U.S. Army Corps of Engineers
New England District

RECORD OF DECISION
AREA OF CONTAMINATION 69W
DEVENS, MASSACHUSETTS

JUNE 1999

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DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Area of Contamination 69W
Devens, Massachusetts

STATEMENT OF PURPOSE AND BASIS

This decision document presents the U.S. Army's selected remedial action for Area of Contamination (AOC) 69W, Devens, Massachusetts. It was developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 as amended, 42 USC §§ 9601 et seq. and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) as amended, 40 CFR Part 300. The following have been delegated the authority to approve this Record of Decision. The Devens Base Realignment and Closure (BRAC) Environmental Coordinator; the Devens Reserve Forces Training Area (RFTA) Installation Commander; and the Director, Office of Site Remediation and Restoration, U.S. Environmental Protection Agency New England.

This decision document is based on the Administrative Record developed in accordance with Section 113(k) of CERCLA. The Administrative Record is available for public review at the Devens BRAC Environmental Office, 30 Quebec Street, Devens, Massachusetts, and at the Ayer Town Hall, Main Street, Ayer, Massachusetts. The Administrative Record Index (Appendix D of this Record of Decision) identifies each of the items considered during selection of the remedial action.

ASSESSMENT OF AOC 69W

Actual or threatened releases of hazardous substances from AOC 69W, if not addressed by implementing the response action selected in this record of decision, may present a current or potential future threat to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The Army's selected remedy at AOC 69W is Limited Action consisting of long-term groundwater monitoring and institutional controls. AOC 69W was part of a site wide investigation of past spill sites at Fort Devens. AOC 69W currently poses no unacceptable risks to human health or the environment. Further, previous removal actions have eliminated underground storage tanks (USTs) and the majority of contaminated soils that would otherwise be a continuing source of downgradient groundwater contamination. Risks associated with hypothetical future potable use of AOC 69W groundwater exceed levels considered acceptable by USEPA. Implementation of institutional controls either through deed and/or use restrictions will limit potential future exposure to contaminated soil and groundwater. Long-term groundwater monitoring will ensure that any residual contamination does not migrate off-site.

Major components of the remedy include:

- Implementation of a Long-Term Groundwater Monitoring Plan
- Incorporate/implement institutional controls that restrict ground water access and limit potential human exposure to contaminants.
- Performing five-year site reviews

STATE CONCURRENCE

The Commonwealth of Massachusetts has concurred with the selected remedy. Appendix E of this Record of Decision contains a copy of the Declaration of State Concurrence.

STATUTORY DETERMINATION FOR AOC 69W

The selected remedy is consistent with CERCLA and, to the extent practicable, the NCP. Based on the previous removal action at AOC 69W and the results of the remedial investigation, the proposed Limited Action is adequate to ensure protection of human health and the environment.

Because this remedy will result in hazardous substances remaining on-site above levels that allow for unlimited use and unrestricted exposure, a review will be conducted within five years

after initiation of the Limited Action to ensure that the remedy continues to provide adequate protection of human health and the environment.

DECLARATION

The foregoing represents the selection of a remedial action by the U.S. Department of the Army and the U. S. Environmental Protection Agency, with the concurrence of the Commonwealth of Massachusetts Department of Environmental Protection.

Concur and recommend for immediate implementation:

DEPARTMENT OF THE ARMY

James C Chambers — 29 June 1999

James C. Chambers
BRAC Environmental Coordinator
Devens Reserve Forces Training Area
Devens, Massachusetts

Date

DECLARATION

The foregoing represents the selection of a remedial action by the U.S. Department of the Army and the U. S. Environmental Protection Agency, with the concurrence of the Commonwealth of Massachusetts Department of Environmental Protection.

Concur and recommend for immediate implementation:

DEPARTMENT OF THE ARMY

29 June 1999
Date

Edward R. Murdough
Lieutenant Colonel, U.S. Army
Installation Commander
Devens Reserve Forces Training Area
Devens, Massachusetts

DECLARATION

The foregoing represents the selection of a remedial action by the U.S. Department of the Army and the U. S. Environmental Protection Agency, with the concurrence of the Commonwealth of Massachusetts Department of Environmental Protection.

Concur and recommend for immediate implementation:

U.S. ENVIRONMENTAL PROTECTION AGENCY

Frank Cianfrattone — 6-30-99

Patricia F. Meaney, Director — Date
Office of Site Remediation and Restoration
U.S. Environmental Protection Agency, New England

DECISION SUMMARY

I. SITE NAME, LOCATION, AND DESCRIPTION

This Record of Decision addresses past releases of contaminants to soil and groundwater at Area of Contamination (AOC) 69W, Devens Massachusetts. Devens, is located approximately 35 miles northwest of Boston, Massachusetts. The Army is the lead federal agency responsible for the cleanup of AOC 69W and funding is from the Department of Defense.

AOC 69W is located at the northeast corner of the intersection of MacArthur Avenue and Antietam Street on the northern portion of what was formerly the Main Post at Fort Devens (Figure 1). AOC 69W is comprised of the former Fort Devens Elementary School (Building 215) and the associated parking lot and adjacent lawn extending approximately 300 feet northwest to Willow Brook. Contamination at AOC 69W is attributed to No. 2 heating oil which leaked from underground piping in two separate incidences; once in 1972 and again in 1978. It is estimated that approximately 7,000 to 8,000 gallons of fuel oil were released to soil from each release (Figure 2).

A more complete description of AOC 69W can be found in Section 5.0 of the Remedial Investigation (RI) report. This report and other associated with the Devens cleanup are available at the Public Libraries in Ayer, Harvard, Lancaster, and Shirley.

