTHYLENE	2500	1000	--	--	--	--	--	--	--	--	ND(0.265)	ND(0.265)	ND(0.295)	ND(0.295)
ANTHRACENE	2500	2500	--	--	--	--	--	--	--	--	ND(0.265)	ND(0.265)	ND(0.295)	ND(0.295)
BENZO(A)ANTHRACENE	1	1	--	--	--	--	--	--	--	--	ND(0.265)	ND(0.265)	ND(0.295)	ND(0.295)
BENZO(A)PYRENE	0.7	0.7	--	--	--	--	--	--	--	--	ND(0.265)	ND(0.265)	ND(0.295)	ND(0.295)
BENZO(B)FLUORANTHENE	1	1	--	--	--	--	--	--	--	--	ND(0.265)	ND(0.265)	**0.83**	ND(0.295)
BENZO(G,H,I)PERYLENE	2500	2500	--	--	--	--	--	--	--	--	ND(0.265)	ND(0.265)	ND(0.295)	ND(0.295)
BENZO(K)FLUORANTHENE	10	10	--	--	--	--	--	--	--	--	ND(0.265)	ND(0.265)	ND(0.295)	ND(0.295)
CHRYSENE (1,2-BENZPHENANTHRACENE)	10	10	--	--	--	--	--	--	--	--	ND(0.265)	ND(0.265)	**0.77**	ND(0.295)
DIBENZ(A,H)ANTHRACENE	0.7	0.7	--	--	--	--	--	--	--	--	ND(0.265)	ND(0.265)	ND(0.295)	ND(0.295)
FLUORANTHENE	2000	1000	--	--	--	--	--	--	--	--	ND(0.265)	ND(0.265)	ND(0.295)	ND(0.295)
FLUORENE	2000	2000	--	--	--	--	--	--	--	--	ND(0.265)	ND(0.265)	ND(0.295)	ND(0.295)
INDENO(1,2,3-CD)PYRENE	1	1	--	--	--	--	--	--	--	--	ND(0.265)	ND(0.265)	ND(0.295)	ND(0.295)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	2000	2000	--	--	--	--	--	--	--	--	**70**	**80**	**370**	**200**
MADEP C19-C36 ALIPHATIC HYDROCARBONS	5000	5000	--	--	--	--	--	--	--	--	**83**	**90**	**490**	**140**
MADEP C9-C18 ALIPHATIC HYDROCARBONS	2500	2500	--	--	--	--	--	--	--	--	**380**	**390**	**160**	**140**
NAPHTHALENE	1000	1000	--	--	--	--	--	--	--	--	**0.97**	**0.91**	**2.5**	ND(0.295)
PHENANTHRENE	2500	100	--	--	--	--	--	--	--	--	ND(0.265)	ND(0.265)	ND(0.295)	ND(0.295)
PYRENE	2000	2000	--	--	--	--	--	--	--	--	ND(0.265)	ND(0.265)	ND(0.295)	ND(0.295)
TOTAL CONCENTRATION OF EPH			--	--	--	--	--	--	--	--	534.58	561.58	1025.3	480
TPH														
LUBRICATING OIL	N/A	N/A	--	--	--	--	--	--	--	--	--	--	--	--
OIL AND GREASE	2000	2000	--	--	--	--	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			--	--	--	--	--	--	--	--	--	--	--	--
METALS														
ALUMINUM	N/A	N/A	--	--	--	--	--	--	--	--	--	--	--	--
ARSENIC	30	30	--	--	--	--	--	--	--	--	--	--	--	--
CADMIUM	80	80	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM	2500	2500	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	600	600	--	--	--	--	--	--	--	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--	--	--	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--	--	--	--	--	--	--	--
LEAD	600	600	--	--	--	--	--	--	--	--	--	--	--	--
MERCURY	60	60	--	--	--	--	--	--	--	--	--	--	--	--
NICKEL	700	700	--	--	--	--	--	--	--	--	--	--	--	--
SILVER	200	200	--	--	--	--	--	--	--	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--	--	--	--	--	--	--	--
ZINC	2500	2500	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide														
CYANIDE, PHYSIOLOGICALLY AVAILABLE	100	100	--	--	--	--	--	--	--	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--	--	--	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table presents compounds detected in at least one sample.
5. Bold results were detected above the laboratory reporting limit.
6. Shaded results are detected compounds that exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location	Method 1 Standard	Method 1 Standard	S-5	S-6	TS-1	TS-2	TS-3	TS-4	TS-5	NORTH-COMP	NORTH-COMP	SOUTH-COMP	NTUNNEL1
Sample ID			S-5	S-6	TS-1	TS-2	TS-3	TS-4	TS-5	NORTH-COMP	NORTH-COMP 03	SOUTH-COMP	NTUNNEL1_16 FT
Sample Medium			Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill
Depth	S-2/GW-2	S-2/GW-3	3 to 3.1	3 to 3.1	0.5 to 1	0.5 to 1	0.5 to 1	0.5 to 1	0.5 to 1	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1
Date			8/18/2000	8/18/2000	10/7/2003	10/7/2003	10/7/2003	10/7/2003	10/7/2003	6/12/1986	12/23/2003	6/12/1986	8/19/2004
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
VOCs													
1,1,1-TRICHLOROETHANE	500	500	ND(0.3)	ND(0.32)	--	--	--	--	--	--	--	--	--
1,1,2,2-TETRACHLOROETHANE	0.2	0.6	ND(0.3)	ND(0.32)	--	--	--	--	--	--	--	--	--
1,1-DICHLOROETHYLENE	0.1	2	ND(0.3)	ND(0.32)	--	--	--	--	--	--	--	--	--
1,2,3-TRICHLOROPROPANE	N/A	N/A	ND(0.3)	ND(0.32)	--	--	--	--	--	--	--	--	--
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(0.3)	ND(0.32)	--	--	--	--	--	--	--	--	--
1,3,5-TRIMETHYLBENZENE	N/A	N/A	0.91	ND(0.32)	--	--	--	--	--	--	--	--	--
4-ISOPROPYLTOLUENE	N/A	N/A	ND(0.3)	ND(0.32)	--	--	--	--	--	--	--	--	--
4-METHYL-2-PENTANONE (MIBK)	70	70	ND(3)	ND(3.2)	--	--	--	--	--	--	--	--	--
BENZENE	60	60	1.3	ND(0.32)	--	--	--	--	--	--	--	--	--
CARBON TETRACHLORIDE	4	10	ND(0.3)	ND(0.32)	--	--	--	--	--	--	--	--	--
CHLOROFORM	10	200	9.4	4.4	--	--	--	--	--	--	--	--	--
CIS-1,2-DICHLOROETHYLENE	500	500	1.6	ND(0.32)	--	--	--	--	--	--	--	--	--
ETHYL ACETATE	N/A	N/A	--	--	--	--	--	--	--	--	--	--	--
ETHYLBENZENE	1000	500	0.77	ND(0.32)	--	--	--	--	--	--	--	--	--
ISOPROPYLBENZENE	N/A	N/A	ND(0.3)	ND(0.32)	--	--	--	--	--	--	--	--	--
NAPHTHALENE	1000	1000	ND(0.3)	ND(0.32)	--	--	--	--	--	--	--	--	--
N-BUTYLBENZENE	N/A	N/A	ND(0.3)	ND(0.32)	--	--	--	--	--	--	--	--	--
N-PROPYLBENZENE	N/A	N/A	ND(0.3)	ND(0.32)	--	--	--	--	--	--	--	--	--
SEC-BUTYLBENZENE	N/A	N/A	ND(0.3)	ND(0.32)	--	--	--	--	--	--	--	--	--
TETRACHLOROETHYLENE	30	30	ND(0.3)	ND(0.32)	--	--	--	--	--	--	--	--	--
TOLUENE	500	1000	6.3	ND(0.32)	--	--	--	--	--	--	--	--	--
TRANS-1,2-DICHLOROETHYLENE	800	1000	ND(0.3)	ND(0.32)	--	--	--	--	--	--	--	--	--
TRICHLOROETHYLENE	20	100	15	17	--	--	--	--	--	--	--	--	--
VINYL CHLORIDE	0.4	0.5	ND(0.6)	ND(0.65)	--	--	--	--	--	--	--	--	--
XYLENES, MIXTURE	N/A	N/A	8	ND(0.32)	--	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF VOCs			43.28	21.4	---	---	---	---	---	---	---	---	---
VPH													
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	500	500	20	11	--	--	--	--	--	--	--	--	--
MADEP C9-C10 AROMATIC HYDROCARBONS	500	500	4.3	4.9	--	--	--	--	--	--	--	--	--
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	2500	2500	5.6	6.4	--	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF VPH			29.9	22.3	---	---	---	---	---	---	---	---	---

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location	Method 1 Standard	Method 1 Standard	S-5	S-6	TS-1	TS-2	TS-3	TS-4	TS-5	NORTH-COMP	NORTH-COMP	SOUTH-COMP	NTUNNEL1
Sample ID			S-5	S-6	TS-1	TS-2	TS-3	TS-4	TS-5	NORTH-COMP	NORTH-COMP 03	SOUTH-COMP	NTUNNEL1_16 FT
Sample Medium			Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill	Fill
Depth	S-2/GW-2	S-2/GW-3	3 to 3.1	3 to 3.1	0.5 to 1	0.5 to 1	0.5 to 1	0.5 to 1	0.5 to 1	0 to 0.1	0 to 0.1	0 to 0.1	0 to 0.1
Date			8/18/2000	8/18/2000	10/7/2003	10/7/2003	10/7/2003	10/7/2003	10/7/2003	6/12/1986	12/23/2003	6/12/1986	8/19/2004
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EPH													
2-METHYLNAPHTHALENE	1000	1000	ND(0.28)	ND(0.28)	--	--	--	--	--	--	--	--	--
ACENAPHTHENE	2500	2500	ND(0.28)	ND(0.28)	--	--	--	--	--	--	--	--	--
ACENAPHTHYLENE	2500	1000	ND(0.28)	ND(0.28)	--	--	--	--	--	--	--	--	--
ANTHRACENE	2500	2500	ND(0.28)	ND(0.28)	--	--	--	--	--	--	--	--	--
BENZO(A)ANTHRACENE	1	1	ND(0.28)	ND(0.28)	--	--	--	--	--	--	--	--	--
BENZO(A)PYRENE	0.7	0.7	ND(0.28)	**0.64**	--	--	--	--	--	--	--	--	--
BENZO(B)FLUORANTHENE	1	1	ND(0.28)	ND(0.28)	--	--	--	--	--	--	--	--	--
BENZO(G,H,I)PERYLENE	2500	2500	ND(0.28)	ND(0.28)	--	--	--	--	--	--	--	--	--
BENZO(K)FLUORANTHENE	10	10	ND(0.28)	ND(0.28)		--	--	--	--	--	--	--	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	10	10	ND(0.28)	ND(0.28)	--	--	--	--	--	--	--	--	--
DIBENZ(A,H)ANTHRACENE	0.7	0.7	ND(0.28)	ND(0.28)	--	--	--	--	--	--	--	--	--
FLUORANTHENE	2000	1000	ND(0.28)	**0.63**	--	--	--	--	--	--	--	--	--
FLUORENE	2000	2000	ND(0.28)	ND(0.28)	--	--	--	--	--	--	--	--	--
INDENO(1,2,3-CD)PYRENE	1	1	ND(0.28)	ND(0.28)	--	--	--	--	--	--	--	--	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	2000	2000	**83**	**180**	--	--	--	--	--	--	--	--	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	5000	5000	**52**	**210**	--	--		--	--	--	--	--	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	2500	2500	**48**	ND(17)	--	--	--	--	--	--	--	--	--
NAPHTHALENE	1000	1000	**0.86**	ND(0.28)	--	--	--	--	--	--	--	--	--
PHENANTHRENE	2500	100	ND(0.28)	ND(0.28)	--	--	--	--	--	--	--	--	--
PYRENE	2000	2000	ND(0.28)	**0.74**	--	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF EPH			183.86	392.01	---	---	---	---	---	---	---	---	---
TPH													
LUBRICATING OIL	N/A	N/A	--	--	--	--	--	--	--	--	--	--	--
OIL AND GREASE	2000	2000	--	--	--	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			---	---	---	---	---	---	---	---	---	---	---
METALS													
ALUMINUM	N/A	N/A	--	--	--	--	--	--	--	**6782**	--	**3312.3**	--
ARSENIC	30	30	--	--	--	--	--	--	--	--	--	--	--
CADMIUM	80	80	--	--	**700**	**270**	**68**	**17**	**110**	**48.76**	--	**55.52**	--
CHROMIUM	2500	2500	--	--	--	--	--	--	--	**58.88**	--	ND(0.005)	--
CHROMIUM (HEXAVALENT COMPOUNDS)	600	600	--	--	--	--	--	--	--	ND(0.5)	--	ND(0.5)	--
COPPER	N/A	N/A	--	--	**460**	**470**	**1200**	**230**	**220**	**222.6**	--	**132.7**	--
IRON	N/A	N/A	--	--	**14000**	**12000**	**6100**	**6400**	**7000**	--	--	--	--
LEAD	600	600	--	--	--	--	--	--	--	**443.44**	--	**543**	--
MERCURY	60	60	--	--	--	--	--	--	--	--	--	--	--
NICKEL	700	700	--	--	**640**	**220**	**81**	**31**	**67**	**64.4**	--	**64.93**	--
SILVER	200	200	--	--	--	--	--	--	--	**1.84**	--	**5.65**	--
TIN	N/A	N/A	--	--	**37**	**17**	**30**	**13**	**8.5**	**14120**	**24**	**114049**	**36**
ZINC	2500	2500	--	--	**2600**	**920**	**230**	**150**	**250**	**564.9**	--	**227.7**	--
Cyanide													
CYANIDE, PHYSIOLOGICALLY AVAILABLE	100	100	--	--	--	--	--	--	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	**28**	**21**	**6.9**	**1.2**	**8.2**	**17.8**	--	**5.6**	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table presents compounds detected in at least one sample.
5. Bold results were detected above the laboratory reporting limit.
6. Shaded results are detected compounds that exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS 3-0585, 3-19850

Location Sample ID Sample Medium Depth Date Unit	Method 1 Standard S-2/GW-2 mg/kg	Method 1 Standard S-2/GW-3 mg/kg	SOUTH-COMP SOUTH-COMP 03 Fill 0 to 0.1 12/23/2003 mg/kg	STUNNEL1 STUNNEL1_15 FT Fill 0 to 0.1 8/19/2004 mg/kg	STUNNEL2 STUNNEL2_18 FT Fill 0 to 0.1 8/19/2004 mg/kg	STUNNEL3 STUNNEL3_22 FT Fill 0 to 0.1 8/19/2004 mg/kg	STUNNEL4 STUNNEL4_24 FT Fill 0 to 0.1 8/19/2004 mg/kg	NTUNNEL2 NTUNNEL2_19 FT Fill 0 to 0.1 8/19/2004 mg/kg	NTUNNEL3 NTUNNEL3_21 FT Fill 0 to 0.1 8/19/2004 mg/kg	NTUNNEL4 NTUNNEL4_24 FT Fill 0 to 0.1 8/19/2004 mg/kg
VOCs										
1,1,1-TRICHLOROETHANE	500	500	--	--	--	--	--	--	--	--
1,1,2,2-TETRACHLOROETHANE	0.2	0.6	--	--	--	--	--	--	--	--
1,1-DICHLOROETHYLENE	0.1	2	--	--	--	--	--	--	--	--
1,2,3-TRICHLOROPROPANE	N/A	N/A	--	--	--	--	--	--	--	--
1,2,4-TRIMETHYLBENZENE	N/A	N/A	--	--	--	--	--	--	--	--
1,3,5-TRIMETHYLBENZENE	N/A	N/A	--	--	--	--	--	--	--	--
4-ISOPROPYLTOLUENE	N/A	N/A	--	--	--	--	--	--	--	--
4-METHYL-2-PENTANONE (MIBK)	70	70	--	--	--	--	--	--	--	--
BENZENE	60	60	--	--	--	--	--	--	--	--
CARBON TETRACHLORIDE	4	10	--	--	--	--	--	--	--	--
CHLOROFORM	10	200	--	--	--	--	--	--	--	--
CIS-1,2-DICHLOROETHYLENE	500	500	--	--	--	--	--	--	--	--
ETHYL ACETATE	N/A	N/A	--	--	--	--	--	--	--	--
ETHYLBENZENE	1000	500	--	--	--	--	--	--	--	--
ISOPROPYLBENZENE	N/A	N/A	--	--	--	--	--	--	--	--
NAPHTHALENE	1000	1000	--	--	--	--	--	--		--
N-BUTYLBENZENE	N/A	N/A	--	--	--	--	--	--	--	--
N-PROPYLBENZENE	N/A	N/A	--	--	--	--	--	--	--	--
SEC-BUTYLBENZENE	N/A	N/A	--	--	--	--	--	--	--	--
TETRACHLOROETHYLENE	30	30	--	--	--	--	--	--	--	--
TOLUENE	500	1000	--	--	--	--	--	--	--	--
TRANS-1,2-DICHLOROETHYLENE	800	1000	--	--	--	--	--	--	--	--
TRICHLOROETHYLENE	20	100	--	--	--	--	--	--	--	--
VINYL CHLORIDE	0.4	0.5	--	--	--	--	--	--	--	--
XYLENES, MIXTURE	N/A	N/A	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF VOCs			---	---	---	---	---	---	---	---
VPH										
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	500	500	--	--	--	--	--	--	--	--
MADEP C9-C10 AROMATIC HYDROCARBONS	500	500	--	--	--	--	--	--	--	--
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	2500	2500	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF VPH			---	---	---	---	---	---	---	---

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location Sample ID Sample Medium Depth Date Unit	Method 1 Standard S-2/GW-2 mg/kg	Method 1 Standard S-2/GW-3 mg/kg	SOUTH-COMP SOUTH-COMP 03 Fill 0 to 0.1 12/23/2003 mg/kg	STUNNEL1 STUNNEL1_15 FT Fill 0 to 0.1 8/19/2004 mg/kg	STUNNEL2 STUNNEL2_18 FT Fill 0 to 0.1 8/19/2004 mg/kg	STUNNEL3 STUNNEL3_22 FT Fill 0 to 0.1 8/19/2004 mg/kg	STUNNEL4 STUNNEL4_24 FT Fill 0 to 0.1 8/19/2004 mg/kg	NTUNNEL2 NTUNNEL2_19 FT Fill 0 to 0.1 8/19/2004 mg/kg	NTUNNEL3 NTUNNEL3_21 FT Fill 0 to 0.1 8/19/2004 mg/kg	NTUNNEL4 NTUNNEL4_24 FT Fill 0 to 0.1 8/19/2004 mg/kg
EPH										
2-METHYLNAPHTHALENE	1000	1000	--	--	--	--	--	--	--	--
ACENAPHTHENE	2500	2500	--	--	--	--	--	--	--	--
ACENAPHTHYLENE	2500	1000	--	--	--	--	--	--	--	
ANTHRACENE	2500	2500	--	--	--	--	--	--	--	--
BENZO(A)ANTHRACENE	1	1	--	--	--	--	--	--	--	--
BENZO(A)PYRENE	0.7	0.7	--	--	--	--	--	--	--	--
BENZO(B)FLUORANTHENE	1	1	--	--	--	--	--	--	--	--
BENZO(G,H,I)PERYLENE	2500	2500	--	--	--	--	--	--	--	--
BENZO(K)FLUORANTHENE	10	10	--	--	--	--	--	--	--	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	10	10	--	--	--	--	--	--	--	--
DIBENZ(A,H)ANTHRACENE	0.7	0.7	--	--	--	--	--	--	--	--
FLUORANTHENE	2000	1000	--	--	--	--	--	--	--	--
FLUORENE	2000	2000	--	--	--	--	--	--	--	--
INDENO(1,2,3-CD)PYRENE	1	1	--	--	--	--	--	--	--	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	2000	2000	--	--	--	--	--	--	--	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	5000	5000		--	--	--	--	--	--	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	2500	2500	--	--	--	--	--	--	--	--
NAPHTHALENE	1000	1000	--	--	--	--	--	--	--	--
PHENANTHRENE	2500	100	--	--	--	--	--	--	--	--
PYRENE	2000	2000	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF EPH			---	---	---	---	---	---	---	---
TPH										
LUBRICATING OIL	N/A	N/A	--	--	--	--	--	--	--	--
OIL AND GREASE	2000	2000	--	--	--	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			---	---	---	---	---	---	---	---
METALS										
ALUMINUM	N/A	N/A	--	--	--	--	--	--	--	--
ARSENIC	30	30	--	--	--	--	--	--	--	--
CADMIUM	80	80	--	--	--	--	--	--	--	--
CHROMIUM	2500	2500	--	--	--	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	600	600	--	--	--	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--	--	--	--
LEAD	600	600	--	--	--	--	--	--	--	--
MERCURY	60	60	--	--	--	--	--	--	--	--
NICKEL	700	700	--	--	--	--	--	--	--	--
SILVER	200	200	--	--	--	--	--	--	--	--
TIN	N/A	N/A	**71**	**56**	**280**	**19**	**25**	**20**	**12**	ND(2.1)
ZINC	2500	2500	--	--	--	--	--	--	--	--
Cyanide										
CYANIDE, PHYSIOLOGICALLY AVAILABLE	100	100	--	--	--	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available
4. This table presents compounds detected in at least one sample.
5. Bold results were detected above the laboratory reporting limit.
6. Shaded results are detected compounds that exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location Sample ID Sample Medium Depth Date Unit	Method 1 Standard S-2/GW-2 mg/kg	Method 1 Standard S-2/GW-3 mg/kg	HA-V1 HA-V1 Fill 10 to 11 5/26/2000 mg/kg	HA-V2 HA-V2 Fill 9 to 10 5/26/2000 mg/kg	HA-V3 HA-V3 Fill 10 to 10 1 5/26/2000 mg/kg	HA-V4 HA-V4 Fill 9 to 10 5/26/2000 mg/kg	HA-V5 HA-V5 Fill 9 to 11 5/26/2000 mg/kg	HA-V6 HA-V6 Fill 6 to 6 1 5/26/2000 mg/kg
VOCs								
1,1,1-TRICHLOROETHANE	500	500	--	--	--	--	--	--
1,1,2,2-TETRACHLOROETHANE	0.2	0.6	--	--	--	--	--	--
1,1-DICHLOROETHYLENE	0.1	2	--	--	--	--	--	--
1,2,3-TRICHLOROPROPANE	N/A	N/A	--	--	--	--	--	--
1,2,4-TRIMETHYLBENZENE	N/A	N/A	--	--	--	--	--	--
1,3,5-TRIMETHYLBENZENE	N/A	N/A	--	--	--	--	--	--
4-ISOPROPYLTOLUENE	N/A	N/A	--	--	--	--	--	--
4-METHYL-2-PENTANONE (MIBK)	70	70	--	--	--	--	--	--
BENZENE	60	60	--	--	--	--	--	--
CARBON TETRACHLORIDE	4	10	--	--	--	--	--	--
CHLOROFORM	10	200	--	--	--	--	--	--
CIS-1,2-DICHLOROETHYLENE	500	500	--	--	--	--	--	--
ETHYL ACETATE	N/A	N/A	--	--	--	--	--	--
ETHYLBENZENE	1000	500	ND(0.6)	ND(0.06)	ND(0.055)	ND(0.06)	0.13	ND(0.05)
ISOPROPYLBENZENE	N/A	N/A	--	--	--	--	--	--
NAPHTHALENE	1000	1000	--	--	--	--	--	--
N-BUTYLBENZENE	N/A	N/A	--	--	--	--	--	--
N-PROPYLBENZENE	N/A	N/A	--	--	--	--	--	--
SEC-BUTYLBENZENE	N/A	N/A	--	--	--	--	--	--
TETRACHLOROETHYLENE	30	30	--	--	--	--	--	--
TOLUENE	500	1000	--	--	--	--	--	--
TRANS-1,2-DICHLOROETHYLENE	800	1000	--	--	--	--	--	--
TRICHLOROETHYLENE	20	100	--	--	--	--	--	--
VINYL CHLORIDE	0.4	0.5	--	--	--	--	--	--
XYLENES, MIXTURE	N/A	N/A	--	--	--	--	--	--
TOTAL CONCENTRATION OF VOCs			---	---	---	---	---	---
VPH								
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	500	500	ND(0.6)	ND(0.5)	ND(0.55)	ND(0.6)	ND(0.5)	ND(0.5)
MADEP C9-C10 AROMATIC HYDROCARBONS	500	500	ND(0.6)	ND(0.5)	ND(0.55)	ND(0.6)	ND(0.5)	ND(0.5)
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	2500	2500	ND(0.6)	ND(0.5)	ND(0.55)	ND(0.6)	4.2	ND(0.5)
TOTAL CONCENTRATION OF VPH			---	---	---	---	11.53	---

TABLE IV
SOIL QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Location Sample ID Sample Medium Depth Date Unit	Method 1 Standard S-2/GW-2 mg/kg	Method 1 Standard S-2/GW-3 mg/kg	HA-V1 HA-V1 Fill 10 to 11 5/26/2000 mg/kg	HA-V2 HA-V2 Fill 9 to 10 5/26/2000 mg/kg	HA-V3 HA-V3 Fill 10 to 10.1 5/26/2000 mg/kg	HA-V4 HA-V4 Fill 9 to 10 5/26/2000 mg/kg	HA-V5 HA-V5 Fill 9 to 11 5/26/2000 mg/kg	HA-V6 HA-V6 Fill 6 to 6.1 5/26/2000 mg/kg
EPH								
2-METHYLNAPHTHALENE	1000	1000	ND(0.275)	ND(0.25)	ND(0.25)	ND(0.275)	ND(0.285)	ND(0.25)
ACENAPHTHENE	2500	2500	ND(0.275)	ND(0.25)	ND(0.25)	ND(0.275)	ND(0.285)	ND(0.25)
ACENAPHTHYLENE	2500	1000	ND(0.275)	ND(0.25)	ND(0.25)	ND(0.275)	ND(0.285)	ND(0.25)
ANTHRACENE	2500	2500	ND(0.275)	ND(0.25)	ND(0.25)	ND(0.275)	ND(0.285)	ND(0.25)
BENZO(A)ANTHRACENE	1	1	ND(0.275)	ND(0.25)	ND(0.25)	ND(0.275)	ND(0.285)	ND(0.25)
BENZO(A)PYRENE	0.7	0.7	ND(0.275)	ND(0.25)	ND(0.25)	ND(0.275)	ND(0.285)	ND(0.25)
BENZO(B)FLUORANTHENE	1	1	ND(0.275)	ND(0.25)	ND(0.25)	ND(0.275)	ND(0.285)	ND(0.25)
BENZO(G,H,I)PERYLENE	2500	2500	ND(0.275)	ND(0.25)	ND(0.25)	ND(0.275)	ND(0.285)	ND(0.25)
BENZO(K)FLUORANTHENE	10	10	ND(0.275)	ND(0.25)	ND(0.25)	ND(0.275)	ND(0.285)	ND(0.25)
CHRYSENE (1,2-BENZPHENANTHRACENE)	10	10	ND(0.275)	ND(0.25)	ND(0.25)	ND(0.275)	ND(0.285)	ND(0.25)
DIBENZ(A,H)ANTHRACENE	0.7	0.7	ND(0.275)	ND(0.25)	ND(0.25)	ND(0.275)	ND(0.285)	ND(0.25)
FLUORANTHENE	2000	1000	ND(0.275)	ND(0.25)	ND(0.25)	ND(0.275)	ND(0.285)	ND(0.25)
FLUORENE	2000	2000	ND(0.275)	ND(0.25)	ND(0.25)	ND(0.275)	ND(0.285)	ND(0.25)
INDENO(1,2,3-CD)PYRENE	1	1	ND(0.275)	ND(0.25)	ND(0.25)	ND(0.275)	ND(0.285)	ND(0.25)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	2000	2000	ND(16.5)	ND(15)	ND(15)	ND(16.5)	ND(17)	ND(15)
MADEP C19-C36 ALIPHATIC HYDROCARBONS	5000	5000	74	ND(15)	ND(15)	ND(16.5)	ND(17)	ND(15)
MADEP C9-C18 ALIPHATIC HYDROCARBONS	2500	2500	ND(16.5)	ND(15)	ND(15)	ND(16.5)	ND(17)	ND(15)
NAPHTHALENE	1000	1000	ND(0.275)	ND(0.25)	ND(0.25)	ND(0.275)	ND(0.285)	ND(0.25)
PHENANTHRENE	2500	100	ND(0.275)	ND(0.25)	ND(0.25)	ND(0.275)	ND(0.285)	ND(0.25)
PYRENE	2000	2000	ND(0.275)	ND(0.25)	ND(0.25)	ND(0.275)	ND(0.285)	ND(0.25)
TOTAL CONCENTRATION OF EPH			74	--	--	--	--	--
TPH								
LUBRICATING OIL	N/A	N/A	--	--	--	--	--	--
OIL AND GREASE	2000	2000	--	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			--	--	--	--	--	--
METALS								
ALUMINUM	N/A	N/A	--	--	--	--	--	--
ARSENIC	30	30	--	--	--	--	--	--
CADMIUM	80	80	--	--	--	--	--	--
CHROMIUM	2500	2500	--	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	600	600	--	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--	--
LEAD	600	600	--	--	--	--	--	--
MERCURY	60	60	--	--	--	--	--	--
NICKEL	700	700	--	--	--	--	--	--
SILVER	200	200	--	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--	--
ZINC	2500	2500	--	--	--	--	--	--
Cyanide								
CYANIDE, PHYSIOLOGICALLY AVAILABLE	100	100	--	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table presents compounds detected in at least one sample.
5. Bold results were detected above the laboratory reporting limit.
6. Shaded results are detected compounds that exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE V
OUTFALL CHEMICAL DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION DEPTH (FEET) SAMPLING DATE	Screen Level M1_S_2_GW_2 mg/kg	Screen Level M1_S_2_GW_3 mg/kg	P-4 P-4 to 11/07/03
OUTFALL ID: 4			
VOCs			
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.02	0.02	**ND(0.46)**
TRICHLOROETHYLENE	20.	100.	**1.7**
XYLENES, MIXTURE	N/A	N/A	**0.37**
TOTAL TARGETED			2.07
SVOCs			
3,3-DICHLOROBENZIDINE	1.	1.	**ND(2.25)**
CHRYSENE (1,2-BENZPHENANTHRACENE)	10.	10.	**2.2**
FLUORANTHENE	2,000.	1,000.	**2.3**
PYRENE	2,000.	2,000.	**2.3**
TOTAL TARGETED			**6.8**
METALS			
ARSENIC	30.	30.	**99**
BARIUM	2,500.	2,500.	**51**
CADMIUM	80.	80.	**7.4**
CHROMIUM	2,500.	2,500.	**240**
COPPER	N/A	N/A	**790**
LEAD	600.	600.	**840**
MERCURY	60.	60.	**0.48**
SILVER	200.	200.	**4.1**
ZINC	2,500.	2,500.	**2600**
TOTAL TARGETED			**4631.98**

OUTFALL ID	OUTFALL SIZE (inches)	OUTFALL LOCATION (bottom of pipe)	VISUAL EVIDENCE OF FLOW	COMMENTS
1	24	~1 ft above river	yes	
2	8	~0.5 ft above river	no	
3	8	half submerged	no	
4	8	~1 ft above river	no	Three 8 inch outfalls at this location
5	4	~0.2 ft above river	no	
6	2	~0.5 ft above river	no	
7	4	~0.2 ft above river	no	
8	12	~1 ft above river	no	
	6	half submerged	no	
9	4	submerged	no	
10	6	~0.5 ft above river	no	
11	8	~0.5 ft above river	slow drip	
	4	~0.5 ft above river	no	
12	4	~0.3 ft above river	no	
13	4	half submerged	no	
14	6	half submerged	no	
15	6	half submerged	no	
16	4	~0.2 ft above river	no	
17	4	half submerged	no	
18	4	~0.3 ft above river	no	
19	4	half submerged	no	
20	24	half submerged	yes	
	8	3/4 submerged	no	
21	6	~1 ft above river	no	
	3	half submerged	no	

Notes:
Refer to Figure 3 in Phase II - Comprehensive Site Assessment Report for outfall locations.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	B1-OW	B1-OW	B1-OW	B1-OW	B1-OW	B1-OW	B1-OW
SAMPLE DESIGNATION	Standard	Standard	B1-OW 09/14/84	B1-OW 05/01/85	B1-OW 09/08/87	B1-OW 12/11/87	B1-OW 07/17/98	B1-OW 07/28/00	B1-OW 04/29/02
SAMPLING DATE	GW-2	GW-3	09/14/84	05/01/85	09/08/87	12/11/87	07/17/98	07/28/00	04/29/02
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOCs									
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	--	--	--	--	--	ND(0.25)	ND(50)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	36	27	61	ND(10)	ND(1.25)	ND(0.25)	ND(50)
1,1,2,2-TETRACHLOROETHANE	20	20,000	--	ND(1)	ND(1)	ND(10)	ND(1.25)	ND(0.25)	ND(50)
1,1,2-TRICHLOROETHANE	20,000.	50,000	--	--	--	--	--	ND(0.25)	ND(50)
1,1-DICHLOROETHANE	9,000.	50,000.	23	8	11	ND(10)	ND(1.25)	ND(0.25)	ND(50)
1,1-DICHLOROETHYLENE	1.	50,000.	5	15	4.1	ND(10)	ND(1.25)	ND(0.25)	ND(50)
1,2,4-TRICHLOROBENZENE	10,000.	500.	--	--	--	--	--	ND(0.25)	ND(50)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	--	--	--	--	--	ND(0.25)	ND(50)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000	--	--	--	--	--	ND(0.25)	ND(50)
1,2-DICHLOROETHANE	20.	50,000	ND(0.5)	ND(1)	ND(1)	ND(10)	ND(1.25)	ND(0.25)	ND(50)
1,2-DICHLOROPROPANE	9.	30,000	--	ND(1)	ND(1)	ND(10)	ND(1.25)	ND(0.25)	ND(50)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	--	--	--	--	--	ND(0.25)	ND(50)
4-ISOPROPYLTOLUENE	N/A	N/A	--	--	--	--	--	ND(0.25)	ND(50)
ACETONE	50,000	50,000.	--	ND(12.5)	ND(25)	ND(250)	ND(25)	ND(2.5)	ND(2000)
BENZENE	2,000.	7,000	ND(0.5)	ND(1)	7.1	ND(10)	ND(1.25)	ND(0.25)	ND(50)
BROMODICHLOROMETHANE	N/A	50,000.	--	--	--	--	--	ND(0.25)	ND(50)
BROMOMETHANE	2.	50,000.	--	ND(2.5)	ND(2.5)	ND(25)	ND(6)	ND(0.25)	ND(50)
CARBON TETRACHLORIDE	20.	50,000.	--	ND(1)	ND(1)	ND(10)	ND(1.25)	ND(0.25)	ND(50)
CHLOROETHANE	N/A	N/A	ND(0.5)	ND(2.5)	ND(2.5)	ND(25)	ND(6)	ND(0.25)	ND(50)
CHLOROFORM	400.	10,000.	ND(0.5)	ND(1)	ND(1)	ND(10)	ND(6)	ND(0.25)	ND(50)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	--	--	--	--	170	28	5500
ETHYLBENZENE	30,000.	4,000.	ND(0.5)	ND(1)	ND(1)	ND(10)	ND(1.25)	ND(0.25)	ND(50)
HEXACHLORO-1,3-BUTADIENE	1.	90.	--	--	--	--	--	ND(0.25)	ND(50)
ISOPROPYLBENZENE	N/A	N/A	--	--	--	--	--	ND(0.25)	ND(50)
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	--	--	--	--	--	ND(0.25)	ND(50)
METHYLENE CHLORIDE	50,000.	50,000.	5	ND(2.5)	ND(5)	ND(25)	ND(6)	ND(1)	ND(250)
NAPHTHALENE	6,000.	6,000.	--	--	--	--	--	ND(0.25)	ND(50)
N-BUTYLBENZENE	N/A	N/A	--	--	--	--	--	ND(0.25)	ND(50)
N-PROPYLBENZENE	N/A	N/A	--	--	--	--	--	ND(0.25)	ND(50)
SEC-BUTYLBENZENE	N/A	N/A	--	--	--	--	--	ND(0.25)	ND(50)
TERT-BUTYLBENZENE	N/A	N/A	--	--	--	--	--	ND(0.25)	ND(50)
TETRACHLOROETHYLENE	3,000.	5,000.	ND(0.5)	ND(1)	ND(1)	ND(10)	ND(1.25)	ND(0.25)	ND(50)
TETRAHYDROFURAN	N/A	N/A	--	--	--	--	--	ND(2.5)	ND(500)
TOLUENE	6,000.	50,000	ND(0.5)	ND(1)	ND(1)	ND(10)	ND(1.25)	ND(0.25)	ND(50)
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	630	7100	1200	2400	ND(1.25)	ND(0.25)	ND(50)
TRICHLOROETHYLENE	300.	20,000.	240	350	85	360	110	7	1000
VINYL CHLORIDE	2.	40,000.	110	740	200	350	140	9	1300
XYLENES, MIXTURE	N/A	N/A	ND(1)	ND(1)	ND(1)	ND(10)	ND(1.25)	ND(0.25)	ND(50)
TOTAL CONCENTRATION OF VOCs			1049	8240	1568.2	3110	420	44	7800
VPH									
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	--	--	--	--	--	330	2500
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	--	--	--	--	--	ND(10)	ND(10)
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	--	--	--	--	--	ND(10)	ND(10)
TOTAL CONCENTRATION OF VPH			ND	ND	ND	ND	ND	330	2500

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	B1-OW	B1-OW	B1-OW	B1-OW	B1-OW	B1-OW	B1-OW
SAMPLE DESIGNATION	Standard	Standard	B1-OW 09/14/84	B1-OW 05/01/85	B1-OW 09/08/87	B1-OW 12/11/87	B1-OW 07/17/98	B1-OW 07/28/00	B1-OW 04/29/02
SAMPLING DATE	GW-2	GW-3	09/14/84	05/01/85	09/08/87	12/11/87	07/17/98	07/28/00	04/29/02
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EPH									
2-METHYLNAPHTHALENE	10,000.	3,000	--	--	--	--	--	ND(2.5)	ND(2.5)
ACENAPHTHENE	N/A	5,000.	--	--	--	--	--	ND(5)	ND(5)
BENZO(A)ANTHRACENE	N/A	3,000.	--	--	--	--	--	ND(5)	ND(5)
BENZO(A)PYRENE	N/A	3,000	--	--	.	--	--	ND(5)	ND(5)
BENZO(B)FLUORANTHENE	N/A	3,000.	--	--	--	--	--	ND(5)	ND(5)
BENZO(K)FLUORANTHENE	N/A	3,000.	--	--	--	--	--	ND(5)	ND(5)
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	--	--	--	--	--	ND(5)	ND(5)
FLUORANTHENE	N/A	200.	--	--	--	--	--	ND(5)	ND(5)
FLUORENE	N/A	3,000	--	--	--	--	--	ND(5)	ND(5)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000	--	--	--	--	--	210	ND(80)
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	--	--	--	--	--	ND(250)	ND(250)
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000	--	--	--	--	--	ND(250)	ND(250)
NAPHTHALENE	6,000.	6,000	--	--	--	--	--	ND(5)	ND(5)
PHENANTHRENE	N/A	50.	--	--	--	--	--	ND(5)	ND(5)
PYRENE	N/A	3,000.	--	--	--	--	--	ND(5)	ND(5)
TOTAL CONCENTRATION OF EPH			ND	ND	ND	ND	ND	210	ND
TPH									
OIL AND GREASE	1,000	20,000.	--	15100	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	15100	ND	ND	ND	ND	ND
METALS									
ALUMINUM	N/A	N/A	730	ND(25)	--	--	--	--	--
ARSENIC	N/A	400	--	--	20	14	25	20	ND(5)
CADMIUM	N/A	10.	1.1	0.6	ND(2.5)	ND(2.5)	1.2	ND(2.5)	ND(2.5)
CHROMIUM	N/A	2,000	6.5	ND(2.5)	ND(5)	ND(5)	6.4	ND(5)	ND(5)
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	ND(5)	ND(25)	ND(5)	ND(5)	ND(7.5)	--	ND(5)
COPPER	N/A	N/A	260	23	84	ND(5)	6.7	ND(12.5)	ND(12.5)
IRON	N/A	N/A	810	120	--	--	--	--	--
LEAD	N/A	30.	27	ND(2.5)	ND(5)	ND(5)	--	ND(2.5)	ND(2.5)
MERCURY	N/A	1.	--	--	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
NICKEL	N/A	80.	45	47	46	47	31	ND(20)	ND(20)
SILVER	N/A	7.	1.6	ND(0.25)	ND(2.5)	ND(2.5)	--	--	--
TIN	N/A	N/A	13	ND(10)	--	--	--	ND(250)	--
ZINC	N/A	900.	400	130	530	490	--	400	ND(100)
Cyanide									
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--	ND(10)	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--	ND(10)	--
CYANIDE, TOTAL	N/A	N/A	10	33	1630	1790	ND(7.5)	280	ND(5)

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	B1-OW B1-OW 01/15/03 01/15/03 ug/L	B1-OW B1AA-OW DUP 01/15/03 01/15/03 ug/L	B1-OW B1-OW 11/05/03 11/05/03 ug/L	B1-OW B1-OW 06/29/04 06/29/04 ug/L	B4-OW B4-OW 05/01/85 05/01/85 ug/L	B4-OW B4-OW 09/08/87 09/08/87 ug/L	B4-OW B4-OW 12/11/87 12/11/87 ug/L
EPH									
2-METHYLNAPHTHALENE	10,000.	3,000.	--	--	--	--	--	--	--
ACENAPHTHENE	N/A	5,000	--	--	--	--	--	--	--
BENZO(A)ANTHRACENE	N/A	3,000	--	--	--	--	--	--	--
BENZO(A)PYRENE	N/A	3,000	--	--		--	--	--	--
BENZO(B)FLUORANTHENE	N/A	3,000.	--	--	--	--	--	--	--
BENZO(K)FLUORANTHENE	N/A	3,000.	--	--	--	--	--	--	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000	--	--	--	--	--	--	--
FLUORANTHENE	N/A	200.	--	--	--	--	--	--	--
FLUORENE	N/A	3,000	--	--	--	--	--	--	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000	30,000	--	--	--	--	--	--	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	--	--	--	--	--	--	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000.	--	--	--	--	--	--	--
NAPHTHALENE	6,000.	6,000.	--	--	--	--	--	--	--
PHENANTHRENE	N/A	50.	--	--	--	--	--	--	--
PYRENE	N/A	3,000.	--	--	--	--	--	--	-
TOTAL CONCENTRATION OF EPH			ND	ND	ND	ND	ND	ND	ND
TPH									
OIL AND GREASE	1,000.	20,000.	--	--	--	--	**2500**	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	**2500**	ND	ND
METALS									
ALUMINUM	N/A	N/A	--	--	--	--	**490**	--	--
ARSENIC	N/A	400.	--	--	--	--	--	**24**	**15**
CADMIUM	N/A	10.	--	--	--	--	**190**	**35**	**47**
CHROMIUM	N/A	2,000.	--	--	--	--	**39**	**22**	**13**
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--	**83**	ND(5)	ND(5)
COPPER	N/A	N/A	--	--	--	--	**2200**	**44**	**31**
IRON	N/A	N/A	--	--	--	--	**1450**	--	--
LEAD	N/A	30.	--	--	--	--	**8.8**	ND(5)	ND(5)
MERCURY	N/A	1.	--	--	--	--	--	ND(0.1)	ND(0.1)
NICKEL	N/A	80.	--	--	--	--	**780**	**66**	**74**
SILVER	N/A	7.	--	--	--	--	**13**	ND(2.5)	ND(2.5)
TIN	N/A	N/A	--	--	--	--	ND(10)	--	--
ZINC	N/A	900	--	--	--	--	**28**	ND(25)	**51**
Cyanide									
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	**9400**	**2140**	**1130**

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	B4-OW	B4-OW	B4-OW	B4-OW	B4-OW	B4-OW
SAMPLE DESIGNATION	Standard	Standard	B4-OW 07/17/98	B4-OW 07/28/00	B4-OW 04/29/02	B4-OW 01/15/03	B4AA-OW DUP 01/15/03	B4-OW 04/16/03
SAMPLING DATE	GW-2	GW-3	07/17/98	07/28/00	04/29/02	01/15/03	01/15/03	04/16/03
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOCs								
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	--	ND(0.25)	ND(5)	ND(0.5)	--	--
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(2.5)	ND(0.25)	ND(5)	ND(0.5)	--	--
1,1,2,2-TETRACHLOROETHANE	20	20,000	ND(2.5)	ND(0.25)	ND(5)	ND(0.5)	--	--
1,1,2-TRICHLOROETHANE	20,000.	50,000.	--	ND(0.25)	ND(5)	ND(0.5)	--	--
1,1-DICHLOROETHANE	9,000.	50,000.	ND(2.5)	ND(0.25)	ND(5)	ND(0.5)	--	--
1,1-DICHLOROETHYLENE	1.	50,000	**5.1**	ND(0.25)	ND(5)	**2**	--	--
1,2,4-TRICHLOROBENZENE	10,000	500.	--	ND(0.25)	ND(5)	ND(0.5)	--	--
1,2,4-TRIMETHYLBENZENE	N/A	N/A	--	ND(0.25)	ND(5)	ND(0.5)	--	--
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000.	--	ND(0.25)	ND(5)	ND(0.5)	--	--
1,2-DICHLOROETHANE	20.	50,000.	ND(2.5)	ND(0.25)	ND(5)	ND(0.5)	--	--
1,2-DICHLOROPROPANE	9.	30,000.	ND(2.5)	ND(0.25)	ND(5)	ND(0.5)	--	--
1,3,5-TRIMETHYLBENZENE	N/A	N/A	--	ND(0.25)	ND(5)	ND(0.5)	--	--
4-ISOPROPYLTOLUENE	N/A	N/A	--	ND(0.25)	ND(5)	ND(0.5)	--	--
ACETONE	50,000.	50,000.	ND(50)	ND(2.5)	ND(200)	ND(20)	--	--
BENZENE	2,000.	7,000.	ND(2.5)	ND(0.25)	ND(5)	ND(0.5)	--	--
BROMODICHLOROMETHANE	N/A	50,000.	--	ND(0.25)	ND(5)	ND(0.5)	--	--
BROMOMETHANE	2	50,000.	ND(12.5)	ND(0.25)	ND(5)	ND(0.5)	--	--
CARBON TETRACHLORIDE	20.	50,000.	ND(2.5)	ND(0.25)	ND(5)	ND(0.5)	--	--
CHLOROETHANE	N/A	N/A	ND(12.5)	ND(0.25)	ND(5)	ND(0.5)	--	--
CHLOROFORM	400.	10,000.	ND(12.5)	ND(0.25)	ND(5)	ND(0.5)	--	--
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	**240**	**14**	**230**	**75**	--	--
ETHYLBENZENE	30,000.	4,000	ND(2.5)	ND(0.25)	ND(5)	ND(0.5)	--	--
HEXACHLORO-1,3-BUTADIENE	1.	90	--	ND(0.25)	ND(5)	ND(0.5)	--	--
ISOPROPYLBENZENE	N/A	N/A	--	ND(0.25)	ND(5)	ND(0.5)	--	--
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	--	ND(0.25)	ND(5)	ND(0.5)	--	--
METHYLENE CHLORIDE	50,000.	50,000	ND(12.5)	ND(1)	ND(25)	ND(2.5)	--	--
NAPHTHALENE	6,000.	6,000.	--	ND(0.25)	ND(5)	ND(0.5)	--	--
N-BUTYLBENZENE	N/A	N/A	--	ND(0.25)	ND(5)	ND(0.5)	--	--
N-PROPYLBENZENE	N/A	N/A	--	ND(0.25)	ND(5)	ND(0.5)	--	--
SEC-BUTYLBENZENE	N/A	N/A	--	ND(0.25)	ND(5)	ND(0.5)	--	--
TERT-BUTYLBENZENE	N/A	N/A	--	ND(0.25)	ND(5)	ND(0.5)	--	--
TETRACHLOROETHYLENE	3,000.	5,000.	ND(2.5)	ND(0.25)	ND(5)	**2**	--	--
TETRAHYDROFURAN	N/A	N/A	--	ND(2.5)	ND(50)	ND(5)	--	--
TOLUENE	6,000.	50,000.	ND(2.5)	ND(0.25)	ND(5)	ND(0.5)	--	--
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000	**7**	ND(0.25)	ND(5)	**2**	--	--
TRICHLOROETHYLENE	300.	20,000.	**30**	**43**	**750**	**69**	--	--
VINYL CHLORIDE	2.	40,000	**300**	**7**	**110**	**53**	--	--
XYLENES, MIXTURE	N/A	N/A	ND(2.5)	ND(0.25)	ND(5)	ND(0.5)	--	--
TOTAL CONCENTRATION OF VOCs			582.1	64	1090	203	ND	ND
VPH								
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	--	**430**	**290**	--	--	--
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	--	ND(10)	ND(10)	--	--	--
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000	--	ND(10)	ND(10)	--	--	--
TOTAL CONCENTRATION OF VPH			ND	430	290	ND	ND	ND

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	B4-OW B4-OW 11/05/03 11/05/03 ug/L	B4-OW B4-OW 06/29/04 06/29/04 ug/L	B6-OW B6-OW 05/01/85 08/01/85 ug/L	B6-OW B6-OW 09/08/87 09/08/87 ug/L	B6-OW B6-OW 12/11/87 12/11/87 ug/L	B6-OW B6-OW 07/17/98 07/17/98 ug/L	B6-OW B6-OW 07/28/00 07/28/00 ug/L
VOCs									
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(2.5)	ND(1)	--	--	--	--	ND(0.25)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(2.5)	ND(1)	ND(1)	ND(1)	ND(1)	ND(0.5)	ND(0.25)
1,1,2,2-TETRACHLOROETHANE	20.	20,000.	ND(2.5)	ND(1)	ND(1)	ND(1)	ND(1)	ND(0.5)	ND(0.25)
1,1,2-TRICHLOROETHANE	20,000.	50,000	ND(3.75)	ND(1.5)	--	--	--	--	ND(0.25)
1,1-DICHLOROETHANE	9,000.	50,000	ND(3.75)	ND(1.5)	ND(1)	ND(1)	ND(1)	ND(0.5)	ND(0.25)
1,1-DICHLOROETHYLENE	1.	50,000	ND(2.5)	5.6	ND(1)	ND(1)	ND(1)	ND(0.5)	ND(0.25)
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(12.5)	ND(5)	--	--	--	--	ND(0.25)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(12.5)	ND(5)	--	--	--	--	ND(0.25)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000.	ND(12.5)	ND(4)	--	--	--	--	ND(0.25)
1,2-DICHLOROETHANE	20.	50,000.	ND(2.5)	ND(1)	ND(1)	ND(1)	ND(1)	ND(0.5)	ND(0.25)
1,2-DICHLOROPROPANE	9.	30,000.	ND(9)	ND(3.5)	ND(1)	ND(1)	ND(1)	ND(0.5)	ND(0.25)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(12.5)	ND(5)	--	--	--	--	ND(0.25)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(2.5)	ND(1)	--	--	--	--	0.9
ACETONE	50,000	50,000.	ND(25)	ND(10)	ND(12.5)	ND(25)	ND(25)	ND(10)	ND(2.5)
BENZENE	2,000.	7,000.	ND(2.5)	ND(1)	ND(1)	ND(1)	ND(1)	ND(0.5)	ND(0.25)
BROMODICHLOROMETHANE	N/A	50,000.	ND(2.5)	ND(1)	--	--	--	--	ND(0.25)
BROMOMETHANE	2.	50,000.	ND(5)	ND(2)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(0.25)
CARBON TETRACHLORIDE	20.	50,000.	ND(2.5)	ND(1)	ND(1)	ND(1)	ND(1)	ND(0.5)	ND(0.25)
CHLOROETHANE	N/A	N/A	ND(5)	ND(2)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(0.25)
CHLOROFORM	400.	10,000.	ND(3.75)	ND(1.5)	ND(1)	ND(1)	ND(1)	ND(2.5)	ND(0.25)
CIS-1,2-DICHLOROETHYLENE	30,000	50,000.	94	190	--	--	--	ND(0.5)	ND(0.25)
ETHYLBENZENE	30,000.	4,000.	ND(2.5)	ND(1)	ND(1)	ND(1)	ND(1)	ND(0.5)	ND(0.25)
HEXACHLORO-1,3-BUTADIENE	1.	90.	ND(5)	ND(2)	--	--	--	--	ND(0.25)
ISOPROPYLBENZENE	N/A	N/A	ND(2.5)	ND(1)	--	--	--	--	ND(0.25)
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	ND(5)	ND(2)	--	--	--	--	ND(0.25)
METHYLENE CHLORIDE	50,000	50,000.	ND(25)	ND(10)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(1)
NAPHTHALENE	6,000	6,000.	ND(12.5)	ND(5)	--	--	--	--	ND(0.25)
N-BUTYLBENZENE	N/A	N/A	ND(2.5)	ND(1)	--	--	--	--	ND(0.25)
N-PROPYLBENZENE	N/A	N/A	ND(2.5)	ND(1)	--	--	--	--	ND(0.25)
SEC-BUTYLBENZENE	N/A	N/A	ND(2.5)	ND(1)	--	--	--	--	ND(0.25)
TERT-BUTYLBENZENE	N/A	N/A	ND(12.5)	ND(5)	--	--	--	--	ND(0.25)
TETRACHLOROETHYLENE	3,000.	5,000.	ND(2.5)	ND(1)	ND(1)	ND(1)	ND(1)	ND(0.5)	ND(0.25)
TETRAHYDROFURAN	N/A	N/A	ND(50)	ND(20)	--	--	--	--	ND(2.5)
TOLUENE	6,000	50,000.	ND(3.75)	ND(1.5)	ND(1)	ND(1)	ND(1)	ND(0.5)	ND(0.25)
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(3.75)	4.4	ND(1)	ND(1)	ND(1)	ND(0.5)	ND(0.25)
TRICHLOROETHYLENE	300.	20,000.	400	56	ND(1)	ND(1)	ND(1)	ND(0.5)	ND(0.25)
VINYL CHLORIDE	2.	40,000.	78	120	ND(2.5)	ND(2.5)	ND(2.5)	ND(0.5)	ND(0.25)
XYLENES, MIXTURE	N/A	N/A	ND(2.5)	ND(1)	ND(1)	ND(1)	ND(1)	ND(0.5)	ND(0.25)
TOTAL CONCENTRATION OF VOCs			572	376	ND	ND	ND	ND	0.9
VPH									
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	--	--	--	--	--	--	ND(10)
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	--	--	--	--	--	--	30
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	--	--	--	--	--	--	ND(10)
TOTAL CONCENTRATION OF VPH			ND	ND	ND	ND	ND	ND	30

