IMMEDIATE RESPONSE ACTION COMPLETION REPORT AND RESPONSE ACTION OUTCOME BUILDING P-16 FORT DEVENS, MASSACHUSETTS MA DEP RTN 2-11105

Contract No. DACW33-95-D-0004, Delivery Order No. 0004

January 1997

Prepared for

U.S. ARMY CORPS OF ENGINEERS
NEW ENGLAND DIVISION
424 Trapelo Road
Waltham, Massachusetts 02254-9149

Prepared by

Roy F. Weston, Inc.
Wilmington, Massachusetts 01887

Work Order No. 03886-118-004

CSV2 97011 RFNR

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Mailing Address:
Roy F. Weston, Inc.
P.O. Box 425
Ayer, Massachusetts 01432-0425

13 January 1997

Promoted from blue room to Archives on 10-2-97

Ms. Lynne Welsh
Massachusetts Department of Environmental Protection
627 Main Street
Worcester, MA 01608

Re: IMMEDIATE RESPONSE ACTION COMPLETION REPORT and
RESPONSE ACTION OUTCOME
Building P-16
Devens, MA
RTN 2-11105

Dear Ms. Welsh:

Roy F. Weston, Inc. (WESTON) is pleased to submit with this letter, Forms BWSC-104 and BWSC-105, and one copy of *Immediate Response Action Completion Report and Response Action Outcome, Building P-16, Devens, Massachusetts.* Project Lead and author of this report is Anthony F. Andronico, LSP.

Should you have any questions, please do not hesitate to contact me at (508) 772-7190.

Very truly yours,

ROY F. WESTON, INC.

Thomas J. Abdella
Project Manager
Devens Project Office

Enclosures

cc: J. Chambers, U.S. Army DRFTA, BRAC
M. Applebee, CENED/EM
S. Umbrell, CENED/NCRO
C. George, U.S. Army, AEC
J. Byrne, U.S. EPA, Region I
T. Andronico, WESTON
R. Ostrowski, Devens Commerce Center

CSV2 97011 RFWR

Massachusetts Department of Environmental Protection **BWSC-104**
Bureau of Waste Site Cleanup

RESPONSE ACTION OUTCOME (RAO) STATEMENT & DOWNGRADIENT PROPERTY STATUS TRANSMITTAL FORM

Pursuant to 310 CMR 40.0180 (Subpart B), 40.0580 (Subpart E) & 40.1056 (Subpart J)

Release Tracking Number: 2 - 11105

A. SITE OR DOWNGRADIENT PROPERTY LOCATION:

Site Name: (optional) Building P-16 LUST Site

Street: Buena Vista Street Location Aid: Building P-16

City/Town: Devens ZIP Code: 01433-0000

☐ Check here if this Site location is Tier Classified.

If a Tier I Permit has been issued, state the Permit Number:

Related Release Tracking Numbers that this Form Addresses: 2-0662

If submitting an RAO Statement, you must document the location of the Site or the location and boundaries of the Disposal Site subject to this Statement. If submitting an RAO Statement for a PORTION of a Disposal Site, you must document the location and boundaries for both the portion subject to this submittal and, to the extent defined, the entire Disposal Site. If submitting a Downgradient Property Status Submittal, you must provide a site plan of the property subject to the submittal and, to the extent defined, the Disposal Site.

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

☑ Submit a **Response Action Outcome (RAO) Statement** (complete Sections A, B, C, D, E, F, H, I, J and L).

☐ Check here if this is a revised RAO Statement. Date of Prior Submittal:

☐ Check here if any Response Actions remain to be taken to address conditions associated with any of the Releases whose Release Tracking Numbers are listed above. This RAO Statement will record only an RAO-Partial Statement for those Release Tracking Numbers.

Specify Affected Release Tracking Numbers:

☐ Submit an optional **Phase I Completion Statement supporting an RAO Statement or Downgradient Property Status Submittal** (complete Sections A, B, H, I, J, and L).

☐ Submit a **Downgradient Property Status Submittal** (complete Sections A, B, G, H, I, J and K).

☐ Check here if this is a revised Downgradient Property Status Submittal. Date of Prior Submittal:

☐ Submit a **Termination of a Downgradient Property Status Submittal** (complete Sections A, B, I, J and L).

☐ Submit a **Periodic Review Opinion evaluating the status of a Temporary Solution** (complete Sections A, B, H, I, J and L).

Specify one: ☐ For a Class C RAO ☐ For a Waiver Completion Statement indicating a Temporary Solution

Provide Submittal Date of RAO Statement or Waiver Completion Statement:

You must attach all supporting documentation required for each use of form indicated, including copies of any Legal Notices and Notices to Public Officials required by 310 CMR 40.1400.

C. DESCRIPTION OF RESPONSE ACTIONS: (check all that apply)

☑ Assessment and/or Monitoring Only

☐ Removal of Contaminated Soils

- ☐ Re-use, Recycling or Treatment
  - ◯ On Site ◯ Off Site Est. Vol.: _____ cubic yards
  - Describe: _____
- ☐ Landfill ◯ Cover ◯ Disposal Est. Vol.: _____ cubic yards

☐ Removal of Drums, Tanks or Containers

Describe: _____

☐ Removal of Other Contaminated Media

Specify Type and Volume: _____

☐ Other Response Actions

Describe: _____

☐ Deployment of Absorbant or Contaminent Materials

☐ Temporary Covers or Caps

☐ Bioremediation

☐ Soil Vapor Extraction

☐ Structure Venting System

☐ Product or NAPL Recovery

☐ Groundwater Treatment Systems

☐ Air Sparging

☐ Temporary Water Supplies

☐ Temporary Evacuation or Relocation of Residents

☐ Fencing and Sign Posting

SECTION C IS CONTINUED ON THE NEXT PAGE.

RESPONSE ACTION OUTCOME (RAO) STATEMENT & DOWNGRADIENT PROPERTY STATUS TRANSMITTAL FORM

Pursuant to 310 CMR 40.0180 (Subpart B), 40.0580 (Subpart E) & 40.1056 (Subpart J)

Release Tracking Number: 2 - 11105

C. DESCRIPTION OF RESPONSE ACTIONS: (continued)

☐ Check here if any Response Action(s) that serve as the basis for this RAO Statement involve the use of Innovative Technologies. (DEP is interested in using this information to create an Innovative Technologies Clearinghouse.)

Describe Technologies: _____

D. TRANSPORT OF REMEDIATION WASTE: (if Remediation Waste was sent to an off-site facility, answer the following questions)

Name of Facility: Not Applicable

Town and State: _____

Quantity of Remediation Waste Transported to Date: _____

E. RESPONSE ACTION OUTCOME CLASS:

Specify the Class of Response Action Outcome that applies to the Site or Disposal Site. Select **ONLY** one Class:

☐ **Class A-1 RAO**: Specify one of the following:

◯ Contamination has been reduced to background levels.

◯ A Threat of Release has been eliminated.

☑ **Class A-2 RAO**: You **MUST** provide justification that reducing contamination to background levels is infeasible.

☐ **Class A-3 RAO**: You **MUST** provide both an implemented Activity and Use Limitation (AUL) and justification that reducing contamination to background levels is infeasible.

If applicable, provide the earlier of the AUL expiration date or date the design life of the remedy will end: _____

☐ **Class B-1 RAO**: Specify one of the following:

◯ Contamination is consistent with background levels

◯ Contamination is **NOT** consistent with background levels.

☐ **Class B-2 RAO**: You **MUST** provide an implemented AUL.

If applicable, provide the AUL expiration date : _____

☐ **Class C RAO**: ☐ Check here if you will conduct post-RAO Operation, Maintenance and Monitoring at the Site.

Specify One: ◯ Passive Operation and Maintenance ◯ Monitoring Only

◯ Active Operation and Maintenance (defined at 310 CMR 40.0006)

F. RESPONSE ACTION OUTCOME INFORMATION:

☐ If an RAO Compliance Fee is required, check here to certify that the fee has been submitted. You **MUST** attach a photocopy of the payment.

☐ Check here if submitting one or more AULs. You must attach an AUL Transmittal Form (BWSC-113) and a copy of each implemented AUL related to this RAO Statement. Specify the type of AUL(s) below: (required for all Class A-3 RAOs and Class B-2 RAOs)

◯ Notice of Activity and Use Limitation ◯ Grant of Environmental Restriction Number of AULs attached: _____

Specify the Risk Characterization Method(s) used to achieve the RAO described above and all Soil and Groundwater Categories applicable to the Site.

More than one Soil Category and more than one Groundwater Category may apply at a Site.
Be sure to check off all APPLICABLE categories, even if more stringent soil and groundwater standards were met.

Risk Characterization Method(s) Used:	☐ Method 1	☑ Method 2	☐ Method 3
Soil Category(ies) Applicable:	☑ S-1	☐ S-2	☑ S-3
Groundwater Category(ies) Applicable:	☑ GW-1	☐ GW-2	☑ GW-3

> When submitting any Class A-1 RAO or a Class B-1 RAO where contamination is consistent with background levels, do NOT specify a Risk Characterization Method.

> When submitting any Class A-2 RAO or a Class B-1 RAO where contamination is NOT consistent with background levels, you cannot use an AUL to maintain a level of no significant risk. Therefore, you must meet S-1 Soil Standards, if using Risk Characterization Method 1.

Massachusetts Department of Environmental Protection **BWSC-104**
Bureau of Waste Site Cleanup

RESPONSE ACTION OUTCOME (RAO) STATEMENT & DOWNGRADIENT PROPERTY STATUS TRANSMITTAL FORM

Pursuant to 310 CMR 40.0180 (Subpart B), 40.0580 (Subpart E) & 40.1056 (Subpart J)

Release Tracking Number: 2 - 11105

G. DOWNGRADIENT PROPERTY STATUS SUBMITTAL:

☐ If a Downgradient Property Status Submittal Compliance Fee is required, check here to certify that the fee has been submitted. You **MUST** attach a photocopy of the payment.

☐ Check here if a Release(s) of Oil or Hazardous Material(s), other than that which is the subject of this submittal, has occurred at this property.

Release Tracking Number(s): _____

◯ Check here if the Releases identified above require further Response Actions pursuant to 310 CMR 40.0000.

Required documentation for a Downgradient Property Status Submittal includes, but is not limited to, copies of notices provided to owners and operators of both upgradient and downgradient abutting properties and of any known or suspected source properties.

H. LSP OPINION:

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 (iii) the provisions of 309 CMR 4.03(5), to the best of my knowledge, information and belief,

> *if Section B indicates that a **Downgradient Property Status Submittal** is being provided,* 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 310 CMR 40.0183(2)(b), and (iii) complies(y) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> *if Section B indicates that either an **RAO Statement, Phase I Completion Statement and/or Periodic Review Opinion** is being provided,* 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) complies(y) 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.

☐ 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.

LSP Name: Anthony F. Andronico LSP #: 6105 Stamp:

Telephone: 508-988-7000 Ext.: _____

FAX: (optional) 508-988-7093

Signature: Anthony F. Andronico

Date: 1/8/97

COMMONWEALTH OF MASSACHUSETTS
ANTHONY F. ANDRONICO
No. 6105
REGISTERED LICENSED SITE PROFESSIONAL

I. PERSON MAKING SUBMITTAL:

Name of Organization: Devens BRAC Environmental Office US Army DRFTA

Name of Contact: James C. Chambers Title: BRAC Environmental Coordinator

Street: Building P-12, Room 222, Buena Vista Street

City/Town: Devens State MA ZIP Code: 01433-0000

Telephone: 508-796-3131 Ext.: 311 FAX: (optional) 508-796-3133

J. RELATIONSHIP TO SITE OF PERSON MAKING SUBMITTAL: (check one)

☑ RP or PRP Specify: ◯ Owner ◯ Operator ◯ Generator ◯ Transporter Other RP or PRP: Former Owner

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

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

☐ Any Other Person Submitting This Form Specify Relationship: _____

Massachusetts Department of Environmental Protection **BWSC-104**
Bureau of Waste Site Cleanup

RESPONSE ACTION OUTCOME (RAO) STATEMENT & DOWNGRADIENT PROPERTY STATUS TRANSMITTAL FORM

Pursuant to 310 CMR 40.0180 (Subpart B), 40.0580 (Subpart E) & 40.1056 (Subpart J)

Release Tracking Number: 2 - 11105

K. CERTIFICATION OF PERSON SUBMITTING DOWNGRADIENT PROPERTY STATUS SUBMITTAL:

I, _____, 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 the/those individual(s) immediately responsible for obtaining the information, the material information contained herein is, to the best of my knowledge, information and belief, true, accurate and complete; (iii) that, to the best of my knowledge, information and belief, I/the person(s) or entity(ies) on whose behalf this submittal is made satisfy(ies) the criteria in 310 CMR 40.0183(2); (iv) that I/the person(s) or entity(ies) on whose behalf this submittal is made have provided notice in accordance with 310 CMR 40.0183(5); and (v) that I am fully authorized to make this attestation on behalf of the person(s) or entity(ies) legally responsible for this submittal. I/the person(s) or entity(ies) on whose behalf this submittal is made is/are aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

By: _____ Title: _____
(signature)

For: _____ Date: _____
(print name of person or entity recorded in Section I)

Enter address of the person providing certification, if different from address recorded in Section I:

Street: _____

City/Town: _____ State: _____ ZIP Code: _____

Telephone: _____ Ext.: _____ FAX: (optional) _____

L. CERTIFICATION OF PERSON MAKING SUBMITTAL:

If you are completing only a Downgradient Property Status Submittal, you do not need to complete this section of the form.

I, James C. Chambers, 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.

By: James C Chambers 10 JAN97 Title: BRAC Environmental Coordinator
(signature)

For: Devens BRAC Environmental Office US Army DRFTA Date: _____
(print name of person or entity recorded in Section I)

Enter address of the person providing certification, if different from address recorded in Section I:

Street: _____

City/Town: _____ State: _____ ZIP Code: _____

Telephone: _____ Ext.: _____ FAX: (optional) _____

YOU MUST 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, AND YOU MAY INCUR ADDITIONAL COMPLIANCE FEES.

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-105

IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL FORM

Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number: 2 - 11105

A. RELEASE OR THREAT OF RELEASE LOCATION:

Release Name: (optional) Building P-16 LUST Site

Street: Buena Vista Street Location Aid: Building P-16

City/Town: Devens ZIP Code: 01433-0000

☐ Check here if a Tier Classification Submittal has been provided to DEP for this Release Tracking Number.

☐ Check here if this location is Adequately Regulated, pursuant to 310 CMR 40.0110-0114.

Specify Program: ☐ CERCLA ☐ HSWA Corrective Action ☐ Solid Waste Management ☐ RCRA State Program (21C Facilities)

Related Release Tracking Numbers That This IRA Addresses:

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

☐ Submit an **IRA Plan** (complete Sections A, B, C, D, E, H, I, J and K).

☐ Check here if this IRA Plan is an update or modification of a previously approved written IRA Plan. Date Submitted:

☐ Submit an **Imminent Hazard Evaluation** (complete Sections A, B, C, F, H, I, J and K).

☐ Submit an **IRA Status Report** (complete Sections A, B, C, E, H, I, J and K).

☐ Submit a **Request to Terminate an Active Remedial System and/or Terminate a Continuing Response Action(s) Taken to Address an Imminent Hazard** (complete Sections A, B, C, D, E, H, I, J and K).

☑ Submit an **IRA Completion Statement** (complete Sections A, B, C, D, E, G, H, I, J and K).

You must attach all supporting documentation required for each use of form indicated, including copies of any Legal Notices and Notices to Public Officials required by 310 CMR 40.1400.

C. RELEASE OR THREAT OF RELEASE CONDITIONS THAT WARRANT IRA:

Identify Media and Receptors Affected: (check all that apply)

☐ Air ☐ Groundwater ☐ Surface Water ☐ Sediments ☑ Soil

☐ Wetland ☐ Storm Drain ☐ Paved Surface ☐ Private Well ☐ Public Water Supply ☐ Zone 2 ☐ Residence

☐ School ☐ Unknown ☐ Other Specify:

Identify Conditions That Require IRA, Pursuant to 310 CMR 40.0412: (check all that apply)

☐ 2 Hour Reporting Condition(s) ☐ 72 Hour Reporting Condition(s) ☐ Substantial Release Migration ☑ Other Condition(s)

Describe: In accordance with MA DEP agreement, Responsible Parties must notify MA DEP within 72 hours after reaching contaminated soil excavation limit of 100 yards

Identify Oils and Hazardous Materials Released: (check all that apply)

☑ Oils ☐ Chlorinated Solvents ☐ Heavy Metals

☐ Others Specify:

D. DESCRIPTION OF RESPONSE ACTIONS: (check all that apply)

☑ Assessment and/or Monitoring Only

☐ Excavation of Contaminated Soils

☐ Re-use, Recycling or Treatment

○ On Site ○ Off Site Est. Vol.: _____ cubic yards

Describe:

☐ Store ○ On Site ○ Off Site Est. Vol.: _____ cubic yards

☐ Landfill ○ Cover ○ Disposal Est. Vol.: _____ cubic yards

☐ Removal of Drums, Tanks or Containers

Describe:

☐ Deployment of Absorbent or Containment Materials

☐ Temporary Covers or Caps

☐ Bioremediation

☐ Soil Vapor Extraction

☐ Structure Venting System

☐ Product or NAPL Recovery

☐ Groundwater Treatment Systems

☐ Air Sparging

☐ Temporary Water Supplies

SECTION D IS CONTINUED ON THE NEXT PAGE.

IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL FORM

Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number: 2 - 11105

D. DESCRIPTION OF RESPONSE ACTIONS (continued):

☐ Removal of Other Contaminated Media

Specify Type and Volume: _____

☐ Temporary Evacuation or Relocation of Residents

☐ Fencing and Sign Posting

☐ Other Response Actions Describe: _____

☐ Check here if this IRA involves the use of Innovative Technologies (DEP is interested in using this information to aid in creating an Innovative Technologies Clearinghouse).

Describe Technologies: _____

E. TRANSPORT OF REMEDIATION WASTE:

(if Remediation Waste has been sent to an off-site facility, answer the following questions)

Name of Facility: Not applicable

Town and State: _____

Quantity of Remediation Waste Transported to Date: _____

F. IMMINENT HAZARD EVALUATION SUMMARY:

(check one of the following)

☐ Based upon an evaluation, an Imminent Hazard exists in connection with this Release or Threat of Release.

☐ Based upon an evaluation, an Imminent Hazard does not exist in connection with this Release or Threat of Release.

☐ Based upon an evaluation, it is unknown whether an Imminent Hazard exists in connection with this Release or Threat of Release, and further assessment activities will be undertaken.

☐ Based upon an evaluation, it is unknown whether an Imminent Hazard exists in connection with this Release or Threat of Release. However, response actions will address those conditions that could pose an Imminent Hazard.

G. IRA COMPLETION STATEMENT:

☐ Check here if future response actions addressing this Release or Threat of Release will be conducted as part of the Response Actions planned for a Site that has already been Tier Classified under a different Release Tracking Number, or a Site that is identified on the Transition List as described in 310 CMR 40.0600 (i. e., a Transition Site, which includes Sites with approved Waivers). These additional response actions must occur according to the deadlines applicable to the earlier Release Tracking Number (i. e., Site ID Number).

State Release Tracking Number (i. e., Site ID Number) of Tier Classified Site or Transition Site: _____

If any Remediation Waste will be stored, treated, managed, recycled or reused at the site following submission of the IRA Completion Statement, you must submit either a Release Abatement Measure (RAM) Plan or a Phase IV Remedy Implementation Plan, along with the appropriate transmittal form, as an attachment to the IRA Completion Statement.

H. LSP OPINION:

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 (iii) the provisions of 309 CMR 4.03(5), to the best of my knowledge, information and belief,

> *if Section B of this form indicates that an **Immediate Response Action 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) complies(y) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> *if Section B of this form indicates that an **Imminent Hazard Evaluation** is being submitted*, this Imminent Hazard Evaluation was developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and the assessment activity(ies) undertaken to support this Imminent Hazard Evaluation complies(y) with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000;

> *if Section B of this form indicates that an **Immediate Response Status Report** 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) complies(y) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> *if Section B of this form indicates that an **Immediate Response Action Completion Statement** or a **Request to Terminate an Active Remedial System and/or Terminate a Continuing Response Action(s) Taken to Address an Imminent Hazard** 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) complies(y) with the identified provisions of all orders, permits, and approvals identified in this submittal.

SECTION H IS CONTINUED ON THE NEXT PAGE.

Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-105

IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL FORM

Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number: 2 - 11105

H. LSP Opinion (continued):

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.

☐ 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.

LSP Name: Anthony F. Andronico LSP #: 6105 Stamp:

Telephone: 508-988-7000 Ext.:

FAX: (optional) 508-988-7093

Signature: Anthony F. Andronico

Date: 1/8/97

COMMONWEALTH OF MASSACHUSETTS ANTHONY F. ANDRONICO NO. 6105 REGISTERED LICENSED SITE PROFESSIONAL

I. PERSON UNDERTAKING IRA:

Name of Organization: Devens BRAC Environmental Office, U.S. Army DRFTA

Name of Contact: James C. CHambers Title: BRAC Environmental Coordinator

Street: Building P-12, Room 222, Buena Vista Steet

City/Town: Devens State: MA ZIP Code: 01433-0000

Telephone: 508-796-3131 Ext.: 311 FAX: (optional) 508-796-3133

☐ Check here if there has been a change in the person undertaking the IRA.

J. RELATIONSHIP TO RELEASE OR THREAT OF RELEASE OF PERSON UNDERTAKING IRA: (check one)

☑ RP or PRP Specify: ○ Owner ○ Operator ○ Generator ○ Transporter Other RP or PRP: Former Owner

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

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

☐ Any Other Person Undertaking IRA Specify Relationship:

K. CERTIFICATION OF PERSON UNDERTAKING IRA:

I, James C. Chambers, 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.

By: James C Chambers (signature) Title: BRAC Environmental Coordinator

For: BRAC Environmental Office US Army DRFTA (print name of person or entity recorded in Section I) Date: 10 JAN 97

Enter address of the person providing certification, if different from address recorded in Section I:

Street:

City/Town: State: ZIP Code:

Telephone: Ext.: FAX: (optional)

YOU MUST 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.

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1.0 INTRODUCTION

Roy F. Weston, Inc. (WESTON®) has been retained by the U.S. Army Corps of Engineers, New England Division (CENED) under Contract No. DACW-33-95-D-0004, Delivery Order No. 0004, to conduct an Immediate Response Action (IRA) at the Building P-16 Leaking Underground Storage Tank (LUST) site at Fort Devens, MA. In accordance with 310 CMR 40.0424 of the Massachusetts Contingency Plan (MCP), WESTON prepared an IRA Plan to address assessment activities to be conducted in the vicinity of a removed 10,000 gallon No. 2 fuel UST located adjacent to Building P-16 at Fort Devens, Massachusetts.

The Building P-16 IRA Plan was delivered to the Massachusetts Department of Environmental Protection (MA DEP) on June 12, 1996 for review and approval. Following MA DEP review and approval of the IRA Plan, soil sampling at the Building P-16 LUST site performed on June 24 to 26, 1996. Based on verbal approval from MA DEP to perform groundwater sampling as part of this IRA, groundwater sampling was performed on November 21 to 22, 1996. In accordance with 310 CMR 40.0427, the following IRA Completion report presents the findings and conclusions of the IRA investigation conducted at the Building P-16 LUST site.

2.0 DESCRIPTION OF THE RELEASE

In April 1996, prior to the transfer of the Building P-16 property to the Massachusetts Development and Finance Agency (MDFA), Devens Commerce Commission (DCC), the DCC requested a right-of-entry and Memorandum of Agreement (MOA) from the Army in order to complete some early actions at several sites at Fort Devens in preparation for potential new tenants and/or buyers. The MOA was extended to include the Building P-16 property and allowed for the removal of an on-site underground storage tank (UST) and up to 100 cubic yards of contaminated soil. However, the MOA stated that if soil contamination extended beyond 100 cubic yards or groundwater contamination was evident, the Army would take responsibility for the remaining remediation efforts.

Removal of the UST at Building P-16 was conducted on February 2, 1996 by Zecco Inc. (Zecco) under contract to the DCC. SEA Consultants (SEA) provided field screening, sampling and analysis, Licensed Site Professional services, and general oversight of the removal. Although a single-walled 8,000-gallon steel tank that contained No. 2 fuel oil was reportedly installed in 1966, a 10,000-gallon tank was encountered at this location during tank removal operations. According to SEA, soil directly beneath the tank contained no visual or olfactory evidence of contamination as evidenced by sample headspace readings of zero (SEA, April, 1996).

During excavation activities, piping not related to the existing UST was identified in the excavation. In addition, while conducting confirmatory sampling activities, it was discovered that deeper soils were visually stained. The DCC speculated that the ancillary piping and observed contamination may have been associated with a former No. 6 fuel oil UST that was replaced with the recently removed UST; however, no further information pertaining to a previously installed UST is available.

SEA collected confirmatory samples from the initial excavation (soil samples A, B, C, D, E, and F). The sampling locations are presented on a figure attached in Appendix E. Sidewall samples A, B and C, and initial bottom sample F were analyzed for TPH by Method 418.1 and revealed no contaminants detected. Initial bottom sample E indicated the presence of 1600 ppm of TPH, and sample D was not analyzed. Additional excavation and field screening was performed by SEA, followed by the collection of four additional confirmatory soil samples (soil samples H, I, J, K) which were submitted for laboratory analyses for volatile organic compounds (VOCs) by EPA Method 8260, polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270, and total petroleum hydrocarbons (TPH) by EPA Method 8100. Soil samples I and J were taken from the sidewalls of the excavation at an unspecified depth, however based on the narrative descriptions of the excavation and sampling process, the depths of these samples have been estimated to be 15 to 20 feet below ground surface. Soil samples H and K were collected from the bottom of the excavation at an estimated depth of 20 feet.