II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

A. Land Use and Response History

Fort Devens was established in 1917 as Camp Devens, a temporary training camp for soldiers from the New England area. In 1931, the camp became a permanent installation and was renamed Fort Devens. Throughout its history, Fort Devens served as a training and induction center for military personnel, and as a unit mobilization and demobilization site. All or portions of this function occurred during World Wars I and II, the Korean and Vietnam conflicts, and operations Desert Shield and Desert Storm. During World War II, more than 614,000 inductees were processed and Fort Devens reached a peak population of 65,000.

The primary mission of Fort Devens was to command, train, and provide logistical support for non-divisional troop units and to support and execute Base Realignment and Closure (BRAC) activities. The installation also supported the Army Readiness Region and National Guard units in the New England area.

Fort Devens was identified for cessation of operations and closure under Public Law 101-510, the Defense Base Realignment and Closure Act of 1990, and was officially closed in March 1996. Portions of the property formerly occupied by Fort Devens were retained by the Army for reserve forces training and renamed the Devens RFTA. Areas not retained as part of the Devens RFTA were, or are in the process of being, transferred to new owners for reuse and redevelopment. AOC 69W is located in an area planned for transfer to MassDevelopment. The existing school building is expected to be re-opened in the future.

The following items summarize the history of AOC 69W.

- **1951.** The Fort Devens Elementary School was built and was comprised of the east/southeast half of the present school. The school was heated by an oil-fired boiler, and the heating oil was stored in a 10,000-gallon UST located in what is currently the school courtyard. The school was operated and maintained by the Ayer School Department.

- **1972.** An addition to the school was built which formed the current school structure. Although a new boiler room was constructed, the old boiler room remained operational. The original 10,000-gallon UST was removed and a new 10,000-gallon UST was installed north of the school in the middle of the current parking lot. During the UST installation, the underground fuel line leading to the new boiler room was accidentally crimped, causing the pipe to split and leak approximately 7,000 to 8,000-gallons of No. 2 fuel oil to the ground.

- **1972-1973.** As a result of the fuel release, an oil recovery system was installed in the vicinity of the 10,000-gallon UST. The system consisted of underground piping connected to a buried 250-gallon concrete vault that acted as an oil/water separator. The vault collected oily water and was pumped out approximately every three months.

- **1978.** Underground fuel piping near the old boiler room failed at a pipe joint. Approximately 7,000 to 8,000-gallons of oil were released into the soil during the incident. Soil was excavated to locate the source of the release. The excavation was used to collect the residual oil for one month before the damaged piping was found and replaced. A minimum of 2,600-gallons of residual oil was pumped from the oil recovery system.

- **1993.** The Ayer School Department closed the school because the facility was excess to its needs. As part of the Base Closure process the Army conducted a basewide evaluation of past spill sites and designated the elementary school spill site as Area Requiring Environmental Evaluation (AREE) 69W. Based on document reviews and site visits, the evaluation concluded that residual fuel contamination may have been present in the soil and groundwater at the site.

- **1994.** The Army performed a Site Investigation (SI) which revealed the presence of fuel-related contaminants in both soil and groundwater between the school and the existing fuel UST, and in an area extending northwest from the existing fuel UST to near Willow Brook. The Army redesignated the site as AOC 69W and proposed that a remedial investigation be performed.

- **1995-1998.** An RI was conducted to define the distribution of contaminants previously detected in the soil and groundwater during the AREE SI, and to determine whether remediation is warranted. Investigation activities included an historical record search and personnel interviews; a geophysical survey and test pitting; sediment and toxicity sampling in Willow Brook; surface and subsurface soil sampling; groundwater monitoring well installation; groundwater sampling and groundwater level measurements; aquifer testing; ecological survey and wetland delineation; air quality sampling within the elementary school; and human health and ecological risk assessments (Figure 2). The RI data showed that fuel-related compounds, primarily total petroleum hydrocarbons (TPHC) and semivolatile organic compounds (SVOCs), were present in soils extending from the new (1972) boiler room to approximately 300 feet northwest. Fuel-related volatile organic compounds (VOCs), SVOCs, TPHC, and inorganics comprised the observed groundwater contaminants. Soil and groundwater contamination appeared to be largely a result of the 1972 fuel oil release. The underground oil recovery system apparently acted as a conduit for contaminant migration in soil and groundwater. Observed contamination from the 1978 release did not appear to be

migrating downgradient and further migration is unlikely considering the age of the release and the paved parking lot that inhibits precipitation infiltration.

- **1997-1998.** Based on a review of the soil and groundwater contaminant data, the Army performed a removal action and excavated approximately 3,500 cubic yards of petroleum-contaminated soil associated with the 1972 fuel oil leak (Figure 2). The 10,000-gallon fuel oil UST and the oil recovery system's 250-gallon vault and associated piping were also removed. The 10,000-gallon fuel oil UST was confirmed to be intact (i.e., no holes or leaks were observed). Confirmatory soil sampling in excavated areas indicated that extractable petroleum hydrocarbons (EPH) and volatile petroleum hydrocarbons (VPH) concentrations immediately adjacent to the school still exceeded the Massachusetts Contingency Plan (MCP) Method 1 S-1/GW-1 soil standards after the removal action. Due to the proximity of the school, this soil could not be excavated without potential structural damage to the building. Because the area is paved, there is minimal potential for further migration of contaminants and future exposure.

B. Enforcement History

On December 21, 1989, Fort Devens was placed on the National Priorities List under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA) to evaluate and implement response actions to cleanup past releases of hazardous substances, pollutants, and contaminants. A Federal Facility Agreement to establish a procedural framework for ensuring that appropriate response actions are implemented at Fort Devens was developed and signed by the Army and the U.S. Environmental Protection Agency (USEPA) Region I on May 13, 1991, and finalized on November 15, 1991. AOC 69W is considered a subsite of the entire installation.

In 1995, the U.S. Department of Defense, through the U.S. Army Environmental Center (USAEC), initiated an RI for AOC 69W, and the RI report was issued in August 1998. The purpose of the RI was to determine the nature and extent of contamination at AOC 69W, assess human health and ecological risks, and assess whether additional response actions were necessary. Based on the results of the RI and Removal Action, the Army, along with the USEPA and MADEP, concluded that under current conditions and uses, including re-use as a school,

AOC 69W did not present unacceptable risks to human health or the environment and that a feasibility study to evaluate remedial action alternatives was not needed.

