EXHIBIT 9

Immediate Response Action Workplan Modification and
Immediate Response Action Completion Report

Tank #1 Tightness Test Failure

DEP Release Tracking Number: 3-20984

Pennoni Associates

April 18, 2002

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: 3 - 20984

A. RELEASE OR THREAT OF RELEASE LOCATION:

Release Name: (optional) Medfield State Hospital

Street: 45 Hospital Road Location Aid: Power Plant Facility

City/Town: Medfield ZIP Code: 02052-0000

☐ 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: 10/3/2001

☐ 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: Failed Tank Test

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.

Massachusetts Department of Environmental Protection — **BWSC-105**

Bureau of Waste Site Cleanup

IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL FORM

Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number: 3 - 20984

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: James Doherty LSP #: 3984 Stamp:

Telephone: 508-435-8080 Ext.:

FAX: (optional) 508-435-4351

Signature:

Date: 4/18/02

COMMONWEALTH OF MASSACHUSETTS
JAMES D. DOHERTY
No. 3984
REGISTERED
LICENSED SITE PROFESSIONAL

I. PERSON UNDERTAKING IRA:

Name of Organization: Department of Mental Health

Name of Contact: Jeffery McCue Title: Dpty. Comiss. Man. & Budget

Street: 25 Staniford Street

City/Town: Boston State: MA ZIP Code: 02114-0000

Telephone: 617-626-8000 Ext.: FAX: (optional)

☐ 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:

☐ 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, Jeffrey McCue, 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: Title: Dpty. Comiss. Man. & Budget
(signature)

For: Date: 4/17/02
(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.

IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL FORM

Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

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: Abandon tanks in place

☐ 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: No Remediation Waste has been generated

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.

Pennoni
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

82 South Street
Hopkinton, MA 01748
Tel: 508•435•8080
Fax: 508•435•4351

IMMEDIATE RESPONSE ACTION WORKPLAN MODIFICATION AND IMMEDIATE RESPONSE ACTION COMPLETION REPORT

TANK #1 TIGHTNESS TEST FAILURE

DEP RELEASE TRACKING NUMBER: 3-20984

MEDFIELD STATE HOSPITAL
45 HOSPITAL ROAD
MEDFIELD, MASSACHUSETTS

Project No. DOMH0201.1
Prepared For:

The Commonwealth of Massachusetts
Department of Mental Health
25 Staniford Street
Boston, MA 02114

Prepared By:

Pennoni Associates Inc.
82 South Street
Hopkinton, MA 01748

April 18, 2002

Paul T. Bartlett for
Philip LaMoreaux
Staff Geologist

James Doherty, P.E., L.S.P.
Senior Engineer

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1.0 INTRODUCTION

On August 6, 2001, Pennoni performed a tank tightness test on a 30,000-gallon heating oil underground storage tank (UST) (Tank #1) located at the Power Plant facility of the Medfield State Hospital, located in Medfield, Massachusetts (the property). This tank failed the tightness test. The tank tightness test failure represented a threat of release (TOR) requiring notification to the Massachusetts Department of Environmental Protection (DEP) within 72 hours. Notification of the TOR was made to the DEP and Release Tracking Number (RTN) 3-20984 was assigned. A written IRA plan, dated October 3, 2001 prepared by Pennoni Associates Inc. (Pennoni) was submitted to the DEP.

This report documents the completion of IRA activities that were conducted at the UST location pursuant to the Massachusetts Contingency Plan (MCP) 310 CMR 40.0000, Sections 40.0410 through 40.0429. The IRA Plan is for assessment of soil and groundwater conditions and for decommissioning of the UST. The location of the property is shown on Figure 1, Disposal Site Location Map.

The Department of Mental Health has assumed responsibility for the IRA. Mr. Jeffery McCue, Deputy Commissioner for Management and Budget, 25 Staniford Street, Boston, Massachusetts 02114, is the contact person for the Department of Mental Health.

2.0 RELEASE AND DISPOSAL SITE HISTORY

The Department of Mental Health operates the Medfield State Hospital for psychiatric care. The hospital facilities occupy approximately 400 acres and are located 2 miles north of Medfield. The developed land is about 75 acres in size and is improved by 42 brick buildings and associated roadways, paved parking and landscaped areas.

The Power Plant is a two-story brick building which houses oil-fired boilers that formerly produced steam pressure. Two new boilers are currently located on top of the UST pad area. These two boilers produce steam. The steam is used to heat the facilities on the property. The UST system consisted of three 30,000-gallon capacity tanks. All three tanks are out of service, although they remain in-place (see below). The tanks are double-walled steel and were installed in 1990. The existing USTs replaced three 30,000 gallon USTs which were in service since the early 1960s. The USTs were always historically used for the storage of No. 6 fuel oil. In July 2001, Medfield State Hospital converted over to the use of No. 2 fuel oil, which was stored in Tank #1. Design drawings indicate that there is a concrete ballast pad below the USTs, at a depth of approximately 14 feet.

In the immediate area of the USTs, the surface is covered with an 8-inch thick concrete pad. Two boilers are presently located over Tanks 1 and 2, one 12,000 gallon #2 fuel aboveground storage tank is located over Tank 3. The adjacent driveway and parking lot is paved with asphalt. Surface topography slopes from the east to west. Two catch basins, to the north and east of the UST pad area, collect surface water and discharge to an outfall structure. The outfall structure is located approximately 55 feet north of the UST pad area. Surface waters discharge onto the ground surface

at the outfall structure. Beyond the asphalt area, to the north and west, is undeveloped woodland. The Charles River is located approximately 450 feet north of the UST pad area.

As noted above, the existing USTs were installed in 1990. At that time, the three former USTs were removed. During removal activities, a release of approximately 2,000 gallons of No.6 fuel oil was identified and Site No. 3-1684 was assigned to the release on January 15, 1990. Remedial response was conducted in March 1997. Corporate Environmental Engineering of Worcester, MA performed a Phase I Site Investigation and Tier Classification for RTN 3-1684. As part of the Phase I work, a total of six monitoring wells were installed on the property (see Figure 2). On December 28, 1998, Camp Dresser & McKee Inc. submitted a Response Action Outcome Statement for RTN 3-1684.

On October 27, 1999, Pennoni performed tightness testing on tank #2 and tank #3. Both tanks failed the tests. Further investigation determined that the failure of the tightness tests was a result of extensive corrosion and holes in the vicinity of the manways for the two tanks. Verbal notifications were made to both the Medfield Fire Department and to the DEP on October 28, 1999 and November 2, 1999 (DEP contact was Brad Stewart). A release tracking number was not assigned at that time by the DEP.

A Notice of Intent (NOI) was submitted to the Medfield Conservation Commission in December 1999 for the UST investigation and repair, and an Order of Conditions was issued.

In late May 2001, the closure of Tank #2 and Tank #3 was conducted under the oversight of Pennoni. The original scope of work included removal of tank sludges, triple-rinsing the tank interiors, and filling the tanks with concrete slurry. During UST closure activities, soil samples were collected on June 1, 2001 from the pea gravel beneath Tank#2 and Tank#3 and analyzed for volatile petroleum hydrocarbons (VPH) and extractable petroleum hydrocarbons (EPH) by DEP method. Analytical results indicate that aliphatics, aromatics, 2-methylnaphthalene, and naphthalene in soil samples collected beneath the tanks exceeded DEP Reportable Concentrations. A written notification was provided to DEP on October 3, 2001. Release Tracking Number 3-21162 was assigned to this release.

A total of eight 4-inch diameter slotted polyvinyl chloride (PVC) observations wells were installed as part of the investigation of the previous release and are located along the perimeter of the USTs. On June 15, 2001, Pennoni gauged all eight wells with a bailer. Inspection of the observation well located at the west end of Tank #2 indicated the presence of non-aqueous phase liquid (NAPL) (i.e. No.6 fuel oil), approximately 14 inches in thickness at a depth of about 11 feet. While two other wells had 3 to 4 inches of water, no other wells indicated the presence of free product. Well gauging results are presented in Table 1.

In accordance with the MCP, verbal notification of the release was submitted to Chris Bresnahan of the DEP at 12:08 p.m. on June 15, 2001. At that time, Release Tracking Number 3-20799 was assigned to the release. The time of the release and the quantity of the release are not known. On July 24, 2001, the DMH decided to complete the closure of Tank #2 and Tank #3, pursuant to 527 CMR 9.00 *Tanks and Containers*. Both tanks were filled in-place with concrete slurry. Closure activities were completed on August 3, 2001. An IRA Plan, dated August 13, 2001, was submitted to the DEP for assessment actions to be completed around Tanks #2 and #3.

On August 6, 2001, Pennoni performed a tank tightness test on Tank #1. This tank failed the tightness test. In accordance with the MCP, verbal notification of the threat of release was submitted to Brad Stewart of the DEP at 2:45 p.m. on August 8, 2001. At that time, Release Tracking Number 3-20984 was assigned to the tank tightness test failure.

The scope of the IRA activities was monitoring only and was designed to evaluate the need to conduct additional immediate response actions. Given the evidence of three possible separate release/threat of release events have occurred for three USTs that are in very close proximity, the scope of IRA activities addressed assessment of this potential threat of release, the NAPL release (RTN 3-20799) and the hydrocarbon detection in soil under Tank #3 in a single investigation.

The disposal site includes the location of the three USTs and any soil and groundwater in the vicinity of the USTs to which petroleum-related OHM have been located. The locations of the power plant building and the UST system are illustrated on Figure 2, Disposal Site Plan.

3.0 HUMAN AND ENVIRONMENTAL RECEPTORS

Medfield personnel are typically on the property between 8:00 AM and 5:00 PM Monday through Friday, and have an 8-hour workday, 5 days per week. Facility personnel would also be considered frequent visitors to the disposal site. The hospital patients are not located within 500 feet of the disposal site.

According to the July 17, 2001 MassGIS Site Scoring Map, (Figure 3) the nearest surface water body is the Charles River located approximately 500 feet north of the disposal site. An adjacent area is a wetland area that is located approximately 200 feet north and west of the disposal site.

According to the MassGIS Site Scoring Map, the disposal site is not located within an Interim Wellhead Protection Area or within an Approved Zone 2. The disposal site is located in a Protected Open Space known as an Area of Critical Environmental Concern (ACEC). Potential receptors in the ACEC would be flora and fauna; however, groundwater is not directly accessible for these receptors.

The surface water of the Charles River is a potential receptor for the groundwater at the disposal site. This would include wildlife use of the waters. Human contact with the surface waters could potentially occur in the event of people swimming or wading within the waters of the Charles River.

The potential for human exposure to OHM via dermal contact or ingestion is low, given that a majority of the accessible portions of the disposal site are either covered with asphalt pavement or a concrete slab. No private potable water supply wells are known to be located in the vicinity of the disposal site. The potential exposure to OHM via inhalation, due to vapor migration into the power plant building, is low.

Groundwater near the boiler building was encountered at a depth of approximately 16 feet below ground surface and, therefore, groundwater is not considered to be a potential source of vapor migration into the building (Table 1 provides well gauging data).

4.0 IRA MODIFICATIONS

The IRA Work Plan is a monitoring only IRA, (i.e. no active remediation such as bailing of product was included). At this time, the IRA has collected adequate monitoring data to evaluate the need to conduct additional IRA response actions. Based on the information collected during the IRA investigations, no imminent hazards are present at the site and no Critical Exposure Pathways have been identified. Thus, the additional investigations (i.e. soil borings and monitoring wells) proposed as part of the IRA Work Plan will not be necessary to evaluate the need for additional response actions under the IRA and will be deleted from the IRA activities.

5.0 IRA REMEDIAL RESPONSE

The objectives of the IRA are to assess whether a release of oil to soil or groundwater has occurred and, if so, to assess the potential for imminent hazards, the presence of critical exposure pathways and a preliminary assessment of migration of petroleum-related OHM across the disposal site, as well as to decommission the UST. The potential release of fuel oil can possibly affect the nearby Charles River and associated wetlands, and the Area of Critical Environmental Concern. As mentioned previously, the assessment for this potential threat of release (Tank #1) has been conducted concurrently with the investigation of the release of NAPL under RTN 3-20799 (nearby Tank #2) and the release of oil to soil at nearby Tank #3.

IRA activities, with the exceptions detailed in section 4.0 above, have been completed at the disposal site as of the date of this IRA Completion Report. The details of these activities are described in detail below.

5.1 UST Decommissioning – Tanks 2 and 3

Beginning on May 29, 2001 and ending on August 8, 2001, UST closure activities were conducted for Tanks 2 and 3 at the site by Cyn Environmental (Cyn) of Stoughton, Massachusetts. Environmental oversight and soil testing during the closure activities were conducted by Pennoni in accordance with the Massachusetts MCP.

Figure 2 illustrates the site features and the soil sample locations. Tanks #2 and #3 were scheduled for closure while Tank #1 was still in service. A photographic log of the UST closure activities is presented in Appendix A.

Prior to commencing closure activities, approximately 25,000 gallons of No.6 fuel oil was transferred from Tank #2 to Tank #1. The two USTs were then purged of sludge and oily water, and rendered free of explosive vapors prior to cleaning. The interiors of both tanks were triple-rinsed

prior to in-place closure. As part of the closure activities, a total of three locations were cut into the bottom of the tanks (one in Tank #2 and two in Tank #3) in order to collect confirmatory soil samples of the material below the tanks. During the cutting operations, it was discovered that the interstitial space of the USTs contained fuel oil. Once the soil samples were collected, the tank openings were sealed with hydraulic cement.

During the closure activities, Cyn removed and transported 8,425 gallons of residual sludge and 4,500 gallons of oily water from the USTs to their TSD facility located in Stoughton, Massachusetts for disposal. A copy of the Uniform Hazardous Waste Manifests for the fuel oil and liquid disposal is provided as Appendix B.

The supply lines and all associated underground piping were entirely removed, cleaned and disposed of off site at Cyn's licensed facility. The supply lines culverts to the USTs were sealed and the USTs were filled with concrete slurry. The entire volumes of the USTs were filled with slurry to bottom of the manways. The manways and underground supply line culverts were filled with concrete. Closure activities were completed on August 3, 2001.

5.2 UST Decommissioning – Tank 1

Between November 26 and 28, 2001, the UST closure activities were conducted for Tank 1 at the site by Cyn Environmental (Cyn) of Stoughton, Massachusetts. Environmental oversight and soil testing during the closure activities were conducted by Pennoni in accordance with the Massachusetts MCP.

During the closure activities, approximately 1,200 gallons of No.2 fuel oil, sludge and water (including rinse water) was transferred from Tank #1 to a tanker truck for off-site disposal at Cyn's TSD facility in Stoughton, MA. A copy of the Uniform Hazardous Waste Manifests for the fuel oil and liquid disposal is provided as Appendix B.

The UST was purged of oily waters and rendered free of explosive vapors prior to cleaning. The interior of the tanks was triple-rinsed prior to in-place closure. As part of the closure activities, a total of two sample locations were cut into the bottoms of the ends of the tank in order to collect confirmatory soil samples of the material below the tank. Once the soil samples were collected, the tank and all related openings were sealed with hydraulic cement.

During the closure activities, Pennoni gauged nearby wells and determined that groundwater ranged from 13.4 to 13.9 feet below grade. The inside depth to the bottom of the tank was measured at 12.4 feet. Thus, the water level measured in the observation wells was below the bottom of the tank. Approximately one foot of water was identified within the interstitial space (between the inner and outer walls) of the tank. Thus, it appears the water in the interstate space was water that infiltrated into the tanks from above. Cyn vacuumed this water out.

The supply lines and all associated underground piping were entirely removed, cleaned and disposed of off site at Cyn's TSD facility. The tunnel from the supply lines culvert to the UST was sealed and

the UST was filled with concrete slurry. The entire volume of the UST, manways, fill ports, and all ground openings were filled with slurry to grade.

During the closure of Tank #1, Cyn cut through the end caps on the east and west end of the tanks, soil samples were collected from the materials outside of the UST. A total of two soil samples were collected and analyzed for Extractable Petroleum Hydrocarbons (EPH) and Volatile Petroleum Hydrocarbons (VPH) by DEP methods. The material (pea stone) encountered below the west end of the UST was saturated with fuel oil. No obvious contamination was observed in the sample collected from the east end of the tank. Analytical results of the soil samples are summarized in Table 2.

On November 5, 2001, a 12,000-gallon capacity above ground storage tank was installed adjacent to the UST pad area. This tank was installed by the Department of Mental Health under the direction of the Department of Capital Asset Management, Commonwealth of Massachusetts.

5.3 Monitoring Results

On June 1, 2001, during the closure of Tanks #2 and #3, soil samples were collected from the materials below the two USTs by Pennoni and screened for the presence of volatile compounds using a photoionization detector (PID). The instrument was calibrated to isobutylene as a benzene standard for the measurement of volatile vapors on a part-per-million by volume (ppmv) basis. The screening was performed in accordance with the DEP (Headspace Screening) Protocol. Headspace gas concentrations detected from soil samples collected ranged from <1.0 ppmv to 28.0 ppmv.

A total of three soil samples were collected from these locations and analyzed for Extractable Petroleum Hydrocarbons (EPH) and Volatile Petroleum Hydrocarbons (VPH) by DEP method. The material encountered below the USTs was pea gravel, which was saturated with fuel oil. Analytical results indicated that aliphatics, aromatics, 2-methylnaphthalene, and naphthalene was detected in the soil beneath the tanks at concentrations exceeding DEP Reportable Concentrations. Table 2 presents a summary of the soil analytical results. A copy of the laboratory analytical results are included Appendix C.

On June 15, 2001, Pennoni gauged all eight wells with a bailer. Inspection of the observation well located at the west end of Tank #2 (OW-2) indicated the presence of non-aqueous phase liquid (NAPL) (i.e. No.6 fuel oil), approximately 14 inches in thickness at a depth of about 11 feet.

On June 21, 2001, Pennoni gauged and collected groundwater samples from all monitoring wells, MW-1 through MW-6. Depth to water and non-aqueous phase liquid (NAPL) thicknesses were measured to the nearest 0.01 feet at the six groundwater monitoring wells and the three tank observation wells. The locations of the wells are shown on Figure 2 (Site Plan).

Groundwater samples were collected from the six existing monitoring wells located in the vicinity of the UST tank area and submitted for laboratory analysis of VPH and EPH. Aliphatic, aromatics and ethylbenzene were detected in the groundwater sample collected from monitoring well MW-2

at concentrations well below their respective GW-2 and GW-3 standards. Groundwater analytical results are summarized in Table 3 and a copy of the laboratory report is provided in Appendix C.

On November 7, 2001, Pennoni gauged monitoring wells, MW-2, MW-4 and MW-5 and all observation wells. On November 7, 2001, NAPL was observed in three of the observation wells, OW-1, OW-2, and OW-3. The NAPL observed in wells OW-1, and OW-3 consisted of small amounts of black viscous oil coating portions of the oil/water indicator probe and was measured at depths of 12.35 feet and 11.99 feet below ground surface, respectively. Due to the nature of the NAPL and the small amount present, it was not possible to measure the NAPL thickness in the wells, however, based on the field observations, the thickness of NAPL in the wells was estimated to be 0.02 feet.

The NAPL observed in well OW-2 (at a depth of 12.5 feet below ground surface, at a thickness of 0.75 feet) was also black viscous oil, which coated the entire oil/water indicator probe. Water and NAPL gauging measurements are presented in Table 1. NAPL was detected in observation wells, OW-1 and OW-3 for the first time during this sampling event. These observations may indicate continuing migration of LNAPL near the tanks. NAPL was not detected in any of the other observation or monitoring wells.

On November 7, 2001, Pennoni also attempted to collect a round of groundwater samples from monitoring wells in the vicinity of the release. Monitoring wells, MW-4 and MW-5 did not have sufficient water volume for sample collection. Groundwater was purged from monitoring well MW-2 utilizing a new disposable polyethylene bailer. Due to low recharge rates, it was necessary to allow MW-2 to recharge for approximately 24 hours after standing water in the well was removed. On November 8, 2001, Pennoni returned to the site and collected a groundwater sample from MW-2.

The groundwater sample was delivered under chain of custody to Con-Test Analytical Laboratories for analysis of volatile petroleum hydrocarbons (VPH) and extractable petroleum hydrocarbons (EPH) by Massachusetts Department of Environmental Protection Methods.

The results of the EPH analysis of groundwater sample MW-2 indicate C19-C36 aliphatics and C11-C22 aromatics were detected at concentrations of 550 micrograms per liter (ug/L) and 416 ug/L, respectively. The results of the VPH analysis indicate ethylbenzene was detected at a concentration of 1.3 ug/L. These results are very similar to the results of the same analyses of the groundwater sample collected from MW-2 on June 21, 2001. The analytical results of the most recent round of groundwater sampling are presented in Table 3 and the laboratory analytical report is presented in Appendix C.

In conclusion, although NAPL may be migrating from OW-2, there does not appear to be any significant change in the groundwater quality in the immediate vicinity Tank #1, due to the release from the tanks. Thus, conditions appear to have stabilized.

5.4 Evaluation of Impact of Release on Area of Critical Environmental Concern

Based on the information collected during the IRA Investigations, it is unlikely that the release will impact the Charles River prior to the standard MCP 4 year timeline for implementation of remediation during comprehensive response actions. This conclusion is based on 3 lines of evidence.

1. The observed groundwater contaminant concentrations in the wells closest to the release are well below Method-1 GW-3 standards. These standards have been developed by the DEP to be protective of surface waters and other environmental receptors;
2. Estimates of groundwater travel times indicate that groundwater originating in the vicinity of the release will take approximately 3 years to travel to the Charles River. This would allow significant time for the dissolved constituents to degrade prior to impacting the river; and
3. In many cases (see Table 4), Method 1 GW-3 standards are above most of the solubility limits for the contaminants of concern (COCs) at a #2 and #6 fuel oil release (per *Characterizing Risks posed by Petroleum Contaminated Sites: Implementation of the MADEP VPH/EPH Approach* Final Draft, June 2001 [the EPH/VPH Risk Guidance]). Thus, for over ½ of the COCs, the only way the GW-3 standard would be exceeded was if the product directly discharged to the Charles River. Since the released material is highly viscous is very unlikely that NAPL will migrate over significant distances.

As indicated in Table 3, the groundwater contaminant concentrations in the monitoring well closest to the release (MW-2) are more than 100 times below the Method 1 GW-3 Clean-up standard. Thus, even with a significant increase in groundwater concentration in the release areas, the GW-3 standards are highly unlikely to be exceeded near the Charles River.

Significant contaminant migration via groundwater to the Charles River appears unlikely. Based on calculations presented in Appendix D, we have estimated that contaminated groundwater would take approximately 3 years to arrive at the Charles River. Dissolved contaminants of concern (i.e. acenaphthene, naphthalene, 2-methylnaphthalene, and phenanthrene as indicated in the VPH/EPH Risk Guidance) would have longer travel times due to their high partition coefficients. In addition, biodegradation of these constituents is anticipated to readily occur so that groundwater concentrations would be significantly reduced during transport to the Charles River. As indicated in Appendix D, biodegradation would be expected to reduce groundwater concentrations by four to six orders of magnitude during the three-year groundwater travel time.

Finally, based on information presented by the DEP in VPH/EPH Risk Guidance and summarized in Table 4, the solubility of the EPH fractions detected in groundwater to date are below the applicable GW-3 clean-up standards. Individual constituents of concern presented in the EPH/VPH guidance (i.e. acenaphthene, naphthalene, 2-methylnaphthalene, and phenanthrene) also have very low solubilities and high soil affinity and would not be expected to be transported significant distances.

6.0 REMEDIATION WASTE

Although not classified as remediation waste, tank closure waste was generated during IRA activities. During closure and abandonment activities performed for Tank 2 and Tank 3, Cyn removed and transported 8,425 gallons of residual sludge and 4,500 gallons of oily water from the USTs to their TSD facility located in Stoughton, Massachusetts for disposal. A copy of the Uniform Hazardous Waste Manifests for sludge and liquid disposal is provided as Appendix B.

One drum of oily water was generated during NAPL thickness investigation activities performed by Pennoni. The drum was transported by Cyn and disposed of at their licensed facility in Stoughton. The Uniform Hazardous waste for liquid disposal is provided in Appendix B.

During the closure and abandonment activities for Tank 1, approximately 1,200 gallons of No.2 fuel oil, sludge and water (including rinse water) was transferred from Tank #1 to a tanker truck for off-site disposal at Cyn's TSD facility in Stoughton, MA. A copy of the Uniform Hazardous Waste Manifests for the fuel oil and liquid disposal is provided as Appendix B.