No VOCs were detected in any of the soil samples. PAHs, at a total concentration of 28,150 micrograms per kilogram (ug/kg), were detected in soil sample I. Of the PAHs detected, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, and indeno(1,2,3-cd)pyrene exceed Reportable Concentrations (RC) for either RCS-1 or RCS-2 soils. TPHs (unidentified) were detected in soil sample I at a concentration of 1,200 ppm. TPHs identified as No. 6 fuel oil were detected in soil samples H and K at concentrations of 5,700 ppm and 5,800 ppm, respectively. These TPH concentrations exceed the MCP RCS-1 standard of 500 mg/kg, and the concentrations from samples H and K exceeded the RCS-2 standard of 2,500 mg/kg. Copies of the laboratory analysis reports are included in Appendix E.

The location of the UST was adjacent to an approximately 15-foot deep stairwell constructed of concrete that descends to the Building P-16 boiler room. In accordance with an MA DEP letter to the Devens Commerce Center, dated March 19, 1996, once contaminated material was identified in the excavation, the response action was conducted in accordance with 310 CMR 40.0421(3), Immediate Response Actions That Do Not Require Prior Approval from the Department. Zecco attempted to excavate visually contaminated soil from the vicinity of the stairwell foundation to a depth of approximately 20 feet. Once approximately 100 cubic yards of contaminated soil had been removed from the excavation, the DCC directed Zecco to stop work. The excavation was then lined with polyethylene sheeting and backfilled to grade with stone dust material. The DCC indicated that further excavation could potentially compromise the integrity of the concrete stairwell.

Upon reaching the 100 cubic yard limit on February 12, 1996, the DCC notified the Massachusetts Department of Environmental Protection (MA DEP) of the conditions at the site. The Building P-16 site was assigned Release Tracking Number 2-11105. On April 16, 1996, all on-site stockpiled soils were transported off-site by Zecco and was to be recycled as daily cover at the BFI Landfill in Randolph, Massachusetts.

3.0 SITE CONDITIONS

The Building P-16 property is located on Buena Vista Street at the northwest portion of the Main Post of Fort Devens (Figure 1). The property is bounded to the east by MacArthur Avenue, to the south by Buena Vista Street, to the west by an unnamed service road, and to the north by an undeveloped woodland buffer zone which borders MacArthur Avenue. The area immediately surrounding Building P-16 is a paved parking lot. The layout of the Building P-16 property and relevant site features are depicted on Figure 2.

As noted in Section 2.0, a 10,000 gallon UST located adjacent to Building P-16 was removed by Zecco on February 2, 1996. During tank removal operations, soils which appeared visually contaminated were encountered. Approximately 100 cubic yards of contaminated soil were excavated. The excavation was then lined with polyethylene sheeting and backfilled to grade with stone dust material. The DCC indicated that further excavation could potentially compromise the integrity of the concrete stairwell. A general outline of the extent of soil excavation is shown on Figure 2.

The Willow Brook is located approximately 200 feet east of the property and drains into the Nonacoicus Brook located approximately 0.8 miles northeast of the property. This site does not lie within a 100 year flood plain, and no environmental receptors are known to exist on-site. The site is located within an area mapped as a Zone II. The nearest water supply well is the McPherson well located approximately 4,000 feet to the north of the site.

Housing for enlisted army personnel is located approximately 500 feet east of the Building P-16 property; however, since the Fort Devens facility is closed, only a few of the units are currently occupied. Planned property reuse is commercial or industrial, however, as a conservative precaution, residential uses will be considered for risk assessment purposes as a potential future site use.

Based on site history and soil sampling data, releases of petroleum hydrocarbons from past activities have occurred. TPH compounds have been found in soils in the vicinity of the former UST area.

The Site area of concern currently consists of an unpaved area where the soils excavation area was backfilled. The area surrounding the former excavation consists of the building, building stairwell, and asphalt pavement (Figures 2 and 3).

4.0 IRA FIELD INVESTIGATION

WESTON conducted the Building P-16 LUST site field investigation between June 24-26, 1996 in accordance with the IRA Plan, dated June 10, 1996, with two primary modifications. First, instead of collecting soil samples in five foot intervals from each soil boring, the MA DEP requested that soils be sampled continuously in each of the proposed borings at the depths which correspond to the elevation of the zone of detected soil contamination (i.e., approximately 20 feet

below ground surface (bgs)). Second, with verbal approval from the MA DEP, groundwater samples were collected from the area to evaluate groundwater quality in the vicinity of the former UST. The sampling program conducted at the former UST, as well as the results of the field investigation, are presented in detail below.

4.1 Soil Borings

As described above, a total of 6 soil borings (16B-96-01X through 16B-96-06X) were advanced in the vicinity of the former UST. Soil boring locations are shown on Figure 3.

Soil boring 16B-96-01X was drilled within the area of the previous excavation near SEA soil sampling locations H and I, while the remaining five borings (16B-96-02X through 16B-96-06X) were advanced along the perimeter of the previous excavation. Perimeter boring 16B-96-04X was drilled at the bottom of the building stairwell, which is located to the east of the former UST and approximately 15 feet bgs. Perimeter borings 16B-96-05X and 16B-96-06X were drilled in the basement boiler room of Building P-16. The concrete slab in the boiler room is approximately 15 feet bgs.

Borings 16B-96-01X through 16B-96-04X were advanced with 4-1/4 inch I.D. hollow-stem augers on a conventional, drill-mounted rig. Due to their locations within the basement of Building P-16, borings 16B-96-05X and 16B-96-06X were advanced with a portable tripod drilling unit.

Soil borings 16B-96-01X through 16B-96-03X were drilled to a maximum depth of 30 feet bgs. As described above, soil borings 16B-96-04X through 16B-96-06X were drilled either at the bottom of the basement stairwell or within the basement itself. Because the basement concrete slab is located approximately 15 feet below the existing ground surface in the vicinity of the former UST, soil borings 16B-96-04X through 16B-96-06X were drilled to maximum depths ranging from 10-17 feet below the concrete slab, depending on subsurface conditions. As a result, the terminal depths of the borings drilled in either the stairwell or within the basement roughly correspond to the terminal depths of borings 16B-96-001X through 16B-96-03X.

4.1.1 Soil Sample Collection

In accordance with comments from the MA DEP, the soil sampling program was modified as follows:

1. Within the area of the former UST, soil excavation was terminated at 20 feet bgs. As a result, at soil boring location 16B-96-01X (located within the area of the excavation) soils were continuously collected between the depth interval of 20 - 30 bgs.

2. At soil boring locations 16B-96-02X and 16B-96-03X (located along the northwest and northeast perimeter of the UST excavation, respectively), soil samples were collected in five foot intervals from 10-20 feet bgs, followed by continuous soil sampling from 20-30 feet bgs.

3. At soil boring location 16B-96-04X (located at the bottom of the building stairwell to the east of the UST excavation), soil was continuously sampled to a depth of 17 feet below the foundation slab.

4. At soil boring locations 16B-96-05X and 16B-96-06X (located to the southwest and southeast of the UST excavation, respectively, in the boiler room of Building P-16) soil was continuously sampled to a depth of 10-17 feet below the foundation slab, depending upon subsurface conditions.

4.1.2 Field Screening of Soil Samples

Each soil sample was screened in the field for Total Petroleum Hydrocarbons (TPH) by two methods: (1) headspace analysis with an OVA FID; and (2) hydrocarbon analysis by solvent extraction with a PetroFLAG analyzer. Based on the results of the field screening, the soil sample with the most elevated PetroFLAG TPH reading from each soil boring was submitted to a chemical testing laboratory for analysis of MA DEP Volatile Petroleum Hydrocarbons (VPH) and Extractable Petroleum Hydrocarbons (EPH), and TPH by EPA Method 418.1.

4.2 Groundwater Sampling

On November 21, 1996 WESTON supervised the installation of three small diameter monitoring wells at Building P16 in the area of the former UST. The wells were installed by MyKroWater, Inc. using probing equipment mounted on an all-terrain vehicle. The probing equipment was used to drive 0.62 inch diameter steel pipe into the overburden using an electric pneumatic hammer and the weight of the vehicle. The soil in the area of the well was not disturbed during the installation of the pipe. The three wells, MK-4, MK-5, and MK-7, were installed in the locations indicated on Figure 3. The wells were constructed with an eleven foot section of screen set to intersect the groundwater, which is approximately 32 feet below the ground surface. The screened section of pipe is eleven feet long with 0.0015 inch slots cut vertically into the steel pipe. The top and bottom 6 inches of the pipe are not slotted. The riser pipe was extended to the ground surface and a slip cap placed over the pipe and cemented in place.

Groundwater samples were collected from each well after evacuating a minimum of one gallon of water from the well. The samples were collected on November 21 and 22, 1996 and analyzed by Alpha Analytical Laboratories, Inc. for MA DEP volatile petroleum hydrocarbon (VPH), extractable petroleum hydrocarbons (EPH), and PAHs by EPA Method 8270. One duplicate sample was collected from well MK-7 and identified as MK-7D. Appendix D contains the laboratory results including sample detection limits. No detectable concentration of VPH, EPH or PAH were identified in any of the samples.

4.3 Results of Field Investigation

The results of the field investigation including subsurface conditions and the results of field screening and chemical testing of soil and groundwater samples for petroleum hydrocarbons are presented below.

4.3.1 Subsurface Conditions

Soil encountered beneath the Building P-16 LUST site typically consist of light brown, fine to coarse sand with some gravel and trace silt. Bedrock was not encountered in any of the borings, although refusal was reached in boring 16B-96-06X at a depth of 10 feet below the concrete slab. The refusal encountered in boring 16B-96-06X is suspected to be due to a boulder.

As shown in the log for boring 16B-96-01X, soil material containing stone dust and small pieces of plastic were recovered at a depth of 26-28 feet bgs. The first soil sample collected (i.e., 20-22 feet bgs) contained several inches of gray stone dust at the top of the sample, indicating the bottom of the previous excavation. The next two samples collected (22-24 feet and 24-26 feet bgs) contained natural soil material. The stone dust recovered from the 26-28 foot depth interval most likely sloughed into the borehole from above during the collection of continuous split spoon samples and does not represent soil material actually present at this depth.

Groundwater was encountered in borings 16B-96-01X, 16B-96-03X, and 16B-96-04X and ranged from approximately 29-32 feet bgs. Soil logs for borings 16B-96-01X through 16B-96-06X are attached in Appendix C.

4.3.2 Field Screening Results

The results for field screening of soil samples for petroleum hydrocarbons are summarized on Table 1 and presented on the soil boring logs attached in Appendix C.

Elevated headspace readings (e.g., >10 ppm) were recorded in only 7 of the 42 samples screened with the OVA PID. In general, the highest headspace readings (26-100 ppm) for borings 16B-96-02X through 16B-96-05X were detected within the depth range of 22-28 feet bgs.

No elevated headspace readings above 10 ppm were recorded in soil collected from boring 16B-96-01X, which was drilled within the excavation area of the former UST, or in boring 16B-96-06X, which was advanced within the basement boiler room of Building P-16. A headspace reading of 10 ppm was recorded in the 24-26 foot bgs sample collected from boring 16B-96-01X. As discussed above, this material most likely represents excavation backfill material which sloughed into the boring.

Results for the PetroFLAG TPH field analyses are also summarized on Table 1. The highest level of TPH measured by the PetroFLAG method was recorded in soil collected from a depth of 26-28 feet bgs in soil boring 16B-96-04X. Although no elevated headspace readings were recorded in boring 16B-96-01X, the PetroFLAG method detected 246 ppm of TPH in soil collected at a depth of 26-28 feet bgs, as well as 99 ppm at a depth of 20-22 feet bgs. The highest levels of TPH detected by the PetroFLAG method in the remaining borings were all below 100 ppm.

Based on a comparison of the field screening results, there appears to be a small degree of correlation between elevated headspace and PetroFLAG readings in borings 16B-96-01X, 16B-96-04X, 16B-96-05X, and 16B-96-06X, and no correlation in borings 16B-96-02X and 16B-96-03X. The relatively low degree of correlation may be attributable, in part, to the organic fractions detected by each method. In general, the OVA headspace analysis only detects the readily volatile fraction of petroleum hydrocarbons and not heavier hydrocarbon mixtures such as fuel oils, while the PetroFLAG method is more sensitive to heavier hydrocarbon fractions and less sensitive to the lighter, more volatile hydrocarbon compounds. As a result, the PetroFLAG method is more likely to detect fuel oil contamination than headspace screening.

4.3.3 Chemical Test Results

As described in Section 5.1.2, the soil sample with the most elevated PetroFLAG TPH reading from each soil boring was submitted to the Mitkem Corporation of Warwick, Rhode Island for analysis of MA DEP VPH/EPH, and TPH by EPA Method 418.1.

In the case of soil boring 16B-96-01X, the highest TPH measurement was recorded in soil sample S-4 collected from the 24-26 foot bgs sample (246 ppm). Although this material was suspected to have sloughed into the borehole from the shallower excavation backfill, it was nonetheless submitted for chemical testing. However, due to the limited amount of soil material collected there was an insufficient volume to perform TPH analysis by EPA Method 418.1. As a result, soil sample S-3 which was collected immediately above S-4 at the 22-24 foot depth interval was also submitted for VPH, EPH and TPH (Method 418.1) analysis.

The chemical test results for the soil samples with the highest field screening levels of TPH from soil borings 16B-96-01X through 16B-96-06X are summarized in Table 2. TPH levels, as measured by Method 418.1 ranged from not detected to 370 mg/kg.

For the VPH compounds the C5-C8 aliphatic carbon fraction ranged from not detected to 3.5 mg/kg; C9-C12 aliphatic carbon fraction ranged from not detected to 0.45 mg/kg; no C9-C10 aromatic hydrocarbons were detected. The total weighted VPH levels ranged from not detected to 1.8 mg/kg.

With respect to the VPH target analytes, only 130 ug/kg of toluene were detected in soil sample S-4 collected from boring 16B-96-01X. It is important to note that the VPH analysis for soil sample S-4 was performed one day out of holding time. According to Mitkem, because the

samples are preserved in methanol and the sample was analyzed only one day out of holding time, the chemical test results for sample S-4 are accurate.

None of the EPH carbon range compounds were detected in any of the soil samples submitted for chemical testing. In addition, no EPH target analytes were detected in any of the soil samples submitted for analysis.

As indicated in Section 4.2, groundwater samples collected form the former UST were analyzed for EPA, VPH and PAHs, with no compounds detected.

5.0 RISK CHARACTERIZATION

This Risk Assessment (RA) evaluates potential risks of harm to human health, public welfare, public safety, and the environment. This assessment was conducted in accordance with the Massachusetts Contingency Plan (MCP). Current and reasonably foreseeable future human exposure to contaminants at this Site would occur predominantly through contact with groundwater or soil. Each contaminant found at the Site has an existing or proposed MCP Method 1 Standard established with the exception of 1-methylnaphthalene, so a Method 2 RA was performed. Method 1 for 2-methylnaphthalene was used, as discussed below. No other modifications to the existing Method 1 standards was performed. In addition, proposed MCP Method 1 standards for VPH parameters were used in this risk assessment without modification.

5.1 IDENTIFICATION OF HUMAN RECEPTORS

Although Building P-16 is currently vacant, future site reuse is expected to be commercial or industrial. However, for risk assessment purposes, future site uses will conservatively be assumed to include residential uses. Therefore, potential future human receptors will include on-site residents

The Site lies within an area mapped as a Zone II, therefore the Site is subject to MCP Method 1, Category GW-1 groundwater standards. Populations obtaining drinking water from this Aquifer are potential human receptors.

5.2 IDENTIFICATION OF ENVIRONMENTAL RECEPTORS

A majority of the area encompassing the Site is under an asphalt cover. No wetlands or wildlife communities have been identified on-site, and the Site is not within a 100-year floodplain area.

5.3 IDENTIFICATION OF SITE ACTIVITIES AND USES

Although the property is currently unoccupied, no potential future reuse has been ruled out. Therefore reasonably foreseeable future reuse at the Site includes residential.

5.4 IDENTIFICATION OF SITE GROUNDWATER AND SOIL CATEGORIES

Groundwater at the Site is subject to MCP Method 1 GW-1 and GW-3 Standards. As the Site is in a Zone II area, groundwater at the Site is subject to GW-1 Standards. In addition, all groundwater in Massachusetts is subject to GW-3 Standards under the MCP, and as a result, groundwater at the Site is also subject to GW-3 Standards. Because the depth to groundwater at the site exceeds fifteen feet, GW-2 Standards are not applicable.

Table 5-1 summarizes the soil exposure categories for identified exposure pathways under current and foreseeable future site uses (310 CMR 40.0933).

Table 5-1

Summary of Soil Exposure Categories

Potential Receptor	Soil Depth (feet)	Children's Frequency of Use	Adult's Frequency of Use	Intensity of Use	MCP Method 1 Soil Category
Future resident	0 to 15	High	High	High	S-1
Future resident	>15	High	High	High	S-3

5.5 IDENTIFICATION OF EXPOSURE POINTS AND EXPOSURE PATHWAYS

Soil sampling data document the presence of residual soil contamination in the unsaturated zone at levels below applicable MCP Soil Standards. Residual subsurface contaminated soil at depths of less than 15 feet represent one exposure point. Residual contaminated soil at depths of greater than 15 feet represent another exposure point.

Groundwater sampling data has shown no contaminants detected, therefore, groundwater is not considered an exposure pathway.

For potential human receptors, the exposure pathway available is through direct exposure to contaminated soil.

5.6 IDENTIFICATION OF EXPOSURE POINT CONCENTRATIONS

5.6.1 Soil

Table 3 shows the average concentrations of each compound detected in category S-3/GW-1 soil samples (e.g. soils collected from a depth of 15 feet or greater). Averages were calculated by identifying each location where evidence of contamination in soil was found (SS-01 and SS-04 from soil boring 16B-96-01X, SS-02 from 16B-96-03X, and SS-06 from 16B-96-04X, and samples H, I and K from the post excavation confirmatory sampling) and averaging the data for each compound detected at those locations. Sample E from the initial excavation was not included in the average, because additional excavation occurred after sample E was collected and soil from this area was removed. For non-detect results, a value of one-half the detection limit was used to calculate the average. These averaged concentrations represent the soil exposure point concentrations for unsaturated soils greater than 15 feet deep in the former UST area.

Table 4 shows the concentrations detected in soil sample SS-01 from soil boring 16B-96-02X at a depth of 10 to 12 feet. This sample results was used to represent exposure point concentrations for soils less than 15 feet deep in the formed UST area, because it was the only sample from this depth range where the presence of contaminants was detected. Initial post excavation confirmatory samples A, B and C indicated no petroleum compounds detected.

Tables 3 and 4 compare the soil exposure point concentrations to the applicable MCP Method 1 Soil Standards.

5.7 CHARACTERIZATION OF RISK OF HARM

The contaminants of concern in unsaturated soil at the Site are TPH (identified in two samples as No. 6 fuel oil), toluene, VPH hydrocarbons, and Polycyclic Aromatic Hydrocarbons (PAHs). As shown in Tables 3 and 4, the average concentrations of soil contaminants in the former UST area, do not exceed applicable MCP Method 1 Soil Standards. MCP Method 1 standards have not been promulgated by MA DEP for 1-methylnaphthalene. Thus, standards may be developed according to procedures described in the MCP (1996). These procedures include the identification of health-based toxicity values may be obtained from the Integrated Risk Information System (IRIS), an EPA database; Health Effects Assessment Summary Tables (HEAST), prepared by EPA's Office of Health and Environmental Assessment; or if information is unavailable from IRIS or HEAST, then other appropriate sources may be used including MA DEP-derived values, values derived from information presented in ATSDR Toxicological Profiles or values derived from data described in the scientific literature.

Health-based toxicity values have not been developed by EPA or by MA DEP. In addition, very little information is available in the scientific literature regarding the toxicity of 1-methylnapthalene. Nevertheless, in the absence of specific data for one compound, it may be inferred that potential effects are similar to the effects observed for other structurally-similar compounds. This relationship is referred to as a structure-activity relationship. Thus, in the

absence of data for 1-methylnaphthalene, a structurally-similar compound. Based, on this assumption, standards developed for 2-methylnaphthalene may be used to evaluate the potential health risks due exposure to 1-methylnaphthalene.

None of the average soil concentration were found to exceed the Method 1 standard for the most stringent soil category (S-1/GW-1) with the exception of TPH in soils at depths greater than 15 feet. Soil in this location currently meet the applicable standard for S-3 soils, but could exceed the MCP standard for TPH if it came to be located in an S-1 soil exposure category. Based on the depth of these soils, the potential for exposure is limited, and relocation of these soils are not considered reasonably foreseeable. In accordance with section 310 CMR 40.1012 (2)(b), an activity and use limitation to control this potential for future exposure is not required. Therefore, soil contamination in this area is concluded to pose no significant risk of harm to human health, public welfare, or the environment under both current and future conditions.

The release of chemicals at the Site associated with the former UST has resulted in the contamination of soil. The contaminated media do not pose a threat of fire or explosion, and based on the nature of the contamination, will not exhibit corrosive, reactive, or flammable characteristics described in 310 CMR 40.0347. Therefore, there is concluded to be no significant risk of harm to safety posed by the contaminants detected at the Site under both current and reasonably foreseeable future uses.

6.0 MANAGEMENT OF REMEDIATION WASTES

A total of two 55 gallon drums of soil cuttings were generated during the IRA investigation at Building P-16. The soil drum has been transferred from the Building P-16 site to the Building 202 Soil Storage Facility at Fort Devens. A plan for final disposal of this soil and other stockpiled soil generated from previous investigation and remedial activities at Fort Devens is currently being developed.

7.0 FEASIBILITY OF ACHIEVING BACKGROUND

Based on the chemical test results from the IRA field investigation, the assumed background levels for TPH, VPH/EPH and the VPH/EPH are at, or below, the analytical detection limits for these compounds. Soil samples collected from the 6 soil borings and tested for these compounds meet background levels for EPH and EPH target analytes, while soil samples collected from borings 16B-96-01X through 16B-96-04X are reported to be above the apparent background levels for either TPH, VPH, or VPH target analytes. Furthermore, the chemical test results for post excavation samples H, I and K collected by SEA are also above background levels.

In accordance with 310 CMR 40.0860, WESTON has evaluated the feasibility of reducing the concentration of petroleum hydrocarbons in the subsurface to background levels. While it is technically feasible to excavate soil in the vicinity of soil borings 16B-96-01X through 16B-96-

04X to depths ranging from 10-30 feet bgs in order to meet background levels, the additional cost to excavate this soil is disproportionate to the incremental benefit of risk reduction, environmental restoration and monetary and non-pecuniary values.

8.0 CONCLUSIONS

An IRA site assessment was conducted at the location of a former UST at Building P-16, Fort Devens. As described in the IRA Plan for Building P-16, the overall objectives of the investigation were as follows:

1. Evaluate the extent of soil contamination remaining at the site following the removal of a 10,000 gallon UST and excavation of approximately 100 cubic yards of fuel oil impacted soils.

2. Evaluate the potential risk to human health associated with these soils

3. Provide a recommendation for further actions, if necessary, under the MCP.

Based on verbal approval from MA DEP, the IRA was amended to include the collection and analysis of groundwater samples.

Based on the chemical test data for soil samples collected the former UST area, average soil concentrations are within the applicable MCP Method 1 Soil Standards. No compounds were detected in the groundwater samples.

The results of the IRA investigation presented in this Report indicate that the removal action performed by SEA in accordance with 310 CMR 40.0421(3), was successful in achieving a level of No Significant Risk at the Building P-16 LUST site. Although residual levels of TPH, VPH, or VPH analytes remain above apparent background levels, the additional cost to excavate this soil is disproportionate to the incremental benefit of risk reduction, environmental restoration and monetary and non-pecuniary values. As a result, no further actions are required at this site and a Class A-2 Response Action Outcome Statement is attached to this IRA Completion Report.