The Proposed Plan detailing the Army's plan for Limited Action at AOC 69W was issued in April 1999 for public comment. Technical comments presented during the public comment period are included in the Administrative Record. Appendix C, the Responsiveness Summary, contains a summary of these comments and the Army's responses, and describes how these comments affected the Limited Action decision.

III. COMMUNITY PARTICIPATION

The Army has held regular and frequent information meetings, issued fact sheets and press releases, and held public meetings to keep the community and other interested parties informed of activities at AOC 69W.

In February 1992, the Army released, following public review, a community relations plan that outlined a program to address community concerns and keep citizens informed about and involved in remedial activities at Fort Devens. As part of this plan, the Army established a Technical Review Committee (TRC) in early 1992. The TRC, as required by SARA Section 211 and Army Regulation 200-1, included representatives from USEPA, USAEC, Fort Devens, Massachusetts Department of Environmental Protection (MADEP), local officials, and the community. Until January 1994, when it was replaced by the Restoration Advisory Board (RAB), the committee generally met quarterly to review and provide technical comments on schedules, work plans, work products, and proposed activities for the SAs and AOCs at Fort Devens. The AREE, RI, and Removal Action reports; Proposed Plan; and other related support documents were all submitted to the TRC or RAB for their review and comment. The Community Relations Plan was updated to address BRAC issues and reissued in May 1995.

The Army, as part of its commitment to involve the affected communities, forms a RAB when an installation closure involves transfer of property to the community. The Fort Devens RAB was formed in February 1994. The RAB initially consisted of 28 members (15 original TRC members plus 13 new members) representing the Army, USEPA Region I, MADEP, local governments, and citizens of the local communities. The RAB currently consists of 19 members.

It meets monthly and provides advice to the installation and regulatory agencies on the Devens RFTA cleanup programs. Specific responsibilities include: addressing cleanup issues such as land use and cleanup goals; reviewing plans and documents; identifying proposed requirements and priorities; and conducting regular meetings that are open to the public. In addition, the USEPA has given a Technical Assistance Grant (TAG) to the People of Ayer Concerned for the Environment (PACE). The TAG is given out by USEPA to community groups to support their efforts in reviewing and understanding complex site investigations and remediation issues. PACE has reviewed and provided comments on AOC 69W documents.

The groundwater within AOC 69W is not considered to be potable based on the Devens Reuse plan that was approved by all the surrounding towns and the fact that there is a municipal water supply operated by MassDevelopment.

On April 8, 1999, the Army issued the Proposed Plan, to provide the public with the Army's proposal for Limited Action at AOC 69W. The Proposed Plan also described the opportunities for public participation and provided details on the upcoming public comment period and public meetings.

During the weeks of April 12 and April 26, 1999, the Army published public notices announcing the Proposed Plan and public information meeting in the Lowell Sun, Worcester Telegram and Gazette, Fitchburg-Leominster Sentinel Enterprise, and the Public Spirit. The Army also made the Proposed Plan available to the public at the public information repositories at the Davis Public Library at the Devens RFTA, the Ayer Public Library, the Hazen Memorial Library in Shirley, the Harvard Public Library, and the Lancaster Public Library. A notice was also run on local access television.

From April 8 through May 10, 1999, the Army held a 30-day public comment period to accept public comments on the Proposed Plan and on other documents released to the public. On May 5, 1999, the Army held a formal public hearing at Devens RFTA to present the Army's Proposed Plan to the public and to provide the opportunity for open discussion concerning the Proposed Plan. The Army also accepted verbal or written comments from the public at the meeting. A transcript of this meeting, public comments, and the Army's response to comments are included in the attached Responsiveness Summary (Appendix C).

considered by the Army in choosing the plan of action for AOC 69W. On May 5, 1999, the Army made the Administrative Record available for public review at the Devens BRAC Environmental Office, and at the Ayer Town Hall, Ayer, Massachusetts. An index to the Administrative Record is available at the USEPA Records Center, 90 Canal Street, Boston, Massachusetts and is provided as Appendix D.

IV. SCOPE AND ROLE OF THE RESPONSE ACTION

This Limited Action decision addresses soil and groundwater contamination attributed to historical fuel oil releases at the former Fort Devens Elementary School. The 10,000-gallon fuel oil UST, the oil recovery system, and all associated piping and appurtenances were removed in 1997. In addition, 3,500 cubic yards of petroleum contaminated soils were removed. No other sources of contamination have been identified at AOC 69W.

The Limited Action will consist of long-term groundwater monitoring to verify that elevated arsenic concentration will continue to decrease over time and not migrate downgradient. Institutional controls will also be implemented at AOC 69W to limit the potential exposure to the contaminated soil and groundwater under both existing and future site conditions. These institutional controls will ensure that exposure to remaining contaminated soils beneath and adjacent to the building are controlled and the extraction of groundwater from the site for industrial and/or potable uses would not be permitted. These institutional controls will be incorporated either in full or by reference into all deeds, easements, mortgages, leases or any other instruments of transfer prior to the transfer of the property to MassDevelopment. Overall protectiveness will be assessed during five-year site reviews. Alternatively, if the Army can demonstrate based on currently available or newly acquired data, that site access restriction can be relaxed or removed while protection of human health is maintained, the Army may petition USEPA for such a relaxation or removal of restrictions.

V. SUMMARY OF SITE CHARACTERISTICS

Section 5.0 of the RI report, August 1998, contains an overview of AREE, RI, and Removal Action activities at AOC 69W. Significant findings of the RI are summarized in the following subsections.