7.0 FINDINGS AND CONCLUSIONS

IRA activities have been ongoing at the disposal site since August 8, 2001, immediately following verbal IRA approval from the DEP. Based on the results of the IRA investigations the following findings can be made:

- No imminent hazards have been identified per 310 CMR 40.0320.
- No critical exposure pathways were identified.
- Groundwater sampling results over a 5-month period indicate groundwater petroleum concentrations have stabilized.
- During closure initiated in May 2001, tanks #2 and #3 were found to be in poor condition with perforations near the manways and endwalls, and with rust and minor pitting. Tanks #2 and #3 were closed in-place by placement of concrete slurry in both tanks.
- Headspace gas concentrations detected from soil samples collected during closure of the tanks ranged from <1.0 ppmv to 28.0 ppmv. The pea gravel below the tanks was saturated with fuel oil.
- Soil samples were collected from the material beneath tanks #2 and #3. The concentration of aliphatics, aromatics, 2-methylnaphthalene, and naphthalene exceeded the DEP Reportable Concentrations as set forth in the MCP.
- Non-aqueous phase liquid (NAPL) was found in OW-2 located at the west end of Tank #2 that triggered the requirement for an IRA. As required by the MCP, an IRA Plan was submitted to the DEP outlining the investigative activities to be completed.

- In November 2001, Tank #1 was closed in-place by placement of concrete slurry. This tank has been rendered unusable.

- Tank #1 was found to be in fair condition with some rust near the manways and tank penetrations.

- Water was identified in the interstitial space of the tank. The bottom of the tank was above the water level observed in surrounding monitoring wells indicating the source of the interstitial water was related to infiltration through rust observed in upper portions of the tank.

- Contamination has been identified at the western end of Tank #1. This contamination is believed to be #6 fuel oil, which leaked from the tank prior to tank abandonment. Pea stone samples were collected from the material beneath Tank #1 and the analytical results for EPH and VPH indicated elevated petroleum hydrocarbons near the western end of the UST. Pea stone samples collected from the east end of the tank were uncontaminated.

- Although LNAPL maybe migrating from the vicinity of OW-2, there does not appear to be any significant change in the groundwater quality in the monitoring wells immediately downgradient from the USTs, due to the release from the tanks.

- It is unlikely that petroleum-contaminated groundwater will impact the Charles River at concentrations above GW-3 standards prior to completion of Comprehensive Response Actions.

Based on the results of the IRA investigations the following conclusions can be drawn:

- The Massachusetts Contingency Plan (MCP, 310 CMR 40.0427) indicates an IRA shall be considered complete when the conditions that gave rise to the need for the IRA have been assessed in a manner that ensures:

  - The accomplishment of any necessary stabilization of site conditions;
  - The elimination or control of any Imminent Hazards to health, safety, public welfare and the environment, without the continued operation and maintenance of active remedial systems, pending the completion of any necessary Comprehensive Response Actions; and
  - The elimination, prevention or mitigation of Critical Exposure Pathway(s) without the continued operation and maintenance of active remedial systems, pending the completion of a risk assessment and feasibility study.

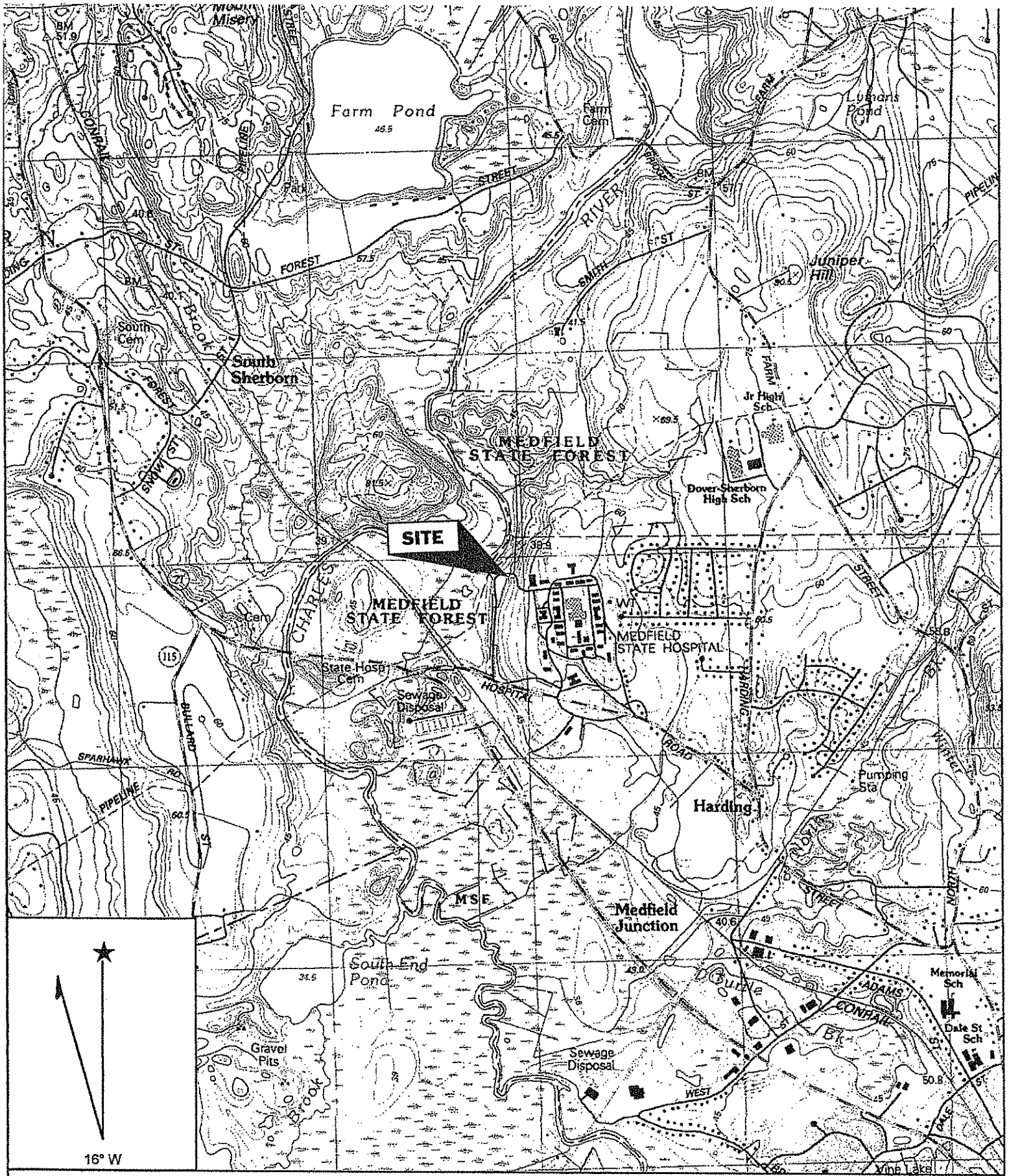
Based on the information collected during the IRA and presented above, the above conditions have been met and the IRA can be closed. It should be noted that this document was submitted four days past the date set by DEP as the interim deadline.

8.0 IRA COMPLETION STATEMENT

An Immediate Response Action (IRA) Transmittal Form (BWSC-105) is attached. The Licensed Site Professional (LSP) Opinion, Section H of BWSC-105, and this report, which is an integral part of the opinion, constitute the IRA Completion Statement and are subject to the Limitation and Conditions presented in the following section.

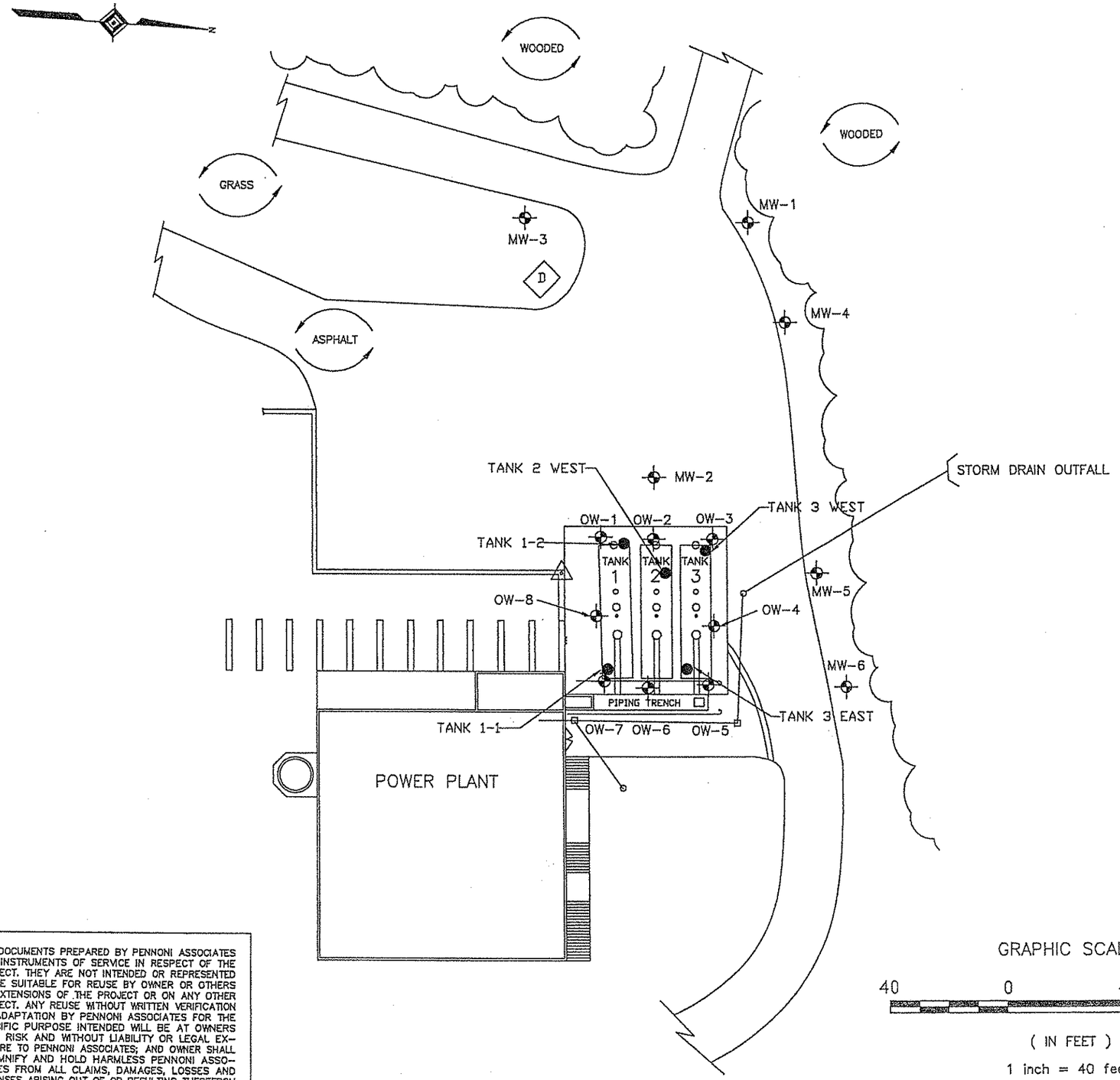
9.0 LIMITATIONS

All documents prepared by Pennoni Associates Inc. are instruments of service in respect of the project. They are not intended or represented to be suitable for the reuse by owner or others on extensions of the project or on any other project. Any reuse without written verification or adaptation by Pennoni Associates Inc. for the specific purpose intended will be at the owner's sole risk and without liability or legal exposure to Pennoni Associates Inc.; and owner shall indemnify and hold harmless Pennoni Associates Inc. from all claims, damages, losses and expenses arising out of or resulting therefrom.



Name: MEDFIELD
Date: 4/11/2002
Scale: 1 inch equals 2000 feet

Location: 042° 12' 47.0" N 071° 20' 21.2" W
Caption: Figure 1 - Disposal Site Location Map
Medfield State Hospital
45 Hospital Rd., Medfield, MA



LEGEND:

- OBSERVATION WELL
- MONITORING WELL
- MW-1 WELL IDENTIFICATION
- SOIL SAMPLE LOCATION
- TANK 3 WEST SOIL SAMPLE IDENTIFICATION
- D DUMPSTER
- CATCH BASIN
- BENCH MARK

ALL ELEVATIONS ON THIS PLAN ARE RELATIVE TO AN ASSUMED ELEVATION OF 100.00 FEET MEASURED AT THE TOP OF A BOLT SET INTO THE TOP OF THE CONCRETE RETAINING WALL AT THE LOCATION SHOWN

GRAPHIC SCALE

40 0 40 80

(IN FEET)

1 inch = 40 feet

DISPOSAL SITE PLAN

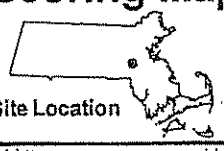
LOCATION: 45 HOSPITAL ROAD, MEDFIELD, MA			
CLIENT: MASSACHUSETTS DEPARTMENT OF MENTAL HEALTH			
SCALE: 1" = 40'	SHEET: 1/1	PAI PROJECT NO.: DOMH 0101	FIGURE 2
DRAWN BY: PWL	APPROVED BY: JMcC	DATE: 3/27/02	DRAW NO.: FIG 2 DSP

PENNONI ASSOCIATES INC.
THE CONCORD CENTER, SUITE 434, 10 FERRY ST.
UNIT 6, CONCORD, NH 03301

MA DEP - Bureau of Waste Site Cleanup

Site Scoring Map: 500 feet & 0.5 Mile Radii

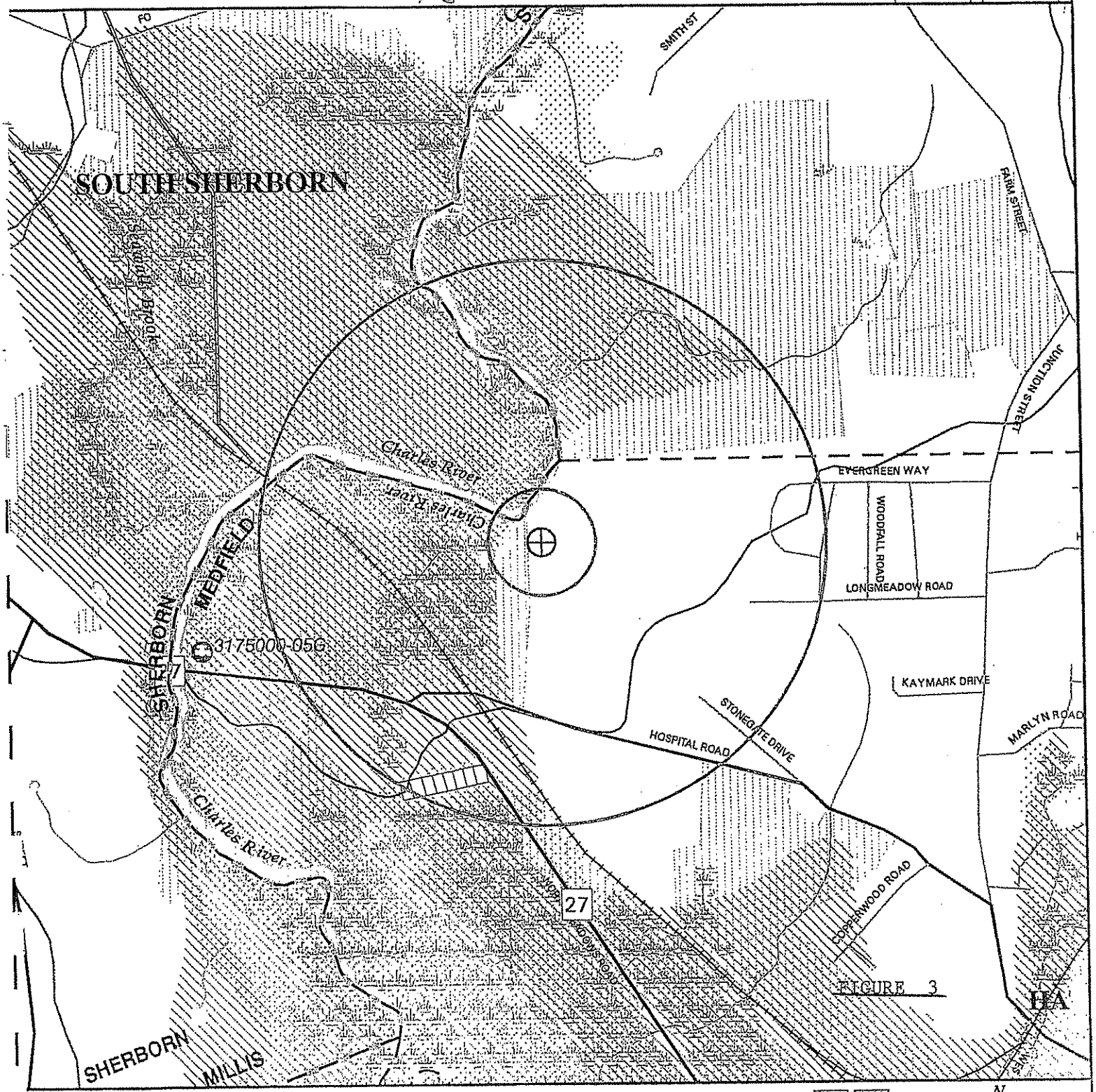
SITE NAME:
Medfield State Hospital
45 Hospital Road
Medfield, MA
421247n 712022ew



The information shown on this map is the best available at the date of printing. Please refer to the data source descriptions document.

MASS GIS — Massachusetts Geographic Information System
Massachusetts Executive Office of Environmental Affairs - 2001

DEP — Department of Environmental Protection



Roads: Limited Access, Divided, Major Road, Connector, Street, Track, Trail
Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct
Basins: Major, Sub; Streams: Perennial, Intermittent, Man Made Shore, Dams
Potentially Productive Aquifers: Medium,High Yield
Non-Potential Drinking Water Source Area: Medium,High Yield

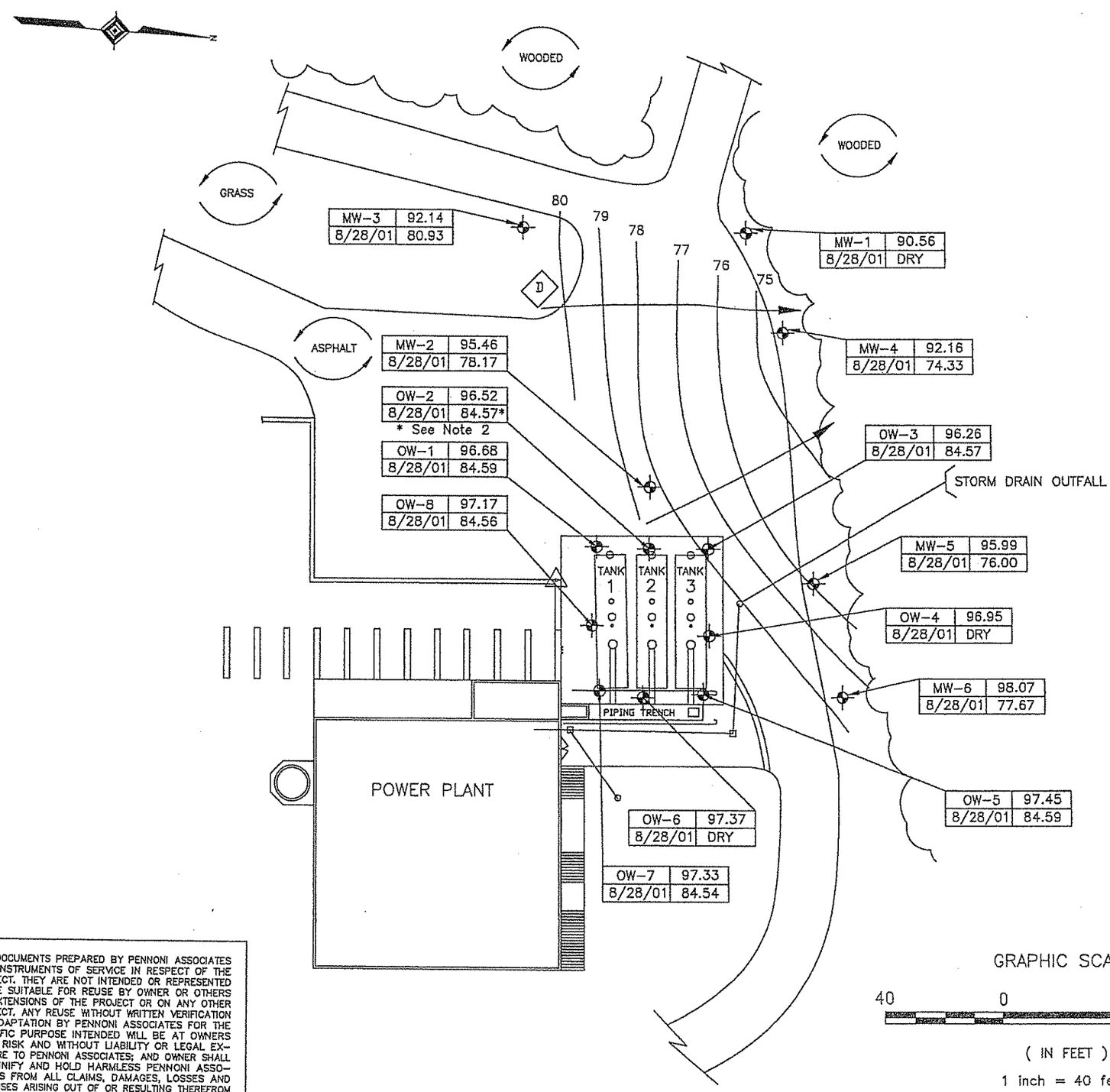
EPA Sole Source Aquifer; FEMA 100-year floodplain
Public Water Supplies: Ground,Surface,Non Community
Approved Zone2; IWPA; Surface Water Supply Zone A
Hydrography: Water Features,Public Surface Water Supply
Wetlands: Fresh,Salt,NHESP Wetlands Habitat
Protected Open Space; ACEC
DEP Permitted Solid Waste Facilities; Certified Vernal Pools

N NW NE W E SW SE S

SCALE 1:15000

0 1/2 0 1/2 MILES
KILOMETERS

July 17, 2001



LEGEND:

- OBSERVATION WELL
- MONITORING WELL
- DUMPSTER
- CATCH BASIN
- WELL IDENTIFICATION
- TOP OF CASING ELEVATION (FEET) (SURVEYED BY PENNONI ON 8/28/2001)
- GROUND WATER SURFACE ELEVATION (FEET)
- DATE OF MEASUREMENT
- INFERRED GROUND WATER FLOW DIRECTION
- 80 EQUIPOTENTIAL LINE WITH ELEVATION IN FEET
- BENCH MARK

MW-1 | 90.56
8/28/01 | 76.77

ALL ELEVATIONS ON THIS PLAN ARE RELATIVE TO AN ASSUMED ELEVATION OF 100.00 FEET MEASURED AT THE TOP OF A BOLT SET INTO THE TOP OF THE CONCRETE RETAINING WALL AT THE LOCATION SHOWN

NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
2. THE ELEVATION PRESENTED AT OW-2 IS AT THE TOP OF A LAYER OF NON-AQUEOUS PHASE LIQUID (NAPL) WITH A MEASURED THICKNESS OF 1.75 FEET.
3. THE GROUND WATER SURFACE ELEVATIONS MEASURED IN THE OBSERVATIONS WELLS INDICATE A PERCHED WATER TABLE THAT IS NOT CONNECTED TO THE WATER TABLE. THESE ELEVATIONS ARE NOT INCORPORATED INTO THE PIEZOMETRIC HEAD ELEVATION PLAN

GRAPHIC SCALE

40 0 40 80

(IN FEET)

1 inch = 40 feet

PIEZOMETRIC HEAD ELEVATION PLAN

LOCATION: 45 HOSPITAL ROAD, MEDFIELD, MA			
CLIENT: MASSACHUSETTS DEPARTMENT OF MENTAL HEALTH			
SCALE: 1" = 40'	SHEET: 1/1	PAI PROJECT NO.: DOMH0101	FIGURE 4
DRAWN BY: PWL	APPROVED BY: JMcC	DATE: 3/27/02	DRAW NO.: FIG 4 PHEP

PENNONI ASSOCIATES INC.
THE CONCORD CENTER, SUITE 434, 10 FERRY ST.
UNIT 6, CONCORD, NH 03301

TABLE 1

Well Gauging and Piezometric Head Elevation Data

Medfield State Hospital Power Facility
45 Hospital Road, Medfield, Massachusetts

WELL ID	DATE	WELL ELEVATION	DEPTH TO NAPL	DEPTH TO WATER	NAPL THICKNESS	PIEZOMETRIC HEAD ELEVATION
MW-1	6/21/01	90.56	NE	13.79	0.00	76.77
	8/28/01	90.56	NE	> 15.07	0.00	Dry
MW-2	6/21/01	95.46	NE	16.28	0.00	79.18
	8/28/01	95.46	NE	17.29	0.00	78.17
	11/7/01	95.46	NE	17.74	0.00	77.72
MW-3	6/21/01	92.14	NE	9.88	0.00	82.26
	8/28/01	92.14	NE	11.21	0.00	80.93
MW-4	6/21/01	92.16	NE	15.38	0.00	76.78
	8/28/01	92.16	NE	17.83	0.00	74.33
	11/7/01	92.16	NE	> 19.00	0.00	Dry
MW-5	6/21/01	95.99	NE	19.23	0.00	76.76
	8/28/01	95.99	NE	19.99	0.00	76.00
	11/7/01	95.99	NE	> 20.39	0.00	Dry
MW-6	6/21/01	98.07	NE	19.81	0.00	78.26
	8/28/01	98.07	NE	20.40	0.00	77.67
OW-1	6/21/01	96.68	NE	13.2	0.00	83.5
	8/28/01	96.68	NE	12.09	0.00	84.59
	11/7/01	96.68	12.35	12.37	0.02	84.33
OW-2	6/21/01	96.52	11.00	NA	1.2	85.52
	8/28/01	96.52	11.95	NA	1.75	84.57
	11/7/01	96.52	12.50	13.25	0.75	84.02
OW-3	8/28/01	96.26	NE	11.69	0.00	84.57
	11/7/01	96.26	11.99	12.01	0.02	84.27
OW-4	8/28/01	96.95	NE	> 12.32	0.00	Dry
	11/7/01	96.95	NE	> 12.32	0.00	Dry
OW-5	6/21/01	97.45	NE	13.7	0.00	83.8
	8/28/01	97.45	NE	12.86	0.00	84.59
	11/7/01	97.45	NE	13.19	0.00	84.26
OW-6	8/28/01	97.37	NE	> 12.11	0.00	Dry
	11/7/01	97.37	NE	> 12.11	0.00	Dry
OW-7	8/28/01	97.33	NE	12.79	0.00	84.54
	11/7/01	97.33	NE	13.11	0.00	84.22
OW-8	8/28/01	97.17	NE	12.61	0.00	84.56
	11/7/01	97.17	NE	12.93	0.00	84.24

Note 1. All measurements are in feet. Elevations are relative to an arbitrary datum of 100.00' defined on top of a bolt set in the concrete at the northwest corner of the retaining wall which abuts the UST pad to the south
2. NAPL elevation is not corrected for NAPL specific gravity.