APPENDIX A

FIGURES

BASE MAP IS A PORTION OF THE FOLLOWING 7.5' U.S.G.S. QUADRANGLE(S):
AYER, MA 1966 (PHOTOREVISED 1979)

1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

QUADRANGLE LOCATION

LOCATION MAP

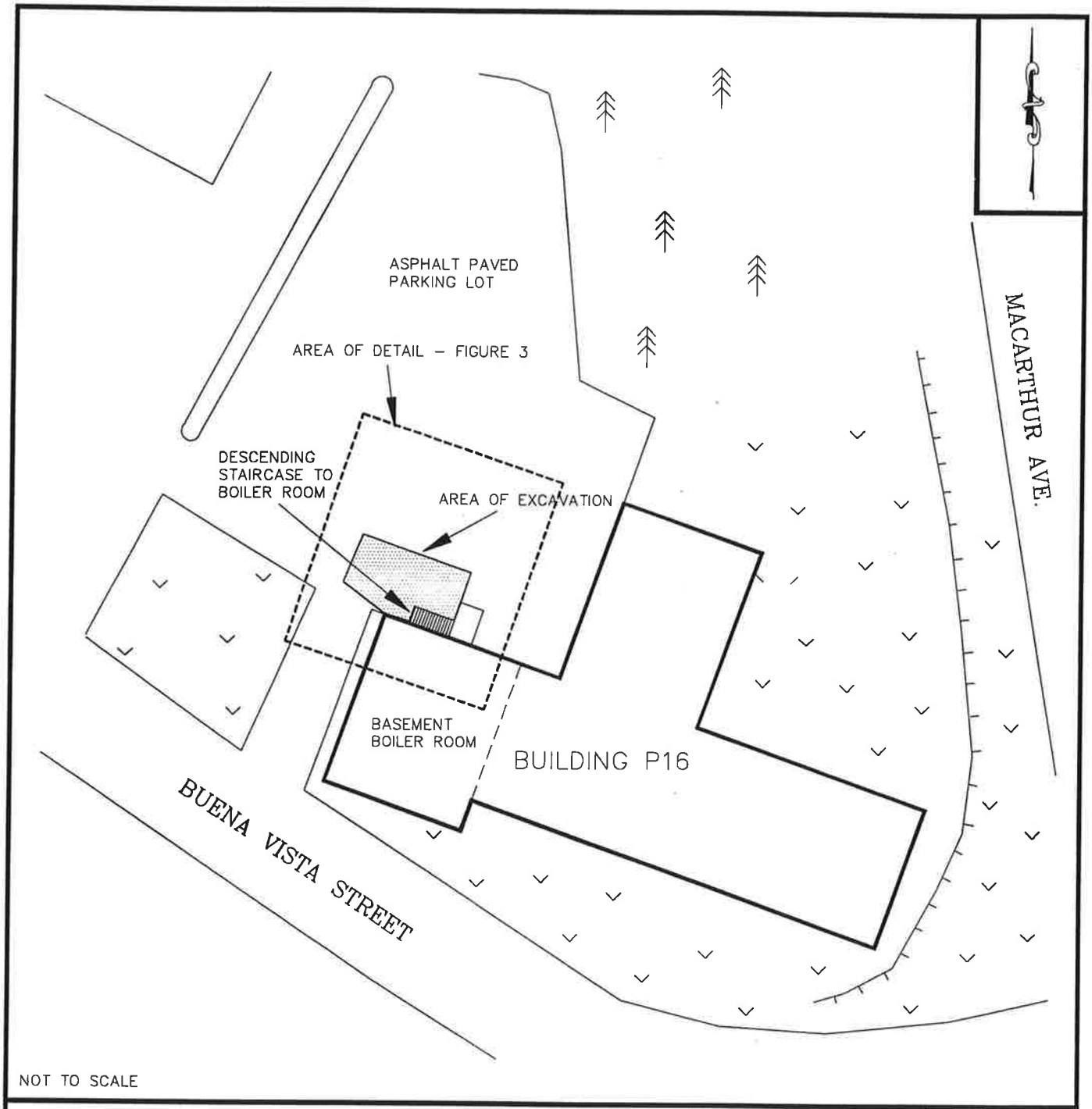
BUILDING P16

FORT DEVENS, MASSACHUSETTS

WESTON MANAGERS DESIGNERS/CONSULTANTS

FIGURE 1

W:\L\PROJECTS\03886118\004\0290\P16\FIGURE1.DWG



LEGEND

GRASS LANDSCAPED AREA

TREES AND SMALL BRUSH

SLOPE OF LAND – TICKS FACE DOWNHILL

IRA COMPLETION REPORT

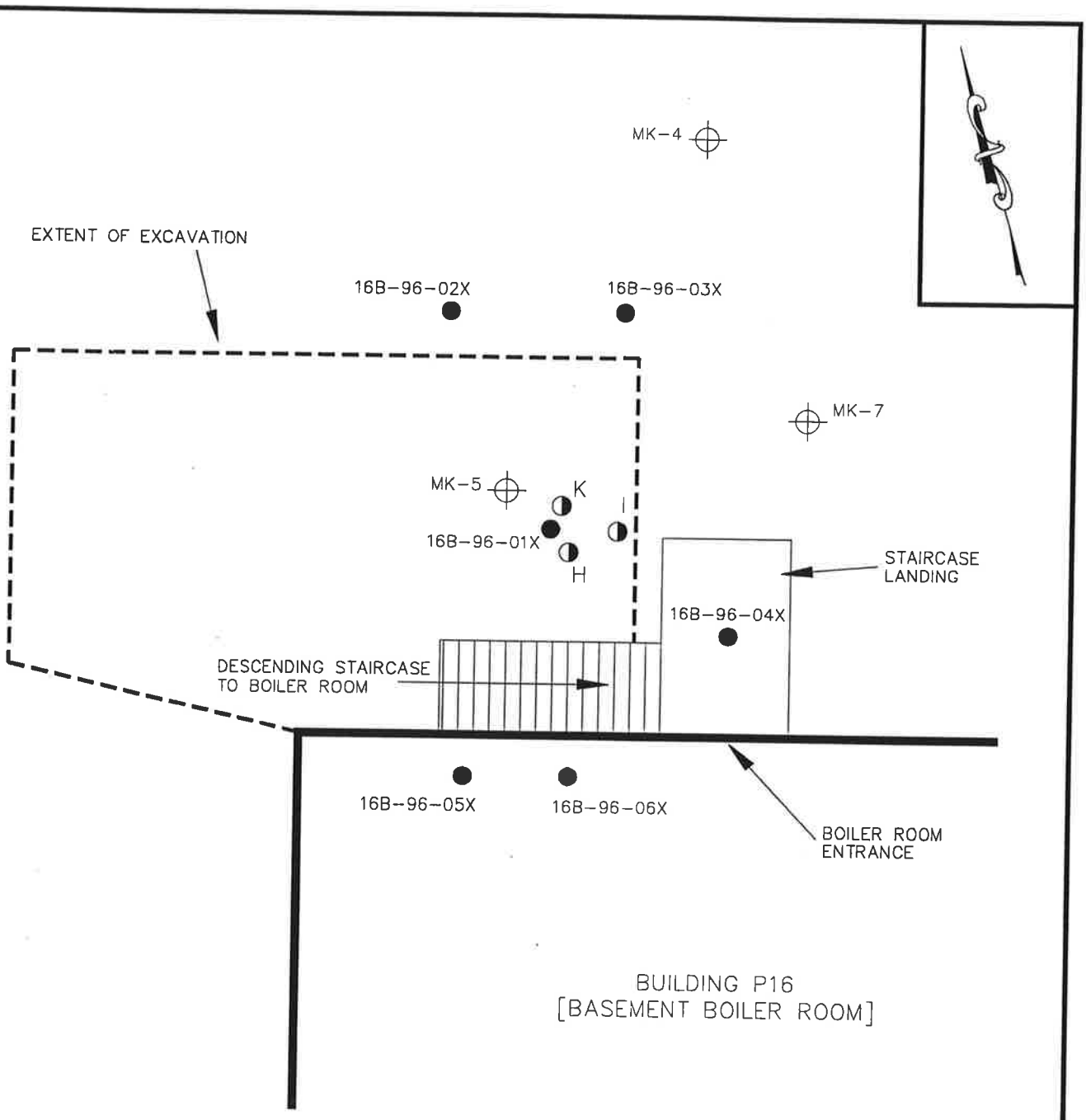
SITE MAP

BUILDING P16
FORT DEVENS
AYER, MASSACHUSETTS

ROY F. WESTON, INC.
WESTON
MANAGERS DESIGNERS/CONSULTANTS

DRAWN D.A.A.	DATE DEC 96	DES. ENG.	DATE	W. O. NO. 03886-118-004
CHECKED A.F.A.		APPROVED		DWG. NO. FIGURE 2

FILE NAME(S): J:\PROJECTS\03886118\004\0920\P16\FIG2.DWG



APPROXIMATE SCALE: 1 INCH = 10 FEET

LEGEND

- SEA POST-EXCAVATION CONFIRMATORY SOIL SAMPLE LOCATION
- SOIL BORING LOCATION
- GROUNDWATER MONITORING WELL

IRA COMPLETION REPORT

SAMPLE LOCATIONS

BUILDING P16
FORT DEVENS
AYER, MASSACHUSETTS

ROY F. WESTON, INC.
WESTON MANAGERS DESIGNERS/CONSULTANTS

DRAWN D.A.A.	DATE DEC 96	DES. ENG.	DATE	W. O. NO. 03886-118-004
CHECKED A.F.A.		APPROVED		DWG. NO. FIGURE 3

FILE NAME(XML): J:\PROJECTS\03886118\004\0920\P16\FIG3.DWG

APPENDIX B

TABLES

Table 1
Field Screening Data
Immediate Response Action Investigation
Building P-16 LUST Site
Fort Devens, Massachusetts
MA DEP RTN 2-11105

Soil Boring	Sample No.	Sample Depth (ft)	Headspace OVA (ppm)	PetroFLAG (ppm)	Comments
16B-96-01X	S-1	20-22	3	99	
	S-2	22-24	0	2	
	S-3	24-26	2.8	15	Sample submitted for analysis
	S-4	26-28	10	246	Sample submitted for analysis
	S-5	28-30	3.5	0	Water table @ 28.5 ft bgs
	S-6	30-32	0.5	0	
16B-96-02X	S-1	10-12	1.8	72	Sample submitted for analysis
	S-2	15-17	2	0	
	S-3	20-22	15	0	
	S-4	22-24	42	3	
	S-5	24-26	1.5	0	
	S-6	26-28	8.5	0	
	S-7	28-30	8	0	
16B-96-03X	S-1	10-12	1.5	0	
	S-2	15-17	1.5	54	Sample submitted for analysis
	S-3	20-22	2	0	
	S-4	22-24	80	13	
	S-5	24-26	1	12	
	S-6	26-28	2.5	14	
	S-7	28-30	30	3	
	S-8	30-32	1	2	Water table @ 31 ft bgs
16B-96-04X	S-1	16-18	1.5	40	Concrete from 15-16 ft bgs
	S-2	18-20	0	16	
	S-3	20-22	4.5	18	
	S-4	22-24	3	25	
	S-5	24-26	5	17	
	S-6	26-28	100	460	Sample submitted for analysis
	S-7	28-30	2	25	
	S-8	30-32	3	25	Water table @ 32 ft bgs
16B-96-05X	S-1	15.5-17	1.5	17	
	S-2	17-19	0	11	
	S-3	19-20.5	0	0	
	S-4	21-23	1	18	
	S-5	23-25	0	15	
	S-6	25-27	26	52	Sample submitted for analysis
	S-7	27-29	18	14	
	S-8	29-31	4.5	0	
16B-96-06X	S-1	15.5-17	5	66	Sample submitted for analysis
	S-2	17-19	1.5	56	
	S-3	19-21	1	0	
	S-4	21-23	1.2	0	
	S-5	23-25	0.5	0	Refusal @ 25 ft bgs

Table 2
Soil Sample Anaylsis Data
Immediate Response Action Investigation
Building P-16 LUST Site
Fort Devens, Massachusetts
MA DEP RTN 2-11105

Boring No.:	16B-96-01X	16B-96-01X	16B-96-02X	16B-96-03X	16B-96-04X	16B-96-05X	16B-96-06X	16B-96-06X
Sample No.:	SS-03	SS-04	SS-01	SS-02	SS-06	SS-06	SS-01	SS-01(D)
Depth Interval (ft bgs):	24-26	26-28	10-12	15-17	26-28	25-27	15.5-17	15.5-17
TPH (mg/kg)	ND	NT	370	260	74	ND	ND	ND
VPH (mg/kg)								
C5-C8 Aliphatics	3.5	1.9	1.2	0.48	1.1	ND	ND	ND
C9-C12 Aliphatics	0.45	ND	ND	ND	ND	ND	ND	ND
C9-C10 Aromatics	ND	0.21	ND	ND	ND	ND	ND	ND
Total VPH	1.8	1.2	0.6	ND	0.55	ND	ND	ND
VPH Target Analytes (ug/kg)								
MTBE	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	130	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND
m- and p-Xylenes	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND
EPH (mg/kg)								
C9-C18 Aliphatics	ND	ND	ND	ND	ND	ND	ND	ND
C19-C36 Aliphatics	ND	ND	ND	ND	ND	ND	ND	ND
C10-C22 Aromatics	ND	ND	ND	ND	ND	ND	ND	ND
Total EPH	ND	ND	ND	ND	ND	ND	ND	ND
EPH Target Analytes (ug/kg)								
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND	ND

Table 2
Soil Sample Anaylsis Data
Immediate Response Action Investigation
Building P-16 LUST Site
Fort Devens, Massachusetts
MA DEP RTN 2-11105

Boring No.:	16B-96-01X	16B-96-01X	16B-96-02X	16B-96-03X	16B-96-04X	16B-96-05X	16B-96-06X	16B-96-06X
Sample No.:	SS-03	SS-04	SS-01	SS-02	SS-06	SS-06	SS-01	SS-01(D)
Depth Interval (ft bgs):	24-26	26-28	10-12	15-17	26-28	25-27	15.5-17	15.5-17
Benzo(a)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,,h)anthracene	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND	ND	ND

Table 3
Exposure Point Concentrations
for Soil Category S-3/GW-1 Soils
Immediate Response Action Investigation
Building P-16 LUST Site
Fort Devens, Massachusetts
MA DEP RTN 2-11105

Boring No.:	16B-96-01X	16B-96-01X	16B-96-03X	16B-96-04X	Excavation	Excavation	Excavation	Average	Maximum	MCP Limits
Sample No.:	SS-03	SS-04	SS-02	SS-06	H	K	I			Method 1
Depth Interval (ft bgs):	24-26	26-28	15-17	26-28	20	20	15*			S-3/GW-1
TPH (mg/kg)	31 U	NT	260	74	5,700	5,800	1,200	3,240	5,800	5,000.00
VPH (mg/kg)										
C5-C8 Aliphatics	3.5	1.9	0.48	1.1	NT	NT	NT	2	4	500.00
C9-C12 Aliphatics	0.45	0.35 U	0.34 U	0.35 U	NT	NT	NT	0.2	0.45	500.00
C9-C10 Aromatics	0.1 U	0.21	0.1 U	0.1 U	NT	NT	NT	0.1	0.21	500.00
VPH Target Analytes (ug/kg)										
Toluene	26 U	130	26 U	27 U	30 U	7.5 U	7.5 U	27	130	90,000.00
EPH Target Analytes (ug/kg)										
Acenaphthene	520 U	540 U	550 U	560 U	940 U	280 U	1300	428	1300	20,000.00
Anthracene	520 U	540 U	550 U	560 U	800 U	240 U	1500	444	1500	1,000,000.00
Benzo(a)anthracene	520 U	540 U	550 U	560 U	1100 U	320 U	1900	528	1900	4,000.00
Benzo(a)pyrene	520 U	540 U	550 U	560 U	1300 U	380 U	1400	475	1400	700.00
Benzo(b)fluoranthene	520 U	540 U	550 U	560 U	1200 U	360 U	1100	424	1100	4,000.00
Benzo(ghi)perylene	520 U	540 U	550 U	560 U	1700 U	500 U	640	404	640	100,000.00
Benzo(k)fluoranthene	520 U	540 U	550 U	560 U	1200 U	360 U	1400	466	1400	40,000.00
Chrysene	520 U	540 U	550 U	560 U	1100 U	320 U	1900	528	1900	40,000.00
Fluoranthene	520 U	540 U	550 U	560 U	940 U	280 U	5000	956	5000	600,000.00
Fluorene	520 U	540 U	550 U	560 U	940 U	280 U	910	372	910	400,000.00
Indeno(1,2,3-cd)pyrene	520 U	540 U	550 U	560 U	1600 U	480 U	710	405	710	4,000.00
Naphthalene	520 U	540 U	550 U	560 U	740 U	220 U	290	265	290	4,000.00
Phenanthrene	520 U	540 U	550 U	560 U	870 U	260 U	5700	1,050	5700	700,000.00
Pyrene	520 U	540 U	550 U	560 U	940 U	280 U	3900	799	3900	500,000.00
2-Methylnaphthalene	520 U	540 U	550 U	560 U	600 U	180 U	310	255	310	700.00
1-Methylnaphthalene	NT	NT	NT	NT	2300 U	700 U	190	190*	190	700**

* Maximum detected concetration used
** Standard for 2-methylnaphthalene was used

Table 4
Exposure Point Concentration
for Soil Category S-1/GW-1
Immediate Response Action Investigation
Building P-16 LUST Site
Fort Devens, Massachusetts
MA DEP RTN 2-11105

Boring No.:	16B-96-02X	**MCP Limits**
Sample No.:	SS-01	**Method 1**
Depth Interval (ft bgs):	10-12	**S-1/GW-1**
TPH (mg/kg)	370	***500***
VPH (mg/kg)		
C5-C8 Aliphatics	1.2	**100**
C9-C12 Aliphatics	0.33 U	**100**
C9-C10 Aromatics	0.1 U	**100**
VPH Target Analytes (ug/kg)		
Toluene	26 U	***90,000***
EPH Target Analytes (ug/kg)		
Acenaphthene	540 U	***20,000***
Anthracene	540 U	***1,000,000***
Benzo(a)anthracene	540 U	***700***
Benzo(a)pyrene	540 U	***700***
Benzo(b)fluoranthene	540 U	***700***
Benzo(ghi)perylene	540 U	***100,000***
Benzo(k)fluoranthene	540 U	***7,000***
Chrysene	540 U	***7,000***
Fluoranthene	540 U	***600,000***
Fluorene	540 U	***400,000***
Indeno(1,2,3-cd)pyrene	540 U	***700***
Naphthalene	540 U	***4,000***
Phenanthrene	540 U	***700,000***
Pyrene	540 U	***500,000***
2-Methylnaphthalene	540 U	***700***
1-Methylnaphthalene		

APPENDIX C

SOIL BORING LOGS

WESTON MANAGERS DESIGNERS/CONSULTANTS

SOIL BORING LOG NO. 16B-96-01X

PROJECT: BUILDING P-16, FORT DEVENS, MASSACHUSETTS
CLIENT: U.S. ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
BORING CONTRACTOR: B.L. MYERS BROS., INC. RIG: B-61

SHEET NO. 1 OF 1
JOB NO. 03886-118-004
ELEVATION (ground)
DATE STARTED 6/24/96
DATE FINISHED 6/24/96
DRILLER G. AHEARN
INSPECTOR A. EASTERDAY

GROUNDWATER

DATE	TIME	WATER ELEVATION	DATUM
6/24/96		28.5'	BGS

	CAS.	SAMP.	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140#		
FALL		30"		

WELL CONSTRUCTION: NO MONITORING WELL INSTALLED

DEPTH (FEET)	SAMPLE NO.	REC. (In.)	BLOWS PER 6 INCHES	CLASSIFICATION	INSTRUMENT READINGS OVA	INSTRUMENT READINGS TPH	REMARKS
0							No Samples Collected 0-20' BGS
20				20.0'			
	S-1	18	5-32	Lt. gray stone dust. 20.3'	3.0	99	
			49-39				
	S-2	18	23-18	Lt. brown, m.-c. SAND, some f. gravel, trace silt, mod. sorted. Dry. 22.0'	0	2	
			12-12				
25	S-3	18	41-61	Lt. brown, m. SAND, little c. sand, trace gravel, well sorted. Dry. 26.0'	2.8	15	
			31-41				
	S-4	6	8-21	Stone DUST, Lt. gray plastic in spoon (poly). 28.0'	10	246	
			25-21				
	S-5	20	16-20	M.-c. SAND, little f. gravel, trace silt, mod. sorted.	3.5	0	
30			22-20				
	S-6	22	11-14	32.0'	0.5	0	
			19-16				
				END OF BORING			
35							
40							
45							

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WESTON MANAGERS DESIGNERS/CONSULTANTS

SOIL BORING LOG
NO. 16B-96-02

PROJECT: BUILDING P-16, FORT DEVENS, MASSACHUSETTS
CLIENT: U.S. ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
BORING CONTRACTOR: B.L. MYERS BROS., INC. RIG: B-61

SHEET NO. 1 OF 1
JOB NO. 03886-118-004
ELEVATION (ground)
DATE STARTED 6/24/96
DATE FINISHED 6/24/96
DRILLER G. AHEARN
INSPECTOR A. EASTERDAY

GROUNDWATER

DATE	TIME	WATER ELEVATION	DATUM

	CAS.	SAMP.	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140#		
FALL		30"		

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE REC. (In.)	SAMPLE BLOWS PER 6 INCHES	CLASSIFICATION	INSTRUMENT READINGS OVA	INSTRUMENT READINGS TPH	REMARKS
NO MONITORING WELL INSTALLED	0							No Samples Collected 0-10' BGS
	10	S-1	12	22-32 32-25	Lt. brown, m.-c. SAND, some f. gravel, trace silt, mod. sorted. Dry. 10.0'	1.8	72	
	15	S-2	15	7-14 5-20	Lt. brown, m.-c. SAND, little f. gravel, trace silt. Moist. C. SAND from 15.2'-15.9'. 15.0'	2.0	0	
	20	S-3	15	5-8 58-50	Lt. brown, m.-c. SAND, trace silt, well sorted. Dry. F. gravel and m.-c. sand in spoon nose. 20.0'	15	0	
		S-4	17	15-17 19-66	Lt. brown, m.-c. SAND, some f. gravel, trace silt. mod. sorted. Dry-moist.	42	3	
	25	S-5	20	8-12 12-20		1.5	0	
		S-6	20	20-17 16-20		8.5	0	
		S-7	21	21-15 15-17	30.0'	8.0	0	
	30				END OF BORING			
	35							
	40							
	45							

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WESTON MANAGERS DESIGNERS/CONSULTANTS

SOIL BORING LOG NO. 16B-96-03X

PROJECT: BUILDING P-16, FORT DEVENS, MASSACHUSETTS
SHEET NO. 1 OF 1
CLIENT: U.S. ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
JOB NO. 03886-118-004
BORING CONTRACTOR: B.L. MYERS BROS., INC. RIG: B-61
ELEVATION (ground)
DATE STARTED 6/24/96
DATE FINISHED 6/24/96
DRILLER G. AHEARN
INSPECTOR A. EASTERDAY

GROUNDWATER					CAS.	SAMP.	CORE	TUBE
DATE	TIME	WATER ELEVATION	DATUM	TYPE		SS		
6/24/96		31.0'	BGS	DIA.		2"		
				WT.		140#		
				FALL		30"		

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE REC. (In.)	SAMPLE BLOWS PER 6 INCHES	CLASSIFICATION	INSTRUMENT READINGS OVA	INSTRUMENT READINGS TPH	REMARKS
NO MONITORING WELL INSTALLED	0							No Samples Collected 0-10' BGS
	10				10.0'			
		S-1	12	18-25	Lt. brown, m.-c. SAND, little f. gravel, trace silt. Dry.	1.5	0	
				22-17	15.0'			
	15	S-2	10	15-17	Lt. brown, m.-c. SAND, some f. gravel, trace silt, poorly sorted. Dry.	1.5	54	
				23-25	20.0'			
	20	S-3	18	25-40	Lt. brown, m.-c. SAND, little f. gravel, trace silt and f. sand. Dry. 22.0'	2.0	0	
		S-4	10	36-50/4"	Lt. brown, m.-c. SAND, some f. gravel, trace f. sand and silt. Dry. 24.0'	80	13	
	25	S-5	20	22-18	Lt. brown, m. SAND, little c. sand, trace silt. Dry.	1.0	12	
				20-15	27.0'			
		S-6	18	20-17	M.-c. SAND, little f. gravel, trace silt.	2.5	14	
				17-15	30.0'			
		S-7	18	7-10	Lt. brown, m.-c. SAND, little f. sand, trace silt. Wet.	30	3	
	30			14-14	34.0'			
		S-8	15	18-22	END OF BORING	1.0	2	
				28-15				
		S-9	18	15-16		3.0	NR	
	35			15-16				
	40							
	45							

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WESTON MANAGERS DESIGNERS/CONSULTANTS

SOIL BORING LOG NO. 16B-96-04

PROJECT: BUILDING P-16, FORT DEVENS, MASSACHUSETTS
CLIENT: U.S. ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
BORING CONTRACTOR: B.L. MYERS BROS., INC. RIG: B-61

SHEET NO. 1 OF 1
JOB NO. 03886-118-004
ELEVATION (ground)
DATE STARTED 6/25/96
DATE FINISHED 6/25/96
DRILLER G. AHEARN
INSPECTOR A. EASTERDAY

GROUNDWATER					CAS.	SAMP.	CORE	TUBE
DATE	TIME	WATER ELEVATION	DATUM	TYPE		SS		
6/25/96		32.0'	BGS	DIA.		2"		
				WT.		140#		
				FALL		30"		

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE REC. (In.)	SAMPLE BLOWS PER 6 INCHES	CLASSIFICATION	INSTRUMENT READINGS OVA	INSTRUMENT READINGS TPH	REMARKS
NO MONITORING WELL INSTALLED	0				Concrete. 1.0'			
	1	S-1	4	2	Lt. brown-brown, m.-c. SAND, f. GRAVEL, trace f. sand and silt. Dry.	1.5	40	
	2			3				
				4				
	3			6				
		S-2	8	7		0	16	
	4			5				
				6				
	5			8	5.0'			
		S-3	14	16	Lt. brown-brown, m.-c. SAND, f. GRAVEL, trace f. sand and silt. Damp.	4.5	18	
	6			27				
				35				
	7			40	7.0'			
		S-4	15	62	M.-c. SAND, f. GRAVEL, little silt. Damp.	3.0	25	
	8			48				
				45				
	9			34	9.0'			
		S-5	12	11	Lt. brown, m.-c. SAND, little f. gravel, trace silt. Moist. Odor.	5.0	17	
	10			13				
				14				
	11			14	11.3'			
		S-6	14	14	Lt. brown, m.-c. SAND, trace silt. Moist.	100	460	
	12			14				
				15				
	13			15				
		S-7	20	12		2.0	25	
	14			12				
				17				
	15			17				
		S-8	24	17		3.0	25	
	16			14				
				14	16.5'			
	17			12	Lt. brown, m.-c. SAND, little f. sand. Saturated. 17.0'			
					END OF BORING			
	18							
	19							
	20							
	21							
	22							
	23							

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WESTON MANAGERS DESIGNERS/CONSULTANTS

SOIL BORING LOG NO. 16B-96-05X

PROJECT: BUILDING P-16, FORT DEVENS, MASSACHUSETTS
SHEET NO. 1 OF 1
CLIENT: U.S. ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
JOB NO. 03886-118-004
BORING CONTRACTOR: B.L. MYERS BROS., INC. RIG: B-61
ELEVATION (ground)
DATE STARTED 6/26/96
DATE FINISHED 6/26/96
DRILLER G. AHEARN
INSPECTOR A. EASTERDAY

GROUNDWATER

DATE	TIME	WATER ELEVATION	DATUM

	CAS.	SAMP.	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140#		
FALL		30"		

WELL CONSTRUCTION: NO MONITORING WELL INSTALLED

DEPTH (FEET)	SAMPLE NO.	SAMPLE REC. (In.)	BLOWS PER 6 INCHES	CLASSIFICATION	INSTRUMENT READINGS OVA	INSTRUMENT READINGS TPH	REMARKS
0			12	Concrete. 0.5'			
1	S-1	16	35	Lt. brown-brown, m.-c. SAND, f. GRAVEL, trace f. sand. Dry. 1.25'	1.5	17	
2			25				
3	S-2	15	25				
4			32	Lt. brown-tan, mod. SAND, f. GRAVEL, trace f. sand. Dry. 2.0'			
5	S-3	12	25	Lt. brown-tan, f.-m. SAND, trace c. sand. Dry. 4.5'	0	11	
6			27				
7	S-4	16	36				
8			88	Lt. brown, m.-c. SAND, f.-m. GRAVEL, trace f. sand. Dry. 6.0'	0	0	
9	S-5	17	100/3"				
10			35	Lt.-Med. brown, f.-c. SAND, f. GRAVEL, some m.-c. gravel and cobbles. Dry. 10.0'	1.0	18	
11	S-6	20	38				
12			58				
13	S-7	20	30		0	15	
14			24				
15	S-8	24	20				
16			28				
17			18				
18			15	Lt. brown-brown, m.-f. SAND, f. GRAVEL, trace silt. Dry. 10.7'	26	52	
19			10				
20			10				
21			10	Lt. brown-tan, m. SAND, trace f. sand and f. gravel. Dry. Moist at 12.5'. 14.0'	18	14	
22			15				
23			10				
			13				
			17				
			17				
			20	Lt. brown, m.-c. SAND, trace f. gravel and f. sand. 16.0'	4.5	0	
			16				
			18				
				END OF BORING			

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WESTON MANAGERS ENGINEERS/CONSULTANTS

SOIL BORING LOG NO. 16B-96-06)

PROJECT: BUILDING P-16, FORT DEVENS, MASSACHUSETTS
SHEET NO. 1 OF 1

CLIENT: U.S. ARMY CORPS OF ENGINEERS - NEW ENGLAND DIVISION
JOB NO. 03886-118-004

BORING CONTRACTOR: B.L. MYERS BROS., INC. RIG: B-61
ELEVATION (ground)

GROUNDWATER

DATE	TIME	WATER ELEVATION	DATUM

	CAS.	SAMP.	CORE	TUBE
TYPE		SS		
DIA.		2"		
WT.		140#		
FALL		30"		

DATE STARTED 6/25/96
DATE FINISHED 6/25/96
DRILLER G. AHEARN
INSPECTOR A. EASTERDAY

WELL CONSTRUCTION	DEPTH (FEET)	SAMPLE NO.	SAMPLE REC. (In.)	SAMPLE BLOWS PER 6 INCHES	CLASSIFICATION	INSTRUMENT READINGS OVA	INSTRUMENT READINGS TPH	REMARKS
NO MONITORING WELL INSTALLED	0	S-1	4	20	Concrete. 0.5'	5.0	66	
	1			70				
				21	Lt. brown, m.-c. SAND, f. gravel, trace silt. Dry.			
	2			22	2.0'			
		S-2	4	17	Lt. brown, m.-c. SAND, some f. gravel. Dry.	1.5	56	
	3			20				
				28				
	4			34	4.0'			
		S-3	15	32	Lt. brown, m.-c. SAND, little f. gravel, trace silt. Dry.	1.0	0	
	5			55				
				47				
	6			24	6.0'			
		S-4	18	30	Lt. brown, m.-c. SAND, some f. gravel, trace silt. Damp.	1.2	0	
	7			44				
				44				
	8			26	8.0'			
		S-5	18	28	Lt. brown, m.-c. SAND snd GRAVEL, little f. sand, trace silt. Damp.	0.5	0	
	9			32				
				35				
	10			21	10.0'			
					REFUSAL ENCOUNTERED END OF BORING			
	11							
	12							
	13							
	14							
	15							
	16							
	17							
	18							
	19							
	20							
	21							
	22							
	23							

P:\DWG\ACOE\FTDEVENS\BLDG-P16\06X (PLOT 1-6)

APPENDIX D

CHEMICAL TEST RESULTS

MITKEM CORPORATION

RECEIVED
ROY F. WESTON, INC.