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	B4-OW	B4-OW	B6-OW	B6-OW	B6-OW	B6-OW	B6-OW
SAMPLE DESIGNATION	Standard	Standard	B4-OW 11/05/03	B4-OW 06/29/04	B6-OW 05/01/85	B6-OW 09/08/87	B6-OW 12/11/87	B6-OW 07/17/98	B6-OW 07/28/00
SAMPLING DATE	GW-2	GW-3	11/05/03	06/29/04	08/01/85	09/08/87	12/11/87	07/17/98	07/28/00
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EPH									
2-METHYLNAPHTHALENE	10,000.	3,000.	--	--	--	--	--	--	ND(2.5)
ACENAPHTHENE	N/A	5,000.	--	--	--	--	--	--	ND(5.5)
BENZO(A)ANTHRACENE	N/A	3,000.	--	--	--	--	--	--	ND(5.5)
BENZO(A)PYRENE	N/A	3,000.	--	--	--	--	--	--	ND(5.5)
BENZO(B)FLUORANTHENE	N/A	3,000.	--	--	--	--	--	--	ND(5.5)
BENZO(K)FLUORANTHENE	N/A	3,000.	--	--	--	--	--	--	ND(5.5)
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	--	--	--	--	--	--	ND(5.5)
FLUORANTHENE	N/A	200.	--	--	--	--	--	--	ND(5.5)
FLUORENE	N/A	3,000.	--	--	--	--	--	--	ND(5.5)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000.	--	--	--	--	--	--	ND(100)
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	--	--	--	--	--	--	ND(265)
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000.	--	--	--	--	--	--	ND(265)
NAPHTHALENE	6,000.	6,000.	--	--	--	--	--	--	ND(5.5)
PHENANTHRENE	N/A	50.	--	--	--	--	--	--	ND(5.5)
PYRENE	N/A	3,000.	--	--	--	--	--	--	ND(5.5)
TOTAL CONCENTRATION OF EPH			ND	ND	ND	ND	ND	ND	ND
TPH									
OIL AND GREASE	1,000	20,000.	--	--	ND(500)	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND	ND	ND
METALS									
ALUMINUM	N/A	N/A	--	--	ND(25)	--	--	--	--
ARSENIC	N/A	400.	--	--	--	ND(2.5)	ND(5)	**5.1**	ND(10)
CADMIUM	N/A	10.	**317**	**392**	ND(0.25)	ND(2.5)	ND(2.5)	ND(0.5)	ND(2.5)
CHROMIUM	N/A	2,000.	--	--	ND(2.5)	ND(5)	ND(5)	ND(2.5)	ND(5)
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	**214**	ND(5)	ND(5)	ND(7.5)	--
COPPER	N/A	N/A	--	--	ND(2.5)	**26**	**13**	**9.9**	ND(12.5)
IRON	N/A	N/A	--	--	ND(10)	--	--	--	--
LEAD	N/A	30	--	--	ND(2.5)	ND(5)	ND(5)	--	ND(2.5)
MERCURY	N/A	1.	--	--	--	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
NICKEL	N/A	80.	**126**	**148.8**	ND(2.5)	ND(20)	ND(20)	**11**	ND(20)
SILVER	N/A	7.	--	--	ND(0.25)	ND(2.5)	ND(2.5)	--	--
TIN	N/A	N/A	--	--	ND(10)	--	--	--	ND(250)
ZINC	N/A	900.	**90**	**99.5**	**12**	ND(25)	**21**	--	ND(100)
Cyanide									
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--	--	ND(10)
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--	--	ND(10)
CYANIDE, TOTAL	N/A	N/A	--	--	ND(5)	ND(5)	ND(5)	ND(4)	ND(10)

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

							DESTROYED		
LOCATION DESIGNATION	Method 1	Method 1	B6-OW	B6-OW	B8-OW	B8-OW	B8-OW	B9-OW	B9-OW
SAMPLE DESIGNATION	Standard	Standard	B6-OW 05/01/02	B6-OW 06/29/04	B8-OW 07/17/85	B8-OW 09/08/87	B8-OW 12/11/87	B9-OW 07/17/85	B9-OW 09/08/87
SAMPLING DATE	GW-2	GW-3	05/01/02	06/29/04	07/17/85	09/08/87	12/11/87	07/17/85	09/08/87
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOCs									
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(0.25)	ND(0.25)	--	--	--	--	--
1,1,1-TRICHLOROETHANE	4,000.	50,000	ND(0.25)	ND(0.25)	ND(1)	15	24	ND(1)	63
1,1,2,2-TETRACHLOROETHANE	20.	20,000.	ND(0.25)	ND(0.25)	ND(1)	ND(1)	ND(1)	ND(1)	--
1,1,2-TRICHLOROETHANE	20,000.	50,000.	ND(0.25)	ND(0.375)	--	--	--	--	--
1,1-DICHLOROETHANE	9,000.	50,000.	ND(0.25)	ND(0.375)	ND(1)	8.4	7.8	ND(1)	140
1,1-DICHLOROETHYLENE	1.	50,000.	ND(0.25)	ND(0.25)	ND(1)	2.6	3.7	ND(1)	ND(1)
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(0.25)	ND(1.25)	--	--	--	--	--
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(0.25)	ND(1.25)	--	--	--	--	--
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000.	ND(0.25)	ND(1)	--	--	--	--	--
1,2-DICHLOROETHANE	20.	50,000.	ND(0.25)	ND(0.25)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
1,2-DICHLOROPROPANE	9.	30,000.	ND(0.25)	ND(0.9)	ND(1)	ND(1)	ND(1)	ND(1)	--
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(0.25)	ND(1.25)	--	--	--	--	--
4-ISOPROPYLTOLUENE	N/A	N/A	ND(0.25)	ND(0.25)	--	--	--	--	--
ACETONE	50,000.	50,000.	ND(10)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(25)	ND(25)
BENZENE	2,000.	7,000.	ND(0.25)	ND(0.25)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
BROMODICHLOROMETHANE	N/A	50,000.	ND(0.25)	ND(0.25)	--	--	--	--	--
BROMOMETHANE	2.	50,000.	ND(0.25)	ND(0.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)
CARBON TETRACHLORIDE	20.	50,000.	ND(0.25)	ND(0.25)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
CHLOROETHANE	N/A	N/A	ND(0.25)	ND(0.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)
CHLOROFORM	400.	10,000.	ND(0.25)	ND(0.375)	ND(1)	ND(1)	3.1	ND(1)	ND(1)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	ND(0.25)	ND(0.25)	--	--	--	--	--
ETHYLBENZENE	30,000.	4,000.	ND(0.25)	ND(0.25)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
HEXACHLORO-1,3-BUTADIENE	1.	90.	ND(0.25)	ND(0.5)	--	--	--	--	--
ISOPROPYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	--	--	--	--	--
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	ND(0.25)	ND(0.5)	--	--	--	--	--
METHYLENE CHLORIDE	50,000.	50,000.	ND(1.25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(10)	ND(2.5)	ND(2.5)
NAPHTHALENE	6,000.	6,000.	ND(0.25)	ND(1.25)	--	--	--	--	--
N-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	--	--	--	--	--
N-PROPYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	--	--	--	--	--
SEC-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	--	--	--	--	--
TERT-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(1.25)	--	--	--	--	--
TETRACHLOROETHYLENE	3,000.	5,000	ND(0.25)	ND(0.25)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
TETRAHYDROFURAN	N/A	N/A	ND(2.5)	ND(5)	--	--	--	--	--
TOLUENE	6,000.	50,000.	4	ND(0.375)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(0.25)	ND(0.375)	580	480	440	310	190
TRICHLOROETHYLENE	300.	20,000.	ND(0.25)	ND(0.25)	300	220	180	130	39
VINYL CHLORIDE	2.	40,000.	ND(0.25)	ND(0.5)	130	51	20	62	45
XYLENES, MIXTURE	N/A	N/A	ND(0.25)	ND(0.25)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
TOTAL CONCENTRATION OF VOCs			4	ND	1010	777	678.6	502	477
VPH									
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	ND(10)	--	--	--	--	--	--
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	ND(10)	--	--	--	--	--	--
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	ND(10)	--	--	--	--	--	--
TOTAL CONCENTRATION OF VPH			ND	ND	ND	ND	ND	ND	ND

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1 Standard	Method 1 Standard	B6-OW	B6-OW	B8-OW	B8-OW	DESTROYED B8-OW	B9-OW	B9-OW
SAMPLE DESIGNATION	GW-2	GW-3	B6-OW 05/01/02	B6-OW 06/29/04	B8-OW 07/17/85	B8-OW 09/08/87	B8-OW 12/11/87	B9-OW 07/17/85	B9-OW 09/08/87
SAMPLING DATE			05/01/02	06/29/04	07/17/85	09/08/87	12/11/87	07/17/85	09/08/87
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EPH									
2-METHYLNAPHTHALENE	10,000.	3,000.	ND(2.5)	--	--	--	--	--	--
ACENAPHTHENE	N/A	5,000.	ND(5)	--	--	--	--	--	--
BENZO(A)ANTHRACENE	N/A	3,000.	ND(5)	--	--	--	--	--	--
BENZO(A)PYRENE	N/A	3,000.	ND(5)	--	--	--	--	--	--
BENZO(B)FLUORANTHENE	N/A	3,000.	ND(5)	--	--	--	--	--	--
BENZO(K)FLUORANTHENE	N/A	3,000.	ND(5)	--	--	--	--	--	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	ND(5)	--	--	--	--	--	--
FLUORANTHENE	N/A	200.	ND(5)	--	--	--	--	--	--
FLUORENE	N/A	3,000.	ND(5)	--	--	--	--	--	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000.	ND(80)	--	--	--	--	--	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	ND(250)	--	--	--	--	--	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000.	ND(250)	--	--	--	--	--	--
NAPHTHALENE	6,000.	6,000.	ND(5)	--	--	--	--	--	--
PHENANTHRENE	N/A	50.	ND(5)	--	--	--	--	--	--
PYRENE	N/A	3,000.	ND(5)	--	--	--	--	--	--
TOTAL CONCENTRATION OF EPH			ND	ND	ND	ND	ND	ND	ND
TPH									
OIL AND GREASE	1,000.	20,000.	--	--	**33900**	--	--	**65300**	--
TOTAL CONCENTRATION OF TPH			ND	ND	**33900**	ND	ND	**65300**	ND
METALS									
ALUMINUM	N/A	N/A	--	--	--	--	--	--	--
ARSENIC	N/A	400.	ND(5)	--	**14**	**16**	**16**	**63**	**48**
CADMIUM	N/A	10.	ND(2.5)	--	**9**	ND(2.5)	**7.6**	**21**	**5.8**
CHROMIUM	N/A	2,000.	ND(5)	--	**12**	ND(5)	ND(5)	**9.5**	ND(5)
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	ND(5)	--	--	ND(5)	ND(5)	--	ND(5)
COPPER	N/A	N/A	**29**	--	**40**	**22**	ND(5)	**54**	**34**
IRON	N/A	N/A	--	--	--	--	--	--	--
LEAD	N/A	30.	ND(2.5)	--	**11**	ND(5)	ND(5)	**19**	**21**
MERCURY	N/A	1.	ND(0.1)	--	**0.2**	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
NICKEL	N/A	80.	ND(20)	--	**120**	**54**	**50**	**130**	ND(20)
SILVER	N/A	7	--	--	ND(0.25)	ND(2.5)	ND(2.5)	ND(0.25)	ND(2.5)
TIN	N/A	N/A	--	--	--	--	--	--	--
ZINC	N/A	900.	ND(100)	--	**40**	ND(25)	**12**	**82**	ND(25)
Cyanide									
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	ND(5)	--	**15700**	**1390**	**340**	**18300**	**40**

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1 Standard	Method 1 Standard	DESTROYED B9-OW	HA-1(MW)	HA-1(MW)	HA-1(MW)	HA-1(MW)	HA-1(MW)
SAMPLE DESIGNATION			B9-OW 12/11/87	HA-1(MW) 07/28/00	HA-1(MW) 05/01/02	HA-1(MW) 01/15/03	HA-1(MW) 04/16/03	HA-20(MW) DUP 04/16/03
SAMPLING DATE	GW-2	GW-3	12/11/87	07/28/00	05/01/02	01/15/03	04/16/03	04/16/03
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EPH								
2-METHYLNAPHTHALENE	10,000.	3,000.	--	ND(2.5)	ND(2.5)	--	--	--
ACENAPHTHENE	N/A	5,000.	--	ND(5.5)	ND(5)	--	--	--
BENZO(A)ANTHRACENE	N/A	3,000.	--	ND(5.5)	ND(5)	--	--	--
BENZO(A)PYRENE	N/A	3,000.	--	ND(5.5)	ND(5)	--	--	--
BENZO(B)FLUORANTHENE	N/A	3,000.	--	ND(5.5)	ND(5)	--	--	--
BENZO(K)FLUORANTHENE	N/A	3,000.	--	ND(5.5)	ND(5)	--	--	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	--	ND(5.5)	ND(5)	--	--	--
FLUORANTHENE	N/A	200.	--	ND(5.5)	ND(5)	--	--	--
FLUORENE	N/A	3,000.	--	ND(5.5)	ND(5)	--	--	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000.	--	ND(100)	ND(80)	--	--	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	--	ND(265)	ND(250)	--	--	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000.	--	ND(265)	ND(250)	--	--	--
NAPHTHALENE	6,000.	6,000	--	ND(5.5)	ND(5)	--	--	--
PHENANTHRENE	N/A	50.	--	ND(5.5)	ND(5)	--	--	--
PYRENE	N/A	3,000.	--	ND(5.5)	ND(5)	--	--	--
TOTAL CONCENTRATION OF EPH			ND	ND	ND	ND	ND	ND
TPH								
OIL AND GREASE	1,000.	20,000.	--	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND	ND
METALS								
ALUMINUM	N/A	N/A	--	--	--	--	--	--
ARSENIC	N/A	400.	**56**	ND(10)	ND(5)	--	--	--
CADMIUM	N/A	10.	**79**	**57**	**620**	**430**	**440**	**470**
CHROMIUM	N/A	2,000.	**14**	ND(5)	**40**	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	ND(10)	--	ND(5)	--	--	--
COPPER	N/A	N/A	**220**	ND(12.5)	ND(12.5)	--	--	--
IRON	N/A	N/A	--	--	--	--	--	--
LEAD	N/A	30.	**790**	ND(2.5)	ND(2.5)	--	--	--
MERCURY	N/A	1.	ND(0.1)	ND(0.1)	ND(0.1)	--	--	--
NICKEL	N/A	80.	**52**	**50**	**200**	--	--	--
SILVER	N/A	7.	ND(2.5)	--	--	--	--	--
TIN	N/A	N/A	--	ND(250)	--	--	--	--
ZINC	N/A	900.	**120**	**500**	**200**	--	--	--
Cyanide								
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	ND(10)	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	**40**	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	**1870**	**20**	ND(5)	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1 Standard	Method 1 Standard	HA-1(MW)	HA-1(MW)	HA-2(MW)	HA-2(MW)	HA-2(MW)
SAMPLE DESIGNATION	GW-2	GW-3	HA-1(MW) 11/05/03	HA-1(MW) 06/29/04	HA-2(MW) 07/28/00	HA-2(MW) 04/29/02	HA-2(MW) 11/04/03
SAMPLING DATE			11/05/03	06/29/04	07/28/00	04/29/02	11/04/03
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	--	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	--	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
1,1,2,2-TETRACHLOROETHANE	20.	20,000.	--	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
1,1,2-TRICHLOROETHANE	20,000.	50,000.	--	ND(0.375)	ND(0.25)	ND(0.25)	ND(0.375)
1,1-DICHLOROETHANE	9,000.	50,000.	--	ND(0.375)	**1**	**0.7**	**0.77**
1,1-DICHLOROETHYLENE	1.	50,000.	--	ND(0.25)	**1**	**0.7**	**0.82**
1,2,4-TRICHLOROBENZENE	10,000.	500.	--	ND(1.25)	ND(0.25)	ND(0.25)	ND(1.25)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	--	ND(1.25)	ND(0.25)	ND(0.25)	ND(1.25)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000.	--	ND(1)	ND(0.25)	ND(0.25)	ND(1.25)
1,2-DICHLOROETHANE	20.	50,000.	--	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
1,2-DICHLOROPROPANE	9.	30,000.	--	ND(0.9)	ND(0.25)	ND(0.25)	ND(0.9)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	--	ND(1.25)	ND(0.25)	ND(0.25)	ND(1.25)
4-ISOPROPYLTOLUENE	N/A	N/A	--	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
ACETONE	50,000.	50,000.	--	ND(2.5)	ND(2.5)	ND(10)	ND(2.5)
BENZENE	2,000.	7,000.	--	ND(0.25)	**0.7**	**0.9**	**0.82**
BROMODICHLOROMETHANE	N/A	50,000.	--	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
BROMOMETHANE	2.	50,000.	--	ND(0.5)	ND(0.25)	ND(0.25)	ND(0.5)
CARBON TETRACHLORIDE	20	50,000.	--	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
CHLOROETHANE	N/A	N/A	--	ND(0.5)	**0.7**	ND(0.25)	ND(0.5)
CHLOROFORM	400.	10,000.	--	ND(0.375)	ND(0.25)	ND(0.25)	ND(0.375)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	--	ND(0.25)	**29**	**23**	**21**
ETHYLBENZENE	30,000.	4,000.	--	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
HEXACHLORO-1,3-BUTADIENE	1.	90.	--	ND(0.5)	ND(0.25)	ND(0.25)	ND(0.5)
ISOPROPYLBENZENE	N/A	N/A	--	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	--	ND(0.5)	ND(0.25)	ND(0.25)	ND(0.5)
METHYLENE CHLORIDE	50,000.	50,000.	--	ND(2.5)	ND(1)	ND(1.25)	ND(2.5)
NAPHTHALENE	6,000.	6,000.	--	ND(1.25)	ND(0.25)	ND(0.25)	ND(1.25)
N-BUTYLBENZENE	N/A	N/A	--	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
N-PROPYLBENZENE	N/A	N/A	--	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
SEC-BUTYLBENZENE	N/A	N/A	--	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
TERT-BUTYLBENZENE	N/A	N/A	--	ND(1.25)	ND(0.25)	ND(0.25)	ND(1.25)
TETRACHLOROETHYLENE	3,000.	5,000.	--	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
TETRAHYDROFURAN	N/A	N/A	--	ND(5)	ND(2.5)	ND(2.5)	ND(5)
TOLUENE	6,000.	50,000.	--	ND(0.375)	ND(0.25)	ND(0.25)	ND(0.375)
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	--	ND(0.375)	ND(0.25)	ND(0.25)	ND(0.375)
TRICHLOROETHYLENE	300.	20,000.	--	ND(0.25)	**14**	**2**	**4.9**
VINYL CHLORIDE	2.	40,000.	--	ND(0.5)	**28**	**22**	**25**
XYLENES, MIXTURE	N/A	N/A	--	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
TOTAL CONCENTRATION OF VOCs			ND	ND	74.4	49.3	53.31
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	--	--	**22**	ND(10)	--
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	--	--	**29**	ND(10)	--
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	--	--	ND(10)	ND(10)	--
TOTAL CONCENTRATION OF VPH			ND	ND	51	ND	ND

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	HA-1(MW)	HA-1(MW)	HA-2(MW)	HA-2(MW)	HA-2(MW)
SAMPLE DESIGNATION	Standard	Standard	HA-1(MW) 11/05/03	HA-1(MW) 06/29/04	HA-2(MW) 07/28/00	HA-2(MW) 04/29/02	HA-2(MW) 11/04/03
SAMPLING DATE	GW-2	GW-3	11/05/03	06/29/04	07/28/00	04/29/02	11/04/03
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EPH							
2-METHYLNAPHTHALENE	10,000.	3,000.	--	--	ND(3)	ND(2.5)	--
ACENAPHTHENE	N/A	5,000.	--	--	ND(5.5)	ND(5)	--
BENZO(A)ANTHRACENE	N/A	3,000.	--	--	ND(5.5)	ND(5)	--
BENZO(A)PYRENE	N/A	3,000.	--	--	ND(5.5)	ND(5)	--
BENZO(B)FLUORANTHENE	N/A	3,000.	--	--	ND(5.5)	ND(5)	--
BENZO(K)FLUORANTHENE	N/A	3,000.	--	--	ND(5.5)	ND(5)	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	--	--	ND(5.5)	ND(5)	--
FLUORANTHENE	N/A	200.	--	--	ND(5.5)	ND(5)	--
FLUORENE	N/A	3,000.	--	--	ND(5.5)	ND(5)	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000.	--	--	**670**	ND(80)	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	--	--	**690**	ND(250)	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000.	--	--	ND(280)	ND(250)	--
NAPHTHALENE	6,000.	6,000.	--	--	ND(5.5)	ND(5)	--
PHENANTHRENE	N/A	50.	--	--	ND(5.5)	ND(5)	--
PYRENE	N/A	3,000.	--	--	**12**	ND(5)	--
TOTAL CONCENTRATION OF EPH			ND	ND	**1372**	ND	ND
TPH							
OIL AND GREASE	1,000.	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400.	--	--	**30**	**20**	--
CADMIUM	N/A	10.	**529**	**887.5**	ND(2.5)	ND(2.5)	--
CHROMIUM	N/A	2,000	--	--	ND(5)	ND(5)	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	ND(5)	--
COPPER	N/A	N/A	--	--	ND(12.5)	ND(12.5)	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	--	--	ND(2.5)	ND(2.5)	--
MERCURY	N/A	1.	--	--	ND(0.1)	ND(0.1)	--
NICKEL	N/A	80.	**147**	**164.8**	ND(20)	ND(20)	--
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	--	--	ND(250)	--	--
ZINC	N/A	900.	**120**	**146.6**	**400**	ND(100)	--
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10	--	--	ND(10)	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	**30**	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	**40**	ND(5)	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	HA-2(MW)	HA-2(MW)	HA-3(MW)	HA-3(MW)	HA-3(MW)
SAMPLE DESIGNATION	Standard	Standard	HA-2002(MW) DUP 11/04/03	HA-2(MW) 06/29/04	HA-3(MW) 07/28/00	HA-3(MW) 05/01/02	HA-3(MW) 06/29/04
SAMPLING DATE	GW-2	GW-3	11/04/03	06/29/04	07/28/00	05/01/02	06/29/04
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(0.25)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(0.25)
1,1,2,2-TETRACHLOROETHANE	20	20,000.	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(0.25)
1,1,2-TRICHLOROETHANE	20,000.	50,000.	ND(0.375)	ND(0.375)	--	ND(0.25)	ND(0.375)
1,1-DICHLOROETHANE	9,000.	50,000.	**0.79**	ND(0.375)	--	ND(0.25)	ND(0.375)
1,1-DICHLOROETHYLENE	1.	50,000.	**0.86**	ND(0.25)	--	ND(0.25)	ND(0.25)
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(1.25)	ND(1.25)	--	ND(0.25)	ND(1.25)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	--	ND(0.25)	ND(1.25)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000.	ND(1.25)	ND(1)	--	ND(0.25)	ND(1)
1,2-DICHLOROETHANE	20.	50,000.	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(0.25)
1,2-DICHLOROPROPANE	9.	30,000.	ND(0.9)	ND(0.9)	--	ND(0.25)	ND(0.9)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	--	ND(0.25)	ND(1.25)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(0.25)
ACETONE	50,000.	50,000.	ND(2.5)	ND(2.5)	--	ND(10)	ND(2.5)
BENZENE	2,000.	7,000.	**0.78**	**0.97**	--	ND(0.25)	ND(0.25)
BROMODICHLOROMETHANE	N/A	50,000.	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(0.25)
BROMOMETHANE	2.	50,000.	ND(0.5)	ND(0.5)	--	ND(0.25)	ND(0.5)
CARBON TETRACHLORIDE	20.	50,000.	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(0.25)
CHLOROETHANE	N/A	N/A	ND(0.5)	ND(0.5)	--	ND(0.25)	ND(0.5)
CHLOROFORM	400	10,000.	ND(0.375)	ND(0.375)	--	ND(0.25)	ND(0.375)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	**24**	**8**	--	ND(0.25)	ND(0.25)
ETHYLBENZENE	30,000.	4,000.	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(0.25)
HEXACHLORO-1,3-BUTADIENE	1.	90.	ND(0.5)	ND(0.5)	--	ND(0.25)	ND(0.5)
ISOPROPYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(0.25)
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	ND(0.5)	ND(0.5)	--	ND(0.25)	ND(0.5)
METHYLENE CHLORIDE	50,000.	50,000.	ND(2.5)	ND(2.5)	--	ND(1.25)	ND(2.5)
NAPHTHALENE	6,000.	6,000.	ND(1.25)	ND(1.25)	--	ND(0.25)	ND(1.25)
N-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(0.25)
N-PROPYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(0.25)
SEC-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(0.25)
TERT-BUTYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	--	ND(0.25)	ND(1.25)
TETRACHLOROETHYLENE	3,000.	5,000.	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(0.25)
TETRAHYDROFURAN	N/A	N/A	ND(5)	ND(5)	--	ND(2.5)	ND(5)
TOLUENE	6,000.	50,000.	ND(0.375)	ND(0.375)	--	ND(0.25)	ND(0.375)
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(0.375)	ND(0.375)	--	ND(0.25)	ND(0.375)
TRICHLOROETHYLENE	300.	20,000.	**6.4**	**1.2**	--	**2**	**1.1**
VINYL CHLORIDE	2.	40,000.	**26**	**14**	--	ND(0.25)	ND(0.5)
XYLENES, MIXTURE	N/A	N/A	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(0.25)
TOTAL CONCENTRATION OF VOCs			58.83	24.17	ND	2	1.1
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000	4,000.	--	--	--	ND(10)	--
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	--	--	--	ND(10)	--
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	--	--	--	ND(10)	--
TOTAL CONCENTRATION OF VPH			ND	ND	ND	ND	ND

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-2(MW) HA-2002(MW) DUP 11/04/03 11/04/03 ug/L	HA-2(MW) HA-2(MW) 06/29/04 06/29/04 ug/L	HA-3(MW) HA-3(MW) 07/28/00 07/28/00 ug/L	HA-3(MW) HA-3(MW) 05/01/02 05/01/02 ug/L	HA-3(MW) HA-3(MW) 06/29/04 06/29/04 ug/L
EPH							
2-METHYLNAPHTHALENE	10,000.	3,000.	--	--	--	ND(2.5)	--
ACENAPHTHENE	N/A	5,000.	--	--	--	ND(5)	--
BENZO(A)ANTHRACENE	N/A	3,000.	--	--	--	ND(5)	--
BENZO(A)PYRENE	N/A	3,000.	--	--	--	ND(5)	--
BENZO(B)FLUORANTHENE	N/A	3,000.	--	--	--	ND(5)	--
BENZO(K)FLUORANTHENE	N/A	3,000.	--	--	--	ND(5)	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	--	--	--	ND(5)	--
FLUORANTHENE	N/A	200.	--	--	--	ND(5)	--
FLUORENE	N/A	3,000.	--	--	--	ND(5)	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000.	--	--	--	**1700**	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	--	--	--	**860**	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000	--	--	--	ND(250)	--
NAPHTHALENE	6,000.	6,000.	--	--	--	ND(5)	--
PHENANTHRENE	N/A	50.	--	--	--	ND(5)	--
PYRENE	N/A	3,000.	--	--	--	ND(5)	--
TOTAL CONCENTRATION OF EPH			ND	ND	ND	**2560**	ND
TPH							
OIL AND GREASE	1,000.	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400.	--	--	ND(10)	ND(5)	--
CADMIUM	N/A	10.	--	--	ND(2.5)	ND(2.5)	--
CHROMIUM	N/A	2,000.	--	--	ND(5)	ND(5)	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	ND(5)	--
COPPER	N/A	N/A	--	--	ND(12.5)	ND(12.5)	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	--	--	ND(2.5)	ND(2.5)	--
MERCURY	N/A	1.	--	--	ND(0.1)	ND(0.1)	--
NICKEL	N/A	80.	--	--	ND(20)	ND(20)	--
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	--	--	ND(250)	--	--
ZINC	N/A	900.	--	--	ND(100)	ND(100)	--
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	**70**	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	**140**	**20**	--
CYANIDE, TOTAL	N/A	N/A	--	--	**740**	**80**	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	DESTROYED HA-4(MW)	HA-4(MW)	HA-8(MW)	HA-9(MW)	HA-9(MW)
SAMPLE DESIGNATION	Standard	Standard	HA-4(MW) 07/28/00	HA-4(MW) DUP 07/28/00	HA-8(MW) 05/01/02	HA-9(MW) 04/29/02	HA-17(MW) DUP 04/29/02
SAMPLING DATE	GW-2	GW-3	07/28/00	07/28/00	05/01/02	04/29/02	04/29/02
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
1,1,2,2-TETRACHLOROETHANE	20	20,000.	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
1,1,2-TRICHLOROETHANE	20,000.	50,000.	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
1,1-DICHLOROETHANE	9,000.	50,000.	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
1,1-DICHLOROETHYLENE	1.	50,000.	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	3
1,2,4-TRICHLOROBENZENE	10,000.	500	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3	50,000.	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
1,2-DICHLOROETHANE	20.	50,000.	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
1,2-DICHLOROPROPANE	9.	30,000	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
4-ISOPROPYLTOLUENE	N/A	N/A	210	150	ND(0.25)	ND(2.5)	ND(1.25)
ACETONE	50,000.	50,000.	ND(12.5)	44	ND(10)	ND(100)	ND(50)
BENZENE	2,000.	7,000	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
BROMODICHLOROMETHANE	N/A	50,000.	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
BROMOMETHANE	2.	50,000.	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
CARBON TETRACHLORIDE	20.	50,000.	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
CHLOROETHANE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
CHLOROFORM	400.	10,000.	4	4	ND(0.25)	ND(2.5)	ND(1.25)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	3	3	0.7	110	99
ETHYLBENZENE	30,000.	4,000.	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
HEXACHLORO-1,3-BUTADIENE	1.	90	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
ISOPROPYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
METHYLENE CHLORIDE	50,000.	50,000.	ND(5)	ND(5)	ND(1.25)	ND(12.5)	ND(6.5)
NAPHTHALENE	6,000.	6,000	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
N-BUTYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
N-PROPYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
SEC-BUTYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
TERT-BUTYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
TETRACHLOROETHYLENE	3,000	5,000.	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
TETRAHYDROFURAN	N/A	N/A	ND(12.5)	ND(12.5)	ND(2.5)	ND(25)	ND(12.5)
TOLUENE	6,000.	50,000.	4	4	ND(0.25)	ND(2.5)	ND(1.25)
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
TRICHLOROETHYLENE	300.	20,000.	22	20	5	ND(2.5)	3
VINYL CHLORIDE	2.	40,000.	ND(1.25)	ND(1.25)	ND(0.25)	260	250
XYLENES, MIXTURE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.25)	ND(2.5)	ND(1.25)
TOTAL CONCENTRATION OF VOCs			243	225	5.7	370	355
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	110	170	ND(10)	41	41
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	460	500	ND(10)	ND(10)	ND(10)
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	310	370	ND(10)	ND(10)	ND(10)
TOTAL CONCENTRATION OF VPH			880	1040	ND	41	41

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1 Standard	Method 1 Standard	DESTROYED HA-4(MW)	HA-4(MW)	HA-8(MW)	HA-9(MW)	HA-9(MW)
SAMPLE DESIGNATION	GW-2	GW-3	HA-4(MW) 07/28/00	HA-4(MW) DUP 07/28/00	HA-8(MW) 05/01/02	HA-9(MW) 04/29/02	HA-17(MW) DUP 04/29/02
SAMPLING DATE			07/28/00	07/28/00	05/01/02	04/29/02	04/29/02
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EPH							
2-METHYLNAPHTHALENE	10,000	3,000.	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)
ACENAPHTHENE	N/A	5,000.	ND(5)	ND(5.5)	ND(5.5)	ND(5)	ND(5)
BENZO(A)ANTHRACENE	N/A	3,000.	ND(5)	ND(5.5)	ND(5.5)	ND(5)	ND(5)
BENZO(A)PYRENE	N/A	3,000.	ND(5)	ND(5.5)	ND(5.5)	ND(5)	ND(5)
BENZO(B)FLUORANTHENE	N/A	3,000	ND(5)	ND(5.5)	ND(5.5)	ND(5)	ND(5)
BENZO(K)FLUORANTHENE	N/A	3,000.	ND(5)	ND(5.5)	ND(5.5)	ND(5)	ND(5)
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	ND(5)	ND(5.5)	ND(5.5)	ND(5)	ND(5)
FLUORANTHENE	N/A	200.	ND(5)	ND(5.5)	ND(5.5)	ND(5)	ND(5)
FLUORENE	N/A	3,000.	ND(5)	ND(5.5)	ND(5.5)	ND(5)	ND(5)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000.	ND(100)	ND(100)	ND(90)	ND(80)	ND(80)
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	ND(250)	ND(265)	ND(270)	ND(250)	ND(250)
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000.	ND(250)	ND(265)	ND(270)	ND(250)	ND(250)
NAPHTHALENE	6,000.	6,000	ND(5)	ND(5.5)	ND(5.5)	ND(5)	ND(5)
PHENANTHRENE	N/A	50.	ND(5)	ND(5.5)	ND(5.5)	ND(5)	ND(5)
PYRENE	N/A	3,000.	ND(5)	ND(5.5)	ND(5.5)	ND(5)	ND(5)
TOTAL CONCENTRATION OF EPH			ND	ND	ND	ND	ND
TPH							
OIL AND GREASE	1,000.	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400.	**30**	ND(10)	ND(5)	**30**	**30**
CADMIUM	N/A	10.	ND(2.5)	**6**	ND(2.5)	ND(2.5)	ND(2.5)
CHROMIUM	N/A	2,000.	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	ND(5)	ND(5)	ND(5)
COPPER	N/A	N/A	ND(12.5)	ND(12.5)	ND(12.5)	ND(12.5)	ND(12.5)
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	ND(2.5)	**12**	ND(2.5)	ND(2.5)	ND(2.5)
MERCURY	N/A	1.	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
NICKEL	N/A	80.	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	ND(250)	ND(250)	--	--	--
ZINC	N/A	900.	ND(100)	**400**	ND(100)	ND(100)	ND(100)
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	**100**	**60**	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	**300**	**320**	--	--	--
CYANIDE, TOTAL	N/A	N/A	**4900**	**3500**	ND(5)	**40**	**40**

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1 Standard	Method 1 Standard	HA-9(MW)	HA-9(MW)	HA-10(MW)	HA-10(MW)	HA-10(MW)	HA-12(MW)
SAMPLE DESIGNATION	GW-2	GW-3	HA-9(MW) 01/15/03	HA-9(MW) 11/04/03	HA-10(MW) 04/29/02	HA-10(MW) 01/15/03	HA-10(MW) 11/04/03	HA-12(MW) 04/29/02
SAMPLING DATE			01/15/03	11/04/03	04/29/02	01/15/03	11/04/03	04/29/02
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOCs								
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)	ND(0.25)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)	ND(0.25)
1,1,2,2-TETRACHLOROETHANE	20.	20,000.	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)	ND(0.25)
1,1,2-TRICHLOROETHANE	20,000.	50,000.	ND(2.5)	ND(3.75)	ND(0.25)	ND(0.5)	ND(0.375)	ND(0.25)
1,1-DICHLOROETHANE	9,000	50,000.	ND(2.5)	ND(3.75)	ND(0.25)	ND(0.5)	ND(0.375)	ND(0.25)
1,1-DICHLOROETHYLENE	1.	50,000.	**ND(2.5)**	**ND(2.5)**	ND(0.25)	ND(0.5)	ND(0.25)	ND(0.25)
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(2.5)	ND(12.5)	ND(0.25)	ND(0.5)	ND(1.25)	ND(0.25)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(2.5)	ND(12.5)	**0.9**	ND(0.5)	ND(1.25)	ND(0.25)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000.	ND(2.5)	**ND(12.5)**	ND(0.25)	ND(0.5)	ND(1.25)	ND(0.25)
1,2-DICHLOROETHANE	20.	50,000.	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)	ND(0.25)
1,2-DICHLOROPROPANE	9.	30,000.	ND(2.5)	ND(9)	ND(0.25)	ND(0.5)	ND(0.9)	ND(0.25)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(2.5)	ND(12.5)	**0.5**	ND(0.5)	ND(1.25)	ND(0.25)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(2.5)	ND(2.5)	**33**	**13**	**14**	ND(0.25)
ACETONE	50,000.	50,000.	ND(100)	ND(25)	ND(10)	ND(20)	ND(2.5)	ND(10)
BENZENE	2,000.	7,000.	ND(2.5)	ND(2.5)	**0.5**	ND(0.5)	ND(0.25)	ND(0.25)
BROMODICHLOROMETHANE	N/A	50,000.	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)	ND(0.25)
BROMOMETHANE	2.	50,000.	ND(2.5)	**ND(5)**	ND(0.25)	ND(0.5)	ND(0.5)	ND(0.25)
CARBON TETRACHLORIDE	20	50,000.	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)	ND(0.25)
CHLOROETHANE	N/A	N/A	ND(2.5)	ND(5)	ND(0.25)	ND(0.5)	ND(0.5)	ND(0.25)
CHLOROFORM	400.	10,000.	ND(2.5)	ND(3.75)	ND(0.25)	ND(0.5)	ND(0.375)	ND(0.25)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	**93**	**76**	**19**	**84**	**97**	**0.9**
ETHYLBENZENE	30,000.	4,000.	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)	ND(0.25)
HEXACHLORO-1,3-BUTADIENE	1.	90.	**ND(2.5)**	**ND(5)**	ND(0.25)	ND(0.5)	ND(0.5)	ND(0.25)
ISOPROPYLBENZENE	N/A	N/A	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)	ND(0.25)
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	ND(2.5)	ND(5)	ND(0.25)	ND(0.5)	ND(0.5)	ND(0.25)
METHYLENE CHLORIDE	50,000.	50,000.	ND(12.5)	ND(25)	ND(1.25)	ND(2.5)	ND(2.5)	ND(1.25)
NAPHTHALENE	6,000.	6,000.	ND(2.5)	ND(12.5)	ND(0.25)	ND(0.5)	ND(1.25)	ND(0.25)
N-BUTYLBENZENE	N/A	N/A	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)	ND(0.25)
N-PROPYLBENZENE	N/A	N/A	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)	ND(0.25)
SEC-BUTYLBENZENE	N/A	N/A	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)	ND(0.25)
TERT-BUTYLBENZENE	N/A	N/A	ND(2.5)	ND(12.5)	ND(0.25)	ND(0.5)	ND(1.25)	ND(0.25)
TETRACHLOROETHYLENE	3,000.	5,000.	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)	ND(0.25)
TETRAHYDROFURAN	N/A	N/A	ND(25)	ND(50)	ND(2.5)	ND(5)	ND(5)	ND(2.5)
TOLUENE	6,000.	50,000.	ND(2.5)	ND(3.75)	ND(0.25)	ND(0.5)	ND(0.375)	ND(0.25)
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(2.5)	ND(3.75)	ND(0.25)	ND(0.5)	ND(0.375)	ND(0.25)
TRICHLOROETHYLENE	300.	20,000.	ND(2.5)	ND(2.5)	**4**	**1**	**0.81**	**0.7**
VINYL CHLORIDE	2.	40,000.	**300**	**280**	**16**	**47**	**68**	ND(0.25)
XYLENES, MIXTURE	N/A	N/A	ND(2.5)	ND(2.5)	**1.3**	ND(0.5)	ND(0.25)	ND(0.25)
TOTAL CONCENTRATION OF VOCs			393	356	75.2	145	179.81	1.6
VPH								
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	--	--	**23**	**57**	--	ND(10)
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	--	--	**65**	**56**	--	ND(10)
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	--	--	**36**	**22**	--	ND(10)
TOTAL CONCENTRATION OF VPH			ND	ND	124	135	ND	ND

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-9(MW) HA-9(MW) 01/15/03 01/15/03 ug/L	HA-9(MW) HA-9(MW) 11/04/03 11/04/03 ug/L	HA-10(MW) HA-10(MW) 04/29/02 04/29/02 ug/L	HA-10(MW) HA-10(MW) 01/15/03 01/15/03 ug/L	HA-10(MW) HA-10(MW) 11/04/03 11/04/03 ug/L	HA-12(MW) HA-12(MW) 04/29/02 04/29/02 ug/L
EPH								
2-METHYLNAPHTHALENE	10,000.	3,000.	--	--	ND(3)	--	--	ND(2.5)
ACENAPHTHENE	N/A	5,000.	--	--	ND(5.5)	--	--	ND(5.5)
BENZO(A)ANTHRACENE	N/A	3,000	--	--	ND(5.5)	--	--	ND(5.5)
BENZO(A)PYRENE	N/A	3,000.	--	--	ND(5.5)	--	--	ND(5.5)
BENZO(B)FLUORANTHENE	N/A	3,000	--	--	ND(5.5)	--	--	ND(5.5)
BENZO(K)FLUORANTHENE	N/A	3,000.	--	--	ND(5.5)	--	--	ND(5.5)
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	--	--	ND(5.5)	--	--	ND(5.5)
FLUORANTHENE	N/A	200.	--	--	ND(5.5)	--	--	ND(5.5)
FLUORENE	N/A	3,000.	--	--	ND(5.5)	--	--	ND(5.5)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000.	--	--	**340**	ND(80)	--	ND(85)
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	--	--	**610**	ND(250)	--	ND(265)
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000	20,000.	--	--	ND(280)	ND(250)	--	ND(265)
NAPHTHALENE	6,000.	6,000.	--	--	ND(5.5)	--	--	ND(5.5)
PHENANTHRENE	N/A	50.	--	--	ND(5.5)	--	--	ND(5.5)
PYRENE	N/A	3,000.	--	--	ND(5.5)	--		ND(5.5)
TOTAL CONCENTRATION OF EPH			ND	ND	**950**	ND	ND	ND
TPH								
OIL AND GREASE	1,000.	20,000.	--	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND	ND
METALS								
ALUMINUM	N/A	N/A	--	--	--	--	--	--
ARSENIC	N/A	400.	--	--	**110**	--	--	ND(5)
CADMIUM	N/A	10.	--	--	ND(2.5)	--	--	ND(2.5)
CHROMIUM	N/A	2,000.	--	--	ND(5)	--	--	ND(5)
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	ND(5)	--	--	ND(5)
COPPER	N/A	N/A	--	--	ND(12.5)	--	--	ND(12.5)
IRON	N/A	N/A	--	--	--	--	--	--
LEAD	N/A	30.	--	--	**6**	--	--	ND(2.5)
MERCURY	N/A	1.	--	--	ND(0.1)	--	--	ND(0.1)
NICKEL	N/A	80.	--	--	ND(20)	--	--	ND(20)
SILVER	N/A	7.	--	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--	--
ZINC	N/A	900.	--	--	**800**	--	--	ND(100)
Cyanide								
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	ND(5)	--	--	**10**

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	HA-12(MW)	HA-13(MW)	HA-13(MW)	HA-19A(MW)	HA-19A(MW)
SAMPLE DESIGNATION	Standard	Standard	HA-12(MW) 06/29/04	HA-13(MW) 05/01/02	HA-13(MW) 06/29/04	HA-19A(MW) 04/16/03	HA-19A(MW) 11/05/03
SAMPLING DATE	GW-2	GW-3	06/29/04	05/01/02	06/29/04	04/16/03	11/05/03
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(0.25)	ND(0.25)	ND(5)	--	--
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(0.25)	ND(0.25)	ND(5)	--	--
1,1,2,2-TETRACHLOROETHANE	20	20,000.	ND(0.25)	ND(0.25)	ND(5)	--	--
1,1,2-TRICHLOROETHANE	20,000.	50,000.	ND(0.375)	ND(0.25)	ND(7.5)	--	--
1,1-DICHLOROETHANE	9,000.	50,000.	ND(0.375)	ND(0.25)	ND(7.5)	--	--
1,1-DICHLOROETHYLENE	1.	50,000.	ND(0.25)	ND(0.25)	ND(5)	--	--
1,2,4-TRICHLOROBENZENE	10,000	500.	ND(1.25)	ND(0.25)	ND(25)	--	--
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	1	ND(25)	--	--
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000.	ND(1)	ND(0.25)	ND(20)	--	--
1,2-DICHLOROETHANE	20.	50,000.	ND(0.25)	ND(0.25)	ND(5)	--	--
1,2-DICHLOROPROPANE	9.	30,000.	ND(0.9)	ND(0.25)	ND(17.5)	--	--
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	2	ND(25)	--	--
4-ISOPROPYLTOLUENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(5)	--	--
ACETONE	50,000	50,000.	ND(2.5)	ND(10)	ND(50)	--	--
BENZENE	2,000	7,000.	ND(0.25)	ND(0.25)	ND(5)	--	--
BROMODICHLOROMETHANE	N/A	50,000.	ND(0.25)	ND(0.25)	ND(5)	--	--
BROMOMETHANE	2.	50,000.	ND(0.5)	ND(0.25)	ND(10)	--	--
CARBON TETRACHLORIDE	20.	50,000	ND(0.25)	ND(0.25)	ND(5)	--	--
CHLOROETHANE	N/A	N/A	ND(0.5)	ND(0.25)	ND(10)	--	--
CHLOROFORM	400.	10,000.	ND(0.375)	ND(0.25)	ND(7.5)	--	--
CIS-1,2-DICHLOROETHYLENE	30,000	50,000.	ND(0.25)	17	160	--	--
ETHYLBENZENE	30,000.	4,000.	ND(0.25)	ND(0.25)	ND(5)	--	--
HEXACHLORO-1,3-BUTADIENE	1.	90.	ND(0.5)	ND(0.25)	ND(10)	--	--
ISOPROPYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(5)	--	--
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	ND(0.5)	ND(0.25)	ND(10)	--	--
METHYLENE CHLORIDE	50,000.	50,000.	ND(2.5)	ND(1.25)	ND(50)	--	--
NAPHTHALENE	6,000.	6,000.	ND(1.25)	ND(0.25)	ND(25)	--	--
N-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(5)	--	--
N-PROPYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(5)	--	--
SEC-BUTYLBENZENE	N/A	N/A	ND(0.25)	0.8	ND(5)	--	--
TERT-BUTYLBENZENE	N/A	N/A	ND(1.25)	ND(0.25)	ND(25)	--	--
TETRACHLOROETHYLENE	3,000.	5,000.	ND(0.25)	ND(0.25)	ND(5)	--	--
TETRAHYDROFURAN	N/A	N/A	ND(5)	ND(2.5)	ND(100)	--	--
TOLUENE	6,000	50,000.	ND(0.375)	ND(0.25)	ND(7.5)	--	--
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(0.375)	ND(0.25)	ND(7.5)	--	--
TRICHLOROETHYLENE	300.	20,000.	0.56	34	670	--	--
VINYL CHLORIDE	2.	40,000.	ND(0.5)	6	ND(10)	--	--
XYLENES, MIXTURE	N/A	N/A	ND(0.25)	ND(0.25)	ND(5)	--	--
TOTAL CONCENTRATION OF VOCs			0.56	60.8	830	ND	ND
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	--	110	--	--	--
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	--	53	--	--	--
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	--	69	--	--	--
TOTAL CONCENTRATION OF VPH			ND	232	ND	ND	ND