NAPL Non Aqueous Phase Liquid
NE NAPL was not encounterd in the well on this date
NA Not Available
> Well dry at measured depth

TABLE 2

Soil Samples - Summary of Analytical Results
Medfield State Hospital Power Facility
45 Hospital Road, Medfield, Massachusetts

Sample Identification Sample Date Sample Depth	Tank #1-1 11/28/01 see note 1	Tank #1-2 11/28/01 see note 1	Tank #2 West 06/01/01 see note 1	Tank #3 West 06/01/01 see note 1	Tank #3 East 06/01/01 see note 1	Method 1 Risk Characterization Standards Category S-1/GW-2	Category S-1/GW-3
Extractable Petroleum Hydrocarbons (EPH) by DEP Method							
C9-C18 Aliphatics	< 18.70	171	< 372	428	1370	1,000	1,000
C19-C36 Aliphatics	< 2.00	1080	1510	1990	5490	2,500	2,500
C11-C22 Aromatics	< 10.50	1420	1730	2220	5790	800	800
Acenaphthene	< 0.50	< 2.5	< 10.3	< 10.2	< 25.9	1,000	1,000
Acenaphthylene	< 0.50	2.7	< 10.3	< 10.2	< 25.9	100	100
Anthracene	< 0.50	< 2.5	< 10.3	< 10.2	< 25.9	1,000	1,000
Benzo(a)anthracene	< 0.50	< 2.5	< 10.3	< 10.2	< 25.9	0.7	0.7
Benzo(a)pyrene	< 0.50	< 2.5	< 10.3	< 10.2	< 25.9	0.7	0.7
Benzo(b)fluoranthene	< 0.50	< 2.5	< 10.3	< 10.2	< 25.9	0.7	0.7
Benzo(g,h,i)perylene	< 0.50	< 2.5	< 10.3	< 10.2	< 25.9	1,000	1,000
Benzo(k)fluoranthene	< 0.50	< 2.5	< 10.3	< 10.2	< 25.9	7	7
Chrysene	< 0.50	< 2.5	< 10.3	< 10.2	< 25.9	7	7
Dibenzo(a,h)anthracene	< 0.50	< 2.5	< 10.3	< 10.2	< 25.9	0.7	0.7
Fluoranthene	< 0.50	< 2.5	< 10.3	< 10.2	< 25.9	1,000	1,000
Fluorene	< 0.50	2.6	< 10.3	< 10.2	< 25.9	1,000	1,000
Indeno(1,2,3-cd)pyrene	< 0.50	< 2.5	< 10.3	< 10.2	< 25.9	0.7	0.7
2-Methylnaphthalene	< 0.50	7.7	< 10.3	17.1	53.3	500	500
Naphthalene	< 0.50	2.5	< 10.3	< 10.2	< 25.9	100	100
Phenanthrene	< 0.50	2.6	< 10.3	10.6	30.6	1,000	100
Pyrene	< 0.50	5.2	< 10.3	< 10.2	< 25.9	700	700
Volatile Petroleum Hydrocarbons (VPH) by DEP Method							
C5-C8 Aliphatics	< 1.50	7.26	< 61.3	< 60.8	62.0	100	100
C9-C12 Aliphatics	< 0.50	33.10	159.0	160.0	334.0	1,000	1,000
C9-C10 Aromatics	< 0.50	29.00	79.7	106.0	240.0	100	100
Benzene	< 0.50	< 0.50	< 0.11	< 0.11	< 0.11	40	40
Toluene	< 0.50	< 0.50	< 0.33	< 0.32	< 0.32	500	500
Ethylbenzene	< 0.50	< 0.50	0.11	0.31	1.00	500	500
Total Xylenes	< 1.00	2.90	1.06	2.51	8.10	500	500
Methyl Tertiary Butyl Ether (MTBE)	< 0.25	< 0.25	< 0.27	< 0.27	< 0.27	100	100
Naphthalene	< 1.00	5.06	1.25	6.83	20.80	100	100

All results are in milligrams per kilogram (mg/kg).
1 - Samples collected from soil beneath specified underground storage tank.

TABLE 3

Groundwater Samples - Summary of Analytical Results
Medfield State Hospital Power Facility
45 Hospital Road, Medfield, Massachusetts

Sample Identification / Sample Date	MW-1 6/21/01	MW-2 6/21/01	MW-2 11/8/01	MW-3 6/21/01	MW-4 6/21/01	MW-4 11/8/01	MW-5 6/21/01	MW-5 11/8/01	MW-6 6/21/01	Method 1 - Risk Characterization Standards Category GW-2	Method 1 - Risk Characterization Standards Category GW-3
Extractable Petroleum Hydrocarbons (EPH) by DEP Method											
C9-C18 Aliphatics	ND	154	ND	ND	ND	DRY	ND	DRY	ND	1,000	20,000
C19-C36 Aliphatics	ND	548	550	99	128	DRY	ND	DRY	ND	NS	20,000
C11-C22 Aromatics	ND	574	416	86.4	61.4	DRY	ND	DRY	ND	50,000	30,000
Acenaphthene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	NS	5,000
Acenaphthylene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	NS	3,000
Anthracene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	NS	3,000
Benzo(a)anthracene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	NS	3,000
Benzo(a)pyrene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	NS	3,000
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	NS	3,000
Benzo(g,h,i)perylene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	NS	3,000
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	NS	3,000
Chrysene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	NS	3,000
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	NS	200
Fluoranthene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	NS	3,000
Fluorene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	NS	3,000
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	10,000	3,000
2-Methylnaphthalene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	6,000	6,000
Naphthalene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	NS	50
Phenanthrene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	NS	3,000
Pyrene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	1,000	4,000
Volatile Petroleum Hydrocarbons (VPH) by DEP Method											
C5-C8 Aliphatics	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	1,000	20,000
C9-C12 Aliphatics	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	5,000	4,000
C9-C10 Aromatics	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	2,000	7,000
Benzene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	6,000	50,000
Toluene	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	30,000	4,000
Ethylbenzene	ND	3.8	1.6	ND	ND	DRY	ND	DRY	ND	6,000	50,000
Total Xylenes	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	50,000	50,000
Methyl Tertiary Butyl Ether (MTBE)	ND	ND	ND	ND	ND	DRY	ND	DRY	ND	6,000	6,000
Naphthalene											

All results are in micrograms per liter (ug/L)

NS	No Standard has been established for this compound
ND	Not detected above laboratory detection limit
DRY	Insufficient recharge to sample well
	Exceeds Method 1 - Risk Characterization Category GW-2

TABLE 4

Solubility vs. Clean-Up Standards for Contaminants of Concern

Medfield State Hospital Power Facility
45 Hospital Road, Medfield, Massachusetts

	Solubility in Water[1] (ug/L)	Method 1 GW-3 Cleanup Standards (ug/L)
C5-C8 Aliphatics	11,000	4,000
C9-C12 Aliphatics	70	20,000
C9-C10 Aromatics	51,000	4,000
C9-C18 Aliphatics	10	20,000
C19-C36 Aliphatics	considered immobile	20,000
C11-C22 Aromatics	5,800	30,000
Acenaphthene	4,000	5,000
Naphthalene	30,000	6,000
2-Methylnaphthalene	25,400	3,000
Phenanthrene	1,300	50

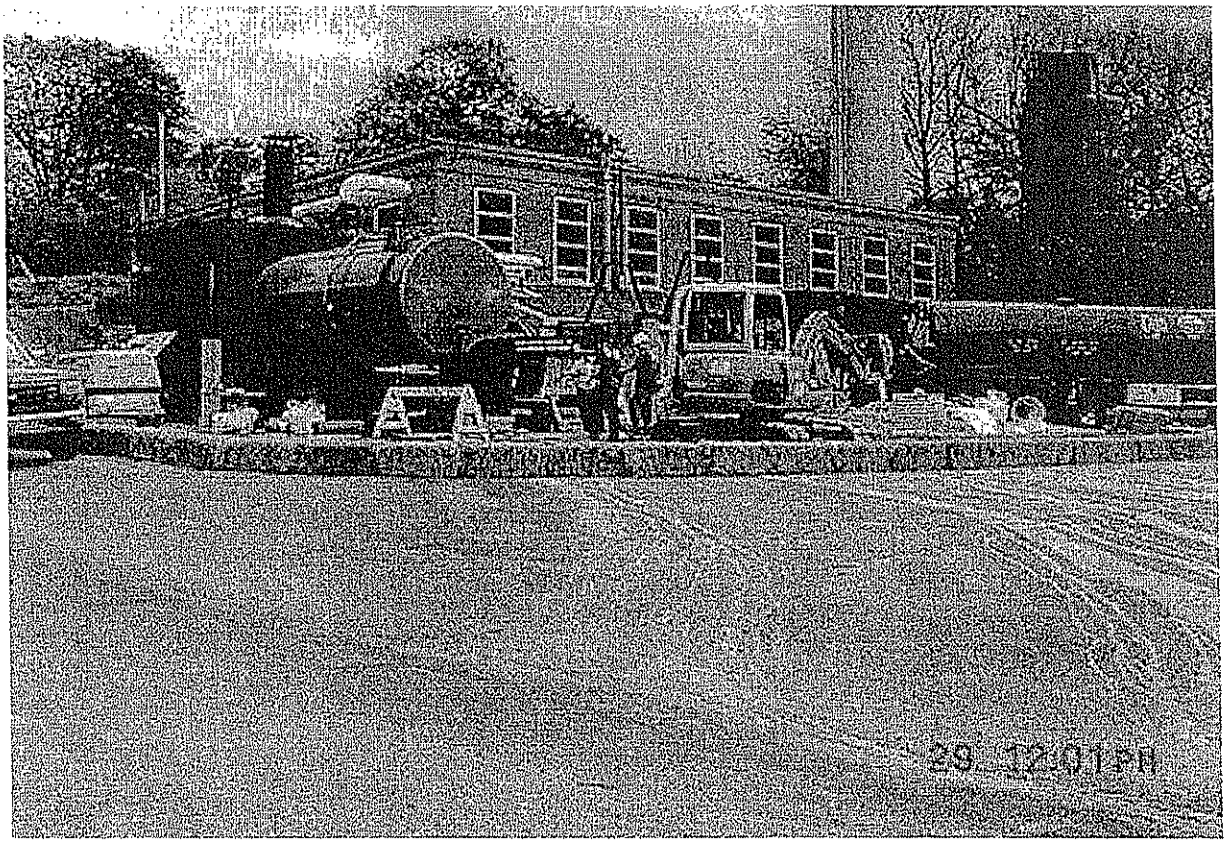
1 Petroleum Fraction Solubility Based on: DEP Recommended VPH/EPH Fractional Properties *in Characterizing Risks posed by Petroleum Contaminated Sites: Implementation of the MADEP VPH/EPH Approach* FINAL DRAFT June 2001, Table 4-13.
Outlined values indicate COCs whose solubility exceeds clean-up standard

Appendix A

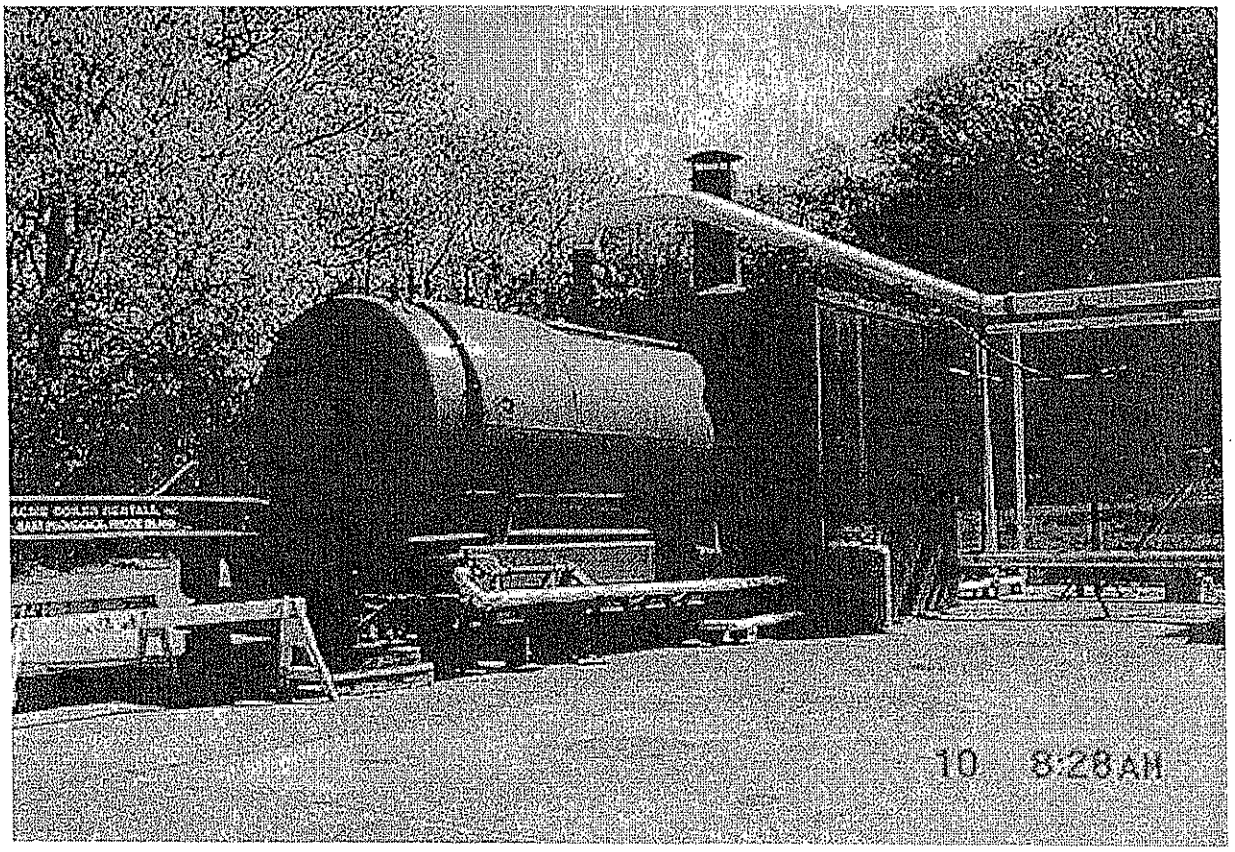
Photographic Log of Tank Closure Activities

Appendix A

Photographic Log of Tank Closure Activities



Photograph 1 - Site Overview showing excavation of Tank 2 end wall

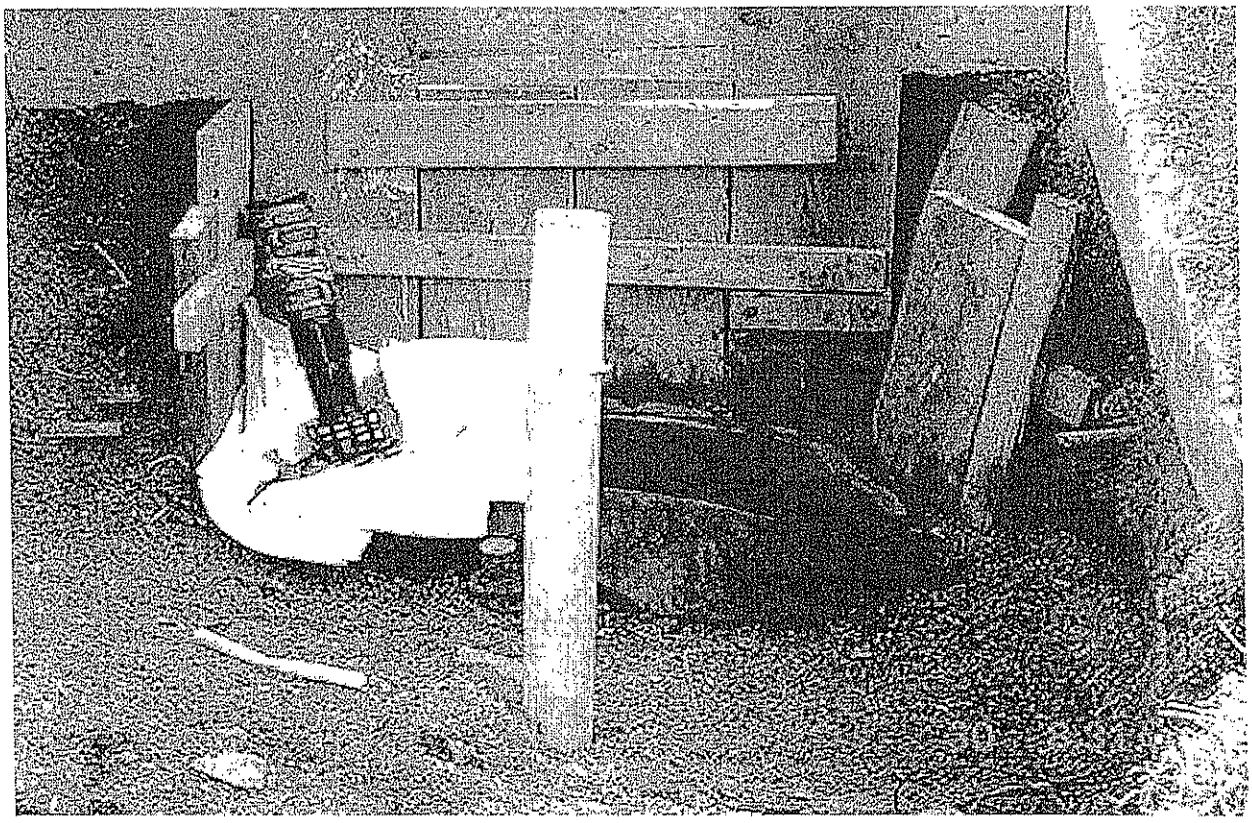


Photograph 2 - Temporary boiler located over the Tank 2 location

Appendix A

Photographic Log of Tank Closure Activities

Photograph 3 - Tank 2 cleaning activities prior to abandonment

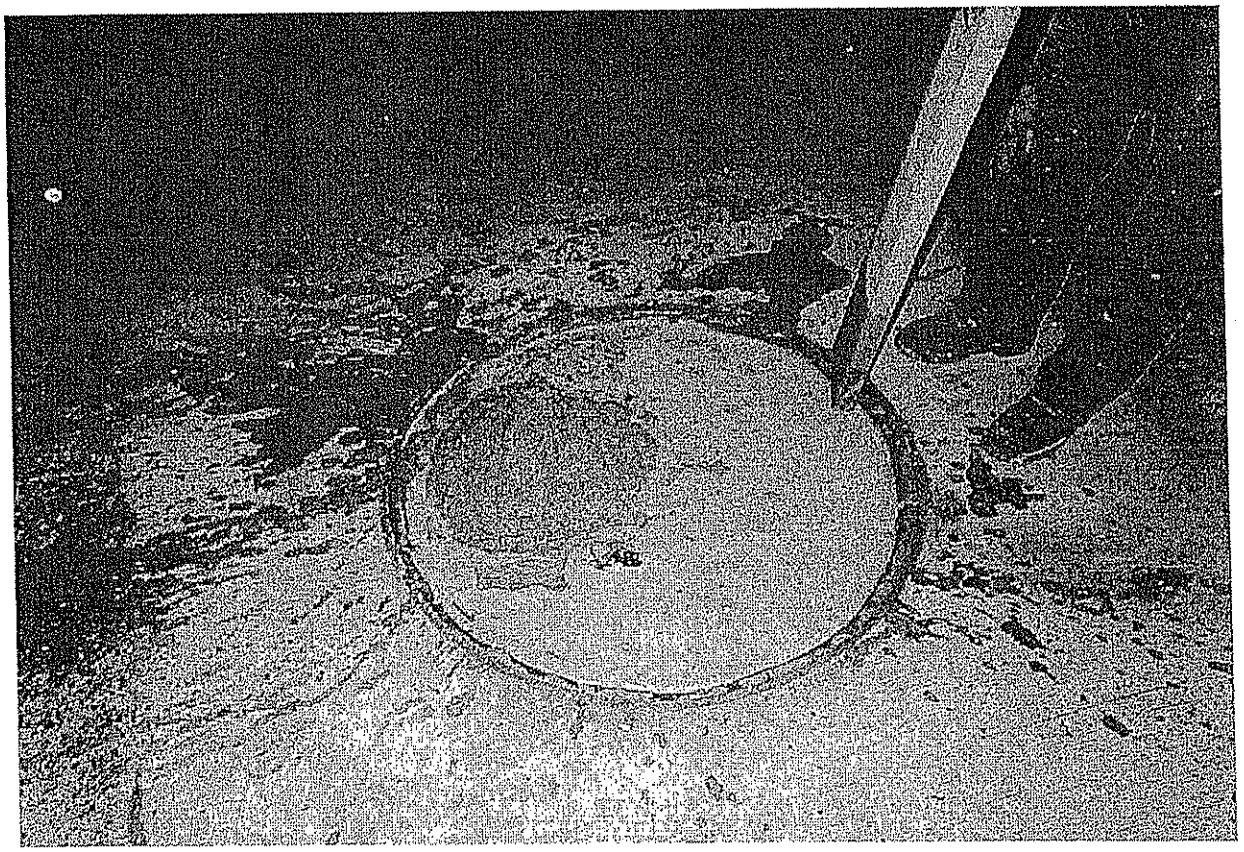


Photograph 4 - Tank 2 end wall showing observation well 2 in the foreground

Appendix A

Photographic Log of Tank Closure Activities

Photograph 5 - Filling tank 1 with slurry

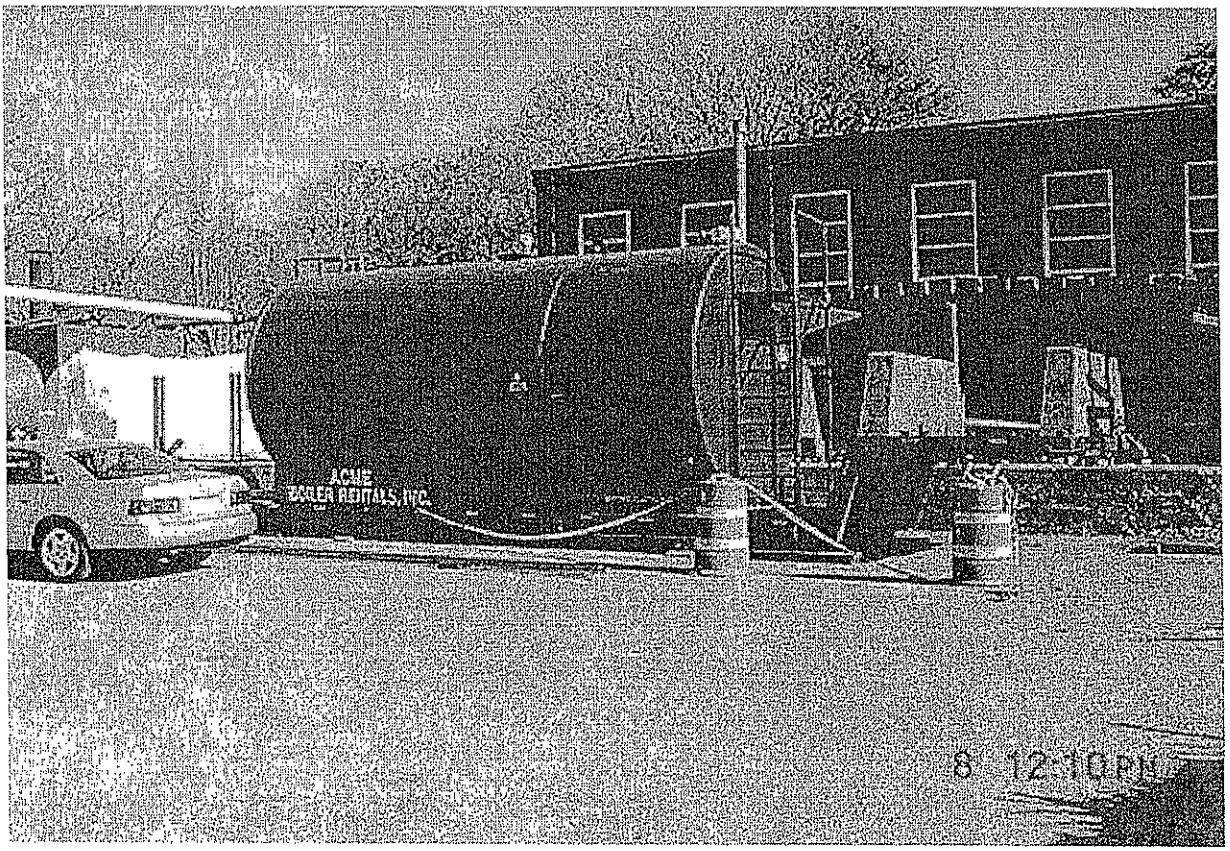


Photograph 6 - Tank manway filled with concrete

Appendix A

Photographic Log of Tank Closure Activities

Photograph 7 - Steel manway covers cemented in place



Photograph 8 - 10,000 gallon steel AST staged for installation

Appendix B

Uniform Waste Manifests

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIALS
One Winter Street Boston, Massachusetts 02108

Please print or type. (Form designed for use on elite (12-pitch) typewriter)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: M P 508 AUR 394
Manifest Document No.: 39/00
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: MEDFIELD STATE HOSPITAL, 45 HOSPITAL RD., MEDFIELD MA
4. Generator's Phone: 508 242 8394

A. State Manifest Document Number: MA M730167
B. State Gen. ID: [illegible]

5. Transporter 1 Company Name: CYN OIL CORPORATION
6. US EPA ID Number: MAD082209777
C. State Trans. ID: 25646-MA
D. Transporter's Phone: (781) 341-5102

7. Transporter 2 Company Name:
8. US EPA ID Number:
E. State Trans. ID
F. Transporter's Phone

9. Designated Facility Name and Site Address:
CYN OIL CORPORATION
1771 WASHINGTON ST. PO BOX 118
STOUGHTON, MA 02072

10. US EPA ID Number: MAD082209777
G. State Facility's ID: NOT REQUIRED
H. Facility's Phone: (781) 341-5102

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. PETROLEUM OIL, COMBUSTIBLE LIQUID, NA1270, PGIII (WASTE OIL)	001	TT	2100	G	MA97
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)
a.
b.
c.
d.