July 16, 1996

Roy F. Weston, Inc.
187 Ballardvale Street
Wilmington, MA 01887

Attn: Mr. Colin Cool

RE: Project # 03886-118-004
Lab Project # CO584

Dear Mr Cool:

Enclosed is the Data Report of the analyses required for the samples associated with the Project. If you have any questions regarding this report, please contact either Kin Chiu or myself.

We appreciate your business.

Sincerely,

Reinier A. Courant
QA/QC Director

175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755 • (401) 732-3400 • Fax (401) 732-3499
1232 East Broadway Road • Suite 210 • Tempe, Arizona 85282 • (602) 303-9535 • Fax (602) 921-2883

MITKEM CORPORATION

COPY

INVOICE

Purchase ID: Fort Devins-Bldg P16
Client Project ID: 03886-118-004

Invoice Number: 130584
Invoice Date: 7/30/96

Bill To:

Roy F. Weston, Inc.
Attn: Accounts Payable
1 Weston Way
West Chester, PA 19380-1499

Quantity	Analysis - Description	Unit Price	Item Tota
8.00	TPHIR - Total Petroleum Hydrocarbons by IR	$65.00	$520.0(
8.00	VPH - Volatile Petroleum Hydrocarbons	$75.00	$600.00
1.00	VPH - Volatile Petroleum Hydrocarbons (NO CHARGE)	$0.00	$0.0(
9.00	EPH - Extractable Petroleum Hydrocarbons	$135.00	$1,215.0(

Salesperson: Paul A Senecal

Payment Terms: Net 30 Days

Date Samples Rec'd: 6/25 & 6/27/95 - C0584

Subtotal:	$2,335.00
Discount:	$0.00
Shipping Chgs:	$0.00
Total:	$2,335.00
Amount Paid:	$0.00
Balance Due:	**$2,335.00**

****** THANK YOU FOR YOUR BUSINESS! ** PLEASE REMIT TO RHODE ISLAND ADDRESS ******

175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755 • (401) 732-3400 Fax (401) 732-3499
1232 East Broadway Road, Suite 210 • Tempe, Arizona • (602) 303-9535 • Fax (602) 921-2883
email: mitkem19@mail.idt.net

MITKEM CORPORATION

Client: Roy F. Weston, Inc.

Client Project: 03886-118-004 (Fort Devens-Bldg P-16)

Lab Project No.: C0584

Date Samples Received: June 25 and 27, 1996

Project Narrative

Eight (8) soil and three (3) aqueous samples were received from Roy F. Weston, Inc. on June 25 and 27, 1996 and analyzed for the parameters specified in the Chain of Custody Form. For reference, a copy of the Mitkem Sample Log-in Sheet is included for cross-referencing the Client sample ID and laboratory sample ID.

Please note that the four VPH soil samples that were collected on 6/24/96 had equal amounts of methanol (about 40 mL) added to the samples in the containers (about 40 gram for each sample). The other four VPH soil sample collected on 6/25/96 and 6/26/96 however had only 15 mL of methanol added to 40 gram of the soil. While the sample concentration for the latter four samples were calculated based on the actual extraction volumes, for project consistency, the Reporting Limits for the eight soil samples were computed as if all of the samples had equal volume of methanol added to the soil samples (40 mL to 40 gram).

Due to a laboratory problem, the VPH analysis for **16B-96-01X-SS-04** was performed one day out of holding time.

The VPH and EPH analyses for **16B-96-02X-SS-01** and **16B-96-03-SS-02** were relatively clean even though the TPHIR data indicated positive hits. Please note that the EPH extracts for these two samples were colored even though the sample chromatograms did not exhibit any major peaks to result in significant EPH concentrations.

No other unusual observation was made for the analysis.

The enclosed data package has been reviewed and is authorized for release as evidenced by the signature below.

Reinier A. Courant
QA/QC Director

MITKEM CORPORATION

Analysis Report: Total Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: TPH by Method 418.1
Matrix: Water
Concentration in: mg/L

Lab ID	Client ID	Result	Reporting Limit	Analysis Date
C0584-09	16B-96-00X-EB	ND	1	7/1/96
QA/QC				
Method Blank				
I0701-B1		ND	1	7/1/96
Lab Control Spike (% Recovery)				
I0701-LCS1		99		7/1/96

ND=Not Detected

MITKEM CORPORATION

Analysis Report: Total Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: Method 418.1
Matrix: Soil
Concentration in: mg/kg, dry weight basis

Lab ID	Client ID	Result	% Solid	Reporting Limit	Analysis Date
C0584-02	16B-96-01X-SS-03	ND	98	31	7/3/96
C0584-03	16B-96-02X-SS-01	370	97	31	7/3/96
C0584-04	16B-96-03X-SS-02	260	96	96	7/3/96
C0584-06	16B-96-04X-SS-06	74	94	32	7/3/96
C0584-07	16B-96-06X-SS-01	ND	99	30	7/3/96
C0584-08	16B-96-06X-SS-01D	ND	98	31	7/3/96
C0584-11	16B-96-05X-SS-06	ND	97	31	7/3/96

QA/QC

Method Blank			
I0701-B2	ND	30	7/3/96
Lab Control Spike (% Recovery)			
I0701-LCS2	115		7/3/96

ND=Not Detected

03

418.1_S.C0584

MITKEM CORPORATION

Analysis Report: Volatile Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP VPH Draft 1.0
Client ID: 16B-96-01X-SS-04
Lab ID: C0584-01
Matrix: Soil, 93% solid
Concentration in: ug/kg, dry weight basis

Date Collected: 6/24/96
Date Received: 6/25/96
Date Analyzed: 7/9/96
Date Reported: 7/12/96
Dilution: 1

VPH	Results	Reporting Limits	MCP Limits
C5 - C8 Aliphatics	1,900	400	
C9 - C12 Aliphatics	ND	350	
C9 - C10 Aromatics	210	110	
Total VPH *	1,200		
Target Analytes			
MTBE	ND	27	3,000
Benzene	ND	27	10,000
Toluene	130	27	90,000
Ethylbenzene	ND	27	80,000
m- and p-Xylenes	ND	27	500,000
o-Xylene	ND	27	500,000
Naphthalene	ND	54	4,000

Surrogate Recovery:
2,5-Dibromotoluene 155%

ND= Not detected

* Total VPH = 0.5* C5 - C8 Aliphatics + 0.05* C9 - C12 Aliphatics + 1.0* C9 - C10 Aromatics

MITKEM CORPORATION

Analysis Report: Volatile Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP VPH Draft 1.0
Client ID: 16B-96-01X-SS-03
Lab ID: C0584-02
Matrix: Soil, 98% solid
Concentration in: ug/kg, dry weight basis

Date Collected: 6/24/96
Date Received: 6/25/96
Date Analyzed: 7/6/96
Date Reported: 7/12/96
Dilution: 1

VPH	Results	Reporting Limits	MCP Limits
C5 - C8 Aliphatics	3,500	380	
C9 - C12 Aliphatics	450	330	
C9 - C10 Aromatics	ND	100	
Total VPH *	1,800		
Target Analytes			
MTBE	ND	26	3,000
Benzene	ND	26	10,000
Toluene	ND	26	90,000
Ethylbenzene	ND	26	80,000
m- and p-Xylenes	ND	26	500,000
o-Xylene	ND	26	500,000
Naphthalene	ND	51	4,000

Surrogate Recovery:
2,5-Dibromotoluene 82%

ND= Not detected

* Total VPH = 0.5* C5 - C8 Aliphatics + 0.05* C9 - C12 Aliphatics + 1.0* C9 - C10 Aromatics

05

C0584-02

MITKEM CORPORATION

Analysis Report: Volatile Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP VPH Draft 1.0
Client ID: 16B-96-02X-SS-01
Lab ID: C0584-03
Matrix: Soil, 97% solid
Concentration in: ug/kg, dry weight basis

Date Collected: 6/24/96
Date Received: 6/25/96
Date Analyzed: 7/6/96
Date Reported: 7/12/96
Dilution: 1

VPH	Results	Reporting Limits	MCP Limits
C5 - C8 Aliphatics	1,200	390	
C9 - C12 Aliphatics	ND	330	
C9 - C10 Aromatics	ND	100	
Total VPH *	600		
Target Analytes			
MTBE	ND	26	3,000
Benzene	ND	26	10,000
Toluene	ND	26	90,000
Ethylbenzene	ND	26	80,000
m- and p-Xylenes	ND	26	500,000
o-Xylene	ND	26	500,000
Naphthalene	ND	51	4,000

Surrogate Recovery:
2,5-Dibromotoluene 76%

ND= Not detected

* Total VPH = 0.5* C5 - C8 Aliphatics + 0.05* C9 - C12 Aliphatics + 1.0* C9 - C10 Aromatics

06

C0584-03

MITKEM CORPORATION

Analysis Report: Volatile Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP VPH Draft 1.0
Client ID: 16B-96-03X-SS-02
Lab ID: C0584-04
Matrix: Soil, 96% solid
Concentration in: ug/kg, dry weight basis

Date Collected: 6/24/96
Date Received: 6/25/96
Date Analyzed: 7/6/96
Date Reported: 7/12/96
Dilution: 1

VPH	Results	Reporting Limits	MCP Limits
C5 - C8 Aliphatics	480	390	
C9 - C12 Aliphatics	ND	340	
C9 - C10 Aromatics	ND	100	
Total VPH *	ND		
Target Analytes			
MTBE	ND	26	3,000
Benzene	ND	26	10,000
Toluene	ND	26	90,000
Ethylbenzene	ND	26	80,000
m- and p-Xylenes	ND	26	500,000
o-Xylene	ND	26	500,000
Naphthalene	ND	52	4,000

Surrogate Recovery:
2,5-Dibromotoluene 107%

ND= Not detected

* Total VPH = 0.5* C5 - C8 Aliphatics + 0.05* C9 - C12 Aliphatics + 1.0* C9 - C10 Aromatics

07

C0584-04

MITKEM CORPORATION

Analysis Report: Volatile Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP VPH Draft 1.0
Client ID: 16B-96-04X-SS-06
Lab ID: C0584-06
Matrix: Soil, 94% solid
Concentration in: ug/kg, dry weight basis

Date Collected: 6/25/96
Date Received: 6/27/96
Date Analyzed: 7/6/96
Date Reported: 7/12/96
Dilution: 1

VPH	Results	Reporting Limits	MCP Limits
C5 - C8 Aliphatics	1,100	400	
C9 - C12 Aliphatics	ND	350	
C9 - C10 Aromatics	ND	100	
Total VPH *	550		
Target Analytes			
MTBE	ND	27	3,000
Benzene	ND	27	10,000
Toluene	ND	27	90,000
Ethylbenzene	ND	27	80,000
m- and p-Xylenes	ND	27	500,000
o-Xylene	ND	27	500,000
Naphthalene	ND	53	4,000

Surrogate Recovery:	
2,5-Dibromotoluene	97%

ND= Not detected

* Total VPH = 0.5* C5 - C8 Aliphatics + 0.05* C9 - C12 Aliphatics + 1.0* C9 - C10 Aromatics

08

MITKEM CORPORATION

Analysis Report: Volatile Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP VPH Draft 1.0
Client ID: 16B-96-06X-SS-01
Lab ID: C0584-07
Matrix: Soil, 99% solid
Concentration in: ug/kg, dry weight basis

Date Collected: 6/25/96
Date Received: 6/27/96
Date Analyzed: 7/9/96
Date Reported: 7/12/96
Dilution: 1

VPH	Results	Reporting Limits	MCP Limits
C5 - C8 Aliphatics	ND	380	
C9 - C12 Aliphatics	ND	340	
C9 - C10 Aromatics	ND	100	
Total VPH *	ND		
Target Analytes			
MTBE	ND	25	3,000
Benzene	ND	25	10,000
Toluene	ND	25	90,000
Ethylbenzene	ND	25	80,000
m- and p-Xylenes	ND	25	500,000
o-Xylene	ND	25	500,000
Naphthalene	ND	50	4,000

Surrogate Recovery:	
2,5-Dibromotoluene	130%

ND= Not detected

* Total VPH = 0.5* C5 - C8 Aliphatics + 0.05* C9 - C12 Aliphatics + 1.0* C9 - C10 Aromatics

11 09

MITKEM CORPORATION

Analysis Report: Volatile Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP VPH Draft 1.0
Client ID: 16B-96-06X-SS-01D
Lab ID: C0584-08
Matrix: Soil, 98% solid
Concentration in: ug/kg, dry weight basis

Date Collected: 6/25/96
Date Received: 6/27/96
Date Analyzed: 7/7/96
Date Reported: 7/12/96
Dilution: 1

VPH	Results	Reporting Limits	MCP Limits
C5 - C8 Aliphatics	ND	380	
C9 - C12 Aliphatics	ND	330	
C9 - C10 Aromatics	ND	100	
Total VPH *	ND		
Target Analytes			
MTBE	ND	25	3,000
Benzene	ND	25	10,000
Toluene	ND	25	90,000
Ethylbenzene	ND	25	80,000
m- and p-Xylenes	ND	25	500,000
o-Xylene	ND	25	500,000
Naphthalene	ND	50	4,000

Surrogate Recovery:
2,5-Dibromotoluene 90%

ND= Not detected

* Total VPH = 0.5* C5 - C8 Aliphatics + 0.05* C9 - C12 Aliphatics + 1.0* C9 - C10 Aromatics

10

C0584-08

MITKEM CORPORATION

Analysis Report: Volatile Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP VPH Draft 1.0
Client ID: 16B-96-05X-SS-06
Lab ID: C0584-11
Matrix: Soil, 97% solid
Concentration in: ug/kg, dry weight basis

Date Collected: 6/25/96
Date Received: 6/27/96
Date Analyzed: 7/7/96
Date Reported: 7/12/96
Dilution: 1

VPH	Results	Reporting Limits	MCP Limits
C5 - C8 Aliphatics	ND	390	
C9 - C12 Aliphatics	ND	330	
C9 - C10 Aromatics	ND	100	
Total VPH *	ND		
Target Analytes			
MTBE	ND	25	3,000
Benzene	ND	25	10,000
Toluene	ND	25	90,000
Ethylbenzene	ND	25	80,000
m- and p-Xylenes	ND	25	500,000
o-Xylene	ND	25	500,000
Naphthalene	ND	50	4,000

Surrogate Recovery:
2,5-Dibromotoluene 76%

ND= Not detected

* Total VPH = 0.5* C5 - C8 Aliphatics + 0.05* C9 - C12 Aliphatics + 1.0* C9 - C10 Aromatics

11

MITKEM CORPORATION

Analysis Report: Volatile Organic Compounds

Matrix Spike Summary

Client: Roy F. Weston, Inc.
Client ID: 16B-96-01X-SS-03
Matrix: Soil
Lab ID for Matrix Spike (MS): C0584-02MS
Analysis: MADEP VPH Draft 1.0

Date Collected: 6/24/96
Date Received: 6/25/96
Date MS Analyzed: 7/9/96

Analyte	% Recovery
MTBE	99
Benzene	81
Toluene	102
Ethylbenzene	107
m- and p-Xylenes	104
o-Xylene	104
Naphthalene	106
C5-C8 Aliphatics	116
C9-C12 Aliphatics	105
C9-C10 Aromatics	117

MITKEM CORPORATION

Analysis Report: Volatile Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP VPH Draft 1.0
Client ID: 16B-96-00X-TB (6/24/96)
Lab ID: C0584-05
Matrix: Water
Concentration in: ug/L

Date Collected: 6/24/96
Date Received: 6/25/96
Date Analyzed: 7/6/96
Date Reported: 7/12/96
Dilution: 1

VPH	Results	Reporting Limits
C5 - C8 Aliphatics	ND	15
C9 - C12 Aliphatics	ND	13
C9 - C10 Aromatics	ND	4
Total VPH *	ND	
Target Analytes		
MTBE	ND	1
Benzene	ND	1
Toluene	ND	1
Ethylbenzene	ND	1
m- and p-Xylenes	ND	1
o-Xylene	ND	1
Naphthalene	ND	2

Surrogate Recovery:	
2,5-Dibromotoluene	83%

ND= Not detected

* Total VPH = 0.5* C5 - C8 Aliphatics + 0.05* C9 - C12 Aliphatics + 1.0* C9 - C10 Aromatics

13

C0584-05

MITKEM CORPORATION

Analysis Report: Volatile Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP VPH Draft 1.0
Client ID: 16B-96-00X-EB
Lab ID: C0584-09
Matrix: Water
Concentration in: ug/L

Date Collected: 6/25/96
Date Received: 6/27/96
Date Analyzed: 7/6/96
Date Reported: 7/12/96
Dilution: 1

VPH	Results	Reporting Limits
C5 - C8 Aliphatics	ND	15
C9 - C12 Aliphatics	ND	13
C9 - C10 Aromatics	ND	4
Total VPH *	ND	
Target Analytes		
MTBE	ND	1
Benzene	ND	1
Toluene	ND	1
Ethylbenzene	ND	1
m- and p-Xylenes	ND	1
o-Xylene	ND	1
Naphthalene	ND	2

Surrogate Recovery:	
2,5-Dibromotoluene	72%

ND= Not detected

* Total VPH = 0.5* C5 - C8 Aliphatics + 0.05* C9 - C12 Aliphatics + 1.0* C9 - C10 Aromatics

MITKEM CORPORATION

Analysis Report: Volatile Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP VPH Draft 1.0
Client ID: 16B-96-00X-TB (6/25/96)
Lab ID: C0584-10
Matrix: Water
Concentration in: ug/L

Date Collected: 6/25/96
Date Received: 6/27/96
Date Analyzed: 7/6/96
Date Reported: 7/12/96
Dilution: 1

VPH	Results	Reporting Limits
C5 - C8 Aliphatics	33	15
C9 - C12 Aliphatics	ND	13
C9 - C10 Aromatics	ND	4
Total VPH *	16	
Target Analytes		
MTBE	ND	1
Benzene	ND	1
Toluene	ND	1
Ethylbenzene	ND	1
m- and p-Xylenes	ND	1
o-Xylene	ND	1
Naphthalene	ND	2

Surrogate Recovery:	
2,5-Dibromotoluene	85%

ND= Not detected

* Total VPH = 0.5* C5 - C8 Aliphatics + 0.05* C9 - C12 Aliphatics + 1.0* C9 - C10 Aromatics

MITKEM CORPORATION

Analysis Report: Volatile Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP VPH Draft 1.0
Client ID:
Lab ID: Method Blank, V3B0706A
Matrix: Water
Concentration in: ug/L

Date Collected:
Date Received:
Date Analyzed: 7/6/96
Date Reported: 7/12/96
Dilution: 1

VPH	Results	Reporting Limits
C5 - C8 Aliphatics	ND	15
C9 - C12 Aliphatics	ND	13
C9 - C10 Aromatics	ND	4
Total VPH *	ND	
Target Analytes		
MTBE	ND	1
Benzene	ND	1
Toluene	ND	1
Ethylbenzene	ND	1
m- and p-Xylenes	ND	1
o-Xylene	ND	1
Naphthalene	ND	2

Surrogate Recovery:	
2,5-Dibromotoluene	100%

ND= Not detected

* Total VPH = 0.5* C5 - C8 Aliphatics + 0.05* C9 - C12 Aliphatics + 1.0* C9 - C10 Aromatics

16

C0584-MB

MITKEM CORPORATION

Analysis Report: Extractable Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP EPH Draft 1.0
Client ID: 16B-96-01X-SS-04
Lab ID: C0584-01
Matrix: Soil, 93% solid
Concentration in: ug/kg, dry weight basis

Date Collected: 6/24/96
Date Received: 6/25/96
Date Extracted: 7/1/96
Date Analyzed: 7/10/96 & 7/11/96
Date Reported: 7/12/96
Dilution: 1

EPH	Results	Reporting Limits	MCP Limits
C9 - C18 Aliphatics	ND	3,800	
C19 - C36 Aliphatics	ND	4,800	
C10 - C22 Aromatics	ND	9,100	
Total EPH *	ND		
Target Analytes			
Acenaphthene	ND	540	20,000
Acenaphthylene	ND	540	100,000
Anthracene	ND	540	1,000,000
Benzo(a)anthracene	ND	540	700
Benzo(a)pyrene	ND	540	700
Benzo(b)fluoranthene	ND	540	700
Benzo(ghi)perylene	ND	540	100,000
Benzo(k)fluoranthene	ND	540	7,000
Chrysene	ND	540	7,000
Dibenzo(a,h)anthracene	ND	540	700
Fluoranthene	ND	540	600,000
Fluorene	ND	540	400,000
Indeno(1,2,3-cd)pyrene	ND	540	700
Naphthalene	ND	540	4,000
Phenanthrene	ND	540	1,000,000
Pyrene	ND	540	5,000,000
2-Methylnaphthalene	ND	540	700
Surrogate Recovery:			
Chlorooctadecane	101%		
o-Terphenyl	94%		

ND= Not detected

* Total EPH = 0.05* C9 - C18 Aliphatics + 0.005* C19 - C36 Aliphatics + 1.0* C10 - C22 Aromatics

MITKEM CORPORATION

Analysis Report: Extractable Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP EPH Draft 1.0
Client ID: 16B-96-01X-SS-03
Lab ID: C0584-02
Matrix: Soil, 98% solid
Concentration in: ug/kg, dry weight basis

Date Collected: 6/24/96
Date Received: 6/25/96
Date Extracted: 7/1/96
Date Analyzed: 7/10/96 & 7/11/96
Date Reported: 7/12/96
Dilution: 1

EPH	Results	Reporting Limits	MCP Limits
C9 - C18 Aliphatics	ND	3,600	
C19 - C36 Aliphatics	ND	4,600	
C10 - C22 Aromatics	ND	8,800	
Total EPH *	ND		
Target Analytes			
Acenaphthene	ND	520	20,000
Acenaphthylene	ND	520	100,000
Anthracene	ND	520	1,000,000
Benzo(a)anthracene	ND	520	700
Benzo(a)pyrene	ND	520	700
Benzo(b)fluoranthene	ND	520	700
Benzo(ghi)perylene	ND	520	100,000
Benzo(k)fluoranthene	ND	520	7,000
Chrysene	ND	520	7,000
Dibenzo(a,h)anthracene	ND	520	700
Fluoranthene	ND	520	600,000
Fluorene	ND	520	400,000
Indeno(1,2,3-cd)pyrene	ND	520	700
Naphthalene	ND	520	4,000
Phenanthrene	ND	520	1,000,000
Pyrene	ND	520	5,000,000
2-Methylnaphthalene	ND	520	700
Surrogate Recovery:			
Chlorooctadecane	102%		
o-Terphenyl	94%		