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	HA-12(MW)	HA-13(MW)	HA-13(MW)	HA-19A(MW)	HA-19A(MW)
SAMPLE DESIGNATION	Standard	Standard	HA-12(MW) 06/29/04	HA-13(MW) 05/01/02	HA-13(MW) 06/29/04	HA-19A(MW) 04/16/03	HA-19A(MW) 11/05/03
SAMPLING DATE	GW-2	GW-3	06/29/04	05/01/02	06/29/04	04/16/03	11/05/03
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EPH							
2-METHYLNAPHTHALENE	10,000.	3,000.	--	ND(2.5)	--	--	--
ACENAPHTHENE	N/A	5,000	--	ND(5.5)	--	--	--
BENZO(A)ANTHRACENE	N/A	3,000	--	ND(5.5)	--	--	--
BENZO(A)PYRENE	N/A	3,000.	--	ND(5.5)	--	--	--
BENZO(B)FLUORANTHENE	N/A	3,000.	--	ND(5.5)	--	--	--
BENZO(K)FLUORANTHENE	N/A	3,000.	--	ND(5.5)	--	--	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	--	ND(5.5)	--	--	--
FLUORANTHENE	N/A	200.	--	ND(5.5)	--	--	--
FLUORENE	N/A	3,000.	--	ND(5.5)	--	--	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000.	--	**400**	--	--	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	--	**710**	--	--	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000.	--	ND(270)	--	--	--
NAPHTHALENE	6,000.	6,000.	--	ND(5.5)	--	--	--
PHENANTHRENE	N/A	50.	--	ND(5.5)	--	--	--
PYRENE	N/A	3,000.	--	ND(5.5)	--	--	--
TOTAL CONCENTRATION OF EPH			ND	**1110**	ND	ND	ND
TPH							
OIL AND GREASE	1,000.	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400	--	ND(5)	--	--	--
CADMIUM	N/A	10.	--	ND(2.5)	--	**190**	**174**
CHROMIUM	N/A	2,000.	--	ND(5)	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	ND(5)	--	--	--
COPPER	N/A	N/A	--	ND(12.5)	--	--	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	--	ND(2.5)	--	--	--
MERCURY	N/A	1.	--	ND(0.1)	--	--	--
NICKEL	N/A	80.	--	ND(20)	--	--	ND(12.5)
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--
ZINC	N/A	900.	--	ND(100)	--	--	ND(25)
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	ND(5)	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	HA-19A(MW)	HA-101(MW)	HA-102(MW)	HA-102(MW)	HA-102(MW)
SAMPLE DESIGNATION	Standard	Standard	HA-19A(MW) 06/29/04	HA-101(MW) 12/29/00	HA-102(MW) 12/29/00	HA-102(MW) DUP 12/29/00	HA-102(MW) 05/06/02
SAMPLING DATE	GW-2	GW-3	06/29/04	12/29/00	12/29/00	12/29/00	05/06/02
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6	50,000.	ND(0.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(0.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
1,1,2,2-TETRACHLOROETHANE	20	20,000.	ND(0.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
1,1,2-TRICHLOROETHANE	20,000	50,000	ND(0.375)	ND(2.5)	ND(500)	ND(125)	ND(125)
1,1-DICHLOROETHANE	9,000.	50,000.	ND(0.375)	ND(2.5)	1500	390	450
1,1-DICHLOROETHYLENE	1.	50,000.	ND(0.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(1.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000.	ND(1)	ND(2.5)	ND(500)	ND(125)	ND(125)
1,2-DICHLOROETHANE	20	50,000.	ND(0.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
1,2-DICHLOROPROPANE	9.	30,000.	ND(0.9)	ND(2.5)	ND(500)	ND(125)	ND(125)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(0.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
ACETONE	50,000.	50,000.	ND(2.5)	ND(25)	ND(5000)	ND(1250)	ND(5000)
BENZENE	2,000.	7,000.	ND(0.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
BROMODICHLOROMETHANE	N/A	50,000	ND(0.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
BROMOMETHANE	2	50,000.	ND(0.5)	ND(2.5)	ND(500)	ND(250)	ND(125)
CARBON TETRACHLORIDE	20.	50,000	ND(0.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
CHLOROETHANE	N/A	N/A	ND(0.5)	ND(5)	ND(1000)	ND(250)	ND(125)
CHLOROFORM	400.	10,000.	ND(0.375)	ND(2.5)	ND(500)	ND(125)	ND(125)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	ND(0.25)	ND(2.5)	21000	5600	6500
ETHYLBENZENE	30,000.	4,000.	ND(0.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
HEXACHLORO-1,3-BUTADIENE	1.	90.	ND(0.5)	ND(2.5)	ND(500)	ND(125)	ND(125)
ISOPROPYLBENZENE	N/A	N/A	ND(0.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	ND(0.5)	ND(2.5)	ND(500)	ND(125)	ND(125)
METHYLENE CHLORIDE	50,000.	50,000.	ND(2.5)	ND(25)	ND(5000)	ND(1250)	ND(650)
NAPHTHALENE	6,000.	6,000.	ND(1.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
N-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
N-PROPYLBENZENE	N/A	N/A	ND(0.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
SEC-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
TERT-BUTYLBENZENE	N/A	N/A	ND(1.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
TETRACHLOROETHYLENE	3,000.	5,000.	ND(0.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
TETRAHYDROFURAN	N/A	N/A	ND(5)	ND(25)	ND(5000)	ND(1250)	ND(1250)
TOLUENE	6,000.	50,000.	ND(0.375)	ND(2.5)	ND(500)	ND(125)	ND(125)
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(0.375)	ND(2.5)	ND(500)	ND(125)	ND(125)
TRICHLOROETHYLENE	300.	20,000.	0.9	ND(2.5)	ND(500)	ND(125)	ND(125)
VINYL CHLORIDE	2	40,000.	ND(0.5)	ND(5)	6100	1500	2000
XYLENES, MIXTURE	N/A	N/A	ND(0.25)	ND(2.5)	ND(500)	ND(125)	ND(125)
TOTAL CONCENTRATION OF VOCs			0.9	ND	28600	7490	8950
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	--	--	--	--	3500
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	--	--	--	--	1100
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	--	--	--	--	1200
TOTAL CONCENTRATION OF VPH			ND	ND	ND	ND	5800

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	HA-19A(MW)	HA-101(MW)	HA-102(MW)	HA-102(MW)	HA-102(MW)
SAMPLE DESIGNATION	Standard	Standard	HA-19A(MW) 06/29/04	HA-101(MW) 12/29/00	HA-102(MW) 12/29/00	HA-102(MW) DUP 12/29/00	HA-102(MW) 05/06/02
SAMPLING DATE	GW-2	GW-3	06/29/04	12/29/00	12/29/00	12/29/00	05/06/02
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EPH							
2-METHYLNAPHTHALENE	10,000.	3,000.	--	--	--	--	ND(2.5)
ACENAPHTHENE	N/A	5,000.	--	--	--	--	ND(5)
BENZO(A)ANTHRACENE	N/A	3,000.	--	--	--	--	ND(5)
BENZO(A)PYRENE	N/A	3,000	--	--	--	--	ND(5)
BENZO(B)FLUORANTHENE	N/A	3,000.	--	--	--	--	ND(5)
BENZO(K)FLUORANTHENE	N/A	3,000.	--	--	--	--	ND(5)
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000	--	--	--	--	ND(5)
FLUORANTHENE	N/A	200.	--	--	--	--	ND(5)
FLUORENE	N/A	3,000	--	--	--	--	ND(5)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000.	--	--	--	--	**1200**
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	--	--	--	--	**1400**
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000	20,000	--	--	--	--	**660**
NAPHTHALENE	6,000.	6,000.	--	--	--	--	ND(5)
PHENANTHRENE	N/A	50.	--	--	--	--	ND(5)
PYRENE	N/A	3,000.	--	--	--	--	ND(5)
TOTAL CONCENTRATION OF EPH			ND	ND	ND	ND	**3260**
TPH							
OIL AND GREASE	1,000.	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400	--	--	--	--	--
CADMIUM	N/A	10.	**106**	--	--	--	--
CHROMIUM	N/A	2,000.	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	--	--	--	--	--
MERCURY	N/A	1.	--	--	--	--	--
NICKEL	N/A	80	**6.4**	--	--	--	--
SILVER	N/A	7	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--
ZINC	N/A	900.	**8.4**	--	--	--	--
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1 Standard	Method 1 Standard	HA-102(MW)	HA-102(MW)	HA-103B(MW)	HA-103B(MW)	HA-103B(MW)
SAMPLE DESIGNATION	GW-2	GW-3	HA-102(MW) 11/03/03	HA-102(MW) 06/30/04	HA-103B(MW) 12/29/00	HA-103B(MW) 05/06/02	HA-103B(MW) 06/30/04
SAMPLING DATE			11/03/03	06/30/04	12/29/00	05/06/02	06/30/04
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(25)	ND(25)	ND(2.5)	ND(5)	ND(1)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(25)	ND(25)	ND(2.5)	ND(5)	ND(1)
1,1,2,2-TETRACHLOROETHANE	20	20,000.	ND(25)	ND(25)	ND(2.5)	ND(5)	ND(1)
1,1,2-TRICHLOROETHANE	20,000	50,000.	ND(37.5)	ND(37.5)	ND(2.5)	ND(5)	ND(1.5)
1,1-DICHLOROETHANE	9,000.	50,000.	380	270	31	50	16
1,1-DICHLOROETHYLENE	1.	50,000.	ND(25)	ND(25)	ND(2.5)	ND(5)	ND(1)
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(125)	ND(125)	ND(2.5)	ND(5)	ND(5)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(125)	ND(125)	ND(2.5)	ND(5)	ND(5)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3	50,000.	ND(125)	ND(100)	ND(2.5)	ND(5)	ND(4)
1,2-DICHLOROETHANE	20.	50,000.	ND(25)	ND(25)	ND(2.5)	ND(5)	ND(1)
1,2-DICHLOROPROPANE	9.	30,000	ND(90)	ND(90)	ND(2.5)	ND(5)	ND(3.5)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(125)	ND(125)	ND(2.5)	ND(5)	ND(5)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(25)	ND(25)	ND(2.5)	ND(5)	ND(1)
ACETONE	50,000.	50,000.	ND(250)	ND(250)	ND(25)	ND(200)	ND(10)
BENZENE	2,000.	7,000.	ND(25)	ND(25)	ND(2.5)	ND(5)	ND(1)
BROMODICHLOROMETHANE	N/A	50,000.	ND(25)	ND(25)	ND(2.5)	ND(5)	ND(1)
BROMOMETHANE	2	50,000	ND(50)	ND(50)	ND(2.5)	ND(5)	ND(2)
CARBON TETRACHLORIDE	20.	50,000	ND(25)	ND(25)	ND(2.5)	ND(5)	ND(1)
CHLOROETHANE	N/A	N/A	ND(50)	ND(50)	20	ND(5)	ND(2)
CHLOROFORM	400.	10,000.	ND(37.5)	ND(37.5)	ND(2.5)	ND(5)	ND(1.5)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	5300	3900	ND(2.5)	350	78
ETHYLBENZENE	30,000.	4,000.	ND(25)	ND(25)	ND(2.5)	ND(5)	ND(1)
HEXACHLORO-1,3-BUTADIENE	1.	90.	ND(50)	ND(50)	ND(2.5)	ND(5)	ND(2)
ISOPROPYLBENZENE	N/A	N/A	ND(25)	ND(25)	ND(2.5)	ND(5)	ND(1)
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	ND(50)	ND(50)	ND(2.5)	ND(5)	ND(2)
METHYLENE CHLORIDE	50,000.	50,000.	ND(250)	ND(250)	ND(25)	ND(25)	ND(10)
NAPHTHALENE	6,000.	6,000.	ND(125)	ND(125)	ND(2.5)	ND(5)	ND(5)
N-BUTYLBENZENE	N/A	N/A	ND(25)	ND(25)	ND(2.5)	ND(5)	ND(1)
N-PROPYLBENZENE	N/A	N/A	ND(25)	ND(25)	ND(2.5)	ND(5)	ND(1)
SEC-BUTYLBENZENE	N/A	N/A	ND(25)	ND(25)	ND(2.5)	ND(5)	ND(1)
TERT-BUTYLBENZENE	N/A	N/A	ND(125)	ND(125)	ND(2.5)	ND(5)	ND(5)
TETRACHLOROETHYLENE	3,000.	5,000.	ND(25)	ND(25)	ND(2.5)	ND(5)	ND(1)
TETRAHYDROFURAN	N/A	N/A	ND(500)	ND(500)	ND(25)	ND(50)	ND(20)
TOLUENE	6,000.	50,000.	ND(37.5)	ND(37.5)	ND(2.5)	ND(5)	ND(1.5)
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(37.5)	ND(37.5)	ND(2.5)	ND(5)	ND(1.5)
TRICHLOROETHYLENE	300.	20,000.	ND(25)	ND(25)	14	17	24
VINYL CHLORIDE	2.	40,000.	2200	2200	140	230	96
XYLENES, MIXTURE	N/A	N/A	ND(25)	ND(25)	ND(2.5)	ND(5)	ND(1)
TOTAL CONCENTRATION OF VOCs			7880	6370	205	647	214
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	1760	1850	--	170	67.1
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	ND(400)	ND(250)	--	ND(10)	ND(25)
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	ND(400)	ND(250)	--	ND(10)	ND(25)
TOTAL CONCENTRATION OF VPH			3520	3720	ND	170	134.2

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-102(MW) HA-102(MW) 11/03/03 11/03/03 ug/L	HA-102(MW) HA-102(MW) 06/30/04 06/30/04 ug/L	HA-103B(MW) HA-103B(MW) 12/29/00 12/29/00 ug/L	HA-103B(MW) HA-103B(MW) 05/06/02 05/06/02 ug/L	HA-103B(MW) HA-103B(MW) 06/30/04 06/30/04 ug/L
EPH							
2-METHYLNAPHTHALENE	10,000.	3,000.	**0.554**	**0.586**	--	ND(2.5)	ND(0.2)
ACENAPHTHENE	N/A	5,000.	ND(0.2)	ND(0.2)	--	ND(5)	ND(0.2)
BENZO(A)ANTHRACENE	N/A	3,000.	ND(0.2)	ND(0.2)	--	ND(5)	ND(0.2)
BENZO(A)PYRENE	N/A	3,000	ND(0.1)	ND(0.1)	--	ND(5)	ND(0.1)
BENZO(B)FLUORANTHENE	N/A	3,000.	ND(0.2)	ND(0.2)	--	ND(5)	ND(0.2)
BENZO(K)FLUORANTHENE	N/A	3,000.	ND(0.2)	ND(0.2)	--	ND(5)	ND(0.2)
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	ND(0.2)	ND(0.2)	--	ND(5)	ND(0.2)
FLUORANTHENE	N/A	200.	ND(0.2)	ND(0.2)	--	ND(5)	ND(0.2)
FLUORENE	N/A	3,000.	ND(0.2)	ND(0.2)	--	ND(5)	ND(0.2)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000.	**118**	**923**	--	**500**	**318**
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000	ND(50)	**924**	--	**610**	**352**
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000.	ND(50)	**472**	--	ND(250)	ND(50)
NAPHTHALENE	6,000.	6,000.	**1.36**	**1.83**	--	ND(5)	ND(0.2)
PHENANTHRENE	N/A	50.	ND(0.2)	ND(0.2)	--	ND(5)	ND(0.2)
PYRENE	N/A	3,000.	ND(0.2)	ND(0.2)	--	ND(5)	ND(0.2)
TOTAL CONCENTRATION OF EPH			**239.914**	**3246.416**	ND	**1110**	**988**
TPH							
OIL AND GREASE	1,000.	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400.	--	--	--	--	--
CADMIUM	N/A	10.	--	--	--	--	--
CHROMIUM	N/A	2,000.	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	--	--	--	--	--
MERCURY	N/A	1.	--	--	--	--	--
NICKEL	N/A	80.	--	--	--	--	--
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--
ZINC	N/A	900.	--	--	--	--	--
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-301(MW) HA-301(MW) 12/29/00 12/29/00 ug/L	HA-301(MW) HA-301(MW) 05/07/02 05/07/02 ug/L	HA-301(MW) HA-301(MW) 03/12/03 03/12/03 ug/L	HA-301(MW) HA-301(MW) 11/03/03 11/03/03 ug/L	HA-301(MW) HA-3001(MW) DUP 11/03/03 11/03/03 ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6.	50,000	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
1,1,2,2-TETRACHLOROETHANE	20.	20,000.	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
1,1,2-TRICHLOROETHANE	20,000	50,000.	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.375)	ND(0.375)
1,1-DICHLOROETHANE	9,000.	50,000	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.375)	ND(0.375)
1,1-DICHLOROETHYLENE	1.	50,000.	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(2.5)	ND(0.25)	ND(0.25)	ND(1.25)	ND(1.25)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(2.5)	ND(0.25)	ND(0.25)	ND(1.25)	ND(1.25)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000.	ND(2.5)	ND(0.25)	ND(0.25)	ND(1.25)	ND(1.25)
1,2-DICHLOROETHANE	20.	50,000.	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
1,2-DICHLOROPROPANE	9.	30,000.	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.9)	ND(0.9)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(2.5)	ND(0.25)	ND(0.25)	ND(1.25)	ND(1.25)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
ACETONE	50,000.	50,000.	ND(25)	ND(10)	ND(10)	ND(2.5)	ND(2.5)
BENZENE	2,000.	7,000.	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
BROMODICHLOROMETHANE	N/A	50,000.	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
BROMOMETHANE	2.	50,000.	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.5)	ND(0.5)
CARBON TETRACHLORIDE	20.	50,000.	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
CHLOROETHANE	N/A	N/A	ND(5)	ND(0.25)	ND(0.25)	ND(0.5)	ND(0.5)
CHLOROFORM	400.	10,000.	ND(2.5)	0.5	0.7	ND(0.375)	ND(0.375)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	ND(2.5)	10	7	9.8	11
ETHYLBENZENE	30,000.	4,000.	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
HEXACHLORO-1,3-BUTADIENE	1.	90.	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.5)	ND(0.5)
ISOPROPYLBENZENE	N/A	N/A	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.5)	ND(0.5)
METHYLENE CHLORIDE	50,000.	50,000.	ND(25)	ND(1.25)	ND(1.25)	ND(2.5)	ND(2.5)
NAPHTHALENE	6,000.	6,000.	ND(2.5)	ND(0.25)	ND(0.25)	ND(1.25)	ND(1.25)
N-BUTYLBENZENE	N/A	N/A	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
N-PROPYLBENZENE	N/A	N/A	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
SEC-BUTYLBENZENE	N/A	N/A	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
TERT-BUTYLBENZENE	N/A	N/A	ND(2.5)	ND(0.25)	ND(0.25)	ND(1.25)	ND(1.25)
TETRACHLOROETHYLENE	3,000.	5,000	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
TETRAHYDROFURAN	N/A	N/A	ND(25)	ND(2.5)	ND(2.5)	ND(5)	ND(5)
TOLUENE	6,000.	50,000.	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.375)	ND(0.375)
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.375)	ND(0.375)
TRICHLOROETHYLENE	300.	20,000.	25	25	22	31	35
VINYL CHLORIDE	2.	40,000.	ND(5)	0.5	ND(0.25)	ND(0.5)	ND(0.5)
XYLENES, MIXTURE	N/A	N/A	ND(2.5)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
TOTAL CONCENTRATION OF VOCs			25	36	29.7	40.8	46
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	24	ND(10)	ND(10)	ND(20)	ND(20)
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	ND(10)	ND(10)	ND(10)	ND(20)	ND(20)
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	ND(10)	ND(10)	ND(10)	ND(20)	ND(20)
TOTAL CONCENTRATION OF VPH			24	ND	ND	ND	ND

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-301(MW) HA-301(MW) 12/29/00 12/29/00 ug/L	HA-301(MW) HA-301(MW) 05/07/02 05/07/02 ug/L	HA-301(MW) HA-301(MW) 03/12/03 03/12/03 ug/L	HA-301(MW) HA-301(MW) 11/03/03 11/03/03 ug/L	HA-301(MW) HA-3001(MW) DUP 11/03/03 11/03/03 ug/L
EPH							
2-METHYLNAPHTHALENE	10,000.	3,000.	ND(2.5)	ND(2.5)	ND(2.5)	ND(0.2)	ND(0.2)
ACENAPHTHENE	N/A	5,000	ND(5)	ND(5)	ND(5)	ND(0.2)	ND(0.2)
BENZO(A)ANTHRACENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(0.2)	ND(0.2)
BENZO(A)PYRENE	N/A	3,000	ND(5)	ND(5)	ND(5)	ND(0.1)	ND(0.1)
BENZO(B)FLUORANTHENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(0.2)	ND(0.2)
BENZO(K)FLUORANTHENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(0.2)	ND(0.2)
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(0.2)	ND(0.2)
FLUORANTHENE	N/A	200.	ND(5)	ND(5)	ND(5)	ND(0.2)	ND(0.2)
FLUORENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(0.2)	ND(0.2)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000.	ND(100)	ND(80)	ND(80)	ND(50)	ND(50)
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	ND(250)	ND(250)	ND(250)	ND(50)	ND(50)
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000	20,000.	ND(250)	ND(250)	ND(250)	ND(50)	ND(50)
NAPHTHALENE	6,000.	6,000.	ND(5)	ND(5)	ND(5)	ND(0.2)	ND(0.2)
PHENANTHRENE	N/A	50.	ND(5)	ND(5)	ND(5)	ND(0.2)	ND(0.2)
PYRENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(0.2)	ND(0.2)
TOTAL CONCENTRATION OF EPH			ND	ND	ND	ND	ND
TPH							
OIL AND GREASE	1,000	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400.	--	--	--	--	--
CADMIUM	N/A	10.	--	--	--	--	--
CHROMIUM	N/A	2,000.	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30	**8**	--	--	--	--
MERCURY	N/A	1.	--	--	--	--	--
NICKEL	N/A	80	--	--	--	--	--
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--
ZINC	N/A	900.	--	--	--	--	--
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-302(MW) HA-302(MW) 12/29/00 12/29/00 ug/L	HA-302(MW) HA-302(MW) 05/07/02 05/07/02 ug/L	HA-302(MW) HA-302(MW) 03/11/03 03/11/03 ug/L	HA-302(MW) HA-308(MW) DUP 03/11/03 03/11/03 ug/L	HA-302(MW) HA-302(MW) 11/03/03 11/03/03 ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(25)	ND(2.5)	ND(0.25)	ND(2.5)	ND(0.25)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(25)	ND(2.5)	ND(0.25)	ND(2.5)	ND(0.25)
1,1,2,2-TETRACHLOROETHANE	20.	20,000.	ND(25)	ND(2.5)	ND(0.25)	ND(2.5)	ND(0.25)
1,1,2-TRICHLOROETHANE	20,000.	50,000.	ND(25)	ND(0.25)	ND(0.25)	ND(2.5)	ND(0.375)
1,1-DICHLOROETHANE	9,000.	50,000.	ND(25)	ND(2.5)	ND(0.25)	ND(2.5)	ND(0.375)
1,1-DICHLOROETHYLENE	1.	50,000.	ND(25)	ND(2.5)	ND(0.25)	ND(2.5)	ND(0.25)
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(25)	ND(0.25)	ND(0.25)	ND(2.5)	ND(1.25)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	67	15	9	8	ND(1.25)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000.	ND(25)	ND(2.5)	ND(0.25)	ND(2.5)	ND(1.25)
1,2-DICHLOROETHANE	20.	50,000.	ND(25)	ND(2.5)	ND(0.25)	ND(2.5)	ND(0.25)
1,2-DICHLOROPROPANE	9.	30,000.	ND(25)	ND(2.5)	ND(0.25)	ND(2.5)	ND(0.9)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(25)	8	5	ND(2.5)	ND(1.25)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(25)	9	10	11	4.3
ACETONE	50,000.	50,000.	ND(250)	ND(100)	ND(10)	ND(100)	ND(2.5)
BENZENE	2,000.	7,000.	ND(25)	9	12	10	7.7
BROMODICHLOROMETHANE	N/A	50,000.	ND(25)	ND(0.25)	ND(0.25)	ND(2.5)	ND(0.25)
BROMOMETHANE	2.	50,000.	ND(50)	ND(2.5)	ND(0.25)	ND(2.5)	ND(0.5)
CARBON TETRACHLORIDE	20.	50,000.	ND(25)	ND(2.5)	ND(0.25)	ND(2.5)	ND(0.25)
CHLOROETHANE	N/A	N/A	ND(50)	ND(2.5)	ND(0.25)	ND(2.5)	ND(0.5)
CHLOROFORM	400.	10,000.	ND(25)	ND(2.5)	ND(0.25)	ND(2.5)	ND(0.375)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	ND(25)	ND(2.5)	0.5	ND(2.5)	ND(0.25)
ETHYLBENZENE	30,000.	4,000.	ND(25)	8	9	7	3.4
HEXACHLORO-1,3-BUTADIENE	1.	90.	ND(25)	ND(2.5)	ND(0.25)	ND(2.5)	ND(0.5)
ISOPROPYLBENZENE	N/A	N/A	ND(25)	8	9	9	5.7
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	ND(25)	ND(2.5)	ND(0.25)	ND(2.5)	ND(0.5)
METHYLENE CHLORIDE	50,000.	50,000	ND(250)	ND(12.5)	ND(1.25)	ND(12.5)	ND(2.5)
NAPHTHALENE	6,000.	6,000.	ND(25)	ND(2.5)	ND(0.25)	ND(2.5)	2.6
N-BUTYLBENZENE	N/A	N/A	ND(25)	ND(2.5)	3	ND(2.5)	3
N-PROPYLBENZENE	N/A	N/A	ND(25)	8	9	8	5.6
SEC-BUTYLBENZENE	N/A	N/A	ND(25)	5	7	7	4.4
TERT-BUTYLBENZENE	N/A	N/A	ND(25)	ND(2.5)	2	ND(2.5)	ND(1.25)
TETRACHLOROETHYLENE	3,000.	5,000.	ND(25)	ND(2.5)	ND(0.25)	ND(2.5)	ND(0.25)
TETRAHYDROFURAN	N/A	N/A	ND(250)	ND(25)	ND(2.5)	ND(25)	ND(5)
TOLUENE	6,000	50,000.	ND(25)	ND(2.5)	3	ND(2.5)	1.6
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(25)	ND(2.5)	ND(0.25)	ND(2.5)	ND(0.375)
TRICHLOROETHYLENE	300.	20,000.	ND(25)	ND(2.5)	ND(0.25)	ND(2.5)	0.64
VINYL CHLORIDE	2.	40,000.	ND(50)	ND(2.5)	ND(0.25)	ND(2.5)	ND(0.5)
XYLENES, MIXTURE	N/A	N/A	ND(25)	ND(2.5)	ND(0.25)	8	5.2
TOTAL CONCENTRATION OF VOCs			67	70	78.5	68	44.14
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000	5700	3400	3600	4200	2730
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	480	400	290	400	150
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	1100	340	420	620	ND(50)
TOTAL CONCENTRATION OF VPH			7280	4140	4310	5220	5793

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-302(MW) HA-302(MW) 12/29/00 12/29/00 ug/L	HA-302(MW) HA-302(MW) 05/07/02 05/07/02 ug/L	HA-302(MW) HA-302(MW) 03/11/03 03/11/03 ug/L	HA-302(MW) HA-308(MW) DUP 03/11/03 03/11/03 ug/L	HA-302(MW) HA-302(MW) 11/03/03 11/03/03 ug/L
EPH							
2-METHYLNAPHTHALENE	10,000.	3,000.	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(0.2)
ACENAPHTHENE	N/A	5,000.	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.2)
BENZO(A)ANTHRACENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.2)
BENZO(A)PYRENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.1)
BENZO(B)FLUORANTHENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.2)
BENZO(K)FLUORANTHENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.2)
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.2)
FLUORANTHENE	N/A	200.	ND(5)	ND(5)	ND(5)	ND(5)	**0.532**
FLUORENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.2)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000.	**740**	**510**	**480**	**620**	ND(50)
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	**610**	**560**	ND(250)	**700**	ND(50)
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000.	**2900**	**1300**	**1900**	**2300**	**147**
NAPHTHALENE	6,000.	6,000.	ND(5)	ND(5)	ND(5)	ND(5)	**0.454**
PHENANTHRENE	N/A	50.	ND(5)	ND(5)	ND(5)	ND(5)	**0.943**
PYRENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.2)
TOTAL CONCENTRATION OF EPH			**4250**	**2370**	**2380**	**3620**	**148.929**
TPH							
OIL AND GREASE	1,000.	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400.	--	--	--	--	--
CADMIUM	N/A	10.	--	--	--	--	--
CHROMIUM	N/A	2,000.	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	7	--	--	--	--
MERCURY	N/A	1.	--	--	--	--	--
NICKEL	N/A	80.	--	--	--	--	--
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--
ZINC	N/A	900.	--	--	--	--	--
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-303(MW) HA-303(MW) 12/29/00 12/29/00 ug/L	HA-303(MW) HA-303(MW) DUP 12/29/00 12/29/00 ug/L	HA-303(MW) HA-303(MW) 05/07/02 05/07/02 ug/L	HA-303(MW) HA-303(MW) 03/11/03 03/11/03 ug/L	HA-303(MW) HA-303(MW) 11/04/03 11/04/03 ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6	50,000	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(0.25)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(0.25)
1,1,2,2-TETRACHLOROETHANE	20.	20,000	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(0.25)
1,1,2-TRICHLOROETHANE	20,000	50,000.	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(0.375)
1,1-DICHLOROETHANE	9,000.	50,000.	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(0.375)
1,1-DICHLOROETHYLENE	1	50,000.	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(0.25)
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(1.25)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(1.25)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000.	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(1.25)
1,2-DICHLOROETHANE	20.	50,000	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(0.25)
1,2-DICHLOROPROPANE	9.	30,000	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(0.9)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(1.25)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(50)	ND(50)	3	3	1.3
ACETONE	50,000.	50,000	ND(500)	ND(500)	ND(20)	ND(10)	ND(2.5)
BENZENE	2,000.	7,000.	ND(50)	ND(50)	3	5	7.1
BROMODICHLOROMETHANE	N/A	50,000.	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(0.25)
BROMOMETHANE	2	50,000.	ND(50)	ND(100)	ND(0.5)	ND(0.25)	ND(0.5)
CARBON TETRACHLORIDE	20	50,000.	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(0.25)
CHLOROETHANE	N/A	N/A	ND(100)	ND(100)	ND(0.5)	ND(0.25)	ND(0.5)
CHLOROFORM	400.	10,000.	ND(50)	ND(50)	2	ND(0.25)	ND(0.375)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	ND(50)	ND(50)	6	2	ND(0.25)
ETHYLBENZENE	30,000.	4,000.	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(0.25)
HEXACHLORO-1,3-BUTADIENE	1.	90.	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(0.5)
ISOPROPYLBENZENE	N/A	N/A	ND(50)	ND(50)	2	2	2
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(0.5)
METHYLENE CHLORIDE	50,000.	50,000.	ND(500)	ND(500)	ND(2.5)	ND(1.25)	ND(2.5)
NAPHTHALENE	6,000.	6,000	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(1.25)
N-BUTYLBENZENE	N/A	N/A	ND(50)	ND(50)	ND(0.5)	ND(0.25)	1.5
N-PROPYLBENZENE	N/A	N/A	ND(50)	ND(50)	1	2	1.4
SEC-BUTYLBENZENE	N/A	N/A	ND(50)	ND(50)	2	3	2.1
TERT-BUTYLBENZENE	N/A	N/A	ND(50)	ND(50)	ND(0.5)	0.7	ND(1.25)
TETRACHLOROETHYLENE	3,000	5,000.	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(0.25)
TETRAHYDROFURAN	N/A	N/A	ND(500)	ND(500)	ND(0.5)	ND(2.5)	ND(5)
TOLUENE	6,000.	50,000.	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(0.375)
TRANS-1,2-DICHLOROETHYLENE	20,000	50,000.	ND(50)	ND(50)	ND(0.5)	ND(0.25)	ND(0.375)
TRICHLOROETHYLENE	300	20,000.	ND(50)	ND(50)	2	3	ND(0.25)
VINYL CHLORIDE	2.	40,000.	ND(100)	ND(100)	1	0.7	ND(0.5)
XYLENES, MIXTURE	N/A	N/A	ND(50)	ND(50)	ND(0.5)	ND(0.25)	1.1
TOTAL CONCENTRATION OF VOCs			ND	ND	22	21.4	16.5
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000	4100	5500	1900	4100	1640
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000	270	320	410	1000	135
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	680	820	370	1600	414
TOTAL CONCENTRATION OF VPH			5050	6640	2680	6700	4388

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-303(MW) HA-303(MW) 12/29/00 12/29/00 ug/L	HA-303(MW) HA-303(MW) DUP 12/29/00 12/29/00 ug/L	HA-303(MW) HA-303(MW) 05/07/02 05/07/02 ug/L	HA-303(MW) HA-303(MW) 03/11/03 03/11/03 ug/L	HA-303(MW) HA-303(MW) 11/04/03 11/04/03 ug/L
EPH							
2-METHYLNAPHTHALENE	10,000.	3,000	**11**	**6**	**6**	ND(2.5)	ND(0.2)
ACENAPHTHENE	N/A	5,000	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.2)
BENZO(A)ANTHRACENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.2)
BENZO(A)PYRENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.1)
BENZO(B)FLUORANTHENE	N/A	3,000	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.2)
BENZO(K)FLUORANTHENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.2)
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.2)
FLUORANTHENE	N/A	200.	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.2)
FLUORENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.2)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000.	**1600**	**1200**	**1000**	**640**	ND(50)
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	**1900**	**1100**	**1200**	**800**	ND(50)
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000	20,000.	**12000**	**5400**	**4300**	**3800**	**152**
NAPHTHALENE	6,000	6,000.	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.2)
PHENANTHRENE	N/A	50.	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.2)
PYRENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(5)	ND(0.2)
TOTAL CONCENTRATION OF EPH			**15511**	**7706**	**6506**	**5240**	**152**
TPH							
OIL AND GREASE	1,000.	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400.	--	--	--	--	--
CADMIUM	N/A	10.	--	--	--	--	--
CHROMIUM	N/A	2,000.	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	ND(2.5)	ND(2.5)	--	--	--
MERCURY	N/A	1.	--	--	--	--	--
NICKEL	N/A	80.	--	--	--	--	--
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--
ZINC	N/A	900.	--	--	--	--	--
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one or more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	HA-402(MW)	HA-402(MW)	HA-402(MW)	HA-403(MW)	HA-403(MW)
SAMPLE DESIGNATION	Standard	Standard	HA-402(MW) 05/07/02	HA-402(MW) 03/11/03	HA-402(MW) 11/04/03	HA-403(MW) 05/07/02	HA-603(MW) DUP 05/07/02
SAMPLING DATE	GW-2	GW-3	05/07/02	03/11/03	11/04/03	05/07/02	05/07/02
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)
1,1,2,2-TETRACHLOROETHANE	20	20,000.	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)
1,1,2-TRICHLOROETHANE	20,000.	50,000.	ND(2.5)	ND(2.5)	ND(0.375)	ND(0.5)	ND(0.25)
1,1-DICHLOROETHANE	9,000.	50,000.	ND(2.5)	ND(2.5)	ND(0.375)	ND(0.5)	ND(0.25)
1,1-DICHLOROETHYLENE	1.	50,000.	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(2.5)	ND(2.5)	ND(1.25)	ND(0.5)	ND(0.25)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(2.5)	ND(2.5)	ND(1.25)	ND(0.5)	ND(0.25)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000	ND(2.5)	ND(2.5)	ND(1.25)	ND(0.5)	ND(0.25)
1,2-DICHLOROETHANE	20.	50,000	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)
1,2-DICHLOROPROPANE	9	30,000.	ND(2.5)	ND(2.5)	ND(0.9)	ND(0.5)	ND(0.25)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(2.5)	ND(2.5)	ND(1.25)	ND(0.5)	ND(0.25)
4-ISOPROPYLTOLUENE	N/A	N/A	6	6	0.61	4	3
ACETONE	50,000.	50,000.	ND(100)	ND(100)	ND(2.5)	ND(20)	ND(10)
BENZENE	2,000.	7,000.	5	5	9.2	2	2
BROMODICHLOROMETHANE	N/A	50 000	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)
BROMOMETHANE	2.	50,000.	ND(2.5)	ND(2.5)	ND(0.5)	ND(0.5)	ND(0.25)
CARBON TETRACHLORIDE	20.	50,000.	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)
CHLOROETHANE	N/A	N/A	ND(2.5)	ND(2.5)	ND(0.5)	ND(0.5)	ND(0.25)
CHLOROFORM	400	10,000.	ND(2.5)	ND(2.5)	ND(0.375)	ND(0.5)	ND(0.25)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	7	ND(2.5)	ND(0.25)	4	3
ETHYLBENZENE	30,000.	4,000.	9	ND(2.5)	0.66	ND(0.5)	ND(0.25)
HEXACHLORO-1,3-BUTADIENE	1.	90.	ND(2.5)	ND(2.5)	ND(0.5)	ND(0.5)	ND(0.25)
ISOPROPYLBENZENE	N/A	N/A	6	6	3.6	2	2
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	ND(2.5)	ND(2.5)	ND(0.5)	ND(0.5)	ND(0.25)
METHYLENE CHLORIDE	50,000.	50,000.	ND(12.5)	ND(12.5)	ND(2.5)	ND(2.5)	ND(1.25)
NAPHTHALENE	6,000.	6,000.	ND(2.5)	ND(2.5)	ND(1.25)	ND(0.5)	ND(0.25)
N-BUTYLBENZENE	N/A	N/A	ND(2.5)	ND(2.5)	1.7	2	2
N-PROPYLBENZENE	N/A	N/A	6	6	3.3	2	2
SEC-BUTYLBENZENE	N/A	N/A	ND(2.5)	6	2.6	3	3
TERT-BUTYLBENZENE	N/A	N/A	ND(2.5)	ND(2.5)	ND(1.25)	ND(0.5)	0.7
TETRACHLOROETHYLENE	3,000.	5,000.	ND(2.5)	ND(2.5)	ND(0.25)	ND(0.5)	ND(0.25)
TETRAHYDROFURAN	N/A	N/A	ND(25)	ND(25)	ND(5)	ND(5)	ND(2.5)
TOLUENE	6,000.	50,000.	ND(2.5)	ND(2.5)	0.95	ND(0.5)	0.8
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(2.5)	ND(2.5)	ND(0.375)	ND(0.5)	ND(0.25)
TRICHLOROETHYLENE	300.	20,000.	ND(2.5)	ND(2.5)	ND(0.25)	2	2
VINYL CHLORIDE	2.	40,000.	ND(2.5)	ND(2.5)	ND(0.5)	1	1
XYLENES, MIXTURE	N/A	N/A	ND(2.5)	ND(2.5)	2	ND(0.5)	ND(0.25)
TOTAL CONCENTRATION OF VOCs			39	29	24.62	22	21.5
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	14000	4300	1840	12000	1500
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	6500	940	141	5600	200
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	7500	1500	468	7900	340
TOTAL CONCENTRATION OF VPH			28000	6740	4908	25500	2040

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-402(MW) HA-402(MW) 05/07/02 05/07/02 ug/L	HA-402(MW) HA-402(MW) 03/11/03 03/11/03 ug/L	HA-402(MW) HA-402(MW) 11/04/03 11/04/03 ug/L	HA-403(MW) HA-403(MW) 05/07/02 05/07/02 ug/L	HA-403(MW) HA-603(MW) DUP 05/07/02 05/07/02 ug/L
EPH							
2-METHYLNAPHTHALENE	10,000.	3,000.	**14**	ND(2.5)	ND(0.2)	**5**	ND(2.5)
ACENAPHTHENE	N/A	5,000.	ND(5)	ND(5)	ND(0.2)	ND(5)	ND(5)
BENZO(A)ANTHRACENE	N/A	3,000.	ND(5)	ND(5)	ND(0.2)	ND(5)	ND(5)
BENZO(A)PYRENE	N/A	3,000	ND(5)	ND(5)	ND(0.1)	ND(5)	ND(5)
BENZO(B)FLUORANTHENE	N/A	3,000	ND(5)	ND(5)	ND(0.2)	ND(5)	ND(5)
BENZO(K)FLUORANTHENE	N/A	3,000.	ND(5)	ND(5)	ND(0.2)	ND(5)	ND(5)
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	ND(5)	ND(5)	ND(0.2)	ND(5)	ND(5)
FLUORANTHENE	N/A	200.	**11**	ND(5)	ND(0.2)	ND(5)	ND(5)
FLUORENE	N/A	3,000.	ND(5)	ND(5)	ND(0.2)	ND(5)	ND(5)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000	**2300**	**680**	ND(50)	**1300**	**640**
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000	**2500**	**990**	ND(50)	**1900**	**860**
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000	**8600**	**3000**	ND(50)	**4200**	**840**
NAPHTHALENE	6,000.	6,000	ND(5)	ND(5)	ND(0.2)	ND(5)	ND(5)
PHENANTHRENE	N/A	50.	ND(5)	ND(5)	ND(0.2)	ND(5)	ND(5)
PYRENE	N/A	3,000.	ND(5)	ND(5)	ND(0.2)	ND(5)	ND(5)
TOTAL CONCENTRATION OF EPH			**13425**	**4670**	ND	**7405**	**2340**
TPH							
OIL AND GREASE	1,000.	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400	--	--	--	--	--
CADMIUM	N/A	10.	--	--	--	--	--
CHROMIUM	N/A	2,000	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	--	--	--	--	--
MERCURY	N/A	1.	--	--	--	--	--
NICKEL	N/A	80.	--	--	--	--	--
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--
ZINC	N/A	900	--	--	--	--	--
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-403(MW) HA-403(MW) 03/11/03 03/11/03 ug/L	HA-403(MW) HA-403(MW) 11/04/03 11/04/03 ug/L	HA-501(MW) HA-501(MW) 05/06/02 05/06/02 ug/L	HA-501(MW) HA-501(MW) 01/14/03 01/14/03 ug/L	HA-501(MW) HA-501(MW) 10/31/03 10/31/03 ug/L
EPH							
2-METHYLNAPHTHALENE	10,000.	3,000.	ND(2.5)	ND(0.2)	ND(2.5)	--	ND(0.2)
ACENAPHTHENE	N/A	5,000.	ND(5)	ND(0.2)	ND(5)	--	ND(0.2)
BENZO(A)ANTHRACENE	N/A	3,000.	ND(5)	ND(0.2)	ND(5)	--	ND(0.2)
BENZO(A)PYRENE	N/A	3,000.	ND(5)	ND(0.1)	ND(5)	--	ND(0.1)
BENZO(B)FLUORANTHENE	N/A	3,000.	ND(5)	ND(0.2)	ND(5)	--	ND(0.2)
BENZO(K)FLUORANTHENE	N/A	3,000	ND(5)	ND(0.2)	ND(5)	--	ND(0.2)
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000	ND(5)	ND(0.2)	ND(5)	--	ND(0.2)
FLUORANTHENE	N/A	200.	ND(5)	ND(0.2)	ND(5)	--	ND(0.2)
FLUORENE	N/A	3,000	ND(5)	ND(0.2)	ND(5)	--	ND(0.2)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000	**420**	ND(50)	ND(80)	ND(80)	ND(50)
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	**700**	ND(50)	ND(250)	ND(250)	ND(50)
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000	20,000.	**880**	**132**	ND(250)	ND(250)	ND(50)
NAPHTHALENE	6,000.	6,000	ND(5)	ND(0.2)	ND(5)	--	ND(0.2)
PHENANTHRENE	N/A	50.	ND(5)	ND(0.2)	ND(5)	--	ND(0.2)
PYRENE	N/A	3,000.	ND(5)	ND(0.2)	ND(5)	--	ND(0.2)
TOTAL CONCENTRATION OF EPH			**2000**	**132**	ND	ND	ND
TPH							
OIL AND GREASE	1,000.	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400.	--	--	--	--	--
CADMIUM	N/A	10.	--	--	--	--	--
CHROMIUM	N/A	2,000	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	--	--	--	--	--
MERCURY	N/A	1.	--	--	--	--	--
NICKEL	N/A	80.	--	--	--	--	--
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--
ZINC	N/A	900.	--	--	--	--	--
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-502(MW) HA-502(MW) 05/06/02 05/06/02 ug/L	HA-502(MW) HA-602(MW) DUP 05/06/02 05/06/02 ug/L	HA-502(MW) HA-502(MW) 01/14/03 01/14/03 ug/L	HA-502(MW) HA-502(MW) 10/31/03 10/31/03 ug/L	HA-502(MW) HA-502(MW) 06/30/04 06/30/04 ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.25)	ND(0.25)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(1.25)	ND(1.25)	ND(0.5)	**0.67**	ND(0.25)
1,1,2,2-TETRACHLOROETHANE	20.	20,000.	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.25)	ND(0.25)
1,1,2-TRICHLOROETHANE	20,000.	50,000.	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.375)	ND(0.375)
1,1-DICHLOROETHANE	9,000.	50,000.	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.375)	ND(0.375)
1,1-DICHLOROETHYLENE	1.	50,000	ND(1.25)	ND(1.25)	ND(0.5)	**0.57**	ND(0.25)
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(1.25)	ND(1.25)	ND(0.5)	ND(1.25)	ND(1.25)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.5)	ND(1.25)	ND(1.25)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000.	ND(1.25)	ND(1.25)	ND(0.5)	ND(1.25)	ND(1)
1,2-DICHLOROETHANE	20.	50,000	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.25)	ND(0.25)
1,2-DICHLOROPROPANE	9	30,000.	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.9)	ND(0.9)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.5)	ND(1.25)	ND(1.25)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.25)	ND(0.25)
ACETONE	50,000.	50,000.	ND(50)	ND(50)	ND(20)	ND(2.5)	ND(2.5)
BENZENE	2,000.	7,000.	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.25)	ND(0.25)
BROMODICHLOROMETHANE	N/A	50,000.	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.25)	ND(0.25)
BROMOMETHANE	2.	50,000.	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.5)	ND(0.5)
CARBON TETRACHLORIDE	20.	50,000.	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.25)	ND(0.25)
CHLOROETHANE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.5)	ND(0.5)
CHLOROFORM	400.	10,000.	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.375)	ND(0.375)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	**65**	**61**	**47**	**45**	**24**
ETHYLBENZENE	30,000.	4,000.	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.25)	ND(0.25)
HEXACHLORO-1,3-BUTADIENE	1	90.	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.5)	ND(0.5)
ISOPROPYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.25)	ND(0.25)
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.5)	ND(0.5)
METHYLENE CHLORIDE	50,000.	50,000	ND(6.5)	ND(6.5)	ND(2.5)	ND(2.5)	ND(2.5)
NAPHTHALENE	6,000.	6,000.	ND(1.25)	ND(1.25)	ND(0.5)	ND(1.25)	ND(1.25)
N-BUTYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.25)	ND(0.25)
N-PROPYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.25)	ND(0.25)
SEC-BUTYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.25)	ND(0.25)
TERT-BUTYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.5)	ND(1.25)	ND(1.25)
TETRACHLOROETHYLENE	3,000.	5,000.	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.25)	ND(0.25)
TETRAHYDROFURAN	N/A	N/A	ND(12.5)	ND(12.5)	ND(5)	ND(5)	ND(5)
TOLUENE	6,000.	50,000.	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.375)	ND(0.375)
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.375)	ND(0.375)
TRICHLOROETHYLENE	300.	20,000.	**170**	**140**	**28**	**30**	**26**
VINYL CHLORIDE	2.	40,000.	**3**	**3**	**2**	**3**	ND(0.5)
XYLENES, MIXTURE	N/A	N/A	ND(1.25)	ND(1.25)	ND(0.5)	ND(0.25)	ND(0.25)
TOTAL CONCENTRATION OF VOCs			238	204	77	79.24	50
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	**56**	**53**	**25**	ND(20)	ND(25)
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	ND(10)	ND(10)	ND(10)	ND(20)	ND(25)
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	ND(10)	ND(10)	ND(10)	ND(20)	ND(25)
TOTAL CONCENTRATION OF VPH			56	53	25	ND	ND

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	HA-502(MW)	HA-502(MW)	HA-502(MW)	HA-502(MW)	HA-502(MW)
SAMPLE DESIGNATION	Standard	Standard	HA-502(MW) 05/06/02	HA-602(MW) DUP 05/06/02	HA-502(MW) 01/14/03	HA-502(MW) 10/31/03	HA-502(MW) 06/30/04
SAMPLING DATE	GW-2	GW-3	05/06/02	05/06/02	01/14/03	10/31/03	06/30/04
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EPH							
2-METHYLNAPHTHALENE	10,000.	3,000.	ND(2.5)	ND(2.5)	--	ND(0.2)	ND(0.2)
ACENAPHTHENE	N/A	5,000.	ND(5)	ND(5)	--	ND(0.2)	ND(0.2)
BENZO(A)ANTHRACENE	N/A	3,000.	ND(5)	ND(5)	--	ND(0.2)	ND(0.2)
BENZO(A)PYRENE	N/A	3,000	ND(5)	ND(5)	--	ND(0.1)	ND(0.1)
BENZO(B)FLUORANTHENE	N/A	3,000	ND(5)	ND(5)	--	ND(0.2)	ND(0.2)
BENZO(K)FLUORANTHENE	N/A	3,000	ND(5)	ND(5)	--	ND(0.2)	ND(0.2)
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	ND(5)	ND(5)	--	ND(0.2)	ND(0.2)
FLUORANTHENE	N/A	200.	ND(5)	ND(5)	--	ND(0.2)	**0.547**
FLUORENE	N/A	3,000.	ND(5)	ND(5)	--	ND(0.2)	ND(0.2)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000	30,000.	ND(80)	ND(80)	ND(80)	ND(50)	**215**
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000	ND(250)	ND(250)	ND(250)	ND(50)	**324**
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000	ND(250)	ND(250)	ND(250)	ND(50)	ND(50)
NAPHTHALENE	6,000	6,000.	ND(5)	ND(5)	--	ND(0.2)	ND(0.2)
PHENANTHRENE	N/A	50.	ND(5)	ND(5)	--	ND(0.2)	ND(0.2)
PYRENE	N/A	3,000.	ND(5)	ND(5)	--	ND(0.2)	**0.434**
TOTAL CONCENTRATION OF EPH			ND	ND	ND	ND	**755.981**
TPH							
OIL AND GREASE	1,000	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400.	--	--	--	--	--
CADMIUM	N/A	10.	--	--	--	--	--
CHROMIUM	N/A	2,000.	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	--	--	--	--	--
MERCURY	N/A	1.	--	--	--	--	--
NICKEL	N/A	80.	--	--	--	--	--
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--
ZINC	N/A	900	--	--	--	--	--
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-503(MW) HA-503(MW) 05/06/02 05/06/02 ug/L	HA-503(MW) HA-503(MW) 01/14/03 01/14/03 ug/L	HA-503(MW) HB-5503(MW) DUP 01/14/03 01/14/03 ug/L	HA-503(MW) HA-503(MW) 11/03/03 11/03/03 ug/L	HA-503(MW) HA-503(MW) 06/30/04 06/30/04 ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(125)	ND(125)	ND(125)	ND(25)	ND(250)
1,1,1-TRICHLOROETHANE	4,000.	50,000	ND(125)	ND(125)	ND(125)	ND(25)	ND(250)
1,1,2,2-TETRACHLOROETHANE	20.	20,000	ND(125)	ND(125)	ND(125)	ND(25)	ND(250)
1,1,2-TRICHLOROETHANE	20,000.	50,000.	ND(125)	ND(125)	ND(125)	ND(37.5)	ND(375)
1,1-DICHLOROETHANE	9,000	50,000.	**540**	**550**	**550**	**540**	ND(375)
1,1-DICHLOROETHYLENE	1.	50,000.	ND(125)	ND(125)	ND(125)	ND(25)	ND(250)
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(125)	ND(125)	ND(125)	ND(125)	ND(1250)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(125)	ND(125)	ND(125)	ND(125)	ND(1250)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3	50,000.	ND(125)	ND(125)	ND(125)	ND(125)	ND(1000)
1,2-DICHLOROETHANE	20.	50,000.	ND(125)	ND(125)	ND(125)	ND(25)	ND(250)
1,2-DICHLOROPROPANE	9.	30,000.	ND(125)	ND(125)	ND(125)	ND(90)	ND(900)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(125)	ND(125)	ND(125)	ND(125)	ND(1250)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(125)	ND(125)	ND(125)	ND(25)	ND(250)
ACETONE	50,000.	50,000	ND(5000)	ND(5000)	ND(5000)	ND(250)	ND(2500)
BENZENE	2,000	7,000.	ND(125)	ND(125)	ND(125)	ND(25)	ND(250)
BROMODICHLOROMETHANE	N/A	50,000.	ND(125)	ND(125)	ND(125)	ND(25)	ND(250)
BROMOMETHANE	2.	50,000.	ND(125)	ND(125)	ND(125)	ND(50)	ND(500)
CARBON TETRACHLORIDE	20.	50,000.	ND(125)	ND(125)	ND(125)	ND(25)	ND(250)
CHLOROETHANE	N/A	N/A	ND(125)	ND(125)	--	**160**	ND(500)
CHLOROFORM	400.	10,000.	ND(125)	ND(125)	ND(125)	ND(37.5)	ND(375)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000	**11000**	**11000**	**12000**	**10000**	**12000**
ETHYLBENZENE	30,000.	4,000.	ND(125)	ND(125)	ND(125)	ND(25)	ND(250)
HEXACHLORO-1,3-BUTADIENE	1.	90.	ND(125)	ND(125)	ND(125)	ND(50)	ND(500)
ISOPROPYLBENZENE	N/A	N/A	ND(125)	ND(125)	ND(125)	ND(25)	ND(250)
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	ND(125)	ND(125)	ND(125)	ND(50)	ND(500)
METHYLENE CHLORIDE	50,000.	50,000.	ND(650)	ND(650)	ND(650)	ND(250)	ND(2500)
NAPHTHALENE	6,000.	6,000.	ND(125)	ND(125)	ND(125)	ND(125)	ND(1250)
N-BUTYLBENZENE	N/A	N/A	ND(125)	ND(125)	ND(125)	ND(25)	ND(250)
N-PROPYLBENZENE	N/A	N/A	ND(125)	ND(125)	ND(125)	ND(25)	ND(250)
SEC-BUTYLBENZENE	N/A	N/A	ND(125)	ND(125)	ND(125)	ND(25)	ND(250)
TERT-BUTYLBENZENE	N/A	N/A	ND(125)	ND(125)	ND(125)	ND(125)	ND(1250)
TETRACHLOROETHYLENE	3,000.	5,000.	ND(125)	ND(125)	ND(125)	ND(25)	ND(250)
TETRAHYDROFURAN	N/A	N/A	ND(1250)	ND(1250)	ND(1250)	ND(500)	ND(5000)
TOLUENE	6,000.	50,000.	ND(125)	ND(125)	ND(125)	ND(37.5)	ND(375)
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(125)	ND(125)	ND(125)	**82**	ND(375)
TRICHLOROETHYLENE	300.	20,000.	**3600**	**8900**	**18000**	**7200**	**51000**
VINYL CHLORIDE	2.	40,000.	**4100**	**4100**	**4200**	**4400**	**5000**
XYLENES, MIXTURE	N/A	N/A	ND(125)	ND(125)	ND(125)	ND(25)	ND(250)
TOTAL CONCENTRATION OF VOCs			19240	24550	34750	22382	68000
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	**6300**	**8000**	**16000**	**5600**	**18000**
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	**1300**	**1100**	**1300**	ND(400)	ND(1250)
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	**1200**	ND(250)	ND(500)	ND(400)	**2600**
TOTAL CONCENTRATION OF VPH			8800	9100	17300	11240	41200