K. Handling Codes for Wastes Listed Above
a.
b.
c.
d.

15. Special Handling Instructions and Additional Information
ERG# 128
IN CASE OF EMERGENCY CALL CHEMTREC 800 424-9300 24 HOURS

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: [illegible] | Signature: [signature] | Date (Month Day Year): [illegible]

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Steve White | Signature: [signature] | Date (Month Day Year): [illegible]

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: | Signature: | Date (Month Day Year):

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19
Printed/Typed Name: | Signature: | Date (Month Day Year):

GENERATOR / TRANSPORTER / FACILITY

In case of emergency or spill, immediately call the National Response Center (800) 424-8802

MA M 730167 COPY 6: GENERATOR MAILS TO DESTINATION STATE

Form Approved OMB No. 2050-0039.
EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIALS
One Winter Street Boston, Massachusetts 02108

Please print or type. (Form designed for use on elite (12-pitch) typewriter)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
MAS0021428294	2917F		

3. Generator's Name and Mailing Address: MEDFIELD STATE HOSPITAL, 45 Hospital Rd, MEDFIELD MA

4. Generator's Phone: 508-242-1294

A. State Manifest Document Number: MA M730178

B. State Gen. ID: State Boiler #1

C. State Trans. ID: 25648 - MA

D. Transporter's Phone: (781) 821-5109

E. State Trans. ID:

F. Transporter's Phone:

G. State Facility's ID: NOT REQUIRED

H. Facility's Phone: (781) 341-5103

5. Transporter 1 Company Name: CYN OIL CORPORATION

6. US EPA ID Number: MAD982203777

7. Transporter 2 Company Name:

8. US EPA ID Number:

9. Designated Facility Name and Site Address: CYN OIL CORPORATION, 1771 WASHINGTON ST. PO BOX 119, STOUGHTON, MA. 02072

10. US EPA ID Number: MAD982303777

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	WASTE NO.
a. PETROLEUM OIL, COMBUSTIBLE LIQUID, NA1270, PGIII, (WASTE OIL)	001	TT	625	G	MA95
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)

a. | c.

b. | d.

K. Handling Codes for Wastes Listed Above

a. | c.

b. | d.

15. Special Handling Instructions and Additional Information

ERG# 128
IN CASE OF EMERGENCY CALL CHEMTREC 800-424-9300 24 HOURS

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classifi packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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Printed/Typed Name: JEFF CORNAGLIA | Signature | Date: 06/04/10

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Ted White | Signature | Date: 06/04/10

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item19

Printed/Typed Name | Signature | Date

GENERATOR

In case of emergency or spill, immediately call the National Response Center (800) 424-8802

Form Approved OMB No. 2050-0039.
EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

COPY 2 GENERATOR MAILS TO DESTINATION STATE

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIALS
One Winter Street Boston, Massachusetts 02108

Please print or type. (Form designed for use on elite (12-pitch) type

PRESS HARD - YOU ARE WRITING THROUGH EIGHT PLIES - USE BALLPOINT PEN

In case of emergency or spill, immediately call the National Response Center (800) 424-8802

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. MAP58242 8294 | Manifest Document No. 29199

2. Page 1 of 1 | Information in the shaded ar is not required by Federal la

3. Generator's Name and Mailing Address
MEDFIELD STATE HOSPITAL
45 HOSPITAL ROAD
MEDFIELD MA 02052

4. Generator's Phone 508 242-8294

A. State Manifest Document Number MA M721072

B. State Gen. ID SAME

5. Transporter 1 Company Name: CYN OIL CORPORATION | 6. US EPA ID Number: MAD082303777

C. State Trans. ID MA 17426

7. Transporter 2 Company Name | 8. US EPA ID Number

D. Transporter's Phone (781)341-510

9. Designated Facility Name and Site Address
CYN OIL CORPORATION
1771 WASHINGTON ST. PO.BOX 119
STOUGHTON, MA 02072

10. US EPA ID Number: MAD082303777

E. State Trans. ID

F. Transporter's Phone

G. State Facility's ID NOT REQUIRED

H. Facility's Phone (781) 341-51

	11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	Unit Wt/Vol	I. WASTE NO.
a.	PETROLEUM OIL, COMBUSTIBLE LIQUID, NA1270, PGIII, (WASTE OIL)	001	TT	5000	G	MA98
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)
a. | c.
b. | d.

K. Handling Codes for Wastes Listed Above:
a. | c.
b. | d.

15. Special Handling Instructions and Additional Information
ERG# 128
IN CASE OF EMERGENCY CALL CHEMTREC. 800-424-9300 24 HOURS

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are cl packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulatior

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be eco practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste mar method that is available to me and that I can afford.

GENERATOR

Printed/Typed Name: JAMES M. GIBSON | Signature: James M. Gibson | Date: Month 07 Day 06

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Carlos J. Cardoza | Signature: [signature] | Date: Month 07 Day 06

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Date: Month Day

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item19
Printed/Typed Name | Signature | Date: Month Day

Form Approved OMB No. 2050-0039.
EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

COPY 1: FACILITY MAILS TO DESTINATION STATE

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIALS
One Winter Street Boston, Massachusetts 02108

402

Please print or type. (Form designed for use on elite (12-pitch) typewriter)

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. MP.508 242-8294	Manifest Document No. 29199	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Medfield STATE Hospital
45 Hospital Rd
Medfield MA
Generator's Phone 508 242-8294

A. State Manifest Document Number: MA M705787
B. State Gen. ID: SAME

5. Transporter 1 Company Name: CYN OIL CORPORATION
6. US EPA ID Number: MAD982303777
C. State Trans. ID: 17436 MA
D. Transporter's Phone: (781)341-5108

7. Transporter 2 Company Name:
8. US EPA ID Number:
E. State Trans. ID:
F. Transporter's Phone:

9. Designated Facility Name and Site Address
CYN OIL CORPORATION
1771 WASHINGTON ST. PO BOX 119
STOUGHTON, MA 02072
10. US EPA ID Number: MAD982303777
G. State Facility's ID: NOT REQUIRED
H. Facility's Phone: (781) 341-5103

11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	Unit Wt./Vol.	14. Waste No.
a. NON REGULATED WASTE OILY WATER, NON HAZARDOUS MATERIAL	001	TM	4500	G	MA93 TM
b.					
c.					
d.					

15. Additional Descriptions for Materials Listed Above (include physical state and hazard code)
a. OIL+WATER
b.
c.
d.

K. Handling Codes for Wastes Listed Above
a.
b.
c.
c.

15. Special Handling Instructions and Additional Information
IN CASE OF EMERGENCY CALL 800 892 0312 24 HOURS

16. GENERATOR'S CERTIFICATION. I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed Typed Name: [illegible] | Signature: [illegible] | Date: 01 30 07

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed Typed Name: Tommy Miller | Signature: [illegible] | Date: 2 2 07

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed Typed Name: | Signature: | Date:

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19

Printed Typed Name: | Signature: | Date:

OMB Approved OMB No. 2050-0039.
EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete

MA M 705787 COPY>2: FACILITY MAILS TO GENERATOR STATE

COPY>2: FACILITY MAILS TO GENERATOR STATE

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIALS
One Winter Street Boston, Massachusetts 02108

COPY

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: MP5082428294 | Manifest Document No.: 30406 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: MEDFIELD STATE HOSPITAL 45 HOSPITAL RD. MEDFIELD, MA.

A. State Manifest Document Number: MA Q 057591

B. State Gen. ID: SAME

4. Generator's Phone: 508 242 8294

5. Transporter 1 Company Name: CYN OIL CORPORATION | 6. US EPA ID Number: MAD082303777 | C. State Trans. ID: 2564A-MA | D. Transporter's Phone: (781) 341-5100

7. Transporter 2 Company Name: | 8. US EPA ID Number: | E. State Trans. ID: | F. Transporter's Phone: ( )

9. Designated Facility Name and Site Address: CYN OIL CORPORATION 1771 WASHINGTON ST. PO BOX 119 STOUGHTON, MA 02072 | 10. US EPA ID Number: MAD082303777 | G. State Facility's ID: NOT REQUIRED | H. Facility's Phone: (781) 341-5100

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. PETROLEUM OIL, COMBUSTIBLE LIQUID, NA1270, PGIII, (WASTE OIL)	001	TT	1225	G	MA98
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above: Waste oil | K. Handling Codes for Wastes Listed Above: R09

15. Special Handling Instructions and Additional Information
ERG# 128
IN CASE OF EMERGENCY CALL CHEMTREC 800-424-9300 24 HOURS

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Printed/Typed Name: John Gendrolis | Signature: [signature] | Date: 1/1/2001

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Steve White | Signature: Steve White | Date (Month Day Year): 1/1/2001

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: | Signature: | Date (Month Day Year):

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name: [signature] | Signature: [signature] | Date: [illegible]

Form Approved OMB No. 2050-0039
EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

COPY 4: FACILITY MAILS TO DESTINATION STATE

In case of emergency or spill, immediately call the National Response Center (800) 424-8802

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIALS
One Winter Street Boston, Massachusetts 02108

Please print or type. (Form designed for use on elite (12-pitch) typewriter)

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: MP5083597312 — Manifest Document No.: 3109 — 2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
MEDFIELD STATE HOSPITAL
45 HOSPITAL ROAD
MEDFIELD, MA 02052

4. Generator's Phone (508) 359-7312

A. State Manifest Document Number: MA Q 079716

B. State Gen. ID: PUMPHOUSE RD MEDFIELD, MA 02052

5. Transporter 1 Company Name: CYN OIL CORPORATION — 6. US EPA ID Number: MAD082303777 — C. State Trans. ID: MA 9202

7. Transporter 2 Company Name — 8. US EPA ID Number — D. Transporter's Phone: (781) 341-5108 — E. State Trans. ID

9. Designated Facility Name and Site Address
CYN OIL CORPORATION
1771 WASHINGTON ST. PO BOX 119
STOUGHTON, MA 02072

10. US EPA ID Number: MAD082303777 — F. Transporter's Phone: ( ) — G. State Facility's ID: NOT REQUIRED — H. Facility's Phone: (781) 341-5108

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt./Vol.	I. WASTE NO.
a. PETROLEUM OIL, COMBUSTIBLE LIQUID, NA1270, PGII (STATE REGULATED WASTE OIL & WATER)		DM		G	MA98
b. STATE REGULATED WASTE OILY SOLIDS NON DOT HAZARDOUS MATERIAL	XX2	DM	EST 450	P	MA01
c.					
d.					

J. Additional Descriptions for Materials Listed Above (Include physical state and hazard code.)
a. VIRGIN #6 OIL AND WATER, PROFILE ATTACHED
b. VIRGIN #6 OIL SOLIDS PROFILE ATTACHED
c.
d.

K. Handling Codes for Wastes Listed Above
a. c. b. d.

15. Special Handling Instructions and Additional Information
ERG# 11A 128
IN CASE OF EMERGENCY CALL CHEMTREC 800-424-9300 24 HOURS

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GENERATOR — Printed/Typed Name: Charles C. Bullen — Signature: Charles C. Bullen — Date: Month 05 Day 25 Year 02

TRANSPORTER — 17. Transporter 1 Acknowledgement of Receipt of Materials — Printed/Typed Name: Sean McCafferty — Signature: Sean McCafferty — Date: Month 05 Day 25 Year 02

18. Transporter 2 Acknowledgement of Receipt of Materials — Printed/Typed Name — Signature — Date: Month Day Year

FACILITY — 19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item19 — Printed/Typed Name — Signature — Date: Month Day Year

Form Approved OMB No. 2050-0039.
EPA Form 8700-22 (Rev. 9-90) Previous editions are obsolete.

In case of emergency or spill, immediately call the National Response Center (800) 424-8802

MA Q 079716 COPY 1: FACILITY MAILS TO DESTINATION STATE

Appendix C

Laboratory Reports

Appendix C

Laboratory Reports

con-test®
ANALYTICAL LABORATORY
39 Spruce Street ° 2nd Floor ° East Longmeadow, MA 01028 ° FAX 413/525-6405 ° TEL. 413/525-2332

REPORT DATE 6/6/01

PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301
ATTN: JEFF MCCULLOUGH

CONTRACT NUMBER:
PURCHASE ORDER NUMBER: DOMH 0101.06
PROJECT NUMBER:

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-56079
JOB NUMBER: DOMH0101.06

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: MEDFIELD STATE HOSPITAL

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST
*T-2W	01B15119	SOIL	TANK 2 WEST END	eph - solid
*T-2W	01B15119	SOIL	TANK 2 WEST END	solids eph/vph
*T-2W	01B15119	SOIL	TANK 2 WEST END	vph - solid
T-3E	01B15120	SOIL	TANK 3 EAST	eph - solid
T-3E	01B15120	SOIL	TANK 3 EAST	solids eph/vph
T-3E	01B15120	SOIL	TANK 3 EAST	vph - solid
T-3W	01B15121	SOIL	TANK 3 WEST	eph - solid
T-3W	01B15121	SOIL	TANK 3 WEST	solids eph/vph
T-3W	01B15121	SOIL	TANK 3 WEST	vph - solid

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations :

AIHA 100033
MASSACHUSETTS MA0100
CONNECTICUT PH-0567
NEW YORK ELAP 10899
AIHA ELLAP (LEAD) 100033
NEW HAMPSHIRE 2516
VERMONT DOH (LEAD) No. LL015036
RHODE ISLAND (LIC. No. 112)

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Edward Denson 6/6/01

SIGNATURE DATE

Tod Kopyscinski
Director of Operations

Edward Denson
Technical Director

* See end of data tabulation for notes and comments pertaining to this sample

con-test®
ANALYTICAL LABORATORY
39 Spruce Street ° 2nd Floor ° East Longmeadow, MA 01028 ° FAX 413/525-6405 ° TEL. 413/525-2332

JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.06

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 6/1/01
Field Sample # : T-2W

LIMS-BAT #: LIMS-56079
Job Number: DOMH0101.06

Sample ID : *01B15119
Sampled : 6/1/01
TANK 2 WEST END

Sample Matrix: SOIL

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/F
C9-C18 Aliphatics	mg/kg dry wt.	467.	06/05/01	KKP	372.			
C19-C36 Aliphatics	mg/kg dry wt.	2180.	06/05/01	KKP	39.5			
C11-C22 Aromatics	mg/kg dry wt.	1800.	06/05/01	KKP	210.			
Acenaphthene	mg/kg dry wt.	ND	06/05/01	KKP	10.3			
Acenaphthylene	mg/kg dry wt.	ND	06/05/01	KKP	10.3			
Anthracene	mg/kg dry wt.	ND	06/05/01	KKP	10.3			
Benzo(a)anthracene	mg/kg dry wt.	ND	06/05/01	KKP	10.3			
Benzo(a)pyrene	mg/kg dry wt.	ND	06/05/01	KKP	10.3			
Benzo(b)fluoranthene	mg/kg dry wt.	ND	06/05/01	KKP	10.3			
Benzo(g,h,i)perylene	mg/kg dry wt.	ND	06/05/01	KKP	10.3			
Benzo(k)fluoranthene	mg/kg dry wt.	ND	06/05/01	KKP	10.3			
Chrysene	mg/kg dry wt.	ND	06/05/01	KKP	10.3			
Dibenzo(a,h)anthracene	mg/kg dry wt.	ND	06/05/01	KKP	10.3			
Fluoranthene	mg/kg dry wt.	ND	06/05/01	KKP	10.3			
Fluorene	mg/kg dry wt.	ND	06/05/01	KKP	10.3			
Indeno(1,2,3-cd)pyrene	mg/kg dry wt.	ND	06/05/01	KKP	10.3			
2-Methylnaphthalene	mg/kg dry wt.	ND	06/05/01	KKP	10.3			
Naphthalene	mg/kg dry wt.	ND	06/05/01	KKP	10.3			
Phenanthrene	mg/kg dry wt.	ND	06/05/01	KKP	10.3			
Pyrene	mg/kg dry wt.	ND	06/05/01	KKP	10.3			
Date Extracted EPH Solid		6/4/2001	06/05/01	KKP				

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ANALYTICAL LABORATORY
39 Spruce Street ° 2nd Floor ° East Longmeadow, MA 01028 ° FAX 413/525-6405 ° TEL. 413/525-2332

JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.06

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 6/1/01
Field Sample # : T-2W

LIMS-BAT #: LIMS-56079
Job Number: DOMH0101.06

Analytical Method:
MADEP-EPH-98-1 REVISION 0

SAMPLES ARE EXTRACTED WITH METHYLENE CHLORIDE, EXCHANGED INTO HEXANE AND CONCENTRATED. ALIPHATIC AND AROMATIC FRACTIONS ARE SEPARATED. ANALYSIS IS BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION. PAH AND C10-C22 AROMATICS ARE DETERMINED IN THE METHYLENE CHLORIDE FRACTION. C9-C18 AND C19-C36 ALIPHATICS ARE DETERMINED IN THE HEXANE FRACTION. TARGET COMPOUND CONTRIBUTIONS ARE SUBTRACTED FROM THE SUMMED AROMATIC RANGE. SUMMED RANGES ARE CORRECTED FOR LABORATORY METHOD BLANK.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

SIGNIFICANT MODIFICATIONS ARE LIMITED TO THE SUBTRACTION OF METHOD BLANK CONTRIBUTION FROM THE SUMMED RANGES AND EXTRACTION BY PRESSURIZED FLUID EXTRACTION (SW846 3545) (ASE).

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

___ YES ✓ NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

___ YES ✓ NO

DETAILS OF ANY NON-CONFORMANCE WITH QA/QC REQUIREMENTS, PERFORMANCE, OR ACCEPTANCE CRITERIA ARE DETAILED IN THE NOTES SECTION OF THIS REPORT.

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.06

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 6/1/01
Field Sample # : T-3E

LIMS-BAT #: LIMS-56079
Job Number: DOMH0101.06

Sample ID : 01B15120

Sampled : 6/1/01
TANK 3 EAST

Sample Matrix: SOIL

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
C9-C18 Aliphatics	mg/kg dry wt.	1680.	06/05/01	KKP	937.			
C19-C36 Aliphatics	mg/kg dry wt.	7150.	06/05/01	KKP	99.4			
C11-C22 Aromatics	mg/kg dry wt.	7250.	06/05/01	KKP	528.			
Acenaphthene	mg/kg dry wt.	ND	06/05/01	KKP	25.9			
Acenaphthylene	mg/kg dry wt.	ND	06/05/01	KKP	25.9			
Anthracene	mg/kg dry wt.	ND	06/05/01	KKP	25.9			
Benzo(a)anthracene	mg/kg dry wt.	ND	06/05/01	KKP	25.9			
Benzo(a)pyrene	mg/kg dry wt.	ND	06/05/01	KKP	25.9			
Benzo(b)fluoranthene	mg/kg dry wt.	ND	06/05/01	KKP	25.9			
Benzo(g,h,i)perylene	mg/kg dry wt.	ND	06/05/01	KKP	25.9			
Benzo(k)fluoranthene	mg/kg dry wt.	ND	06/05/01	KKP	25.9			
Chrysene	mg/kg dry wt.	ND	06/05/01	KKP	25.9			
Dibenzo(a,h)anthracene	mg/kg dry wt.	ND	06/05/01	KKP	25.9			
Fluoranthene	mg/kg dry wt.	ND	06/05/01	KKP	25.9			
Fluorene	mg/kg dry wt.	ND	06/05/01	KKP	25.9			
Indeno(1,2,3-cd)pyrene	mg/kg dry wt.	ND	06/05/01	KKP	25.9			
2-Methylnaphthalene	mg/kg dry wt.	74.6	06/05/01	KKP	25.9			
Naphthalene	mg/kg dry wt.	ND	06/05/01	KKP	25.9			
Phenanthrene	mg/kg dry wt.	35.2	06/05/01	KKP	25.9			
Pyrene	mg/kg dry wt.	ND	06/05/01	KKP	25.9			
Date Extracted EPH Solid		6/4/2001	06/05/01	KKP				

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PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.06

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 6/1/01
Field Sample # : T-3E

LIMS-BAT #: LIMS-56079
Job Number: DOMH0101.06

Analytical Method:
MADEP-EPH-98-1 REVISION 0

SAMPLES ARE EXTRACTED WITH METHYLENE CHLORIDE, EXCHANGED INTO HEXANE AND CONCENTRATED. ALIPHATIC AND AROMATIC FRACTIONS ARE SEPARATED. ANALYSIS IS BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION. PAH AND C10-C22 AROMATICS ARE DETERMINED IN THE METHYLENE-CHLORIDE FRACTION. C9-C18 AND C19-C36 ALIPHATICS ARE DETERMINED IN THE HEXANE FRACTION. TARGET COMPOUND CONTRIBUTIONS ARE SUBTRACTED FROM THE SUMMED AROMATIC RANGE. SUMMED RANGES ARE CORRECTED FOR LABORATORY METHOD BLANK.

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WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

___ YES ✓ NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

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PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.06

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 6/1/01
Field Sample # : T-3W

LIMS-BAT #: LIMS-56079
Job Number: DOMH0101.06

Sample ID : 01B15121
Sampled : 6/1/01
TANK 3 WEST

Sample Matrix: SOIL

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
C9-C18 Aliphatics	mg/kg dry wt.	416.	06/05/01	KKP	369.			
C19-C36 Aliphatics	mg/kg dry wt.	2090.	06/05/01	KKP	39.1			
C11-C22 Aromatics	mg/kg dry wt.	2300.	06/05/01	KKP	208.			
Acenaphthene	mg/kg dry wt.	ND	06/05/01	KKP	10.2			
Acenaphthylene	mg/kg dry wt.	ND	06/05/01	KKP	10.2			
Anthracene	mg/kg dry wt.	ND	06/05/01	KKP	10.2			
Benzo(a)anthracene	mg/kg dry wt.	ND	06/05/01	KKP	10.2			
Benzo(a)pyrene	mg/kg dry wt.	ND	06/05/01	KKP	10.2			
Benzo(b)fluoranthene	mg/kg dry wt.	ND	06/05/01	KKP	10.2			
Benzo(g,h,i)perylene	mg/kg dry wt.	ND	06/05/01	KKP	10.2			
Benzo(k)fluoranthene	mg/kg dry wt.	ND	06/05/01	KKP	10.2			
Chrysene	mg/kg dry wt.	ND	06/05/01	KKP	10.2			
Dibenzo(a,h)anthracene	mg/kg dry wt.	ND	06/05/01	KKP	10.2			
Fluoranthene	mg/kg dry wt.	ND	06/05/01	KKP	10.2			
Fluorene	mg/kg dry wt.	ND	06/05/01	KKP	10.2			
Indeno(1,2,3-cd)pyrene	mg/kg dry wt.	ND	06/05/01	KKP	10.2			
2-Methylnaphthalene	mg/kg dry wt.	18.8	06/05/01	KKP	10.2			
Naphthalene	mg/kg dry wt.	ND	06/05/01	KKP	10.2			
Phenanthrene	mg/kg dry wt.	ND	06/05/01	KKP	10.2			
Pyrene	mg/kg dry wt.	ND	06/05/01	KKP	10.2			
Date Extracted EPH Solid		6/4/2001	06/05/01	KKP				

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39 Spruce Street ° 2nd Floor ° East Longmeadow, MA 01028 ° FAX 413/525-6405 ° TEL. 413/525-2332

JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.06

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 6/1/01
Field Sample # : T-3W

LIMS-BAT #: LIMS-56079
Job Number: DOMH0101.06

Analytical Method:

MADEP-EPH-98-1 REVISION 0

SAMPLES ARE EXTRACTED WITH METHYLENE CHLORIDE, EXCHANGED INTO HEXANE AND CONCENTRATED. ALIPHATIC AND AROMATIC FRACTIONS ARE SEPARATED. ANALYSIS IS BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION. PAH AND C10-C22 AROMATICS ARE DETERMINED IN THE METHYLENE-CHLORIDE FRACTION. C9-C18 AND C19-C36 ALIPHATICS ARE DETERMINED IN THE HEXANE FRACTION. TARGET COMPOUND CONTRIBUTIONS ARE SUBTRACTED FROM THE SUMMED AROMATIC RANGE. SUMMED RANGES ARE CORRECTED FOR LABORATORY METHOD BLANK.