ND= Not detected

* Total EPH = 0.05* C9 - C18 Aliphatics + 0.005* C19 - C36 Aliphatics + 1.0* C10 - C22 Aromatics

MITKEM CORPORATION

Analysis Report: Extractable Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP EPH Draft 1.0
Client ID: 16B-96-02X-SS-01
Lab ID: C0584-03
Matrix: Soil, 97% solid
Concentration in: ug/kg, dry weight basis

Date Collected: 6/24/96
Date Received: 6/25/96
Date Extracted: 7/1/96
Date Analyzed: 7/11/96
Date Reported: 7/12/96
Dilution: 1

EPH	Results	Reporting Limits	MCP Limits
C9 - C18 Aliphatics	ND	3,800	
C19 - C36 Aliphatics	ND	4,900	
C10 - C22 Aromatics	ND	9,200	
Total EPH *	ND		
Target Analytes			
Acenaphthene	ND	540	20,000
Acenaphthylene	ND	540	100,000
Anthracene	ND	540	1,000,000
Benzo(a)anthracene	ND	540	700
Benzo(a)pyrene	ND	540	700
Benzo(b)fluoranthene	ND	540	700
Benzo(ghi)perylene	ND	540	100,000
Benzo(k)fluoranthene	ND	540	7,000
Chrysene	ND	540	7,000
Dibenzo(a,h)anthracene	ND	540	700
Fluoranthene	ND	540	600,000
Fluorene	ND	540	400,000
Indeno(1,2,3-cd)pyrene	ND	540	700
Naphthalene	ND	540	4,000
Phenanthrene	ND	540	1,000,000
Pyrene	ND	540	5,000,000
2-Methylnaphthalene	ND	540	700
Surrogate Recovery:			
Chlorooctadecane	100%		
o-Terphenyl	94%		

ND= Not detected

* Total EPH = 0.05* C9 - C18 Aliphatics + 0.005* C19 - C36 Aliphatics + 1.0* C10 - C22 Aromatics

MITKEM CORPORATION

Analysis Report: Extractable Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP EPH Draft 1.0
Client ID: 16B-96-03X-SS-02
Lab ID: C0584-04
Matrix: Soil, 97% solid
Concentration in: ug/kg, dry weight basis

Date Collected: 6/24/96
Date Received: 6/25/96
Date Extracted: 7/1/96
Date Analyzed: 7/11/96
Date Reported: 7/12/96
Dilution: 1

EPH	Results	Reporting Limits	MCP Limits
C9 - C18 Aliphatics	ND	3,800	
C19 - C36 Aliphatics	ND	4,900	
C10 - C22 Aromatics	ND	9,300	
Total EPH *	ND		
Target Analytes			
Acenaphthene	ND	550	20,000
Acenaphthylene	ND	550	100,000
Anthracene	ND	550	1,000,000
Benzo(a)anthracene	ND	550	700
Benzo(a)pyrene	ND	550	700
Benzo(b)fluoranthene	ND	550	700
Benzo(ghi)perylene	ND	550	100,000
Benzo(k)fluoranthene	ND	550	7,000
Chrysene	ND	550	7,000
Dibenzo(a,h)anthracene	ND	550	700
Fluoranthene	ND	550	600,000
Fluorene	ND	550	400,000
Indeno(1,2,3-cd)pyrene	ND	550	700
Naphthalene	ND	550	4,000
Phenanthrene	ND	550	1,000,000
Pyrene	ND	550	5,000,000
2-Methylnaphthalene	ND	550	700
Surrogate Recovery:			
Chlorooctadecane	102%		
o-Terphenyl	98%		

ND= Not detected

* Total EPH = 0.05* C9 - C18 Aliphatics + 0.005* C19 - C36 Aliphatics + 1.0* C10 - C22 Aromatics

MITKEM CORPORATION

Analysis Report: Extractable Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP EPH Draft 1.0
Client ID: 16B-96-04X-SS-06
Lab ID: C0584-06
Matrix: Soil, 94% solid
Concentration in: ug/kg, dry weight basis

Date Collected: 6/25/96
Date Received: 6/27/96
Date Extracted: 7/1/96
Date Analyzed: 7/10/96 & 7/11/96
Date Reported: 7/12/96
Dilution: 1

EPH	Results	Reporting Limits	MCP Limits
C9 - C18 Aliphatics	ND	3,900	
C19 - C36 Aliphatics	ND	5,000	
C10 - C22 Aromatics	ND	9,500	
Total EPH *	ND		
Target Analytes			
Acenaphthene	ND	560	20,000
Acenaphthylene	ND	560	100,000
Anthracene	ND	560	1,000,000
Benzo(a)anthracene	ND	560	700
Benzo(a)pyrene	ND	560	700
Benzo(b)fluoranthene	ND	560	700
Benzo(ghi)perylene	ND	560	100,000
Benzo(k)fluoranthene	ND	560	7,000
Chrysene	ND	560	7,000
Dibenzo(a,h)anthracene	ND	560	700
Fluoranthene	ND	560	600,000
Fluorene	ND	560	400,000
Indeno(1,2,3-cd)pyrene	ND	560	700
Naphthalene	ND	560	4,000
Phenanthrene	ND	560	1,000,000
Pyrene	ND	560	5,000,000
2-Methylnaphthalene	ND	560	700
Surrogate Recovery:			
Chlorooctadecane	108%		
o-Terphenyl	92%		

ND= Not detected

* Total EPH = 0.05* C9 - C18 Aliphatics + 0.005* C19 - C36 Aliphatics + 1.0* C10 - C22 Aromatics

MITKEM CORPORATION

Analysis Report: Extractable Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP EPH Draft 1.0
Client ID: 16B-96-04X-SS-06(Dup)
Lab ID: C0584-06(DUP)
Matrix: Soil, 94% solid
Concentration in: ug/kg, dry weight basis

Date Collected: 6/25/96
Date Received: 6/27/96
Date Extracted: 7/1/96
Date Analyzed: 7/10/96 & 7/11/96
Date Reported: 7/12/96
Dilution: 1

EPH	Results	Reporting Limits	MCP Limits
C9 - C18 Aliphatics	ND	3,800	
C19 - C36 Aliphatics	ND	4,900	
C10 - C22 Aromatics	ND	9,300	
Total EPH *	ND		
Target Analytes			
Acenaphthene	ND	550	20,000
Acenaphthylene	ND	550	100,000
Anthracene	ND	550	1,000,000
Benzo(a)anthracene	ND	550	700
Benzo(a)pyrene	ND	550	700
Benzo(b)fluoranthene	ND	550	700
Benzo(ghi)perylene	ND	550	100,000
Benzo(k)fluoranthene	ND	550	7,000
Chrysene	ND	550	7,000
Dibenzo(a,h)anthracene	ND	550	700
Fluoranthene	ND	550	600,000
Fluorene	ND	550	400,000
Indeno(1,2,3-cd)pyrene	ND	550	700
Naphthalene	ND	550	4,000
Phenanthrene	ND	550	1,000,000
Pyrene	ND	550	5,000,000
2-Methylnaphthalene	ND	550	700
Surrogate Recovery:			
Chlorooctadecane	100%		
o-Terphenyl	92%		

ND= Not detected

* Total EPH = 0.05* C9 - C18 Aliphatics + 0.005* C19 - C36 Aliphatics + 1.0* C10 - C22 Aromatics

MITKEM CORPORATION

Analysis Report: Extractable Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP EPH Draft 1.0
Client ID: 16B-96-06X-SS-01
Lab ID: C0584-07
Matrix: Soil, 99% solid
Concentration in: ug/kg, dry weight basis

Date Collected: 6/25/96
Date Received: 6/27/96
Date Extracted: 7/1/96
Date Analyzed: 7/10/96 & 7/11/96
Date Reported: 7/12/96
Dilution: 1

EPH	Results	Reporting Limits	MCP Limits
C9 - C18 Aliphatics	ND	3,700	
C19 - C36 Aliphatics	ND	4,800	
C10 - C22 Aromatics	ND	9,000	
Total EPH *	ND		
Target Analytes			
Acenaphthene	ND	530	20,000
Acenaphthylene	ND	530	100,000
Anthracene	ND	530	1,000,000
Benzo(a)anthracene	ND	530	700
Benzo(a)pyrene	ND	530	700
Benzo(b)fluoranthene	ND	530	700
Benzo(ghi)perylene	ND	530	100,000
Benzo(k)fluoranthene	ND	530	7,000
Chrysene	ND	530	7,000
Dibenzo(a,h)anthracene	ND	530	700
Fluoranthene	ND	530	600,000
Fluorene	ND	530	400,000
Indeno(1,2,3-cd)pyrene	ND	530	700
Naphthalene	ND	530	4,000
Phenanthrene	ND	530	1,000,000
Pyrene	ND	530	5,000,000
2-Methylnaphthalene	ND	530	700
Surrogate Recovery:			
Chlorooctadecane	100%		
o-Terphenyl	92%		

ND= Not detected

* Total EPH = 0.05* C9 - C18 Aliphatics + 0.005* C19 - C36 Aliphatics + 1.0* C10 - C22 Aromatics

MITKEM CORPORATION

Analysis Report: Extractable Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP EPH Draft 1.0
Client ID: 16B-96-06X-SS-01D
Lab ID: C0584-08
Matrix: Soil, 99% solid
Concentration in: ug/kg, dry weight basis

Date Collected: 6/25/96
Date Received: 6/27/96
Date Extracted: 7/1/96
Date Analyzed: 7/10/96 & 7/11/96
Date Reported: 7/11/96
Dilution: 1

EPH	Results	Reporting Limits	MCP Limits
C9 - C18 Aliphatics	ND	3,700	
C19 - C36 Aliphatics	ND	4,800	
C10 - C22 Aromatics	ND	9,100	
Total EPH *	ND		
Target Analytes			
Acenaphthene	ND	540	20,000
Acenaphthylene	ND	540	100,000
Anthracene	ND	540	1,000,000
Benzo(a)anthracene	ND	540	700
Benzo(a)pyrene	ND	540	700
Benzo(b)fluoranthene	ND	540	700
Benzo(ghi)perylene	ND	540	100,000
Benzo(k)fluoranthene	ND	540	7,000
Chrysene	ND	540	7,000
Dibenzo(a,h)anthracene	ND	540	700
Fluoranthene	ND	540	600,000
Fluorene	ND	540	400,000
Indeno(1,2,3-cd)pyrene	ND	540	700
Naphthalene	ND	540	4,000
Phenanthrene	ND	540	1,000,000
Pyrene	ND	540	5,000,000
2-Methylnaphthalene	ND	540	700
Surrogate Recovery:			
Chlorooctadecane	98%		
o-Terphenyl	93%		

ND= Not detected

* Total EPH = 0.05* C9 - C18 Aliphatics + 0.005* C19 - C36 Aliphatics + 1.0* C10 - C22 Aromatics

MITKEM CORPORATION

Analysis Report: Extractable Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP EPH Draft 1.0
Client ID: 16B-96-00X-EB
Lab ID: C0584-09
Matrix: Aqueous
Concentration in: ug/L

Date Collected: 6/25/96
Date Received: 6/27/96
Date Extracted: 7/1/96
Date Analyzed: 7/10/96 & 7/11/96
Date Reported: 7/12/96
Dilution: 1

EPH	Results	Reporting Limits
C9 - C18 Aliphatics	ND	35
C19 - C36 Aliphatics	ND	45
C10 - C22 Aromatics	ND	85
Total EPH *	ND	
Target Analytes		
Acenaphthene	ND	5
Acenaphthylene	ND	5
Anthracene	ND	5
Benzo(a)anthracene	ND	5
Benzo(a)pyrene	ND	5
Benzo(b)fluoranthene	ND	5
Benzo(ghi)perylene	ND	5
Benzo(k)fluoranthene	ND	5
Chrysene	ND	5
Dibenzo(a,h)anthracene	ND	5
Fluoranthene	ND	5
Fluorene	ND	5
Indeno(1,2,3-cd)pyrene	ND	5
Naphthalene	ND	5
Phenanthrene	ND	5
Pyrene	ND	5
2-Methylnaphthalene	ND	5
Surrogate Recovery:		
Chlorooctadecane	66%	
o-Terphenyl	62%	

ND= Not detected

* Total EPH = 0.05* C9 - C18 Aliphatics + 0.005* C19 - C36 Aliphatics + 1.0* C10 - C22 Aromatics

MILLIKEN CORPORATION

Analysis Report: Extractable Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP EPH Draft 1.0
Client ID: 16B-96-05X-SS-06
Lab ID: C0584-11
Matrix: Soil, 97% solid
Concentration in: ug/kg, dry weight basis

Date Collected: 6/25/96
Date Received: 6/27/96
Date Extracted: 7/1/96
Date Analyzed: 7/10/96 & 7/11/96
Date Reported: 7/12/96
Dilution: 1

EPH	Results	Reporting Limits	MCP Limits
C9 - C18 Aliphatics	ND	3,800	
C19 - C36 Aliphatics	ND	4,800	
C10 - C22 Aromatics	ND	9,100	
Total EPH *	ND		
Target Analytes			
Acenaphthene	ND	540	20,000
Acenaphthylene	ND	540	100,000
Anthracene	ND	540	1,000,000
Benzo(a)anthracene	ND	540	700
Benzo(a)pyrene	ND	540	700
Benzo(b)fluoranthene	ND	540	700
Benzo(ghi)perylene	ND	540	100,000
Benzo(k)fluoranthene	ND	540	7,000
Chrysene	ND	540	7,000
Dibenzo(a,h)anthracene	ND	540	700
Fluoranthene	ND	540	600,000
Fluorene	ND	540	400,000
Indeno(1,2,3-cd)pyrene	ND	540	700
Naphthalene	ND	540	4,000
Phenanthrene	ND	540	1,000,000
Pyrene	ND	540	5,000,000
2-Methylnaphthalene	ND	540	700
Surrogate Recovery:			
Chlorooctadecane	101%		
o-Terphenyl	100%		

ND= Not detected

* Total EPH = 0.05* C9 - C18 Aliphatics + 0.005* C19 - C36 Aliphatics + 1.0* C10 - C22 Aromatics

C0584-11

MILLER CORPORATION

Analysis Report: Extractable Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP EPH Draft 1.0
Client ID:
Lab ID: Method Blank, EPH0701-B1
Matrix: Aqueous
Concentration in: ug/L

Date Collected:
Date Received:
Date Extracted: 7/1/96
Date Analyzed: 7/10/96 & 7/11/96
Date Reported: 7/12/96
Dilution: 1

EPH	Results	Reporting Limits
C9 - C18 Aliphatics	ND	35
C19 - C36 Aliphatics	ND	45
C10 - C22 Aromatics	ND	85
Total EPH *	ND	
Target Analytes		
Acenaphthene	ND	5
Acenaphthylene	ND	5
Anthracene	ND	5
Benzo(a)anthracene	ND	5
Benzo(a)pyrene	ND	5
Benzo(b)fluoranthene	ND	5
Benzo(ghi)perylene	ND	5
Benzo(k)fluoranthene	ND	5
Chrysene	ND	5
Dibenzo(a,h)anthracene	ND	5
Fluoranthene	ND	5
Fluorene	ND	5
Indeno(1,2,3-cd)pyrene	ND	5
Naphthalene	ND	5
Phenanthrene	ND	5
Pyrene	ND	5
2-Methylnaphthalene	ND	5
Surrogate Recovery:		
Chlorooctadecane	63%	
o-Terphenyl	64%	

ND= Not detected

* Total EPH = 0.05* C9 - C18 Aliphatics + 0.005* C19 - C36 Aliphatics + 1.0* C10 - C22 Aromatics

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C0584-MB

MITKEM CORPORATION

Analysis Report: Extractable Petroleum Hydrocarbons

Client: Roy F. Weston, Inc.
Analysis: MADEP EPH Draft 1.0
Client ID:
Lab ID: Method Blank, EPH0701-B2
Matrix: Soil
Concentration in: ug/kg

Date Collected: 6/25/96
Date Received: 6/27/96
Date Extracted: 7/1/96
Date Analyzed: 7/10/96 & 7/11/96
Date Reported: 7/12/96
Dilution: 1

EPH	Results	Reporting Limits	MCP Limits
C9 - C18 Aliphatics	ND	3,500	
C19 - C36 Aliphatics	ND	4,500	
C10 - C22 Aromatics	ND	8,500	
Total EPH *	ND		
Target Analytes			
Acenaphthene	ND	500	20,000
Acenaphthylene	ND	500	100,000
Anthracene	ND	500	1,000,000
Benzo(a)anthracene	ND	500	700
Benzo(a)pyrene	ND	500	700
Benzo(b)fluoranthene	ND	500	700
Benzo(ghi)perylene	ND	500	100,000
Benzo(k)fluoranthene	ND	500	7,000
Chrysene	ND	500	7,000
Dibenzo(a,h)anthracene	ND	500	700
Fluoranthene	ND	500	600,000
Fluorene	ND	500	400,000
Indeno(1,2,3-cd)pyrene	ND	500	700
Naphthalene	ND	500	4,000
Phenanthrene	ND	500	1,000,000
Pyrene	ND	500	5,000,000
2-Methylnaphthalene	ND	500	700
Surrogate Recovery:			
Chlorooctadecane	92%		
o-Terphenyl	86%		

ND= Not detected

* Total EPH = 0.05* C9 - C18 Aliphatics + 0.005* C19 - C36 Aliphatics + 1.0* C10 - C22 Aromatics

C0584-MB

MITKEM CORPORATION

Analysis Report: MADEP EPH - F1

Matrix Spike Summary

Client: Roy F. Weson, Inc.
Client ID: 16B-96-04X-SS-06
Matrix: Soil
Lab ID for Matrix Spike (MS): C0584-06MS
Analysis: MADEP EPH Draft 1.0

Date Collected: 6/25/96
Date Received: 6/27/96
Date Extracted: 7/1/96
Date MS Analyzed: 7/11/96

Analyte	% Recovery Matrix Spike
Nonane C9	49
Tetradecane C14	90
Nonadecane C19	118
Eicosane C20	118
Octacosane C28	42

MILLIPORE CORPORATION

Analysis Report: MADEP EPH - F2

Matrix Spike Summary

Client: Roy F. Weson, Inc.
Client ID: 16B-96-04X-SS-06
Matrix: Soil
Lab ID for Matrix Spike (MS): C0584-06MS
Analysis: MADEP EPH Draft 1.0

Date Collected: 6/25/96
Date Received: 6/27/96
Date Extracted: 7/1/96
Date MS Analyzed: 7/10/96

Analyte	% Recovery Matrix Spike
Acenaphthene	85
Anthracene	88
Chrysene	90
Naphthalene	75
Pyrene	96

MITKEM CORPORATION

Analysis Report: MADEP EPH - F1

Lab Control Sample

Client: Roy F. Weston, Inc.
Matrix: Soil
Lab ID for Lab Control Sample: EPH0701-LCS2
Analysis: MADEP EPH Draft 1.0

Date Collected:
Date Received:
Date Extracted: 7/1/96
Date Analyzed: 7/11/96

Analyte	% Recovery
Nonane C9	70
Tetradecane C14	86
Nonadecane C19	90
Eicosane C20	94
Octacosane C28	38

MILLIPORE CORPORATION

Analysis Report: MADEP EPH - F2

Lab Control Sample

Client: Roy F. Weston, Inc.
Matrix: Soil
Lab ID for Lab Control Sample: EPH0701-LCS2
Analysis: MADEP EPH Draft 1.0

Date Collected:
Date Received:
Date Extracted: 7/1/96
Date Analyzed: 7/10/96

Analyte	% Recovery
Acenaphthene	84
Anthracene	85
Chrysene	76
Naphthalene	80
Pyrene	83

eph.ms.c0584

MITKEM CORPORATION

Lab Project #: C0584
Client Name: Roy F. Weston, Inc.
Client Project #: 03886-118-004
Client PO #:
Project Name: Fort Devins-Bldg P-16
Date Due: 7/12/96
Total Price: $ 2,410.00
Deliverables Req'd: MCP (NOT S-1)
Case Completed: YES

Logged In By: MS
Reviewed By:
Date: 6/27/96 Time: 10:35

Lab ID	Client ID	Matrix	Analysis	Price	Sampled	Received	Comments
-01	16B-96-01X-SS-04	SL	VPH/EPH	210.00	6/24/96	6/25/96	
-02	16B-96-01X-SS-03	SL	VPH/EPH 418.1	210.00 65.00	6/24/96	6/25/96	
-03	16B-96-02X-SS-01	SL	VPH/EPH 418.1	210.00 65.00	6/24/96	6/25/96	
-04	16B-96-03X-SS-02	SL	VPH/EPH 418.1	210.00 65.00	6/24/96	6/25/96	
-05	16B-96-00X-TB	W	VPH	0.00	6/24/96	6/25/96	
-06	16B-96-04X-SS-06	SL	VPH/EPH 418.1	210.00 65.00	6/25/96	6/27/96	
-07	16B-96-06X-SS-01	SL	VPH/EPH 418.1	210.00 65.00	6/25/96	6/27/96	
-08	16B-96-06X-SS-01D	SL	VPH/EPH 418.1	210.00 65.00	6/25/96	6/27/96	
-09	16B-96-00X-EB	W	VPH/EPH 418.1	210.00 65.00	6/25/96	6/27/96	

MITKEM CORPORATION

Lab ID	Client ID	Matrix	Analysis	Price	Sampled	Received	Comments
-10	16B-96-00X-TB	W	VPH	0.00	6/25/96	6/27/96	
-11	16B-96-05X-SS-06	SL	VPH/EPH 418.1	210.00 65.00	6/26/96	6/27/96	

NOTES:
(1) VPH/EPH RESULTS PLUS PAHs & BTEX COMPOUNDS
[redacted]

TPH	IR	BNA	Herb	P/P	Wet	Met	Voa
9	8	0	0	0	0	0	11

ORIGINAL REPORT GOES TO:
Roy F. Weston, Inc.
187 Ballardvale Street
Wilmington, MA 01887
ATT: Colin Cool
Phone: 508 988-7000
Fax: 508 988-7093

INVOICE GOES TO:
same

METKEM CORPORATION

175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
1232 East Broadway Road • Suite 210 • Tempe, Arizona 85282
(602) 303-9535 • Fax (602) 921-2883

CHAIN-OF-CUSTODY RECORD

INVOICE TO

COMPANY: ROY F. WESTON, INC. — PHONE: 508-988-7000
NAME: COLIN COOL — FAX: 508-988-7093
ADDRESS: 187 BALLARDVALE ST.
CITY/ST/ZIP: WILMINGTON, MA 01887

REPORT TO

COMPANY: ROY F. WESTON — PHONE: SAME
NAME: COLIN COOL — FAX: SAME
ADDRESS: SAME AS INVOICE TO
CITY/ST/ZIP: " " " "

LAB REFERENCE #:
TURNAROUND TIME: 2 WKS

CLIENT PROJECT NAME: FORT DEVENS - BLDG P-16
CLIENT PROJECT #: 03886-118-004
CLIENT P.O.#:

REQUESTED ANALYSES

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	VPH	EPH	418.1 IR	COMMENTS
16B-96-01X-SS-04	6.24.96 / 1230		X		X			2	X	X		① SEE REMARKS
16B-96-01X-SS-03	6.24.96 / 1235		X		X			3	X	X	X	② " " *
16B-96-02X-SS-01	6.24.96 / 1300		X		X			3	X	X	X	③ " "
16B-96-03X-SS-02	6.24.96 / 1600		X		X			3	X	X	X	④ " "
16B-96-00X-TB	6.24.96 / 0800		X	X				2	X			

* ONLY ANALYZE 16B-96-01X-SS-03 IF THERE IS NOT ENOUGH SAMPLE VOLUME TO RUN SAMPLE 16B-96-01X-SS-04

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
1st	[signature]	6.24.96 / 1800	FED. EX.	/
2nd		/	[signature]	6/26/96 / 11:05
3rd		/		/

ADDITIONAL REMARKS:
① SOIL = 15g ; METHANOL = 15mL
② SOIL = 20g ; METHANOL = 20mL
③ SOIL = 20g ; METHANOL = 20mL
④ SOIL = 20g ; METHANOL = 20mL
VOA VIAL OF METHANOL ENCLOSED.

COOLER TEMP.