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	HA-503(MW)	HA-503(MW)	HA-503(MW)	HA-503(MW)	HA-503(MW)
SAMPLE DESIGNATION	Standard	Standard	HA-503(MW) 05/06/02	HA-503(MW) 01/14/03	HB-5503(MW) DUP 01/14/03	HA-503(MW) 11/03/03	HA-503(MW) 06/30/04
SAMPLING DATE	GW-2	GW-3	05/06/02	01/14/03	01/14/03	11/03/03	06/30/04
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EPH							
2-METHYLNAPHTHALENE	10,000.	3,000.	**5**	ND(2.5)	ND(2.5)	**0.509**	**1.41**
ACENAPHTHENE	N/A	5,000.	ND(5)	ND(5)	ND(5)	ND(0.2)	**0.526**
BENZO(A)ANTHRACENE	N/A	3,000	ND(5)	ND(5)	ND(5)	ND(0.2)	**0.684**
BENZO(A)PYRENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(0.1)	**0.336**
BENZO(B)FLUORANTHENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(0.2)	**0.515**
BENZO(K)FLUORANTHENE	N/A	3,000	ND(5)	ND(5)	ND(5)	ND(0.2)	**0.496**
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000	ND(5)	ND(5)	ND(5)	ND(0.2)	**0.763**
FLUORANTHENE	N/A	200.	**18**	ND(5)	ND(5)	ND(0.2)	**1.52**
FLUORENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(0.2)	**0.681**
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000.	**6300**	**480**	**930**	**142**	**865**
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	**9300**	**850**	**1500**	**115**	**1210**
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000	20,000	**6700**	**550**	**990**	**109**	**1060**
NAPHTHALENE	6,000.	6,000.	ND(5)	ND(5)	ND(5)	**1.85**	**6.04**
PHENANTHRENE	N/A	50.	ND(5)	ND(5)	ND(5)	**1.3**	**2.05**
PYRENE	N/A	3,000.	ND(5)	ND(5)	ND(5)	ND(0.2)	**1.25**
TOTAL CONCENTRATION OF EPH			22323	1880	3420	515.659	4032.271
TPH							
OIL AND GREASE	1,000	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400.	--	--	--	--	--
CADMIUM	N/A	10.	--	--	--	--	--
CHROMIUM	N/A	2,000.	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	--	--	--	--	--
MERCURY	N/A	1.	--	--	--	--	--
NICKEL	N/A	80.	--	--	--	--	--
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--
ZINC	N/A	900.	--	--	--	--	--
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-503(MW) HA-5003(MW) DUP 06/30/04 06/30/04 ug/L	HA-504(MW) HA-504(MW) 05/06/02 05/06/02 ug/L	HA-504(MW) HA-504(MW) 01/14/03 01/14/03 ug/L	HA-504(MW) HA-504(MW) 06/30/04 06/30/04 ug/L	HA-602A(MW) HA-602A(MW) 04/15/03 04/15/03 ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(250)	ND(0.5)	ND(1.25)	ND(0.6)	ND(0.5)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(250)	ND(0.5)	ND(1.25)	ND(0.6)	ND(0.5)
1,1,2,2-TETRACHLOROETHANE	20.	20,000.	ND(250)	ND(0.5)	ND(1.25)	ND(0.6)	ND(0.5)
1,1,2-TRICHLOROETHANE	20,000.	50,000.	ND(375)	ND(0.5)	ND(1.25)	ND(0.95)	ND(0.5)
1,1-DICHLOROETHANE	9,000	50,000	ND(375)	4	6	5	4
1,1-DICHLOROETHYLENE	1.	50,000.	ND(250)	ND(0.5)	ND(1.25)	ND(0.6)	1
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(1250)	ND(0.5)	ND(1.25)	ND(3.1)	ND(0.5)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(1250)	ND(0.5)	ND(1.25)	ND(3.1)	ND(0.5)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000.	ND(1000)	ND(0.5)	ND(1.25)	ND(2.5)	ND(0.5)
1,2-DICHLOROETHANE	20.	50,000.	ND(250)	ND(0.5)	ND(1.25)	ND(0.6)	ND(0.5)
1,2-DICHLOROPROPANE	9.	30,000	ND(900)	ND(0.5)	ND(1.25)	ND(2.2)	ND(0.5)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(1250)	ND(0.5)	ND(1.25)	ND(3.1)	ND(0.5)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(250)	ND(0.5)	ND(1.25)	ND(0.8)	ND(0.5)
ACETONE	50,000.	50,000.	ND(2500)	ND(20)	ND(50)	ND(6)	ND(10)
BENZENE	2,000.	7,000	ND(250)	ND(0.5)	ND(1.25)	1.4	ND(0.5)
BROMODICHLOROMETHANE	N/A	50,000.	ND(250)	ND(0.5)	ND(1.25)	ND(0.6)	ND(0.5)
BROMOMETHANE	2.	50,000	ND(500)	ND(0.5)	ND(1.25)	ND(1.25)	ND(0.5)
CARBON TETRACHLORIDE	20	50,000	ND(250)	ND(0.5)	ND(1.25)	ND(0.6)	ND(0.5)
CHLOROETHANE	N/A	N/A	ND(500)	ND(0.5)	ND(1.25)	ND(1.25)	ND(0.5)
CHLOROFORM	400.	10,000.	ND(375)	ND(0.5)	ND(1.25)	ND(0.95)	ND(0.5)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	10000	31	100	83	43
ETHYLBENZENE	30,000	4,000.	ND(250)	ND(0.5)	ND(1.25)	ND(0.6)	ND(0.5)
HEXACHLORO-1,3-BUTADIENE	1.	90.	ND(500)	ND(0.5)	ND(1.25)	ND(1.25)	ND(0.5)
ISOPROPYLBENZENE	N/A	N/A	ND(250)	ND(0.5)	ND(1.25)	ND(0.6)	ND(0.5)
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	ND(500)	ND(0.5)	ND(1.25)	ND(1.25)	ND(0.5)
METHYLENE CHLORIDE	50,000.	50,000.	ND(2500)	ND(2.5)	ND(6.5)	ND(6)	ND(2.5)
NAPHTHALENE	6,000.	6,000.	ND(1250)	ND(0.5)	ND(1.25)	ND(3.1)	ND(0.5)
N-BUTYLBENZENE	N/A	N/A	ND(250)	ND(0.5)	ND(1.25)	ND(0.6)	ND(0.5)
N-PROPYLBENZENE	N/A	N/A	ND(250)	ND(0.5)	ND(1.25)	ND(0.6)	ND(0.5)
SEC-BUTYLBENZENE	N/A	N/A	ND(250)	ND(0.5)	ND(1.25)	ND(0.6)	ND(0.5)
TERT-BUTYLBENZENE	N/A	N/A	ND(1250)	ND(0.5)	ND(1.25)	ND(3.1)	ND(0.5)
TETRACHLOROETHYLENE	3,000.	5,000.	ND(250)	ND(0.5)	ND(1.25)	ND(0.6)	ND(0.5)
TETRAHYDROFURAN	N/A	N/A	ND(5000)	ND(5)	ND(12.5)	ND(12.5)	ND(5)
TOLUENE	6,000.	50,000.	ND(375)	ND(0.5)	ND(1.25)	ND(0.95)	ND(0.5)
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(375)	ND(0.5)	ND(1.25)	ND(0.95)	ND(0.5)
TRICHLOROETHYLENE	300.	20,000.	44000	24	12	5.8	46
VINYL CHLORIDE	2.	40,000.	3700	19	56	91	35
XYLENES, MIXTURE	N/A	N/A	ND(250)	ND(0.5)	ND(1.25)	ND(0.6)	ND(0.5)
TOTAL CONCENTRATION OF VOCs			57700	78	174	186.2	129
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	16800	86	48	67.5	190
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	ND(1250)	5200	47	ND(25)	52
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	2920	4600	24	274	40
TOTAL CONCENTRATION OF VPH			39440	9886	119	683	282

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	HA-503(MW)	HA-504(MW)	HA-504(MW)	HA-504(MW)	HA-602A(MW)
SAMPLE DESIGNATION	Standard	Standard	HA-5003(MW) DUP 06/30/04	HA-504(MW) 05/06/02	HA-504(MW) 01/14/03	HA-504(MW) 06/30/04	HA-602A(MW) 04/15/03
SAMPLING DATE	GW-2	GW-3	06/30/04	05/06/02	01/14/03	06/30/04	04/15/03
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EPH							
2-METHYLNAPHTHALENE	10,000.	3,000	**1.45**	ND(2.5)	--	ND(0.2)	ND(2.5)
ACENAPHTHENE	N/A	5,000.	**0.514**	ND(5)	--	ND(0.2)	ND(5)
BENZO(A)ANTHRACENE	N/A	3,000	**0.598**	ND(5)	--	ND(0.2)	ND(5)
BENZO(A)PYRENE	N/A	3,000.	**0.272**	ND(5)	--	ND(0.1)	ND(5)
BENZO(B)FLUORANTHENE	N/A	3,000.	**0.425**	ND(5)	--	ND(0.2)	ND(5)
BENZO(K)FLUORANTHENE	N/A	3,000.	**0.419**	ND(5)	--	ND(0.2)	ND(5)
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	**0.657**	ND(5)	--	ND(0.2)	ND(5)
FLUORANTHENE	N/A	200	**1.36**	ND(5)	--	**0.476**	ND(5)
FLUORENE	N/A	3,000.	**0.63**	ND(5)	--	**0.423**	ND(5)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000	**724**	**490**	ND(80)	ND(50)	**370**
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000	**1150**	ND(250)	ND(250)	ND(50)	**720**
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000	**872**	**4000**	ND(250)	**189**	**520**
NAPHTHALENE	6,000.	6,000.	**5.86**	ND(5)	--	ND(0.2)	ND(5)
PHENANTHRENE	N/A	50.	**1.92**	ND(5)	--	ND(0.2)	ND(5)
PYRENE	N/A	3,000.	**1.09**	ND(5)	ND(5)	ND(0.2)	ND(5)
TOTAL CONCENTRATION OF EPH			**3500.195**	**4490**	ND	**189.899**	**1610**
TPH							
OIL AND GREASE	1,000.	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400.	--	--	--	--	--
CADMIUM	N/A	10	--	--	--	--	--
CHROMIUM	N/A	2,000.	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	--	--	--	--	--
MERCURY	N/A	1.	--	--	--	--	--
NICKEL	N/A	80.	--	--	--	--	--
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--
ZINC	N/A	900.	--	--	--	--	--
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	HA-602A(MW)	HA-602A(MW)	HA-603A(MW)	HA-603A(MW)	HA-701(MW)
SAMPLE DESIGNATION	Standard	Standard	HA-602A(MW) 11/03/03	HA-602A(MW) 06/30/04	HA-603A(MW) 04/15/03	HA-603A(MW) 10/31/03	HA-701(MW) 10/31/03
SAMPLING DATE	GW-2	GW-3	11/03/03	06/30/04	04/15/03	10/31/03	10/31/03
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(0.5)	ND(2.5)	ND(0.5)	ND(0.25)	ND(0.5)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(0.5)	**16**	ND(0.5)	ND(0.25)	ND(0.5)
1,1,2,2-TETRACHLOROETHANE	20.	20,000	ND(0.5)	ND(2.5)	ND(0.5)	ND(0.25)	ND(0.5)
1,1,2-TRICHLOROETHANE	20,000.	50,000	ND(0.75)	ND(3.75)	ND(0.5)	ND(0.375)	ND(0.75)
1,1-DICHLOROETHANE	9,000.	50,000.	**29**	**80**	ND(0.5)	ND(0.375)	ND(0.75)
1,1-DICHLOROETHYLENE	1.	50,000.	**2.5**	**ND(2.5)**	ND(0.5)	ND(0.25)	ND(0.5)
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(2.5)	ND(12.5)	ND(0.5)	ND(1.25)	ND(2.5)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(2.5)	ND(12.5)	ND(0.5)	ND(1.25)	ND(2.5)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000.	ND(2.5)	**ND(10)**	ND(0.5)	ND(1.25)	ND(2.5)
1,2-DICHLOROETHANE	20.	50,000.	ND(0.5)	ND(2.5)	ND(0.5)	ND(0.25)	ND(0.5)
1,2-DICHLOROPROPANE	9.	30,000.	ND(1.75)	ND(9)	ND(0.5)	ND(0.9)	ND(1.75)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(2.5)	ND(12.5)	ND(0.5)	ND(1.25)	ND(2.5)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(0.5)	ND(2.5)	ND(0.5)	ND(0.25)	ND(0.5)
ACETONE	50,000	50,000.	ND(5)	ND(25)	ND(10)	ND(2.5)	ND(5)
BENZENE	2,000.	7,000.	**1.4**	ND(2.5)	ND(0.5)	ND(0.25)	ND(0.5)
BROMODICHLOROMETHANE	N/A	50,000.	ND(0.5)	ND(2.5)	ND(0.5)	ND(0.25)	ND(0.5)
BROMOMETHANE	2	50,000.	ND(1)	ND(5)	ND(0.5)	ND(0.5)	ND(1)
CARBON TETRACHLORIDE	20.	50,000.	ND(0.5)	ND(2.5)	ND(0.5)	ND(0.25)	ND(0.5)
CHLOROETHANE	N/A	N/A	ND(1)	ND(5)	ND(0.5)	ND(0.5)	ND(1)
CHLOROFORM	400.	10,000	ND(0.75)	ND(3.75)	ND(0.5)	ND(0.375)	ND(0.75)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000	**100**	**150**	**9**	**14**	**12**
ETHYLBENZENE	30,000.	4,000.	ND(0.5)	ND(2.5)	ND(0.5)	ND(0.25)	ND(0.5)
HEXACHLORO-1,3-BUTADIENE	1.	90.	ND(1)	**ND(5)**	ND(0.5)	ND(0.5)	ND(1)
ISOPROPYLBENZENE	N/A	N/A	ND(0.5)	ND(2.5)	ND(0.5)	ND(0.25)	ND(0.5)
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	ND(1)	ND(5)	ND(0.5)	ND(0.5)	ND(1)
METHYLENE CHLORIDE	50,000.	50,000.	ND(5)	ND(25)	ND(2.5)	ND(2.5)	ND(5)
NAPHTHALENE	6,000.	6,000.	ND(2.5)	ND(12.5)	ND(0.5)	ND(1.25)	ND(2.5)
N-BUTYLBENZENE	N/A	N/A	ND(0.5)	ND(2.5)	ND(0.5)	ND(0.25)	ND(0.5)
N-PROPYLBENZENE	N/A	N/A	ND(0.5)	ND(2.5)	ND(0.5)	ND(0.25)	ND(0.5)
SEC-BUTYLBENZENE	N/A	N/A	ND(0.5)	ND(2.5)	ND(0.5)	ND(0.25)	ND(0.5)
TERT-BUTYLBENZENE	N/A	N/A	ND(2.5)	ND(12.5)	ND(0.5)	ND(1.25)	ND(2.5)
TETRACHLOROETHYLENE	3,000.	5,000.	ND(0.5)	ND(2.5)	ND(0.5)	ND(0.25)	ND(0.5)
TETRAHYDROFURAN	N/A	N/A	ND(10)	ND(50)	ND(5)	ND(5)	ND(10)
TOLUENE	6,000.	50,000	ND(0.75)	ND(3.75)	ND(0.5)	ND(0.375)	ND(0.75)
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	**1.6**	ND(3.75)	ND(0.5)	ND(0.375)	ND(0.75)
TRICHLOROETHYLENE	300.	20,000.	**120**	**460**	**48**	**130**	**120**
VINYL CHLORIDE	2.	40,000.	**78**	**120**	ND(0.5)	ND(0.5)	ND(1)
XYLENES, MIXTURE	N/A	N/A	ND(0.5)	ND(2.5)	ND(0.5)	ND(0.25)	ND(0.5)
TOTAL CONCENTRATION OF VOCs			332.5	826	57	144	132
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	**170**	**352**	ND(10)	ND(20)	ND(20)
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	ND(20)	ND(25)	ND(10)	ND(20)	ND(20)
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	ND(20)	ND(25)	ND(10)	ND(20)	ND(20)
TOTAL CONCENTRATION OF VPH			340	704	ND	ND	ND

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-602A(MW) HA-602A(MW) 11/03/03 11/03/03 ug/L	HA-602A(MW) HA-602A(MW) 06/30/04 06/30/04 ug/L	HA-603A(MW) HA-603A(MW) 04/15/03 04/15/03 ug/L	HA-603A(MW) HA-603A(MW) 10/31/03 10/31/03 ug/L	HA-701(MW) HA-701(MW) 10/31/03 10/31/03 ug/L
EPH							
2-METHYLNAPHTHALENE	10,000.	3,000.	ND(0.2)	ND(0.2)	ND(2.5)	ND(0.2)	ND(0.2)
ACENAPHTHENE	N/A	5,000.	ND(0.2)	ND(0.2)	ND(5)	ND(0.2)	ND(0.2)
BENZO(A)ANTHRACENE	N/A	3,000.	ND(0.2)	ND(0.2)	ND(5)	ND(0.2)	ND(0.2)
BENZO(A)PYRENE	N/A	3,000	ND(0.1)	ND(0.1)	ND(5)	ND(0.2)	ND(0.1)
BENZO(B)FLUORANTHENE	N/A	3,000.	ND(0.2)	ND(0.2)	ND(5)	ND(0.2)	ND(0.2)
BENZO(K)FLUORANTHENE	N/A	3,000.	ND(0.2)	ND(0.2)	ND(5)	ND(0.2)	ND(0.2)
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000	ND(0.2)	ND(0.2)	ND(5)	ND(0.2)	ND(0.2)
FLUORANTHENE	N/A	200.	ND(0.2)	ND(0.2)	ND(5)	ND(0.2)	ND(0.2)
FLUORENE	N/A	3,000.	ND(0.2)	ND(0.2)	ND(5)	ND(0.2)	ND(0.2)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000	ND(50)	ND(50)	ND(80)	ND(50)	ND(50)
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000	ND(50)	ND(50)	ND(250)	ND(50)	ND(50)
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000	ND(50)	ND(50)	ND(250)	ND(50)	ND(50)
NAPHTHALENE	6,000.	6,000.	ND(0.2)	ND(0.2)	ND(5)	ND(0.2)	ND(0.2)
PHENANTHRENE	N/A	50	ND(0.2)	ND(0.2)	ND(5)	ND(0.2)	ND(0.2)
PYRENE	N/A	3,000.	ND(0.2)	ND(0.2)	ND(5)	ND(0.2)	ND(0.2)
TOTAL CONCENTRATION OF EPH			ND	ND	ND	ND	ND
TPH							
OIL AND GREASE	1,000.	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400.	--	--	--	--	--
CADMIUM	N/A	10.	--	--	--	--	--
CHROMIUM	N/A	2,000.	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	--	--	--	--	--
MERCURY	N/A	1.	--	--	--	--	--
NICKEL	N/A	80.	--	--	--	--	--
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--
ZINC	N/A	900.	--	--	--	--	--
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-701(MW) HA-7001(MW) DUP 10/31/03 10/31/03 ug/L	HA-701(MW) HA-701(MW) 06/30/04 06/30/04 ug/L	HA-702(MW) HA-702(MW) 11/03/03 11/03/03 ug/L	HA-702(MW) HA-702(MW) 06/30/04 06/30/04 ug/L	HA-703(MW) HA-703(MW) 11/05/03 11/05/03 ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(0.25)	ND(0.5)	ND(50)	ND(100)	--
1,1,1-TRICHLOROETHANE	4,000.	50,000.	0.89	ND(0.5)	ND(50)	ND(100)	--
1,1,2,2-TETRACHLOROETHANE	20.	20,000.	ND(0.25)	ND(0.5)	ND(50)	ND(100)	--
1,1,2-TRICHLOROETHANE	20,000	50,000.	ND(0.375)	ND(0.75)	ND(75)	ND(150)	--
1,1-DICHLOROETHANE	9,000.	50,000.	ND(0.375)	ND(0.75)	ND(75)	ND(150)	--
1,1-DICHLOROETHYLENE	1.	50,000.	ND(0.25)	ND(0.5)	ND(50)	ND(100)	--
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(1.25)	ND(2.5)	ND(250)	ND(500)	--
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	ND(2.5)	ND(250)	ND(500)	--
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000	ND(1.25)	ND(2)	ND(250)	ND(400)	--
1,2-DICHLOROETHANE	20.	50,000.	ND(0.25)	ND(0.5)	ND(50)	ND(100)	--
1,2-DICHLOROPROPANE	9.	30,000	ND(0.9)	ND(1.75)	ND(175)	ND(350)	--
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	ND(2.5)	ND(250)	ND(500)	--
4-ISOPROPYLTOLUENE	N/A	N/A	ND(0.25)	ND(0.5)	ND(50)	ND(100)	--
ACETONE	50,000.	50,000.	ND(2.5)	ND(5)	ND(500)	ND(1000)	--
BENZENE	2,000	7,000.	ND(0.25)	ND(0.5)	ND(50)	ND(100)	
BROMODICHLOROMETHANE	N/A	50,000	ND(0.25)	ND(0.5)	ND(50)	ND(100)	--
BROMOMETHANE	2.	50,000.	ND(0.5)	ND(1)	ND(100)	ND(200)	--
CARBON TETRACHLORIDE	20.	50,000.	ND(0.25)	ND(0.5)	ND(50)	ND(100)	--
CHLOROETHANE	N/A	N/A	ND(0.5)	ND(1)	ND(100)	ND(200)	--
CHLOROFORM	400.	10,000	ND(0.375)	ND(0.75)	ND(75)	ND(150)	--
CIS-1,2-DICHLOROETHYLENE	30,000	50,000.	14	10	ND(50)	230	--
ETHYLBENZENE	30,000	4,000.	ND(0.25)	ND(0.5)	ND(50)	ND(100)	--
HEXACHLORO-1,3-BUTADIENE	1.	90	ND(0.5)	ND(1)	ND(100)	ND(200)	--
ISOPROPYLBENZENE	N/A	N/A	ND(0.25)	ND(0.5)	ND(50)	ND(100)	--
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	ND(0.5)	ND(1)	ND(100)	ND(200)	--
METHYLENE CHLORIDE	50,000.	50,000.	ND(2.5)	ND(5)	ND(500)	ND(1000)	--
NAPHTHALENE	6,000.	6,000.	ND(1.25)	ND(2.5)	ND(250)	ND(500)	--
N-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(0.5)	ND(50)	ND(100)	--
N-PROPYLBENZENE	N/A	N/A	ND(0.25)	ND(0.5)	ND(50)	ND(100)	--
SEC-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(0.5)	ND(50)	ND(100)	--
TERT-BUTYLBENZENE	N/A	N/A	ND(1.25)	ND(2.5)	ND(250)	ND(500)	--
TETRACHLOROETHYLENE	3,000.	5,000.	ND(0.25)	ND(0.5)	ND(50)	ND(100)	--
TETRAHYDROFURAN	N/A	N/A	ND(5)	ND(10)	ND(1000)	ND(2000)	--
TOLUENE	6,000	50,000	ND(0.375)	ND(0.75)	ND(75)	ND(150)	--
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(0.375)	ND(0.75)	ND(75)	ND(150)	--
TRICHLOROETHYLENE	300	20,000.	120	120	13000	16000	--
VINYL CHLORIDE	2.	40,000.	ND(0.5)	ND(1)	ND(100)	ND(200)	--
XYLENES, MIXTURE	N/A	N/A	ND(0.25)	ND(0.5)	ND(50)	ND(100)	--
TOTAL CONCENTRATION OF VOCs			134.89	130	13000	16230	ND
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	ND(20)	--	3030	4370	--
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000	ND(20)	--	ND(400)	ND(625)	--
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	ND(20)	--	ND(400)	ND(625)	--
TOTAL CONCENTRATION OF VPH			ND	ND	6060	8740	ND

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-701(MW) HA-7001(MW) DUP 10/31/03 10/31/03 ug/L	HA-701(MW) HA-701(MW) 06/30/04 06/30/04 ug/L	HA-702(MW) HA-702(MW) 11/03/03 11/03/03 ug/L	HA-702(MW) HA-702(MW) 06/30/04 06/30/04 ug/L	HA-703(MW) HA-703(MW) 11/05/03 11/05/03 ug/L
EPH							
2-METHYLNAPHTHALENE	10,000.	3,000.	ND(0.2)	--	ND(0.2)	ND(0.2)	--
ACENAPHTHENE	N/A	5,000.	ND(0.2)	--	ND(0.2)	ND(0.2)	--
BENZO(A)ANTHRACENE	N/A	3,000.	ND(0.2)	--	ND(0.2)	ND(0.2)	--
BENZO(A)PYRENE	N/A	3,000.	ND(0.1)	--	ND(0.1)	ND(0.1)	--
BENZO(B)FLUORANTHENE	N/A	3,000.	ND(0.2)	--	ND(0.2)	ND(0.2)	--
BENZO(K)FLUORANTHENE	N/A	3,000.	ND(0.2)	--	ND(0.2)	ND(0.2)	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	ND(0.2)	--	ND(0.2)	ND(0.2)	--
FLUORANTHENE	N/A	200.	ND(0.2)	--	ND(0.2)	ND(0.2)	--
FLUORENE	N/A	3,000.	ND(0.2)	--	ND(0.2)	ND(0.2)	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000.	ND(50)	--	ND(50)	ND(50)	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000	ND(50)	--	ND(50)	ND(50)	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000	20,000	ND(50)	--	ND(50)	ND(50)	--
NAPHTHALENE	6,000	6,000	ND(0.2)	--	ND(0.2)	ND(0.2)	--
PHENANTHRENE	N/A	50.	ND(0.2)	--	ND(0.2)	ND(0.2)	--
PYRENE	N/A	3,000.	ND(0.2)	--	ND(0.2)	ND(0.2)	--
TOTAL CONCENTRATION OF EPH			ND	ND	ND	ND	ND
TPH							
OIL AND GREASE	1,000	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400.	--	--	--	--	--
CADMIUM	N/A	10.	--	--	--	--	ND(2.5)
CHROMIUM	N/A	2,000.	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	--	--	--	--	--
MERCURY	N/A	1.	--	--	--	--	--
NICKEL	N/A	80.	--	--	--	--	ND(12.5)
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--
ZINC	N/A	900.	--	--	--	--	ND(25)
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-703(MW) HA-703(MW) 06/29/04 06/29/04 ug/L	HA-703(MW) HA-7003(MW) DUP 06/29/04 06/29/04 ug/L	HA-704(MW) HA-704(MW) 11/05/03 11/05/03 ug/L	HA-704(MW) HA-704(MW) 06/29/04 06/29/04 ug/L	HA-705A(MW) HA-705A(MW) 11/05/03 11/05/03 ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6.	50,000	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(5)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(5)
1,1,2,2-TETRACHLOROETHANE	20.	20,000.	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(5)
1,1,2-TRICHLOROETHANE	20,000.	50,000	ND(0.375)	ND(0.375)	--	ND(0.375)	ND(7.5)
1,1-DICHLOROETHANE	9,000.	50,000.	ND(0.375)	ND(0.375)	--	ND(0.375)	ND(7.5)
1,1-DICHLOROETHYLENE	1.	50,000.	ND(0.25)	ND(0.25)	--	ND(0.25)	**ND(5)**
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(1.25)	ND(1.25)	--	ND(1.25)	ND(25)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	--	ND(1.25)	ND(25)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000.	ND(1)	ND(1)	--	ND(1)	**ND(25)**
1,2-DICHLOROETHANE	20	50,000.	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(5)
1,2-DICHLOROPROPANE	9	30,000	ND(0.9)	ND(0.9)	--	ND(0.9)	**ND(17.5)**
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	--	ND(1.25)	ND(25)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(5)
ACETONE	50,000.	50,000	ND(2.5)	ND(2.5)	--	ND(2.5)	ND(50)
BENZENE	2,000.	7,000.	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(5)
BROMODICHLOROMETHANE	N/A	50,000.	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(5)
BROMOMETHANE	2.	50,000.	ND(0.5)	ND(0.5)	--	ND(0.5)	**ND(10)**
CARBON TETRACHLORIDE	20.	50,000.	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(5)
CHLOROETHANE	N/A	N/A	ND(0.5)	ND(0.5)	--	ND(0.5)	ND(10)
CHLOROFORM	400.	10,000.	ND(0.375)	ND(0.375)	--	ND(0.375)	ND(7.5)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	ND(0.25)	ND(0.25)	--	ND(0.25)	**800**
ETHYLBENZENE	30,000.	4,000.	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(5)
HEXACHLORO-1,3-BUTADIENE	1.	90.	ND(0.5)	ND(0.5)	--	ND(0.5)	**ND(10)**
ISOPROPYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(5)
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000	ND(0.5)	ND(0.5)	--	ND(0.5)	ND(10)
METHYLENE CHLORIDE	50,000.	50,000.	ND(2.5)	ND(2.5)	--	ND(2.5)	ND(50)
NAPHTHALENE	6,000	6,000.	ND(1.25)	ND(1.25)	--	ND(1.25)	ND(25)
N-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(5)
N-PROPYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(5)
SEC-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(5)
TERT-BUTYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	--	ND(1.25)	ND(25)
TETRACHLOROETHYLENE	3,000.	5,000	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(5)
TETRAHYDROFURAN	N/A	N/A	ND(5)	ND(5)	--	ND(5)	ND(100)
TOLUENE	6,000.	50,000	ND(0.375)	ND(0.375)	--	ND(0.375)	ND(7.5)
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(0.375)	ND(0.375)	--	ND(0.375)	ND(7.5)
TRICHLOROETHYLENE	300.	20,000.	**0.75**	**0.59**	--	**0.94**	**1100**
VINYL CHLORIDE	2.	40,000.	ND(0.5)	ND(0.5)	--	ND(0.5)	**120**
XYLENES, MIXTURE	N/A	N/A	ND(0.25)	ND(0.25)	--	ND(0.25)	ND(5)
TOTAL CONCENTRATION OF VOCs			**0.75**	**0.59**	ND	**0.94**	**2020**
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	--	--	--	--	--
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	--	--	--	--	--
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF VPH			ND	ND	ND	ND	ND

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-703(MW) HA-703(MW) 06/29/04 06/29/04 ug/L	HA-703(MW) HA-7003(MW) DUP 06/29/04 06/29/04 ug/L	HA-704(MW) HA-704(MW) 11/05/03 11/05/03 ug/L	HA-704(MW) HA-704(MW) 06/29/04 06/29/04 ug/L	HA-705A(MW) HA-705A(MW) 11/05/03 11/05/03 ug/L
EPH							
2-METHYLNAPHTHALENE	10,000.	3,000.	--	--	--	--	--
ACENAPHTHENE	N/A	5,000.	--	--	--	--	--
BENZO(A)ANTHRACENE	N/A	3,000.	--	--	--	--	--
BENZO(A)PYRENE	N/A	3,000.	--	--		--	--
BENZO(B)FLUORANTHENE	N/A	3,000.	--	--	--	--	--
BENZO(K)FLUORANTHENE	N/A	3,000	--	--	--	--	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	--	--	--	--	--
FLUORANTHENE	N/A	200.	--	--	--	--	--
FLUORENE	N/A	3,000.	--	--	--	--	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000	30,000.	--	--	--	--	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	--	--	--	--	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000.	--	--	--	--	--
NAPHTHALENE	6,000.	6,000	--	--	--	--	--
PHENANTHRENE	N/A	50.	--	--	--	--	--
PYRENE	N/A	3,000.	--	--	--	--	--
TOTAL CONCENTRATION OF EPH			ND	ND	ND	ND	ND
TPH							
OIL AND GREASE	1,000.	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400.	--	--	--	--	--
CADMIUM	N/A	10.	ND(0.25)	ND(0.25)	ND(2.5)	ND(0.25)	ND(2.5)
CHROMIUM	N/A	2,000.	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	--	--	--	--	--
MERCURY	N/A	1.	--	--	--	--	--
NICKEL	N/A	80	**0.8**	**1.9**	ND(12.5)	**2.7**	ND(12.5)
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--
ZINC	N/A	900.	**6**	**5.5**	**50**	**35.3**	ND(25)
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	HA-705A(MW)	HA-705A(MW)	HA-801R(MW)	HA-802S(MW)
SAMPLE DESIGNATION	Standard	Standard	HA-7005(MW) DUP 11/05/03	HA-705A(MW) 06/29/04	HA-801R(MW) 07/14/04	HA-802S(MW) 06/30/04
SAMPLING DATE	GW-2	GW-3	11/05/03	06/29/04	07/14/04	06/30/04
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOCs						
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(5)	ND(2.5)	ND(0.25)	ND(0.25)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(5)	ND(2.5)	ND(0.25)	ND(0.25)
1,1,2,2-TETRACHLOROETHANE	20.	20,000	ND(5)	ND(2.5)	ND(0.25)	ND(0.25)
1,1,2-TRICHLOROETHANE	20,000.	50,000	ND(7.5)	ND(3.75)	ND(0.375)	ND(0.375)
1,1 DICHLOROETHANE	9,000	50,000	ND(7.5)	ND(3.75)	ND(0.375)	ND(0.375)
1,1-DICHLOROETHYLENE	1.	50,000	ND(5)	ND(2.5)	ND(0.25)	ND(0.25)
1,2,4-TRICHLOROBENZENE	10,000	500.	ND(25)	ND(12.5)	ND(1.25)	ND(1.25)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(25)	ND(12.5)	ND(1.25)	ND(1.25)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000	ND(25)	ND(10)	ND(1)	ND(1)
1,2-DICHLOROETHANE	20.	50,000.	ND(5)	ND(2.5)	ND(0.25)	ND(0.25)
1,2-DICHLOROPROPANE	9.	30,000.	ND(17.5)	ND(9)	ND(0.9)	ND(0.9)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(25)	ND(12.5)	ND(1.25)	ND(1.25)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(5)	ND(2.5)	ND(0.25)	ND(0.25)
ACETONE	50,000.	50,000.	ND(50)	ND(25)	ND(2.5)	ND(2.5)
BENZENE	2,000.	7,000.	ND(5)	ND(2.5)	ND(0.25)	ND(0.25)
BROMODICHLOROMETHANE	N/A	50,000.	ND(5)	ND(2.5)	ND(0.25)	ND(0.25)
BROMOMETHANE	2.	50,000.	ND(10)	ND(5)	ND(0.5)	ND(0.5)
CARBON TETRACHLORIDE	20	50,000	ND(5)	ND(2.5)	ND(0.25)	ND(0.25)
CHLOROETHANE	N/A	N/A	ND(10)	ND(5)	ND(0.5)	ND(0.5)
CHLOROFORM	400.	10,000.	ND(7.5)	ND(3.75)	1.2	ND(0.375)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	800	560	ND(0.25)	ND(0.25)
ETHYLBENZENE	30,000.	4,000.	ND(5)	ND(2.5)	ND(0.25)	ND(0.25)
HEXACHLORO-1,3-BUTADIENE	1.	90	ND(10)	ND(5)	ND(0.5)	ND(0.5)
ISOPROPYLBENZENE	N/A	N/A	ND(5)	ND(2.5)	ND(0.25)	ND(0.25)
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000	ND(10)	ND(5)	ND(0.5)	ND(0.5)
METHYLENE CHLORIDE	50,000.	50,000.	ND(50)	ND(25)	ND(2.5)	ND(2.5)
NAPHTHALENE	6,000.	6,000.	ND(25)	ND(12.5)	ND(1.25)	ND(1.25)
N-BUTYLBENZENE	N/A	N/A	ND(5)	ND(2.5)	ND(0.25)	ND(0.25)
N-PROPYLBENZENE	N/A	N/A	ND(5)	ND(2.5)	ND(0.25)	ND(0.25)
SEC-BUTYLBENZENE	N/A	N/A	ND(5)	ND(2.5)	ND(0.25)	ND(0.25)
TERT-BUTYLBENZENE	N/A	N/A	ND(25)	ND(12.5)	ND(1.25)	ND(1.25)
TETRACHLOROETHYLENE	3,000.	5,000.	ND(5)	ND(2.5)	ND(0.25)	ND(0.25)
TETRAHYDROFURAN	N/A	N/A	ND(100)	ND(50)	ND(5)	ND(5)
TOLUENE	6,000.	50,000.	ND(7.5)	ND(3.75)	ND(0.375)	ND(0.375)
TRANS-1,2-DICHLOROETHYLENE	20,000	50,000.	ND(7.5)	ND(3.75)	ND(0.375)	ND(0.375)
TRICHLOROETHYLENE	300.	20,000.	1000	320	ND(0.25)	ND(0.25)
VINYL CHLORIDE	2.	40,000.	130	35	ND(0.5)	ND(0.5)
XYLENES, MIXTURE	N/A	N/A	ND(5)	ND(2.5)	ND(0.25)	ND(0.25)
TOTAL CONCENTRATION OF VOCs			1930	915	1.2	ND
VPH						
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	--	--	--	--
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	--	--	--	--
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	--	--	--	--
TOTAL CONCENTRATION OF VPH			ND	ND	ND	ND

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-705A(MW) HA-7005(MW) DUP 11/05/03 11/05/03 ug/L	HA-705A(MW) HA-705A(MW) 06/29/04 06/29/04 ug/L	HA-801R(MW) HA-801R(MW) 07/14/04 07/14/04 ug/L	HA-802S(MW) HA-802S(MW) 06/30/04 06/30/04 ug/L
EPH						
2-METHYLNAPHTHALENE	10,000.	3,000.	--	--	--	--
ACENAPHTHENE	N/A	5,000	--	--	--	--
BENZO(A)ANTHRACENE	N/A	3,000	--	--	--	--
BENZO(A)PYRENE	N/A	3,000.	--	--	--	--
BENZO(B)FLUORANTHENE	N/A	3,000.	--	--	--	--
BENZO(K)FLUORANTHENE	N/A	3,000.	--	--	--	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	--	--	--	--
FLUORANTHENE	N/A	200.	--	--	--	--
FLUORENE	N/A	3,000	--	--	--	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000	--	--	--	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	--	--	--	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000.	--	--	--	--
NAPHTHALENE	6,000.	6,000	--	--	--	--
PHENANTHRENE	N/A	50.	--	--	--	--
PYRENE	N/A	3,000.	--	--	--	--
TOTAL CONCENTRATION OF EPH			ND	ND	ND	ND
TPH						
OIL AND GREASE	1,000.	20,000.	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND
METALS						
ALUMINUM	N/A	N/A	--	--	--	--
ARSENIC	N/A	400.	--	--	--	--
CADMIUM	N/A	10.	ND(2.5)	--	--	--
CHROMIUM	N/A	2,000.	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--
COPPER	N/A	N/A	--	--	--	--
IRON	N/A	N/A	--	--	--	--
LEAD	N/A	30.	--	--	--	--
MERCURY	N/A	1.	--	--	--	--
NICKEL	N/A	80	ND(12.5)	--	--	--
SILVER	N/A	7.	--	--	--	--
TIN	N/A	N/A	--	--	--	--
ZINC	N/A	900.	ND(25)	--	--	--
Cyanide						
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-802T(MW) HA-802T(MW) 06/30/04 06/30/04 ug/L	HA-802R(MW) HA-802R(MW) 07/14/04 07/14/04 ug/L	HA-803R(MW) HA-803R(MW) 11/10/04 11/10/04 ug/L	HA-804R(MW) HA-804R(MW) 11/10/04 11/10/04 ug/L	HA-805T(MW) HA-805T(MW) 07/14/04 07/14/04 ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(0.25)	ND(0.25)	**0.63**	ND(0.25)	ND(0.25)
1,1,2,2-TETRACHLOROETHANE	20.	20,000.	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
1,1,2-TRICHLOROETHANE	20,000.	50,000.	ND(0.375)	ND(0.375)	ND(0.375)	ND(0.375)	ND(0.375)
1,1-DICHLOROETHANE	9,000.	50,000.	ND(0.375)	ND(0.375)	ND(0.375)	ND(0.375)	ND(0.375)
1,1-DICHLOROETHYLENE	1	50,000.	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(1.25)	ND(1.25)	ND(1.25)	ND(1.25)	ND(1.25)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(1.25)	ND(1.25)	ND(1.25)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
1,2-DICHLOROETHANE	20.	50,000	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
1,2-DICHLOROPROPANE	9.	30,000.	ND(0.9)	ND(0.9)	ND(0.9)	ND(0.9)	ND(0.9)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(1.25)	ND(1.25)	ND(1.25)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
ACETONE	50,000.	50,000.	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)
BENZENE	2,000.	7,000.	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
BROMODICHLOROMETHANE	N/A	50,000	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
BROMOMETHANE	2.	50,000.	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
CARBON TETRACHLORIDE	20.	50,000	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
CHLOROETHANE	N/A	N/A	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
CHLOROFORM	400.	10,000.	ND(0.375)	1.3	**3.6**	ND(0.375)	ND(0.375)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
ETHYLBENZENE	30,000	4,000.	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
HEXACHLORO-1,3-BUTADIENE	1.	90.	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
ISOPROPYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
METHYLENE CHLORIDE	50,000.	50,000.	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)
NAPHTHALENE	6,000.	6,000.	ND(1.25)	ND(1.25)	ND(1.25)	ND(1.25)	ND(1.25)
N-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
N-PROPYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
SEC-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
TERT-BUTYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(1.25)	ND(1.25)	ND(1.25)
TETRACHLOROETHYLENE	3,000.	5,000.	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
TETRAHYDROFURAN	N/A	N/A	ND(5)	ND(5)	ND(5)	ND(5)	ND(5)
TOLUENE	6,000.	50,000.	ND(0.375)	ND(0.375)	**4.6**	ND(0.375)	ND(0.375)
TRANS-1,2-DICHLOROETHYLENE	20,000	50,000.	ND(0.375)	ND(0.375)	ND(0.375)	ND(0.375)	ND(0.375)
TRICHLOROETHYLENE	300.	20,000	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
VINYL CHLORIDE	2.	40,000.	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
XYLENES, MIXTURE	N/A	N/A	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
TOTAL CONCENTRATION OF VOCs			ND	1.3	**8.83**	ND	ND
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	--	--	--	--	--
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	--	--	--	--	--
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF VPH			ND	ND	ND	ND	ND

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	HA-802T(MW)	HA-802R(MW)	HA-803R(MW)	HA-804R(MW)	HA-805T(MW)
SAMPLE DESIGNATION	Standard	Standard	HA-802T(MW) 06/30/04	HA-802R(MW) 07/14/04	HA-803R(MW) 11/10/04	HA-804R(MW) 11/10/04	HA-805T(MW) 07/14/04
SAMPLING DATE	GW-2	GW-3	06/30/04	07/14/04	11/10/04	11/10/04	07/14/04
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EPH							
2-METHYLNAPHTHALENE	10,000	3,000.	--	--	--	--	--
ACENAPHTHENE	N/A	5,000.	--	--	--	--	--
BENZO(A)ANTHRACENE	N/A	3,000.	--	--	--	--	--
BENZO(A)PYRENE	N/A	3,000.	--	--	--	--	--
BENZO(B)FLUORANTHENE	N/A	3,000.	--	--	--	--	--
BENZO(K)FLUORANTHENE	N/A	3,000.	--	--	--	--	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	--	--	--	--	--
FLUORANTHENE	N/A	200.	--	--	--	--	--
FLUORENE	N/A	3,000.	--	--	--	--	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000	30,000.	--	--	--	--	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	--	--	--	--	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000.	--	--	--	--	--
NAPHTHALENE	6,000	6,000.	--	--	--	--	--
PHENANTHRENE	N/A	50.	--	--	--	--	--
PYRENE	N/A	3,000.	--	--	--	--	--
TOTAL CONCENTRATION OF EPH			ND	ND	ND	ND	ND
TPH							
OIL AND GREASE	1,000.	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400.	--	--	--	--	--
CADMIUM	N/A	10.	--	--	--	--	--
CHROMIUM	N/A	2,000.	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	--	--	--	--	--
MERCURY	N/A	1.	--	--	--	--	--
NICKEL	N/A	80.	--	--	--	--	--
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--
ZINC	N/A	900.	--	--	--	--	--
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-805R(MW) HA-805R(MW) 07/14/04 07/14/04 ug/L	HA-806T(MW) HA-806T(MW) 07/14/04 07/14/04 ug/L	HA-807T(MW) HA-807T(MW) 07/12/04 07/12/04 ug/L	HA-807R(MW) HA-807R(MW) 07/14/04 07/14/04 ug/L	HA-808T(MW) HA-808T(MW) 07/14/04 07/14/04 ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(0.25)	**ND(125)**	ND(1)	ND(0.25)	ND(0.25)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(0.25)	ND(125)	ND(1)	ND(0.25)	ND(0.25)
1,1,2,2-TETRACHLOROETHANE	20.	20,000	ND(0.25)	**ND(125)**	ND(1)	ND(0.25)	ND(0.25)
1,1,2-TRICHLOROETHANE	20,000.	50,000	ND(0.375)	ND(190)	ND(1.5)	ND(0.375)	7.7
1,1-DICHLOROETHANE	9,000	50,000.	ND(0.375)	ND(190)	ND(1.5)	ND(0.375)	**0.82**
1,1-DICHLOROETHYLENE	1	50,000	ND(0.25)	**ND(125)**	ND(1)	ND(0.25)	**12**
1,2,4-TRICHLOROBENZENE	10,000	500	ND(1.25)	ND(600)	ND(5)	ND(1.25)	ND(1.25)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	ND(600)	ND(5)	ND(1.25)	ND(1.25)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3	50,000.	ND(1)	**ND(500)**	ND(4)	ND(1)	ND(1)
1,2-DICHLOROETHANE	20.	50,000	ND(0.25)	**ND(125)**	ND(1)	ND(0.25)	ND(0.25)
1,2-DICHLOROPROPANE	9.	30,000.	ND(0.9)	**ND(440)**	ND(3.5)	ND(0.9)	ND(0.9)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	ND(600)	ND(5)	ND(1.25)	ND(1.25)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(0.25)	ND(125)	ND(1)	ND(0.25)	ND(0.25)
ACETONE	50,000.	50,000.	ND(2.5)	ND(1250)	ND(10)	ND(2.5)	ND(2.5)
BENZENE	2,000.	7,000.	ND(0.25)	ND(125)	ND(1)	ND(0.25)	**0.81**
BROMODICHLOROMETHANE	N/A	50,000.	ND(0.25)	ND(125)	ND(1)	**0.53**	ND(0.25)
BROMOMETHANE	2.	50,000.	ND(0.5)	**ND(250)**	ND(2)	ND(0.5)	ND(0.5)
CARBON TETRACHLORIDE	20.	50,000	ND(0.25)	**ND(125)**	ND(1)	ND(0.25)	ND(0.25)
CHLOROETHANE	N/A	N/A	ND(0.5)	ND(250)	ND(2)	ND(0.5)	ND(0.5)
CHLOROFORM	400.	10,000	ND(0.375)	ND(190)	**5.7**	**6.9**	**1.2**
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	ND(0.25)	**3700**	**2.9**	**6.2**	**460**
ETHYLBENZENE	30,000.	4,000	ND(0.25)	ND(125)	ND(1)	ND(0.25)	ND(0.25)
HEXACHLORO-1,3-BUTADIENE	1	90.	ND(0.5)	**ND(250)**	**ND(2)**	ND(0.5)	ND(0.5)
ISOPROPYLBENZENE	N/A	N/A	ND(0.25)	ND(125)	ND(1)	ND(0.25)	ND(0.25)
METHYL TERT BUTYL ETHER (MTBE)	50,000	50,000	ND(0.5)	ND(250)	ND(2)	ND(0.5)	ND(0.5)
METHYLENE CHLORIDE	50,000.	50,000.	ND(2.5)	ND(1250)	ND(10)	ND(2.5)	ND(2.5)
NAPHTHALENE	6,000.	6,000.	ND(1.25)	ND(600)	ND(5)	ND(1.25)	ND(1.25)
N-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(125)	ND(1)	ND(0.25)	ND(0.25)
N-PROPYLBENZENE	N/A	N/A	ND(0.25)	ND(125)	ND(1)	ND(0.25)	ND(0.25)
SEC-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(125)	ND(1)	ND(0.25)	ND(0.25)
TERT-BUTYLBENZENE	N/A	N/A	ND(1.25)	ND(600)	ND(5)	ND(1.25)	ND(1.25)
TETRACHLOROETHYLENE	3,000.	5,000.	ND(0.25)	ND(125)	ND(1)	ND(0.25)	**2.7**
TETRAHYDROFURAN	N/A	N/A	ND(5)	ND(2500)	ND(20)	ND(5)	ND(5)
TOLUENE	6,000.	50,000.	ND(0.375)	ND(190)	ND(1.5)	ND(0.375)	ND(0.375)
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(0.375)	ND(190)	ND(1.5)	ND(0.375)	**7.8**
TRICHLOROETHYLENE	300.	20,000.	ND(0.25)	**38000**	**150**	**170**	**2600**
VINYL CHLORIDE	2.	40,000.	ND(0.5)	**ND(250)**	ND(2)	ND(0.5)	**41**
XYLENES, MIXTURE	N/A	N/A	ND(0.25)	ND(125)	ND(1)	ND(0.25)	ND(0.25)
TOTAL CONCENTRATION OF VOCs			ND	**41700**	**158.6**	**183.63**	**3134.03**
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	--	--	--	--	--
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	--	--	--	--	--
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF VPH			ND	ND	ND	ND	ND