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.06

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 6/1/01
Field Sample # : T-2W

LIMS-BAT #: LIMS-56079
Job Number: DOMH0101.06

Sample ID : 01B15119 Sampled : 6/1/01
TANK 2 WEST END

Sample Matrix: SOIL

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
Solids, total	%	97.2	06/05/01	MAS				

Field Sample # : T-3E

Sample ID : 01B15120 Sampled : 6/1/01
TANK 3 EAST

Sample Matrix: SOIL

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
Solids, total	%	96.5	06/05/01	MAS				

Field Sample # : T-3W

Sample ID : 01B15121 Sampled : 6/1/01
TANK 3 WEST

Sample Matrix: SOIL

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
Solids, total	%	98.1	06/05/01	MAS				

Analytical Method:
SM 2540G
PERCENT OF SAMPLE REMAINING AFTER DRYING OVERNIGHT AT 103-105 DEGREES CENTIGRADE.

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

6/6/01

Purchase Order No.: DOMH 0101.06

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 6/1/01
Field Sample # : T-2W

LIMS-BAT #: LIMS-56079
Job Number: DOMH0101.06

Sample ID : 01B15119
Sampled : 6/1/01
TANK 2 WEST END

Sample Matrix: SOIL

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/F
C5-C8 Aliphatics	ug/kg dry wt.	ND	06/05/01	KKP	61300.			
C9-C12 Aliphatics	ug/kg dry wt.	159000.	06/05/01	KKP	22000.			
C9-C10 Aromatics	ug/kg dry wt.	79700.	06/05/01	KKP	18700.			
Benzene	ug/kg dry wt.	ND	06/05/01	KKP	110.			
Ethylbenzene	ug/kg dry wt.	110.	06/05/01	KKP	110.			
MTBE	ug/kg dry wt.	ND	06/05/01	KKP	270.			
Naphthalene	ug/kg dry wt.	1250.	06/05/01	KKP	108.			
Toluene	ug/kg dry wt.	ND	06/05/01	KKP	330.			
m/p-Xylene	ug/kg dry wt.	650.	06/05/01	KKP	380.			
o-Xylene	ug/kg dry wt.	410.	06/05/01	KKP	220.			

Analytical Method:
MADEP-VPH-98-1 REVISION 0
SAMPLES ARE PRESERVED WITH METHANOL AND CONCENTRATED BY PURGE AND TRAP, FOLLOWED BY GAS CHROMATOGRAPHY ANALYSIS WITH PID/FID DETECTION. SUMMED RANGES ARE REPORTED WITH TARGET COMPOUND CONTRIBUTIONS SUBTRACTED AND CORRECTED FOR LABORATORY METHOD BLANK. C9-C12 ALIPHATIC HYDROCARBONS EXCLUDE THE CONCENTRATION OF C9-C10 AROMATIC HYDROCARBONS.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

NO SIGNIFICANT MODIFICATIONS WERE MADE TO THE METHOD.

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

✓ YES ___ NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

✓ YES ___ NO

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39 Spruce Street * 2nd Floor * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

JEFF MCCULLOUGH
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THE CONCORD CTR, STE 311, 10 FERRY ST.#6
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6/6/01

Purchase Order No.: DOMH 0101.06

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 6/1/01
Field Sample # : T-3E

LIMS-BAT #: LIMS-56079
Job Number: DOMH0101.06

Sample ID : 01B15120

Sampled : 6/1/01
TANK 3 EAST

Sample Matrix: SOIL

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
C5-C8 Aliphatics	ug/kg dry wt.	62000.	06/05/01	KKP	61000.			
C9-C12 Aliphatics	ug/kg dry wt.	334000.	06/05/01	KKP	21800.			
C9-C10 Aromatics	ug/kg dry wt.	240000.	06/05/01	KKP	18600.			
Benzene	ug/kg dry wt.	ND	06/05/01	KKP	110.			
Ethylbenzene	ug/kg dry wt.	1000.	06/05/01	KKP	110.			
MTBE	ug/kg dry wt.	ND	06/05/01	KKP	270.			
Naphthalene	ug/kg dry wt.	20800.	06/05/01	KKP	108.			
Toluene	ug/kg dry wt.	ND	06/05/01	KKP	320.			
m/p-Xylene	ug/kg dry wt.	5000.	06/05/01	KKP	380.			
o-Xylene	ug/kg dry wt.	3100.	06/05/01	KKP	220.			

Analytical Method:
MADEP-VPH-98-1 REVISION 0

SAMPLES ARE PRESERVED WITH METHANOL AND CONCENTRATED BY PURGE AND TRAP, FOLLOWED BY GAS CHROMATOGRAPHY ANALYSIS WITH PID/FID DETECTION. SUMMED RANGES ARE REPORTED WITH TARGET COMPOUND CONTRIBUTIONS SUBTRACTED AND CORRECTED FOR LABORATORY METHOD BLANK. C9-C12 ALIPHATIC HYDROCARBONS EXCLUDE THE CONCENTRATION OF C9-C10 AROMATIC HYDROCARBONS.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

NO SIGNIFICANT MODIFICATIONS WERE MADE TO THE METHOD.

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

6/6/01

Purchase Order No.: DOMH 0101.06

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 6/1/01
Field Sample # : T-3W

LIMS-BAT #: LIMS-56079
Job Number: DOMH0101.06

Sample ID : 01B15121
Sampled : 6/1/01
TANK 3 WEST

Sample Matrix: SOIL

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
C5-C8 Aliphatics	ug/kg dry wt.	ND	06/05/01	KKP	60800.			
C9-C12 Aliphatics	ug/kg dry wt.	160000.	06/05/01	KKP	21800.			
C9-C10 Aromatics	ug/kg dry wt.	106000.	06/05/01	KKP	18600.			
Benzene	ug/kg dry wt.	ND	06/05/01	KKP	110.			
Ethylbenzene	ug/kg dry wt.	310.	06/05/01	KKP	110.			
MTBE	ug/kg dry wt.	ND	06/05/01	KKP	270.			
Naphthalene	ug/kg dry wt.	6830.	06/05/01	KKP	108.			
Toluene	ug/kg dry wt.	ND	06/05/01	KKP	320.			
m/p-Xylene	ug/kg dry wt.	1600.	06/05/01	KKP	380.			
o-Xylene	ug/kg dry wt.	910.	06/05/01	KKP	220.			

Analytical Method:
MADEP-VPH-98-1 REVISION 0

SAMPLES ARE PRESERVED WITH METHANOL AND CONCENTRATED BY PURGE AND TRAP, FOLLOWED BY GAS CHROMATOGRAPHY ANALYSIS WITH PID/FID DETECTION. SUMMED RANGES ARE REPORTED WITH TARGET COMPOUND CONTRIBUTIONS SUBTRACTED AND CORRECTED FOR LABORATORY METHOD BLANK. C9-C12 ALIPHATIC HYDROCARBONS EXCLUDE THE CONCENTRATION OF C9-C10 AROMATIC HYDROCARBONS.

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39 Spruce Street * 2nd Floor * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

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Purchase Order No.: DOMH 0101.06

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 6/1/01

LIMS-BAT #: LIMS-56079
Job Number: DOMH0101.06

The follow ing notes w ere attached to the reported analysis :

Sample ID: * 01B15119 - 01B15121
Analysis: eph - solid

Required QC not performed for all EPH samples.

** END OF REPORT **

RL = Reporting Limit
ND = Not Detected
NM = Not Measured
* = See end of report for comments and notes applying to this sample

SPEC LIMIT = a client specified recommended or regulatory level for comparison w ith data to determine PASS (P) or FAIL (F) condition of results.

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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates.
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 6/6/01 Lims Bat # : LIMS-56079

QC Batch Number: GC/FID-5195

Sample Id	Analysis	QC Analysis	Values	Units	Limits
01B15119					
	2,5-Dibromotoluene (FID)	Sur. Recovery (FID)	97.9	%	70-130
01B15120					
	2,5-Dibromotoluene (FID)	Sur. Recovery (FID)	80.0	%	70-130
01B15121					
	2,5-Dibromotoluene (FID)	Sur. Recovery (FID)	110.0	%	70-130
BLANK-33864					
	C5-C8 Aliphatics	Blank	<6020.	ug/kg dry wt.	
	C9-C12 Aliphatics	Blank	<2160.	ug/kg dry wt.	

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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates.
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 6/6/01 Lims Bat # : LIMS-56079

QC Batch Number: GC/FID-5198

Sample Id	Analysis	QC Analysis	Values	Units	Limits
01B15119					
	2-Fluorobiphenyl	Surrogate Recovery	79.2	%	40-140
	2-Bromonaphthalene	Surrogate Recovery	80.4	%	40-140
	Chlorooctadecane	Sur. Recovery	72.0	%	40-140
	Terphenyl	Sur. Recovery	90.0	%	40-140
01B15120					
	2-Fluorobiphenyl	Surrogate Recovery	91.4	%	40-140
	2-Bromonaphthalene	Surrogate Recovery	92.2	%	40-140
	Chlorooctadecane	Sur. Recovery	80.0	%	40-140
	Terphenyl	Sur. Recovery	82.5	%	40-140
01B15121					
	2-Fluorobiphenyl	Surrogate Recovery	41.8	%	40-140
	2-Bromonaphthalene	Surrogate Recovery	90.0	%	40-140
	Chlorooctadecane	Sur. Recovery	100.0	%	40-140
	Terphenyl	Sur. Recovery	100.0	%	40-140
BLANK-33876					
	Naphthalene	Blank	<0.5	mg/kg dry wt.	
	Acenaphthene	Blank	<0.5	mg/kg dry wt.	
	Acenaphthylene	Blank	<0.5	mg/kg dry wt.	
	Anthracene	Blank	<0.5	mg/kg dry wt.	
	Benzo(a)anthracene	Blank	<0.5	mg/kg dry wt.	
	Benzo(a)pyrene	Blank	<0.5	mg/kg dry wt.	
	Benzo(b)fluoranthene	Blank	<0.5	mg/kg dry wt.	
	Benzo(g,h,i)perylene	Blank	<0.5	mg/kg dry wt.	
	Chrysene	Blank	<0.5	mg/kg dry wt.	
	Dibenzo(a,h)anthracene	Blank	<0.5	mg/kg dry wt.	
	Fluoranthene	Blank	<0.5	mg/kg dry wt.	
	Fluorene	Blank	<0.5	mg/kg dry wt.	
	Indeno(1,2,3-cd)pyrene	Blank	<0.5	mg/kg dry wt.	
	2-Methylnaphthalene	Blank	<0.5	mg/kg dry wt.	
	Phenanthrene	Blank	<0.5	mg/kg dry wt.	
	Pyrene	Blank	<0.5	mg/kg dry wt.	
	Benzo(k)fluoranthene	Blank	<0.5	mg/kg dry wt.	
	C9-C18 Aliphatics	Blank	<18.1	mg/kg dry wt.	
	C19-C36 Aliphatics	Blank	6.9	mg/kg dry wt.	
	C11-C22 Aromatics	Blank	<10.2	mg/kg dry wt.	

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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates.
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 6/6/01 Lims Bat # : LIMS-56079

QC Batch Number: GC/PID-4379

Sample Id	Analysis	QC Analysis	Values	Units	Limits
01B15119					
	2,5-Dibromotoluene (PID)	Sur. Recovery (PID)	113.3	%	70-130
01B15120					
	2,5-Dibromotoluene (PID)	Sur. Recovery (PID)	90.0	%	70-130
01B15121					
	2,5-Dibromotoluene (PID)	Sur. Recovery (PID)	104.2	%	70-130
BLANK-33863					
	Benzene	Blank	<11.	ug/kg dry wt.	
	Ethylbenzene	Blank	<11.	ug/kg dry wt.	
	Naphthalene	Blank	<10.7	ug/kg dry wt.	
	Toluene	Blank	<32.	ug/kg dry wt.	
	o-Xylene	Blank	<21.	ug/kg dry wt.	
	m/p-Xylene	Blank	<37.	ug/kg dry wt.	
	C9-C10 Aromatics	Blank	<1840.	ug/kg dry wt.	
	MTBE	Blank	<27.	ug/kg dry wt.	
LFBLANK-16298					
	Benzene	Lab Fort Blank Amt.	3333.3	ug/kg dry wt.	
		Lab Fort Blk. Found	3707.5	ug/kg dry wt.	
		Lab Fort Blk. % Rec.	111.2	%	70-130
	Ethylbenzene	Lab Fort Blank Amt.	3333.3	ug/kg dry wt.	
		Lab Fort Blk. Found	3259.6	ug/kg dry wt.	
		Lab Fort Blk. % Rec.	97.8	%	70-130
	Naphthalene	Lab Fort Blank Amt.	3333.3	ug/kg dry wt.	
		Lab Fort Blk. Found	3106.6	ug/kg dry wt.	
		Lab Fort Blk. % Rec.	93.2	%	70-130
	Toluene	Lab Fort Blank Amt.	3333.3	ug/kg dry wt.	
		Lab Fort Blk. Found	3588.4	ug/kg dry wt.	
		Lab Fort Blk. % Rec.	107.7	%	70-130
	o-Xylene	Lab Fort Blank Amt.	3333.3	ug/kg dry wt.	
		Lab Fort Blk. Found	3509.1	ug/kg dry wt.	
		Lab Fort Blk. % Rec.	105.3	%	70-130
	m/p-Xylene	Lab Fort Blank Amt.	6689.3	ug/kg dry wt.	
		Lab Fort Blk. Found	6519.3	ug/kg dry wt.	
		Lab Fort Blk. % Rec.	97.5	%	70-130
	MTBE	Lab Fort Blank Amt.	3333.3	ug/kg dry wt.	
		Lab Fort Blk. Found	3713.2	ug/kg dry wt.	
		Lab Fort Blk. % Rec.	111.4	%	70-130

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QC SUMMARY REPORT

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Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

QUALITY CONTROL DEFINITIONS AND ABBREVIATIONS

QC BATCH NUMBER	This is the number assigned to all samples analyzed together that would be subject to comparison with a particular set of Quality Control Data.
LIMITS	Upper and Lower Control Limits for the QC ANALYSIS Reported. All values normally would fall within these statistically determined limits, unless there is an unusual circumstance that would be documented in a NOTE appearing on the last page of the QC SUMMARY REPORT. Not all QC results will have Limits defined.
Sample Amount	Amount of analyte found in a sample.
Blank	Method Blank that has been taken though all the steps of the analysis.
LFBLANK	Laboratory Fortified Blank (a control sample)
STDADD	Standard Added (a laboratory control sample)
Matrix Spk Amt Added	Amount of analyte spiked into a sample
MS Amt Measured	Amount of analyte found including amount that was spiked
Matrix Spike % Rec.	% Recovery of spiked amount in sample.
Duplicate Value	The result from the Duplicate analysis of the sample.
Duplicate RPD	The Relative Percent Difference between two Duplicate Analyses.
Surrogate Recovery	The % Recovery for non-environmental compounds (surrogates) spiked into samples to determine the performance of the analytical methods.
Sur. Recovery (ELCD)	Surrogate Recovery on the Electrolytic Conductivity Detector.
Sur. Recovery (PID)	Surrogate Recovery on the Photoionization Detector.
Standard Measured	Amount measured for a laboratory control sample
Standard Amt Added	Known value for a laboratory control sample
Standard % Recovery	% recovered for a laboratory control sample with a known value.
Lab Fort Blank Amt	Laboratory Fortified Blank Amount Added
Lab Fort Blk. Found	Laboratory Fortified Blank Amount Found
Lab Fort Blk % Rec	Laboratory Fortified Blank % Recovered
Dup Lab Fort Bl Amt	Duplicate Laboratory Fortified Blank Amount Added
Dup Lab Fort Bl Fnd	Duplicate Laboratory Fortified Blank Amount Found
Dup Lab Fort Bl % Rec	Duplicate Laboratory Fortified Blank % Recovery
Lab Fort Blank Range	Laboratory Fortified Blank Range (Absolute value of difference between recoveries for Lab Fortified Blank and Lab Fortified Blank Duplicate).
Lab Fort Bl. Av. Rec.	Laboratory Fortified Blank Average Recovery
Duplicate Sample Amt	Sample Value for Duplicate used with Matrix Spike Duplicate
MSD Amount Added	Matrix Spike Duplicate Amount Added (Spiked)
MSD Amt Measured	Matrix Spike Duplicate Amount Measured
MSD % Recovery	Matrix Spike Duplicate % Recovery
MSD Range	Absolute difference between Matrix Spike and Matrix Spike Duplicate Recoveries

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FAX (413) 525-6405

CHAIN OF CUSTODY RECORD

39 SPRUCE ST. • 2ND FLOOR • EAST LONGMEADOW, MA 01028

LIMS #56079

Client Name: Pennoni Associates Inc
Attn: Jeff McCullough
Address: The Concord Center, Suite 439
10 Ferry St. Unit 6 03301
Site Location: Medfield State Hospital
Sampled By: Philip LaMoreaux
Call Results: Yes X No
Fax Results: Yes X No

Telephone: 603 226 1950
Batch #:
Project #: DOMH 0101.06
Client P.O. #: DOMH 0101.06
Fax #: 603 226 3235

Field Sample I.D.	Sample Description	Lab #	DATE SAMPLED Start Date/Time	DATE SAMPLED Stop Date/Time	Composite	Grab	MATRIX: WASTE WATER	MATRIX: GROUND WATER	MATRIX: DKG WATER	MATRIX: Soil	MATRIX: Air	MATRIX: Other	Preservative (Use Code)	Container (Use Code)	Analysis Required: VPH	Analysis Required: EPH
T-2W	Tank-2 West End	01B15119	6/1/01	0940		X				X			O/H	2V/G	X	X
T-3E	Tank-3 East	15120	6/1/01	1415		X				X			O/E		X	X
T-3W	Tank-3 West	15121	6/1/01	1445		X				X			O/H	2V/G	X	X

CONTAINER CODE
P: PLASTIC (___ Size) V = 40 ml vial G = Glass (8oz size) A = 1000 ml Amber O = Other ___

PRESERVATIVE CODE: I = ICED N = HNO_3 H = HCl S = NaOH T = $Na_2S_2O_3$ O = OTHER Methanol

Relinquished by: (Signature)	Date Time	Received by: (Signature)
Philip LaMoreaux	6/1/01 1730	for Pick up by Trip - ConTest
Relinquished by: (Signature)	Date Time	Received by: (Signature)
	6-1-01 1900	Fedex
	Date Time	Received by: (Signature)

Turnaround Requested: ___ 24-Hour ___ 48-Hour ___ Normal
___ Other 6/6/01 Date Required

Remarks/Comments:
Please Call/Fax results ASAP.
6/6 Notified client (Phil) that QC on EPH was did not meet reqs. He say OK - fax + redo

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REPORT DATE 6/15/01

PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301
ATTN: JEFF MCCULLOUGH

CONTRACT NUMBER:
PURCHASE ORDER NUMBER: DOMH 0101.06

PROJECT NUMBER:

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-55155
JOB NUMBER: DOMH 0101.06

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: MEDFIELD STATE HOSPITAL

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST
T-2W	01B15513	SOIL	TANK 2 WEST END	eph - solid
T-3E	01B15514	SOIL	TANK 3 EAST	eph - solid
T-3W	01B15515	SOIL	TANK 3 WEST	eph - solid

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations :

AIHA 100033	AIHA ELLAP (LEAD) 100033
MASSACHUSETTS MA0100	NEW HAMPSHIRE 2516
CONNECTICUT PH-0567	VERMONT DOH (LEAD) No. LL015036
NEW YORK ELAP 10899	RHODE ISLAND (LIC. No. 112)

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Edward Denson 6/15/01
SIGNATURE DATE

Tod Kopyscinski
Director of Operations

Edward Denson
Technical Director

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

6/15/01

Purchase Order No.: DOMH 0101.06

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 6/6/01
Field Sample # : T-2W

LIMS-BAT #: LIMS-56155
Job Number: DOMH 0101.06

Sample ID : 01B15513
Sampled : 6/1/01
TANK 2 WEST END

Sample Matrix: SOIL

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/F
C9-C18 Aliphatics	mg/kg dry wt.	ND	06/14/01	KKP	372.			
C19-C36 Aliphatics	mg/kg dry wt.	1510.	06/14/01	KKP	39.5			
C11-C22 Aromatics	mg/kg dry wt.	1730.	06/14/01	KKP	210.			
Acenaphthene	mg/kg dry wt.	ND	06/14/01	KKP	10.3			
Acenaphthylene	mg/kg dry wt.	ND	06/14/01	KKP	10.3			
Anthracene	mg/kg dry wt.	ND	06/14/01	KKP	10.3			
Benzo(a)anthracene	mg/kg dry wt.	ND	06/14/01	KKP	10.3			
Benzo(a)pyrene	mg/kg dry wt.	ND	06/14/01	KKP	10.3			
Benzo(b)fluoranthene	mg/kg dry wt.	ND	06/14/01	KKP	10.3			
Benzo(g,h,i)perylene	mg/kg dry wt.	ND	06/14/01	KKP	10.3			
Benzo(k)fluoranthene	mg/kg dry wt.	ND	06/14/01	KKP	10.3			
Chrysene	mg/kg dry wt.	ND	06/14/01	KKP	10.3			
Dibenzo(a,h)anthracene	mg/kg dry wt.	ND	06/14/01	KKP	10.3			
Fluoranthene	mg/kg dry wt.	ND	06/14/01	KKP	10.3			
Fluorene	mg/kg dry wt.	ND	06/14/01	KKP	10.3			
Indeno(1,2,3-cd)pyrene	mg/kg dry wt.	ND	06/14/01	KKP	10.3			
2-Methylnaphthalene	mg/kg dry wt.	ND	06/14/01	KKP	10.3			
Naphthalene	mg/kg dry wt.	ND	06/14/01	KKP	10.3			
Phenanthrene	mg/kg dry wt.	ND	06/14/01	KKP	10.3			
Pyrene	mg/kg dry wt.	ND	06/14/01	KKP	10.3			
Date Extracted EPH Solid		6/7/2001	06/14/01	KKP				

RL = Reporting Limit
ND = Not Detected
NM = Not Measured
* = See end of report for comments and notes applying to this sample

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

6/15/01

Purchase Order No.: DOMH 0101.06

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 6/6/01
Field Sample # : T-2W

LIMS-BAT #: LIMS-56155
Job Number: DOMH 0101.06

Analytical Method:
MADEP-EPH-98-1 REVISION 0

SAMPLES ARE EXTRACTED WITH METHYLENE CHLORIDE, EXCHANGED INTO HEXANE AND CONCENTRATED. ALIPHATIC AND AROMATIC FRACTIONS ARE SEPARATED. ANALYSIS IS BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION. PAH AND C10-C22 AROMATICS ARE DETERMINED IN THE METHYLENE-CHLORIDE FRACTION. C9-C18 AND C19-C36 ALIPHATICS ARE DETERMINED IN THE HEXANE FRACTION. TARGET COMPOUND CONTRIBUTIONS ARE SUBTRACTED FROM THE SUMMED AROMATIC RANGE. SUMMED RANGES ARE CORRECTED FOR LABORATORY METHOD BLANK.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

SIGNIFICANT MODIFICATIONS ARE LIMITED TO THE SUBTRACTION OF METHOD BLANK CONTRIBUTION FROM THE SUMMED RANGES AND EXTRACTION BY PRESSURIZED FLUID EXTRACTION (SW846 3545) (ASE).