A. Site Geology and Hydrogeology Summary

The predominant soil type at AOC 69W consists of dark yellowish-brown fine to coarse sands, gravely sands, and silty sands. Explorations in the vicinity of Willow Brook and its associated wetlands revealed a four- to five-foot layer of dark grayish-brown, sandy silt overlying the sands. Organic material was found in the area north of the school at a maximum depth of 4 feet bgs. Near surface soils beneath the school and parking lot consist of reworked native soils. Bedrock was not encountered at AOC 69W. The water table aquifer at AOC 69W occurs in the overburden at depths ranging from 4 to 6 feet bgs on the north side of the school building to approximately 1-foot bgs adjacent to Willow Brook. Groundwater flow directions are predominately south-southeast to north-northwest. Groundwater discharges to Willow Brook at times of high groundwater levels. Vertical gradients were not calculated as there are no deep overburden wells; however, the intermittent discharge to Willow Brook indicates locally upward gradients. Calculated groundwater flow velocities are consistent with the observed sandy soils with a maximum calculated flow velocity of 2 feet/day and a mean flow velocity of 0.7 feet/day. AOC 69W is located within the delineated Zone 2 for the MacPherson production well located approximately 3,000 feet to the north.

B. Soils

A review of the field and off-site analytical data from the 1995 and 1996 RI field investigations indicated that there were two areas of fuel-related soil contamination at AOC 69W. The larger area extended from the new boiler room to the 250-gallon UST in the wooded area approximately 300 feet northwest of the school. The contamination was attributed to the 1972 release of fuel oil from piping between the 10,000-gallon UST and the new boiler room. Analytical data and visual evidence suggested that the release may have been inside or near the new boiler room. As a result of the release, an oil recovery system was installed in 1972 to

remove oil from the source area and presumably from near surface soils in the grassy area north of the school. Contaminant distributions established by the RI indicated that the underground piping associated with this system may have acted as a conduit for contaminant migration. Detected contaminants were primarily TPHC, polyaromatic hydrocarbons (PAHs), and EPH/VPH at approximately 6 to 10 feet below ground surface (bgs) adjacent to the school and 0 to 4 feet bgs downgradient in the grassy area and in the vicinity of the 250-gallon UST. Detected subsurface contaminants were located primarily at or near the water table. Surficial contamination downgradient of the school (near Willow Brook) is attributed to sorption during times of high groundwater levels.

Based on the nature and distribution of contaminants, a Removal Action was undertaken in the winter of 1997 and 1998 to remove contaminated soil associated with the 1972 release. Soil was excavated to a maximum depth of 13 feet bgs near the school, and 8 feet bgs near the 250-gallon UST. Confirmatory subsurface soil sample results from the Removal Action showed that concentrations of fuel-related contaminants still exceed MCP S-1/GW-1 standards for EPH in subsurface soils immediately adjacent to the school building, but are generally low in downgradient areas (only a few concentrations in soil slightly exceeded MCP S-1/GW-1 standards, see Figure 3).

The other identified area of soil contamination is located adjacent to the school building outside of the old boiler room. This contamination is attributed to the 1978 release of fuel oil due to ruptured piping. An excavation at the time of the release showed visible fuel oil contamination emanating from underneath the school. Analytical data indicate that the contaminants are primarily TPHC at depths of 4 to 7 feet bgs beneath the paved parking lot. Contaminants appear to be localized in the area immediately adjacent to the school. Site related contaminants were absent from downgradient soils (e.g., ZWR-95-27X, ZWR-95-54X, and ZWR-95-55X). Future migration is not likely as the area is paved, thereby inhibiting leaching of soils via precipitation infiltration.

C. Groundwater

Fuel-related VOCs, SVOCs, TPHC, and inorganics comprise the observed groundwater contaminants at AOC 69W. Varying degrees of groundwater contamination, as identified by field and off-site analysis, were observed to extend from the new boiler room towards the 250-

gallon UST located approximately 300 feet to the northwest. The area of groundwater contamination was coincident with the underground pipe associated with the oil recovery system installed in response to the 1972 fuel oil release. Contaminant concentrations were highest between the new boiler room and monitoring well 69W—94-13, which was also the area of highest observed soil concentrations. The soil around monitoring wells 69W—94-10 and 69W—94-13 exhibited the highest contaminant and inorganic concentrations and were removed during the soil Removal Action.

Arsenic, calcium, iron, manganese, potassium, and sodium were detected in filtered samples at levels in excess of calculated Devens background levels. The greatest number of background exceedances and the only recorded MCL exceedances in Rounds 1 through 4 were observed in monitoring wells 69W—94-10 and 69W—94-13. Analytes that exceeded MCLs in these wells included arsenic, naphthalene, and the EPH and VPH aromatic fractions. Contaminated soils surrounding these wells were removed during the soil Removal Action.

The RI did not reveal any significant groundwater contamination associated with the 1978 fuel oil release in the vicinity of the old boiler room. Low levels of chlorinated VOCs were detected during the 1995 field analysis and Round 1 groundwater sampling; however, there were no chlorinated VOCs detected during the Rounds 2, 3, or 4 groundwater sampling efforts.

VI. CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

AOC 69W is currently not operated. The Ayer School Department closed the school facility in 1993 and it has not been re-opened. Land uses surrounding the school are open space, educational, and commercial/industrial. Future anticipated use of the site is to re-open the school in the fall of 1999. The Army will be transferring the school and surrounding parcel to the MassDevelopment whom in turn will lease or sell the property back to the Ayer School Department for use by the Parker Charter school.

The groundwater is currently not used as a drinking water source and is not anticipated to be utilized in the future because of MassDevelopment supplied water. Institutional controls will be implemented to ensure that exposures to remaining contaminated soils beneath and adjacent to the building are controlled and the extraction of groundwater at the site for industrial and/or

potable use is not permitted until contaminant concentrations do not pose an unacceptable risk to human health.