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	HA-805R(MW)	HA-806T(MW)	HA-807T(MW)	HA-807R(MW)	HA-808T(MW)
SAMPLE DESIGNATION	Standard	Standard	HA-805R(MW) 07/14/04	HA-806T(MW) 07/14/04	HA-807T(MW) 07/12/04	HA-807R(MW) 07/14/04	HA-808T(MW) 07/14/04
SAMPLING DATE	GW-2	GW-3	07/14/04	07/14/04	07/12/04	07/14/04	07/14/04
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EPH							
2-METHYLNAPHTHALENE	10,000.	3,000.	--	--	--	--	--
ACENAPHTHENE	N/A	5,000.	--	--	--	--	--
BENZO(A)ANTHRACENE	N/A	3,000.	--	--	--	--	--
BENZO(A)PYRENE	N/A	3,000.	--	--	--	--	--
BENZO(B)FLUORANTHENE	N/A	3,000.	--	--	--	--	--
BENZO(K)FLUORANTHENE	N/A	3,000.	--	--	--	--	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	--	--	--	--	--
FLUORANTHENE	N/A	200	--	--	--	--	--
FLUORENE	N/A	3,000.	--	--	--	--	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000	30,000	--	--	--	--	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000	--	--	--	--	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000	20,000	--	--	--	--	--
NAPHTHALENE	6,000.	6,000.	--	--	--	--	--
PHENANTHRENE	N/A	50.	--	--	--	--	--
PYRENE	N/A	3,000.	--	--	--	--	--
TOTAL CONCENTRATION OF EPH			ND	ND	ND	ND	ND
TPH							
OIL AND GREASE	1,000.	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400.	--	--	--	--	--
CADMIUM	N/A	10.	--	--	--	--	--
CHROMIUM	N/A	2,000.	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	--	--	--	--	--
MERCURY	N/A	1.	--	--	--	--	--
NICKEL	N/A	80.	--	--	--	--	--
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--
ZINC	N/A	900.	--	--	--	--	--
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION SAMPLE DESIGNATION SAMPLING DATE UNITS	Method 1 Standard GW-2 ug/L	Method 1 Standard GW-3 ug/L	HA-808R(MW) HA-808R(MW) 07/14/04 07/14/04 ug/L	HA-809R(MW) HA-809R(MW) 11/10/04 11/10/04 ug/L	HA-810R(MW) HA-810R(MW) 11/10/04 11/10/04 ug/L	MW-101 MW-101 10/06/00 10/06/00 ug/L	MW-101 MW-101 05/07/02 05/07/02 ug/L	MW-101 MW-101 11/04/03 11/04/03 ug/L
VOCs								
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
1,1,2,2-TETRACHLOROETHANE	20.	20,000.	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
1,1,2-TRICHLOROETHANE	20,000	50,000	ND(0.375)	ND(0.375)	ND(0.375)	ND(0.25)	ND(0.25)	ND(0.375)
1,1-DICHLOROETHANE	9,000.	50,000.	ND(0.375)	ND(0.375)	ND(0.375)	ND(0.25)	ND(0.25)	ND(0.375)
1,1-DICHLOROETHYLENE	1.	50,000.	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(1.25)	ND(1.25)	ND(1.25)	ND(0.25)	ND(0.25)	ND(1.25)
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(1.25)	ND(0.25)	ND(0.25)	ND(1.25)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3	50,000.	ND(1)	ND(1)	ND(1)	ND(0.25)	ND(0.25)	ND(1.25)
1,2-DICHLOROETHANE	20.	50,000.	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
1,2-DICHLOROPROPANE	9.	30,000.	ND(0.9)	ND(0.9)	ND(0.9)	ND(0.25)	ND(0.25)	ND(0.9)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(1.25)	ND(0.25)	ND(0.25)	ND(1.25)
4-ISOPROPYLTOLUENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
ACETONE	50,000.	50,000.	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(10)	ND(2.5)
BENZENE	2,000.	7,000.	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	**0.58**
BROMODICHLOROMETHANE	N/A	50,000.	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
BROMOMETHANE	2.	50,000.	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.25)	ND(0.25)	ND(0.5)
CARBON TETRACHLORIDE	20.	50,000	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
CHLOROETHANE	N/A	N/A	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.25)	ND(0.25)	ND(0.5)
CHLOROFORM	400.	10,000.	ND(0.375)	**0.85**	ND(0.375)	ND(0.25)	ND(0.25)	ND(0.375)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000.	ND(0.25)	ND(0.25)	ND(0.25)	**3**	**3**	**2.5**
ETHYLBENZENE	30,000	4,000.	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
HEXACHLURO-1,3-BUTADIENE	1.	90.	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.25)	ND(0.25)	ND(0.5)
ISOPROPYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
METHYL TERT BUTYL ETHER (MTBF)	50,000.	50,000.	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.25)	ND(0.25)	ND(0.5)
METHYLENE CHLORIDE	50,000.	50,000	ND(2.5)	ND(2.5)	ND(2.5)	ND(1)	ND(1.25)	ND(2.5)
NAPHTHALENE	6,000.	6,000.	ND(1.25)	ND(1.25)	ND(1.25)	ND(0.25)	ND(0.25)	ND(1.25)
N-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
N-PROPYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
SEC-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
TERT-BUTYLBENZENE	N/A	N/A	ND(1.25)	ND(1.25)	ND(1.25)	ND(0.25)	ND(0.25)	ND(1.25)
TETRACHLOROETHYLENE	3,000.	5,000.	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
TETRAHYDROFURAN	N/A	N/A	ND(5)	ND(5)	ND(5)	ND(2.5)	ND(2.5)	ND(5)
TOLUENE	6,000.	50,000.	ND(0.375)	ND(0.375)	ND(0.375)	ND(0.25)	ND(0.25)	ND(0.375)
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(0.375)	ND(0.375)	ND(0.375)	ND(0.25)	ND(0.25)	ND(0.375)
TRICHLOROETHYLENE	300.	20,000.	**4.8**	ND(0.25)	ND(0.25)	**13**	**10**	**6.4**
VINYL CHLORIDE	2.	40,000.	ND(0.5)	ND(0.5)	ND(0.5)	**0.6**	ND(0.25)	ND(0.5)
XYLENES, MIXTURE	N/A	N/A	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)
TOTAL CONCENTRATION OF VOCs			**4.8**	**0.85**	ND	**16.6**	**13**	**9.48**
VPH								
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	--	--	--	**84**	**47**	**116**
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	--	--	--	ND(10)	ND(10)	ND(20)
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	--	--	--	**41**	ND(10)	ND(20)
TOTAL CONCENTRATION OF VPH			ND	ND	ND	**125**	**47**	**232**

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	HA-808R(MW)	HA-809R(MW)	HA-810R(MW)	MW-101	MW-101	MW-101
SAMPLE DESIGNATION	Standard	Standard	HA-808R(MW) 07/14/04	HA-809R(MW) 11/10/04	HA-810R(MW) 11/10/04	MW-101 10/06/00	MW-101 05/07/02	MW-101 11/04/03
SAMPLING DATE	GW-2	GW-3	07/14/04	11/10/04	11/10/04	10/06/00	05/07/02	11/04/03
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EPH								
2-METHYLNAPHTHALENE	10,000	3,000.	--	--	--	ND(3)	ND(2.5)	ND(0.2)
ACENAPHTHENE	N/A	5,000.	--	--	--	ND(5.5)	ND(5)	ND(0.2)
BENZO(A)ANTHRACENE	N/A	3,000.	--	--	--	ND(5.5)	ND(5)	ND(0.2)
BENZO(A)PYRENE	N/A	3,000.	--	--	--	ND(5.5)	ND(5)	ND(0.1)
BENZO(B)FLUORANTHENE	N/A	3,000.	--	--	--	ND(5.5)	ND(5)	ND(0.2)
BENZO(K)FLUORANTHENE	N/A	3,000.	--	--	--	ND(5.5)	ND(5)	ND(0.2)
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	--	--	--	ND(5.5)	ND(5)	ND(0.2)
FLUORANTHENE	N/A	200.	--	--	--	ND(5.5)	ND(5)	ND(0.2)
FLUORENE	N/A	3,000.	--	--	--	ND(5.5)	ND(5)	ND(0.2)
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000.	--	--	--	ND(100)	**260**	ND(50)
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000.	--	--	--	ND(280)	ND(250)	ND(50)
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000.	20,000.	--	--	--	ND(280)	ND(250)	ND(50)
NAPHTHALENE	6,000.	8,000.	--	--	--	ND(5.5)	ND(5)	ND(0.2)
PHENANTHRENE	N/A	50.	--	--	--	ND(5.5)	ND(5)	ND(0.2)
PYRENE	N/A	3,000	--	--	--	ND(5.5)	ND(5)	ND(0.2)
TOTAL CONCENTRATION OF EPH			ND	ND	ND	ND	**260**	ND
TPH								
OIL AND GREASE	1,000.	20,000.	--	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND	ND
METALS								
ALUMINUM	N/A	N/A	--	--	--	--	--	--
ARSENIC	N/A	400.	--	--	--	--	--	--
CADMIUM	N/A	10.	--	--	--	--	--	--
CHROMIUM	N/A	2,000.	--	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--	--
LEAD	N/A	30	--	--	--	--	--	--
MERCURY	N/A	1.	--	--	--	--	--	--
NICKEL	N/A	80.	--	--	--	--	--	--
SILVER	N/A	7.	--	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--	--
ZINC	N/A	900.	--	--	--	--	--	--
Cyanide								
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data.

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS 3-0585, 3-19850

LOCATION DESIGNATION	Method 1 Standard	Method 1 Standard	MW-102	MW-102	MW-102	HA-EA-GW1	HA-EA-GW1B
SAMPLE DESIGNATION	GW-2	GW-3	MW-102 10/06/00	MW-102 05/07/02	MW-102 11/04/03	HA-EA-GW1 (GRAB) 06/13/00	HA-EA-GW1B (GRAB) 08/31/00
SAMPLING DATE			10/06/00	05/07/02	11/04/03	06/13/00	08/31/00
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOCs							
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	ND(0.25)	ND(0.25)	ND(0.25)	**ND(500)**	--
1,1,1-TRICHLOROETHANE	4,000.	50,000.	ND(0.25)	ND(0.25)	ND(0.25)	ND(500)	ND(2.5)
1,1,2,2-TETRACHLOROETHANE	20	20,000.	ND(0.25)	ND(0.25)	ND(0.25)	**ND(500)**	ND(2.5)
1,1,2-TRICHLOROETHANE	20,000.	50,000	ND(0.25)	ND(0.25)	ND(0.375)	ND(500)	--
1,1-DICHLOROETHANE	9,000.	50,000	ND(0.25)	ND(0.25)	ND(0.375)	ND(500)	**14**
1,1-DICHLOROETHYLENE	1	50,000	ND(0.25)	ND(0.25)	ND(0.25)	**ND(500)**	**ND(2.5)**
1,2,4-TRICHLOROBENZENE	10,000.	500.	ND(0.25)	ND(0.25)	ND(1.25)	ND(500)	--
1,2,4-TRIMETHYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(1.25)	ND(500)	--
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000.	ND(0.25)	ND(0.25)	ND(1.25)	**ND(500)**	--
1,2-DICHLOROETHANE	20.	50,000.	ND(0.25)	ND(0.25)	ND(0.25)	**ND(500)**	ND(2.5)
1,2-DICHLOROPROPANE	9.	30,000.	ND(0.25)	ND(0.25)	ND(0.9)	**ND(500)**	ND(2.5)
1,3,5-TRIMETHYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(1.25)	ND(500)	--
4-ISOPROPYLTOLUENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(0.25)	ND(500)	--
ACETONE	50,000.	50,000.	ND(2.5)	ND(10)	ND(2.5)	ND(5000)	ND(25)
BENZENE	2,000.	7,000.	**0.8**	ND(0.25)	**1.3**	ND(500)	ND(2.5)
BROMODICHLOROMETHANE	N/A	50,000	ND(0.25)	ND(0.25)	ND(0.25)	ND(500)	--
BROMOMETHANE	2	50,000.	ND(0.25)	ND(0.25)	ND(0.5)	**ND(1000)**	**ND(5)**
CARBON TETRACHLORIDE	20.	50,000	ND(0.25)	ND(0.25)	ND(0.25)	**ND(500)**	ND(2.5)
CHLOROETHANE	N/A	N/A	ND(0.25)	ND(0.25)	ND(0.5)	ND(1000)	ND(5)
CHLOROFORM	400.	10,000.	ND(0.25)	ND(0.25)	ND(0.375)	ND(500)	ND(2.5)
CIS-1,2-DICHLOROETHYLENE	30,000.	50,000	**7**	**13**	**0.51**	ND(500)	ND(2.5)
ETHYLBENZENE	30,000.	4,000.	ND(0.25)	ND(0.25)	ND(0.25)	**1300**	**8**
HEXACHLORO-1,3-BUTADIENE	1.	90.	ND(0.25)	ND(0.25)	ND(0.5)	**ND(500)**	--
ISOPROPYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	**0.62**	ND(500)	--
METHYL TERT BUTYL ETHER (MTBE)	50,000.	50,000.	**0.5**	ND(0.25)	ND(0.5)	ND(500)	--
METHYLENE CHLORIDE	50,000.	50,000.	ND(1)	ND(1.25)	ND(2.5)	ND(500)	ND(2.5)
NAPHTHALENE	6,000.	6,000.	ND(0.25)	ND(0.25)	ND(1.25)	ND(500)	--
N-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	**0.76**	ND(500)	--
N-PROPYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	**0.66**	ND(500)	--
SEC-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(0.25)	ND(500)	--
TERT-BUTYLBENZENE	N/A	N/A	ND(0.25)	ND(0.25)	ND(1.25)	ND(500)	--
TETRACHLOROETHYLENE	3,000.	5,000	ND(0.25)	ND(0.25)	ND(0.25)	ND(500)	ND(2.5)
TETRAHYDROFURAN	N/A	N/A	**14**	ND(2.5)	ND(5)	ND(5000)	--
TOLUENE	6,000.	50,000.	ND(0.25)	ND(0.25)	ND(0.375)	**7400**	**6**
TRANS-1,2-DICHLOROETHYLENE	20,000.	50,000.	ND(0.25)	ND(0.25)	ND(0.375)	ND(500)	ND(2.5)
TRICHLOROETHYLENE	300.	20,000.	**2**	**3**	ND(0.25)	ND(500)	ND(2.5)
VINYL CHLORIDE	2.	40,000.	**3**	**4**	ND(0.5)	**ND(1000)**	**16**
XYLENES, MIXTURE	N/A	N/A	ND(0.25)	ND(0.25)	ND(0.25)	**5900**	**18**
TOTAL CONCENTRATION OF VOCs			**27.3**	**20**	**3.85**	**14600**	**62**
VPH							
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	4,000.	**310**	**230**	**156**	--	--
MADEP C9-C10 AROMATIC HYDROCARBONS	5,000.	4,000.	**47**	**270**	ND(20)	--	--
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	1,000.	20,000.	**240**	**510**	ND(20)	--	--
TOTAL CONCENTRATION OF VPH			**597**	**1010**	**312**	ND	ND

TABLE VI
HISTORICAL AND RECENT GROUNDWATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION	Method 1	Method 1	MW-102	MW-102	MW-102	HA-EA-GW1	HA-EA-GW1B
SAMPLE DESIGNATION	Standard	Standard	MW-102 10/06/00	MW-102 05/07/02	MW-102 11/04/03	HA-EA-GW1 (GRAB) 06/13/00	HA-EA-GW1B (GRAB) 08/31/00
SAMPLING DATE	GW-2	GW-3	10/06/00	05/07/02	11/04/03	06/13/00	08/31/00
UNITS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EPH							
2-METHYLNAPHTHALENE	10,000.	3,000.	ND(2.5)	ND(2.5)	ND(0.2)	--	--
ACENAPHTHENE	N/A	5,000.	ND(5)	ND(5)	ND(0.2)	--	--
BENZO(A)ANTHRACENE	N/A	3,000.	ND(5)	ND(5)	ND(0.2)	--	--
BENZO(A)PYRENE	N/A	3,000	ND(5)	ND(5)	ND(0.1)	--	--
BENZO(B)FLUORANTHENE	N/A	3,000.	ND(5)	ND(5)	ND(0.2)	--	--
BENZO(K)FLUORANTHENE	N/A	3,000.	ND(5)	ND(5)	ND(0.2)	--	--
CHRYSENE (1,2-BENZPHENANTHRACENE)	N/A	3,000.	ND(5)	ND(5)	ND(0.2)	--	--
FLUORANTHENE	N/A	200.	ND(5)	ND(5)	ND(0.2)	--	--
FLUORENE	N/A	3,000.	ND(5)	ND(5)	ND(0.2)	--	--
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	50,000.	30,000.	**400**	**1200**	**171**	--	--
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000	**640**	**1700**	**244**	--	--
MADEP C9-C18 ALIPHATIC HYDROCARBONS	1,000	20,000	**710**	**4600**	**137**	--	--
NAPHTHALENE	6,000.	6,000.	ND(5)	ND(5)	ND(0.2)	--	--
PHENANTHRENE	N/A	50.	ND(5)	ND(5)	ND(0.2)	--	--
PYRENE	N/A	3,000.	ND(5)	ND(5)	ND(0.2)	--	--
TOTAL CONCENTRATION OF EPH			1750	7500	723	ND	ND
TPH							
OIL AND GREASE	1,000	20,000.	--	--	--	--	--
TOTAL CONCENTRATION OF TPH			ND	ND	ND	ND	ND
METALS							
ALUMINUM	N/A	N/A	--	--	--	--	--
ARSENIC	N/A	400.	--	--	--	--	--
CADMIUM	N/A	10.	--	--	--	--	--
CHROMIUM	N/A	2,000	--	--	--	--	--
CHROMIUM (HEXAVALENT COMPOUNDS)	N/A	100.	--	--	--	--	--
COPPER	N/A	N/A	--	--	--	--	--
IRON	N/A	N/A	--	--	--	--	--
LEAD	N/A	30.	--	--	--	--	--
MERCURY	N/A	1.	--	--	--	--	--
NICKEL	N/A	80.	--	--	--	--	--
SILVER	N/A	7.	--	--	--	--	--
TIN	N/A	N/A	--	--	--	--	--
ZINC	N/A	900.	--	--	--	--	--
Cyanide							
CYANIDE, PHYSIOLOGICALLY AVAILABLE	N/A	10.	--	--	--	--	--
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	N/A	10.	--	--	--	--	--
CYANIDE, TOTAL	N/A	N/A	--	--	--	--	--

NOTES:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. --: Analysis not conducted.
3. N/A: Not available.
4. This table includes compounds detected in at least one sample, and non-detected compounds for which one-half the laboratory reporting limit exceeds one ore more of the numerical standards listed.
5. Bold font represents detected results above the laboratory reporting limit, or non-detected results for which one-half the reporting limit exceeds one or more of the numerical standards listed.
6. Shaded results exceed one or more of the numerical standards listed.
7. Xylenes mixture is the sum of o-xylene and p/m-xylene data

TABLE VII
PACKER TESTING GROUNDWATER SCREENING DATA
PHASE II · COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION			HA-805R(MW)	HA-805R(MW)	HA-807R(MW)	HA-807R(MW)	HA-808R(MW)
SAMPLE DESIGNATION	Screen Level	Screen Level	HA-805R(MW) C1 06/14/04	HA-805R(MW) C3 06/15/04	HA-807R(MW) C1 07/02/04	HA-807R(MW) C2 07/06/04	HA-808R(MW) C1 06/08/04
DEPTH (FEET)	M1_GW_2	M1_GW_3	47 to 52	57 to 62	47 to 52	52 to 57	45 to 50
SAMPLING DATE	ug/l	ug/l	06/14/04	06/15/04	07/02/04	07/06/04	06/08/04
VOCs							
1,1,1,2-TETRACHLOROETHANE	6.	50,000.	--	--	**ND(25)**	ND(1.25)	--
1,1-DICHLOROETHYLENE	1.	50,000.	ND(1)	ND(1)	**ND(25)**	ND(1.25)	ND(1)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3	50,000	--	--	**ND(100)**	ND(5)	--
1,2-DICHLOROPROPANE	9	30,000	--	--	**ND(90)**	ND(4.4)	--
BROMOMETHANE	2	50,000.	--	--	**ND(50)**	ND(2.5)	--
CHLOROFORM	400.	10,000.	--	--	ND(37.5)	**18**	--
HEXACHLORO-1,3-BUTADIENE	1.	90.	--	--	**ND(50)**	**ND(2.5)**	--
TETRACHLOROETHYLENE	3,000	5,000.	**25.5**	**4**	ND(25)	**5**	**15.9**
TRICHLOROETHYLENE	300	20,000	**9.6**	ND(1)	**3100**	**170**	**5**
VINYL CHLORIDE	2.	40,000.	--	--	**ND(50)**	ND(2.5)	--
TOTAL TARGETED			35.1	4	3100	193	20.9

TABLE VII
PACKER TESTING GROUNDWATER SCREENING DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION DESIGNATION			HA-808R(MW)	HA-809R(MW)
SAMPLE DESIGNATION	Screen Level	Screen Level	HA-808R(MW) C2 06/09/04	HA-809R(MW) C5C7 10/14/04
DEPTH (FEET)	M1_GW_2	M1_GW_3	55 to 60	42 to 57
SAMPLING DATE	ug/l	ug/l	06/09/04	10/14/04
VOCs				
1,1,1,2-TETRACHLOROETHANE	6.	50,000	--	--
1,1-DICHLOROETHYLENE	1.	50,000.	**6.1**	ND(1)
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	3.	50,000.	--	--
1,2-DICHLOROPROPANE	9	30,000	--	--
BROMOMETHANE	2.	50,000.	--	--
CHLOROFORM	400.	10,000.	--	--
HEXACHLORO-1,3-BUTADIENE	1.	90.	--	--
TETRACHLOROETHYLENE	3,000	5,000.	**4.7**	ND(1)
TRICHLOROETHYLENE	300.	20,000.	ND(1)	ND(1)
VINYL CHLORIDE	2.	40,000.	--	--
TOTAL TARGETED			**10.8**	ND

TABLE VIII
INDOOR AIR QUALITY DATA AND SELECTION OF COMPOUNDS OF CONCERN - BUILDINGS 18 AND 19
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Sample ID Location (Building) Location (Level) Date	IAQ-18 Former Printer 02/05/04 BUILDING 18 SECOND FLOOR 5-6-Feb-04	IAQ-18 Former Spray Booth 02/05/04 BUILDING 18 SECOND FLOOR 5-6-Feb-04	IAQ-18 Common Area 02/05/04 BUILDING 18 SECOND FLOOR 5-6-Feb-04	MAXIMUM 2004 CONCENTRATION BUILDING 18 SECOND FLOOR	IAQ-18 BUILDING 18 FIRST FLOOR 22-23-Sep-00	IAQ-18 BUILDING 18 FIRST FLOOR 15-16-Mar-02	IAQ-18 BUILDING 18 FIRST FLOOR 4-5-Feb-03	IAQ-18 02/05/04 BUILDING 18 FIRST FLOOR 5-6-Feb-04	IAQ-19 BUILDING 19 FIRST FLOOR 22-23-Sep-00	IAQ-19 BUILDING 19 FIRST FLOOR 15-16-Mar-02	IAQ-19 BUILDING 19 FIRST FLOOR 4-5-Feb-03	IAQ-19 02/05/04 BUILDING 19 FIRST FLOOR 5-6-Feb-04	MAXIMUM 2004 CONCENTRATION BUILDINGS 18 & 19 FIRST FLOOR	DEP BACKGROUND CONCEN-TRATION	MAXIMUM FLOOR 1 OR 2 EXCEEDS BACKGROUND	SOURCES IDENTIFIED 2003 (see note)	SOURCES IDENTIFIED 2004 (see note)	DETECTED IN SOIL?	DETECTED IN GROUND-WATER?	INCLUDED AS COMPOUND OF CONCERN?	RATIONALE
VOCs (ug/m3)																					
Acetone	14	13	19	19	48	37	24	16	42	40	22	14	16	27.04	no	YES	YES	no	no	no	ND in soil & groundwater, indoor source, 2nd floor air > 1st floor air, <BKGD
Benzene	ND (0.85)	ND (0.75)	ND (0.85)	ND (0.85)	2.2	ND (0.5)	ND (0.9)	ND (0.7)	2.2	ND (0.5)	ND (0.9)	ND (0.75)	ND (0.75)	[illegible]	no	YES (kerosene)	no	no	YES <GW-2	no	ND in soil, <GW-2 in groundwater, ND in air since 2000 (<BKGD), indoor source identified in 2003
2-Butanone	36	56	6.8	56	27	ND (0.5)	14	3.2	32	27	9.1	3.7	3.7	12.16	YES	YES	YES	no	no	no	ND in soil & groundwater, indoor source, 2nd floor air > 1st floor air, 1st floor <BKGD
Carbon Disulfide	ND (0.85)	ND (0.75)	ND (0.85)	ND (0.85)	ND (0.5)	ND (0.5)	ND (0.9)	ND (0.7)	1.9	ND (0.5)	ND (0.9)	ND (0.75)	ND (0.75)	NA	NA	no	no	no	no	no	ND in soil & groundwater, ND in air since 2000 (no BKGD)
cis-1,2-Dichloroethylene	ND (0.85)	ND (0.75)	ND (0.85)	ND (0.85)	1.0	ND (0.5)	ND (0.9)	ND (0.7)	ND (0.5)	ND (0.5)	ND (0.9)	ND (0.75)	ND (0.75)	NA	NA	no	no	YES	YES <GW-2	no	ND in air since 2000
1,4-Dichlorobenzene	9.6	7.3	11	11	52	51	19	35	67	94	34	80	80	[illegible]	YES	YES	YES	no	no	no	ND in soil & groundwater, indoor source
Ethylbenzene	2.3	2.3	3.8	3.8	2.9	ND (0.5)	ND (0.9)	ND (0.7)	3.0	ND (0.5)	1.9	ND (0.75)	ND (0.75)	9.62	no	YES (kerosene)	YES (*)	no	no	no	ND in soil & groundwater, suspected indoor source, 2nd floor air > 1st floor air (ND), <BKGD
2-Hexanone	ND (0.85)	ND (0.75)	ND (0.85)	ND (0.85)	1.2	ND (0.5)	ND (0.9)	ND (0.7)	ND (0.5)	ND (0.5)	ND (0.9)	ND (0.75)	ND (0.75)	NA	NA	YES (*)	YES	no	no	no	ND in soil & groundwater, ND in air since 2000, suspected indoor source (no BKGD)
4-Methyl-2-Pentanone	ND (0.85)	1.6	ND (0.85)	1.6	1.1	8.1	ND (0.9)	ND (0.7)	1.2	4.7	ND (0.9)	ND (0.75)	ND (0.75)	NA	NA	YES	YES	no	no	no	ND in soil & groundwater, suspected indoor source, ND in air since 2000 (no BKGD), 2nd floor air > 1st floor air
Methyl tert-butyl ether	ND (0.85)	ND (0.75)	ND (0.85)	ND (0.85)	4.7	ND (0.5)	ND (0.9)	ND (0.7)	4.7	ND (0.5)	ND (0.9)	ND (0.75)	ND (0.75)	3-18*	no	no	no	no	no	no	ND in soil & groundwater, ND in air since 2000 (<BKGD)
Methylene Chloride	ND (0.85)	ND (0.75)	2.0	2.0	14	7.4	4.1	3.8	23	11	6.7	7.0	7.0	[illegible]	no	no	YES	no	no	no	ND in soil & groundwater, <BKGD
Styrene	ND (0.85)	ND (0.75)	ND (0.85)	ND (0.85)	TR (0.99)	ND (0.5)	ND (0.9)	ND (0.7)	1.0	ND (0.5)	ND (0.9)	ND (0.75)	ND (0.75)	2.79	no	no	no	no	no	no	ND in soil & groundwater, ND in air since 2000 (<BKGD)
Tetrachloroethylene	ND (0.85)	ND (0.75)	ND (0.85)	ND (0.85)	6.1	2.2	6.2	ND (0.7)	6.2	2.5	7.8	ND (0.75)	ND (0.75)	11.01	no	no	no	YES	no	no	detected in soil, ND in groundwater, ND in air since 2000 (<BKGD)
Toluene	4.6	6.3	13	13	16	10	3.3	2.3	18	11	9.0	2.8	2.8	[illegible]	no	YES	YES	YES <RCS-1	no	no	<RCS-1 in soil, ND in groundwater, indoor source, 2nd floor air > 1st floor air (<BKGD)
1,1,1-Trichloroethane	ND (0.85)	ND (0.75)	ND (0.85)	ND (0.85)	1.6	ND (0.5)	ND (0.9)	ND (0.7)	1.7	ND (0.5)	ND (0.9)	ND (0.75)	ND (0.75)	19.96	no	no	no	YES <RCS-1	YES (ND since 1987)	no	<RCS-1 in soil, ND in groundwater since 1987, ND in air since 2000 (<BKGD)
Trichloroethylene	ND (0.85)	ND (0.75)	2.6	2.6	14	3.4	1.8	1.9	17	3.5	1.9	1.5	1.9	4.19	no	no	no	YES	YES	YES	2nd floor air > 1st floor air, <BKGD, lack of concentration gradient implies indoor source contribution greater than subsurface contribution
Trichlorofluoromethane	ND (0.85)	ND (0.75)	ND (0.85)	ND (0.85)	1.9	ND (1.0)	ND (0.9)	ND (0.7)	1.9	ND (1.0)	ND (0.9)	ND (0.75)	ND (0.75)	NA	NA	YES (*)	YES	no	no	no	ND in soil & groundwater, suspected indoor source (no BKGD), ND in air since 2000
Trichlorotrifluoroethane	ND (0.85)	ND (0.75)	ND (0.85)	ND (0.85)	3.1	ND (1.5)	ND (0.9)	ND (0.7)	2.7	ND (1.5)	ND (0.9)	ND (0.75)	ND (0.75)	NA	NA	YES (*)	YES	no	no	no	ND in soil & groundwater, suspected indoor source (no BKGD), ND in air since 2000
Vinyl Acetate	2.0	2.0	ND (0.85)	2.0	ND (0.5)	ND (0.5)	ND (0.9)	ND (0.7)	ND (0.5)	ND (0.5)	ND (0.9)	ND (0.75)	ND (0.75)	NA	NA	no	no	no	no	no	ND in soil & groundwater, ND in 1st floor air, 2nd floor air > 1st floor air (ND)
Xylenes, mixture	11.1	9.8	15	11	14	6.5	9.1	1.6	16	6.9	13	ND (0.75)	1.6	72.41	no	YES	YES	YES <RCS-1	no	no	<RCS-1 in soil, ND in groundwater, 2nd floor air > 1st floor air (<BKGD)

NOTES AND ABBREVIATIONS:
1. Results are reported in micrograms per cubic meter. Only those compounds detected during the sampling programs are presented herein.
2. ND: Compound not detected above method reporting limit (MRL). Value in parentheses is one-half the MRL.
3. TR: Compound detected below indicated MRL (in parentheses).
4. Indoor air samples collected overnight 22 to 23 September 2000, 15 to 16 March 2002, 4 to 5 February 2003, and 5 to 6 February 2004 by Haley & Aldrich, Inc., over an approximately 8-hour interval.
Samples were collected from the first and second floors of Buildings 18 and 19. The interior spaces of Building 18 and Building 19 are connected.
5. Samples collected in 6-L Summa canisters.
6. Samples analyzed by EPA Method TO-14A (2000) or EPA Method TO-15 (other sampling events presented above).
7. Results for Xylenes, mixture are the sum of m,p-Xylenes and o-Xylenes.
8. BKGD: DEP background concentrations from MADEP's list of toxicity values used in the derivation of proposed MCP GW-2 standards (MCP Toxicity.xls), available at http://www.mass.gov/dep.
and, for Methyl tert-butyl ether, "Implementation of the MADEP VPH/EPH Approach," Final Policy, 31 October 2002.
In the absence of available DEP background values, literature background concentrations are used: 90th percentile concentrations of volatile organic compounds in indoor air from
Stolwijk, Jan., A.J., "Assessment of population exposure and carcinogenic risk posed by volatile organic compounds in indoor air," Risk Analysis, 10:1, 49-57, 1990.
9. NA: DEP or literature background value for this compound is not available.
10. YES: Sources identified in materials used or stored within Buildings 18 and 19.
11. YES (*): Suspected sources identified in materials used or stored within Buildings 18 and 19.
12. Compounds detected in soil/groundwater refers to compounds detected in soil or groundwater within 30 ft of Buildings 18 and 19.
13. GW-2: MCP Method 1 GW-2 Groundwater Standards.
RCS-1: MCP RCS-1 Reportable Concentrations.
Method 1 GW-2 Standards and RCS-1 Reportable Concentrations are not used as criteria for selection of compounds of concern,
but rather are used in combination with other site information to determine whether "compelling evidence" for site-related contaminants in indoor air exists.
This approach is consistent with MADEP Indoor Air Sampling and Evaluation Guide (WSC Policy #02-430), April 2002.

TABLE IX
INDOOR AIR QUALITY DATA AND SELECTION OF COMPOUNDS OF CONCERN - BUILDING 16
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Sample ID Location Date	IAQ-S1 LOADING DOCK 31-Mar-00	IAQ-S1 02/05/04 LOADING DOCK 5-6-Feb-04	IAQ-S2 1ST FLOOR BUILDING 16 31-Mar-00	IAQ-S2 02/05/04 1ST FLOOR BUILDING 16 5-6-Feb-04	IAQ-S3 BASEMENT BUILDING 16 31-Mar-00	IAQ-S3 DUP* BASEMENT BUILDING 16 31-Mar-00	IAQ-16 BASEMENT BUILDING 16 15-16-Mar-02	IAQ-16 BASEMENT BUILDING 16 4-5-Feb-03	IAQ-16 02/05/04 BASEMENT BUILDING 16 5-6-Feb-04	IAQ-16 02/05/04 DUP* BASEMENT BUILDING 16 6-6-Feb-04	IAQ-16 North Chase 02/05/04 BASEMENT BUILDING 16 5-6-Feb-04	IAQ-16 South Chase 02/05/04 BASEMENT BUILDING 16 5-6-Feb-04	MAXIMUM 2004 CONCENTRATION BUILDING 16 BASEMENT**	MAXIMUM 2004 CONCENTRATION BUILDING 16 (ALL LEVELS)**	DEP BACKGROUND CONCENTRATION	MAXIMUM CONCENTRATION EXCEEDS BACKGROUND	SOURCES IDENTIFIED IN BASEMENT 2003 (see note)	SOURCES IDENTIFIED IN BASEMENT 2004 (see note)	DETECTED IN SOIL?	DETECTED IN GROUND-WATER?	INCLUDED AS COMPOUND OF CONCERN?	RATIONALE
CYANIDE (ug/m3)																						
Cyanide - Impinger	ND (4)	---	ND (4)	---	---	---	---	---	---	---	---	---	---	ND	NA	NA	no	no	YES	YES	no	ND in indoor air
Cyanide Air	ND (3)	---	ND (3)	---	---	---	---	---	---	---	---	---	---	ND	NA	NA	no	no	YES	YES	no	ND in indoor air
METALS (ug/m3)																						
Mercury/air cold vapor by NIOSH 6009	ND (0.1)	---	ND (0.1)	---	---	---	---	---	---	---	---	---	---	ND	NA	NA	no	no	YES	YES	no	ND in indoor air
Cadmium/air flame by NIOSH 7048	ND (0.03)	---	ND (0.03)	---	---	---	---	---	---	---	---	---	---	ND	NA	NA	no	no	YES	YES	no	ND in indoor air
Chromium/air flame by NIOSH 7024	ND (0.03)	---	ND (0.3)	---	---	---	---	---	---	---	---	---	---	ND	NA	NA	no	no	YES	YES	no	ND in indoor air
Copper/flame by NIOSH 7029	ND (0.9)	---	ND (0.9)	---	---	---	---	---	---	---	---	---	---	ND	NA	NA	no	no	YES	YES	no	ND in indoor air
Lead/air flame by NIOSH 7082	ND (0.2)	---	ND (0.2)	---	---	---	---	---	---	---	---	---	---	ND	NA	NA	no	no	YES	YES	no	ND in indoor air
Nickel/air flame by OSHA ID-121	ND (0.3)	---	ND (0.3)	---	---	---	---	---	---	---	---	---	---	ND	NA	NA	no	no	YES	YES	no	ND in indoor air
Silver/air by OSHA ID-121	ND (0.1)	---	ND (0.1)	---	---	---	---	---	---	---	---	---	---	ND	NA	NA	no	no	YES	YES	no	ND in indoor air
Zinc/air flame by NIOSH 7030	ND (0.3)	---	ND (0.3)	---	---	---	---	---	---	---	---	---	---	ND	NA	NA	no	no	YES	YES	no	ND in indoor air
VOCs (ug/m3)																						
Acetone	---	ND (3.4)	---	11	16	16	66	34	15	14	13	7.9	15	15	[illegible]	no	no	no	no	YES <GW-2 (ND since 2000)	no	ND in soil, ND in recent groundwater, <BKGD, similar levels in basement air, 1st floor air, and outdoor air
Benzene	---	ND (0.7)	---	ND (0.75)	TR (0.98)	TR (0.96)	ND (0.5)	ND (0.9)	ND (0.75)	ND (0.75)	ND (0.8)	ND (0.75)	ND (0.8)	ND (0.8)	[illegible]	no	YES (solvent naphtha)	no	no	no	no	ND in soil & groundwater, ND in air since 2000 (trace level <BKGD), indoor source identified in basement in 2003
2-Butanone	---	ND (0.7)	---	1.6	18	18	5.3	2.2	1.6	1.6	ND (0.8)	ND (0.75)	1.6	1.6	42.18	no	no	no	no	no	no	ND in soil & groundwater, <BKGD, same level in basement, 1st floor, outdoor air
cis-1,2-Dichloroethylene	ND (0.5)	ND (0.7)	ND (0.5)	ND (0.75)	1.2	1.2	ND (0.5)	ND (0.9)	ND (0.75)	ND (0.75)	ND (0.8)	ND (0.75)	ND (0.8)	ND (0.8)	NA	NA	no	no	YES	YES <GW-2	no	ND in air since 2000
trans-1,2-Dichloroethylene	ND (0.50)	ND (0.7)	ND (0.50)	ND (0.75)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.85)	1.8	1.8	5.7	7.5	7.5	7.5	NA	NA	no	no	YES	YES <GW-2 (2 ug/l in 1/03 at B4-OW; otherwise, ND since 1987)	YES	Maximum level in basement air samples collected in tunnel. Not detected in 1st floor air or outdoor air. Needs further source evaluation
Ethylbenzene	---	ND (0.7)	---	ND (0.75)	4.2	4.2	12	13	5.1	5.1	3.9	3.8	5.1	5.1	9.62	no	YES (solvent naphtha)	no	no	no	no	ND in soil & groundwater, <BKGD, indoor source identified in in basement 2003
4-Methyl-2-pentanone	---	ND (0.7)	---	2.2	1.5	1.6	9.1	14	4.5	4.6	3.2	2.8	4.5	4.5	NA	NA	no	no	no	no	no	ND in soil & groundwater (no BKGD)
Methyl tert-butyl ether	---	ND (0.7)	---	ND (0.75)	1.2	1.2	ND (0.5)	ND (0.9)	ND (0.75)	ND (0.75)	ND (0.8)	ND (0.75)	ND (0.8)	ND (0.8)	3-18*	no	no	no	no	no	no	ND in soil & groundwater, ND in air since 2000 (<BKGD)
Methylene Chloride	---	ND (0.7)	---	ND (0.75)	TR (0.83)	TR (0.83)	100	16	ND (0.75)	ND (0.75)	ND (0.8)	ND (0.75)	ND (0.8)	ND (0.8)	600	no	no	no	no	no	no	ND in soil & groundwater, ND in air since 2000 (<BKGD)
Tetrachloroethylene	11	ND (0.7)	ND (0.5)	ND (0.75)	6.1	6.1	16	31	18	19	18	20	20	20	11.01	YES	no	no	no	YES <GW-2 (2 ug/l in 1/03 at B4-OW; otherwise, ND since 1987)	YES	>BKGD in basement air, not detected in 1st floor air or outdoor air in 2004, potentially site-related
Toluene	---	ND (0.7)	---	ND (0.75)	7.7	7.8	7.5	11	12	12	10	11	12	12	28.65	no	YES (solvent naphtha)	no	no	YES <GW-2 (ND since 2002)	no	<BKGD, ND in soil, <GW-2 in groundwater, indoor source identified in basement in 2003
1,1,1-Trichloroethane	ND (0.5)	ND (0.7)	ND (0.5)	ND (0.75)	1.4	1.5	ND (0.5)	ND (0.9)	ND (0.75)	ND (0.75)	ND (0.8)	ND (0.75)	ND (0.8)	ND (0.8)	[illegible]	no	no	no	no	YES (ND since 1987)	no	<BKGD, ND in soil, ND in groundwater since 1987, ND in air since 2000
Trichloroethylene	1.4	ND (0.7)	2.2	ND (0.75)	31	31	25	16	11	10	18	24	24	24	4.49	YES	no	no	YES	YES	YES	>BKGD in basement air, not detected in 1st floor air or outdoor air in 2004, site-related
Trichlorofluoromethane	---	ND (0.7)	---	2.0	2.0	2.0	ND (1.0)	ND (0.9)	ND (0.75)	ND (0.75)	ND (0.8)	ND (0.75)	ND (0.8)	2.0	NA	NA	no	no	no	no	no	ND in soil & groundwater, ND in basement air since 2000 (no BKGD), 1st floor air > basement air (ND)
Trichlorotrifluoroethane	---	ND (0.7)	---	ND (0.75)	TR (0.80)	TR (0.78)	ND (1.5)	ND (0.9)	ND (0.75)	ND (0.75)	ND (0.8)	ND (0.75)	ND (0.8)	ND (0.8)	NA	NA	no	no	no	no	no	ND in soil & groundwater (no BKGD), ND in air since 2000 (trace)
Vinyl Acetate	---	ND (0.7)	---	1.7	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.85)	2.4	2.3	2.4	ND (0.75)	2.4	2.4	NA	NA	no	no	no	no	no	ND in soil & groundwater, similar levels in basement, 1st floor, and outdoor air (no BKGD)
Xylenes, mixture	---	ND (0.7)	---	8.8	17	18	73	83	35	35	27	26	35	35	72.41	no	YES (solvent naphtha)	no	no	no	no	ND in soil & groundwater, <BKGD. Indoor source identified in basement in 2003

NOTES AND ABBREVIATIONS
1. Results for volatile organic compounds (VOCs) detected in at least one sample are presented above. All cyanide and metals results from the sampling event are presented above. Mercury results were reported by the laboratory in nanograms.
2. ND: Compound not detected above method reporting limit (MRL). Value in parentheses is one-half the MRL.
3. TR: Compound detected below indicated MRL (in parentheses).
4. ---: Analysis not conducted.
5. Indoor air samples collected by Haley & Aldrich, Inc. on 31 March 2000, overnight 15 to 16 March 2002, 4 to 5 February 2003, and 5 to 6 February 2004 over approximate 8-hour sampling intervals.
6. Concentrations were calculated for cyanide and metals, because results were reported in units of mass. The following sampling volumes were used for mercury, metals, and cyanide for samples IAQ-S1 (89.3L, 1445L, and 174L, respectively) and IAQ-S2 (87.8L, 1460L, and 192L, respectively). Although copper and zinc were detected in the blank (IAQ-S4), these compounds were not considered to be compounds of concern, since they were not detected in associated field samples. The presence of copper and zinc may be attributed to the laboratory-provided mixed cellulose ester filters media or reagents used for digestion. See text Section 2.03 for a discussion of the media blank (IAQ-S4).
7. VOCs were analyzed by EPA Method TO-14A (March 2000) or EPA Method TO-15 (other sampling events presented above).
8. Results for Xylenes, mixture are the sum of m,p-Xylenes and o-Xylenes.
9. *: Laboratory duplicate.
10. **: Duplicate samples are averaged with parent sample prior to calculation of maximum concentrations.
11. BKGD: DEP background concentrations are from MADEP's list of toxicity values used in the derivation of proposed MCP GW-2 standards (MCP Toxicity.xls), available at http://www.mass.gov/dep, and, for Methyl tert-butyl ether, "Implementation of the MADEP VPH/EPH Approach," Final Policy, 31 October 2002.
In the absence of available DEP background values, literature background concentrations are used: 90th percentile concentrations of volatile organic compounds in indoor air from Stolwijk, Jan., A.J., "Assessment of population exposure and carcinogenic risk posed by volatile organic compounds in indoor air," Risk Analysis, 10.1, 49-57, 1990.
12. NA: DEP or literature background value for this compound is not available.
13. YES: Sources identified in materials used or stored within Building 16 basement.
14. Compounds detected in soil/groundwater refers to compounds detected in soil or groundwater within 30 ft of Building 16.

TABLE X
INDOOR AIR QUALITY DATA AND SELECTION OF COMPOUNDS OF CONCERN - BUILDING 27
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

Sample ID	IAQ-27	IAQ-27	IAQ-27 Laboratory Duplicate	Average IAQ-27 and Lab Duplicate	MAXIMUM DETECTED CONCENTRATION	DEP BACKGROUND CONCENTRATION	MAXIMUM CONCENTRATION EXCEEDS BACKGROUND	SOURCES IDENTIFIED (see note)	DETECTED IN SOIL?	DETECTED IN GROUND-WATER?	INCLUDED AS COMPOUND OF CONCERN?	RATIONALE
Location	BUILDING 27	BUILDING 27	BUILDING 27	BUILDING 27								
Date	15-16-Mar-02	4-5-Feb-03	4-5-Feb-03	4-5-Feb-03								
VOCs (ug/m3)												
1,1-Dichloroethane	-	ND (0.9)	ND (0.9)	ND (0.9)	ND (0.9)	NA	ND	no	no	YES <GW-2	no	ND in indoor air
cis-1,2-Dichloroethylene	-	ND (0.9)	ND (0.9)	ND (0.9)	ND (0.9)	NA	ND	no	YES	YES <GW-2	no	ND in indoor air
Trichloroethylene	16	16	16	16	16	4.49	YES	no	YES	YES	YES	site-related, >BKGD
Vinyl Chloride	ND (0.5)	ND (0.9)	ND (0.9)	ND (0.9)	ND (0.9)	NA	ND	no	YES	YES	no	ND in indoor air
APH (ug/m3)												
Benzene	-	ND (0.46)	1.0	0.7	0.7	21.00	no	no	no	no	no	<BKGD, ND in soil & groundwater
1,3-Butadiene	-	ND (0.46)	ND (0.46)	ND (0.46)	ND (0.46)	NA	ND	no	no	no	no	ND in indoor air
Ethylbenzene	-	ND (0.46)	ND (0.46)	ND (0.46)	ND (0.46)	9.62	ND	no	no	no (*)	no	ND in indoor air
Methyl tert-Butyl Ether	-	ND (0.46)	ND (0.46)	ND (0.46)	ND (0.46)	3.18	ND	no	no	no	no	ND in indoor air
2-Methylnaphthalene	-	ND (0.46)	ND (0.46)	ND (0.46)	ND (0.46)	1.74	ND	no	YES	YES <GW-2	no	ND in indoor air
Naphthalene	-	ND (0.46)	ND (0.46)	ND (0.46)	ND (0.46)	5	ND	no	YES <RCS-1	no	no	ND in indoor air
Toluene	-	1.3	1.4	1.4	1.4	28.65	no	no	YES <RCS-1	no (*)	no	<BKGD, <RCS-1 in soil, ND in groundwater
m/p-Xylene	-	2.7	2.8	2.8	2.8	40	no	no	YES <RCS-1	no (*)	no	<BKGD, <RCS-1 in soil, ND in groundwater
o-Xylene	-	1.2	1.2	1.2	1.2	10	no	no	no	no (*)	no	<BKGD, ND in soil & groundwater
C5-C8 Aliphatics	-	ND (46)	ND (46)	ND (46)	ND (46)	85	ND	no	YES	YES	no	ND in indoor air
C9-C12 Aliphatics	-	66	74	70	70	90	no	no	YES	YES	YES	site-related, but <BKGD
C9-C10 Aromatics	-	ND (9)	ND (9)	ND (9)	ND (9)	80	ND	no	YES	YES	no	ND in indoor air

NOTES AND ABBREVIATIONS:
1. Results are reported in micrograms per cubic meter.
2. ND: Compound not detected above method detection limit (MDL). Value in parentheses is one-half the MDL.
3. -: Analysis not conducted.
4. Indoor air samples collected overnight 15 to 16 March 2002 and 4 to 5 February 2003 by Haley & Aldrich, Inc., over approximately 8-hour intervals, respectively.
5. Samples collected in 6-L Summa canisters.
8. Samples analyzed by EPA Method TO-15 and MADEP Air-Phase Petroleum Hydrocarbons (APH) Public Comment Draft 1.0.
9. Maximum detected concentration in Building 27 is the highest result among March 2002 sample IAQ-27, and the average of February 2003 samples IAQ-27 and IAQ-27 Laboratory Duplicate.
10. BKGD: DEP background concentrations are from MADEP's list of toxicity values used in the derivation of proposed MCP GW-2 standards (MCP Toxicity.xls), available at http://www.mass.gov/dep and "Implementation of the MADEP VPH/EPH Approach," Final Policy, 31 October 2002.
11. NA: DEP or literature background value for this compound is not available.
12. Sources not identified in materials used or stored within Building 27.
13. *: Ethylbenzene, toluene, and xylenes were detected at concentrations below Method 1 GW-2 standards in water sample HA-EA-GW1B, which was collected beneath a 24-in. pipe in the former ethyl acetate UST excavation in August 2000. However, BTEX has not been detected subsequently in groundwater samples collected from any monitoring wells in the vicinity of Building 27 which are considered to be more representative of site groundwater conditions.
14. Compounds detected in soil/groundwater refers to compounds detected in soil or groundwater within 30 ft of Building 27.
15. GW-2: MCP Method 1 GW-2 Groundwater Standards.
RCS-1: MCP RCS-1 Reportable Concentrations.
Method 1 GW-2 Standards and RCS-1 Reportable Concentrations are not used as criteria for selection of compounds of concern, but rather are used in combination with other site information to determine whether "compelling evidence" for site-related contaminants in indoor air exists. This approach is consistent with MADEP Indoor Air Sampling and Evaluation Guide (WSC Policy #02-430), April 2002.