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

✓ YES ___ NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

✓ YES ___ NO

DETAILS OF ANY NON-CONFORMANCE WITH QA/QC REQUIREMENTS, PERFORMANCE, OR ACCEPTANCE CRITERIA ARE DETAILED IN THE NOTES SECTION OF THIS REPORT.

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SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

* = See end of report for comments and notes applying to this sample

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PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.06

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 6/6/01
Field Sample # : T-3E

LIMS-BAT #: LIMS-56155
Job Number: DOMH 0101.06

Sample ID : 01B15514

Sampled : 6/1/01
TANK 3 EAST

Sample Matrix: SOIL

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
C9-C18 Aliphatics	mg/kg dry wt.	1370.	06/14/01	KKP	937.			
C19-C36 Aliphatics	mg/kg dry wt.	5490.	06/14/01	KKP	99.4			
C11-C22 Aromatics	mg/kg dry wt.	5790.	06/14/01	KKP	528.			
Acenaphthene	mg/kg dry wt.	ND	06/14/01	KKP	25.9			
Acenaphthylene	mg/kg dry wt.	ND	06/14/01	KKP	25.9			
Anthracene	mg/kg dry wt.	ND	06/14/01	KKP	25.9			
Benzo(a)anthracene	mg/kg dry wt.	ND	06/14/01	KKP	25.9			
Benzo(a)pyrene	mg/kg dry wt.	ND	06/14/01	KKP	25.9			
Benzo(b)fluoranthene	mg/kg dry wt.	ND	06/14/01	KKP	25.9			
Benzo(g,h,i)perylene	mg/kg dry wt.	ND	06/14/01	KKP	25.9			
Benzo(k)fluoranthene	mg/kg dry wt.	ND	06/14/01	KKP	25.9			
Chrysene	mg/kg dry wt.	ND	06/14/01	KKP	25.9			
Dibenzo(a,h)anthracene	mg/kg dry wt.	ND	06/14/01	KKP	25.9			
Fluoranthene	mg/kg dry wt.	ND	06/14/01	KKP	25.9			
Fluorene	mg/kg dry wt.	ND	06/14/01	KKP	25.9			
Indeno(1,2,3-cd)pyrene	mg/kg dry wt.	ND	06/14/01	KKP	25.9			
2-Methylnaphthalene	mg/kg dry wt.	53.3	06/14/01	KKP	25.9			
Naphthalene	mg/kg dry wt.	ND	06/14/01	KKP	25.9			
Phenanthrene	mg/kg dry wt.	30.6	06/14/01	KKP	25.9			
Pyrene	mg/kg dry wt.	ND	06/14/01	KKP	25.9			
Date Extracted EPH Solid		6/7/2001	06/14/01	KKP				

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* = See end of report for comments and notes applying to this sample

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

6/15/01

Purchase Order No.: DOMH 0101.06

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 6/6/01
Field Sample # : T-3E

LIMS-BAT #: LIMS-56155
Job Number: DOMH 0101.06

Analytical Method:
MADEP-EPH-98-1 REVISION 0

SAMPLES ARE EXTRACTED WITH METHYLENE CHLORIDE, EXCHANGED INTO HEXANE AND CONCENTRATED. ALIPHATIC AND AROMATIC FRACTIONS ARE SEPARATED. ANALYSIS IS BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION. PAH AND C10-C22 AROMATICS ARE DETERMINED IN THE METHYLENE-CHLORIDE FRACTION. C9-C18 AND C19-C36 ALIPHATICS ARE DETERMINED IN THE HEXANE FRACTION. TARGET COMPOUND CONTRIBUTIONS ARE SUBTRACTED FROM THE SUMMED AROMATIC RANGE. SUMMED RANGES ARE CORRECTED FOR LABORATORY METHOD BLANK.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

SIGNIFICANT MODIFICATIONS ARE LIMITED TO THE SUBTRACTION OF METHOD BLANK CONTRIBUTION FROM THE SUMMED RANGES AND EXTRACTION BY PRESSURIZED FLUID EXTRACTION (SW846 3545) (ASE).

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

✓ YES ___ NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

___ YES ✓ NO

DETAILS OF ANY NON-CONFORMANCE WITH QA/QC REQUIREMENTS, PERFORMANCE, OR ACCEPTANCE CRITERIA ARE DETAILED IN THE NOTES SECTION OF THIS REPORT.

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NM = Not Measured

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* = See end of report for comments and notes applying to this sample

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

6/15/01

Purchase Order No.: DOMH 0101.06

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 6/6/01
Field Sample # : T-3W

LIMS-BAT #: LIMS-56155
Job Number: DOMH 0101.06

Sample ID : 01B15515
Sampled : 6/1/01
TANK 3 WEST

Sample Matrix: SOIL

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
C9-C18 Aliphatics	mg/kg dry wt.	428.	06/14/01	KKP	369.			
C19-C36 Aliphatics	mg/kg dry wt.	1990.	06/14/01	KKP	39.1			
C11-C22 Aromatics	mg/kg dry wt.	2220.	06/14/01	KKP	208.			
Acenaphthene	mg/kg dry wt.	ND	06/14/01	KKP	10.2			
Acenaphthylene	mg/kg dry wt.	ND	06/14/01	KKP	10.2			
Anthracene	mg/kg dry wt.	ND	06/14/01	KKP	10.2			
Benzo(a)anthracene	mg/kg dry wt.	ND	06/14/01	KKP	10.2			
Benzo(a)pyrene	mg/kg dry wt.	ND	06/14/01	KKP	10.2			
Benzo(b)fluoranthene	mg/kg dry wt.	ND	06/14/01	KKP	10.2			
Benzo(g,h,i)perylene	mg/kg dry wt.	ND	06/14/01	KKP	10.2			
Benzo(k)fluoranthene	mg/kg dry wt.	ND	06/14/01	KKP	10.2			
Chrysene	mg/kg dry wt.	ND	06/14/01	KKP	10.2			
Dibenzo(a,h)anthracene	mg/kg dry wt.	ND	06/14/01	KKP	10.2			
Fluoranthene	mg/kg dry wt.	ND	06/14/01	KKP	10.2			
Fluorene	mg/kg dry wt.	ND	06/14/01	KKP	10.2			
Indeno(1,2,3-cd)pyrene	mg/kg dry wt.	ND	06/14/01	KKP	10.2			
2-Methylnaphthalene	mg/kg dry wt.	17.1	06/14/01	KKP	10.2			
Naphthalene	mg/kg dry wt.	ND	06/14/01	KKP	10.2			
Phenanthrene	mg/kg dry wt.	10.6	06/14/01	KKP	10.2			
Pyrene	mg/kg dry wt.	ND	06/14/01	KKP	10.2			
Date Extracted EPH Solid		6/7/2001	06/14/01	KKP				

RL = Reporting Limit
ND = Not Detected
NM = Not Measured
* = See end of report for comments and notes applying to this sample

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.06

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 6/6/01
Field Sample # : T-3W

LIMS-BAT #: LIMS-56155
Job Number: DOMH 0101.06

Analytical Method:
MADEP-EPH-98-1 REVISION 0

SAMPLES ARE EXTRACTED WITH METHYLENE CHLORIDE, EXCHANGED INTO HEXANE AND CONCENTRATED. ALIPHATIC AND AROMATIC FRACTIONS ARE SEPARATED. ANALYSIS IS BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION. PAH AND C10-C22 AROMATICS ARE DETERMINED IN THE METHYLENE CHLORIDE FRACTION. C9-C18 AND C19-C36 ALIPHATICS ARE DETERMINED IN THE HEXANE FRACTION. TARGET COMPOUND CONTRIBUTIONS ARE SUBTRACTED FROM THE SUMMED AROMATIC RANGE. SUMMED RANGES ARE CORRECTED FOR LABORATORY METHOD BLANK.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

SIGNIFICANT MODIFICATIONS ARE LIMITED TO THE SUBTRACTION OF METHOD BLANK CONTRIBUTION FROM THE SUMMED RANGES AND EXTRACTION BY PRESSURIZED FLUID EXTRACTION (SW846 3545) (ASE).

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

√ YES ___ NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

√ YES ___ NO

DETAILS OF ANY NON-CONFORMANCE WITH QA/QC REQUIREMENTS, PERFORMANCE, OR ACCEPTANCE CRITERIA ARE DETAILED IN THE NOTES SECTION OF THIS REPORT.

RL = Reporting Limit

ND = Not Detected

NM = Not Measured

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

* = See end of report for comments and notes applying to this sample

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.O6

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 6/6/01

LIMS-BAT #: LIMS-56155
Job Number: DOMH 0101.06

** END OF REPORT **

RL = Reporting Limit

ND = Not Detected

NM = Not Measured

* = See end of report for comments and notes applying to this sample

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates.
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 6/15/01 Lims Bat # : LIMS-56155

QC Batch Number: GC/FID-5248

Sample Id	Analysis	QC Analysis	Values	Units	Limits
01B15513					
	2-Fluorobiphenyl	Surrogate Recovery	100.0	%	40-140
	2-Bromonaphthalene	Surrogate Recovery	81.6	%	40-140
	Chlorooctadecane	Sur. Recovery	78.0	%	40-140
	Terphenyl	Sur. Recovery	100.0	%	40-140
01B15514					
	2-Fluorobiphenyl	Surrogate Recovery	99.6	%	40-140
	2-Bromonaphthalene	Surrogate Recovery	72.0	%	40-140
	Chlorooctadecane	Sur. Recovery	0.0	%	40-140
	Terphenyl	Sur. Recovery	0.0	%	40-140
01B15515					
	2-Fluorobiphenyl	Surrogate Recovery	99.6	%	40-140
	2-Bromonaphthalene	Surrogate Recovery	81.6	%	40-140
	Chlorooctadecane	Sur. Recovery	64.0	%	40-140
	Terphenyl	Sur. Recovery	99.0	%	40-140
BLANK-34071					
	Naphthalene	Blank	<0.5	mg/kg dry wt.	
	Acenaphthene	Blank	<0.5	mg/kg dry wt.	
	Acenaphthylene	Blank	<0.5	mg/kg dry wt.	
	Anthracene	Blank	<0.5	mg/kg dry wt.	
	Benzo(a)anthracene	Blank	<0.5	mg/kg dry wt.	
	Benzo(a)pyrene	Blank	<0.5	mg/kg dry wt.	
	Benzo(b)fluoranthene	Blank	<0.5	mg/kg dry wt.	
	Benzo(g,h,i)perylene	Blank	<0.5	mg/kg dry wt.	
	Chrysene	Blank	<0.5	mg/kg dry wt.	
	Dibenzo(a,h)anthracene	Blank	<0.5	mg/kg dry wt.	
	Fluoranthene	Blank	<0.5	mg/kg dry wt.	
	Fluorene	Blank	<0.5	mg/kg dry wt.	
	Indeno(1,2,3-cd)pyrene	Blank	<0.5	mg/kg dry wt.	
	2-Methylnaphthalene	Blank	<0.5	mg/kg dry wt.	
	Phenanthrene	Blank	<0.5	mg/kg dry wt.	
	Pyrene	Blank	<0.5	mg/kg dry wt.	
	Benzo(k)fluoranthene	Blank	<0.5	mg/kg dry wt.	
	C9-C18 Aliphatics	Blank	<18.1	mg/kg dry wt.	
	C19-C36 Aliphatics	Blank	7.0	mg/kg dry wt.	
	C11-C22 Aromatics	Blank	<10.2	mg/kg dry wt.	
LFBLANK-16429					
	Naphthalene	Lab Fort Blank Amt.	2.5	mg/kg dry wt.	
		Lab Fort Blk. Found	1.8	mg/kg dry wt.	
		Lab Fort Blk. % Rec.	70.8	%	40-140
	Acenaphthene	Lab Fort Blank Amt.	2.5	mg/kg dry wt.	
		Lab Fort Blk. Found	2.1	mg/kg dry wt.	
		Lab Fort Blk. % Rec.	84.8	%	40-140
	Anthracene	Lab Fort Blank Amt.	2.5	mg/kg dry wt.	

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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates.
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 6/15/01 Lims Bat # : LIMS-56155

QC Batch Number: GC/FID-5248

Sample Id	Analysis	QC Analysis	Values	Units	Limits
LFBLANK-16429					
	Anthracene	Lab Fort Blk. Found	2.5	mg/kg dry wt.	
		Lab Fort Blk. % Rec.	101.6	%	40-140
	Chrysene	Lab Fort Blank Amt.	2.5	mg/kg dry wt.	
		Lab Fort Blk. Found	2.4	mg/kg dry wt.	
		Lab Fort Blk. % Rec.	97.2	%	40-140
	Pyrene	Lab Fort Blank Amt.	2.5	mg/kg dry wt.	
		Lab Fort Blk. Found	2.5	mg/kg dry wt.	
		Lab Fort Blk. % Rec.	98.4	%	40-140

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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates.
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

NOTES:

QC Batch No. : GC/FID-5248
Sample ID : 01B15514
Analysis : Chlorooctadecane

SURROGATE CONCENTRATION BELOW DETECTION LIMIT DUE TO DILUTION REQUIRED FOR SAMPLE ANALYSIS.

QC Batch No. : GC/FID-5248
Sample ID : 01B15514
Analysis : Terphenyl

SURROGATE CONCENTRATION BELOW DETECTION LIMIT DUE TO DILUTION REQUIRED FOR SAMPLE ANALYSIS.

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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates.
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

QUALITY CONTROL DEFINITIONS AND ABBREVIATIONS

QC BATCH NUMBER	This is the number assigned to all samples analyzed together that would be subject to comparison with a particular set of Quality Control Data.
LIMITS	Upper and Lower Control Limits for the QC ANALYSIS Reported. All values normally would fall within these statistically determined limits, unless there is an unusual circumstance that would be documented in a NOTE appearing on the last page of the QC SUMMARY REPORT. Not all QC results will have Limits defined.
Sample Amount	Amount of analyte found in a sample.
Blank	Method Blank that has been taken though all the steps of the analysis.
LFBLANK	Laboratory Fortified Blank (a control sample)
STDADD	Standard Added (a laboratory control sample)
Matrix Spk Amt Added	Amount of analyte spiked into a sample
MS Amt Measured	Amount of analyte found including amount that was spiked
Matrix Spike % Rec.	% Recovery of spiked amount in sample.
Duplicate Value	The result from the Duplicate analysis of the sample.
Duplicate RPD	The Relative Percent Difference between two Duplicate Analyses.
Surrogate Recovery	The % Recovery for non-environmental compounds (surrogates) spiked into samples to determine the performance of the analytical methods.
Sur. Recovery (ELCD)	Surrogate Recovery on the Electrolytic Conductivity Detector.
Sur. Recovery (PID)	Surrogate Recovery on the Photoionization Detector.
Standard Measured	Amount measured for a laboratory control sample
Standard Amt Added	Known value for a laboratory control sample
Standard % Recovery	% recovered for a laboratory control sample with a known value.
Lab Fort Blank Amt	Laboratory Fortified Blank Amount Added
Lab Fort Blk. Found	Laboratory Fortified Blank Amount Found
Lab Fort Blk % Rec	Laboratory Fortified Blank % Recovered
Dup Lab Fort Bl Amt	Duplicate Laboratory Fortified Blank Amount Added
Dup Lab Fort Bl Fnd	Duplicate Laboratory Fortified Blank Amount Found
Dup Lab Fort Bl % Rec	Duplicate Laboratory Fortified Blank % Recovery
Lab Fort Blank Range	Laboratory Fortified Blank Range (Absolute value of difference between recoveries for Lab Fortified Blank and Lab Fortified Blank Duplicate).
Lab Fort Bl. Av. Rec.	Laboratory Fortified Blank Average Recovery
Duplicate Sample Amt	Sample Value for Duplicate used with Matrix Spike Duplicate
MSD Amount Added	Matrix Spike Duplicate Amount Added (Spiked)
MSD Amt Measured	Matrix Spike Duplicate Amount Measured
MSD % Recovery	Matrix Spike Duplicate % Recovery
MSD Range	Absolute difference between Matrix Spike and Matrix Spike Duplicate Recoveries

QA

LIMS-56155

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CHAIN OF CUSTODY RECORD

39 SPRUCE ST. • 2ND FLOOR • EAST LONGMEADOW, MA 01028

Client Name: Pennoni Associates Inc
Attn: Jeff McCullough
Address: The Concord Center, Suite 434
10 Ferry St. Unit 6 03301
Site Location: Medfield State Hospital
Sampled By: Philip LaMoreaux
Call Results: Yes X No
Fax Results: Yes X No

Telephone: 603 226 1950
Batch #:
Project #: DOMH 0101.06
Client P.O. #: DOMH 0101.06
Fax #: 603 226 3235

LIMS # 56079

Field Sample I.D.	Sample Description	Lab #	DATE SAMPLED Start Date/Time	DATE SAMPLED Stop Date/Time	Composite	Grab	MATRIX: WASTE WATER	GROUND WATER	DKG WATER	Soil	Air	Other	Preservative (Use Code)	Container (Use Code)	Analysis Required: VPH	Analysis Required: EPH
T-2W	Tank-2 West End	01B15119	6/1/01	1040		X				X			O/I	2V HCl	X	X
T-3E	Tank-3 East	15514 15720	6/1/01	1115		X				X			O/I		X	X
T-3W	Tank-3 West	15515 15721	6/1/01	1145		X				X			O/I	2V/G	X	X
									*	EPH						

CONTAINER CODE
P: PLASTIC (___ Size) V = 40 ml vial G = Glass (8oz size) A = 1000 ml Amber O = Other ___

PRESERVATIVE CODE:
I = ICED N = HNO_3 H = HCl S = NaOH T = $Na_2S_2O_3$ O = OTHER methanol

Relinquished by: (Signature)	Date Time	Received by: (Signature)
Philip LaMoreaux	6/1/01 1730	for Pick up by Bill ConTest
Relinquished by: (Signature)	Date Time 6-1-01 1945	Received by: (Signature) Fed Ex
	Date Time	Received by: (Signature)

Turnaround Requested ___ 24-Hour ___ 48-Hour ___ Normal
___ Other 6/6/01 Date Required

Remarks/Comments:
Please Call/Fax results ASAP.
6/6 Notified client (Phil) that QC on EPH was did not meet reqs. He say OK - Fax + redo

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REPORT DATE 11/16/01

PENNONI ASSOCIATES
THE CONCORD CTR. STE 434, 10 FERRY ST.#8
CONCORD, NH 03301
ATTN: JEFF MCCULLOUGH

CONTRACT NUMBER:
PURCHASE ORDER NUMBER: DOMH 0101.12

PROJECT NUMBER:

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-59692
JOB NUMBER: DOMH 0101.12

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: MEDFIELD STATE HOSPITAL

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST
MW-2	01B30883	GRND WATER	NOT SPECIFIED	eph - water
MW-2	01B30883	GRND WATER	NOT SPECIFIED	vph - water

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations :

AIHA 100033
MASSACHUSETTS MA0100
CONNECTICUT PH-0567
NEW YORK ELAP 10899
AIHA ELLAP (LEAD) 100033
NEW HAMPSHIRE 2516
VERMONT DOH (LEAD) No. LL015036
RHODE ISLAND (LIC. No. 112)

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Edward Denson 11/16/01
SIGNATURE DATE

Tod Kopyscinski
Director of Operations

Edward Denson
Technical Director

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REPORT DATE 6/28/01

PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301
ATTN: JEFF MCCULLOUGH

CONTRACT NUMBER:
PURCHASE ORDER NUMBER: DOMH 0101.09
PROJECT NUMBER:

ANALYTICAL SUMMARY

LIMS BAT #: LIMS-56545
JOB NUMBER: DOMH 0101.09

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: MEDFIELD STATE HOSPITAL POWER PLANT

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST
MW-01	01B17120	GRND WATER	NOT SPECIFIED	eph - water
MW-01	01B17120	GRND WATER	NOT SPECIFIED	vph - water
MW-02	01B17121	GRND WATER	NOT SPECIFIED	eph - water
MW-02	01B17121	GRND WATER	NOT SPECIFIED	vph - water
MW-03	01B17122	GRND WATER	NOT SPECIFIED	eph - water
MW-03	01B17122	GRND WATER	NOT SPECIFIED	vph - water
MW-04	01B17123	GRND WATER	NOT SPECIFIED	eph - water
MW-04	01B17123	GRND WATER	NOT SPECIFIED	vph - water
MW-05	01B17124	GRND WATER	NOT SPECIFIED	eph - water
MW-05	01B17124	GRND WATER	NOT SPECIFIED	vph - water
MW-06	01B17125	GRND WATER	NOT SPECIFIED	eph - water
MW-06	01B17125	GRND WATER	NOT SPECIFIED	vph - water

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MASSACHUSETTS MA0100	NEW HAMPSHIRE 2516
CONNECTICUT PH-0567	VERMONT DOH (LEAD) No. LL015036
NEW YORK ELAP 10899	RHODE ISLAND (LIC. No. 112)

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Edward Denson 6/28/01

SIGNATURE DATE

Tod Kopyscinski
Director of Operations

Edward Denson
Technical Director

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

6/28/01

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01
Field Sample # : **MW-01**
Sample ID : **01B17120**
Sampled : 6/21/01
NOT SPECIFIED
Sample Matrix: GRND WATER

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
C9-C18 Aliphatics	ug/l	ND	06/27/01	KKP	144.			
C19-C36 Aliphatics	ug/l	ND	06/27/01	KKP	84.0			
C11-C22 Aromatics	ug/l	ND	06/27/01	KKP	48.0			
Acenaphthene	ug/l	ND	06/27/01	KKP	5.0			
Acenaphthylene	ug/l	ND	06/27/01	KKP	5.0			
Anthracene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(a)anthracene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(a)pyrene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(b)fluoranthene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(g,h,i)perylene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(k)fluoranthene	ug/l	ND	06/27/01	KKP	5.0			
Chrysene	ug/l	ND	06/27/01	KKP	10.8			
Dibenzo(a,h)anthracene	ug/l	ND	06/27/01	KKP	5.0			
Fluoranthene	ug/l	ND	06/27/01	KKP	5.0			
Fluorene	ug/l	ND	06/27/01	KKP	5.0			
Indeno(1,2,3-cd)pyrene	ug/l	ND	06/27/01	KKP	5.0			
2-Methylnaphthalene	ug/l	ND	06/27/01	KKP	5.0			
Naphthalene	ug/l	ND	06/27/01	KKP	5.0			
Phenanthrene	ug/l	ND	06/27/01	KKP	5.0			
Pyrene	ug/l	ND	06/27/01	KKP	5.0			
Date Extracted EPH Water		6/25/2001	06/27/01	KKP				

RL = Reporting Limit
ND = Not Detected
NM = Not Measured
* = See end of report for comments and notes applying to this sample

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

6/28/01

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01
Field Sample # : MW-01

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

Analytical Method:

MADEP-EPH-98-1 REVISION 0

SAMPLES ARE PRESERVED TO pH < 2.0 WITH HYDROCHLORIC ACID (HCL). SAMPLES ARE EXTRACTED WITH METHYLENE CHLORIDE, EXCHANGED INTO HEXANE AND CONCENTRATED. ALIPHATIC AND AROMATIC FRACTIONS ARE SEPARATED. ANALYSIS IS BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION. PAH AND C10-C22 AROMATICS ARE DETERMINED IN THE METHYLENE CHLORIDE FRACTION. C9-C18 AND C19-C36 ALIPHATICS ARE DETERMINED IN THE HEXANE FRACTION. TARGET COMPOUND CONTRIBUTIONS ARE SUBTRACTED FROM THE SUMMED AROMATIC RANGE. SUMMED RANGES ARE CORRECTED FOR LABORATORY METHOD BLANK.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

SIGNIFICANT MODIFICATIONS ARE LIMITED TO THE SUBTRACTION OF METHOD BLANK FROM THE SUMMED RANGES.

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

__✓__YES ___ NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

__✓__YES ___ NO

DETAILS OF ANY NON-CONFORMANCE WITH QA/QC REQUIREMENTS, PERFORMANCE, OR ACCEPTANCE CRITERIA ARE DETAILED IN THE NOTES SECTION OF THIS REPORT.