VII. SUMMARY OF SITE RISKS

The risk assessment contained in the RI report evaluates the probability and magnitude of potential human health effects associated with exposure to contaminated media at AOC 69W. The human health risk assessment followed a four step process: (1) contaminant identification, which identified those hazardous substances that, given the specifics of the site, were of significant concern; (2) exposure assessment, which identified actual or potential exposure pathways, characterized the potentially exposed populations, and determined the extent of possible exposure; (3) toxicity assessment, which considered the types and magnitude of adverse health effects associated with exposure to hazardous substances; and (4) risk characterization, which integrated the three earlier steps to summarize the potential and actual risks posed by hazardous substances at the site, including carcinogenic and non-carcinogenic risks. A detailed discussion of the human health risk assessment approach and results is presented in Section 9.0 of the RI report.

Ten soil analytes, 14 groundwater analytes, three sediment analytes, and four air analytes, listed in Table 1 in Appendix B of this Record of Decision, were selected as chemicals of potential concern for evaluation in the human health risk assessment of the RI report. These chemicals of potential concern were selected to represent potential site-related hazards based on toxicity, concentration, frequency of detection, mobility, and persistence in the environment. A summary of the health effects of each of the chemicals of potential concern can be found in the risk assessment detailed in Section 9.0 of the RI report.

Potential human health effects associated with exposure to the chemicals of potential concern were estimated quantitatively or qualitatively through the development of several hypothetical exposure pathways associated with current and anticipated future land use. These pathways, listed below, were developed to reflect the potential for exposure to hazardous substances based on the present uses, potential future uses, and location of the site. A more detailed description can be found in Subsection 9.3.1 of the risk assessment.

Potential Exposure Pathways for Current and Future Land Use

- site maintenance worker exposure through dermal contact or incidental ingestion of surface soil and inhalation of soil particulates while maintaining the grassy area
- child trespasser exposure through incidental ingestion or dermal contact to surface water and sediment (as groundwater discharge) while wading in the brook or wetland area, incidental ingestion or dermal contact to surface soil while playing, and inhalation of particulates from soil

Potential Exposure Pathways for Future Land Use

- utility/construction worker exposure through incidental ingestion or dermal contact to surface and subsurface soil, inhalation of volatile organic compounds from soil, and inhalation of particulates from surface and subsurface soils
- school occupants (pupils) exposure through inhalation of VOCs in indoor air, incidental ingestion or dermal contact to surface water and sediment (as groundwater discharge) while wading in the brook or wetland area, incidental ingestion or dermal contact to surface soil while playing, and inhalation of particulates from soil
- general public exposure to site groundwater as a potable water source

Excess lifetime cancer risks were determined for each exposure pathway by multiplying the exposure level with the chemical-specific cancer slope factor. Cancer slope factors have been developed by USEPA from epidemiological or animal studies to reflect a conservative "upper bound" of the risk posed by potentially carcinogenic chemicals. That is, the true risk is unlikely to be greater than the risk predicted. The resulting risk estimates are expressed in scientific notation as a probability (e.g., $1x10^{-6}$ for 1/1,000,000) and indicate (using this example), that an average individual is not likely to have greater than a one in a million chance of developing cancer over 70 years as a result of site-related exposure to the chemical at the stated concentration. Current USEPA practice considers carcinogenic risks to be additive when assessing exposure to a mixture of hazardous substances.

The hazard index (HI) was also calculated for each exposure pathway as a measure of the potential for non-carcinogenic health effects. The HI is the sum of the hazard quotients for

individual chemicals with similar exposure pathways and toxic endpoints. A hazard quotient is calculated by dividing the exposure level by the reference dose (RfD) or other suitable benchmark for non-carcinogenic health effects for each individual chemical. RfDs have been developed by USEPA to protect sensitive individuals over the course of a lifetime, and they reflect a daily exposure level that is likely to be without an appreciable risk of an adverse health effect. RfDs are derived from epidemiological or animal studies and incorporate uncertainty factors to help ensure that adverse health effects will not occur. The hazard quotient is often expressed as a single value (e.g., 0.3) indicating the ratio of the stated exposure to the RfD value (in this example, the exposure as characterized is approximately one third of an acceptable exposure level for the given chemical). The hazard quotient is only considered additive for chemicals that have the same or similar toxic endpoint. For example, the hazard quotient for a chemical known to produce liver damage should not be added to a second whose toxic endpoint is kidney damage. HQs do not need to be segregated unless the HI for all CPCs for the receptor is greater than one.

Table 3 in Appendix B summarizes the carcinogenic and non-carcinogenic risks for soil, sediment, indoor air, and groundwater under the evaluated current and future land use conditions. Review of that table shows that under current land use conditions the estimated excess carcinogenic risks for exposure of a child trespasser and site maintenance worker to soil, sediment, and groundwater were within the USEPA acceptable risk range of $1x10^{-4}$ to $1x10^{-6}$. Similarly, potential noncancer risks did not exceed the USEPA HI threshold value of 1. Estimated excess carcinogenic risks under future land use conditions were evaluated for a pupil (exposure to surface soil, sediment, groundwater, and indoor air) and utility worker (exposure to surface soil and subsurface soil). The excess carcinogenic risk for a pupil is within the USEPA acceptable risk range while the utility worker risk was less than the USEPA threshold level of $1x10^{-6}$. Again, potential noncancer risks did not exceed the USEPA HI threshold value of 1.

There is no current use of groundwater at AOC 69W; therefore, the risk assessment evaluated potential risks associated with a future residential potable use. Estimated cancer and noncancer risks associated with this hypothetical future exposure exceeded levels generally considered acceptable by the USEPA. These risks are primarily due to the presence of arsenic in groundwater. The arsenic levels have been shown to be decreasing and are anticipated to further decrease due to the contaminated soil removal. Furthermore, the arsenic concentrations that resulted in the excess risk were from monitoring wells 69W—94-10 and 69W—94-13. These

wells, along with the surrounding contaminated soils were excavated during the 1997-1998 soil removal action. The historic arsenic levels are therefore believed to be a worst case scenario.