TABLE XI
OUTDOOR AIR QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

SAMPLE DESIGNATION SAMPLE LOCATION SAMPLING DATE	OAQ-16 02/05/04 OUTDOORS 5-6-Feb-04	DEP ALLOWABLE AMBIENT LIMIT (AAL) FOR AMBIENT	DETECTED CONCENTRATION EXCEEDS
VOLATILE ORGANIC COMPOUNDS (ug/m^3)			
Acetone	13	160.54	no
2-Butanone	1.6	10	no
Vinyl Acetate	2.1	8	no

NOTES AND ABBREVIATIONS
1 Results for volatile organic compounds (VOCs) detected in the sample are presented above.
2 The outdoor air sample was collected by Haley & Aldrich, Inc. on 5 to 6 February 2004 (overnight) over an approximate 8-hour sampling interval.
3 VOCs were analyzed by EPA Method TO-15.
4 DEP Allowable Ambient Limits (AALs) for Ambient Air from DEP memorandum "Revised Air Guidelines," dated 6 December 1995.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID SAMPLE ID SAMPLING DATE SAMPLE DEPTH (FT)	Sediment Threshold Effects Concentration (TEC)	Sediment Probable Effects Concentration (PEC)	ECO-1 ECO-1-CHEM 29-Oct-03 0 - 0.5 ft	ECO-2 ECO-2-CHEM 29-Oct-03 0 - 0.5 ft	ECO-2 ECO-2D-CHEM 29-Oct-03 0 - 0.5 ft	ECO-3 ECO-3-CHEM 29-Oct-03 0 - 0.5 ft	ECO-4 ECO-4-CHEM 29-Oct-03 0 - 0.5 ft	ECO-5 ECO-5-CHEM 29-Oct-03 0 - 0.5 ft	ECO-6 ECO-6-CHEM 29-Oct-03 0 - 0.5 ft
Miscellaneous (mg/kg)									
NITROGEN, AMMONIA	-	-	-	-	-	-	-	-	-
OXIDATION REDUCTION POTENTIAL (millivolts)	-	-	-	-	-	-	-	-	-
PH (pH units)	-	-	-	-	-	-	-	-	-
SOLIDS, TOTAL (%)	-	-	-	-	-	-	-	-	-
SULFIDE	-	-	-	-	-	-	-	-	-
SULFIDE, ACID VOLATILE (umoles/gm)	-	-	-	-	-	-	-	-	-
Grain Size Analysis (%)									
SIEVE #4	-	-	-	-	-	-	-	-	-
SIEVE #10	-	-	-	-	-	-	-	-	-
SIEVE #40	-	-	-	-	-	-	-	-	-
SIEVE #100	-	-	-	-	-	-	-	-	-
Total Organic Carbon (%)									
TOTAL ORGANIC CARBON	-	-	**25.1**	**1.53**	**2.1**	**6.25**	**6.27**	**32.3**	**5.64**
Inorganic (mg/kg)									
CADMIUM	0.99	4.98	18	1.4	1.3	2.3	3.9	4.8	1.6
CHROMIUM	43.4	111	340	100	120	470	120	100	48
CHROMIUM (HEXAVALENT COMPOUNDS)	-	-	ND (1.6)	ND (1.2)	ND (0.93)	ND (2.1)	ND (2.7)	ND (7.3)	ND (2.1)
COPPER	31.6	149	3200	2400	2500	780	150	120	72
CYANIDE	-	-	-	-	-	-	-	-	-
CYANIDE, FREE	-	-	-	-	-	-	-	-	-
CYANIDE, PHYSIOLOGICALLY AVAILABLE	-	-	-	-	-	-	-	-	-
LEAD	35.8	128	950	360	160	780	390	370	190
MERCURY	0.18	1.06	3.8	0.89	0.52	2.5	6.4	1.2	ND (0.21)
NICKEL	22.7	48.6	520	33	**21**	48	29	28	**16**
SILVER	1	3.7	65	23	31	7.8	2.1	ND (3.5)	1.7
ZINC	121	459	1200	900	970	410	480	500	250
Simultaneously Extractable Inorganic (umoles/gm)									
CADMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
CHROMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
COPPER, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
LEAD, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
NICKEL, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
ZINC, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-

Notes and Abbreviations: See even numbered pages.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID **SAMPLE ID** **SAMPLING DATE** **SAMPLE DEPTH (FT)**	**Sediment Threshold Effects Concentration (TEC)**	**Sediment Probable Effects Concentration (PEC)**	**ECO-1** **ECO-1-CHEM** **29-Oct-03** **0 - 0.5 ft**	**ECO-2** **ECO-2-CHEM** **29-Oct-03** **0 - 0.5 ft**	**ECO-2** **ECO-2D-CHEM** **29-Oct-03** **0 - 0.5 ft**	**ECO-3** **ECO-3-CHEM** **29-Oct-03** **0 - 0.5 ft**	**ECO-4** **ECO-4-CHEM** **29-Oct-03** **0 - 0.5 ft**	**ECO-5** **ECO-5-CHEM** **29-Oct-03** **0 - 0.5 ft**	**ECO-6** **ECO-6-CHEM** **29-Oct-03** **0 - 0.5 ft**
Volatile Organic Compound (ug/kg)									
1,1,1,2-TETRACHLOROETHANE	-	-	ND(200)	ND(150)	ND(98)	ND(300)	ND(370)	ND(1400)	ND(300)
1,1,1-TRICHLOROETHANE	170	-	ND(200)	ND(150)	ND(98)	ND(300)	ND(370)	ND(1400)	ND(300)
1,1,2,2-TETRACHLOROETHANE	940	-	ND(200)	ND(150)	ND(98)	ND(300)	ND(370)	ND(1400)	ND(300)
1,1-DICHLOROETHYLENE	-	-	ND(200)	ND(150)	ND(98)	ND(300)	ND(370)	ND(1400)	ND(300)
1,2-DICHLOROBENZENE	340	-	ND(980)	ND(740)	ND(490)	ND(1500)	ND(1900)	ND(7100)	ND(1500)
1,3-DICHLOROBENZENE	1700	-	ND(980)	ND(740)	ND(490)	ND(1500)	ND(1900)	ND(7100)	ND(1500)
1,4-DICHLOROBENZENE	350	-	ND(980)	ND(740)	ND(490)	ND(1500)	ND(1900)	ND(7100)	ND(1500)
2-BUTANONE (METHYL ETHYL KETONE)	270	-	ND(2000)	ND(1500)	ND(980)	ND(3000)	ND(3700)	ND(14000)	ND(3000)
4-METHYL-2-PENTANONE (MIBK)	-	-	**74000**	ND(1500)	ND(980)	ND(3000)	ND(3700)	ND(14000)	ND(3000)
BENZENE	57	-	ND(200)	ND(150)	ND(98)	ND(300)	ND(370)	ND(1400)	ND(300)
BROMOFORM	650	-	ND(780)	ND(590)	ND(390)	ND(1200)	ND(1500)	ND(5700)	ND(1200)
CARBON TETRACHLORIDE	1200	-	ND(200)	ND(150)	ND(98)	ND(300)	ND(370)	ND(1400)	ND(300)
CHLOROBENZENE	820	-	ND(200)	ND(150)	ND(98)	ND(300)	ND(370)	ND(1400)	ND(300)
CIS-1,2-DICHLOROETHYLENE	-	-	**3300**	**240**	**130**	**1700**	ND(370)	ND(1400)	ND(300)
ETHYLBENZENE	3600	-	**3400**	ND(150)	ND(98)	ND(300)	ND(370)	ND(1400)	ND(300)
ISOPROPYLBENZENE	-	-	**880**	ND(150)	ND(98)	ND(300)	ND(370)	ND(1400)	ND(300)
NAPHTHALENE	480 (TOC)	-	ND(980)	ND(740)	ND(490)	ND(1500)	ND(1900)	ND(7100)	ND(1500)
N-BUTYLBENZENE	-	-	ND(200)	ND(150)	ND(98)	ND(300)	ND(370)	ND(1400)	ND(300)
N-PROPYLBENZENE	-	-	**320**	ND(150)	ND(98)	ND(300)	ND(370)	ND(1400)	ND(300)
O-XYLENE	25 (TOC)	-	14000^A	ND(150)	ND(98)	ND(300)	ND(370)	ND(1400)	ND(300)
P/M-XYLENE	25 (TOC)	-	17000^A	250^A	ND(98)	ND(300)	ND(370)	ND(1400)	ND(300)
SEC-BUTYLBENZENE	-	-	ND(200)	ND(150)	ND(98)	ND(300)	ND(370)	ND(1400)	ND(300)
TETRACHLOROETHYLENE	530	-	ND(200)	ND(150)	ND(98)	ND(300)	ND(370)	ND(1400)	ND(300)
TOLUENE	670	-	10000^A	ND(220)	ND(150)	ND(450)	ND(560)	ND(2100)	ND(460)
TRANS-1,2-DICHLOROETHYLENE	-	-	ND(290)	ND(220)	ND(150)	ND(450)	ND(560)	ND(2100)	ND(460)
TRICHLOROETHYLENE	1600	-	8600^A	**460**	**450**	**830**	ND(370)	ND(1400)	ND(300)
VINYL CHLORIDE	-	-	ND(390)	ND(290)	ND(200)	ND(600)	ND(750)	ND(2800)	ND(610)
VPH (mg/kg)									
C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	-	-	-	-	-	-	-
C9-C10 AROMATIC HYDROCARBONS	-	-	-	-	-	-	-	-	-
C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	-	-	-	-	-	-	-

Notes and Abbreviations:
1. Table summarizes compounds or analytes that were detected above the reporting limit in one or more samples.
2. **Bold** sample results indicates result was detected above the reporting limit.
3. **Bold** analyte indicates analyte was detected in one or more samples above the Threshold Effects Concentration (TEC) or EPA Sediment Quality Benchmark (SQB), where TECs are not available.
4. **Bold** and shaded analyte indicates analyte was detected in one or more samples above the Probable Effects Concentration (PEC).
5. ^ : Indicates sample result is greater than the Ecological Threshold Effects Screening Criteria.
6. ^^ : Indicates sample result is greater than the Ecological Probable Effects Screening Criteria.
7. -: Indicates not analyzed or not available for specific analyte.
8. (TOC): Criteria based on normalized 1% organic carbon. Criteria adjusted based on sample/location specific TOC in comparison.
9. ND(100): Compound not detected above laboratory reporting limit. Value in parenthesis is the reporting limit.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID SAMPLE ID SAMPLING DATE SAMPLE DEPTH (FT)	Sediment Threshold Effects Concentration (TEC)	Sediment Probable Effects Concentration (PEC)	SS-1 SS-1_S1 16-Oct-00 0 - 0.5 ft	SS-1 SS-1 S2 16-Oct-00 0.5 - 1.5 ft	SS-2 SS-2 S1 16-Oct-00 0 - 0.5 ft	SS-3 SS-3 S1 12-Oct-00 0 - 0.5 ft	SS-3 SS-3 S2 12-Oct-00 0.5 - 2 ft	SS-4 SS-4 S1 12-Oct-00 0 - 0.5 ft	SS-4 SS-4 S2 12-Oct-00 1 - 2 ft
Miscellaneous (mg/kg)									
NITROGEN, AMMONIA	-	-	81	98	7	16	ND (14)	31	45
OXIDATION REDUCTION POTENTIAL (millivolts)	-	-	140	130	140	130	130	120	130
PH (pH units)	-	-	6.4	6.4	6.5	7	6.9	6.9	6.9
SOLIDS, TOTAL (%)	-	-	24	35	82	48	44	52	61
SULFIDE	-	-	920	2200	340	1700	1300	2300	210
SULFIDE, ACID VOLATILE (umoles/gm)	-	-	43.4	-	11.8	33.9	-	32.9	-
Grain Size Analysis (%)									
SIEVE #4	-	-	-	-	-	-	-	-	-
SIEVE #10	-	-	-	-	-	-	-	-	-
SIEVE #40	-	-	-	-	-	-	-	-	-
SIEVE #100	-	-	-	-	-	-	-	-	-
Total Organic Carbon (%)									
TOTAL ORGANIC CARBON	-	-	9.54	-	1.02	2.9	-	2.52	-
Inorganic (mg/kg)									
CADMIUM	0.99	4.98	6.2	1.2	1.4	7	6.4	6.1	34
CHROMIUM	43.4	111	-	-	-	-	-	-	-
CHROMIUM (HEXAVALENT COMPOUNDS)	-	-	ND (3.3)	ND (2.3)	ND (0.98)	ND (1.7)	ND (1.8)	ND (1.5)	ND (1.3)
COPPER	31.6	149	660	300	28	350	800	1800	2900
CYANIDE	-	-	ND (0.58)	ND (0.65)	ND (0.12)	0.29	ND (0.56)	2.6	180
CYANIDE, FREE	-	-	-	-	-	-	-	-	-
CYANIDE, PHYSIOLOGICALLY AVAILABLE	-	-	-	-	-	-	-	0.54	46
LEAD	35.8	128	810	590	140	1400	2600	630	600
MERCURY	0.18	1.06	30	4.3	ND (0.3)	0.79	0.57	9.6	4.3
NICKEL	22.7	48.6	45	28	6.8	27	28	98	140
SILVER	1	3.7	ND (8.2)	ND (5.6)	ND (2.4)	ND (4.1)	ND (4.5)	3.8	ND (3.3)
ZINC	121	459	660	350	70	380	510	660	1400
Simultaneously Extractable Inorganic (umoles/gm)									
CADMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	0.036	-	ND (0.002)	0.015	-	0.034	-
CHROMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	0.792	-	0.069	0.205	-	0.539	-
COPPER, SIMULTANEOUSLY EXTRACTABLE	-	-	2.06	-	0.162	0.57	-	7.85	-
LEAD, SIMULTANEOUSLY EXTRACTABLE	-	-	2.13	-	0.235	2.28	-	1.22	-
NICKEL, SIMULTANEOUSLY EXTRACTABLE	-	-	0.24	-	0.062	0.11	-	0.839	-
ZINC, SIMULTANEOUSLY EXTRACTABLE	-	-	5.09	-	0.568	2.14	-	9.21	-

Notes and Abbreviations: See even numbered pages.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID SAMPLE ID SAMPLING DATE SAMPLE DEPTH (FT)	Sediment Threshold Effects Concentration (TEC)	Sediment Probable Effects Concentration (PEC)	SS-1 SS-1_S1 16-Oct-00 0 - 0.5 ft	SS-1 SS-1 S2 16-Oct-00 0.5 - 1.5 ft	SS-2 SS-2 S1 16-Oct-00 0 - 0.5 ft	SS-3 SS-3 S1 12-Oct-00 0 - 0.5 ft	SS-3 SS-3 S2 12-Oct-00 0.5 - 2 ft	SS-4 SS-4 S1 12-Oct-00 0 - 0.5 ft	SS-4 SS-4 S2 12-Oct-00 1 - 2 ft
Volatile Organic Compound (ug/kg)									
1,1,1,2-TETRACHLOROETHANE	-	-	-	-	-	-	-	-	-
1,1,1-TRICHLOROETHANE	170	-	-	-	-	-	-	-	-
1,1,2,2-TETRACHLOROETHANE	940	-	-	-	-	-	-	-	-
1,1-DICHLOROETHYLENE	-	-	-	-	-	-	-	-	-
1,2-DICHLOROBENZENE	340	-	-	-	-	-	-	-	-
1,3-DICHLOROBENZENE	1700	-	-	-	-	-	-	-	-
1,4-DICHLOROBENZENE	350	-	-	-	-	-	-	-	-
2-BUTANONE (METHYL ETHYL KETONE)	270	-	-	-	-	-	-	-	-
4-METHYL-2-PENTANONE (MIBK)	-	-	-	-	-	-	-	-	-
BENZENE	57	-	-	-	-	-	-	-	-
BROMOFORM	650	-	-	-	-	-	-	-	-
CARBON TETRACHLORIDE	1200	-	-	-	-	-	-	-	-
CHLOROBENZENE	820	-	-	-	-	-	-	-	-
CIS-1,2-DICHLOROETHYLENE	-	-	-	-	-	-	-	-	-
ETHYLBENZENE	3600	-	-	-	-	-	-	-	-
ISOPROPYLBENZENE	-	-	-	-	-	-	-	-	-
NAPHTHALENE	480 (TOC)	-	-	-	-	-	-	-	-
N-BUTYLBENZENE	-	-	-	-	-	-	-	-	-
N-PROPYLBENZENE	-	-	-	-	-	-	-	-	-
O-XYLENE	25 (TOC)	-	-	-	-	-	-	-	-
P/M-XYLENE	25 (TOC)	-	-	-	-	-	-	-	-
SEC-BUTYLBENZENE	-	-	-	-	-	-	-	-	-
TETRACHLOROETHYLENE	530	-	-	-	-	-	-	-	-
TOLUENE	670	-	-	-	-	-	-	-	-
TRANS-1,2-DICHLOROETHYLENE	-	-	-	-	-	-	-	-	-
TRICHLOROETHYLENE	1600	-	-	-	-	-	-	-	-
VINYL CHLORIDE	-	-	-	-	-	-	-	-	-
VPH (mg/kg)									
C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	-	-	-	-	-	-	-
C9-C10 AROMATIC HYDROCARBONS	-	-	-	-	-	-	-	-	-
C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	-	-	-	-	-	-	-

Notes and Abbreviations:
1. Table summarizes compounds or analytes that were detected above the reporting limit in one or more samples.
2. **Bold** sample results indicates result was detected above the reporting limit.
3. **Bold** analyte indicates analyte was detected in one or more samples above the Threshold Effects Concentration (TEC) or EPA Sediment Quality Benchmark (SQB), where TECs are not available.
4. **Bold** and shaded analyte indicates analyte was detected in one or more samples above the Probable Effects Concentration (PEC).
5. A : Indicates sample result is greater than the Ecological Threshold Effects Screening Criteria.
6. AA : Indicates sample result is greater than the Ecological Probable Effects Screening Criteria.
7. -: Indicates not analyzed or not available for specific analyte.
8. (TOC): Criteria based on normalized 1% organic carbon. Criteria adjusted based on sample/location specific TOC in comparison.
9. ND(100): Compound not detected above laboratory reporting limit. Value in parenthesis is the reporting limit.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID **SAMPLE ID** **SAMPLING DATE** **SAMPLE DEPTH (FT)**	**Sediment Threshold Effects Concentration (TEC)**	**Sediment Probable Effects Concentration (PEC)**	**SS-5** **SS-5 S1** **12-Oct-00** **0 - 0.5 ft**	**SS-5** **SS-5 S2** **12-Oct-00** **0.5 - 1 ft**	**SS-6** **SS-6 S1** **16-Oct-00** **0 - 0.5 ft**	**SS-7** **SS-7 S1** **12-Oct-00** **0 - 0.5 ft**	**SS-7** **SS-7 S2** **12-Oct-00** **0.5 - 2 ft**	**SS-8** **SS-8 S1** **31-May-02** **0 - 0.75 ft**	**SS-9** **SS-9 S1** **31-May-02** **0 - 0.5 ft**
Miscellaneous (mg/kg)									
NITROGEN, AMMONIA	-	-	14	9.6	34	ND (9.9)	15	ND (8.2)	120
OXIDATION REDUCTION POTENTIAL (millivolts)	-	-	130	130	140	130	140	62	39
PH (pH units)	-	-	6.7	6.4	6.8	6.5	6.6	6.8	6.6
SOLIDS, TOTAL (%)	-	-	56	68	47	74	73	77	17
SULFIDE	-	-	180	240	400	550	220	73	1500
SULFIDE, ACID VOLATILE (umoles/gm)	-	-	10.5	-	11.1	4.39	-	2.1	25.5
Grain Size Analysis (%)									
SIEVE #4	-	-	-	-	-	-	-	-	-
SIEVE #10	-	-	-	-	-	-	-	-	-
SIEVE #40	-	-	-	-	-	-	-	-	-
SIEVE #100	-	-	-	-	-	-	-	-	-
Total Organic Carbon (%)									
TOTAL ORGANIC CARBON	-	-	2.38	-	2.72	1	-	0.442	8.41
Inorganic (mg/kg)									
CADMIUM	0.99	4.98	14	10	2.7	22	25	ND (0.51)	2.8
CHROMIUM	43.4	111	-	-	-	-	-	10	78
CHROMIUM (HEXAVALENT COMPOUNDS)	-	-	ND (1.4)	ND (1.2)	ND (1.7)	ND (1.1)	ND (1.1)	ND (1)	ND (4.7)
COPPER	31.6	149	23000	1900	220	1600	860	13	100
CYANIDE	-	-	8.9	1.2	ND (0.42)	7.3	2.7	ND (0.23)	1.4
CYANIDE, FREE	-	-	-	-	-	-	-	-	ND (1.5)
CYANIDE, PHYSIOLOGICALLY AVAILABLE	-	-	2.2	ND (0.37)	-	1.9	0.88	-	-
LEAD	35.8	128	7100	650	440	830	1300	16	250
MERCURY	0.18	1.06	4.6	2.9	2.3	7.2	1.5	0.12	1
NICKEL	22.7	48.6	2000	200	20	670	180	5.6	20
SILVER	1	3.7	5.4	ND (2.9)	ND (4.2)	4.7	ND (2.7)	ND (0.51)	ND (2.3)
ZINC	121	459	8800	850	260	870	330	50	370
Simultaneously Extractable Inorganic (umoles/gm)									
CADMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	0.028	-	0.016	0.123	-	ND (0.002)	0.021
CHROMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	0.447	-	0.188	0.672	-	0.068	0.502
COPPER, SIMULTANEOUSLY EXTRACTABLE	-	-	16.1	-	0.561	1.62	-	0.059	1.22
LEAD, SIMULTANEOUSLY EXTRACTABLE	-	-	4.52	-	0.928	0.237	-	0.05	1.06
NICKEL, SIMULTANEOUSLY EXTRACTABLE	-	-	2.21	-	0.161	0.339	-	0.035	0.198
ZINC, SIMULTANEOUSLY EXTRACTABLE	-	-	6.65	-	1.65	1.63	-	0.413	4.9

Notes and Abbreviations: See even numbered pages.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID **SAMPLE ID** **SAMPLING DATE** **SAMPLE DEPTH (FT)**	**Sediment Threshold Effects Concentration (TEC)**	**Sediment Probable Effects Concentration (PEC)**	**SS-5** **SS-5 S1** **12-Oct-00** **0 - 0.5 ft**	**SS-5** **SS-5 S2** **12-Oct-00** **0.5 - 1 ft**	**SS-6** **SS-6 S1** **16-Oct-00** **0 - 0.5 ft**	**SS-7** **SS-7 S1** **12-Oct-00** **0 - 0.5 ft**	**SS-7** **SS-7 S2** **12-Oct-00** **0.5 - 2 ft**	**SS-8** **SS-8 S1** **31-May-02** **0 - 0.75 ft**	**SS-9** **SS-9 S1** **31-May-02** **0 - 0.5 ft**
Volatile Organic Compound (ug/kg)									
1,1,1,2-TETRACHLOROETHANE	-	-	-	-	-	-	-	-	-
1,1,1-TRICHLOROETHANE	170	-	-	-	-	-	-	-	-
1,1,2,2-TETRACHLOROETHANE	940	-	-	-	-	-	-	-	-
1,1-DICHLOROETHYLENE	-	-	-	-	-	-	-	-	-
1,2-DICHLOROBENZENE	340	-	-	-	-	-	-	-	-
1,3-DICHLOROBENZENE	1700	-	-	-	-	-	-	-	-
1,4-DICHLOROBENZENE	350	-	-	-	-	-	-	-	-
2-BUTANONE (METHYL ETHYL KETONE)	270	-	-	-	-	-	-	-	-
4-METHYL-2-PENTANONE (MIBK)	-	-	-	-	-	-	-	-	-
BENZENE	57	-	-	-	-	-	-	-	-
BROMOFORM	650	-	-	-	-	-	-	-	-
CARBON TETRACHLORIDE	1200	-	-	-	-	-	-	-	-
CHLOROBENZENE	820	-	-	-	-	-	-	-	-
CIS-1,2-DICHLOROETHYLENE	-	-	-	-	-	-	-	-	-
ETHYLBENZENE	3600	-	-	-	-	-	-	-	-
ISOPROPYLBENZENE	-	-	-	-	-	-	-	-	-
NAPHTHALENE	480 (TOC)	-	-	-	-	-	-	-	-
N-BUTYLBENZENE	-	-	-	-	-	-	-	-	-
N-PROPYLBENZENE	-	-	-	-	-	-	-	-	-
O-XYLENE	25 (TOC)	-	-	-	-	-	-	-	-
P/M-XYLENE	25 (TOC)	-	-	-	-	-	-	-	-
SEC-BUTYLBENZENE	-	-	-	-	-	-	-	-	-
TETRACHLOROETHYLENE	530	-	-	-	-	-	-	-	-
TOLUENE	670	-	-	-	-	-	-	-	-
TRANS-1,2-DICHLOROETHYLENE	-	-	-	-	-	-	-	-	-
TRICHLOROETHYLENE	1600	-	-	-	-	-	-	-	-
VINYL CHLORIDE	-	-	-	-	-	-	-	-	-
VPH (mg/kg)									
C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	-	-	-	-	-	-	-
C9-C10 AROMATIC HYDROCARBONS	-	-	-	-	-	-	-	-	-
C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	-	-	-	-	-	-	-

Notes and Abbreviations:
1. Table summarizes compounds or analytes that were detected above the reporting limit in one or more samples
2. **Bold** sample results indicates result was detected above the reporting limit.
3. **Bold** analyte indicates analyte was detected in one or more samples above the Threshold Effects Concentration (TEC) or EPA Sediment Quality Benchmark (SQB), where TECs are not available.
4. **Bold** and shaded analyte indicates analyte was detected in one or more samples above the Probable Effects Concentration (PEC).
5. : Indicates sample result is greater than the Ecological Threshold Effects Screening Criteria.
6. : Indicates sample result is greater than the Ecological Probable Effects Screening Criteria.
7. -: Indicates not analyzed or not available for specific analyte.
8. (TOC): Criteria based on normalized 1% organic carbon. Criteria adjusted based on sample/location specific TOC in comparison.
9. ND(100) Compound not detected above laboratory reporting limit. Value in parenthesis is the reporting limit.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID SAMPLE ID SAMPLING DATE SAMPLE DEPTH (FT)	Sediment Threshold Effects Concentration (TEC)	Sediment Probable Effects Concentration (PEC)	SS-9 SS-9 S2 31-May-02 0.5 - 2.5 ft	SS-10 SS-10 S1 31-May-02 0 - 0.5 ft	SS-10 SS-10 S2 31-May-02 0.5 - 2.5 ft	SS-11 SS-11 S1 30-May-02 0 - 0.5 ft	SS-11 SS-11 S2 30-May-02 0.5 - 1.5 ft	SS-12 SS-12 S1 30-May-02 0 - 0.5 ft	SS-12 SS-12 S2 30-May-02 0.5 - 1.5 ft
Miscellaneous (mg/kg)									
NITROGEN, AMMONIA	-	-	220	100	120	-	-	-	-
OXIDATION REDUCTION POTENTIAL (millivolts)	-	-	52	35	43	-5	-4	-32	26
PH (pH units)	-	-	6.8	6.9	6.5	6.9	6.9	6.9	7.1
SOLIDS, TOTAL (%)	-	-	21	13	35	22	31	53	69
SULFIDE	-	-	1500	4500	180	1000	1300	550	100
SULFIDE, ACID VOLATILE (umoles/gm)	-	-	-	142	-	37.6	-	28.4	-
Grain Size Analysis (%)									
SIEVE #4	-	-	-	-	-	-	-	-	-
SIEVE #10	-	-	-	-	-	-	-	-	-
SIEVE #40	-	-	-	-	-	-	-	-	-
SIEVE #100	-	-	-	-	-	-	-	-	-
Total Organic Carbon (%)									
TOTAL ORGANIC CARBON	-	-	-	14	-	7.18	-	3.24	-
Inorganic (mg/kg)									
CADMIUM	0.99	4.98	7.5	9.2	ND (1.1)	11	11	11	2.9
CHROMIUM	43.4	111	300	84	30	140	160	100	29
CHROMIUM (HEXAVALENT COMPOUNDS)	-	-	ND (3.8)	ND (6.2)	ND (2.3)	ND (3.6)	ND (2.6)	ND (1.5)	ND (1.2)
COPPER	31.6	149	360	180	28	500	1100	15000	6000
CYANIDE	-	-	1.2	2.2	ND (0.57)	3.4	2.1	4.6	1.2
CYANIDE, FREE	-	-	ND (1.2)	ND (1.9)	-	ND (1.1)	ND (0.81)	ND (0.47)	ND (0.36)
CYANIDE, PHYSIOLOGICALLY AVAILABLE	-	-	-	-	-	-	-	-	-
LEAD	35.8	128	650	460	78	850	1600	5400	2900
MERCURY	0.18	1.06	3	ND (0.6)	0.43	2.1	6.8	7.9	5.9
NICKEL	22.7	48.6	38	56	9.2	54	95	2100	660
SILVER	1	3.7	12	ND (3.1)	ND (1.1)	33	62	32	73
ZINC	121	459	600	970	86	540	630	6800	2400
Simultaneously Extractable Inorganic (umoles/gm)									
CADMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	-	0.067	-	0.158	-	0.061	-
CHROMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	-	0.696	-	1.51	-	0.757	-
COPPER, SIMULTANEOUSLY EXTRACTABLE	-	-	-	1.97	-	4.4	-	61.8	-
LEAD, SIMULTANEOUSLY EXTRACTABLE	-	-	-	2.08	-	3.94	-	29.5	-
NICKEL, SIMULTANEOUSLY EXTRACTABLE	-	-	-	0.58	-	0.705	-	19.9	-
ZINC, SIMULTANEOUSLY EXTRACTABLE	-	-	-	13.8	-	7.77	-	58.3	-

Notes and Abbreviations: See even numbered pages.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID **SAMPLE ID** **SAMPLING DATE** **SAMPLE DEPTH (FT)**	**Sediment Threshold Effects Concentration (TEC)**	**Sediment Probable Effects Concentration (PEC)**	**SS-9** **SS-9 S2** **31-May-02** **0.5 - 2.5 ft**	**SS-10** **SS-10 S1** **31-May-02** **0 - 0.5 ft**	**SS-10** **SS-10 S2** **31-May-02** **0.5 - 2.5 ft**	**SS-11** **SS-11 S1** **30-May-02** **0 - 0.5 ft**	**SS-11** **SS-11 S2** **30-May-02** **0.5 - 1.5 ft**	**SS-12** **SS-12 S1** **30-May-02** **0 - 0.5 ft**	**SS-12** **SS-12 S2** **30-May-02** **0.5 - 1.5 ft**
Volatile Organic Compound (ug/kg)									
1,1,1,2-TETRACHLOROETHANE	-	-	-	-	-	-	-	-	-
1,1,1-TRICHLOROETHANE	170	-	-	-	-	-	-	-	-
1,1,2,2-TETRACHLOROETHANE	940	-	-	-	-	-	-	-	-
1,1-DICHLOROETHYLENE	-	-	-	-	-	-	-	-	-
1,2-DICHLOROBENZENE	340	-	-	-	-	-	-	-	-
1,3-DICHLOROBENZENE	1700	-	-	-	-	-	-	-	-
1,4-DICHLOROBENZENE	350	-	-	-	-	-	-	-	-
2-BUTANONE (METHYL ETHYL KETONE)	270	-	-	-	-	-	-	-	-
4-METHYL-2-PENTANONE (MIBK)	-	-	-	-	-	-	-	-	-
BENZENE	57	-	-	-	-	-	-	-	-
BROMOFORM	650	-	-	-	-	-	-	-	-
CARBON TETRACHLORIDE	1200	-	-	-	-	-	-	-	-
CHLOROBENZENE	820	-	-	-	-	-	-	-	-
CIS-1,2-DICHLOROETHYLENE	-	-	-	-	-	-	-	-	-
ETHYLBENZENE	3600	-	-	-	-	-	-	-	-
ISOPROPYLBENZENE	-	-	-	-	-	-	-	-	-
NAPHTHALENE	480 (TOC)	-	-	-	-	-	-	-	-
N-BUTYLBENZENE	-	-	-	-	-	-	-	-	-
N-PROPYLBENZENE	-	-	-	-	-	-	-	-	-
O-XYLENE	25 (TOC)	-	-	-	-	-	-	-	-
P/M-XYLENE	25 (TOC)	-	-	-	-	-	-	-	-
SEC-BUTYLBENZENE	-	-	-	-	-	-	-	-	-
TETRACHLOROETHYLENE	530	-	-	-	-	-	-	-	-
TOLUENE	670	-	-	-	-	-	-	-	-
TRANS-1,2-DICHLOROETHYLENE	-	-	-	-	-	-	-	-	-
TRICHLOROETHYLENE	1600	-	-	-	-	-	-	-	-
VINYL CHLORIDE	-	-	-	-	-	-	-	-	-
VPH (mg/kg)									
C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	-	-	-	-	-	-	-
C9-C10 AROMATIC HYDROCARBONS	-	-	-	-	-	-	-	-	-
C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	-	-	-	-	-	-	-

Notes and Abbreviations:
1. Table summarizes compounds or analytes that were detected above the reporting limit in one or more samples.
2. **Bold** sample results indicates result was detected above the reporting limit.
3. **Bold** analyte indicates analyte was detected in one or more samples above the Threshold Effects Concentration (TEC) or EPA Sediment Quality Benchmark (SQB), where TECs are not available.
4. **Bold** and shaded analyte indicates analyte was detected in one or more samples above the Probable Effects Concentration (PEC).
5. : Indicates sample result is greater than the Ecological Threshold Effects Screening Criteria.
6. : Indicates sample result is greater than the Ecological Probable Effects Screening Criteria.
7. -: Indicates not analyzed or not available for specific analyte.
8. (TOC): Criteria based on normalized 1% organic carbon. Criteria adjusted based on sample/location specific TOC in comparison.
9. ND(100): Compound not detected above laboratory reporting limit. Value in parenthesis is the reporting limit.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID SAMPLE ID SAMPLING DATE SAMPLE DEPTH (FT)	Sediment Threshold Effects Concentration (TEC)	Sediment Probable Effects Concentration (PEC)	SS-13 SS-13 S1 30-May-02 0 - 0.5 ft	SS-13 SS-13 S2 30-May-02 0.5 - 1.5 ft	SS-14 SS-14 S1 30-May-02 0 - 0.5 ft	SS-14 SS-14 S2 30-May-02 0.5 - 1 ft	SS-15 SS-15 S1 30-Jan-03 0 - 0.5 ft	SS-15 SS-15 S2 30-Jan-03 1 - 2 ft	SS-16 SS-16 S1 29-Jan-03 0 - 0.5 ft
Miscellaneous (mg/kg)									
NITROGEN, AMMONIA	-	-	-	-	-	-	-	-	-
OXIDATION REDUCTION POTENTIAL (millivolts)	-	-	160	250	210	190	-	-	-
PH (pH units)	-	-	6.5	6.5	7	6.8	-	-	-
SOLIDS, TOTAL (%)	-	-	67	81	67	77	-	-	-
SULFIDE	-	-	42	230	67	160	-	-	-
SULFIDE, ACID VOLATILE (umoles/gm)	-	-	0.567	-	1.85	-	-	-	-
Grain Size Analysis (%)									
SIEVE #4	-	-	-	-	-	-	-	-	-
SIEVE #10	-	-	-	-	-	-	-	-	-
SIEVE #40	-	-	-	-	-	-	-	-	-
SIEVE #100	-	-	-	-	-	-	-	-	-
Total Organic Carbon (%)									
TOTAL ORGANIC CARBON	-	-	4.3	-	4.18	-	8.5	5.8	0.38
Inorganic (mg/kg)									
CADMIUM	0.99	4.98	2.4	ND (9.8)	2.1	0.79	ND (1.7)	ND (1.3)	ND (0.65)
CHROMIUM	43.4	111	550	5800	34	21	39	ND (26)	ND (13)
CHROMIUM (HEXAVALENT COMPOUNDS)	-	-	ND (1.2)	ND (0.99)	ND (1.2)	ND (1)	8.1	3.7	1.3
COPPER	31.6	149	1100	1100	330	140	ND (68)	ND (51)	ND (26)
CYANIDE	-	-	0.79	1	ND (0.34)	0.39	ND (3.1)	ND (2.3)	ND (1.3)
CYANIDE, FREE	-	-	ND (0.37)	ND (0.31)	-	ND (0.32)	-	-	-
CYANIDE, PHYSIOLOGICALLY AVAILABLE	-	-	-	-	-	-	-	-	-
LEAD	35.8	128	560	150	230	120	100	ND (26)	ND (13)
MERCURY	0.18	1.06	0.67	0.28	0.46	0.17	0.54	ND (0.082)	0.11
NICKEL	22.7	48.6	240	3100	48	30	ND (34)	ND (26)	ND (13)
SILVER	1	3.7	2.2	ND (9.8)	0.88	2.2	ND (17)	ND (13)	ND (6.5)
ZINC	121	459	1100	170	250	130	ND (17)	ND (130)	ND (65)
Simultaneously Extractable Inorganic (umoles/gm)									
CADMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	0.004	-	0.011	-	-	-	-
CHROMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	1.61	-	0.48	-	-	-	-
COPPER, SIMULTANEOUSLY EXTRACTABLE	-	-	13.7	-	2.73	-	-	-	-
LEAD, SIMULTANEOUSLY EXTRACTABLE	-	-	0.384	-	0.683	-	-	-	-
NICKEL, SIMULTANEOUSLY EXTRACTABLE	-	-	0.215	-	0.191	-	-	-	-
ZINC, SIMULTANEOUSLY EXTRACTABLE	-	-	1.53	-	3	-	-	-	-

Notes and Abbreviations: See even numbered pages.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID / **SAMPLE ID** / **SAMPLING DATE** / **SAMPLE DEPTH (FT)**	**Sediment Threshold Effects Concentration (TEC)**	**Sediment Probable Effects Concentration (PEC)**	**SS-13** / **SS-13 S1** / **30-May-02** / **0 - 0.5 ft**	**SS-13** / **SS-13 S2** / **30-May-02** / **0.5 - 1.5 ft**	**SS-14** / **SS-14 S1** / **30-May-02** / **0 - 0.5 ft**	**SS-14** / **SS-14 S2** / **30-May-02** / **0.5 - 1 ft**	**SS-15** / **SS-15 S1** / **30-Jan-03** / **0 - 0.5 ft**	**SS-15** / **SS-15 S2** / **30-Jan-03** / **1 - 2 ft**	**SS-16** / **SS-16 S1** / **29-Jan-03** / **0 - 0.5 ft**
Volatile Organic Compound (ug/kg)									
1,1,1,2-TETRACHLOROETHANE	-	-	-	-	-	-	-	-	-
1,1,1-TRICHLOROETHANE	170	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
1,1,2,2-TETRACHLOROETHANE	940	-	-	-	-	-	-	-	-
1,1-DICHLOROETHYLENE	-	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
1,2-DICHLOROBENZENE	340	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
1,3-DICHLOROBENZENE	1700	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
1,4-DICHLOROBENZENE	350	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
2-BUTANONE (METHYL ETHYL KETONE)	270	-	-	-	-	-	ND(10000)	ND(8000)	ND(2800)
4-METHYL-2-PENTANONE (MIBK)	-	-	-	-	-	-	ND(10000)	ND(8000)	ND(2800)
BENZENE	57	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
BROMOFORM	650	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
CARBON TETRACHLORIDE	1200	-	-	-	-	-	-	-	-
CHLOROBENZENE	820	-	-	-	-	-	-	-	-
CIS-1,2-DICHLOROETHYLENE	-	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
ETHYLBENZENE	3600	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
ISOPROPYLBENZENE	-	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
NAPHTHALENE	480 (TOC)	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
N-BUTYLBENZENE	-	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
N-PROPYLBENZENE	-	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
O-XYLENE	25 (TOC)	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
P/M-XYLENE	25 (TOC)	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
SEC-BUTYLBENZENE	-	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
TETRACHLOROETHYLENE	530	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
TOLUENE	670	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
TRANS-1,2-DICHLOROETHYLENE	-	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
TRICHLOROETHYLENE	1600	-	-	-	-	-	ND(1000)	ND(800)	ND(280)
VINYL CHLORIDE	-	-	-	-	-	-	ND(2100)	ND(1600)	ND(550)
VPH (mg/kg)									
C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	-	-	-	-	ND (5)	ND (3.1)	ND (1.3)
C9-C10 AROMATIC HYDROCARBONS	-	-	-	-	-	-	ND (5)	ND (3.1)	ND (1.3)
C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	-	-	-	-	ND (5)	ND (3.1)	ND (1.3)

Notes and Abbreviations:
1. Table summarizes compounds or analytes that were detected above the reporting limit in one or more samples.
2. **Bold** sample results indicates result was detected above the reporting limit.
3. **Bold** analyte indicates analyte was detected in one or more samples above the Threshold Effects Concentration (TEC) or EPA Sediment Quality Benchmark (SQB), where TECs are not available.
4. **Bold** and shaded analyte indicates analyte was detected in one or more samples above the Probable Effects Concentration (PEC).
5. : Indicates sample result is greater than the Ecological Threshold Effects Screening Criteria.
6. : Indicates sample result is greater than the Ecological Probable Effects Screening Criteria.
7. -: Indicates not analyzed or not available for specific analyte.
8. (TOC): Criteria based on normalized 1% organic carbon. Criteria adjusted based on sample/location specific TOC in comparison.
9. ND(100): Compound not detected above laboratory reporting limit. Value in parenthesis is the reporting limit.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID SAMPLE ID SAMPLING DATE SAMPLE DEPTH (FT)	Sediment Threshold Effects Concentration (TEC)	Sediment Probable Effects Concentration (PEC)	SS-16 SS-16 S2 29-Jan-03 0.5 - 1.5 ft	SS-17 SS-17 S1 30-Jan-03 0 - 0.5 ft	SS-17 SS-17 S2 30-Jan-03 1 - 2 ft	SS-18 SS-18 S1 30-Jan-03 0 - 0.5 ft	SS-18 SS-18 S2 30-Jan-03 1 - 2 ft	SS-19 SS-19 S1 30-Jan-03 0 - 0.5 ft	SS-19 SS-19 S2 30-Jan-03 1 - 2 ft
Miscellaneous (mg/kg)									
NITROGEN, AMMONIA	-	-	-	-	-	-	-	-	-
OXIDATION REDUCTION POTENTIAL (millivolts)	-	-	-	-	-	-	-	-	-
PH (pH units)	-	-	-	-	-	-	-	-	-
SOLIDS, TOTAL (%)	-	-	-	-	-	-	-	-	-
SULFIDE	-	-	-	-	-	-	-	-	-
SULFIDE, ACID VOLATILE (umoles/gm)	-	-	-	-	-	-	-	-	-
Grain Size Analysis (%)									
SIEVE #4	-	-	-	-	-	-	-	-	-
SIEVE #10	-	-	-	-	-	-	-	-	-
SIEVE #40	-	-	-	-	-	-	-	-	-
SIEVE #100	-	-	-	-	-	-	-	-	-
Total Organic Carbon (%)									
TOTAL ORGANIC CARBON	-	-	1.1	13	22	11	4.1	4.1	4.1
Inorganic (mg/kg)									
CADMIUM	0.99	4.98	ND (1.3)	4	2.3	5.1	2.9	1.3	2.9
CHROMIUM	43.4	111	ND (11)	97	76	140	140	150	83
CHROMIUM (HEXAVALENT COMPOUNDS)	-	-	1.9	1.7	25	12	3.9	9.5	4
COPPER	31.6	149	ND (22)	120	100	180	390	420	430
CYANIDE	-	-	ND (1.1)	ND (5.4)	ND (4.5)	ND (4.6)	ND (2.7)	ND (2)	ND (2.7)
CYANIDE, FREE	-	-	-	-	-	-	-	-	-
CYANIDE, PHYSIOLOGICALLY AVAILABLE	-	-	-	-	-	-	-	-	-
LEAD	35.8	128	11	270	160	420	470	390	310
MERCURY	0.18	1.06	0.081	1.5	0.18	1.6	1.9	1.2	3.1
NICKEL	22.7	48.6	ND (11)	ND (56)	ND (13)	ND (49)	36	53	30
SILVER	1	3.7	ND (5.4)	ND (28)	ND (6.7)	ND (25)	ND (15)	18	ND (13)
ZINC	121	459	ND (54)	320	140	450	320	200	330
Simultaneously Extractable Inorganic (umoles/gm)									
CADMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
CHROMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
COPPER, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
LEAD, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
NICKEL, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
ZINC, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-

Notes and Abbreviations: See even numbered pages.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID / **SAMPLE ID** / **SAMPLING DATE** / **SAMPLE DEPTH (FT)**	**Sediment Threshold Effects Concentration (TEC)**	**Sediment Probable Effects Concentration (PEC)**	**SS-16** / **SS-16 S2** / **29-Jan-03** / **0.5 - 1.5 ft**	**SS-17** / **SS-17 S1** / **30-Jan-03** / **0 - 0.5 ft**	**SS-17** / **SS-17 S2** / **30-Jan-03** / **1 - 2 ft**	**SS-18** / **SS-18 S1** / **30-Jan-03** / **0 - 0.5 ft**	**SS-18** / **SS-18 S2** / **30-Jan-03** / **1 - 2 ft**	**SS-19** / **SS-19 S1** / **30-Jan-03** / **0 - 0.5 ft**	**SS-19** / **SS-19 S2** / **30-Jan-03** / **1 - 2 ft**
Volatile Organic Compound (ug/kg)									
1,1,1,2-TETRACHLOROETHANE	-	-	-	-	-	-	-	-	-
1,1,1-TRICHLOROETHANE	170	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	ND(720)	ND(1300)
1,1,2,2-TETRACHLOROETHANE	940	-	-	-	-	-	-	-	-
1,1-DICHLOROETHYLENE	-	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	ND(720)	ND(1300)
1,2-DICHLOROBENZENE	340	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	ND(720)	ND(1300)
1,3-DICHLOROBENZENE	1700	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	ND(720)	ND(1300)
1,4-DICHLOROBENZENE	350	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	ND(720)	ND(1300)
2-BUTANONE (METHYL ETHYL KETONE)	270	-	ND(2700)	ND(20000)	ND(16000)	ND(18000)	ND(10000)	ND(7200)	ND(13000)
4-METHYL-2-PENTANONE (MIBK)	-	-	ND(2700)	ND(20000)	ND(16000)	ND(18000)	ND(10000)	ND(7200)	ND(13000)
BENZENE	57	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	ND(720)	ND(1300)
BROMOFORM	650	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	ND(720)	ND(1300)
CARBON TETRACHLORIDE	1200	-	-	-	-	-	-	-	-
CHLOROBENZENE	820	-	-	-	-	-	-	-	-
CIS-1,2-DICHLOROETHYLENE	-	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	**3800**	ND(720)	ND(1300)
ETHYLBENZENE	3600	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	ND(720)	ND(1300)
ISOPROPYLBENZENE	-	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	ND(720)	ND(1300)
NAPHTHALENE	480 (TOC)	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	ND(720)	ND(1300)
N-BUTYLBENZENE	-	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	ND(720)	ND(1300)
N-PROPYLBENZENE	-	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	ND(720)	ND(1300)
O-XYLENE	25 (TOC)	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	ND(720)	ND(1300)
P/M-XYLENE	25 (TOC)	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	ND(720)	ND(1300)
SEC-BUTYLBENZENE	-	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	ND(720)	ND(1300)
TETRACHLOROETHYLENE	530	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	ND(720)	ND(1300)
TOLUENE	670	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	ND(720)	ND(1300)
TRANS-1,2-DICHLOROETHYLENE	-	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	ND(720)	ND(1300)
TRICHLOROETHYLENE	1600	-	ND(270)	ND(2000)	ND(1600)	ND(1800)	ND(1000)	**980**	ND(1300)
VINYL CHLORIDE	-	-	ND(550)	ND(4000)	ND(3200)	ND(3500)	ND(2000)	ND(1400)	ND(2600)
VPH (mg/kg)									
C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	ND (1.1)	ND (7.6)	ND (7.7)	ND (10)	ND (3.7)	-	-
C9-C10 AROMATIC HYDROCARBONS	-	-	ND (1.1)	ND (7.6)	ND (7.7)	ND (10)	ND (3.7)	ND (4)	ND (3.5)
C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	ND (1.1)	ND (7.6)	ND (7.7)	ND (10)	ND (3.7)	-	-

Notes and Abbreviations:
1. Table summarizes compounds or analytes that were detected above the reporting limit in one or more samples.
2. **Bold** sample results indicates result was detected above the reporting limit.
3. **Bold** analyte indicates analyte was detected in one or more samples above the Threshold Effects Concentration (TEC) or EPA Sediment Quality Benchmark (SQB), where TECs are not available.
4. **Bold** and shaded analyte indicates analyte was detected in one or more samples above the Probable Effects Concentration (PEC).
5. : Indicates sample result is greater than the Ecological Threshold Effects Screening Criteria.
6. : Indicates sample result is greater than the Ecological Probable Effects Screening Criteria.
7. -: Indicates not analyzed or not available for specific analyte.
8. (TOC): Criteria based on normalized 1% organic carbon. Criteria adjusted based on sample/location specific TOC in comparison.
9. ND(100): Compound not detected above laboratory reporting limit. Value in parenthesis is the reporting limit.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID SAMPLE ID SAMPLING DATE SAMPLE DEPTH (FT)	Sediment Threshold Effects Concentration (TEC)	Sediment Probable Effects Concentration (PEC)	SS-20 SS-20 S1 30-Jan-03 0 - 0.5 ft	SS-20 SS-20 S2 30-Jan-03 0.5 - 1.5 ft	SS-21 SS-21 S1 30-Jan-03 0 - 0.5 ft	SS-22 SS-22 S1 29-Jan-03 0 - 0.5 ft	SS-22 SS-22 S2 29-Jan-03 1 - 2 ft	SS-23 SS-23 S1 30-Jan-03 0 - 0.5 ft	SS-23 SS-23 S2 30-Jan-03 1 - 2 ft
Miscellaneous (mg/kg)									
NITROGEN, AMMONIA	-	-	-	-	-	-	-	-	-
OXIDATION REDUCTION POTENTIAL (millivolts)	-	-	-	-	-	-	-	-	-
PH (pH units)	-	-	-	-	-	-	-	-	-
SOLIDS, TOTAL (%)	-	-	-	-	-	-	-	-	-
SULFIDE	-	-	-	-	-	-	-	-	-
SULFIDE, ACID VOLATILE (umoles/gm)	-	-	-	-	-	-	-	-	-
Grain Size Analysis (%)									
SIEVE #4	-	-	-	-	-	-	-	-	-
SIEVE #10	-	-	-	-	-	-	-	-	-
SIEVE #40	-	-	-	-	-	-	-	-	-
SIEVE #100	-	-	-	-	-	-	-	-	-
Total Organic Carbon (%)									
TOTAL ORGANIC CARBON	-	-	3.1	3	1.2	0.74	2.2	4.3	17
Inorganic (mg/kg)									
CADMIUM	0.99	4.98	-	-	-	1.2	0.71	-	-
CHROMIUM	43.4	111	-	-	-	30	29	-	-
CHROMIUM (HEXAVALENT COMPOUNDS)	-	-	-	-	-	-	-	-	-
COPPER	31.6	149	-	-	-	970	230	-	-
CYANIDE	-	-	-	-	-	-	-	-	-
CYANIDE, FREE	-	-	-	-	-	-	-	-	-
CYANIDE, PHYSIOLOGICALLY AVAILABLE	-	-	-	-	-	-	-	-	-
LEAD	35.8	128	-	-	-	860	230	-	-
MERCURY	0.18	1.08	-	-	-	0.34	2.9	-	-
NICKEL	22.7	48.6	-	-	-	74	16	-	-
SILVER	1	3.7	-	-	-	ND (5.7)	42	-	-
ZINC	121	459	-	-	-	300	180	-	-
Simultaneously Extractable Inorganic (umoles/gm)									
CADMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
CHROMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
COPPER, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
LEAD, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
NICKEL, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
ZINC, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-

Notes and Abbreviations: See even numbered pages.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID SAMPLE ID SAMPLING DATE SAMPLE DEPTH (FT)	Sediment Threshold Effects Concentration (TEC)	Sediment Probable Effects Concentration (PEC)	SS-20 SS-20 S1 30-Jan-03 0 - 0.5 ft	SS-20 SS-20 S2 30-Jan-03 0.5 - 1.5 ft	SS-21 SS-21 S1 30-Jan-03 0 - 0.5 ft	SS-22 SS-22 S1 29-Jan-03 0 - 0.5 ft	SS-22 SS-22 S2 29-Jan-03 1 - 2 ft	SS-23 SS-23 S1 30-Jan-03 0 - 0.5 ft	SS-23 SS-23 S2 30-Jan-03 1 - 2 ft
Volatile Organic Compound (ug/kg)									
1,1,1,2-TETRACHLOROETHANE	-	-	-	-	-	-	-	-	-
1,1,1-TRICHLOROETHANE	170	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	ND(1200)	ND(3800)
1,1,2,2-TETRACHLOROETHANE	940	-	-	-	-	-	-	-	-
1,1-DICHLOROETHYLENE	-	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	ND(1200)	ND(3800)
1,2-DICHLOROBENZENE	340	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	ND(1200)	ND(3800)
1,3-DICHLOROBENZENE	1700	-	-	-	-	ND(300)	ND(340)	ND(1200)	ND(3800)
1,4-DICHLOROBENZENE	350	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	ND(1200)	ND(3800)
2-BUTANONE (METHYL ETHYL KETONE)	270	-	ND(6400)	ND(5400)	ND(2500)	ND(3000)	ND(3400)	ND(12000)	ND(38000)
4-METHYL-2-PENTANONE (MIBK)	-	-	ND(6400)	ND(5400)	ND(2500)	ND(3000)	ND(3400)	ND(12000)	ND(38000)
BENZENE	57	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	ND(1200)	ND(3800)
BROMOFORM	650	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	ND(1200)	ND(3800)
CARBON TETRACHLORIDE	1200	-	-	-	-	-	-	-	-
CHLOROBENZENE	820	-	-	-	-	-	-	-	-
CIS-1,2-DICHLOROETHYLENE	-	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	**31000**	**73000**
ETHYLBENZENE	3600	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	ND(1200)	ND(3800)
ISOPROPYLBENZENE	-	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	ND(1200)	ND(3800)
NAPHTHALENE	480 (TOC)	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	ND(1200)	ND(3800)
N-BUTYLBENZENE	-	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	ND(1200)	ND(3800)
N-PROPYLBENZENE	-	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	ND(1200)	ND(3800)
O-XYLENE	25 (TOC)	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	ND(1200)	ND(3800)
P/M-XYLENE	25 (TOC)	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	ND(1200)	ND(3800)
SEC-BUTYLBENZENE	-	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	ND(1200)	ND(3800)
TETRACHLOROETHYLENE	530	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	ND(1200)	ND(3800)
TOLUENE	670	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	ND(1200)	ND(3800)
TRANS-1,2-DICHLOROETHYLENE	-	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	ND(1200)	ND(3800)
TRICHLOROETHYLENE	1600	-	ND(640)	ND(540)	ND(250)	ND(300)	ND(340)	7300 ^	26000 ^^
VINYL CHLORIDE	-	-	ND(1300)	ND(1100)	ND(500)	ND(590)	ND(680)	ND(2400)	ND(7600)
VPH (mg/kg)									
C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	-	-	-	-	-	-	-
C9-C10 AROMATIC HYDROCARBONS	-	-	-	-	-	-	-	-	-
C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	-	-	-	-	-	-	-