RL = Reporting Limit

ND = Not Detected

NM = Not Measured

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

* = See end of report for comments and notes applying to this sample

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01
Field Sample # : **MW-02**

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

Sample ID : **01B17121**

Sampled : 6/21/01
NOT SPECIFIED

Sample Matrix: GRND WATER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
C9-C18 Aliphatics	ug/l	154.	06/27/01	KKP	144.			
C19-C36 Aliphatics	ug/l	548.	06/27/01	KKP	84.0			
C11-C22 Aromatics	ug/l	574.	06/27/01	KKP	48.0			
Acenaphthene	ug/l	ND	06/27/01	KKP	5.0			
Acenaphthylene	ug/l	ND	06/27/01	KKP	5.0			
Anthracene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(a)anthracene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(a)pyrene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(b)fluoranthene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(g,h,i)perylene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(k)fluoranthene	ug/l	ND	06/27/01	KKP	5.0			
Chrysene	ug/l	ND	06/27/01	KKP	10.8			
Dibenzo(a,h)anthracene	ug/l	ND	06/27/01	KKP	5.0			
Fluoranthene	ug/l	ND	06/27/01	KKP	5.0			
Fluorene	ug/l	ND	06/27/01	KKP	5.0			
Indeno(1,2,3-cd)pyrene	ug/l	ND	06/27/01	KKP	5.0			
2-Methylnaphthalene	ug/l	ND	06/27/01	KKP	5.0			
Naphthalene	ug/l	ND	06/27/01	KKP	5.0			
Phenanthrene	ug/l	ND	06/27/01	KKP	5.0			
Pyrene	ug/l	ND	06/27/01	KKP	5.0			
Date Extracted EPH Water		6/25/2001	06/27/01	KKP				

RL = Reporting Limit
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NM = Not Measured

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

* = See end of report for comments and notes applying to this sample

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01
Field Sample # : MW-02

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

Analytical Method:
MADEP-EPH-98-1 REVISION 0

SAMPLES ARE PRESERVED TO pH < 2.0 WITH HYDROCHLORIC ACID (HCL). SAMPLES ARE EXTRACTED WITH METHYLENE CHLORIDE, EXCHANGED INTO HEXANE AND CONCENTRATED. ALIPHATIC AND AROMATIC FRACTIONS ARE SEPARATED. ANALYSIS IS BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION. PAH AND C10-C22 AROMATICS ARE DETERMINED IN THE METHYLENE CHLORIDE FRACTION. C9-C18 AND C19-C36 ALIPHATICS ARE DETERMINED IN THE HEXANE FRACTION. TARGET COMPOUND CONTRIBUTIONS ARE SUBTRACTED FROM THE SUMMED AROMATIC RANGE. SUMMED RANGES ARE CORRECTED FOR LABORATORY METHOD BLANK.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

SIGNIFICANT MODIFICATIONS ARE LIMITED TO THE SUBTRACTION OF METHOD BLANK FROM THE SUMMED RANGES.

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

√ YES ___ NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

√ YES ___ NO

DETAILS OF ANY NON-CONFORMANCE WITH QA/QC REQUIREMENTS, PERFORMANCE, OR ACCEPTANCE CRITERIA ARE DETAILED IN THE NOTES SECTION OF THIS REPORT.

RL = Reporting Limit
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SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

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PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01
Field Sample # : MW-03
Sample ID : 01B17122
Sampled : 6/21/01
NOT SPECIFIED
Sample Matrix: GRND WATER

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/F
C9-C18 Aliphatics	ug/l	ND	06/27/01	KKP	144.			
C19-C36 Aliphatics	ug/l	99.0	06/27/01	KKP	84.0			
C11-C22 Aromatics	ug/l	86.4	06/27/01	KKP	48.0			
Acenaphthene	ug/l	ND	06/27/01	KKP	5.0			
Acenaphthylene	ug/l	ND	06/27/01	KKP	5.0			
Anthracene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(a)anthracene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(a)pyrene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(b)fluoranthene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(g,h,i)perylene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(k)fluoranthene	ug/l	ND	06/27/01	KKP	5.0			
Chrysene	ug/l	ND	06/27/01	KKP	10.8			
Dibenzo(a,h)anthracene	ug/l	ND	06/27/01	KKP	5.0			
Fluoranthene	ug/l	ND	06/27/01	KKP	5.0			
Fluorene	ug/l	ND	06/27/01	KKP	5.0			
Indeno(1,2,3-cd)pyrene	ug/l	ND	06/27/01	KKP	5.0			
2-Methylnaphthalene	ug/l	ND	06/27/01	KKP	5.0			
Naphthalene	ug/l	ND	06/27/01	KKP	5.0			
Phenanthrene	ug/l	ND	06/27/01	KKP	5.0			
Pyrene	ug/l	ND	06/27/01	KKP	5.0			
Date Extracted EPH Water		6/25/2001	06/27/01	KKP				

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SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

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PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01
Field Sample # : MW-03

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

Analytical Method:
MADEP-EPH-98-1 REVISION 0

SAMPLES ARE PRESERVED TO pH < 2.0 WITH HYDROCHLORIC ACID (HCL). SAMPLES ARE EXTRACTED WITH METHYLENE CHLORIDE, EXCHANGED INTO HEXANE AND CONCENTRATED. ALIPHATIC AND AROMATIC FRACTIONS ARE SEPARATED. ANALYSIS IS BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION. PAH AND C10-C22 AROMATICS ARE DETERMINED IN THE METHYLENE CHLORIDE FRACTION. C9-C18 AND C19-C36 ALIPHATICS ARE DETERMINED IN THE HEXANE FRACTION. TARGET COMPOUND CONTRIBUTIONS ARE SUBTRACTED FROM THE SUMMED AROMATIC RANGE. SUMMED RANGES ARE CORRECTED FOR LABORATORY METHOD BLANK.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

SIGNIFICANT MODIFICATIONS ARE LIMITED TO THE SUBTRACTION OF METHOD BLANK FROM THE SUMMED RANGES.

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

_✓_ YES ___ NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

_✓_ YES ___ NO

DETAILS OF ANY NON-CONFORMANCE WITH QA/QC REQUIREMENTS, PERFORMANCE, OR ACCEPTANCE CRITERIA ARE DETAILED IN THE NOTES SECTION OF THIS REPORT.

RL = Reporting Limit

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* = See end of report for comments and notes applying to this sample

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PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01
Field Sample # : **MW-04**
Sample ID : **01B17123**
Sampled : 6/21/01
NOT SPECIFIED
Sample Matrix: GRND WATER

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
C9-C18 Aliphatics	ug/l	ND	06/27/01	KKP	144.			
C19-C36 Aliphatics	ug/l	128.	06/27/01	KKP	84.0			
C11-C22 Aromatics	ug/l	61.4	06/27/01	KKP	48.0			
Acenaphthene	ug/l	ND	06/27/01	KKP	5.0			
Acenaphthylene	ug/l	ND	06/27/01	KKP	5.0			
Anthracene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(a)anthracene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(a)pyrene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(b)fluoranthene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(g,h,i)perylene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(k)fluoranthene	ug/l	ND	06/27/01	KKP	5.0			
Chrysene	ug/l	ND	06/27/01	KKP	10.8			
Dibenzo(a,h)anthracene	ug/l	ND	06/27/01	KKP	5.0			
Fluoranthene	ug/l	ND	06/27/01	KKP	5.0			
Fluorene	ug/l	ND	06/27/01	KKP	5.0			
Indeno(1,2,3-cd)pyrene	ug/l	ND	06/27/01	KKP	5.0			
2-Methylnaphthalene	ug/l	ND	06/27/01	KKP	5.0			
Naphthalene	ug/l	ND	06/27/01	KKP	5.0			
Phenanthrene	ug/l	ND	06/27/01	KKP	5.0			
Pyrene	ug/l	ND	06/27/01	KKP	5.0			
Date Extracted EPH Water		6/25/2001	06/27/01	KKP				

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SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

6/28/01

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01
Field Sample # : MW-04

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

Analytical Method:
MADEP-EPH-98-1 REVISION 0

SAMPLES ARE PRESERVED TO pH < 2.0 WITH HYDROCHLORIC ACID (HCL). SAMPLES ARE EXTRACTED WITH METHYLENE CHLORIDE, EXCHANGED INTO HEXANE AND CONCENTRATED. ALIPHATIC AND AROMATIC FRACTIONS ARE SEPARATED. ANALYSIS IS BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION. PAH AND C10-C22 AROMATICS ARE DETERMINED IN THE METHYLENE CHLORIDE FRACTION. C9-C18 AND C19-C36 ALIPHATICS ARE DETERMINED IN THE HEXANE FRACTION. TARGET COMPOUND CONTRIBUTIONS ARE SUBTRACTED FROM THE SUMMED AROMATIC RANGE. SUMMED RANGES ARE CORRECTED FOR LABORATORY METHOD BLANK.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

SIGNIFICANT MODIFICATIONS ARE LIMITED TO THE SUBTRACTION OF METHOD BLANK FROM THE SUMMED RANGES.

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

√ YES ___ NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

√ YES ___ NO

DETAILS OF ANY NON-CONFORMANCE WITH QA/QC REQUIREMENTS, PERFORMANCE, OR ACCEPTANCE CRITERIA ARE DETAILED IN THE NOTES SECTION OF THIS REPORT.

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PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01
Field Sample # : MW-05

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

Sample ID : 01B17124 Sampled : 6/21/01
NOT SPECIFIED

Sample Matrix: GRND WATER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
C9-C18 Aliphatics	ug/l	ND	06/27/01	KKP	144.			
C19-C36 Aliphatics	ug/l	ND	06/27/01	KKP	84.0			
C11-C22 Aromatics	ug/l	ND	06/27/01	KKP	48.0			
Acenaphthene	ug/l	ND	06/27/01	KKP	5.0			
Acenaphthylene	ug/l	ND	06/27/01	KKP	5.0			
Anthracene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(a)anthracene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(a)pyrene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(b)fluoranthene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(g,h,i)perylene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(k)fluoranthene	ug/l	ND	06/27/01	KKP	5.0			
Chrysene	ug/l	ND	06/27/01	KKP	10.8			
Dibenzo(a,h)anthracene	ug/l	ND	06/27/01	KKP	5.0			
Fluoranthene	ug/l	ND	06/27/01	KKP	5.0			
Fluorene	ug/l	ND	06/27/01	KKP	5.0			
Indeno(1,2,3-cd)pyrene	ug/l	ND	06/27/01	KKP	5.0			
2-Methylnaphthalene	ug/l	ND	06/27/01	KKP	5.0			
Naphthalene	ug/l	ND	06/27/01	KKP	5.0			
Phenanthrene	ug/l	ND	06/27/01	KKP	5.0			
Pyrene	ug/l	ND	06/27/01	KKP	5.0			
Date Extracted EPH Water		6/25/2001	06/27/01	KKP				

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SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

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THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01
Field Sample # : MW-05

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

Analytical Method:

MADEP-EPH-98-1 REVISION 0

SAMPLES ARE PRESERVED TO pH < 2.0 WITH HYDROCHLORIC ACID (HCL). SAMPLES ARE EXTRACTED WITH METHYLENE CHLORIDE, EXCHANGED INTO HEXANE AND CONCENTRATED. ALIPHATIC AND AROMATIC FRACTIONS ARE SEPARATED. ANALYSIS IS BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION. PAH AND C10-C22 AROMATICS ARE DETERMINED IN THE METHYLENE CHLORIDE FRACTION. C9-C18 AND C19-C36 ALIPHATICS ARE DETERMINED IN THE HEXANE FRACTION. TARGET COMPOUND CONTRIBUTIONS ARE SUBTRACTED FROM THE SUMMED AROMATIC RANGE. SUMMED RANGES ARE CORRECTED FOR LABORATORY METHOD BLANK.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

SIGNIFICANT MODIFICATIONS ARE LIMITED TO THE SUBTRACTION OF METHOD BLANK FROM THE SUMMED RANGES.

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

✓ YES ___ NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

✓ YES ___ NO

DETAILS OF ANY NON-CONFORMANCE WITH QA/QC REQUIREMENTS, PERFORMANCE, OR ACCEPTANCE CRITERIA ARE DETAILED IN THE NOTES SECTION OF THIS REPORT.

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

6/28/01

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01
Field Sample # : **MW-06**
Sample ID : **01B17125**
Sampled : 6/21/01
NOT SPECIFIED
Sample Matrix: GRND WATER

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/F
C9-C18 Aliphatics	ug/l	ND	06/27/01	KKP	144.			
C19-C36 Aliphatics	ug/l	ND	06/27/01	KKP	84.0			
C11-C22 Aromatics	ug/l	ND	06/27/01	KKP	48.0			
Acenaphthene	ug/l	ND	06/27/01	KKP	5.0			
Acenaphthylene	ug/l	ND	06/27/01	KKP	5.0			
Anthracene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(a)anthracene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(a)pyrene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(b)fluoranthene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(g,h,i)perylene	ug/l	ND	06/27/01	KKP	5.0			
Benzo(k)fluoranthene	ug/l	ND	06/27/01	KKP	5.0			
Chrysene	ug/l	ND	06/27/01	KKP	10.8			
Dibenzo(a,h)anthracene	ug/l	ND	06/27/01	KKP	5.0			
Fluoranthene	ug/l	ND	06/27/01	KKP	5.0			
Fluorene	ug/l	ND	06/27/01	KKP	5.0			
Indeno(1,2,3-cd)pyrene	ug/l	ND	06/27/01	KKP	5.0			
2-Methylnaphthalene	ug/l	ND	06/27/01	KKP	5.0			
Naphthalene	ug/l	ND	06/27/01	KKP	5.0			
Phenanthrene	ug/l	ND	06/27/01	KKP	5.0			
Pyrene	ug/l	ND	06/27/01	KKP	5.0			
Date Extracted EPH Water		6/25/2001	06/27/01	KKP				

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NM = Not Measured

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

* = See end of report for comments and notes applying to this sample

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01
Field Sample # : MW-06

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

Analytical Method:
MADEP-EPH-98-1 REVISION 0

SAMPLES ARE PRESERVED TO pH < 2.0 WITH HYDROCHLORIC ACID (HCL). SAMPLES ARE EXTRACTED WITH METHYLENE CHLORIDE, EXCHANGED INTO HEXANE AND CONCENTRATED. ALIPHATIC AND AROMATIC FRACTIONS ARE SEPARATED. ANALYSIS IS BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION. PAH AND C10-C22 AROMATICS ARE DETERMINED IN THE METHYLENE CHLORIDE FRACTION. C9-C18 AND C19-C36 ALIPHATICS ARE DETERMINED IN THE HEXANE FRACTION. TARGET COMPOUND CONTRIBUTIONS ARE SUBTRACTED FROM THE SUMMED AROMATIC RANGE. SUMMED RANGES ARE CORRECTED FOR LABORATORY METHOD BLANK.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

SIGNIFICANT MODIFICATIONS ARE LIMITED TO THE SUBTRACTION OF METHOD BLANK FROM THE SUMMED RANGES.

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

✓ YES ___ NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

✓ YES ___ NO

DETAILS OF ANY NON-CONFORMANCE WITH QA/QC REQUIREMENTS, PERFORMANCE, OR ACCEPTANCE CRITERIA ARE DETAILED IN THE NOTES SECTION OF THIS REPORT.

RL = Reporting Limit

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01
Field Sample # : **MW-01**
Sample ID : **01B17120**
Sampled : 6/21/01
NOT SPECIFIED
Sample Matrix: GRND WATER

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/F
C5-C8 Allphatics	ug/l	ND	06/27/01	KKP	69.0			
C9-C12 Aliphatics	ug/l	ND	06/27/01	KKP	34.0			
C9-C10 Aromatics	ug/l	ND	06/27/01	KKP	20.0			
Benzene	ug/l	ND	06/27/01	KKP	0.3			
Ethyl Benzene	ug/l	ND	06/27/01	KKP	0.4			
MTBE	ug/l	ND	06/27/01	KKP	2.1			
Naphthalene	ug/l	ND	06/27/01	KKP	3.2			
Toluene	ug/l	ND	06/27/01	KKP	1.9			
m/p-Xylene	ug/l	ND	06/27/01	KKP	2.7			
o-Xylene	ug/l	ND	06/27/01	KKP	1.0			

Analytical Method:
MADEP-VPH-98-1 REVISION 0
SAMPLES ARE CONCENTRATED BY PURGE AND TRAP, FOLLOWED BY GAS CHROMATOGRAPHY ANALYSIS WITH PID/FID DETECTION. SUMMED RANGES ARE REPORTED WITH TARGET COMPOUND CONTRIBUTIONS SUBTRACTED AND CORRECTED FOR LABORATORY METHOD BLANK. C9-C12 ALIPHATIC HYDROCARBONS EXCLUDE THE CONCENTRATION OF C9-C10 AROMATIC HYDROCARBONS.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

NO SIGNIFICANT MODIFICATIONS WERE MADE TO THE METHOD.

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

√ YES ___ NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

√ YES ___ NO

DETAILS OF ANY NON-CONFORMANCE WITH QA/QC REQUIREMENTS, PERFOMANCE, OR ACCEPATANCE CRITERIA ARE LISTED IN THE NOTES SECTION OF THIS REPORT.

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01
Field Sample # : MW-02

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

Sample ID : 01B17121

Sampled : 6/21/01
NOT SPECIFIED

Sample Matrix: GRND WATER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
C5-C8 Aliphatics	ug/l	ND	06/27/01	KKP	69.0			
C9-C12 Aliphatics	ug/l	ND	06/27/01	KKP	34.0			
C9-C10 Aromatics	ug/l	ND	06/27/01	KKP	20.0			
Benzene	ug/l	ND	06/27/01	KKP	0.3			
Ethyl Benzene	ug/l	3.8	06/27/01	KKP	0.4			
MTBE	ug/l	ND	06/27/01	KKP	2.1			
Naphthalene	ug/l	ND	06/27/01	KKP	3.2			
Toluene	ug/l	ND	06/27/01	KKP	1.9			
m/p-Xylene	ug/l	ND	06/27/01	KKP	2.7			
o-Xylene	ug/l	ND	06/27/01	KKP	1.0			

Analytical Method:
MADEP-VPH-98-1 REVISION 0

SAMPLES ARE CONCENTRATED BY PURGE AND TRAP, FOLLOWED BY GAS CHROMATOGRAPHY ANALYSIS WITH PID/FID DETECTION. SUMMED RANGES ARE REPORTED WITH TARGET COMPOUND CONTRIBUTIONS SUBTRACTED AND CORRECTED FOR LABORATORY METHOD BLANK. C9-C12 ALIPHATIC HYDROCARBONS EXCLUDE THE CONCENTRATION OF C9-C10 AROMATIC HYDROCARBONS.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

NO SIGNIFICANT MODIFICATIONS WERE MADE TO THE METHOD.

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

__√__ YES ___ NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

__√__ YES ___ NO

DETAILS OF ANY NON-CONFORMANCE WITH QA/QC REQUIREMENTS, PERFOMANCE, OR ACCEPATANCE CRITERIA ARE LISTED IN THE NOTES SECTION OF THIS REPORT.

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THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01
Field Sample # : **MW-03**
Sample ID : **01B17122**

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

Sampled : 6/21/01
NOT SPECIFIED

Sample Matrix: GRND WATER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
C5-C8 Aliphatics	ug/l	ND	06/27/01	KKP	69.0			
C9-C12 Aliphatics	ug/l	ND	06/27/01	KKP	34.0			
C9-C10 Aromatics	ug/l	ND	06/27/01	KKP	20.0			
Benzene	ug/l	ND	06/27/01	KKP	0.3			
Ethyl Benzene	ug/l	ND	06/27/01	KKP	0.4			
MTBE	ug/l	ND	06/27/01	KKP	2.1			
Naphthalene	ug/l	ND	06/27/01	KKP	3.2			
Toluene	ug/l	ND	06/27/01	KKP	1.9			
m/p-Xylene	ug/l	ND	06/27/01	KKP	2.7			
o-Xylene	ug/l	ND	06/27/01	KKP	1.0			

Analytical Method:
MADEP-VPH-98-1 REVISION 0
SAMPLES ARE CONCENTRATED BY PURGE AND TRAP, FOLLOWED BY GAS CHROMATOGRAPHY ANALYSIS WITH PID/FID DETECTION. SUMMED RANGES ARE REPORTED WITH TARGET COMPOUND CONTRIBUTIONS SUBTRACTED AND CORRECTED FOR LABORATORY METHOD BLANK. C9-C12 ALIPHATIC HYDROCARBONS EXCLUDE THE CONCENTRATION OF C9-C10 AROMATIC HYDROCARBONS.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

NO SIGNIFICANT MODIFICATIONS WERE MADE TO THE METHOD.

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

√ YES ___ NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

√ YES ___ NO

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THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01
Field Sample # : **MW-04**

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

Sample ID : **01B17123**

Sampled : 6/21/01
NOT SPECIFIED

Sample Matrix: GRND WATER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
C5-C8 Aliphatics	ug/l	ND	06/27/01	KKP	69.0			
C9-C12 Aliphatics	ug/l	ND	06/27/01	KKP	34.0			
C9-C10 Aromatics	ug/l	ND	06/27/01	KKP	20.0			
Benzene	ug/l	ND	06/27/01	KKP	0.3			
Ethyl Benzene	ug/l	ND	06/27/01	KKP	0.4			
MTBE	ug/l	ND	06/27/01	KKP	2.1			
Naphthalene	ug/l	ND	06/27/01	KKP	3.2			
Toluene	ug/l	ND	06/27/01	KKP	1.9			
m/p-Xylene	ug/l	ND	06/27/01	KKP	2.7			
o-Xylene	ug/l	ND	06/27/01	KKP	1.0			

Analytical Method:
MADEP-VPH-98-1 REVISION 0
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REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

NO SIGNIFICANT MODIFICATIONS WERE MADE TO THE METHOD.

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

✓ YES ___ NO

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PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

6/28/01

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01
Field Sample # : **MW-05**

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

Sample ID : 01B17124 Sampled : 6/21/01
NOT SPECIFIED

Sample Matrix: GRND WATER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
C5-C8 Aliphatics	ug/l	ND	06/27/01	KKP	69.0			
C9-C12 Aliphatics	ug/l	ND	06/27/01	KKP	34.0			
C9-C10 Aromatics	ug/l	ND	06/27/01	KKP	20.0			
Benzene	ug/l	ND	06/27/01	KKP	0.3			
Ethyl Benzene	ug/l	ND	06/27/01	KKP	0.4			
MTBE	ug/l	ND	06/27/01	KKP	2.1			
Naphthalene	ug/l	ND	06/27/01	KKP	3.2			
Toluene	ug/l	ND	06/27/01	KKP	1.9			
m/p-Xylene	ug/l	ND	06/27/01	KKP	2.7			
o-Xylene	ug/l	ND	06/27/01	KKP	1.0			

Analytical Method:
MADEP-VPH-98-1 REVISION 0
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NO SIGNIFICANT MODIFICATIONS WERE MADE TO THE METHOD.

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

✓ YES ___ NO

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6/28/01

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01
Field Sample # : **MW-06**

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

Sample ID : **01B17125** Sampled : 6/21/01
NOT SPECIFIED

Sample Matrix: GRND WATER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/ F
C5-C8 Aliphatics	ug/l	ND	06/27/01	KKP	69.0			
C9-C12 Aliphatics	ug/l	ND	06/27/01	KKP	34.0			
C9-C10 Aromatics	ug/l	ND	06/27/01	KKP	20.0			
Benzene	ug/l	ND	06/27/01	KKP	0.3			
Ethyl Benzene	ug/l	ND	06/27/01	KKP	0.4			
MTBE	ug/l	ND	06/27/01	KKP	2.1			
Naphthalene	ug/l	ND	06/27/01	KKP	3.2			
Toluene	ug/l	ND	06/27/01	KKP	1.9			
m/p-Xylene	ug/l	ND	06/27/01	KKP	2.7			
o-Xylene	ug/l	ND	06/27/01	KKP	1.0			

Analytical Method:
MADEP-VPH-98-1 REVISION 0
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REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

NO SIGNIFICANT MODIFICATIONS WERE MADE TO THE METHOD.