Potential risks for ecological receptors were evaluated for chemicals detected in surface soil, sediment, and groundwater at AOC 69W. Chemicals of potential concern that were identified in these media included metals, pesticides, polychlorinated biphenyls, SVOCs, VOCs, and petroleum-related compounds including TPHC, EPH/VPH, and PAHs.

The following exposure pathways were evaluated in the ecological risk assessment:

- small mammal and bird, predatory mammal, terrestrial plant, and soil invertebrate exposures to surface soil
- small mammal and bird, predatory mammal, and aquatic receptor exposures to sediment in Willow Brook
- aquatic receptors exposures to groundwater that seasonally discharges to Willow Brook

The ecological risk assessment for aquatic receptors is highly conservative as Willow Brook is only seasonally inundated and is generally characterized as a degraded ditch habitat.

In general, there are no risks to ecological receptors except in few cases where negligible risks were estimated. Risks to terrestrial plants may occur at one surface soil sample location (ZWS-95-42X) due to the presence of lead. However, the presence of lead at this location may be associated more with road run-off or lawn mower maintenance than from the fuel oil release. Risks to the plants would be localized, and are not likely to result in population-level effects.

Risks to aquatic organisms were also identified for certain metals; however, the soil removal action has likely mitigated the reducing conditions in the subsurface soils that may have mobilized the metals in groundwater. Adverse effects were observed for aquatic organisms exposed to sediment in toxicity tests; however, these adverse effects are likely related to the poor habitat and substrate quality, rather than the presence of site-related chemicals. This is supported by the fact that exposure point concentrations for chemicals detected in sediment only slightly exceeded sediment benchmarks.

Based on the conclusions of the ecological risk assessment, there are no unacceptable risks associated with site-related fuel oil contamination at AOC 69W.

VIII. REMEDIAL ACTION OBJECTIVES

The remedial action objectives (RAOs) for the site are:

- Restore the aquifer to drinking water standards within a reasonable time frame.
- Monitor potential future migration of ground water contamination
- Eliminate risk from potential consumption of groundwater
- Reduce or eliminate the direct contact threat of contaminated soils

The basis of the RAOs is the potential health risks to individuals based on current and future use scenarios (i.e., maintenance worker, and elementary school children scenario) at the site. The Risk Assessment results estimated cancer and non-cancer risks associated with the possible current and future exposures to surface soil, subsurface soil, sediment, groundwater discharge to surface water and indoor air were all within acceptable levels. Groundwater used as potable water source does exceed risk levels generally considered acceptable by the USEPA. The risk is attributable to arsenic in groundwater as a potable water source. The Army's rationale for proposing the limited action alternative is two-fold:

1) The groundwater will not be used as a drinking water source. The town of Devens has a municipal water supply. Therefore, the groundwater poses no unacceptable risk to human health or the environment.
2) The Army will monitor arsenic and EPH/VPH levels in ground water and place Institutional Controls on the property to ensure current and future protectiveness.

IX. DESCRIPTION OF ALTERNATIVES

Due to the previous source removal, the remedy only requires Institutional Controls and long-term monitoring of ground water. A Feasibility Study was not conducted. A brief comparison of a No Action alternative to the Limited Action alternative is presented below.

The Proposed Plan assessed how well the two alternatives would meet the evaluation criteria while controlling migration of contaminants from soils to ground water and groundwater to surface water.

No Action. The No Action alternative was evaluated as a baseline and was compared to the Limited Action alternative. No remedial action, monitoring, further investigation, or five year reviews would be performed as part of this alternative. No Institutional Controls would be placed on the property to limit potential human exposure to site contaminants. Please see Table 4 in Appendix B for Evaluation Criteria vs. Alternatives.

Estimated time for design and construction:	N/A
Estimated time for cleanup:	N/A
Estimated capital costs:	$0
Estimated operation and maintenance costs:	$0
Estimated Total Costs	$0

Limited Action. The Limited Action alternative for AOC 69W includes the following key components:

- Institutional Controls, including deed and/or use restrictions, are established and enforced that restrict or prevent potential human exposure to site soil and ground water contaminants left in place.
- A Long-Term Groundwater Monitoring Plan is developed to monitor for any potential off-site migration of contaminants and to verify that elevated concentrations decrease over time. It is anticipated that arsenic and MADEP EPH/VPH will be the monitored analytes.
- Five-year reviews are conducted to review the data collected and assess the effectiveness of the remedy.

Estimated time for design and construction:	N/A
Estimated time for cleanup:	N/A
Estimated capital costs:	$23,300
Estimated operation and maintenance costs:	$172,000
Estimated Total Costs	$195,300

The expected outcome of this alternative is to restore the aquifer to drinking water standards within a reasonable time frame and to prevent exposure to contaminants remaining at the site through the establishment of Institutional Controls.

X. SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

The following provides the comparative analysis of alternatives. This information is summarized in Table 4 of Appendix B.

Overall Protection of Human Health and the Environment. The No Action alternative would be protective of human health under current conditions, but would not be protective under potential future conditions. Similar to the No Action alternative, the Limited Action alternative would be protective under current conditions, but in addition it provides Institutional Controls to limit potential future exposures. Since the ground water is not anticipated to be a drinking water source and contaminants are expected to decrease to acceptable levels over time, Institutional Controls and Long-Term Groundwater Monitoring will provide overall protection of human health and the environment.

Compliance with Applicable or Relevant and Appropriate Requirements. The No Action alternative would not trigger ARARS. The limited action alternative would be designed and implemented to comply with all ARARs. No waivers would be required. A synopsis of Federal and State ARARs is provided as Table 5 in Appendix B.