Notes and Abbreviations:

1. Table summarizes compounds or analytes that were detected above the reporting limit in one or more samples.
2. **Bold** sample results indicates result was detected above the reporting limit.
3. **Bold** analyte indicates analyte was detected in one or more samples above the Threshold Effects Concentration (TEC) or EPA Sediment Quality Benchmark (SQB), where TECs are not available.
4. **Bold** and shaded analyte indicates analyte was detected in one or more samples above the Probable Effects Concentration (PEC).
5. ^ : Indicates sample result is greater than the Ecological Threshold Effects Screening Criteria.
6. ^^ : Indicates sample result is greater than the Ecological Probable Effects Screening Criteria.
7. -: Indicates not analyzed or not available for specific analyte.
8. (TOC) Criteria based on normalized 1% organic carbon. Criteria adjusted based on sample/location specific TOC in comparison.
9. ND(100): Compound not detected above laboratory reporting limit. Value in parenthesis is the reporting limit.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID SAMPLE ID SAMPLING DATE SAMPLE DEPTH (FT)	Sediment Threshold Effects Concentration (TEC)	Sediment Probable Effects Concentration (PEC)	SS-24 SS-24 S1 29-Sep-03 0 - 0.5 ft	SS-24 SS-24 S2 29-Sep-03 0.5 - 2 ft	SS-24 SS-24 S3 29-Sep-03 2 - 3 ft	SS-25 SS-25 S1 30-Sep-03 0 - 0.5 ft	SS-25 SS-25 S2 30-Sep-03 0.5 - 2 ft	SS-25 SS-25 S3 30-Sep-03 2 - 3.5 ft	SS-26 SS-26 S1 30-Sep-03 0 - 0.5 ft
Miscellaneous (mg/kg)									
NITROGEN, AMMONIA	-	-	-	-	-	-	-	-	-
OXIDATION REDUCTION POTENTIAL (millivolts)	-	-	180	150	180	34	220	210	280
PH (pH units)	-	-	6.7	7.2	7.1	6.8	7.2	8.1	6.6
SOLIDS, TOTAL (%)	-	-	-	-	-	-	-	-	-
SULFIDE	-	-	-	-	-	-	-	-	-
SULFIDE, ACID VOLATILE (umoles/gm)	-	-	-	-	-	-	-	-	-
Grain Size Analysis (%)									
SIEVE #4	-	-	30	50	67	-	43	29	43
SIEVE #10	-	-	38	61	83	-	57	40	59
SIEVE #40	-	-	60	84	96	-	75	60	77
SIEVE #100	-	-	81	92	100	-	84	75	85
Total Organic Carbon (%)									
TOTAL ORGANIC CARBON	-	-	1.91	0.518	0.535	4.81	0.268	0.029	0.32
Inorganic (mg/kg)									
CADMIUM	0.99	4.98	1.4	ND (0.47)	ND (0.49)	4.8	ND (0.43)	ND (0.43)	ND (0.44)
CHROMIUM	43.4	111	16	11	16	73	11	6.3	12
CHROMIUM (HEXAVALENT COMPOUNDS)	-	-	ND (1)	ND (0.95)	ND (0.99)	ND (1.6)	ND (0.87)	ND (0.88)	ND (0.89)
COPPER	31.6	149	250	31	26	480	25	12	22
CYANIDE	-	-	ND (0.28)	ND (0.25)	ND (0.27)	0.88	ND (0.2)	ND (0.2)	ND (0.24)
CYANIDE, FREE	-	-	-	-	-	ND (0.52)	-	-	-
CYANIDE, PHYSIOLOGICALLY AVAILABLE	-	-	-	-	-	-	-	-	-
LEAD	35.8	128	960	60	49	640	11	4.5	8.3
MERCURY	0.18	1.06	0.53	ND (0.094)	ND (0.093)	4.1	ND (0.082)	ND (0.089)	ND (0.076)
NICKEL	22.7	48.6	9.4	7.7	7.8	46	7.9	5.8	14
SILVER	1	3.7	4.9	ND (0.47)	ND (0.49)	28	ND (0.43)	ND (0.43)	ND (0.44)
ZINC	121	459	74	26	19	300	27	18	39
Simultaneously Extractable Inorganic (umoles/gm)									
CADMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
CHROMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
COPPER, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
LEAD, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
NICKEL, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
ZINC, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-

Notes and Abbreviations: See even numbered pages.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID SAMPLE ID SAMPLING DATE SAMPLE DEPTH (FT)	Sediment Threshold Effects Concentration (TEC)	Sediment Probable Effects Concentration (PEC)	SS-24 SS-24 S1 29-Sep-03 0 - 0.5 ft	SS-24 SS-24 S2 29-Sep-03 0.5 - 2 ft	SS-24 SS-24 S3 29-Sep-03 2 - 3 ft	SS-25 SS-25 S1 30-Sep-03 0 - 0.5 ft	SS-25 SS-25 S2 30-Sep-03 0.5 - 2 ft	SS-25 SS-25 S3 30-Sep-03 2 - 3.5 ft	SS-26 SS-26 S1 30-Sep-03 0 - 0.5 ft
Volatile Organic Compound (ug/kg)									
1,1,1,2-TETRACHLOROETHANE	-	-	ND(130)	ND(73)	ND(68)	ND(200)	ND(58)	ND(60)	ND(60)
1,1,1-TRICHLOROETHANE	170	-	ND(130)	ND(73)	ND(68)	ND(200)	ND(58)	ND(60)	ND(60)
1,1,2,2-TETRACHLOROETHANE	940	-	ND(130)	ND(73)	ND(68)	ND(200)	ND(58)	ND(60)	ND(60)
1,1-DICHLOROETHYLENE	-	-	ND(130)	ND(73)	ND(68)	ND(200)	ND(58)	ND(60)	ND(60)
1,2-DICHLOROBENZENE	340	-	ND(660)	ND(360)	ND(340)	ND(1000)	ND(290)	ND(300)	ND(300)
1,3-DICHLOROBENZENE	1700	-	ND(660)	ND(360)	ND(340)	ND(1000)	ND(290)	ND(300)	ND(300)
1,4-DICHLOROBENZENE	350	-	ND(660)	ND(360)	ND(340)	ND(1000)	ND(290)	ND(300)	ND(300)
2-BUTANONE (METHYL ETHYL KETONE)	270	-	ND(1300)	ND(730)	ND(680)	ND(2000)	ND(580)	ND(600)	ND(600)
4-METHYL-2-PENTANONE (MIBK)	-	-	ND(1300)	ND(730)	ND(680)	ND(2000)	ND(580)	ND(600)	ND(600)
BENZENE	57	-	ND(130)	ND(73)	ND(68)	ND(200)	ND(58)	ND(60)	ND(60)
BROMOFORM	650	-	ND(530)	ND(290)	ND(270)	ND(800)	ND(230)	ND(240)	ND(240)
CARBON TETRACHLORIDE	1200	-	ND(130)	ND(73)	ND(68)	ND(200)	ND(58)	ND(60)	ND(60)
CHLOROBENZENE	820	-	ND(130)	ND(73)	ND(68)	ND(200)	ND(58)	ND(60)	ND(60)
CIS-1,2-DICHLOROETHYLENE	-	-	**470**	ND(73)	ND(68)	**6800**	**130**	**170**	ND(60)
ETHYLBENZENE	3600	-	ND(130)	ND(73)	ND(68)	ND(200)	ND(58)	ND(60)	ND(60)
ISOPROPYLBENZENE	-	-	ND(130)	ND(73)	ND(68)	ND(200)	ND(58)	ND(60)	ND(60)
NAPHTHALENE	480 (TOC)	-	ND(660)	ND(360)	ND(340)	ND(1000)	ND(290)	ND(300)	ND(300)
N-BUTYLBENZENE	-	-	ND(130)	ND(73)	ND(68)	ND(200)	ND(58)	ND(60)	ND(60)
N-PROPYLBENZENE	-	-	ND(130)	ND(73)	ND(68)	ND(200)	ND(58)	ND(60)	ND(60)
O-XYLENE	25 (TOC)	-	ND(130)	ND(73)	ND(68)	ND(200)	ND(58)	ND(60)	ND(60)
P/M-XYLENE	25 (TOC)	-	ND(130)	ND(73)	ND(68)	ND(200)	ND(58)	ND(60)	ND(60)
SEC-BUTYLBENZENE	-	-	ND(130)	ND(73)	ND(68)	ND(200)	ND(58)	ND(60)	ND(60)
TETRACHLOROETHYLENE	530	-	ND(130)	ND(73)	ND(68)	ND(200)	ND(58)	ND(60)	**60**
TOLUENE	670	-	ND(200)	ND(110)	ND(100)	ND(300)	ND(87)	ND(90)	ND(90)
TRANS-1,2-DICHLOROETHYLENE	-	-	ND(200)	ND(110)	ND(100)	ND(300)	ND(87)	ND(90)	ND(90)
TRICHLOROETHYLENE	1600	-	**770**	**110**	**190**	**740**	**550**	**4400^**	ND(60)
VINYL CHLORIDE	-	-	ND(260)	ND(150)	ND(140)	ND(400)	ND(120)	ND(120)	ND(120)
VPH (mg/kg)									
C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	-	-	-	-	-	-	-
C9-C10 AROMATIC HYDROCARBONS	-	-	-	-	-	-	-	-	-
C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	-	-	-	-	-	-	-

Notes and Abbreviations:
1. Table summarizes compounds or analytes that were detected above the reporting limit in one or more samples.
2. **Bold** sample results indicates result was detected above the reporting limit.
3. **Bold** analyte indicates analyte was detected in one or more samples above the Threshold Effects Concentration (TEC) or EPA Sediment Quality Benchmark (SQB), where TECs are not available.
4. **Bold** and shaded analyte indicates analyte was detected in one or more samples above the Probable Effects Concentration (PEC).
5. ^ : Indicates sample result is greater than the Ecological Threshold Effects Screening Criteria.
6. ^^ : Indicates sample result is greater than the Ecological Probable Effects Screening Criteria.
7. -: Indicates not analyzed or not available for specific analyte.
8. (TOC): Criteria based on normalized 1% organic carbon. Criteria adjusted based on sample/location specific TOC in comparison.
9. ND(100): Compound not detected above laboratory reporting limit. Value in parenthesis is the reporting limit.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID SAMPLE ID SAMPLING DATE SAMPLE DEPTH (FT)	Sediment Threshold Effects Concentration (TEC)	Sediment Probable Effects Concentration (PEC)	SS-26 SS-26 S2 30-Sep-03 0.5 - 2 ft	SS-26 SS-26 S3 30-Sep-03 2 - 3 ft	SS-27 SS-27 S1 30-Sep-03 0 - 0.5 ft	SS-27 SS-27 S2 30-Sep-03 0.5 - 2 ft	SS-27 SS-27 S3 30-Sep-03 2 - 4 ft	SS-28 SS-28 S1 02-Oct-03 0 - 1 ft	SS-28 SS-28 S2 02-Oct-03 2 - 3 ft
Miscellaneous (mg/kg)									
NITROGEN, AMMONIA	-	-	-	-	-	-	-	-	-
OXIDATION REDUCTION POTENTIAL (millivolts)	-	-	270	220	90	100	220	280	260
PH (pH units)	-	-	7.7	8.1	7.6	6.4	6.9	6.9	7.9
SOLIDS, TOTAL (%)	-	-	-	-	-	-	-	-	-
SULFIDE	-	-	-	-	-	-	-	-	-
SULFIDE, ACID VOLATILE (umoles/gm)	-	-	-	-	-	-	-	-	-
Grain Size Analysis (%)									
SIEVE #4	-	-	27	16	16	31	43	22	ND (0.1)
SIEVE #10	-	-	42	23	19	47	52	25	ND (0.1)
SIEVE #40	-	-	58	38	26	73	70	49	0.3
SIEVE #100	-	-	70	56	31	83	82	73	1.2
Total Organic Carbon (%)									
TOTAL ORGANIC CARBON	-	-	0.067	0.127	12.7	0.696	0.104	0.46	0.077
Inorganic (mg/kg)									
CADMIUM	0.99	4.98	ND (0.43)	ND (0.44)	2.3	ND (0.48)	ND (0.45)	ND (0.48)	ND (0.49)
CHROMIUM	43.4	111	9.5	12	160	14	22	8.5	11
CHROMIUM (HEXAVALENT COMPOUNDS)	-	-	ND (0.87)	ND (0.88)	ND (3.1)	ND (0.98)	ND (0.91)	ND (0.96)	ND (0.99)
COPPER	31.6	149	18	13	280	15	18	53	13
CYANIDE	-	-	ND (0.21)	ND (0.23)	ND (0.74)	ND (0.22)	ND (0.25)	0.32	ND (0.23)
CYANIDE, FREE	-	-	-	-	-	-	-	ND (0.30)	-
CYANIDE, PHYSIOLOGICALLY AVAILABLE	-	-	-	-	-	-	-	-	-
LEAD	35.8	128	4.4	4.5	500	6.5	4	40	4.4
MERCURY	0.18	1.06	ND (0.089)	ND (0.081)	1.4	ND (0.083)	ND (0.092)	0.37	ND (0.089)
NICKEL	22.7	48.6	8.2	8.8	22	10	13	4.2	9.7
SILVER	1	3.7	ND (0.43)	ND (0.44)	2.8	ND (0.48)	ND (0.45)	2.5	ND (0.49)
ZINC	121	459	25	24	330	28	28	100	23
Simultaneously Extractable Inorganic (umoles/gm)									
CADMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
CHROMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
COPPER, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
LEAD, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
NICKEL, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
ZINC, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-

Notes and Abbreviations: See even numbered pages.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID SAMPLE ID SAMPLING DATE SAMPLE DEPTH (FT)	Sediment Threshold Effects Concentration (TEC)	Sediment Probable Effects Concentration (PEC)	SS-26 SS-26 S2 30-Sep-03 0.5 - 2 ft	SS-26 SS-26 S3 30-Sep-03 2 - 3 ft	SS-27 SS-27 S1 30-Sep-03 0 - 0.5 ft	SS-27 SS-27 S2 30-Sep-03 0.5 - 2 ft	SS-27 SS-27 S3 30-Sep-03 2 - 4 ft	SS-28 SS-28 S1 02-Oct-03 0 - 1 ft	SS-28 SS-28 S2 02-Oct-03 2 - 3 ft
Volatile Organic Compound (ug/kg)									
1,1,1,2-TETRACHLOROETHANE	-	-	ND(54)	ND(62)	ND(390)	ND(56)	ND(75)	ND(83)	ND(84)
1,1,1-TRICHLOROETHANE	170	-	ND(54)	ND(62)	ND(390)	ND(56)	ND(75)	ND(83)	ND(84)
1,1,2,2-TETRACHLOROETHANE	940	-	ND(54)	ND(62)	ND(390)	ND(56)	ND(75)	ND(83)	ND(84)
1,1-DICHLOROETHYLENE	-	-	ND(54)	ND(62)	ND(390)	ND(56)	ND(75)	**110**	ND(84)
1,2-DICHLOROBENZENE	340	-	ND(270)	ND(310)	ND(1900)	ND(280)	ND(370)	ND(410)	ND(420)
1,3-DICHLOROBENZENE	1700	-	ND(270)	ND(310)	ND(1900)	ND(280)	ND(370)	ND(410)	ND(420)
1,4-DICHLOROBENZENE	350	-	ND(270)	ND(310)	ND(1900)	ND(280)	ND(370)	ND(410)	ND(420)
2-BUTANONE (METHYL ETHYL KETONE)	270	-	ND(540)	ND(620)	ND(3900)	ND(560)	ND(750)	ND(830)	ND(840)
4-METHYL-2-PENTANONE (MIBK)	-	-	ND(540)	ND(620)	ND(3900)	ND(560)	ND(750)	ND(830)	ND(840)
BENZENE	57	-	ND(54)	ND(62)	ND(390)	ND(56)	ND(75)	ND(83)	ND(84)
BROMOFORM	650	-	ND(220)	ND(250)	ND(1600)	ND(220)	ND(300)	ND(330)	ND(340)
CARBON TETRACHLORIDE	1200	-	ND(54)	ND(62)	ND(390)	ND(56)	ND(75)	ND(83)	ND(84)
CHLOROBENZENE	820	-	ND(54)	ND(62)	ND(390)	ND(56)	ND(75)	ND(83)	ND(84)
CIS-1,2-DICHLOROETHYLENE	-	-	ND(54)	**140**	ND(390)	ND(56)	ND(75)	**46000**	**3700**
ETHYLBENZENE	3600	-	ND(54)	ND(62)	ND(390)	ND(56)	ND(75)	ND(83)	ND(84)
ISOPROPYLBENZENE	-	-	ND(54)	ND(62)	ND(390)	ND(56)	ND(75)	ND(83)	ND(84)
NAPHTHALENE	480 (TOC)	-	ND(270)	ND(310)	ND(1900)	ND(280)	ND(370)	ND(410)	ND(420)
N-BUTYLBENZENE	-	-	ND(54)	ND(62)	ND(390)	ND(56)	ND(75)	ND(83)	ND(84)
N-PROPYLBENZENE	-	-	ND(54)	ND(62)	ND(390)	ND(56)	ND(75)	ND(83)	ND(84)
O-XYLENE	25 (TOC)	-	ND(54)	ND(62)	ND(390)	ND(56)	ND(75)	ND(83)	ND(84)
P/M-XYLENE	25 (TOC)	-	ND(54)	ND(62)	ND(390)	ND(56)	ND(75)	ND(83)	ND(84)
SEC-BUTYLBENZENE	-	-	ND(54)	ND(62)	ND(390)	ND(56)	ND(75)	ND(83)	ND(84)
TETRACHLOROETHYLENE	530	-	ND(54)	ND(62)	ND(390)	ND(56)	ND(75)	**120**	**120**
TOLUENE	670	-	ND(81)	ND(93)	ND(580)	ND(84)	ND(110)	ND(120)	ND(130)
TRANS-1,2-DICHLOROETHYLENE	-	-	ND(81)	ND(93)	ND(580)	ND(84)	ND(110)	**320**	ND(130)
TRICHLOROETHYLENE	1600	-	ND(54)	ND(62)	ND(390)	ND(56)	ND(75)	18000^A	17000^A
VINYL CHLORIDE	-	-	ND(110)	ND(120)	ND(780)	ND(110)	ND(150)	**1500**	ND(170)
VPH (mg/kg)									
C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	-	-	-	-	-	ND (3.84)	**7.81**
C9-C10 AROMATIC HYDRDCARBONS	-	-	-	-	-	-	-	ND (3.84)	ND (3.06)
C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	-	-	-	-	-	ND (3.84)	ND (3.06)

Notes and Abbreviations:
1. Table summarizes compounds or analytes that were detected above the reporting limit in one or more samples.
2. **Bold** sample results indicates result was detected above the reporting limit.
3. **Bold** analyte indicates analyte was detected in one or more samples above the Threshold Effects Concentration (TEC) or EPA Sediment Quality Benchmark (SQB), where TECs are not available.
4. **Bold** and shaded analyte indicates analyte was detected in one or more samples above the Probable Effects Concentration (PEC).
5. : Indicates sample result is greater than the Ecological Threshold Effects Screening Criteria.
6. ^ : Indicates sample result is greater than the Ecological Probable Effects Screening Criteria.
7. -: Indicates not analyzed or not available for specific analyte.
8. (TOC): Criteria based on normalized 1% organic carbon. Criteria adjusted based on sample/location specific TOC in comparison.
9. ND(100): Compound not detected above laboratory reporting limit. Value in parenthesis is the reporting limit.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS 3-0585, 3-19850

LOCATION ID SAMPLE ID SAMPLING DATE SAMPLE DEPTH (FT)	Sediment Threshold Effects Concentration (TEC)	Sediment Probable Effects Concentration (PEC)	SS-29 SS-29 S1 30-Sep-03 0 - 0.5 ft	SS-29 SS-29 S2 30-Sep-03 0.5 - 2 ft	SS-29 SS-29 S3 30-Sep-03 2 - 2.5 ft	SS-30 SS-30 S1 01-Oct-03 0 - 0.5 ft	SS-30 SS-30 S2 01-Oct-03 0.5 - 1.5 ft	SS-30 SS-30 S3 01-Oct-03 1.5 - 2.5 ft	SS-32 SS-32 S1 01-Oct-03 0 - 0.5 ft
Miscellaneous (mg/kg)									
NITROGEN, AMMONIA	-	-	-	-	-	-	-	-	-
OXIDATION REDUCTION POTENTIAL (millivolts)	-	-	210	220	250	340	320	310	-
PH (pH units)	-	-	6.4	6.7	7	7.3	7.2	7.7	-
SOLIDS, TOTAL (%)	-	-	-	-	-	-	-	-	-
SULFIDE	-	-	-	-	-	-	-	-	-
SULFIDE, ACID VOLATILE (umoles/gm)	-	-	-	-	-	-	-	-	-
Grain Size Analysis (%)									
SIEVE #4	-	-	10	44	56	78	62	61	-
SIEVE #10	-	-	11	55	68	86	74	71	-
SIEVE #40	-	-	12	69	82	95	92	83	-
SIEVE #100	-	-	24	79	91	98	98	89	-
Total Organic Carbon (%)									
TOTAL ORGANIC CARBON	-	-	3.14	0.436	0.112	-	-	-	6.78
Inorganic (mg/kg)									
CADMIUM	0.99	4.98	ND (0.34)	ND (0.46)	ND (0.45)	ND (0.44)	ND (0.46)	ND (0.44)	-
CHROMIUM	43.4	111	13	23	17	18	14	18	-
CHROMIUM (HEXAVALENT COMPOUNDS)	-	-	ND (1.4)	ND (0.92)	ND (0.91)	ND (0.89)	ND (0.93)	ND (0.89)	-
COPPER	31.6	149	7.4	16	22	18	16	27	-
CYANIDE	-	-	ND (0.36)	ND (0.23)	ND (0.25)	ND (0.19)	ND (0.21)	ND (0.21)	-
CYANIDE, FREE	-	-	-	-	-	-	-	-	-
CYANIDE, PHYSIOLOGICALLY AVAILABLE	-	-	-	-	-	-	-	-	-
LEAD	35.8	128	17	5.1	3.9	7	12	4.8	-
MERCURY	0.18	1.06	ND (0.14)	ND (0.089)	ND (0.078)	ND (0.078)	ND (0.089)	ND (0.089)	-
NICKEL	22.7	48.6	4.7	17	13	12	9.5	13	-
SILVER	1	3.7	ND (0.34)	ND (0.46)	ND (0.45)	ND (0.44)	ND (0.46)	ND (0.44)	-
ZINC	121	459	23	37	34	33	32	32	-
Simultaneously Extractable Inorganic (umoles/gm)									
CADMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
CHROMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
COPPER, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
LEAD, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
NICKEL, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
ZINC, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-

Notes and Abbreviations: See even numbered pages.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID SAMPLE ID SAMPLING DATE SAMPLE DEPTH (FT)	Sediment Threshold Effects Concentration (TEC)	Sediment Probable Effects Concentration (PEC)	SS-29 SS-29 S1 30-Sep-03 0 - 0.5 ft	SS-29 SS-29 S2 30-Sep-03 0.5 - 2 ft	SS-29 SS-29 S3 30-Sep-03 2 - 2.5 ft	SS-30 SS-30 S1 01-Oct-03 0 - 0.5 ft	SS-30 SS-30 S2 01-Oct-03 0.5 - 1.5 ft	SS-30 SS-30 S3 01-Oct-03 1.5 - 2.5 ft	SS-32 SS-32 S1 01-Oct-03 0 - 0.5 ft
Volatile Organic Compound (ug/kg)									
1,1,1,2-TETRACHLOROETHANE	-	-	ND(200)	ND(98)	ND(71)	ND(76)	ND(120)	ND(74)	ND(78)
1,1,1-TRICHLOROETHANE	170	-	ND(200)	ND(98)	ND(71)	ND(76)	ND(120)	ND(74)	ND(78)
1,1,2,2-TETRACHLOROETHANE	940	-	ND(200)	ND(98)	ND(71)	ND(76)	ND(120)	ND(74)	ND(78)
1,1-DICHLOROETHYLENE	-	-	ND(200)	ND(98)	ND(71)	ND(76)	ND(120)	ND(74)	ND(78)
1,2-DICHLOROBENZENE	340	-	ND(980)	ND(490)	ND(360)	ND(380)	ND(600)	ND(370)	ND(390)
1,3-DICHLOROBENZENE	1700	-	ND(980)	ND(490)	ND(360)	ND(380)	ND(600)	ND(370)	ND(390)
1,4-DICHLOROBENZENE	350	-	ND(980)	ND(490)	ND(360)	ND(380)	ND(600)	ND(370)	ND(390)
2-BUTANONE (METHYL ETHYL KETONE)	270	-	ND(2000)	ND(980)	ND(710)	ND(760)	ND(1200)	ND(740)	ND(780)
4-METHYL-2-PENTANONE (MIBK)	-	-	ND(2000)	ND(980)	ND(710)	ND(760)	ND(1200)	ND(740)	ND(780)
BENZENE	57	-	ND(200)	ND(98)	ND(71)	ND(76)	ND(120)	ND(74)	ND(78)
BROMOFORM	650	-	ND(780)	ND(390)	ND(280)	ND(300)	ND(480)	ND(290)	ND(310)
CARBON TETRACHLORIDE	1200	-	ND(200)	ND(98)	ND(71)	ND(76)	ND(120)	ND(74)	ND(78)
CHLOROBENZENE	820	-	ND(200)	ND(98)	ND(71)	ND(76)	ND(120)	ND(74)	ND(78)
CIS-1,2-DICHLOROETHYLENE	-	-	ND(200)	ND(98)	ND(71)	ND(76)	ND(120)	ND(74)	**660**
ETHYLBENZENE	3600	-	ND(200)	ND(98)	ND(71)	ND(76)	ND(120)	ND(74)	ND(78)
ISOPROPYLBENZENE	-	-	ND(200)	ND(98)	ND(71)	ND(76)	ND(120)	ND(74)	ND(78)
NAPHTHALENE	480 (TOC)	-	ND(980)	ND(490)	ND(360)	ND(380)	ND(600)	ND(370)	**760**[8]
N-BUTYLBENZENE	-	-	ND(200)	ND(98)	ND(71)	ND(76)	ND(120)	ND(74)	ND(78)
N-PROPYLBENZENE	-	-	ND(200)	ND(98)	ND(71)	ND(76)	ND(120)	ND(74)	ND(78)
O-XYLENE	25 (TOC)	-	ND(200)	ND(98)	ND(71)	ND(76)	ND(120)	ND(74)	ND(78)
P/M-XYLENE	25 (TOC)	-	ND(200)	ND(98)	ND(71)	ND(76)	ND(120)	ND(74)	ND(78)
SEC-BUTYLBENZENE	-	-	ND(200)	ND(98)	ND(71)	ND(76)	ND(120)	ND(74)	ND(78)
TETRACHLOROETHYLENE	530	-	ND(200)	ND(98)	ND(71)	ND(76)	ND(120)	ND(74)	ND(78)
TOLUENE	670	-	ND(290)	ND(150)	ND(110)	ND(110)	ND(180)	ND(110)	ND(120)
TRANS-1,2-DICHLOROETHYLENE	-	-	ND(290)	ND(150)	ND(110)	ND(110)	ND(180)	ND(110)	ND(120)
TRICHLOROETHYLENE	1600	-	ND(200)	ND(98)	ND(71)	ND(76)	ND(120)	ND(74)	**850**
VINYL CHLORIDE	-	-	ND(390)	ND(200)	ND(140)	ND(150)	ND(240)	ND(150)	ND(160)
VPH (mg/kg)									
C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	-	-	-	-	-	-	ND (4.16)
C9-C10 AROMATIC HYDROCARBONS	-	-	-	-	-	-	-	-	ND (4.16)
C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	-	-	-	-	-	-	**6.57**

Notes and Abbreviations:
1. Table summarizes compounds or analytes that were detected above the reporting limit in one or more samples.
2. **Bold** sample results indicates result was detected above the reporting limit.
3. **Bold** analyte indicates analyte was detected in one or more samples above the Threshold Effects Concentration (TEC) or EPA Sediment Quality Benchmark (SQB), where TECs are not available.
4. **Bold** and shaded analyte indicates analyte was detected in one or more samples above the Probable Effects Concentration (PEC).
5. Indicates sample result is greater than the Ecological Threshold Effects Screening Criteria.
6. Indicates sample result is greater than the Ecological Probable Effects Screening Criteria.
7. -: Indicates not analyzed or not available for specific analyte.
8. (TOC): Criteria based on normalized 1% organic carbon. Criteria adjusted based on sample/location specific TOC in comparison.
9. ND(100): Compound not detected above laboratory reporting limit. Value in parenthesis is the reporting limit.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID SAMPLE ID SAMPLING DATE SAMPLE DEPTH (FT)	Sediment Threshold Effects Concentration (TEC)	Sediment Probable Effects Concentration (PEC)	SS-32 SS-32 S2 01-Oct-03 1 - 2 ft	SS-33 SS-33 S1 01-Oct-03 0 - 1 ft	SS-34 SS-34 S1 02-Oct-03 0 - 1 ft	SS-34 SS-34 S2 02-Oct-03 2 - 2_7 ft	SS-35 SS-35 S1 01-Oct-03 0 - 1 ft	SS-36 SS-36 S1 01-Oct-03 0 - 0_9 ft	SS-36 SS-36 S2 01-Oct-03 0_9 - 1_8 ft
Miscellaneous (mg/kg)									
NITROGEN, AMMONIA	-	-	-	-	-	-	-	-	-
OXIDATION REDUCTION POTENTIAL (millivolts)	-	-	-	-	-	-	220	-	-
PH (pH units)	-	-	-	-	-	-	7.6	-	-
SOLIDS, TOTAL (%)	-	-	-	-	-	-	-	-	-
SULFIDE	-	-	-	-	-	-	-	-	-
SULFIDE, ACID VOLATILE (umoles/gm)	-	-	-	-	-	-	-	-	-
Grain Size Analysis (%)									
SIEVE #4	-	-	-	-	-	-	65	-	-
SIEVE #10	-	-	-	-	-	-	76	-	-
SIEVE #40	-	-	-	-	-	-	93	-	-
SIEVE #100	-	-	-	-	-	-	100	-	-
Total Organic Carbon (%)									
TOTAL ORGANIC CARBON	-	-	0.15	21.2	2.28	0.157	4.04	2.75	0.154
Inorganic (mg/kg)									
CADMIUM	0.99	4.98	-	-	-	-	0.6	-	-
CHROMIUM	43.4	111	-	-	-	-	30	-	-
CHROMIUM (HEXAVALENT COMPOUNDS)	-	-	-	-	-	-	ND (1)	-	-
COPPER	31.6	149	-	-	-	-	350	-	-
CYANIDE	-	-	-	-	-	-	ND (0.23)	-	-
CYANIDE, FREE	-	-	-	-	-	-	-	-	-
CYANIDE, PHYSIOLOGICALLY AVAILABLE	-	-	-	-	-	-	-	-	-
LEAD	35.8	128	-	-	-	-	80	-	-
MERCURY	0.18	1.06	-	-	-	-	1.2	-	-
NICKEL	22.7	48.6	-	-	-	-	18	-	-
SILVER	1	3.7	-	-	-	-	2.1	-	-
ZINC	121	459	-	-	-	-	140	-	-
Simultaneously Extractable Inorganic (umoles/gm)									
CADMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
CHROMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
COPPER, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
LEAD, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
NICKEL, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-
ZINC, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-	-	-	-	-

Notes and Abbreviations: See even numbered pages.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID SAMPLE ID SAMPLING DATE SAMPLE DEPTH (FT)	Sediment Threshold Effects Concentration (TEC)	Sediment Probable Effects Concentration (PEC)	SS-32 SS-32 S2 01-Oct-03 1 - 2 ft	SS-33 SS-33 S1 01-Oct-03 0 - 1 ft	SS-34 SS-34 S1 02-Oct-03 0 - 1 ft	SS-34 SS-34 S2 02-Oct-03 2 - 2_7 ft	SS-35 SS-35 S1 01-Oct-03 0 - 1 ft	SS-36 SS-36 S1 01-Oct-03 0 - 0_9 ft	SS-36 SS-36 S2 01-Oct-03 0_9 - 1_8 ft
Volatile Organic Compound (ug/kg)									
1,1,1,2-TETRACHLOROETHANE	-	-	ND(80)	ND(380)	ND(62)	ND(66)	ND(96)	ND(83)	ND(67)
1,1,1-TRICHLOROETHANE	170	-	ND(80)	ND(380)	ND(62)	**720** [A]	ND(96)	ND(83)	ND(67)
1,1,2,2-TETRACHLOROETHANE	940	-	ND(80)	ND(380)	ND(62)	ND(66)	ND(96)	ND(83)	ND(67)
1,1-DICHLOROETHYLENE	-	-	ND(80)	ND(380)	ND(62)	**71**	ND(96)	ND(83)	ND(67)
1,2-DICHLOROBENZENE	340	-	ND(400)	ND(1900)	ND(310)	ND(330)	ND(480)	ND(420)	ND(340)
1,3-DICHLOROBENZENE	1700	-	ND(400)	ND(1900)	ND(310)	ND(330)	ND(480)	ND(420)	ND(340)
1,4-DICHLOROBENZENE	350	-	ND(400)	ND(1900)	ND(310)	ND(330)	ND(480)	ND(420)	ND(340)
2-BUTANONE (METHYL ETHYL KETONE)	270	-	ND(800)	ND(3800)	ND(620)	ND(660)	ND(960)	ND(830)	ND(670)
4-METHYL-2-PENTANONE (MIBK)	-	-	ND(800)	ND(3800)	ND(620)	ND(660)	ND(960)	ND(830)	ND(670)
BENZENE	57	-	ND(80)	1200 [A]	ND(62)	ND(66)	ND(96)	ND(83)	ND(67)
BROMOFORM	650	-	ND(320)	ND(1500)	ND(250)	ND(260)	ND(380)	ND(330)	ND(270)
CARBON TETRACHLORIDE	1200	-	ND(80)	ND(380)	ND(62)	ND(66)	ND(96)	ND(83)	ND(67)
CHLOROBENZENE	820	-	ND(80)	ND(380)	ND(62)	ND(66)	ND(96)	ND(83)	ND(67)
CIS-1,2-DICHLOROETHYLENE	-	-	ND(80)	**1900**	**1100**	**1400**	**3000**	ND(83)	**130**
ETHYLBENZENE	3600	-	ND(80)	**760**	**80**	ND(66)	ND(96)	ND(83)	ND(67)
ISOPROPYLBENZENE	-	-	ND(80)	**1000**	ND(62)	ND(66)	ND(96)	ND(83)	ND(67)
NAPHTHALENE	480 (TOC)	-	ND(400)	ND(1900)	ND(310)	ND(330)	ND(480)	ND(420)	ND(340)
N-BUTYLBENZENE	-	-	ND(80)	**460**	ND(62)	ND(66)	ND(96)	ND(83)	ND(67)
N-PROPYLBENZENE	-	-	ND(80)	**1400**	ND(62)	ND(66)	ND(96)	ND(83)	ND(67)
O-XYLENE	25 (TOC)	-	ND(80)	ND(380)	ND(62)	ND(66)	ND(96)	ND(83)	ND(67)
P/M-XYLENE	25 (TOC)	-	ND(80)	1400 [A]	180 [A]	ND(66)	ND(96)	220 [A]	ND(67)
SEC-BUTYLBENZENE	-	-	ND(80)	**1300**	ND(62)	ND(66)	ND(96)	ND(83)	ND(67)
TETRACHLOROETHYLENE	530	-	ND(80)	ND(380)	ND(62)	**70**	ND(96)	ND(83)	ND(67)
TOLUENE	670	-	ND(120)	870 [A]	ND(92)	ND(100)	ND(140)	ND(120)	ND(100)
TRANS-1,2-DICHLOROETHYLENE	-	-	ND(120)	ND(570)	ND(92)	ND(100)	**150**	ND(120)	ND(100)
TRICHLOROETHYLENE	1600	-	ND(80)	ND(380)	**1300**	10000 [A]	8200 [A]	**200**	ND(67)
VINYL CHLORIDE	-	-	ND(160)	ND(760)	ND(120)	ND(130)	ND(190)	ND(170)	ND(130)
VPH (mg/kg)									
C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	ND (4.15)	**167**	ND (2.55)	**2.76**	**3.48**	**11.4**	ND (2.14)
C9-C10 AROMATIC HYDROCARBONS	-	-	ND (4.15)	**45.5**	ND (2.55)	ND (2.29)	ND (2.66)	**9.3**	ND (2.14)
C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	ND (4.15)	**49.5**	ND (2.55)	ND (2.29)	ND (2.66)	**13.4**	ND (2.14)

Notes and Abbreviations:
1. Table summarizes compounds or analytes that were detected above the reporting limit in one or more samples.
2. **Bold** sample results indicates result was detected above the reporting limit.
3. **Bold** analyte indicates analyte was detected in one or more samples above the Threshold Effects Concentration (TEC) or EPA Sediment Quality Benchmark (SQB), where TECs are not available.
4. **Bold** and shaded analyte indicates analyte was detected in one or more samples above the Probable Effects Concentration (PEC)
5. : Indicates sample result is greater than the Ecological Threshold Effects Screening Criteria.
6. : Indicates sample result is greater than the Ecological Probable Effects Screening Criteria.
7. -: Indicates not analyzed or not available for specific analyte.
8. (TOC): Criteria based on normalized 1% organic carbon. Criteria adjusted based on sample/location specific TOC in comparison.
9. ND(100): Compound not detected above laboratory reporting limit. Value in parenthesis is the reporting limit.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID SAMPLE ID SAMPLING DATE SAMPLE DEPTH (FT)	Sediment Threshold Effects Concentration (TEC)	Sediment Probable Effects Concentration (PEC)	SS-38 SS-38 S1 02-Oct-03 0 - 0.5 ft	SS-38 SS-38 S2 02-Oct-03 2 - 3 ft	SS-39 SS-39 S1 02-Oct-03 1.5 - 2.5 ft
Miscellaneous (mg/kg)					
NITROGEN, AMMONIA	-	-	-	-	-
OXIDATION REDUCTION POTENTIAL (millivolts)	-	-	210	220	270
PH (pH units)	-	-	7.8	7.8	7.9
SOLIDS, TOTAL (%)	-	-	-	-	-
SULFIDE	-	-	-	-	-
SULFIDE, ACID VOLATILE (umoles/gm)	-	-	-	-	-
Grain Size Analysis (%)					
SIEVE #4	-	-	72	37	41
SIEVE #10	-	-	78	50	51
SIEVE #40	-	-	89	66	66
SIEVE #100	-	-	97	77	77
Total Organic Carbon (%)					
TOTAL ORGANIC CARBON	-	-	1.44	0.824	0.071
Inorganic (mg/kg)					
CADMIUM	0.99	4.98	0.68	ND (0.44)	ND (0.43)
CHROMIUM	43.4	111	210	13	8.3
CHROMIUM (HEXAVALENT COMPOUNDS)	-	-	ND (0.95)	ND (0.89)	ND (0.87)
COPPER	31.6	149	840	68	18
CYANIDE	-	-	0.33	0.2	ND (0.21)
CYANIDE, FREE	-	-	ND (0.30)	ND (0.28)	-
CYANIDE, PHYSIOLOGICALLY AVAILABLE	-	-	-	-	-
LEAD	35.8	128	320	22	3.9
MERCURY	0.18	1.06	3.3	ND (0.085)	ND (0.087)
NICKEL	22.7	48.6	37	10	7.2
SILVER	1	3.7	8.8	ND (0.44)	ND (0.43)
ZINC	121	459	330	44	25
Simultaneously Extractable Inorganic (umoles/gm)					
CADMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-
CHROMIUM, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-
COPPER, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-
LEAD, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-
NICKEL, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-
ZINC, SIMULTANEOUSLY EXTRACTABLE	-	-	-	-	-

Notes and Abbreviations: See even numbered pages.

TABLE XII
SEDIMENT QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

LOCATION ID SAMPLE ID SAMPLING DATE SAMPLE DEPTH (FT)	Sediment Threshold Effects Concentration (TEC)	Sediment Probable Effects Concentration (PEC)	SS-38 SS-38 S1 02-Oct-03 0 - 0.5 ft	SS-38 SS-38 S2 02-Oct-03 2 - 3 ft	SS-39 SS-39 S1 02-Oct-03 1.5 - 2.5 ft
Volatile Organic Compound (ug/kg)					
1,1,1,2-TETRACHLOROETHANE	-	-	ND(93)	ND(80)	ND(60)
1,1,1-TRICHLOROETHANE	170	-	ND(93)	ND(80)	ND(60)
1,1,2,2-TETRACHLOROETHANE	940	-	ND(93)	ND(80)	ND(60)
1,1-DICHLOROETHYLENE	-	-	ND(93)	ND(80)	ND(60)
1,2-DICHLOROBENZENE	340	-	ND(460)	ND(400)	ND(300)
1,3-DICHLOROBENZENE	1700	-	ND(460)	ND(400)	ND(300)
1,4-DICHLOROBENZENE	350	-	ND(460)	ND(400)	ND(300)
2-BUTANONE (METHYL ETHYL KETONE)	270	-	ND(930)	ND(800)	ND(600)
4-METHYL-2-PENTANONE (MIBK)	-	-	ND(930)	ND(800)	ND(600)
BENZENE	57	-	ND(93)	ND(80)	ND(60)
BROMOFORM	650	-	ND(370)	ND(320)	ND(240)
CARBON TETRACHLORIDE	1200	-	ND(93)	ND(80)	ND(60)
CHLOROBENZENE	820	-	ND(93)	ND(80)	ND(60)
CIS-1,2-DICHLOROETHYLENE	-	-	**5100**	**2600**	**420**
ETHYLBENZENE	3600	-	ND(93)	ND(80)	ND(60)
ISOPROPYLBENZENE	-	-	ND(93)	ND(80)	ND(60)
NAPHTHALENE	480 (TOC)	-	ND(460)	ND(400)	ND(300)
N-BUTYLBENZENE	-	-	ND(93)	ND(80)	ND(60)
N-PROPYLBENZENE	-	-	ND(93)	ND(80)	ND(60)
O-XYLENE	25 (TOC)	-	ND(93)	ND(80)	ND(60)
P/M-XYLENE	25 (TOC)	-	ND(93)	ND(80)	ND(60)
SEC-BUTYLBENZENE	-	-	ND(93)	ND(80)	ND(60)
TETRACHLOROETHYLENE	530	-	ND(93)	ND(80)	ND(60)
TOLUENE	670	-	ND(140)	ND(120)	ND(89)
TRANS-1,2-DICHLOROETHYLENE	-	-	ND(140)	ND(120)	ND(89)
TRICHLOROETHYLENE	1600	-	8100[A]	8400[A]	2800[A]
VINYL CHLORIDE	-	-	**670**	ND(160)	ND(120)
VPH (mg/kg)					
C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	**5.64**	ND (2.25)	ND (2.67)
C9-C10 AROMATIC HYDROCARBONS	-	-	ND (3.54)	ND (2.25)	ND (2.67)
C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	-	-	**9.6**	ND (2.25)	ND (2.67)

Notes and Abbreviations:

1. Table summarizes compounds or analytes that were detected above the reporting limit in one or more samples
2. **Bold** sample results indicates result was detected above the reporting limit.
3. **Bold** analyte indicates analyte was detected in one or more samples above the Threshold Effects Concentration (TEC) or EPA Sediment Quality Benchmark (SQB), where TECs are not available.
4. **Bold** and shaded analyte indicates analyte was detected in one or more samples above the Probable Effects Concentration (PEC).
5. A : Indicates sample result is greater than the Ecological Threshold Effects Screening Criteria.
6. AA : Indicates sample result is greater than the Ecological Probable Effects Screening Criteria.
7. -: Indicates not analyzed or not available for specific analyte.
8. (TOC): Criteria based on normalized 1% organic carbon. Criteria adjusted based on sample/location specific TOC in comparison.
9. ND(100): Compound not detected above laboratory reporting limit. Value in parenthesis is the reporting limit.

TABLE XIII
SURFACE WATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

SAMPLE DESIGNATION	EPA AMBIENT WATER QUALITY CRITERIA FOR FRESHWATER		SW-10	SW-8	SW-1	SW-2
SAMPLING DATE			31-May-02	31-May-02	16-Oct-00	16-Oct-00
SAMPLE LOCATION	CHRONIC	ACUTE	UPSTREAM			
VOLATILE ORGANIC COMPOUNDS	NA	NA	ND	ND	-	
METALS, DISSOLVED (mg/L)						
Cadmium	*0.0011*	*0.00016*	ND (0.0025)	-	ND (0.0025)	ND (0.0025)
Copper	*0.0077*	*0.0054*	ND (0.005)	-	ND (0.005)	ND (0.005)
Lead	*0.033*	*0.0013*	ND (0.005)	-	ND (0.005)	ND (0.005)
Mercury	0.0014	0.00077	ND (0.00025)	-	ND (0.00025)	ND (0.00025)
Nickel	*0.28*	*0.031*	ND (0.0125)	-	ND (0.0125)	ND (0.0125)
Silver	*0.0012*	NA	ND (0.0035)	-	ND (0.005)	ND (0.005)
Zinc	*0.071*	*0.071*	ND (0.025)	-	ND (0.025)	ND (0.025)
CHROMIUM, HEXAVALENT (mg/L)	0.011	0.016	ND (0.005)	-	ND (0.01)	ND (0.01)
CYANIDE, TOTAL (mg/L) (see Note 6)	0.0052	0.022	**0.010**	-	ND (0.0025)	ND (0.0025)
HARDNESS (mg/L)	NA	NA	**51**	-	**63**	**62**

NOTES & ABBREVIATIONS:
1 ND: Compound not detected above laboratory reporting limit.
Value in parentheses is one-half the reporting limit.
2. - Analysis not conducted.
3. NA: Not applicable.
4. U.S. Environmental Protection Agency (EPA) Ambient Water Quality Criteria (AWQC) for freshwater were obtained from EPA 822-R-02-047 (November 2002).
5. Italicized AWQC values are hardness-dependent and were calculated using a site-specific average hardness of 55 mg/L and the formulas provided in EPA 822-R-02-047
6. Chronic and acute AWQC for cyanide are for free cyanide, not total cyanide.
(See report text for interpretation of AWQC values for cyanide.)
7. Bold-faced values were detected above the laboratory reporting limit.
7. Bold-faced, shaded values exceeds the chronic AWQC for freshwater.
8. Samples submitted for metals analysis were field-filtered.
9 *: Sample SWA-DUP is a duplicate sample of SW-11.

TABLE XIII
SURFACE WATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

SAMPLE DESIGNATION SAMPLING DATE	EPA AMBIENT WATER QUALITY CRITERIA FOR FRESHWATER		SW-3 12-Oct-00	SW-7 12-Oct-00	SW-4 12-Oct-00	SW-11 30-May-02	SWA-DUP* 30-May-02	SW-5 12-Oct-00	SW-12 30-May-02	SW-9 31-May-02	SW-13 30-May-02
SAMPLE LOCATION	CHRONIC	ACUTE	ON-SITE RIVER BANK								
VOLATILE ORGANIC COMPOUNDS	NA	NA	-	-	-	ND	ND	-	ND	ND	ND
METALS, DISSOLVED (mg/L)											
Cadmium	*0.0011*	*0.00016*	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)
Copper	*0.0077*	*0.0054*	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
Lead	*0.033*	*0.0013*	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
Mercury	0.0014	0.00077	ND (0.00025)	ND (0.00025)	ND (0.00025)	ND (0.00025)	ND (0.00025)	ND (0.00025)	ND (0.00025)	ND (0.00025)	ND (0.00025)
Nickel	*0.28*	*0.031*	ND (0.0125)	ND (0.0125)	ND (0.0125)	ND (0.0125)	ND (0.0125)	ND (0.0125)	ND (0.0125)	ND (0.0125)	ND (0.0125)
Silver	*0.0012*	NA	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.0035)	ND (0.0035)	ND (0.005)	ND (0.0035)	ND (0.0035)	ND (0.0035)
Zinc	*0.071*	*0.071*	**0.06**	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.025)	**0.06**	ND (0.025)	ND (0.025)	ND (0.025)
CHROMIUM, HEXAVALENT (mg/L)	0.011	0.016	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.005)	ND (0.005)	ND (0.01)	ND (0.005)	ND (0.005)	ND (0.005)
CYANIDE, TOTAL (mg/L) (see Note 6)	0.0052	0.022	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)	**0.005**	ND (0.0025)	ND (0.0025)
HARDNESS (mg/L)	NA	NA	-	-	-	**50**	**52**	-	**54**	**50**	**53**

NOTES & ABBREVIATIONS:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. -: Analysis not conducted.
3. NA: Not applicable.
4. U.S. Environmental Protection Agency (EPA) Ambient Water Quality Criteria (AWQC) for freshwater were obtained from EPA 822-R-02-047 (November 2002).
5. Italicized AWQC values are hardness-dependent and were calculated using a site-specific average hardness of 55 mg/L and the formulas provided in EPA 822-R-02-047
6. Chronic and acute AWQC for cyanide are for free cyanide, not total cyanide.
   (See report text for interpretation of AWQC values for cyanide.)
7. Bold-faced values were detected above the laboratory reporting limit.
7. Bold-faced, shaded values exceeds the chronic AWQC for freshwater.
8. Samples submitted for metals analysis were field-filtered.
9. *: Sample SWA-DUP is a duplicate sample of SW-11.