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

MITKEM CORPORATION
175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
1232 East Broadway Road • Suite 210 • Tempe, Arizona 85282
(602) 303-9535 • Fax (602) 921-2883

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

INVOICE TO		REPORT TO		
COMPANY ROY F. WESTON, INC.	PHONE 508-988-7000	COMPANY SAME	PHONE	LAB REFERENCE #:
NAME COLIN COOL	FAX 508-988-7093	NAME	FAX	
ADDRESS 187 BALLARDVALE ST.		ADDRESS		TURNAROUND TIME: 2 WKS.
CITY/ST/ZIP WILMINGTON, MA 01887		CITY/ST/ZIP		

CLIENT PROJECT NAME: DEVENS - BLDG P-16
CLIENT PROJECT #: 03886-118-004
CLIENT P.O.#:

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	VPH	EPH	418.1 TR	COMMENTS
16B-96-04X-SS-06	6-25-96 / 1900		X		X			3	X	X	X	Soil = 39.6g
16B-96-06X-SS-01	/ 1910		X		X			3	X	X	X	Soil = 39.6g
16B-96-06X-SS-01D	/ 1910		X		X			3	X	X	X	Soil = 39.5g
16B-96-00X-ED	/ 1830		X	X				4	X	X	X	
16B-96-00X-TB	/ 0800		X	X				2	X			
	/											
	/											
	/											
	/											
	/											
	/											
	/											

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
1st	Abyadom	6/25/96 2000 hrs.	FEDERAL EXPRESS	/
2nd		/		/
3rd		/		/

ADDITIONAL REMARKS:

COOLER TEMP:

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CHAIN-OF-CUSTODY RECORD

Page 1 of 1

INVOICE TO		REPORT TO		
COMPANY Roy F. Weston, Inc.	PHONE 603 228-1334	COMPANY Roy F. Weston, Inc.	PHONE 508 988-7000	LAB REFERENCE #:
NAME John Lovely	FAX	NAME Al Easterday	FAX	
ADDRESS		ADDRESS 187 Ballardvale St.		TURNAROUND TIME:
CITY/ST/ZIP Concord, NH.		CITY/ST/ZIP Wilmington, MA		

CLIENT PROJECT NAME:	CLIENT PROJECT #:	CLIENT P.O.#:
P-16		

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER	LAB ID	# OF CONTAINERS	VPH	EPH	418.1	COMMENTS
05X-SS-06												
16B-96-5607	6/26/96 1320	X			X			3	1	1	1	
Temp Blank	6/26/96 1330			X								VPH 39.9g Sa. 1+Methanol
	/											
	/											
	/											
	/											
	/											
	/											
	/											
	/											
	/											
	/											

TSF#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME
1st	Mike Way	6/26/96 1530		/
2nd		/		/
3rd		/		/

ADDITIONAL REMARKS:
Sample detection limits must meet MA MCP requirements
Please return Cooler to Roy F. Weston Wilmington MA

COOLER TEMP:

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

Last Page of Data Report

ALPHA ANALYTICAL LABORATORIES

Eight Walkup Drive
Westborough, Massachusetts 01581-1019
(508) 898-9220

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

CERTIFICATE OF ANALYSIS

Client: Roy F. Weston, Inc.	**Laboratory Job Number:** L9608826
Address: 88 Pine Street	**Invoice Number:** 89158
Fort Devens, MA 01433	**Date Received:** 25-NOV-96
Attn: Mike Wagner	**Date Reported:** 04-DEC-96
Project Number:	**Delivery Method:** Client
Site: Fort Devens	

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L9608826-01	P16-1196-4A	Work Order #038861180040335
L9608826-02	P16-1196-4B	Work Order #038861180040335
L9608826-03	P16-1196-5A	Work Order #038861180040335
L9608826-04	P16-1196-5B	Work Order #038861180040335
L9608826-05	P16-1196-7	Work Order #038861180040335
L9608826-06	P16-1196-7D	Work Order #038861180040335
L9608826-07	1004-P16-TB	Work Order #038861180040335

Authorized by: _____

Scott McLean - Laboratory Director

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 RI:65

Laboratory Sample Number: L9608826-01
P16-1196-4A
Sample Matrix: WATER

Date Collected: 21-NOV-96
Date Received : 25-NOV-96
Date Reported : 04-DEC-96

Condition of Sample: Satisfactory
Field Prep: None

Number & Type of Containers: 2 Vial,2 Amber Glass

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Volatile Petroleum Hydrocarbon				39	Draft 1.0		27-Nov	DB
C5-C8 Aliphatics	ND	ug/l	2.00					
C9-C12 Aliphatics	ND	ug/l	2.00					
C9-C10 Aromatics	ND	ug/l	2.00					
---	-							
C5-C8 Aliphatics, Equiv.	ND	ug/l	1.00					
C9-C12 Aliphatics, Equiv.	ND	ug/l	0.100					
C9-C10 Aromatics, Equiv.	ND	ug/l	2.00					
VPH, Total	ND	ug/l	2.00					
---	-							
Benzene	ND	ug/l	2.00					
Toluene	ND	ug/l	2.00					
Ethylbenzene	ND	ug/l	2.00					
p/m-Xylene	ND	ug/l	2.00					
o-Xylene	ND	ug/l	2.00					
Methyl tert butyl ether	ND	ug/l	2.00					
Naphthalene	ND	ug/l	2.00					
1,2,4-Trimethylbenzene	ND	ug/l	2.00					
SURROGATE RECOVERY								
2,5-Dibromotoluene	106.	%						
Extractable Petroleum Hydrocarbon Only				40	Draft 1.0	26-Nov	28-Nov	DE
C9-C18 Aliphatics	ND	ug/l	50.0					
C19-C36 Aliphatics	ND	ug/l	50.0					
C10-C22 Aromatics	ND	ug/l	20.0					
---	-							
C9-C18 Aliphatics, Equiv.	ND	ug/l	2.50					
C19-C36 Aliphatics, Equiv.	ND	ug/l	0.250					
C10-C22 Aromatics, Equiv.	ND	ug/l	20.0					
EPH, Total	ND	ug/l	20.0					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L9608826-01
P16-1196-4A

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Extractable Petroleum Hydrocarbon Only continued				40	Draft 1.0	26-Nov	28-Nov	DB
SURROGATE RECOVERY								
Chloro-octadecane	18.0	%						
o-Terphenyl	76.0	%						

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Laboratory Sample Number: L9608826-02
P16-1196-4B
Sample Matrix: WATER

Date Collected: 22-NOV-96
Date Received : 25-NOV-96
Date Reported : 04-DEC-96

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 2 Amber Glass

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS
Polynuclear Aromatics by GC/MS				1	8270	26-Nov	27-Nov
Acenaphthene	ND	ug/l	2.3				
2-Chloronaphthalene	ND	ug/l	2.4				
Fluoranthene	ND	ug/l	2.3				
Naphthalene	ND	ug/l	1.8				
Benzo(a)anthracene	ND	ug/l	2.5				
Benzo(a)pyrene	ND	ug/l	3.0				
Benzo(b)fluoranthene	ND	ug/l	2.8				
Benzo(k)fluoranthene	ND	ug/l	2.8				
Chrysene	ND	ug/l	2.5				
Acenaphthylene	ND	ug/l	2.1				
Anthracene	ND	ug/l	2.0				
Benzo(ghi)perylene	ND	ug/l	4.0				
Fluorene	ND	ug/l	2.2				
Phenanthrene	ND	ug/l	2.1				
Dibenzo(a,h)anthracene	ND	ug/l	3.9				
Indeno(1,2,3-cd)pyrene	ND	ug/l	3.8				
Pyrene	ND	ug/l	2.2				
1-Methylnaphthalene	ND	ug/l	5.6				
2-Methylnaphthalene	ND	ug/l	1.4				
SURROGATE RECOVERY							
Nitrobenzene-d5	91.0	%					
2-Fluorobiphenyl	85.0	%					
4-Terphenyl-d14	56.0	%					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Laboratory Sample Number: L9608826-03
P16-1196-5A
Sample Matrix: WATER

Date Collected: 21-NOV-96
Date Received : 25-NOV-96
Date Reported : 04-DEC-96

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 1 Vial,2 Amber Glass

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Volatile Petroleum Hydrocarbon				39	Draft 1.0		27-Nov	DB
C5-C8 Aliphatics	ND	ug/l	2.00					
C9-C12 Aliphatics	ND	ug/l	2.00					
C9-C10 Aromatics	ND	ug/l	2.00					
----------	-							
C5-C8 Aliphatics, Equiv.	ND	ug/l	1.00					
C9-C12 Aliphatics, Equiv.	ND	ug/l	0.100					
C9-C10 Aromatics, Equiv.	ND	ug/l	2.00					
VPH, Total	ND	ug/l	2.00					
----------	-							
Benzene	ND	ug/l	2.00					
Toluene	ND	ug/l	2.00					
Ethylbenzene	ND	ug/l	2.00					
p/m-Xylene	ND	ug/l	2.00					
o-Xylene	ND	ug/l	2.00					
Methyl tert butyl ether	ND	ug/l	2.00					
Naphthalene	ND	ug/l	2.00					
1,2,4-Trimethylbenzene	ND	ug/l	2.00					
SURROGATE RECOVERY								
2,5-Dibromotoluene	70.0	%						
Extractable Petroleum Hydrocarbon Only				40	Draft 1.0	26-Nov	28-Nov	DB
C9-C18 Aliphatics	ND	ug/l	50.0					
C19-C36 Aliphatics	ND	ug/l	50.0					
C10-C22 Aromatics	ND	ug/l	20.0					
----------	-							
C9-C18 Aliphatics, Equiv.	ND	ug/l	2.50					
C19-C36 Aliphatics, Equiv.	ND	ug/l	0.250					
C10-C22 Aromatics, Equiv.	ND	ug/l	20.0					
EPH, Total	ND	ug/l	20.0					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L9608826-03
P16-1196-5A

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Extractable Petroleum Hydrocarbon Only continued				40	Draft 1.0	26-Nov	28-Nov	DB
SURROGATE RECOVERY								
Chloro-octadecane	17.0	%						
o-Terphenyl	115.	%						

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Laboratory Sample Number: L9608826-04
P16-1196-5B
Sample Matrix: WATER

Date Collected: 22-NOV-96
Date Received : 25-NOV-96
Date Reported : 04-DEC-96

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 2 Amber Glass

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Polynuclear Aromatics by GC/MS				1	8270	26-Nov	28-Nov	IG
Acenaphthene	ND	ug/l	2.0					
2-Chloronaphthalene	ND	ug/l	2.1					
Fluoranthene	ND	ug/l	2.0					
Naphthalene	ND	ug/l	1.5					
Benzo(a)anthracene	ND	ug/l	2.2					
Benzo(a)pyrene	ND	ug/l	2.7					
Benzo(b)fluoranthene	ND	ug/l	2.5					
Benzo(k)fluoranthene	ND	ug/l	2.5					
Chrysene	ND	ug/l	2.2					
Acenaphthylene	ND	ug/l	1.8					
Anthracene	ND	ug/l	1.8					
Benzo(ghi)perylene	ND	ug/l	3.5					
Fluorene	ND	ug/l	1.9					
Phenanthrene	ND	ug/l	1.8					
Dibenzo(a,h)anthracene	ND	ug/l	3.4					
Indeno(1,2,3-cd)pyrene	ND	ug/l	3.3					
Pyrene	ND	ug/l	2.0					
1-Methylnaphthalene	ND	ug/l	4.9					
2-Methylnaphthalene	ND	ug/l	1.3					
SURROGATE RECOVERY								
Nitrobenzene-d5	75.0	%						
2-Fluorobiphenyl	63.0	%						
4-Terphenyl-d14	59.0	%						

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Laboratory Sample Number: L9608826-05
P16-1196-7
Sample Matrix: WATER

Date Collected: 22-NOV-96
Date Received : 25-NOV-96
Date Reported : 04-DEC-96

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 2 Vial,4 Amber Glass

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Polynuclear Aromatics by GC/MS				1	8270	26-Nov	28-Nov	IG
Acenaphthene	ND	ug/l	2.6					
2-Chloronaphthalene	ND	ug/l	2.7					
Fluoranthene	ND	ug/l	2.6					
Naphthalene	ND	ug/l	2.0					
Benzo(a)anthracene	ND	ug/l	2.8					
Benzo(a)pyrene	ND	ug/l	3.4					
Benzo(b)fluoranthene	ND	ug/l	3.2					
Benzo(k)fluoranthene	ND	ug/l	3.2					
Chrysene	ND	ug/l	2.8					
Acenaphthylene	ND	ug/l	2.3					
Anthracene	ND	ug/l	2.3					
Benzo(ghi)perylene	ND	ug/l	4.5					
Fluorene	ND	ug/l	2.4					
Phenanthrene	ND	ug/l	2.3					
Dibenzo(a,h)anthracene	ND	ug/l	4.4					
Indeno(1,2,3-cd)pyrene	ND	ug/l	4.2					
Pyrene	ND	ug/l	2.5					
1-Methylnaphthalene	ND	ug/l	6.3					
2-Methylnaphthalene	ND	ug/l	1.6					
SURROGATE RECOVERY								
Nitrobenzene-d5	89.0	%						
2-Fluorobiphenyl	90.0	%						
4-Terphenyl-d14	66.0	%						

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L9608826-05
P16-1196-7

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Volatile Petroleum Hydrocarbon				39	Draft 1.0		27-Nov	DB
C5-C8 Aliphatics	ND	ug/l	2.00					
C9-C12 Aliphatics	ND	ug/l	2.00					
C9-C10 Aromatics	ND	ug/l	2.00					
---	-							
C5-C8 Aliphatics, Equiv.	ND	ug/l	1.00					
C9-C12 Aliphatics, Equiv.	ND	ug/l	0.100					
C9-C10 Aromatics, Equiv.	ND	ug/l	2.00					
VPH, Total	ND	ug/l	2.00					
---	-							
Benzene	ND	ug/l	2.00					
Toluene	ND	ug/l	2.00					
Ethylbenzene	ND	ug/l	2.00					
p/m-Xylene	ND	ug/l	2.00					
o-Xylene	ND	ug/l	2.00					
Methyl tert butyl ether	ND	ug/l	2.00					
Naphthalene	ND	ug/l	2.00					
1,2,4-Trimethylbenzene	ND	ug/l	2.00					
SURROGATE RECOVERY								
2,5-Dibromotoluene	75.0	%						
Extractable Petroleum Hydrocarbon Only				40	Draft 1.0	26-Nov	28-Nov	DB
C9-C18 Aliphatics	ND	ug/l	50.0					
C19-C36 Aliphatics	ND	ug/l	50.0					
C10-C22 Aromatics	ND	ug/l	20.0					
---	-							
C9-C18 Aliphatics, Equiv.	ND	ug/l	2.50					
C19-C36 Aliphatics, Equiv.	ND	ug/l	0.250					
C10-C22 Aromatics, Equiv.	ND	ug/l	20.0					
EPH, Total	ND	ug/l	20.0					
SURROGATE RECOVERY								
Chloro-octadecane	28.0	%						
o-Terphenyl	79.0	%						

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Laboratory Sample Number: L9608826-06
P16-1196-7D
Sample Matrix: WATER

Date Collected: 22-NOV-96
Date Received : 25-NOV-96
Date Reported : 04-DEC-96

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 1 Vial,4 Amber Glass

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Polynuclear Aromatics by GC/MS				1	8270	26-Nov	27-Nov	IG
Acenaphthene	ND	ug/l	1.9					
2-Chloronaphthalene	ND	ug/l	1.9					
Fluoranthene	ND	ug/l	1.9					
Naphthalene	ND	ug/l	1.4					
Benzo(a)anthracene	ND	ug/l	2.0					
Benzo(a)pyrene	ND	ug/l	2.4					
Benzo(b)fluoranthene	ND	ug/l	2.2					
Benzo(k)fluoranthene	ND	ug/l	2.2					
Chrysene	ND	ug/l	2.0					
Acenaphthylene	ND	ug/l	1.7					
Anthracene	ND	ug/l	1.6					
Benzo(ghi)perylene	ND	ug/l	3.2					
Fluorene	ND	ug/l	1.7					
Phenanthrene	ND	ug/l	1.7					
Dibenzo(a,h)anthracene	ND	ug/l	3.1					
Indeno(1,2,3-cd)pyrene	ND	ug/l	3.0					
Pyrene	ND	ug/l	1.8					
1-Methylnaphthalene	ND	ug/l	4.5					
2-Methylnaphthalene	ND	ug/l	1.2					
SURROGATE RECOVERY								
Nitrobenzene-d5	68.0	%						
2-Fluorobiphenyl	65.0	%						
4-Terphenyl-d14	62.0	%						

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L9608826-06
P16-1196-7D

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Volatile Petroleum Hydrocarbon				39	Draft 1.0		27-Nov	DB
C5-C8 Aliphatics	ND	ug/l	2.00					
C9-C12 Aliphatics	ND	ug/l	2.00					
C9-C10 Aromatics	ND	ug/l	2.00					
----------	-							
C5-C8 Aliphatics, Equiv.	ND	ug/l	1.00					
C9-C12 Aliphatics, Equiv.	ND	ug/l	0.100					
C9-C10 Aromatics, Equiv.	ND	ug/l	2.00					
VPH, Total	ND	ug/l	2.00					
----------	-							
Benzene	ND	ug/l	2.00					
Toluene	ND	ug/l	2.00					
Ethylbenzene	ND	ug/l	2.00					
p/m-Xylene	ND	ug/l	2.00					
o-Xylene	ND	ug/l	2.00					
Methyl tert butyl ether	ND	ug/l	2.00					
Naphthalene	ND	ug/l	2.00					
1,2,4-Trimethylbenzene	ND	ug/l	2.00					
SURROGATE RECOVERY								
2,5-Dibromotoluene	60.0	%						
Extractable Petroleum Hydrocarbon Only				40	Draft 1.0	26-Nov	28-Nov	DB
C9-C18 Aliphatics	ND	ug/l	50.0					
C19-C36 Aliphatics	ND	ug/l	50.0					
C10-C22 Aromatics	ND	ug/l	20.0					
----------	-							
C9-C18 Aliphatics, Equiv.	ND	ug/l	2.50					
C19-C36 Aliphatics, Equiv.	ND	ug/l	0.250					
C10-C22 Aromatics, Equiv.	ND	ug/l	20.0					
EPH, Total	ND	ug/l	20.0					
SURROGATE RECOVERY								
Chloro-octadecane	32.0	%						
o-Terphenyl	70.0	%						

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Laboratory Sample Number: L9608826-07
1004-P16-TB
Sample Matrix: WATER

Date Collected: 20-NOV-96
Date Received : 25-NOV-96
Date Reported : 04-DEC-96

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 1 Vial

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Volatile Petroleum Hydrocarbon				39	Draft 1.0		28-Nov	DB
C5-C8 Aliphatics	ND	ug/l	2.00					
C9-C12 Aliphatics	ND	ug/l	2.00					
C9-C10 Aromatics	ND	ug/l	2.00					
----------	-							
C5-C8 Aliphatics, Equiv.	ND	ug/l	1.00					
C9-C12 Aliphatics, Equiv.	ND	ug/l	0.100					
C9-C10 Aromatics, Equiv.	ND	ug/l	2.00					
VPH, Total	ND	ug/l	2.00					
----------	-							
Benzene	ND	ug/l	2.00					
Toluene	ND	ug/l	2.00					
Ethylbenzene	ND	ug/l	2.00					
p/m-Xylene	ND	ug/l	2.00					
o-Xylene	ND	ug/l	2.00					
Methyl tert butyl ether	ND	ug/l	2.00					
Naphthalene	ND	ug/l	2.00					
1,2,4-Trimethylbenzene	ND	ug/l	2.00					
SURROGATE RECOVERY								
2,5-Dibromotoluene	80.0	%						

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH MS/MSD ANALYSIS

Laboratory Job Number: L9608826

Parameter	MS %	MSD %	RPD
Semi-volatile Organic by GC/MS MS/MSD for sample(s) 02,04-06			
Acenaphthene	92	106	14
1,2,4-Trichlorobenzene	76	88	15
1,4-Dichlorobenzene	60	72	18
2,4-Dinitrotoluene	104	110	6
N-Nitrosodipropylamine	78	88	12
Pyrene	118	134	13
SURROGATE RECOVERY			
Nitrobenzene-d5	84	94	11
2-Fluorobiphenyl	100	114	13
4-Terphenyl-d14	82	94	14
Extractable Petroleum Hydrocarbon Spike Recovery MS/MSD for sample(s) 01,03,05-06			
Nonane (C9)	17	16	6
Tetradecane (C14)	46	40	14
Nonadecane (C19)	75	72	4
Eicosane (C20)	76	75	1
Octacosane (C28)	122	109	11
Naphthalene	40	68	52
Acenaphthene	60	75	22
Anthracene	44	50	13
Pyrene	94	102	8
Chrysene	101	105	4
SURROGATE RECOVERY			
Chloro-octadecane	60	59	2
o-Terphenyl	82	84	2

REFERENCES

1. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. 1986.

39. Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), Draft 1.0, Massachusetts Department of Environmental Protection, 1995.

40. Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), Draft 1.0, Massachusetts Department of Environmental Protection, 1995.

GLOSSARY OF TERMS AND SYMBOLS

REF Reference number in which test method may be found.

METHOD Method number by which analysis was performed.

ID Initials of the analyst.

LIMITATION OF LIABILITIES

Alpha Analytical, Inc. performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical, Inc., shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical, Inc. be held liable for any incidental consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical, Inc.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding times and splitting of samples in the field.

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WESTON /ACOE
Est. Final Proj. Sampling Date:
Work Order #: 03886-118-004-0335
Project Contact/Phone #: Mike Wagner 505 272-7190
AD Project Manager:
QC: Del: TAT: Standard
Date Rec'd: Date Due:
Account #:

Refrigerator #

		VOA	BNA	Pest/PCB	Herb	VPH Diesel	EPH STD	8270 PAH only	Metal	CN
#/Type Container	Liquid					2	2A	2A		
	Solid									
Volume	Liquid					40	1L	1L		
	Solid									
Preservatives						HCL	HCL	—		

ANALYSES REQUESTED → ORGANIC (VOA, BNA, Pest/PCB, Herb, VPH Diesel, EPH STD, 8270 PAH only) / INORG (Metal, CN)

WESTON Analytics Use Only

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	VPH Diesel	EPH STD	8270 PAH only	Metal	CN
	P16-119C-4-A			W	11/21/96	1500					2	2			
	P16-119C-4-B			W	11/22/96	1515							2		
	P16-119C-5-A			W	11/21/96	1550					2	2			
	P16-119C-5-B			W	11/22/96	1550							2		
	P16-119C-7			W	11/22/96	1530					2	2	2		
	P16-119C-7D			W	11/22/96	1530					2	2	2		
	1004-P16-TB			W	11/22/96	1615					1				

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ______
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

Relinquished by	Received by	Date	Time
[signature]	Johnson	11/25/96	850

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ______ Cooler# ______ 381-598a

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client WESTON / ACUE

Est. Final Proj. Sampling Date

Work Order # 03886-118-004-4870

Project Contact/Phone # Mike Wagner 508 772-7190

AD Project Manager

QC Del TAT Standard

Date Recd Date Due

Account #

Refrigerator #

#/Type Container	Liquid				2	2a	2a										
	Solid																
Volume	Liquid				40	1c	1c										
	Solid																
Preservatives																	

ANALYSES REQUESTED

ORGANIC								INORG	
VOA	BNA	Pest/ PCB	Herb	VPH Deluxe	EPH STD	8270 PAH only		Metal	CN

WESTON Analytics Use Only

MATRIX CODES: S - Soil; SE - Sediment; SO - Solid; SL - Sludge; W - Water; O - Oil; A - Air; DS - Drum Solids; DL - Drum Liquids; L - EP/TCLP Leachate; WI - Wipe; X - Other; F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected													
	1004-1196-1-A			W	11/22/96	0930					2	2							
	1004-1196-1-B			W	11/22/96	1420							2						
	1004-1196-2-A			W	11/22/96	0900					2	2							
	1004-1196-2B			W	11/22/96	1445							2						
	1004-1196-3A			W	11/22/96	1000					2	2							
	1004-1196-3B			W	11/22/96	1500							2						
	1004-1196-3D-A			W	11/22/96	1000					2	2							
	1004-1196-3D-B			W	11/22/96	1500							2						

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

Trip Blank listed on COC for site PIG.