Provides Long-term Protection: Because the No Action alternative does not include Institutional Controls to limit potential future exposures or remedial actions to protect receptors,

it does not offer long-term effectiveness. The Limited Action alternative would be protective under current conditions and it provides Institutional Controls to limit potential future exposures. Since the ground water will not be a drinking water source and contaminants are expected to decrease to acceptable levels over time because of the source removal, Institutional Controls and Long-Term Groundwater Monitoring would provide both long-term effectiveness and permanence.

Reduces Mobility, Toxicity, or Volume: Neither the No Action nor the Limited Action alternative provides treatment to reduce the toxicity, mobility, or volume of contaminants. The paved parking lot and school building have and will continue to limit precipitation infiltration thereby reducing mobility. The removal of petroleum contaminated soils has eliminated a source of groundwater contamination as well as removed the cause of the reducing conditions in the aquifer which resulted in the liberation of the naturally occurring arsenic.

Provide Short-term Protection: The No Action and Limited Action alternatives do not include action that would result in adverse short-term effects to human health and environment. Construction activities for monitoring well installations would present minimal short-term risks, but those risks would be minimized through the adherence to site specific Health and Safety Plan.

Can Be Implemented: Both alternatives can be implemented relatively easily.

Cost: The No Action alternative has zero cost and thus is the lowest. The costs for the Limited Action alternative include capital costs for the preparation of the Long-Term Groundwater Monitoring Plan and Institutional Controls. Annual costs include ground water monitoring and five year site reviews. The total estimated present worth cost for the Limited Action alternative is $195,300.

State Acceptance: The Commonwealth of Massachusetts has reviewed the RI Report and the Proposed Plan and concurs with the Army's selected remedy.

Community Acceptance: During the public comment period on the Proposed Plan, the Army received several comments regarding the potential for human health risks based on the future use of the school and its' surrounding area. The Army's responses to these comments are contained

in the Responsiveness Summary included in Appendix C to this Record of Decision. The Army has taken into consideration the public concerns and will work with the community and regulatory agencies to develop a Long-Term Monitoring Plan which address these concerns.

XI. SELECTED REMEDY

Limited Action. The Limited Action alternative at AOC 69W includes the following key components:

- Institutional Controls, including deed and/or use restrictions, are established and enforced that restrict or prevent potential human exposure to site soil and ground water contaminants left in place.
- A Long-Term Groundwater Monitoring Plan is developed to monitor for any potential off-site migration of contaminants and to verify that elevated concentrations decrease over time. It is anticipated that arsenic and MADEP EPH/VPH will be the monitored analytes
- Five-year reviews are conducted to review the data collected and to assess the effectiveness of the remedy.

XII. STATUTORY DETERMINATIONS

The selected remedy is consistent with CERCLA and, to the extent practicable, the NCP. Based on the previous removal action at AOC 69W and the results of the remedial investigation, the proposed Limited Action is adequate to ensure protection of human health and the environment.

Because this remedy will result in hazardous substances remaining on-site above levels that allow for unlimited use and unrestricted exposure, a review will be conducted within five years after initiation of the Limited Action to ensure that the remedy continues to provide adequate protection of human health and the environment.

XIII. DOCUMENTATION OF NO SIGNIFICANT CHANGES

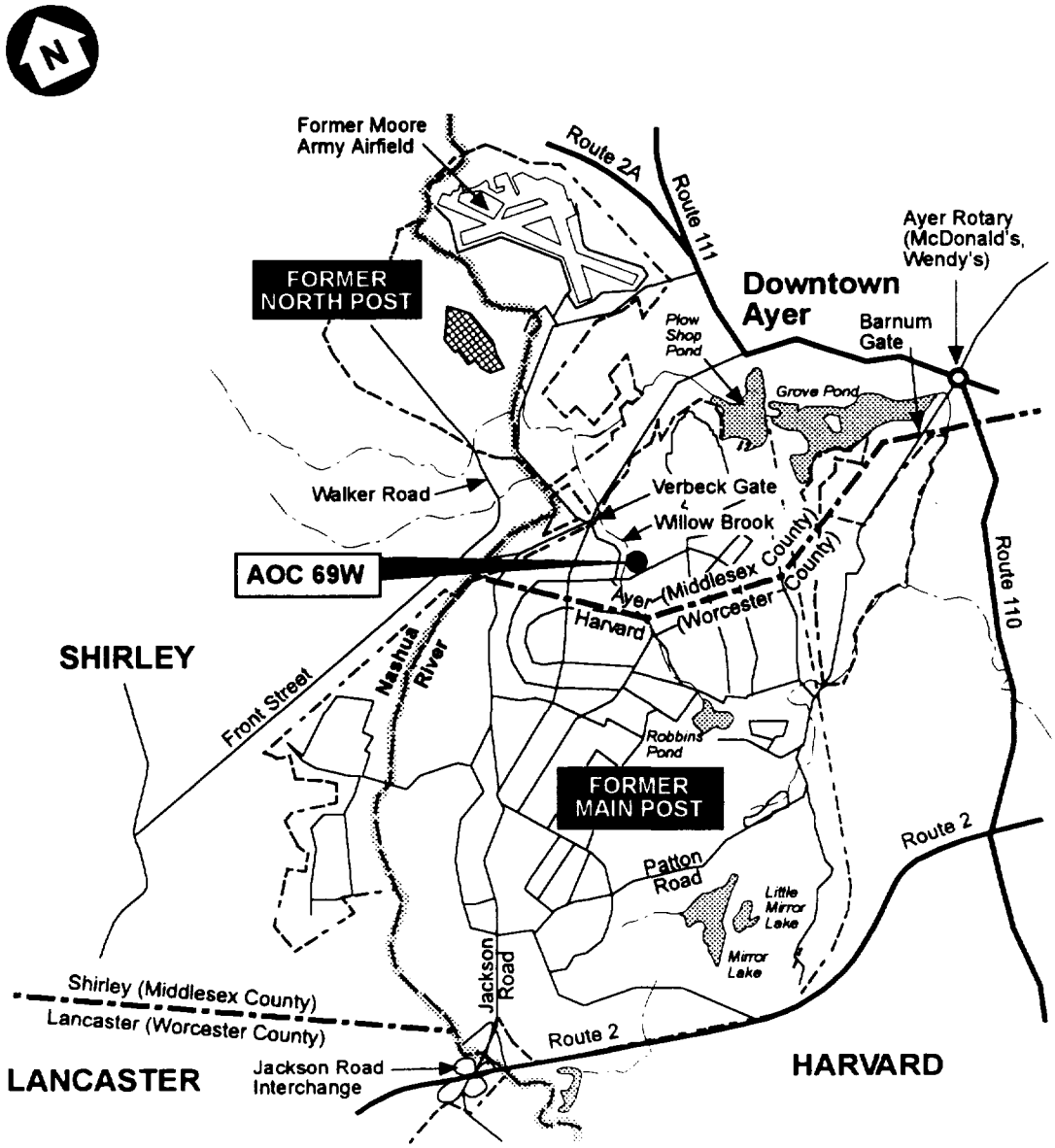
The Army presented a Proposed Plan for Limited Action at AOC 69W on April 8, 1999. This Record of Decision contains no significant changes from the Proposed Plan.