TABLE XIII
SURFACE WATER QUALITY DATA
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

SAMPLE DESIGNATION	EPA AMBIENT WATER QUALITY CRITERIA		SW-14	SW-6
SAMPLING DATE	FOR FRESHWATER		30-May-02	16-Oct-00
SAMPLE LOCATION	CHRONIC	ACUTE	DOWNSTREAM	
VOLATILE ORGANIC COMPOUNDS	NA	NA	ND	-
METALS, DISSOLVED (mg/L)				
Cadmium	*0.0011*	*0.00016*	ND (0.0025)	ND (0.0025)
Copper	*0.0077*	*0.0054*	ND (0.005)	ND (0.005)
Lead	*0.033*	*0.0013*	ND (0.005)	ND (0.005)
Mercury	0.0014	0.00077	ND (0.00025)	ND (0.00025)
Nickel	*0.28*	*0.031*	ND (0.0125)	ND (0.0125)
Silver	*0.0012*	NA	ND (0.0035)	ND (0.005)
Zinc	*0.071*	*0.071*	ND (0.025)	**0.05**
CHROMIUM, HEXAVALENT (mg/L)	0.011	0.016	ND (0.005)	ND (0.01)
CYANIDE, TOTAL (mg/L) (see Note 6)	0.0052	0.022	ND (0.0025)	**0.007**
HARDNESS (mg/L)	NA	NA	**52**	**63**

NOTES & ABBREVIATIONS:
1. ND: Compound not detected above laboratory reporting limit.
   Value in parentheses is one-half the reporting limit.
2. -: Analysis not conducted.
3. NA: Not applicable.
4. U.S. Environmental Protection Agency (EPA) Ambient Water Quality Criteria (AWQC) for freshwater were obtained from EPA 822-R-02-047 (November 2002).
5. Italicized AWQC values are hardness-dependent and were calculated using a site-specific average hardness of 55 mg/L and the formulas provided in EPA 822-R-02-047
6. Chronic and acute AWQC for cyanide are for free cyanide, not total cyanide.
   (See report text for interpretation of AWQC values for cyanide.)
7. Bold-faced values were detected above the laboratory reporting limit.
7. Bold-faced, shaded values exceeds the chronic AWQC for freshwater.
8. Samples submitted for metals analysis were field-filtered.
9. *: Sample SWA-DUP is a duplicate sample of SW-11

TABLE XIV
PHYSICAL PROPERTIES OF COMPOUNDS OF CONCERN
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

COMPOUND	Molecular Weight, MW (g/mole)	Vapor Pressure, Vp (mmHg)	Temperature Vp measured (degrees C)	Vp Source	Diffusivity, Dair (cm^2/s)	Dair Source	Diffusivity, Dwater (cm^2/s)	Dwater Source	Henry's Law Constant, Hp ($atm\text{-}m^3/mol$)
VOLATILE ORGANIC COMPOUNDS									
Acetone	58	2.31E+02	25	WATER8	1.24E-01	EPA	1.14E-05	EPA	3.88E-05
Benzene	78	9.52E+01	25	WATER8	8.80E-02	EPA	9.80E-06	EPA	5.55E-03
n-Butylbenzene	134	1.00E+00	NA	TPHCWG	5.98E-02	TPHCWG	NA	NA	NA
sec-Butylbenzene	134	1.00E+00	25	WATER8(1)	6.27E-02	TPHCWG	7.29E-06	TPHCWG	8.83E-02
tert-Butylbenzene	134	1.00E+00	25	WATER8(1)	6.27E-02	TPHCWG	7.29E-06	TPHCWG	8.83E-02
Carbon Tetrachloride	154	1.10E+02	20-25	EHRAV	7.80E-02	EPA	8.80E-06	EPA	3.04E-02
Chloroethane	65	1.20E+03	25	WATER8	2.71E-01	WATER8	1.15E-05	WATER8	1.21E-03
Chloroform	119	1.51E+02	20-25	EHRAV	1.04E-01	EPA	1.00E-05	EPA	3.67E-03
Chloromethane	50	7.60E+02	20-25	EHRAV	1.40E-01	EHRAV	1.00E-05	H2O	9.90E-03
1,1-Dichloroethane	99	5.91E+02	25	WATER8	7.42E-02	EPA	1.05E-05	EPA	5.62E-03
1,2-Dichloroethane	99	8.00E+01	25	WATER8	1.04E-01	EPA	9.90E-06	EPA	9.79E-04
1,1-Dichloroethylene	97	6.30E+02	25	WATER8	9.00E-02	EPA	1.04E-05	EPA	2.61E-02
cis-1,2-Dichloroethylene	97	2.00E+02	25	WATER8	7.36E-02	EPA	1.13E-05	EPA	4.08E-03
trans-1,2-Dichloroethylene	97	3.31E+02	25	WATER8	7.07E-02	EPA	1.19E-05	EPA	9.38E-03
Ethylbenzene	106	1.00E+01	25	WATER8	7.50E-02	EPA	7.80E-06	EPA	7.88E-03
Isopropylbenzene	120	NA	NA	NA	6.50E-02	TPHCWG	7.10E-06	TPHCWG	NA
4-Isopropyltoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone	100	6.00E+00	20-25	EHRAV	7.77E-02	PD 4	1.00E-05	H2O	6.77E-05
Methyl tert-butyl ether	83	1.86E+02	25	WATER8	1.02E-01	WATER8	1.05E-05	WATER8	5.51E-04
Methylene Chloride	85	4.38E+02	25	WATER8	1.01E-01	EPA	1.17E-05	EPA	2.19E-03
n-Propylbenzene	120	2.50E+00	25	WATER8	5.98E-02	TPHCWG	7.83E-06	TPHCWG	6.59E-03
1,1,2,2-Tetrachloroethane	168	6.50E+00	25	WATER8	7.10E-02	EPA	7.90E-06	EPA	3.45E-04
Tetrachloroethylene	166	1.90E+01	25	WATER8	7.20E-02	EPA	8.20E-06	EPA	1.84E-02
Tetrahydrofuran	72	1.62E+02	25	WATER8	9.80E-02	WATER8	1.05E-05	WATER8	1.10E-04
Toluene	92	3.00E+01	25	WATER8	8.70E-02	EPA	8.60E-06	EPA	6.64E-03
1,1,1-Trichloroethane	133	1.23E+02	25	WATER8	7.80E-02	EPA	8.80E-06	EPA	1.72E-02
Trichloroethylene	131	7.50E+01	25	WATER8	7.90E-02	EPA	9.10E-06	EPA	1.03E-02
1,2,3-Trichloropropane	147	3.69E+00	25	HSDB	NA	NA	NA	NA	3.43E-04
1,2,4-Trimethylbenzene	120	2.02E+00	20-25	TPHCWG	6.04E-02	TPHCWG	7.85E-06	TPHCWG	0.00E+00
1,3,5-Trimethylbenzene	120	2.44E+00	20-25	TPHCWG	6.28E-02	TPHCWG	7.85E-06	TPHCWG	0.00E+00
Vinyl Chloride	63	2.66E+03	25	WATER8	1.06E-01	EPA	1.23E-06	EPA	2.70E-02
Xylenes, mixture	106	8.50E+00	25	WATER8	7.00E-02	m-Xylene/EPA	7.80E-06	m-Xylene/EPA	7.43E-03
VOLATILE PETROLEUM HYDROCARBONS									
C5-C8 Aliphatics	93	7.60E+01	20-30	DEP	8.00E-02	DEP	1.00E-05	H2O	1.30E+00
C9-C12 Aliphatics	149	6.60E-01	20-30	DEP	7.00E-02	DEP	1.00E-05	H2O	1.56E+00
C9-C10 Aromatics	120	2.20E+00	20-30	DEP	7.00E-02	DEP	1.00E-05	H2O	7.92E-03
EXTRACTABLE PETROLEUM HYDROCARBONS									
C9-C18 Aliphatics	170	1.10E-01	20-30	DEP	7.00E-02	DEP	5.00E-06	DEP	1.66E+00
C19-C36 Aliphatics	270	considered immobile	NA	DEP	considered immobile	DEP	considered immobile	DEP	considered immobile
C11-C22 Aromatics	150	2.40E-02	20-30	DEP	6.00E-02	DEP	1.00E-05	H2O	7.20E-04
POLYCYCLIC AROMATIC HYDROCARBONS									
Acenaphthene	154	5.00E-03	25	WATER8	4.21E-02	EPA	7.69E-06	EPA	1.55E-04
Acenaphthylene	152	6.70E-03	20-25	EHRAV	6.70E-02	EHRAV	1.00E-05	H2O	1.14E-04
Anthracene	178	1.30E-06	25	WATER8	3.24E-02	EPA	7.74E-06	EPA	6.50E-05
Benzo(a)anthracene	228	1.50E-07	25	WATER8	5.10E-02	EPA	9.00E-06	EPA	3.35E-06
Benzo(a)pyrene	252	5.68E-04	25	WATER8	4.30E-02	EPA	9.00E-06	EPA	1.13E-06
Benzo(b)fluoranthene	252	5.00E-07	20-25	EHRAV	4.39E-02	EHRAV	5.56E-06	EPA	1.11E-04
Benzo(g,h,i)perylene	276	1.03E-10	20-25	EHRAV	4.20E-02	EHRAV	1.00E-05	H2O	1.25E-07
Benzo(k)fluoranthene	252	9.59E-11	25	WATER8	2.26E-02	EPA	5.56E-06	EPA	8.29E-07
Chrysene	228	5.76E-10	25	WATER8	2.48E-02	EPA	6.21E-06	EPA	9.46E-05
Dibenzo(a,h)anthracene	278	5.20E-11	25	WATER8	2.02E-02	EPA	5.18E-06	EPA	1.47E-08
Fluoranthene	202	1.77E-02	25	WATER8	3.02E-02	EPA	6.35E-06	EPA	1.61E-05
Fluorene	166	1.70E-02	25	WATER8	3.63E-02	EPA	7.88E-06	EPA	6.38E-05
Indeno(1,2,3-cd)pyrene	276	1.00E-09	25	WATER8	1.90E-02	EPA	5.66E-06	EPA	1.60E-06
2-Methylnaphthalene	142	6.77E-02	25	WATER8	6.20E-02	EHRAV	1.00E-05	H2O	5.80E-05
Naphthalene	128	2.30E-01	25	WATER8	5.90E-02	EPA	7.50E-06	EPA	4.83E-04
Phenanthrene	178	2.10E-04	25	WATER8	5.43E-02	EHRAV	1.00E-05	H2O	6.05E-03
Pyrene	202	4.20E-09	25	WATER8	2.72E-02	EPA	7.24E-06	EPA	1.10E-05

COMPOUND	Temperature Hp measured (degrees C)	Hp Source	Henry's Law Constant, H (dimensionless)	H Source	Water Solubility, S (mg/L)	Temperature S measured (degrees C)	S Source	Log Octanol/ Water Partition Coefficient, Log(Kow)	Log(Kow) Source	Organic Carbon Partition Coefficient, Koc (cm^3/g)	Koc Source
VOLATILE ORGANIC COMPOUNDS											
Acetone	25	EPA	1.59E-03	EPA	1.00E+06	20-25	EPA	-2.40E-01	EPA	5.75E-01	EPA
Benzene	25	EPA	2.28E-01	EPA	1.78E+03	2.50E+01	WATER8	2.13E+00	EPA	5.89E+01	EPA
n-Butylbenzene	NA	NA	5.38E-01	TPHCWG	1.38E+01	NA	TPHCWG	4.26E+00	TPHCWG	5.01E+03	TPHCWG
sec-Butylbenzene	25	WATER8(1)	7.63E-01	TPHCWG	1.70E+01	NA	TPHCWG	4.10E+00	TPHCWG	2.82E+03	TPHCWG
tert-Butylbenzene	25	WATER8(1)	5.17E-01	TPHCWG	3.00E+01	NA	TPHCWG	4.11E+00	TPHCWG	3.39E+03	TPHCWG
Carbon Tetrachloride	25	EPA	1.25E+00	EPA	7.93E+02	20-25	EPA	2.73E+00	EPA	1.74E+02	EPA
Chloroethane	25	WATER8	4.94E-02	PD 1	5.74E+03	2.50E+01	WATER8	1.43E+00	WATER8	1.50E+01	EHRAV
Chloroform	25	EPA	1.50E-01	EPA	7.92E+03	20-25	EPA	1.92E+00	EPA	3.98E+01	EPA
Chloromethane	20-25	EHRAV	3.61E-01	PD 1	6.50E+03	20-25	EHRAV	9.50E-01	EHRAV	5.50E+00	EHRAV
1,1-Dichloroethane	25	EPA	2.30E-01	EPA	5.06E+03	20-25	EPA	1.79E+00	EPA	6.17E+01	EPA
1,2-Dichloroethane	25	EPA	4.01E-02	EPA	8.52E+03	20-25	EPA	1.47E+00	EPA	1.74E+01	EPA
1,1-Dichloroethylene	25	EPA	1.07E+00	EPA	2.25E+03	20-25	EPA	2.13E+00	EPA	5.89E+01	EPA
cis-1,2-Dichloroethylene	25	EPA	1.67E-01	EPA	3.50E+03	20-25	EPA	1.86E+00	EPA	3.55E+01	EPA
trans-1,2-Dichloroethylene	25	EPA	3.85E-01	EPA	6.30E+03	20-25	EPA	2.07E+00	EPA	5.25E+01	EPA
Ethylbenzene	25	EPA	3.23E-01	EPA	1.69E+02	20-25	EPA	3.14E+00	EPA	3.63E+02	EPA
Isopropylbenzene	NA	NA	5.92E-01	TPHCWG	5.00E+01	NA	TPHCWG	3.63E+00	TPHCWG	1.38E+03	TPHCWG
4-Isopropyltoluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.00E+00	0.00E+00
4-Methyl-2-Pentanone	20-25	EHRAV	2.77E-03	PD 1	1.90E+04	20-25	EHRAV	NA	NA	1.00E+00	0.00E+00
Methyl tert-butyl ether	25	WATER8	2.25E-02	PD 1	3.66E+04	2.50E+01	WATER8	1.90E+00	WATER8	7.40E+01	PD 5
Methylene Chloride	25	EPA	8.98E-02	EPA	1.30E+04	20-25	EPA	1.25E+00	EPA	1.17E+01	EPA
n-Propylbenzene	25	WATER8	4.20E-01	TPHCWG	6.00E+01	2.50E+01	WATER8	3.69E+00	TPHCWG	1.55E+03	TPHCWG
1,1,2,2-Tetrachloroethane	25	EPA	1.41E-02	EPA	2.97E+03	20-25	EPA	2.39E+00	EPA	9.33E+01	EPA
Tetrachloroethylene	25	EPA	7.54E-01	EPA	2.00E+02	20-25	EPA	2.67E+00	EPA	1.55E+02	EPA
Tetrahydrofuran	25	WATER8	4.50E-03	PD 1	1.39E+05	2.50E+01	WATER8	1.44E+00	WATER8	2.60E+01	PD 5
Toluene	25	EPA	2.72E-01	EPA	5.26E+02	20 25	EPA	2.75E+00	EPA	1.82E+02	EPA
1,1,1-Trichloroethane	25	EPA	7.05E-01	EPA	1.33E+03	20-25	EPA	2.48E+00	EPA	1.10E+02	EPA
Trichloroethylene	25	EPA	4.22E-01	EPA	1.10E+03	20-25	EPA	2.71E+00	EPA	1.66E+02	EPA
1,2,3-Trichloropropane	25	HSDB	NA	NA	1.75E+03	2.50E+01	HSDB	NA	NA	NA	NA
1,2,4-Trimethylbenzene	NA	NA	2.30E-01	TPHCWG	5.70E+01	2.00E+01	4.63E+02	3.60E+00	TPHCWG	1.30E+03	TPHCWG
1,3,5-Trimethylbenzene	NA	NA	3.15E-01	TPHCWG	5.00E+01	2.00E+01	TPHCWG	3.58E+00	TPHCWG	1.25E+03	TPHCWG
Vinyl Chloride	25	EPA	1.11E+00	EPA	2.76E+03	20-25	EPA	1.50E+00	EPA	1.86E+01	EPA
Xylenes, mixture	25	WATER8	3.05E-01	PD 1	1.61E+02	20-25	m-Xylene/EPA	3.20E+00	EPA	4.07E+02	m-Xylene/EPA
VOLATILE PETROLEUM HYDROCARBONS											
C5-C8 Aliphatics	20	DEP	5.40E+01	DEP	1.10E+01	NA	DEP	3.72E+00	PD6	2.27E+03	DEP
C9-C12 Aliphatics	20	DEP	6.50E+01	DEP	7.00E-02	NA	DEP	5.37E+00	PD6	1.50E+05	DEP
C9-C10 Aromatics	20	DEP	3.30E-01	DEP	5.10E+01	NA	DEP	3.22E+00	PD6	1.78E+03	DEP
EXTRACTABLE PETROLEUM HYDROCARBONS											
C9-C18 Aliphatics	20	DEP	6.90E+01	DEP	1.00E-02	NA	DEP	6.00E+00	PD6	6.80E+05	DEP
C19-C36 Aliphatics	NA	DEP	considered immobile	DEP	considered immobile	NA	DEP	considered immobile	DEP	considered immobile	DEP
C11-C22 Aromatics	20	DEP	3.00E-02	DEP	5.80E+00	NA	DEP	3.93E+00	PD6	5.01E+03	DEP
POLYCYCLIC AROMATIC HYDROCARBONS											
Acenaphthene	25	EPA	6.36E-03	EPA	4.24E+00	20-25	EPA	3.92E+00	EPA	7.08E+03	EPA
Acenaphthylene	20-25	EHRAV	4.66E-03	PD 1	3.93E+00	20-25	EHRAV	4.07E+00	WATER8	2.50E+03	EHRAV
Anthracene	25	EPA	2.67E-03	EPA	4.34E-02	20-25	EPA	4.55E+00	EPA	2.95E+04	EPA
Benzo(a)anthracene	25	EPA	1.37E-04	EPA	9.40E-03	20-25	EPA	5.70E+00	EPA	3.98E+05	EPA
Benzo(a)pyrene	25	EPA	4.63E-05	EPA	1.62E-03	20-25	EPA	6.11E+00	EPA	1.02E+06	EPA
Benzo(b)fluoranthene	25	EPA	4.55E-03	EPA	1.50E-03	20-25	EPA	6.20E+00	EPA	1.23E+06	EPA
Benzo(g,h,i)perylene	20-25	EHRAV	5.11E-06	PD 1	3.00E-04	20-25	EHRAV	7.23E+00	WATER8	1.60E+06	EHRAV
Benzo(k)fluoranthene	25	EPA	3.40E-05	EPA	8.00E-04	20-25	EPA	6.20E+00	EPA	1.23E+06	EPA
Chrysene	25	EPA	3.88E-03	EPA	1.60E-03	20-25	EPA	5.70E+00	EPA	3.98E+05	EPA
Dibenzo(a,h)anthracene	25	EPA	6.03E-07	EPA	2.49E-03	20-25	EPA	6.69E+00	EPA	3.80E+06	EPA
Fluoranthene	25	EPA	6.60E-04	EPA	2.06E-01	20-25	EPA	5.12E+00	EPA	1.07E+05	EPA
Fluorene	25	EPA	2.61E-03	EPA	1.98E+00	20-25	EPA	4.21E+00	EPA	1.38E+04	EPA
Indeno(1,2,3-cd)pyrene	25	EPA	6.56E-05	EPA	2.20E-05	20-25	EPA	6.65E+00	EPA	3.47E+06	EPA
2-Methylnaphthalene	25	WATER8	2.38E-03	WATER8	2.54E+01	20-25	EHRAV	4.11E+00	EHRAV	7.94E+03	EHRAV
Naphthalene	25	EPA	1.98E-02	EPA	8.03E+01	2.50E+01	WATER8	3.36E+00	EPA	2.00E+03	EPA
Phenanthrene	25	EHRAV	2.47E-01	PD 1	1.29E+00	20-25	EHRAV	4.46E+00	WATER8	1.40E+04	EHRAV
Pyrene	25	EPA	4.51E-04	EPA	1.35E-01	20-25	EPA	5.11E+00	EPA	1.05E+05	EPA

TABLE XIV
PHYSICAL PROPERTIES OF COMPOUNDS OF CONCERN
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

COMPOUND	Molecular Weight, MW (g/mole)	Vapor Pressure, Vp (mmHg)	Temperature Vp measured (degrees C)	Vp Source	Diffusivity, Dair (cm^2/s)	Dair Source	Diffusivity, Dwater (cm^2/s)	Dwater Source	Henry's Law Constant, Hp ($atm\text{-}m^3/mol$)	Temperature Hp measured (degrees C)	Hp Source	Henry's Law Constant, H (dimensionless)	H Source	Water Solubility, S (mg/L)	Temperature S measured (degrees C)	S Source	Log Octanol/ Water Partition Coefficient, Log(Kow)	Log(Kow) Source	Organic Carbon Partition Coefficient, Koc (cm^3/g)	Koc Source
METALS																				
Aluminum	27	1.00E+00	1280	333A	1.50E-01	PD 4	1.00E-05	H2O	NA	NA	NA	NA	NA	INSOLUBLE	INSOLUBLE	333A	NA	NA	NA	NA
Antimony	122	1.00E+00	20-25	EHRAV	7.04E-02	PD 4	1.00E-05	H2O	NA	NA	NA	NA	NA	INSOLUBLE	NA	333A	NA	NA	NA	NA
Arsenic	75	1.00E+00	372	333A	8.97E-02	PD 4	1.00E-05	H2O	NA	NA	NA	NA	NA	INSOLUBLE	NA	333A	NA	NA	NA	NA
Barium	137	1.00E+01	1049	333A	6.63E-02	PD 4	1.00E-05	H2O	NA	NA	NA	NA	NA	HYDROLYZES	NA	333A	NA	NA	NA	NA
Beryllium	9	0.00E+00	0	NA	2.59E-01	PD 4	1.00E-05	H2O	NA	NA	NA	NA	NA	INSOLUBLE	NA	462A	NA	NA	NA	NA
Cadmium	112	1.00E+00	393	333A	7.33E-02	PD 4	1.00E-05	H2O	NA	NA	NA	NA	NA	INSOLUBLE	NA	2031A	NA	NA	NA	NA
Chromium, Total	52	1.00E+00	1616	SEE CHROMIUM	1.08E-01	PD 4	1.00E-05	H2O	NA	NA	NA	NA	NA	INSOLUBLE	SEE CHROMIUM	NA	NA	NA	NA	NA
Chromium, Hexavalent	52	1.00E+00	1616	SEE CHROMIUM	1.08E-01	PD 4	1.00E-05	H2O	NA	NA	NA	NA	NA	INSOLUBLE	SEE CHROMIUM	NA	NA	NA	NA	NA
Copper	64	1.00E+00	1628	333A	9.71E-02	PD 4	1.00E-05	H2O	NA	NA	NA	NA	NA	INSOLUBLE	NA	333A	NA	NA	NA	NA
Gold	291	1.60E-04	20-25	EHRAV	5.58E-02	EHRAV	1.00E-05	H2O	7.85E-06	20-25	EHRAV	3.21E-04	PD 1	7.80E+00	20-25	EHRAV	3.90E+00	EHRAV	1.08E+03	EHRAV
Iron	56	1.00E+00	1787	333A	1.04E-01	PD 4	1.00E-05	H2O	NA	NA	NA	NA	NA	INSOLUBLE	NA	333A	NA	NA	NA	NA
Lead	207	1.00E+00	970	333A	5.40E-02	PD 4	1.00E-05	H2O	NA	NA	NA	NA	NA	INSOLUBLE	NA	333A	NA	NA	NA	NA
Mercury	201	2.00E-03	20-25	EHRAV	3.07E-02	EPA	6.30E-06	EPA	1.14E-02	25	EPA	4.67E-01	EPA	3.00E-02	20-25	EHRAV	NA	NA	NA	NA
Nickel	59	1.00E+00	1800	333A	1.01E-01	PD 4	1.00E-05	H2O	NA	NA	NA	NA	NA	INSOLUBLE	NA	333A	NA	NA	NA	NA
Silver	108	1.00E+00	1310	EHRAV	7.48E-02	PD 4	1.00E-05	H2O	NA	NA	NA	NA	NA	INSOLUBLE	NA	333A	NA	NA	NA	NA
Tin	204	1.00E+00	825	333A	5.44E-02	PD 4	1.00E-05	H2O	NA	NA	NA	NA	NA	INSOLUBLE	NA	333A	NA	NA	NA	NA
Zinc	65	1.00E+00	487	333A	9.64E-02	PD 4	1.00E-05	H2O	NA	NA	NA	NA	NA	INSOLUBLE	NA	333A	NA	NA	NA	NA
Cyanide	26	6.20E+02	20-25	EHRAV	1.85E-01	EHRAV	2.28E-05	WATER8	2.70E-08	25	WATER8	1.10E-06	PD 1	1.00E+05	2.50E+01	WATER8	-2.50E-01	EHRAV	5.75E-01	EHRAV

NOTES & ABBREVIATIONS:
1. NA: Not applicable or not available.
2. *: Value for m-Xylene.
3. ---: This physical property is not used in the risk characterization, and therefore is not presented here.

REFERENCES:
1. EPA: U.S. EPA, Soil Screening Guidance Technical Background Document, EPA/540/R-95/128, May 1996.
2. WATER8: U.S. EPA, Wastewater Treatment Compound Property Processor and Air Emissions Estimator or Water8, EPA-453/C-94-080C, November 1994.
3. EHRAV: The Electronic Handbook of Risk Assessment Values, (Electronic Handbook Publishers), updated through January 1996.
4: TPHCWG: Gustafson, J.B., J.G. Tell, and D. Orem, Selection of Representative TPH Fractions Based on Fate and Transport Considerations, Volume 3, Total Petroleum Hydrocarbons Criteria Working Group Series, Volume III, 1997.
5. DEP: MADEP, Implementation of MADEP VPH/EPH Approach, Final Policy, 31 October 2002.
6. H20: Value for water.
7. 333: CRC Press, Inc., CRC Handbook of Chemistry and Physics, 60th Edition, Boca Raton, Florida.
8. 463: Verschueren, K., Handbook of Environmental Data on Organic Chemicals, 2nd Edition, Van Nostran Reinhold Company, New York. 1983.
9. PD1: H (dimensionless) = [Hp ($atm\text{-}m^3/mol$) * 1e06 (cm^3/m^3)] / [82.05 ($cm^3 \cdot atm/K \cdot mol$) * (273 + Temp of Hp (K))]
10. PD2: Hp ($atm\text{-}m^3/mol$) = [Vp (mmHg) * MW (g/mol)] / [760 (mmHg/atm) * S (mg/L) * ($L \cdot g/m^3 \cdot mg$))]
11. PD3: H (dimensionless) = [Hp ($atm\text{-}m^3/mol$) * 1e06 (cm^3/m^3)] / [82.05 ($cm^3 \cdot atm/K \cdot mol$) * (273 + Temp of S/Vp (K))], where Hp is calculated using PD2.
12. PD4: Dair = 0.0932 * (MW of compound / MW of benzene)$^{-0.5}$ (U.S. EPA, Superfund Exposure Assessment Manual, EPA Report No. EPA/540/1-88/001, 1 April 1988.)
13. PD5: log(Koc) = 0.00028 + (0.983 * log(Kow)) (U.S. EPA, DiToro's (1985) Model, Suter (1993), p. 157.)
14. PD6: log(Kow) = 4.5 - 0.75 * log(S) (REF: 463, p.24.)
15. Lyman: Log(Koc) = Log(Kow) - 0.21 (Lyman et. al., Handbook of Chemical Property Estimation Methods. Environmental Behavior of Organic Compounds, 1990.)
16. Olsen & Davis: Log(Koc) = 0.63 * Log(Kow) (Olsen & Davis, Predicting the Fate and Transport of Organic Compounds in Groundwater, Part 1, 1990.)
17. RG: MADEP, Guidance for Disposal Site Risk Characterization - In Support of The MCP, WSC/ORS-95-141, July 1995.
18. Potts & Guy: Kp estimated using Potts and Guy empirical equation (EPA Dermal Exposure Assessment: Principals and Applications, pp. 5-37): log(Kp) = -2.72 + [0.71 * log(Kow)] - [0.0061 * (MW)]
19. HSDB: Hazardous Substances Data Bank, http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB

TABLE XV
SUMMARY OF ESTIMATED TOTAL SITE RISK
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS 3-0585, 3-19850

POTENTIAL RECEPTOR/ EXPOSURE SCENARIO	EXPOSURE MEDIA	EXPOSURE AREA	EXPOSURE ROUTE AND MIGRATION PATHWAY	HAZARD INDEX	ELCR
CURRENT SITE USE					
Commercial Building Occupant (Adult)	Indoor Air	Building 16, First Floor	Inhalation of vapors in indoor air	3.6E-03	3.9E-06
			TOTAL:	4E-03	4E-06
			DEP RISK LIMIT:	1E+00	1E-05
Commercial Building Occupant (Adult)	Indoor Air	Buildings 18/19, First and Second Floors	Inhalation of vapors in indoor air	3.4E-03	4.1E-07
			TOTAL:	3E-03	4E-07
			DEP RISK LIMIT:	1E+00	1E-05
Commercial Building Occupant (Adult)	Indoor Air	Building 27, First Floor	Inhalation of vapors in indoor air	1.0E-01	2.5E-06
			TOTAL:	1E-01	3E-06
			DEP RISK LIMIT:	1E+00	1E-05
Maintenance Worker (Adult)	Indoor Air	Building 16, Basement	Inhalation of vapors in indoor air	1.4E-03	2.6E-06
		Building 16, First Floor	Inhalation of vapors in indoor air	4.5E-04	4.9E-07
		Buildings 18/19 First and Second Floors	Inhalation of vapors in indoor air	4.3E-04	5.1E-08
		Building 27, First Floor	Inhalation of vapors in indoor air	1.3E-02	3.1E-07
			TOTAL:	2E-02	3E-06
			DEP RISK LIMIT:	1E+00	1E-05
Utility Worker A (Adult)	Soil	Site-wide	Incidental ingestion of soil	3.3E-03	3.3E-09
			Dermal contact with soil	1.7E-02	1.2E-09
			Inhalation of fugitive dust	2.7E-04	8.3E-09
	Groundwater	Site-wide (excluding Hot Spots)	Dermal contact with groundwater	1.2E-04	1.7E-07
			TOTAL:	2E-02	2E-07
			DEP RISK LIMIT:	1E+00	1E-05
Utility Worker B (Adult)	Soil	Site-wide	Incidental ingestion of soil	3.3E-03	3.3E-09
			Dermal contact with soil	1.7E-02	1.2E-09
			Inhalation of fugitive dust	2.7E-04	8.3E-09
	Groundwater	Cadmium Hot Spot	Dermal contact with groundwater	6.3E-06	9.2E-09
			TOTAL:	2E-02	2E-08
			DEP RISK LIMIT:	1E+00	1E-05
Utility Worker C (Adult)	Soil	Site-wide	Incidental ingestion of soil	3.3E-03	3.3E-09
			Dermal contact with soil	1.7E-02	1.2E-09
			Inhalation of fugitive dust	2.7E-04	8.3E-09
	Groundwater	Trichloroethylene Hot Spot	Dermal contact with groundwater	3.9E-03	9.2E-09
			TOTAL:	2E-02	2E-08
			DEP RISK LIMIT:	1E+00	1E-05

TABLE XV
SUMMARY OF ESTIMATED TOTAL SITE RISK
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

POTENTIAL RECEPTOR/ EXPOSURE SCENARIO	EXPOSURE MEDIA	EXPOSURE AREA	EXPOSURE ROUTE AND MIGRATION PATHWAY	HAZARD INDEX	ELCR
REASONABLY FORESEEABLE SITE USE					
Construction Worker A (Adult)	Soil	Waltham Industrial Labs, Fill Soil	Incidental ingestion of soil	8.4E-01	5.9E-08
			Dermal contact with soil	9.0E-01	2.0E-08
			Inhalation of fugitive dust	4.7E-01	3.2E-08
		Waltham Industrial Labs, Natural Soil	Incidental ingestion of soil	**2.2E+00**	8.8E-09
			Dermal contact with soil	3.8E-01	8.1E-09
			Inhalation of fugitive dust	2.4E-01	1.2E-09
	Groundwater	Waltham Industrial Labs (excluding Hot Spots)	Dermal contact with groundwater	7.6E-01	1.3E-07
		Cadmium Hot Spot	Dermal contact with groundwater	1.6E-03	2.6E-08
			TOTAL:	**6E+00**	3E-07
			DEP RISK LIMIT:	1E+00	1E-05
Construction Worker B (Adult)	Soil	Gasoline USTs Release	Incidental ingestion of soil	6.9E-02	3.9E-08
			Dermal contact with soil	2.4E-02	1.9E-07
			Inhalation of fugitive dust	5.2E-03	1.4E-09
	Groundwater	Gasoline USTs Release	Dermal contact with groundwater	2.7E-01	2.5E-09
			TOTAL:	4E-01	2E-07
			DEP RISK LIMIT:	1E+00	1E-05
Construction Worker C (Adult)	Soil	Building 27 Chlorinated Solvent Release	Incidental ingestion of soil	3.8E-03	1.6E-08
			Dermal contact with soil	1.8E-02	1.6E-08
			Inhalation of fugitive dust	4.1E-04	5.8E-10
	Groundwater	Building 27 Chlorinated Solvent Release (excluding Hot Spots)	Dermal contact with groundwater	6.2E-01	7.1E-07
		Trichloroethylene Hot Spot	Dermal contact with groundwater	5.4E-01	1.3E-06
			TOTAL:	1E+00	2E-06
			DEP RISK LIMIT:	1E+00	1E-05

Note:
1. Bold values exceed the DEP cumulative noncancer or cancer risk limit

TABLE XVI
COMPARISON OF DISPOSAL SITE SOIL CONCENTRATIONS
TO UPPER CONCENTRATION LIMITS (UCLS)
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

COMPOUND	CAS NUMBER	UCL FOR SOIL (mg/kg)	MAXIMUM CONCENTRATION IN SOIL (mg/kg)	AVERAGE CONCENTRATION IN SOIL (mg/kg)	AVERAGE CONCENTRATION IN SOIL EXCEEDS UCL?
1,1,1-TRICHLOROETHANE	71-55-6	5,000	1.8	0.54	no
1,1,2,2-TETRACHLOROETHANE	79-34-5	20	0.40	0.52	no
1,1-DICHLOROETHYLENE	75-35-4	90	0.44	0.52	no
1,2,3-TRICHLOROPROPANE	96-18-4	*1,000*	7.0	0.63	no
1,2,4-TRIMETHYLBENZENE	95-63-6	*1,000*	3.5	0.67	no
1,3,5-TRIMETHYLBENZENE	108-67-8	*1,000*	8.2	0.69	no
2-METHYLNAPHTHALENE	91-57-6	10,000	8.9	0.57	no
4-METHYL-2-PENTANONE (MIBK)	108-10-1	10,000	170	6.5	no
ACENAPHTHENE	83-32-9	10,000	1.5	0.32	no
ACENAPHTHYLENE	208-96-8	10,000	3.9	0.35	no
ALUMINUM	7429-90-5	*10,000*	13,200	6,415	no
ANTHRACENE	120-12-7	10,000	1.5	0.35	no
ARSENIC	7440-38-2	300	30	8.4	no
BENZENE	71-43-2	2,000	8.5	0.60	no
BENZO(A)ANTHRACENE	56-55-3	100	3.1	0.58	no
BENZO(A)PYRENE	50-32-8	100	4.1	0.56	no
BENZO(B)FLUORANTHENE	205-99-2	100	5.8	0.65	no
BENZO(G,H,I)PERYLENE	191-24-2	10,000	3.8	0.42	no
BENZO(K)FLUORANTHENE	207-08-9	400	2.4	0.47	no
CADMIUM	7440-43-9	800	2,400	92	no
CARBON TETRACHLORIDE	56-23-5	400	0.49	0.47	no
CHLOROFORM	67-66-3	5,000	9.4	0.71	no
CHROMIUM	16065-83-1	10,000	3,600	322	no
CHRYSENE (1,2-BENZPHENANTHRACENE)	218-01-9	400	7.2	0.75	no
CIS-1,2-DICHLOROETHYLENE	156-59-2	5,000	36	1.8	no
COPPER	7440-50-8	*1,000*	14,000	542	no
CYANIDE, PHYSIOLOGICALLY AVAILABLE	57-12-5	4,000	8.2	1.8	no
DIBENZ(A,H)ANTHRACENE	53-70-3	100	0.93	0.31	no
ETHYLBENZENE	100-41-4	10,000	2.0	0.54	no
FLUORANTHENE	206-44-0	10,000	7.9	0.98	no
FLUORENE	86-73-7	10,000	1.7	0.32	no
INDENO(1,2,3-CD)PYRENE	193-39-5	100	5.5	0.45	no
IRON	7439-89-6	*10,000*	54,000	10,318	YES
ISOPROPYLBENZENE	98-82-8	*1,000*	0.13	0.54	no
LEAD	7439-92-1	6,000	28,400	884	no
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	N/A	10,000	8,900	402	no
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	20,000	8,200	511	no
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	N/A	5,000	2,500	114	no
MADEP C9-C10 AROMATIC HYDROCARBONS	N/A	5,000	410	34	no
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	N/A	20,000	770	40	no
MADEP C9-C18 ALIPHATIC HYDROCARBONS	N/A	20,000	2,300	172	no
MERCURY	7439-97-6	600	4.9	1.2	no
NAPHTHALENE	91-20-3	10,000	0.91	0.59	no
NAPHTHALENE	91-20-3	10,000	0.91	0.59	no
N-BUTYLBENZENE	104-51-8	*1,000*	3.2	0.53	no
NICKEL	7440-02-0	7,000	1,700	83	no
N-PROPYLBENZENE	103-65-1	*1,000*	6.0	0.56	no
PHENANTHRENE	85-01-8	10,000	4.6	0.66	no
PYRENE	129-00-0	10,000	4.1	0.81	no
SEC-BUTYLBENZENE	135-98-8	*1,000*	1.6	0.57	no
SILVER	7440-22-4	2,000	2.9	0.78	no
TETRACHLOROETHYLENE	127-18-4	1,000	1.2	0.44	no
TIN	7440-31-5	*1,000*	280	28	no
TOLUENE	108-88-3	10,000	24	0.87	no
TRANS-1,2-DICHLOROETHYLENE	156-60-5	10,000	0.44	0.48	no
TRICHLOROETHYLENE	79-01-6	5,000	190	9.9	no
VINYL CHLORIDE	75-01-4	20	12	1.1	no
XYLENES, MIXTURE	1330-20-7	10,000	33	1.0	no
ZINC	7440-66-6	10,000	6,200	560	no

NOTES:

1. Where compound-specific UCLs were not available, the DEP default value of 1,000 mg/kg was used for the soil UCL (in italics) per 310 CMR 40.0996(8)(a). For aluminum and iron, a chemical-specific UCL was calculated and set equal to the UCL ceiling of 10,000 mg/kg (in italics) per 310 CMR 40.0996(8)(b).
2. 4-Isopropyltoluene is not included in the UCL comparison as a compound of concern because it is quantified in the DEP C9-C10 aromatic hydrocarbon range, and a UCL is not available for this compound.
3. EPH results were used to characterize extractable and total petroleum hydrocarbons in soil. The EPH dataset is more extensive and includes areas where TPH analysis was conducted and EPH analysis is the methodology recommended by DEP to characterize risks due to petroleum hydrocarbons in soil.

TABLE XVII
COMPARISON OF DISPOSAL SITE GROUNDWATER CONCENTRATIONS
TO UPPER CONCENTRATION LIMITS (UCLS)
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

COMPOUND	CAS NUMBER	UCL FOR GROUNDWATER (ug/l)	MAXIMUM CONCENTRATION AT DISPOSAL SITE (ug/l)	AVERAGE CONCENTRATION AT DISPOSAL SITE (ug/l)	AVERAGE CONCENTRATION AT DISPOSAL SITE EXCEEDS UCL?
1,1,1-TRICHLOROETHANE	71-55-6	100,000	16	2.0	no
1,1,2-TRICHLOROETHANE	79-00-5	100,000	7.7	2.5	no
1,1-DICHLOROETHANE	75-34-3	100,000	270	13	no
1,1-DICHLOROETHYLENE	75-35-4	100,000	12	1.9	no
2-METHYLNAPHTHALENE	91-57-6	100,000	0.586	1.0	no
ACENAPHTHENE	83-32-9	50,000	--	--	no
ARSENIC	7440-38-2	4,000	110	21	no
BENZENE	71-43-2	70,000	9.2	2.5	no
BENZO(A)ANTHRACENE	56-55-3	30,000	--	--	no
BENZO(A)PYRENE	50-32-8	30,000	--	--	no
BENZO(B)FLUORANTHENE	205-99-2	30,000	--	--	no
BENZO(K)FLUORANTHENE	207-08-9	30,000	--	--	no
BROMODICHLOROMETHANE	75-27-4	100,000	0.53	1.5	no
CADMIUM	7440-43-9	100	--	--	no
CHLOROFORM	67-66-3	100,000	6.9	2.7	no
CHROMIUM	16065-83-1	20,000	--	--	no
CHRYSENE (1,2-BENZPHENANTHRACENE)	218-01-9	30,000	--	--	no
CIS-1,2-DICHLOROETHYLENE	156-59-2	100,000	3900	194	no
COPPER	7440-50-8	*10,000*	29	14	no
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	57-12-5	2,000	20	20	no
ETHYLBENZENE	100-41-4	100,000	3.4	1.6	no
FLUORANTHENE	206-44-0	3,000	0.647	2.0	no
FLUORENE	86-73-7	30,000	0.423	1.9	no
ISOPROPYLBENZENE	98-82-8	*10,000*	5.7	1.9	no
LEAD	7439-92-1	300	6.0	3.6	no
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	N/A	100,000	1700	202	no
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	100,000	924	240	no
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	N/A	100,000	2730	515	no
MADEP C9-C10 AROMATIC HYDROCARBONS	N/A	100,000	150	48	no
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	N/A	100,000	468	86	no
MADEP C9-C18 ALIPHATIC HYDROCARBONS	N/A	100,000	472	166	no
NAPHTHALENE	91-20-3	60,000	2.6	7.6	no
N-BUTYLBENZENE	104-51-8	*10,000*	3.0	1.7	no
NICKEL	7440-02-0	1,000	2.7	16	no
N-PROPYLBENZENE	103-65-1	*10,000*	5.6	1.9	no
PHENANTHRENE	85-01-8	3,000	0.943	2.0	no
PYRENE	129-00-0	30,000	0.434	1.9	no
SEC-BUTYLBENZENE	135-98-8	*10,000*	4.4	1.8	no
TETRACHLOROETHYLENE	127-18-4	50,000	2.7	1.6	no
TOLUENE	108-88-3	100,000	1.6	2.3	no
TRANS-1,2-DICHLOROETHYLENE	156-60-5	100,000	7.8	2.6	no
TRICHLOROETHYLENE	79-01-6	100,000	2600	165	no
VINYL CHLORIDE	75-01-4	100,000	2200	101	no
XYLENES, MIXTURE	1330-20-7	100,000	5.2	1.8	no
ZINC	7440-66-6	20,000	800	139	no

NOTES:
1. Where compound-specific UCLs were not available, the DEP default value of 10,000 ug/l was used for the groundwater UCL (in italics).
2. Cadmium Hot Spot includes the following samples: B4-OW 04/29/02, B4-OW 06/29/04, HA-1(MW) 05/01/02, HA-1(MW) 06/29/04 and HA-19A(MW) 06/29/04 .
3. Trichloroethylene Hot Spot includes the following samples: HA-503(MW) 06/30/04, HA-5003(MW) DUP 06/30/04, HA-702(MW) 06/30/04 and HA-806T(MW) 07/14/04.
4. Disposal Site data set does not contain the Cadmium Hot Spot and TCE Hot Spot samples.
5. Data sets summarized above include groundwater samples collected from monitoring wells with screen intervals at all depths within the lateral limits of the Disposal Site.
6. 4-Isopropyltoluene is not included in the UCL comparison as a compound of concern because it is quantified in the DEP C9-C10 aromatic hydrocarbon range, and a UCL is not available for this compound.

TABLE XVII
COMPARISON OF DISPOSAL SITE GROUNDWATER CONCENTRATIONS
TO UPPER CONCENTRATION LIMITS (UCLS)
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

COMPOUND	CAS NUMBER	UCL FOR GROUNDWATER (ug/l)	CADMIUM HOT SPOT MAXIMUM CONCENTRATION (ug/l)	CADMIUM HOT SPOT AVERAGE CONCENTRATION (ug/l)	AVERAGE CONCENTRATION AT CADMIUM HOTSPOT EXCEEDS UCL?
1,1,1-TRICHLOROETHANE	71-55-6	100,000	--	--	no
1,1,2-TRICHLOROETHANE	79-00-5	100,000	--	--	no
1,1-DICHLOROETHANE	75-34-3	100,000	--	--	no
1,1-DICHLOROETHYLENE	75-35-4	100,000	5.6	2.0	no
2-METHYLNAPHTHALENE	91-57-6	100,000	--	--	no
ACENAPHTHENE	83-32-9	50,000	--	--	no
ARSENIC	7440-38-2	4,000	20	13	no
BENZENE	71-43-2	70,000	--	--	no
BENZO(A)ANTHRACENE	56-55-3	30,000	--	--	no
BENZO(A)PYRENE	50-32-8	30,000	--	--	no
BENZO(B)FLUORANTHENE	205-99-2	30,000	--	--	no
BENZO(K)FLUORANTHENE	207-08-9	30,000	--	--	no
BROMODICHLOROMETHANE	75-27-4	100,000	--	--	no
CADMIUM	7440-43-9	100	888	462	YES
CHLOROFORM	67-66-3	100,000	--	--	no
CHROMIUM	16065-83-1	20,000	40	23	no
CHRYSENE (1,2-BENZPHENANTHRACENE)	218-01-9	30,000	--	--	no
CIS-1,2-DICHLOROETHYLENE	156-59-2	100,000	190	64	no
COPPER	7440-50-8	*10,000*	--	--	no
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	57-12-5	2,000	--	--	no
ETHYLBENZENE	100-41-4	100,000	--	--	no
FLUORANTHENE	206-44-0	3,000	--	--	no
FLUORENE	86-73-7	30,000	--	--	no
ISOPROPYLBENZENE	98-82-8	*10,000*	--	--	no
LEAD	7439-92-1	300	--	--	no
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	N/A	100,000	--	--	no
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	100,000	--	--	no
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	N/A	100,000	290	150	no
MADEP C9-C10 AROMATIC HYDROCARBONS	N/A	100,000	--	--	no
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	N/A	100,000	--	--	no
MADEP C9-C18 ALIPHATIC HYDROCARBONS	N/A	100,000	--	--	no
NAPHTHALENE	91-20-3	60,000	--	--	no
N-BUTYLBENZENE	104-51-8	*10,000*	--	--	no
NICKEL	7440-02-0	1,000	165	107	no
N-PROPYLBENZENE	103-65-1	*10,000*	--	--	no
PHENANTHRENE	85-01-8	3,000	--	--	no
PYRENE	129-00-0	30,000	--	--	no
SEC-BUTYLBENZENE	135-98-8	*10,000*	--	--	no
TETRACHLOROETHYLENE	127-18-4	50,000	--	--	no
TOLUENE	108-88-3	100,000	--	--	no
TRANS-1,2-DICHLOROETHYLENE	156-60-5	100,000	4.4	1.7	no
TRICHLOROETHYLENE	79-01-6	100,000	56	19	no
VINYL CHLORIDE	75-01-4	100,000	120	40	no
XYLENES, MIXTURE	1330-20-7	100,000	--	--	no
ZINC	7440-66-6	20,000	147	85	no

NOTES:

1. Where compound-specific UCLs were not available, the DEP default value of 10,000 ug/l was used for the groundwater UCL (in italics).
2. Cadmium Hot Spot includes the following samples: B4-OW 04/29/02, B4-OW 06/29/04, HA-1(MW) 05/01/02, HA-1(MW) 06/29/04 and HA-19A(MW) 06/29/04 .
3. Trichloroethylene Hot Spot includes the following samples: HA-503(MW) 06/30/04, HA-5003(MW) DUP 06/30/04, HA-702(MW) 06/30/04 and HA-806T(MW) 07/14/04.
4. Disposal Site data set does not contain the Cadmium Hot Spot and TCE Hot Spot samples.
5. Data sets summarized above include groundwater samples collected from monitoring wells with screen intervals at all depths within the lateral limits of the Disposal Site.
6. 4-isopropyltoluene is not included in the UCL comparison as a compound of concern because it is quantified in the DEP C9-C10 aromatic hydrocarbon range, and a UCL is not available for this compound.

TABLE XVII
COMPARISON OF DISPOSAL SITE GROUNDWATER CONCENTRATIONS
TO UPPER CONCENTRATION LIMITS (UCLS)
PHASE II - COMPREHENSIVE SITE ASSESSMENT
FORMER WALTHAM INDUSTRIAL LABS
221 - 257 CRESCENT STREET
WALTHAM, MASSACHUSETTS
RELEASE TRACKING NOS. 3-0585, 3-19850

COMPOUND	CAS NUMBER	UCL FOR GROUNDWATER (ug/l)	TRICHLOROETHYLENE HOT SPOT MAXIMUM CONCENTRATION (ug/l)	TRICHLOROETHYLENE HOT SPOT AVERAGE CONCENTRATION (ug/l)	AVERAGE CONCENTRATION AT TRICHLOROETHYLENE HOTSPOT EXCEEDS UCL?
1,1,1-TRICHLOROETHANE	71-55-6	100,000	--	--	no
1,1,2-TRICHLOROETHANE	79-00-5	100,000	--	--	no
1,1-DICHLOROETHANE	75-34-3	100,000	--	--	no
1,1-DICHLOROETHYLENE	75-35-4	100,000	--	--	no
2-METHYLNAPHTHALENE	91-57-6	100,000	1.43	0.82	no
ACENAPHTHENE	83-32-9	50,000	0.520	0.36	no
ARSENIC	7440-38-2	4,000	--	--	no
BENZENE	71-43-2	70,000	--	--	no
BENZO(A)ANTHRACENE	56-55-3	30,000	0.641	0.42	no
BENZO(A)PYRENE	50-32-8	30,000	0.304	0.20	no
BENZO(B)FLUORANTHENE	205-99-2	30,000	0.470	0.34	no
BENZO(K)FLUORANTHENE	207-08-9	30,000	0.458	0.33	no
BROMODICHLOROMETHANE	75-27-4	100,000	--	--	no
CADMIUM	7440-43-9	100	--	--	no
CHLOROFORM	67-66-3	100,000	--	--	no
CHROMIUM	16065-83-1	20,000	--	--	no
CHRYSENE (1,2-BENZPHENANTHRACENE)	218-01-9	30,000	0.710	0.46	no
CIS-1,2-DICHLOROETHYLENE	156-59-2	100,000	11,000	4,977	no
COPPER	7440-50-8	*10,000*	--	--	no
CYANIDE, PHYSIOLOGICALLY AVAILABLE (NaOH PRESERVED)	57-12-5	2,000	--	--	no
ETHYLBENZENE	100-41-4	100,000	--	--	no
FLUORANTHENE	206-44-0	3,000	1.44	0.82	no
FLUORENE	86-73-7	30,000	0.656	0.43	no
ISOPROPYLBENZENE	98-82-8	*10,000*	--	--	no
LEAD	7439-92-1	300	--	--	no
MADEP C11-C22 AROMATIC HYDROCARBONS, ADJUSTED	N/A	100,000	795	422	no
MADEP C19-C36 ALIPHATIC HYDROCARBONS	N/A	100,000	1180	616	no
MADEP C5-C8 ALIPHATIC HYDROCARBONS, ADJUSTED	N/A	100,000	17,400	10,885	no
MADEP C9-C10 AROMATIC HYDROCARBONS	N/A	100,000	--	--	no
MADEP C9-C12 ALIPHATIC HYDROCARBONS, ADJUSTED	N/A	100,000	2,760	1,693	no
MADEP C9-C18 ALIPHATIC HYDROCARBONS	N/A	100,000	966	508	no
NAPHTHALENE	91-20-3	60,000	5.95	3.1	no
N-BUTYLBENZENE	104-51-8	*10,000*	--	--	no
NICKEL	7440-02-0	1,000	--	--	no
N-PROPYLBENZENE	103-65-1	*10,000*	--	--	no
PHENANTHRENE	85-01-8	3,000	1.99	1.1	no
PYRENE	129-00-0	30,000	1.17	0.69	no
SEC-BUTYLBENZENE	135-98-8	*10,000*	--	--	no
TETRACHLOROETHYLENE	127-18-4	50,000	--	--	no
TOLUENE	108-88-3	100,000	--	--	no
TRANS-1,2-DICHLOROETHYLENE	156-60-5	100,000	--	--	no
TRICHLOROETHYLENE	79-01-6	100,000	47,500	33,833	no
VINYL CHLORIDE	75-01-4	100,000	4,350	1,600	no
XYLENES, MIXTURE	1330-20-7	100,000	--	--	no
ZINC	7440-66-6	20,000	--	--	no

NOTES

1. Where compound-specific UCLs were not available, the DEP default value of 10,000 ug/l was used for the groundwater UCL (in italics).

2. Cadmium Hot Spot includes the following samples: B4-OW 04/29/02, B4-OW 06/29/04, HA-1(MW) 05/01/02, HA-1(MW) 06/29/04 and HA-19A(MW) 06/29/04.

3. Trichloroethylene Hot Spot includes the following samples: HA-503(MW) 06/30/04, HA-5003(MW) DUP 06/30/04, HA-702(MW) 06/30/04 and HA-806T(MW) 07/14/04.

4. Disposal Site data set does not contain the Cadmium Hot Spot and TCE Hot Spot samples.

5. Data sets summarized above include groundwater samples collected from monitoring wells with screen intervals at all depths within the lateral limits of the Disposal Site.

6. 4-Isopropyltoluene is not included in the UCL comparison as a compound of concern because it is quantified in the DEP C9-C10 aromatic hydrocarbon range, and a UCL is not available for this compound.