DATE/REVISIONS:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

WESTON Analytics Use Only

Samples were: 1) Shipped ___ or Hand Delivered ___ Airbill # _____ 2) Ambient or Chilled 3) Received in Good Condition Y or N 4) Labels Indicate Properly Preserved Y or N 5) Received Within Holding Times Y or N

COC Tape was: 1) Present on Outer Package Y or N 2) Unbroken on Outer Package Y or N 3) Present on Sample Y or N 4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

Relinquished by	Received by	Date	Time
M Wagner	O Johnson	11/25/96	850

Relinquished by	Received by	Date	Time

___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# _____ Cooler# _____

381-596a

RFW 2121-001/A-7/91

APPENDIX E

PREVIOUS POST-EXCAVATION SOIL SAMPLING LOCATIONS AND ANALYSIS DATA

SEA Consultants Inc.
Engineers/Architects

485 Massachusetts Ave.
Cambridge, MA 02139-4018
617/497-7800

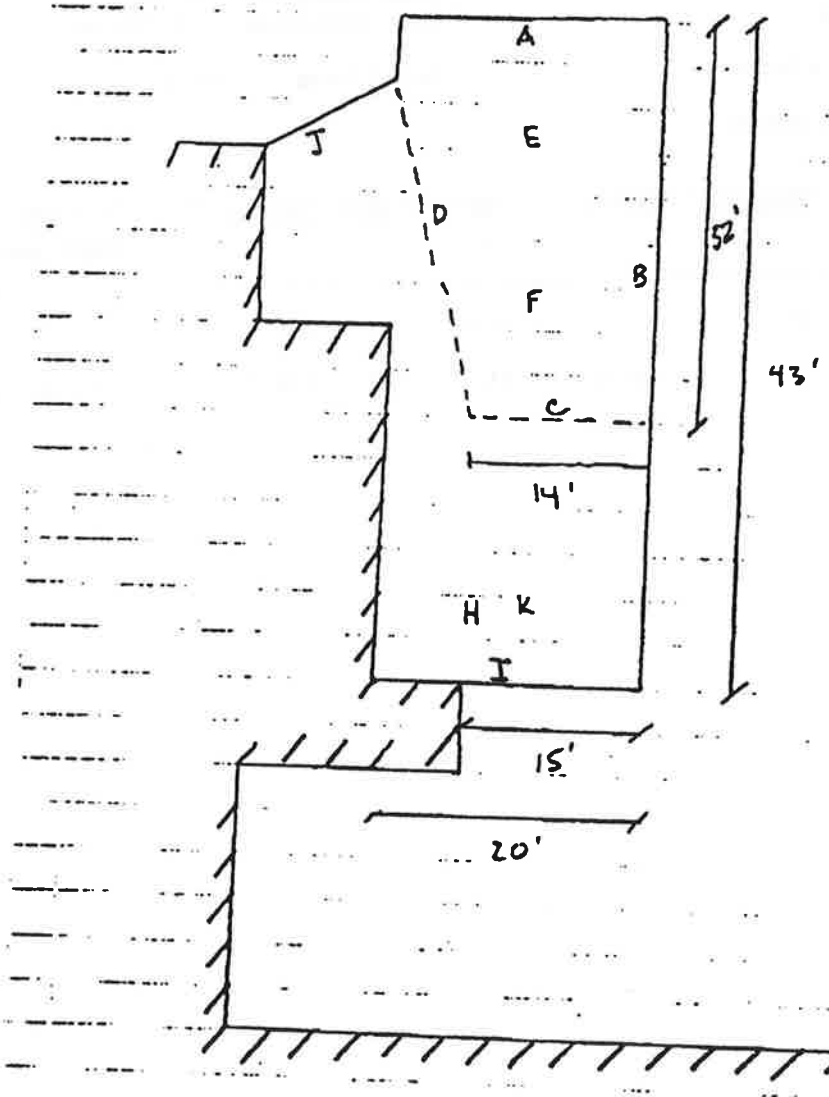
750 Old Main Street
Suite 100
Rocky Hill, CT 06067
203/563-7775

Londonderry Square, Suite 310
75 Gilcrest Road
Londonderry, NH 03053-3404
603/434-5080

Client MASS LAND BANK
Project FT DEVENS TANK REMOVAL
Detail TANK 16 SAMPLING LOCATIONS

Job No. 96028.01
Compld. By TAT
Ck'd By

Page 8
Date 2/96
Date



--- INITIAL EXCAVATION
— FINAL EXCAVATION

A, B, C = INITIAL SIDEWALL SAMPLES (DO NOT COLLECTED.)
E, F = INITIAL BOTTOM SAMPLES
I, J = CONFIRMATORY SIDE WALL SAMPLES
H, K = CONFIRMATORY BOTTOM SAMPLES

TOTAL P.22

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA 086 NH 198958-A CT PH-0574 NY 11148 NC 320 SC 88006 RI A65

Laboratory Sample Number: L9600656-15 ✓
1616-C
Sample Matrix: SOIL

Condition of Sample: Satisfactory

Number & Type of Containers: 1 Glass

Date Collected: 01-FEB-96
Date Received : 01-FEB-96
Date Reported : 05-FEB-96

Field Prep: None

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Solids, Total	96.	%	0.10	3	2540B		02-Feb	S
Hydrocarbons, Total	ND	mg/kg	40.	1	418.1	05-Feb	05-Feb	S

Comments: Complete list of References and Glossary of Terms found in Addendum I

02059604:40 Page 11

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA 086 NH 198958-A CT PH-0574 NY 11148 NC 320 SC 88006 RI A65

Laboratory Sample Number: L9600698-05
Sample Matrix: 16-F SOIL

Date Collected: 02-FEB-96
Date Received : 02-FEB-96
Date Reported : 06-FEB-96

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 1 Vial

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Solids, Total	96.	%	0.10	3	2540B		05-Feb	ST
Hydrocarbons, Total	ND	mg/kg	40.	1	418.1	05-Feb	06-Feb	ST

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES

Eight Walkup Drive
Westborough, Massachusetts 01581-1019
(508) 898-9220

MA 086 NH 198958-A CT PH-0574 NY 11148 NC 320 SC 88006 RI A65

CERTIFICATE OF ANALYSIS

Client: SEA Consultants

Address: 485 Massachusetts Avenue

Cambridge, MA 02139

Attn: MF Clark

Project Number: 65167-01

Site: Mass Land Bank

Laboratory Job Number: L9600720

Invoice Number: 80889

Date Received: 05-FEB-96

Date Reported: 07-FEB-96

Delivery Method: Client

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L9600720-01	16-H	Ft. Devens
L9600720-02	16-I	Ft. Devens
L9600720-03	16-J	Ft. Devens

Authorized by:

Scott McLean - Laboratory Director

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA 086 NH 198958-A CT PH-0574 NY 11148 NC 320 SC 88006 RI A65

Laboratory Sample Number: L9600720-01
16-H
Sample Matrix: SOIL

Date Collected: 05-FEB-96
Date Received : 05-FEB-96
Date Reported : 07-FEB-96

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 1 Vial,2 Glass

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Solids, Total	93.	%	0.10	3	2540B		06-Feb	ST
Volatile Organics by GC/MS				1	8260	06-Feb	06-Feb	DB
Methylene chloride	ND	ug/kg	100					
1,1-Dichloroethane	ND	ug/kg	30.					
Chloroform	ND	ug/kg	30.					
Carbon tetrachloride	ND	ug/kg	20.					
1,2-Dichloropropane	ND	ug/kg	70.					
Dibromochloromethane	ND	ug/kg	20.					
1,1,2-Trichloroethane	ND	ug/kg	30.					
2-Chloroethylvinyl ether	ND	ug/kg	200					
Tetrachloroethene	ND	ug/kg	30.					
Chlorobenzene	ND	ug/kg	70.					
Trichlorofluoromethane	ND	ug/kg	100					
1,2-Dichloroethane	ND	ug/kg	30.					
1,1,1-Trichloroethane	ND	ug/kg	20.					
Bromodichloromethane	ND	ug/kg	20.					
trans-1,3-Dichloropropene	ND	ug/kg	30.					
cis-1,3-Dichloropropene	ND	ug/kg	20.					
Bromoform	ND	ug/kg	20.					
1,1,2,2-Tetrachloroethane	ND	ug/kg	20.					
Benzene	ND	ug/kg	20.					
Toluene	ND	ug/kg	30.					
Ethylbenzene	ND	ug/kg	20.					
Chloromethane	ND	ug/kg	200					
Bromomethane	ND	ug/kg	40.					
Vinyl chloride	ND	ug/kg	70.					
Chloroethane	ND	ug/kg	40.					
1,1-Dichloroethene	ND	ug/kg	30.					
trans-1,2-Dichloroethene	ND	ug/kg	30.					
Trichloroethene	ND	ug/kg	20.					
1,2-Dichlorobenzene	ND	ug/kg	200					
1,3-Dichlorobenzene	ND	ug/kg	200					
1,4-Dichlorobenzene	ND	ug/kg	200					
Methyl tert butyl ether	ND	ug/kg	200					
Xylenes	ND	ug/kg	20.					
cis-1,2-Dichloroethene	ND	ug/kg	20.					
Dibromomethane	ND	ug/kg	200					

Comments: Complete list of References and Glossary of Terms found in Addendum I

Laboratory Sample Number: L9600720-01
16-H

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS
Volatile Organics by GC/MS continued				1	8260	06-Feb	06-Feb
1,4-Dichlorobutane	ND	ug/kg	200				
Iodomethane	ND	ug/kg	200				
1,2,3-Trichloropropane	ND	ug/kg	200				
Styrene	ND	ug/kg	20.				
Dichlorodifluoromethane	ND	ug/kg	200				
Acetone	ND	ug/kg	200				
Carbon Disulfide	ND	ug/kg	200				
2-Butanone	ND	ug/kg	90.				
Vinyl Acetate	ND	ug/kg	200				
4-Methyl-2-pentanone	ND	ug/kg	200				
2-Hexanone	ND	ug/kg	200				
Ethyl methacrylate	ND	ug/kg	200				
Acrolein	ND	ug/kg	500				
Acrylonitrile	ND	ug/kg	200				
Bromochloromethane	ND	ug/kg	100				
2,2-Dichloropropane	ND	ug/kg	100				
1,2-Dibromoethane	ND	ug/kg	100				
1,3-Dichloropropane	ND	ug/kg	100				
1,1,1,2-Tetrachloroethane	ND	ug/kg	100				
Bromobenzene	ND	ug/kg	100				
n-Butylbenzene	ND	ug/kg	100				
sec-Butylbenzene	ND	ug/kg	100				
tert-Butylbenzene	ND	ug/kg	100				
o-Chlorotoluene	ND	ug/kg	100				
p-Chlorotoluene	ND	ug/kg	100				
1,2-Dibromo-3-chloropropane	ND	ug/kg	100				
Hexachlorobutadiene	ND	ug/kg	100				
Isopropylbenzene	ND	ug/kg	100				
p-Isopropyltoluene	ND	ug/kg	100				
Naphthalene	ND	ug/kg	100				
n-Propylbenzene	ND	ug/kg	100				
1,2,3-Trichlorobenzene	ND	ug/kg	100				
1,2,4-Trichlorobenzene	ND	ug/kg	100				
1,3,5-Trimethylbenzene	ND	ug/kg	100				
1,2,4-Trimethylbenzene	ND	ug/kg	100				
trans-1,4-Dichloro-2-butene	ND	ug/kg	100				
Ethyl ether	ND	ug/kg	500				
SURROGATE RECOVERY							
Toluene-d8	106.	%					
4-Bromofluorobenzene	101.	%					
Dibromofluoromethane	113.	%					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L9600720-01
16-H

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS
Semi-volatile Organics by GC/MS				1	8270	06-Feb	06-Feb
Acenaphthene	ND	ug/kg	940				
Benzidine	ND	ug/kg	8000				
1,2,4-Trichlorobenzene	ND	ug/kg	1200				
Hexachlorobenzene	ND	ug/kg	940				
Bis(2-chloroethyl)ether	ND	ug/kg	1000				
2-Chloronaphthalene	ND	ug/kg	1000				
1,2-Dichlorobenzene	ND	ug/kg	940				
1,3-Dichlorobenzene	ND	ug/kg	1100				
1,4-Dichlorobenzene	ND	ug/kg	800				
3,3'-Dichlorobenzidine	ND	ug/kg	2100				
2,4-Dinitrotoluene	ND	ug/kg	1200				
2,6-Dinitrotoluene	ND	ug/kg	940				
Azobenzene	ND	ug/kg	940				
Fluoranthene	ND	ug/kg	940				
4-Chlorophenyl phenyl ether	ND	ug/kg	1000				
4-Bromophenyl phenyl ether	ND	ug/kg	940				
Bis(2-chloroisopropyl)ether	ND	ug/kg	670				
Bis(2-chloroethoxy)methane	ND	ug/kg	740				
Hexachlorobutadiene	ND	ug/kg	2700				
Hexachlorocyclopentadiene	ND	ug/kg	2500				
Hexachloroethane	ND	ug/kg	1700				
Isophorone	ND	ug/kg	800				
Naphthalene	ND	ug/kg	740				
Nitrobenzene	ND	ug/kg	640				
NitrosoDiphenylAmine(NDPA)/DPA	ND	ug/kg	800				
n-Nitrosodi-n-propylamine	ND	ug/kg	870				
Bis(2-ethylhexyl)phthalate	ND	ug/kg	3100				
Butyl benzyl phthalate	ND	ug/kg	670				
Di-n-butylphthalate	ND	ug/kg	940				
Di-n-octylphthalate	ND	ug/kg	800				
Diethyl phthalate	ND	ug/kg	1700				
Dimethyl phthalate	ND	ug/kg	1700				
Benzo(a)anthracene	ND	ug/kg	1100				
Benzo(a)pyrene	ND	ug/kg	1300				
Benzo(b)fluoranthene	ND	ug/kg	1200				
Benzo(k)fluoranthene	ND	ug/kg	1200				
Chrysene	ND	ug/kg	1100				
Acenaphthylene	ND	ug/kg	870				
Anthracene	ND	ug/kg	800				
Benzo(ghi)perylene	ND	ug/kg	1700				
Fluorene	ND	ug/kg	940				
Phenanthrene	ND	ug/kg	870				
Dibenzo(a,h)anthracene	ND	ug/kg	1600				
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1600				
Pyrene	ND	ug/kg	940				
Aniline	ND	ug/kg	3400				
4-Chloroaniline	ND	ug/kg	1300				
1-Methylnaphthalene	ND	ug/kg	2300				

Comments: Complete list of References and Glossary of Terms found in Addendum I

Laboratory Sample Number: L9600720-01
16-H

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS
Semi-volatile Organics by GC/MS continued				1	8270	06-Feb	06-Feb
2-Nitroaniline	ND	ug/kg	1100				
3-Nitroaniline	ND	ug/kg	2000				
4-Nitroaniline	ND	ug/kg	1900				
Dibenzofuran	ND	ug/kg	670				
a,a-Dimethylphenethylamine	ND	ug/kg	15000				
Hexachloropropene	ND	ug/kg	6700				
Nitrosodi-n-butylamine	ND	ug/kg	1600				
2-Methylnaphthalene	ND	ug/kg	600				
Tetrachlorobenzene	ND	ug/kg	4200				
Pentachlorobenzene	ND	ug/kg	4300				
a-Naphthalamine	ND	ug/kg	6700				
b-Naphthalamine	ND	ug/kg	3100				
Acetophenetidide	ND	ug/kg	3400				
Dimethoate	ND	ug/kg	6700				
4-Aminobiphenyl	ND	ug/kg	3500				
Pentachloronitrobenzene	ND	ug/kg	1300				
Isodrin	ND	ug/kg	1300				
p-Dimethylaminoazobenzene	ND	ug/kg	2400				
Chlorobenzilate	ND	ug/kg	5400				
Bis(2-ethylhexyl)adipate	ND	ug/kg	1100				
3-Methylcholanthrene	ND	ug/kg	6700				
Ethylmethanesulfonate	ND	ug/kg	4900				
Acetophenone	ND	ug/kg	1600				
Nitrosodipiperidine	ND	ug/kg	6700				
7,12-Dimethylbenz(a)anthracene	ND	ug/kg	8000				
n-Nitrosodimethylamine	ND	ug/kg	13000				
2,4,6-Trichlorophenol	ND	ug/kg	670				
p-Chloro-m-cresol	ND	ug/kg	1000				
2-Chlorophenol	ND	ug/kg	1100				
2,4-Dichlorophenol	ND	ug/kg	3400				
2,4-Dimethylphenol	ND	ug/kg	800				
2-Nitrophenol	ND	ug/kg	1100				
4-Nitrophenol	ND	ug/kg	4000				
2,4-Dinitrophenol	ND	ug/kg	5000				
4,6-Dinitro-o-cresol	ND	ug/kg	5800				
Pentachlorophenol	ND	ug/kg	2300				
Phenol	ND	ug/kg	2800				
Cresol, Total	ND	ug/kg	2400				
2,4,5-Trichlorophenol	ND	ug/kg	940				
2,6-Dichlorophenol	ND	ug/kg	1600				
Benzoic Acid	ND	ug/kg	13000				
Benzyl Alcohol	ND	ug/kg	1900				
SURROGATE RECOVERY							
2-Fluorophenol	85.0	%					
Phenol-d6	83.0	%					
Nitrobenzene-d5	60.0	%					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L9600720-01
16-H

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS
Semi-volatile Organics by GC/MS continued				1	8270	06-Feb	06-Feb
2-Fluorobiphenyl	53.0	%					
2,4,6-Tribromophenol	52.0	%					
4-Terphenyl-d14	53.0	%					
Polychlorinated Biphenyls				1	8080	06-Feb	07-Feb
Arochlor 1221	ND	ug/kg	250				
Arochlor 1232	ND	ug/kg	250				
Arochlor 1242/PCB 1016	ND	ug/kg	250				
Arochlor 1248	ND	ug/kg	250				
Arochlor 1254	ND	ug/kg	250				
Arochlor 1260	ND	ug/kg	250				
Arochlor 1262	ND	ug/kg	250				
Arochlor 1268	ND	ug/kg	250				
SURROGATE RECOVERY							
2,4,5,6-Tetrachloro-m-xylene	57.0	%					
Decachlorobiphenyl	45.0	%					
Organochlorine Pesticides				1	8080	06-Feb	07-Feb
Delta-BHC	ND	ug/kg	50.				
Lindane	ND	ug/kg	50.				
Alpha-BHC	ND	ug/kg	50.				
Beta-BHC	ND	ug/kg	50.				
Heptachlor	ND	ug/kg	50.				
Aldrin	ND	ug/kg	50.				
Heptachlor epoxide	ND	ug/kg	50.				
Endrin	ND	ug/kg	50.				
Endrin aldehyde	ND	ug/kg	50.				
Endrin ketone	ND	ug/kg	50.				
Dieldrin	ND	ug/kg	50.				
4,4'-DDE	ND	ug/kg	50.				
4,4'-DDD	ND	ug/kg	50.				
4,4'-DDT	ND	ug/kg	50.				
Endosulfan I	ND	ug/kg	50.				
Endosulfan II	ND	ug/kg	50.				
Endosulfan sulfate	ND	ug/kg	50.				
Methoxychlor	ND	ug/kg	50.				
Toxaphene	ND	ug/kg	100				
Chlordane	ND	ug/kg	50.				
SURROGATE RECOVERY							
2,4,5,6-Tetrachloro-m-xylene	57.0	%					
Decachlorobiphenyl	45.0	%					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L9600720-01
16-H

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS
Hydrocarbon Scan GC 8100 Modified				1	8100M	06-Feb	06-Feb
Mineral Spirits	ND	mg/kg	100				
Gasoline	ND	mg/kg	100				
Fuel Oil #2/Diesel	ND	mg/kg	100				
Fuel Oil #4	ND	mg/kg	100				
Fuel Oil #6	5700	mg/kg	100				
Motor Oil	ND	mg/kg	100				
Kerosene	ND	mg/kg	100				
SURROGATE RECOVERY							
o-Terphenyl	73.0	%					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA 086 NH 198958-A CT PH-0574 NY 11148 NC 320 SC 88006 RI A65

Laboratory Sample Number: L9600720-02
16-I
Sample Matrix: SOIL

Date Collected: 05-FEB-96
Date Received : 05-FEB-96
Date Reported : 07-FEB-96

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 1 Vial,2 Glass

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Solids, Total	92.	%	0.10	3	2540B		06-Feb	ST
Volatile Organics by GC/MS				1	8260	06-Feb	06-Feb	DB
Methylene chloride	ND	ug/kg	25.					
1,1-Dichloroethane	ND	ug/kg	7.5					
Chloroform	ND	ug/kg	7.5					
Carbon tetrachloride	ND	ug/kg	5.0					
1,2-Dichloropropane	ND	ug/kg	18.					
Dibromochloromethane	ND	ug/kg	5.0					
1,1,2-Trichloroethane	ND	ug/kg	7.5					
2-Chloroethylvinyl ether	ND	ug/kg	50.					
Tetrachloroethene	ND	ug/kg	7.5					
Chlorobenzene	ND	ug/kg	18.					
Trichlorofluoromethane	ND	ug/kg	25.					
1,2-Dichloroethane	ND	ug/kg	7.5					
1,1,1-Trichloroethane	ND	ug/kg	5.0					
Bromodichloromethane	ND	ug/kg	5.0					
trans-1,3-Dichloropropene	ND	ug/kg	7.5					
cis-1,3-Dichloropropene	ND	ug/kg	5.0					
Bromoform	ND	ug/kg	5.0					
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.0					
Benzene	ND	ug/kg	5.0					
Toluene	ND	ug/kg	7.5					
Ethylbenzene	ND	ug/kg	5.0					
Chloromethane	ND	ug/kg	50.					
Bromomethane	ND	ug/kg	10.					
Vinyl chloride	ND	ug/kg	18.					
Chloroethane	ND	ug/kg	10.					
1,1-Dichloroethene	ND	ug/kg	7.5					
trans-1,2-Dichloroethene	ND	ug/kg	7.5					
Trichloroethene	ND	ug/kg	5.0					
1,2-Dichlorobenzene	ND	ug/kg	50.					
1,3-Dichlorobenzene	ND	ug/kg	50.					
1,4-Dichlorobenzene	ND	ug/kg	50.					
Methyl tert butyl ether	ND	ug/kg	50.					
Xylenes	ND	ug/kg	5.0					
cis-1,2-Dichloroethene	ND	ug/kg	5.0					
Dibromomethane	ND	ug/kg	50.					

Comments: Complete list of References and Glossary of Terms found in Addendum I

Laboratory Sample Number: L9600720-02
16-I

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS
Volatile Organics by GC/MS continued				1	8260	06-Feb	06-Feb
1,4-Dichlorobutane	ND	ug/kg	50.				
Iodomethane	ND	ug/kg	50.				
1,2,3-Trichloropropane	ND	ug/kg	50.				
Styrene	ND	ug/kg	5.0				
Dichlorodifluoromethane	ND	ug/kg	50.				
Acetone	ND	ug/kg	50.				
Carbon Disulfide	ND	ug/kg	50.				
2-Butanone	ND	ug/kg	23.				
Vinyl Acetate	ND	ug/kg	50.				
4-Methyl-2-pentanone	ND	ug/kg	50.				
2-Hexanone	ND	ug/kg	50.				
Ethyl methacrylate	ND	ug/kg	50.				
Acrolein	ND	ug/kg	130				
Acrylonitrile	ND	ug/kg	50.				
Bromochloromethane	ND	ug/kg	25.				
2,2-Dichloropropane	ND	ug/kg	25.				
1,2-Dibromoethane	ND	ug/kg	25.				
1,3-Dichloropropane	ND	ug/kg	25.				
1,1,1,2-Tetrachloroethane	ND	ug/kg	25.				
Bromobenzene	ND	ug/kg	25.				
n-Butylbenzene	ND	ug/kg	25.				
sec-Butylbenzene	ND	ug/kg	25.				
tert-Butylbenzene	ND	ug/kg	25.				
o-Chlorotoluene	ND	ug/kg	25.				
p-Chlorotoluene	ND	ug/kg	25.				
1,2-Dibromo-3-chloropropane	ND	ug/kg	25.				
Hexachlorobutadiene	ND	ug/kg	25.				
Isopropylbenzene	ND	ug/kg	25.				
p-Isopropyltoluene	ND	ug/kg	25.				
Naphthalene	ND	ug/kg	25.				
n-Propylbenzene	ND	ug/kg	25.				
1,2,3-Trichlorobenzene	ND	ug/kg	25.				
1,2,4-Trichlorobenzene	ND	ug/kg	25.				
1,3,5-Trimethylbenzene	ND	ug/kg	25.				
1,2,4-Trimethylbenzene	ND	ug/kg	25.				
trans-1,4-Dichloro-2-butene	ND	ug/kg	25.				
Ethyl ether	ND	ug/kg	130				
SURROGATE RECOVERY							
Toluene-d8	110.	%					
4-Bromofluorobenzene	105.	%					
Dibromofluoromethane	110.	%					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L9600720-02
16-I

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Polynuclear Aromatics by GC/MS				1	8270	06-Feb	06-Feb	I
Acenaphthene	1300	ug/kg	95.					
2-Chloronaphthalene	ND	ug/kg	100					
Fluoranthene	5000	ug/kg	95.					
Naphthalene	290	ug/kg	75.					
Benzo(a)anthracene	1900	ug/kg	110					
Benzo(a)pyrene	1400	ug/kg	130					
Benzo(b)fluoranthene	1100	ug/kg	120					
Benzo(k)fluoranthene	1400	ug/kg	120					
Chrysene	1900	ug/kg	110					
Acenaphthylene	ND	ug/kg	88.					
Anthracene	1500	ug/kg	82.					
Benzo(ghi)perylene	640	ug/kg	170					
Fluorene	910	ug/kg	95.					
Phenanthrene	5700	ug/kg	88.					
Dibenzo(a,h)anthracene	ND	ug/kg	160					
Indeno(1,2,3-cd)pyrene	710	ug/kg	160					
Pyrene	3900	ug/kg	95.					
1-Methylnaphthalene	190	ug/kg	170					
2-Methylnaphthalene	310	ug/kg	61.					
SURROGATE RECOVERY								
Nitrobenzene-d5	86.0	%						
2-Fluorobiphenyl	76.0	%						
4-Terphenyl-d14	84.0	%						
Hydrocarbon Scan GC 8100 Modified				1	8100M	06-Feb	06-Feb	D
Mineral Spirits	ND	mg/kg	100					
Gasoline	ND	mg/kg	100					
Fuel Oil #2/Diesel	ND	mg/kg	100					
Fuel Oil #4	ND	mg/kg	100					
Fuel Oil #6	ND	mg/kg	100					
Motor Oil	ND	mg/kg	100					
Kerosene	ND	mg/kg	100					
Unknown Hydrocarbon	1200	mg/kg	100					
SURROGATE RECOVERY								
o-Terphenyl	102.	%						

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA 086 NH 198958-A CT PH-0574 NY 11148 NC 320 SC 88006 RI A65

Laboratory Sample Number: L9600720-03
16-J
Sample Matrix: SOIL

Date Collected: 05-FEB-96
Date Received : 05-FEB-96
Date Reported : 07-FEB-96

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 1 Vial,2 Glass

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	TD
Solids, Total	92.	%	0.10	3	2540B		06-Feb	
Volatile Organics by GC/MS				1	8260	07-Feb	07-Feb	
Methylene chloride	ND	ug/kg	25.					
1,1-Dichloroethane	ND	ug/kg	7.5					
Chloroform	ND	ug/kg	210					
Carbon tetrachloride	ND	ug/kg	5.0					
1,2-Dichloropropane	ND	ug/kg	18.					
Dibromochloromethane	ND	ug/kg	5.0					
1,1,2-Trichloroethane	ND	ug/kg	7.5					
2-Chloroethylvinyl ether	ND	ug/kg	50.					
Tetrachloroethene	ND	ug/kg	7.5					
Chlorobenzene	ND	ug/kg	18.					
Trichlorofluoromethane	ND	ug/kg	25.					
1,2-Dichloroethane	ND	ug/kg	7.5					
1,1,1-Trichloroethane	ND	ug/kg	5.0					
Bromodichloromethane	ND	ug/kg	5.0					
trans-1,3-Dichloropropene	ND	ug/kg	7.5					
cis-1,3-Dichloropropene	ND	ug/kg	5.0					
Bromoform	ND	ug/kg	5.0					
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.0					
Benzene	ND	ug/kg	5.0					
Toluene	ND	ug/kg	7.5					
Ethylbenzene	ND	ug/kg	5.0					
Chloromethane	ND	ug/kg	50.					
Bromomethane	ND	ug/kg	10.					
Vinyl chloride	ND	ug/kg	18.					
Chloroethane	ND	ug/kg	10.					
1,1-Dichloroethene	ND	ug/kg	7.5					
trans-1,2-Dichloroethene	ND	ug/kg	7.5					
Trichloroethene	ND	ug/kg	5.0					
1,2-Dichlorobenzene	ND	ug/kg	50.					
1,3-Dichlorobenzene	ND	ug/kg	50.					
1,4-Dichlorobenzene	ND	ug/kg	50.					
Methyl tert butyl ether	ND	ug/kg	50.					
Xylenes	ND	ug/kg	5.0					
cis-1,2-Dichloroethene	ND	ug/kg	5.0					
Dibromomethane	ND	ug/kg	50.					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L9600720-03
16-J