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

✓ YES ___ NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

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PENNONI ASSOCIATES
THE CONCORD CTR, STE 311, 10 FERRY ST.#6
CONCORD, NH 03301

6/28/01

Purchase Order No.: DOMH 0101.09

Project Location: MEDFIELD STATE HOSPITAL POWER PLANT
Date Received: 6/21/01

LIMS-BAT #: LIMS-56545
Job Number: DOMH 0101.09

** END OF REPORT **

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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates.
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 6/28/01 Lims Bat # : LIMS-56545

QC Batch Number: GC/FID-5322

Sample Id	Analysis	QC Analysis	Values	Units	Limits
01B17120					
	2-Fluorobiphenyl	Surrogate Recovery	85.4	%	40-140
	2-Bromonaphthalene	Surrogate Recovery	85.8	%	40-140
	Chlorooctadecane	Sur. Recovery	71.0	%	40-140
	Terphenyl	Sur. Recovery	84.5	%	40-140
01B17121					
	2-Fluorobiphenyl	Surrogate Recovery	83.0	%	40-140
	2-Bromonaphthalene	Surrogate Recovery	99.8	%	40-140
	Chlorooctadecane	Sur. Recovery	79.5	%	40-140
	Terphenyl	Sur. Recovery	91.5	%	40-140
01B17122					
	2-Fluorobiphenyl	Surrogate Recovery	84.8	%	40-140
	2-Bromonaphthalene	Surrogate Recovery	90.6	%	40-140
	Chlorooctadecane	Sur. Recovery	82.0	%	40-140
	Terphenyl	Sur. Recovery	83.5	%	40-140
01B17123					
	2-Fluorobiphenyl	Surrogate Recovery	83.8	%	40-140
	2-Bromonaphthalene	Surrogate Recovery	86.4	%	40-140
	Chlorooctadecane	Sur. Recovery	78.5	%	40-140
	Terphenyl	Sur. Recovery	79.5	%	40-140
01B17124					
	2-Fluorobiphenyl	Surrogate Recovery	80.8	%	40-140
	2-Bromonaphthalene	Surrogate Recovery	82.4	%	40-140
	Chlorooctadecane	Sur. Recovery	87.5	%	40-140
	Terphenyl	Sur. Recovery	79.5	%	40-140
01B17125					
	2-Fluorobiphenyl	Surrogate Recovery	88.8	%	40-140
	2-Bromonaphthalene	Surrogate Recovery	91.0	%	40-140
	Chlorooctadecane	Sur. Recovery	84.5	%	40-140
	Terphenyl	Sur. Recovery	87.0	%	40-140
BLANK-34374					
	Naphthalene	Blank	<5.0	ug/l	
	Acenaphthene	Blank	<5.0	ug/l	
	Acenaphthylene	Blank	<5.0	ug/l	
	Anthracene	Blank	<5.0	ug/l	
	Benzo(a)anthracene	Blank	<5.0	ug/l	
	Benzo(a)pyrene	Blank	<5.0	ug/l	
	Benzo(b)fluoranthene	Blank	<5.0	ug/l	
	Benzo(g,h,i)perylene	Blank	<5.0	ug/l	
	Chrysene	Blank	<10.8	ug/l	
	Dibenzo(a,h)anthracene	Blank	<5.0	ug/l	
	Fluoranthene	Blank	<5.0	ug/l	
	Fluorene	Blank	<5.0	ug/l	
	Indeno(1,2,3-cd)pyrene	Blank	<5.0	ug/l	

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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates.
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 6/28/01 Lims Bat # : LIMS-56545

QC Batch Number: GC/FID-5322

Sample Id	Analysis	QC Analysis	Values	Units	Limits
BLANK-34374					
	2-Methylnaphthalene	Blank	<5.0	ug/l	
	Phenanthrene	Blank	<5.0	ug/l	
	Pyrene	Blank	<5.0	ug/l	
	Benzo(k)fluoranthene	Blank	<5.0	ug/l	
	C9-C18 Aliphatics	Blank	<144.	ug/l	
	C19-C36 Aliphatics	Blank	<84.0	ug/l	
	C11-C22 Aromatics	Blank	151.4	ug/l	
	ortho Terphenyl ug/l	Blank	26.4	ug/l	
LFBLANK-16589					
	Naphthalene	Lab Fort Blank Amt.	50.0	ug/l	
		Lab Fort Blk. Found	26.2	ug/l	
		Lab Fort Blk. % Rec.	52.4	%	40-140
	Acenaphthene	Lab Fort Blank Amt.	50.0	ug/l	
		Lab Fort Blk. Found	49.4	ug/l	
		Lab Fort Blk. % Rec.	98.8	%	40-140
	Anthracene	Lab Fort Blank Amt.	50.0	ug/l	
		Lab Fort Blk. Found	50.0	ug/l	
		Lab Fort Blk. % Rec.	100.0	%	40-140
	Chrysene	Lab Fort Blank Amt.	50.0	ug/l	
		Lab Fort Blk. Found	46.6	ug/l	
		Lab Fort Blk. % Rec.	93.2	%	40-140
	Pyrene	Lab Fort Blank Amt.	50.0	ug/l	
		Lab Fort Blk. Found	44.8	ug/l	
		Lab Fort Blk. % Rec.	89.6	%	40-140

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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates.
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 6/28/01 Lims Bat # : LIMS-56545

QC Batch Number: GC/FID-5324

Sample Id	Analysis	QC Analysis	Values	Units	Limits
01B17120	2,5-Dibromotoluene (FID)	Sur. Recovery (FID)	111.0	%	70-130
01B17121	2,5-Dibromotoluene (FID)	Sur. Recovery (FID)	119.2	%	70-130
01B17122	2,5-Dibromotoluene (FID)	Sur. Recovery (FID)	126.8	%	70-130
01B17123	2,5-Dibromotoluene (FID)	Sur. Recovery (FID)	125.5	%	70-130
01B17124	2,5-Dibromotoluene (FID)	Sur. Recovery (FID)	127.5	%	70-130
01B17125	2,5-Dibromotoluene (FID)	Sur. Recovery (FID)	117.8	%	70-130
BLANK-34379	C5-C8 Aliphatics	Blank	182.0	ug/l	
	C9-C12 Aliphatics	Blank	<34.0	ug/l	

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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates.
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 6/28/01 Lims Bat # : LIMS-56545

QC Batch Number: GC/PID-4429

Sample Id	Analysis	QC Analysis	Values	Units	Limits
01B17120	2,5-Dibromotoluene (PID)	Sur. Recovery (PID)	83.5	%	70-130
01B17121	2,5-Dibromotoluene (PID)	Sur. Recovery (PID)	114.2	%	70-130
01B17122	2,5-Dibromotoluene (PID)	Sur. Recovery (PID)	99.8	%	70-130
01B17123	2,5-Dibromotoluene (PID)	Sur. Recovery (PID)	96.5	%	70-130
01B17124	2,5-Dibromotoluene (PID)	Sur. Recovery (PID)	98.8	%	70-130
01B17125	2,5-Dibromotoluene (PID)	Sur. Recovery (PID)	91.5	%	70-130
BLANK-34376	Benzene	Blank	<0.3	ug/l	
	Ethyl Benzene	Blank	<0.4	ug/l	
	Naphthalene	Blank	<3.2	ug/l	
	Toluene	Blank	<1.9	ug/l	
	o-Xylene	Blank	<1.0	ug/l	
	m/p-Xylene	Blank	<2.7	ug/l	
	C9-C10 Aromatics	Blank	<20.0	ug/l	
	MTBE	Blank	<2.1	ug/l	
LFBLANK-16590	Benzene	Lab Fort Blank Amt.	40.0	ug/l	
		Lab Fort Blk. Found	35.2	ug/l	
		Lab Fort Blk. % Rec.	88.0	%	70-130
	Ethyl Benzene	Lab Fort Blank Amt.	40.0	ug/l	
		Lab Fort Blk. Found	37.3	ug/l	
		Lab Fort Blk. % Rec.	93.2	%	70-130
	Naphthalene	Lab Fort Blank Amt.	40.0	ug/l	
		Lab Fort Blk. Found	39.7	ug/l	
		Lab Fort Blk. % Rec.	99.2	%	70-130
	Toluene	Lab Fort Blank Amt.	40.0	ug/l	
		Lab Fort Blk. Found	38.8	ug/l	
		Lab Fort Blk. % Rec.	97.0	%	70-130
	o-Xylene	Lab Fort Blank Amt.	40.0	ug/l	
		Lab Fort Blk. Found	41.0	ug/l	
		Lab Fort Blk. % Rec.	102.5	%	70-130
	m/p-Xylene	Lab Fort Blank Amt.	80.0	ug/l	
		Lab Fort Blk. Found	74.7	ug/l	
		Lab Fort Blk. % Rec.	93.4	%	70-130
	MTBE	Lab Fort Blank Amt.	40.0	ug/l	
		Lab Fort Blk. Found	38.0	ug/l	
		Lab Fort Blk. % Rec.	95.0	%	70-130

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QC SUMMARY REPORT

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Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

Report Date: 6/28/01 Lims Bat # : LIMS-56545

NOTES:

QC Batch No. : GC/FID-5324
Sample ID : BLANK-34379
Analysis : C5-C8 Aliphatics

ELEVATED BLANK LEVEL DUE TO LABORATORY BACKGROUND METHYLENE CHLORIDE CONTAMINATION.

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QC SUMMARY REPORT

SAMPLE QC: Sample Results with Duplicates.
Sample Matrix Spikes and Matrix Spike Duplicates

BATCH QC: Lab fortified Blanks and Duplicates
Standard Reference Materials and Duplicates
Method Blanks

QUALITY CONTROL DEFINITIONS AND ABBREVIATIONS

QC BATCH NUMBER	This is the number assigned to all samples analyzed together that would be subject to comparison with a particular set of Quality Control Data.
LIMITS	Upper and Lower Control Limits for the QC ANALYSIS Reported. All values normally would fall within these statistically determined limits, unless there is an unusual circumstance that would be documented in a NOTE appearing on the last page of the QC SUMMARY REPORT. Not all QC results will have Limits defined.
Sample Amount	Amount of analyte found in a sample.
Blank	Method Blank that has been taken though all the steps of the analysis.
LFBLANK	Laboratory Fortified Blank (a control sample)
STDADD	Standard Added (a laboratory control sample)
Matrix Spk Amt Added	Amount of analyte spiked into a sample
MS Amt Measured	Amount of analyte found including amount that was spiked
Matrix Spike % Rec.	% Recovery of spiked amount in sample.
Duplicate Value	The result from the Duplicate analysis of the sample.
Duplicate RPD	The Relative Percent Difference between two Duplicate Analyses.
Surrogate Recovery	The % Recovery for non-environmental compounds (surrogates) spiked into samples to determine the performance of the analytical methods.
Sur. Recovery (ELCD)	Surrogate Recovery on the Electrolytic Conductivity Detector.
Sur. Recovery (PID)	Surrogate Recovery on the Photoionization Detector.
Standard Measured	Amount measured for a laboratory control sample
Standard Amt Added	Known value for a laboratory control sample
Standard % Recovery	% recovered for a laboratory control sample with a known value.
Lab Fort Blank Amt	Laboratory Fortified Blank Amount Added
Lab Fort Blk. Found	Laboratory Fortified Blank Amount Found
Lab Fort Blk % Rec	Laboratory Fortified Blank % Recovered
Dup Lab Fort Bl Amt	Duplicate Laboratory Fortified Blank Amount Added
Dup Lab Fort Bl Fnd	Duplicate Laboratory Fortified Blank Amount Found
Dup Lab Fort Bl % Rec	Duplicate Laboratory Fortified Blank % Recovery
Lab Fort Blank Range	Laboratory Fortified Blank Range (Absolute value of difference between recoveries for Lab Fortified Blank and Lab Fortified Blank Duplicate).
Lab Fort Bl. Av. Rec.	Laboratory Fortified Blank Average Recovery
Duplicate Sample Amt	Sample Value for Duplicate used with Matrix Spike Duplicate
MSD Amount Added	Matrix Spike Duplicate Amount Added (Spiked)
MSD Amt Measured	Matrix Spike Duplicate Amount Measured
MSD % Recovery	Matrix Spike Duplicate % Recovery
MSD Range	Absolute difference between Matrix Spike and Matrix Spike Duplicate Recoveries

Bill - 413 348 8531

con-test ANALYTICAL LABORATORY

(413) 525-2332
FAX (413) 525-6405

CHAIN OF CUSTODY RECORD

39 SPRUCE ST. • 2ND FLOOR • EAST LONGMEADOW, MA 01028

Client Name: Pennoni Associates Inc
Attn: Jeff McCullough
Address: The Concord Center, Suite 434
10 Ferry St. Unit 6, Concord, NH, 03301
Site Location: Medfield State Hospital Power Plant
Sampled By: Philip LaMoreaux / Robin Bellanca
Call Results: Yes X No ___
Fax Results: Yes X No ___

Telephone: 603-226-1950
Batch #:
Project #: DOMH 0101.09
Client P.O. #: DOMH 0101.09
Fax #: (603) 226-5235

*Email results to JMcCullough@pennoni.com

LIMS # 56545

Field Sample I.D.	Sample Description	Lab #	DATE SAMPLED Start Date/Time	DATE SAMPLED Stop Date/Time	Composite	Grab	MATRIX: Waste Water	Ground Water	DKG Water	Soil	Air	*Other	Preservative (Use Code)	Container (Use Code)	Analysis Required: EPH	VPH
		01B17120	6/21/01	1045		X		X					H	2V 1A	X	X
MW-1		17121		1040		X		X					H	2V 2A	X	X
MW-2		17122		1017		X		X					H	2V 2A	X	X
MW-3		17123		1005		X		X					H	2V 2A	X	X
MW-4		17124		1137		X		X					H	2V 2A	X	X
MW-5		17125		1135		X		X					H	2V 2A	X	X
MW-6																

CONTAINER CODE
P: PLASTIC (___ Size) V = 40 ml vial G = Glass (___ size) A = 1000 ml Amber O = Other ___

PRESERVATIVE CODE:
I = ICED N = HNO_3 H = HCl S = NaOH T = $Na_2S_2O_3$ O = OTHER ___

	Date Time	Received by: (Signature)
Relinquished by: (Signature) Philip LaMoreaux	6/21/01 1225	W.R. Huntington
Relinquished by: (Signature) W.R. Huntington	6-21-01 1853	Received by: (Signature) Carl Rupp Reduced
Relinquished by: (Signature)	Date Time	Received by: (Signature)

Turnaround Requested: ___ 24-Hour ___ 48-Hour X Normal
___ Other ___ Date Required

Remarks/Comments:
MW-1 only 1L for EPH
MW-1 Notified client 1 vial for VPH Trigen, 1 with headspace, we to run anyway per Jeff 6/27/01 TLF

*MATRIX OTHER ___

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR. STE 434, 10 FERRY ST.#6
CONCORD, NH 03301

11/16/01

Purchase Order No.: DOMH 0101.12

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 11/9/01
Field Sample #: MW-2

LIMS-BAT #: LIMS-59692
Job Number: DOMH 0101.12

Sample ID: 01B30888 Sampled: 11/8/01
NOT SPECIFIED

Sample Matrix: GRND WATER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/F
C9-C18 Aliphatics	ug/l	ND	11/15/01	KKP	144.			
C19-C36 Aliphatics	ug/l	550.	11/15/01	KKP	84.0			
C11-C22 Aromatics	ug/l	416.	11/15/01	KKP	48.0			
Acenaphthene	ug/l	ND	11/15/01	KKP	5.0			
Acenaphthylene	ug/l	ND	11/15/01	KKP	5.0			
Anthracene	ug/l	ND	11/15/01	KKP	5.0			
Benzo(a)anthracene	ug/l	ND	11/15/01	KKP	5.0			
Benzo(a)pyrene	ug/l	ND	11/15/01	KKP	5.0			
Benzo(b)fluoranthene	ug/l	ND	11/15/01	KKP	5.0			
Benzo(g,h,i)perylene	ug/l	ND	11/15/01	KKP	5.0			
Benzo(k)fluoranthene	ug/l	ND	11/15/01	KKP	5.0			
Chrysene	ug/l	ND	11/15/01	KKP	10.8			
Dibenzo(a,h)anthracene	ug/l	ND	11/15/01	KKP	5.0			
Fluoranthene	ug/l	ND	11/15/01	KKP	5.0			
Fluorene	ug/l	ND	11/15/01	KKP	5.0			
Indeno(1,2,3-cd)pyrene	ug/l	ND	11/15/01	KKP	5.0			
2-Methylnaphthalene	ug/l	ND	11/15/01	KKP	5.0			
Naphthalene	ug/l	ND	11/15/01	KKP	5.0			
Phenanthrene	ug/l	ND	11/15/01	KKP	5.0			
Pyrene	ug/l	ND	11/15/01	KKP	5.0			
Date Extracted SPH Water		11/14/2001	11/15/01	KKP				

RL = Reporting Limit
ND = Not Detected
NM = Not Measured
* = See end of report for comments and notes applying to this sample

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

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39 Spruce Street * 2nd Floor * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 434, 10 FERRY ST,#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.12

11/16/01

LIMS-BAT #: LIMS-59592
Job Number: DOMH 0101.12

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 11/9/01
Field Sample #: MW-2

Analytical Method:
MADEP-EPH-98-1 REVISION 0
SAMPLES ARE PRESERVED TO pH < 2.0 WITH HYDROCHLORIC ACID (HCL).
SAMPLES ARE EXTRACTED WITH METHYLENE CHLORIDE, EXCHANGED INTO HEXANE AND CONCENTRATED. ALIPHATIC AND AROMATIC FRACTIONS ARE SEPARATED. ANALYSIS IS BY GAS CHROMATOGRAPHY WITH FLAME IONIZATION DETECTION. PAH AND C10-C22 AROMATICS ARE DETERMINED IN THE METHYLENE CHLORIDE FRACTION. C9-C18 AND C19-C36 ALIPHATICS ARE DETERMINED IN THE HEXANE FRACTION. TARGET COMPOUND CONTRIBUTIONS ARE SUBTRACTED FROM THE SUMMED AROMATIC RANGE. SUMMED RANGES ARE CORRECTED FOR LABORATORY METHOD BLANK.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

SIGNIFICANT MODIFICATIONS ARE LIMITED TO THE SUBTRACTION OF METHOD BLANK FROM THE SUMMED RANGES.

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

_✓_ YES ___ NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

_✓_ YES ___ NO

DETAILS OF ANY NON-CONFORMANCE WITH QA/QC REQUIREMENTS, PERFORMANCE, OR ACCEPTANCE CRITERIA ARE DETAILED IN THE NOTES SECTION OF THIS REPORT.

RL = Reporting Limit
ND = Not Detected
NM = Not Measured
* = See end of report for comments and notes applying to this sample

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

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JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 434, 10 FERRY ST.#5
CONCORD, NH 03301

11/16/01

Purchase Order No.: DOMH 0101.12

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 11/9/01
Field Sample # : MW-2

LIMS-BAT #: LIMS-58692
Job Number: DOMH 0101.12

Sample ID : 01B30888 Sampled : 11/8/01
NOT SPECIFIED

Sample Matrix: GRND WATER

	Units	Results	Date Analyzed	Analyst	RL	SPEC Limit Lo	SPEC Limit Hi	P/F
C5-C8 Aliphatics	ug/l	ND	11/12/01	KKP	69.0			
C9-C12 Aliphatics	ug/l	ND	11/12/01	KKP	34.0			
C9-C10 Aromatics	ug/l	ND	11/12/01	KKP	20.0			
Benzene	ug/l	ND	11/12/01	KKP	0.3			
Ethyl Benzene	ug/l	1.6	11/12/01	KKP	0.4			
MTBE	ug/l	ND	11/12/01	KKP	2.1			
Naphthalene	ug/l	ND	11/12/01	KKP	3.2			
Toluene	ug/l	ND	11/12/01	KKP	1.9			
m/p-Xylene	ug/l	ND	11/12/01	KKP	2.7			
o-Xylene	ug/l	ND	11/12/01	KKP	1.0			

Analytical Method:
MADEP-VPH-98-1 REVISION 0
SAMPLES ARE CONCENTRATED BY PURGE AND TRAP, FOLLOWED BY GAS CHROMATOGRAPHY ANALYSIS WITH PID/FID DETECTION. SUMMED RANGES ARE REPORTED WITH TARGET COMPOUND CONTRIBUTIONS SUBTRACTED AND CORRECTED FOR LABORATORY METHOD BLANK. C9-C12 ALIPHATIC HYDROCARBONS EXCLUDE THE CONCENTRATION OF C9-C10 AROMATIC HYDROCARBONS.

REPORTED DETECTION LIMITS (MDL) ARE THE REPORTING LIMITS (RL) CALCULATED ACCORDING TO THE METHOD.

NO SIGNIFICANT MODIFICATIONS WERE MADE TO THE METHOD.

WERE ALL QA/QC PROCEDURES REQUIRED BY THE METHOD FOLLOWED?

✓ YES ___ NO

WERE ALL PERFORMANCE/ACCEPTANCE STANDARDS FOR REQUIRED QA/QC PROCEDURES ACHIEVED?

✓ YES ___ NO

DETAILS OF ANY NON-CONFORMANCE WITH QA/QC REQUIREMENTS, PERFOMANCE, OR ACCEPATANCE CRITERIA ARE LISTED IN THE NOTES SECTION OF THIS REPORT.

RL = Reporting Limit

ND = Not Detected

NM = Not Measured

* = See end of report for comments and notes applying to this sample

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

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39 Spruce Street * 2nd Floor * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

JEFF MCCULLOUGH
PENNONI ASSOCIATES
THE CONCORD CTR, STE 434, 10 FERRY ST.#6
CONCORD, NH 03301

Purchase Order No.: DOMH 0101.12

11/16/01

LIMS-BAT #. LIMS-58692
Job Number: DOMH 0101.12

Project Location: MEDFIELD STATE HOSPITAL
Date Received: 11/9/01

** END OF REPORT **

RL = Reporting Limit

ND = Not Detected

NM = Not Measured

* = See end of report for comments and notes applying to this sample

SPEC LIMIT = a client specified recommended or regulatory level for comparison with data to determine PASS (P) or FAIL (F) condition of results.

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(413) 525-2332
FAX (413) 525-6405

CHAIN OF CUSTODY RECORD

39 SPRUCE ST. • 2ND FLOOR • EAST LONGMEADOW, MA 01028

LIMS59692

Client Name: Pennoni Associates Inc
Attn: Jeff McCullough
Address: The Concord Center Suite 434
10 Ferry St Unit 6, Concord, NH 03301
Site Location: Medfield State Hospital
Sampled: By: Philip LaMoreaux
Call Results: Yes ___ No X
Fax Results: Yes X No ___

Telephone: (603) 225 1950
Batch #: (603) 225-3235
Project #: DOMH 0101.12
Client P.O. #: DOMH 0101.12
Fax #: (603) 225-3235

Field Sample I.D.	Sample Description	Lab #	DATE SAMPLED Date	Time	Composite	Grab	MATRIX: WASTE WATER	GROUND WATER	DKG WATER	Soil	Air	*Other	Preservative (Use Code)	Container (Use Code)	Analysis Required: EPH	VPH
MW-2		01830888	11/8/01	1100		X		X					H	IV VA	X	X
			Date	Time												

CONTAINER CODE
P: PLASTIC (___ Size) V = 40 ml vial G = Glass (___ size) A = 1000 ml Amber O = Other ___

PRESERVATIVE CODE:
I = ICED N = HNO_3 H = HCl S = NaOH T = $Na_2S_2O_3$ O = OTHER ___

	Date Time	
Relinquished by: (Signature)	11/8/01 1215	Received by: (Signature)
Relinquished by: (Signature)	11/9/01 1050	Received by: (Signature)
Relinquished by: (Signature)	Date Time	Received by: (Signature) 1630

Turnaround Requested: ___ 24-Hour ___ 48-Hour X Normal
___ Other ___ Date Required

Remarks/Comments:
GW-1 Criteria Do Not Need to be Met

*MATRIX OTHER ___

Appendix D

Groundwater Travel Time Estimates

GROUNDWATER VELOCITY CALCULATIONS

FROM USGS MAP - MEDFIELD QUAD (1987)

DISTANCE BETWEEN SITE + RIVER = 420 FEET

ELEVATION DIFFERENCE BETWEEN GROUND SURFACE AT TANKS AND SURFACE OF RIVER.

GROUND SURFACE AT TANKS = 45 M
RIVER SURFACE = 36 M

9 m = 29.5 FT

DEPTH TO GROUNDWATER AT MW2 = 16.28' on 6/21/01

Δh BETWEEN GROUNDWATER AT TANK AND CHARLES RIVER

= 29.5 - 16.28 = **13.25' = Δh**

$$\text{GRADIENT} = \frac{13.25}{420} = 0.0315$$

ESTIMATE PERMEABILITY - FROM BORING LOGS IN PHASE I BY CORPORATE ENVIRONMENTAL ENG. INC - 5/97

LOCATION	DEPTH	BLOW COUNTS	SOIL DESCRIPTION
MW1	20-21.	7-9-52-36	TAN f. SAND some CLAY
MW2	19-20	18-20-25-41	COBBLE - GREY COARSE CLAY
B 7	20-21	15-16-36-64	SAND + SILT / MED FINE SAND + SILT
MW 4	20-21	41-45-25-21	COARSE / MED SAND + COBBLE some SILT
B 10	20-21	12-14-14-50	MED FINE SAND + SILT some COBBLE
B 9	20-21	18-48-52-65	MED-F SAND SILT some COBBLE

SUMMARY - SILTY WITH MANY HIGH BLOW COUNTS = TILL
ESTIMATE PERMEABILITY APPROX 10^{-3} cm/s

GROUNDWATER VELOCITY CALCULATIONS (CONTINUED)

ASSUME EFFECTIVE POROSITY = 0.25 = n

$$\text{GROUNDWATER VELOCITY} = \frac{K}{n}\frac{dh}{dx} = \frac{10^{-3}}{0.25}\,0.0315$$

$$= 1E\text{-}4 \text{ CM/S} = 0.36 \text{ FT/D}$$

$$\text{TRAVEL TIME TO CHARLES RIVER} = \frac{420 \text{ FT}}{0.36 \text{ FT/D}} = 1174 \text{ DAYS}$$

$$= 3.2 \text{ YEARS}$$

EFFECT OF BIODEGRADATION DURING TRAVEL TIME

$$\frac{C_t}{C_0} = e^{-Kt}$$

WHERE: C_0 = SOURCE CONCENTRATION (MG/L)
C_t = CONCENTRATION AFTER t DAYS (MG/L)
K = DECAY RATE (1/DAY)
t = TIME (DAY)

USE K FOR NAPHTHALENE AS A REPRESENTATIVE PAH

$K = 0.006 \rightarrow 0.012$ - MACINTYRE ET AL. (1994)

$$\frac{C_t}{C_0} = e^{-0.06(1174)} = 6 \times 10^{-4}$$

$$= e^{-0.012(1174)} = 1 \times 10^{-6}$$

REDUCTION IN GROUNDWATER CONCENTRATION DURING TRANSPORT 4-6 ORDERS OF MAGNITUDE