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS
Volatile Organics by GC/MS continued				1	8260	07-Feb	07-Feb
1,4-Dichlorobutane	ND	ug/kg	50.				
Iodomethane	ND	ug/kg	50.				
1,2,3-Trichloropropane	ND	ug/kg	50.				
Styrene	ND	ug/kg	5.0				
Dichlorodifluoromethane	ND	ug/kg	50.				
Acetone	ND	ug/kg	50.				
Carbon Disulfide	ND	ug/kg	50.				
2-Butanone	ND	ug/kg	320				
Vinyl Acetate	ND	ug/kg	50.				
4-Methyl-2-pentanone	ND	ug/kg	50.				
2-Hexanone	ND	ug/kg	50.				
Ethyl methacrylate	ND	ug/kg	50.				
Acrolein	ND	ug/kg	130				
Acrylonitrile	ND	ug/kg	50.				
Bromochloromethane	ND	ug/kg	25.				
2,2-Dichloropropane	ND	ug/kg	25.				
1,2-Dibromoethane	ND	ug/kg	25.				
1,3-Dichloropropane	ND	ug/kg	25.				
1,1,1,2-Tetrachloroethane	ND	ug/kg	25.				
Bromobenzene	ND	ug/kg	25.				
n-Butylbenzene	ND	ug/kg	25.				
sec-Butylbenzene	ND	ug/kg	25.				
tert-Butylbenzene	ND	ug/kg	25.				
o-Chlorotoluene	ND	ug/kg	25.				
p-Chlorotoluene	ND	ug/kg	25.				
1,2-Dibromo-3-chloropropane	ND	ug/kg	25.				
Hexachlorobutadiene	ND	ug/kg	25.				
Isopropylbenzene	ND	ug/kg	25.				
p-Isopropyltoluene	ND	ug/kg	25.				
Naphthalene	ND	ug/kg	25.				
n-Propylbenzene	ND	ug/kg	25.				
1,2,3-Trichlorobenzene	ND	ug/kg	25.				
1,2,4-Trichlorobenzene	ND	ug/kg	25.				
1,3,5-Trimethylbenzene	ND	ug/kg	25.				
1,2,4-Trimethylbenzene	ND	ug/kg	25.				
trans-1,4-Dichloro-2-butene	ND	ug/kg	25.				
Ethyl ether	ND	ug/kg	130				
SURROGATE RECOVERY							
Toluene-d8	101.	%					
4-Bromofluorobenzene	98.0	%					
Dibromofluoromethane	99.0	%					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L9600720-03
16-J

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS
Polynuclear Aromatics by GC/MS				1	8270	06-Feb	06-Feb
Acenaphthene	ND	ug/kg	94.				
2-Chloronaphthalene	ND	ug/kg	100				
Fluoranthene	ND	ug/kg	94.				
Naphthalene	ND	ug/kg	74.				
Benzo(a)anthracene	ND	ug/kg	110				
Benzo(a)pyrene	ND	ug/kg	130				
Benzo(b)fluoranthene	ND	ug/kg	120				
Benzo(k)fluoranthene	ND	ug/kg	120				
Chrysene	ND	ug/kg	110				
Acenaphthylene	ND	ug/kg	87.				
Anthracene	ND	ug/kg	80.				
Benzo(ghi)perylene	ND	ug/kg	170				
Fluorene	ND	ug/kg	94.				
Phenanthrene	ND	ug/kg	87.				
Dibenzo(a,h)anthracene	ND	ug/kg	160				
Indeno(1,2,3-cd)pyrene	ND	ug/kg	160				
Pyrene	ND	ug/kg	94.				
1-Methylnaphthalene	ND	ug/kg	230				
2-Methylnaphthalene	ND	ug/kg	60.				
SURROGATE RECOVERY							
Nitrobenzene-d5	84.0	%					
2-Fluorobiphenyl	68.0	%					
4-Terphenyl-d14	82.0	%					
Hydrocarbon Scan GC 8100 Modified				1	8100M	06-Feb	06-Feb
Mineral Spirits	ND	mg/kg	100				
Gasoline	ND	mg/kg	100				
Fuel Oil #2/Diesel	ND	mg/kg	100				
Fuel Oil #4	ND	mg/kg	100				
Fuel Oil #6	ND	mg/kg	100				
Motor Oil	ND	mg/kg	100				
Kerosene	ND	mg/kg	100				
SURROGATE RECOVERY							
o-Terphenyl	99.0	%					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L9600720

Parameter	Value 1	Value 2	RPD	Units
Solids, Total	DUPLICATE for sample(s) 01-03			
	92.	92.	0	%

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH MS/MSD ANALYSIS

Laboratory Job Number: L9600720

Parameter	MS %	MSD %	RPD
Volatile Organics by GC/MS Spike Recovery MS/MSD for sample(s) 01-03			
1,1-Dichloroethene	110	107	3
Trichloroethene	110	110	0
Benzene	106	103	3
Toluene	111	106	5
Chlorobenzene	107	105	2
Semi-volatile Organic by GC/MS MS/MSD for sample(s) 01			
p-Chloro-m-cresol	110	120	9
2-Chlorophenol	95	105	10
Pentachlorophenol	53	53	0
Phenol	125	120	4
Acenaphthene	106	114	7
1,2,4-Trichlorobenzene	92	86	7
1,4-Dichlorobenzene	110	105	5
2,4-Dinitrotoluene	98	105	7
N-Nitrosodipropylamine	107	113	5
Pyrene	117	120	3
SURROGATE RECOVERY			
2-Fluorophenol	200	178	12
Phenol-d6	180	163	10
Nitrobenzene-d5	110	105	5
2-Fluorobiphenyl	105	95	10
2,4,6-Tribromophenol	88	90	2
4-Terphenyl-d14	115	125	8
Semi-volatile Organic by GC/MS MS/MSD for sample(s) 02-03			
p-Chloro-m-cresol	110	120	9
2-Chlorophenol	95	105	10
Pentachlorophenol	53	53	0
Phenol	125	120	4
Acenaphthene	106	114	7
1,2,4-Trichlorobenzene	92	86	7
1,4-Dichlorobenzene	110	105	5
2,4-Dinitrotoluene	98	105	7
N-Nitrosodipropylamine	107	113	5
Pyrene	117	120	3
SURROGATE RECOVERY			
2-Fluorophenol	200	178	12
Phenol-d6	180	163	10
Nitrobenzene-d5	110	105	5
2-Fluorobiphenyl	105	95	10
2,4,6-Tribromophenol	88	90	2
4-Terphenyl-d14	115	125	8

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH MS/MSD ANALYSIS

Laboratory Job Number: L9600720

Continued

Parameter	MS %	MSD %	RPD
Pesticide Spike Recovery	MS/MSD for sample(s) 01		
Lindane	76	62	20
Heptachlor	64	63	2
Aldrin	71	65	9
Endrin	88	92	4
Dieldrin	88	55	46
4,4'-DDT	101	105	4
SURROGATE RECOVERY			
2,4,5,6-Tetrachloro-m-xylene	56	66	16
Decachlorobiphenyl	72	50	36

REFERENCES

1. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. 1986.

3. Standard Methods for Examination of Water and Waste Water. APHA-AWWA-WPCF. 17th Edition. 1989.

GLOSSARY OF TERMS AND SYMBOLS

REF Reference number in which test method may be found.

METHOD Method number by which analysis was performed.

ID Initials of the analyst.

ALPHA Analytical Laboratories, Inc.

Eight Walkup Drive
Westborough, MA 01581-1019
508-898-9220 FAX 508-898-9193

CHAIN OF CUSTODY RECORD and ANALYSIS REQUEST RECORD

No.

Sheet 1 of 1

Company Name: SFA CONSULTANTS

Project Number: 6516-7.01

P.O. Number:

Project Name/Location: MASS LAND BNK FT DEVENS

Date Received in Lab: 2/5

Date Due: RUSH 2/7/96

Company Address: 485 MASS AVE. CAMBRIDGE

Phone Number: 617 498-4659

FAX No.:

Project Manager: M F CLARK

Alpha Job Number: (Lab use only) 9600720

Container Codes: P = Plastic V = Vial C = Cube G = Glass A = Amber Glass B = Bacteria Container O = Other

MATRIX / SOURCE CODES: MW = Monitoring Well, RO = Runoff, O = Outfall, W = Well, LF = Landfill, L = Lake/Pond/Ocean, I = Influent, E = Effluent, DW = Drinking Water, R = River Stream, S = Soil, SG = Sludge, B = Bottom Sediment, X1 = Other, X2 = Other

ALPHA Lab # (Lab Use Only)	Sample I.D.	Containers (number/type)	Matrix / Source	Method Preserve. (number of containers): Unpres.	Ice	Nitric	Sulfuric	HCl	Other	Solubles - F.F.	Sampling Date	Sampling Time	Analysis Requested
720.1	16-H	3 / 2 8oz / 1 40z/G	S	X							2/5	1500	TPH 8100 / 8270* / 8260
.2	16-I	"	S	X							"	"	TPH 8100 / 8270** / 8260
.3	16-J	"	S	X							"	"	"

Sampler's Signature	Affiliation	Date	Time

ADDITIONAL COMMENTS:
48 HOUR TURN
* INCLUDES PEST/PCBs (FULL ABN)
** DOES NOT INCLUDE PEST/PCBS (PAH)

NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	[signature]	[signature]	2/5/96	1700
2				
3				
4				

Form No. COP/06-93

ALPHA ANALYTICAL LABORATORIES

Eight Walkup Drive
Westborough, Massachusetts 01581-1019
(508) 898-9220

MA 086 NH 198958-A CT PH-0574 NY 11148 NC 320 SC 88006 RI A65

CERTIFICATE OF ANALYSIS

Client: SEA Consultants
Address: 485 Massachusetts Avenue
Cambridge, MA 02139
Attn: Mike Clark
Project Number: 65167-01
Site: Mass Land Bank

Laboratory Job Number: L9600861
Invoice Number: 81015
Date Received: 12-FEB-96
Date Reported: 14-FEB-96
Delivery Method: Client

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L9600861-01	16-K	Ft. Devens
L9600861-02	16-STOCK II	Ft. Devens

RECEIVED
FEB 1 6 1996

Authorized by:

Scott McLean - Laboratory Director

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA 086 NH 198958-A CT PH-0574 NY 11148 NC 320 SC 88006 RI A65

Laboratory Sample Number: L9600861-01
16-K
Sample Matrix: SOIL

Date Collected: 12-FEB-96
Date Received : 12-FEB-96
Date Reported : 14-FEB-96

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 1 Vial,1 Glass

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Solids, Total	85.	%	0.10	3	2540B		13-Feb	ST
Volatile Organics by GC/MS				1	8260	13-Feb	13-Feb	DS
Methylene chloride	ND	ug/kg	25.					
1,1-Dichloroethane	ND	ug/kg	7.5					
Chloroform	ND	ug/kg	7.5					
Carbon tetrachloride	ND	ug/kg	5.0					
1,2-Dichloropropane	ND	ug/kg	18.					
Dibromochloromethane	ND	ug/kg	5.0					
1,1,2-Trichloroethane	ND	ug/kg	7.5					
2-Chloroethylvinyl ether	ND	ug/kg	50.					
Tetrachloroethene	ND	ug/kg	7.5					
Chlorobenzene	ND	ug/kg	18.					
Trichlorofluoromethane	ND	ug/kg	25.					
1,2-Dichloroethane	ND	ug/kg	7.5					
1,1,1-Trichloroethane	ND	ug/kg	5.0					
Bromodichloromethane	ND	ug/kg	5.0					
trans-1,3-Dichloropropene	ND	ug/kg	7.5					
cis-1,3-Dichloropropene	ND	ug/kg	5.0					
Bromoform	ND	ug/kg	5.0					
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.0					
Benzene	ND	ug/kg	5.0					
Toluene	ND	ug/kg	7.5					
Ethylbenzene	ND	ug/kg	5.0					
Chloromethane	ND	ug/kg	50.					
Bromomethane	ND	ug/kg	10.					
Vinyl chloride	ND	ug/kg	18.					
Chloroethane	ND	ug/kg	10.					
1,1-Dichloroethene	ND	ug/kg	7.5					
trans-1,2-Dichloroethene	ND	ug/kg	7.5					
Trichloroethene	ND	ug/kg	5.0					
1,2-Dichlorobenzene	ND	ug/kg	50.					
1,3-Dichlorobenzene	ND	ug/kg	50.					
1,4-Dichlorobenzene	ND	ug/kg	50.					
Methyl tert butyl ether	ND	ug/kg	50.					
Xylenes	ND	ug/kg	5.0					
cis-1,2-Dichloroethene	ND	ug/kg	5.0					
Dibromomethane	ND	ug/kg	50.					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L9600861-01
16-K

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSI
Volatile Organics by GC/MS continued				1	8260	13-Feb	13-Feb
1,4-Dichlorobutane	ND	ug/kg	50.				
Iodomethane	ND	ug/kg	50.				
1,2,3-Trichloropropane	ND	ug/kg	50.				
Styrene	ND	ug/kg	5.0				
Dichlorodifluoromethane	ND	ug/kg	50.				
Acetone	ND	ug/kg	50.				
Carbon Disulfide	ND	ug/kg	50.				
2-Butanone	ND	ug/kg	23.				
Vinyl Acetate	ND	ug/kg	50.				
4-Methyl-2-pentanone	ND	ug/kg	50.				
2-Hexanone	ND	ug/kg	50.				
Ethyl methacrylate	ND	ug/kg	50.				
Acrolein	ND	ug/kg	130				
Acrylonitrile	ND	ug/kg	50.				
Bromochloromethane	ND	ug/kg	25.				
2,2-Dichloropropane	ND	ug/kg	25.				
1,2-Dibromoethane	ND	ug/kg	25.				
1,3-Dichloropropane	ND	ug/kg	25.				
1,1,1,2-Tetrachloroethane	ND	ug/kg	25.				
Bromobenzene	ND	ug/kg	25.				
n-Butylbenzene	ND	ug/kg	25.				
sec-Butylbenzene	ND	ug/kg	25.				
tert-Butylbenzene	ND	ug/kg	25.				
o-Chlorotoluene	ND	ug/kg	25.				
p-Chlorotoluene	ND	ug/kg	25.				
1,2-Dibromo-3-chloropropane	ND	ug/kg	25.				
Hexachlorobutadiene	ND	ug/kg	25.				
Isopropylbenzene	ND	ug/kg	25.				
p-Isopropyltoluene	ND	ug/kg	25.				
Naphthalene	ND	ug/kg	25.				
n-Propylbenzene	ND	ug/kg	25.				
1,2,3-Trichlorobenzene	ND	ug/kg	25.				
1,2,4-Trichlorobenzene	ND	ug/kg	25.				
1,3,5-Trimethylbenzene	ND	ug/kg	25.				
1,2,4-Trimethylbenzene	ND	ug/kg	25.				
trans-1,4-Dichloro-2-butene	ND	ug/kg	25.				
Ethyl ether	ND	ug/kg	130				
SURROGATE RECOVERY							
Toluene-d8	97.0	%					
4-Bromofluorobenzene	92.0	%					
Dibromofluoromethane	99.0	%					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L9600861-01
16-K

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Polynuclear Aromatics by GC/MS				1	8270		13-Feb 14-Feb	I
Acenaphthene	ND	ug/kg	280					
2-Chloronaphthalene	ND	ug/kg	300					
Fluoranthene	ND	ug/kg	280					
Naphthalene	ND	ug/kg	220					
Benzo(a)anthracene	ND	ug/kg	320					
Benzo(a)pyrene	ND	ug/kg	380					
Benzo(b)fluoranthene	ND	ug/kg	360					
Benzo(k)fluoranthene	ND	ug/kg	360					
Chrysene	ND	ug/kg	320					
Acenaphthylene	ND	ug/kg	260					
Anthracene	ND	ug/kg	240					
Benzo(ghi)perylene	ND	ug/kg	500					
Fluorene	ND	ug/kg	280					
Phenanthrene	ND	ug/kg	260					
Dibenzo(a,h)anthracene	ND	ug/kg	480					
Indeno(1,2,3-cd)pyrene	ND	ug/kg	480					
Pyrene	ND	ug/kg	280					
1-Methylnaphthalene	ND	ug/kg	700					
2-Methylnaphthalene	ND	ug/kg	180					
SURROGATE RECOVERY								
Nitrobenzene-d5	62.0	%						
2-Fluorobiphenyl	58.0	%						
4-Terphenyl-d14	70.0	%						
Hydrocarbon Scan GC 8100 Modified				1	8100M		13-Feb 14-Feb	DB
Mineral Spirits	ND	mg/kg	1000					
Gasoline	ND	mg/kg	1000					
Fuel Oil #2/Diesel	ND	mg/kg	1000					
Fuel Oil #4	ND	mg/kg	1000					
Fuel Oil #6	5800	mg/kg	1000					
Motor Oil	ND	mg/kg	1000					
Kerosene	ND	mg/kg	1000					
SURROGATE RECOVERY								
o-Terphenyl	100.	%						

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA
Analytical Laboratories, Inc.

Eight Walkup Drive
Westborough, MA 01581-1019
508-898-9220 FAX 508-898-9193

CHAIN OF CUSTODY RECORD and ANALYSIS REQUEST RECORD

No.

Sheet 1 of 1

Company Name: SEA CONSULTANTS	Project Number: 6576.01 P.O. Number:	Project Name / Location: MASS LAND BANK FORT DEVENS	Date Received in Lab: 2/12 Date Due: RUSH 2/14
Company Address: 485 MASS AVE CAMBRIDGE, MA	Phone Number: 617 498-4059 FAX No.:	Project Manager: MIKE CLARK	Alpha Job Number: (Lab use only) 9600861

MATRIX / SOURCE CODES
MW = Monitoring Well, RO = Runoff, O = Outfall, W = Well, LF = Landfill, L = Lake/Pond/Ocean, I = Influent, E = Effluent, DW = Drinking Water, R = River Stream, S = Soil, SG = Sludge, B = Bottom Sediment, X1 = Other, X2 = Other

Container Codes: P = Plastic, V = Vial, C = Cube, G = Glass, A = Amber Glass, B = Bacteria Container, O = Other

ALPHA Lab # (Lab Use Only)	Sample I.D.	Containers (number/type)	Matrix / Source	Method Preserve. (number of containers): Unpres.	Ice	Nitric	Sulfuric	HCl	Other	Solubles - F.F.	Sampling Date	Sampling Time	Analysis Requested
861.1	16-K	2/40z/9oz/9L	S	X							2/12	1200	TPH 8100 / VOC 8260 / PAH 8270* (9)
.2	16-STOCK II	"	S	X							2/12	1230	" L

Sampler's Signature	Affiliation	Date	Time
Terry Tolosh	SEA	2/12/96	1525

ADDITIONAL COMMENTS:
48 HOUR TURN
*DOES NOT INCLUDE PEST / PCB

NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	Terry Tolosh		2/12/96	1525
2				
3				
4				

n N P/O

ALPHA ANALYTICAL LABORATORIES

Eight Walkup Drive
Westborough, Massachusetts 01581-1019
(508) 898-9220

MA 086 NH 198958-A CT PH-0574 NY 11148 NC 320 SC 88006 RI A65

CERTIFICATE OF ANALYSIS

Client: SEA Consultants	Laboratory Job Number: L9600698
Address: 485 Massachusetts Avenue	Invoice Number: 80849
Cambridge, MA 02139	Date Received: 02-FEB-96
Attn: MF Clark	Date Reported: 06-FEB-96
Project Number: 65167-01	Delivery Method: Alpha
Site: Mass Land Bank	

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L9600698-01	16-A	Ft. Devens
L9600698-02	16-B	Ft. Devens
L9600698-03	16-C	Ft. Devens
L9600698-04	16-E	Ft. Devens
L9600698-05	16-F	Ft. Devens
L9600698-06	16-STOCK	Ft. Devens
L9600698-07	16-FILL	Ft. Devens

Authorized by: _____

Scott McLean - Laboratory Director

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA 086 NH 198958-A CT PH-0574 NY 11148 NC 320 SC 88006 RI A65

Laboratory Sample Number: L9600698-01
16-A
Sample Matrix: SOIL

Date Collected: 02-FEB-96
Date Received : 02-FEB-96
Date Reported : 06-FEB-96

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 1 Vial

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Solids, Total	94.	%	0.10	3	2540B		05-Feb	ST
Hydrocarbons, Total	ND	mg/kg	40.	1	418.1	05-Feb	06-Feb	ST

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA 086 NH 198958-A CT PH-0574 NY 11148 NC 320 SC 88006 RI A65

Laboratory Sample Number:	L9600698-02	**Date Collected:**	02-FEB-96
	16-B	**Date Received :**	02-FEB-96
Sample Matrix:	SOIL	**Date Reported :**	06-FEB-96
Condition of Sample:	Satisfactory	**Field Prep:**	None

Number & Type of Containers: 1 Vial

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Solids, Total	94.	%	0.10	3	2540B		05-Feb	ST
Hydrocarbons, Total	ND	mg/kg	40.	1	418.1	05-Feb	06-Feb	ST

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA 086 NH 198958-A CT PH-0574 NY 11148 NC 320 SC 88006 RI A65

Laboratory Sample Number: L9600698-03
16-C
Sample Matrix: SOIL

Date Collected: 02-FEB-96
Date Received : 02-FEB-96
Date Reported : 06-FEB-96

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 1 Vial

PARAMETER	RESULT	UNITS	RDL	REP	METHOD	DATES PREP	DATES ANALYSIS	ID
Solids, Total	94.	%	0.10	3	2540B		05-Feb	ST
Hydrocarbons, Total	ND	mg/kg	40.	1	418.1	05-Feb	06-Feb	S

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA 086 NH 198958-A CT PH-0574 NY 11148 NC 320 SC 88006 RI A65

Laboratory Sample Number: L9600698-04
16-E
Sample Matrix: SOIL

Date Collected: 02-FEB-96
Date Received : 02-FEB-96
Date Reported : 06-FEB-96

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 1 Vial

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Solids, Total	94.	%	0.10	3	2540B		05-Feb	ST
Hydrocarbons, Total	1600	mg/kg	40.	1	418.1	05-Feb	06-Feb	ST

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA 086 NH 198958-A CT PH-0574 NY 11148 NC 320 SC 88006 RI A65

Laboratory Sample Number: L9600698-05
16-F
Sample Matrix: SOIL

Date Collected: 02-FEB-96
Date Received : 02-FEB-96
Date Reported : 06-FEB-96

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 1 Vial

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Solids, Total	96.	%	0.10	3	2540B		05-Feb	ST
Hydrocarbons, Total	ND	mg/kg	40.	1	418.1	05-Feb	06-Feb	S

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA 086 NH 198958-A CT PH-0574 NY 11148 NC 320 SC 88006 RI A65

Laboratory Sample Number: L9600698-06
16-STOCK
Sample Matrix: SOIL

Date Collected: 02-FEB-96
Date Received : 02-FEB-96
Date Reported : 06-FEB-96

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 1 Vial

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Solids, Total	95.	%	0.10	3	2540B		05-Feb	ST
Hydrocarbons, Total	71.	mg/kg	40.	1	418.1	05-Feb	06-Feb	ST

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA 086 NH 198958-A CT PH-0574 NY 11148 NC 320 SC 88006 RI A65

Laboratory Sample Number: L9600698-07
16-FILL
Sample Matrix: SOIL

Date Collected: 02-FEB-96
Date Received : 02-FEB-96
Date Reported : 06-FEB-96

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 1 Vial

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES PREP	DATES ANALYSIS	ID
Solids, Total	93.	%	0.10	3	2540B		05-Feb	ST
Hydrocarbons, Total	ND	mg/kg	40.	1	413.1	05-Feb	06-Feb	ST

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L9600698

Parameter	Value 1	Value 2	RPD	Units
Solids, Total	DUPLICATE for sample(s) 01-07			
	93.	92.	1	%
Hydrocarbons, Total	DUPLICATE for sample(s) 01-07			
	290	230	22	mg/kg

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L9600698

Parameter	% Recovery
Hydrocarbons, Total	SPIKE for sample(s): 01-07
	115

REFERENCES

1. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. 1986.

3. Standard Methods for Examination of Water and Waste Water. APHA-AWWA-WPCF. 17th Edition. 1989.

GLOSSARY OF TERMS AND SYMBOLS

REF Reference number in which test method may be found.

METHOD Method number by which analysis was performed.

ID Initials of the analyst.

80849

ALPHA
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CHAIN OF CUSTODY RECORD and ANALYSIS REQUEST RECORD

No. 57480
Sheet 1 of 1

Company Name: SEA CONSULTANTS
Project Number: 65167.01
P.O. Number:
Project Name/Location: MASS LAND BANK FT. DEVENS
Date Received in Lab: 2/2
Date Due: RUSH 2/6
Company Address: 485 MASS AVE CAMBRIDGE, MA
Phone Number: 617 498 4659
FAX No.:
Project Manager: MF CLARK
Alpha Lab Number: (Lab use only) 96000698

Container Codes: P = Plastic V = Vial C = Cube G = Glass A = Amber Glass B = Bacteria Container O = Other

MATRIX / SOURCE CODES: MW = Monitoring Well, RO = Runoff, O = Outfall, W = Well, LF = Landfill, L = Lake/Pond/Ocean, I = Influent, E = Effluent, DW = Drinking Water, R = River Stream, S = Soil, SG = Sludge, B = Bottom Sediment, X1 = Other, X2 = Other

ALPHA Lab # (Lab Use Only)	Sample I.D.	Containers (number/type)	Matrix / Source	Method Preserve. (number of containers): Unpres.	Ice	Nitric	Sulfuric	HCl	Other	Solubles - F.F.	Sampling Date	Sampling Time	Analysis Requested
6981	16-A	1 | 40z | 61	S	X							2/2	1330	TPH 418.1 IR
.2	16-B	"	"	X							"	"	"
.3	16-C	"	"	X							"	"	"
.4	16-E	"	"	X							"	"	"
.5	16-F	"	"	X							"	"	"
.6	16-STOCK	"	"	X							"	"	"
.7	16-FILL	"	"	X							"	"	"
													/

Sampler's Signature | Affiliation | Date | Time

ADDITIONAL COMMENTS:
48 Hour TURN

NUMBER	TRANSFERS RELINQUISHED BY	TRANSFERS ACCEPTED BY	DATE	TIME
1	Terry Solach		2/2/96	1715
2				
3				
4				

FEB-06-1996 11:13
96%
P.13