XIV. STATE ROLE

The Commonwealth of Massachusetts has reviewed the AREE, Removal Action, and RI reports; Proposed Plan; and this Record of Decision and concurs with the Limited Action decision. A copy of the Declaration of State Concurrence is attached as Appendix E.

APPENDIX A

APPENDIX A - FIGURES



Legend

- Site Location
- Installation Boundary
- Town Line
- Brook
- Pond/Lake
- Roads/Highway

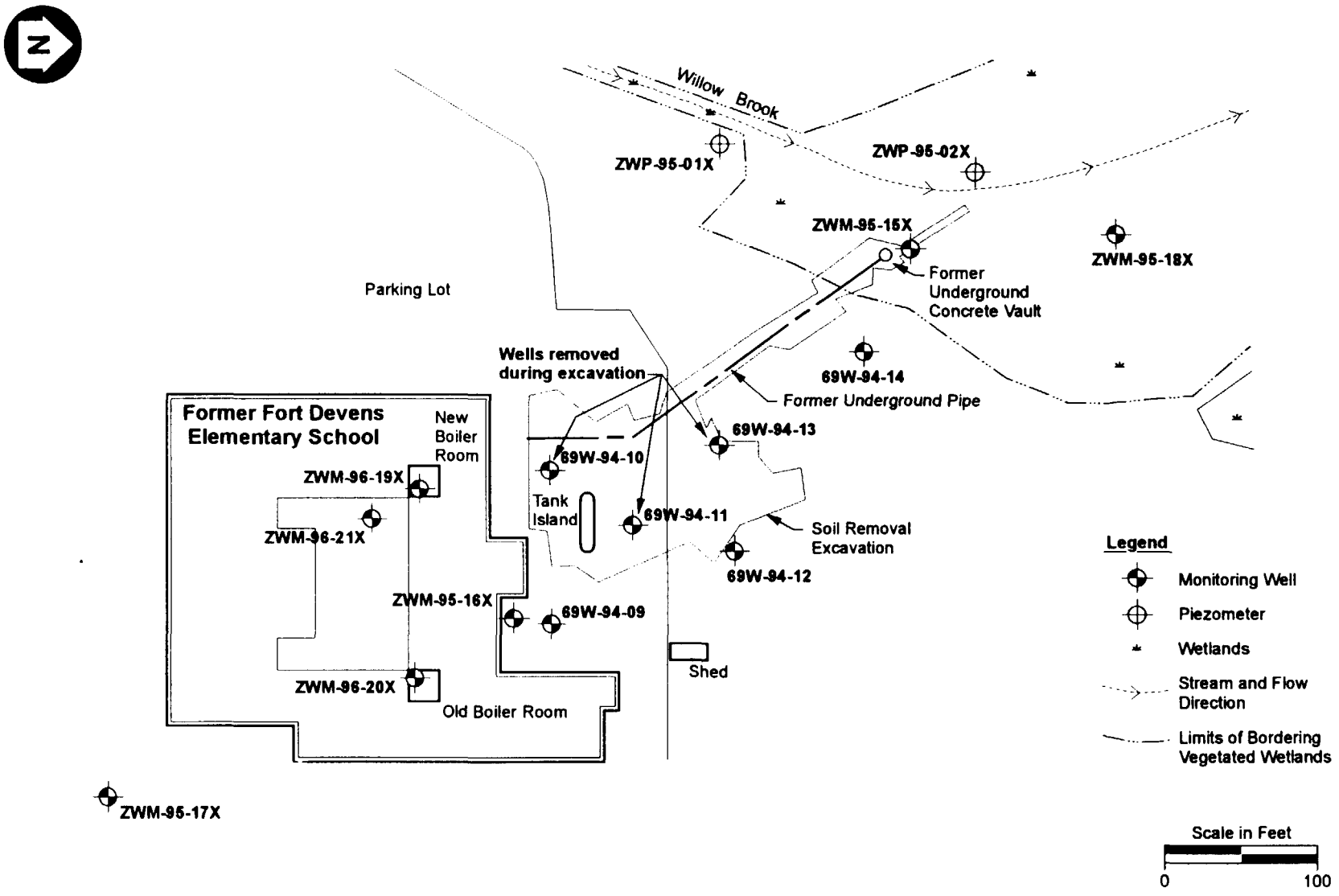
Scale in Feet: 0 — 3,000 — 6,000

Harding Lawson Associates
Engineering and Environmental Services

Location of AOC 69W
AOC 69W Record of Decision
Devens, Massachusetts

FIGURE **1**

DRAWN	JOB NUMBER	FILE NUMBER	APPROVED	DATE	REVISED DATE
jph	45001	W9906003(a)		6/99	



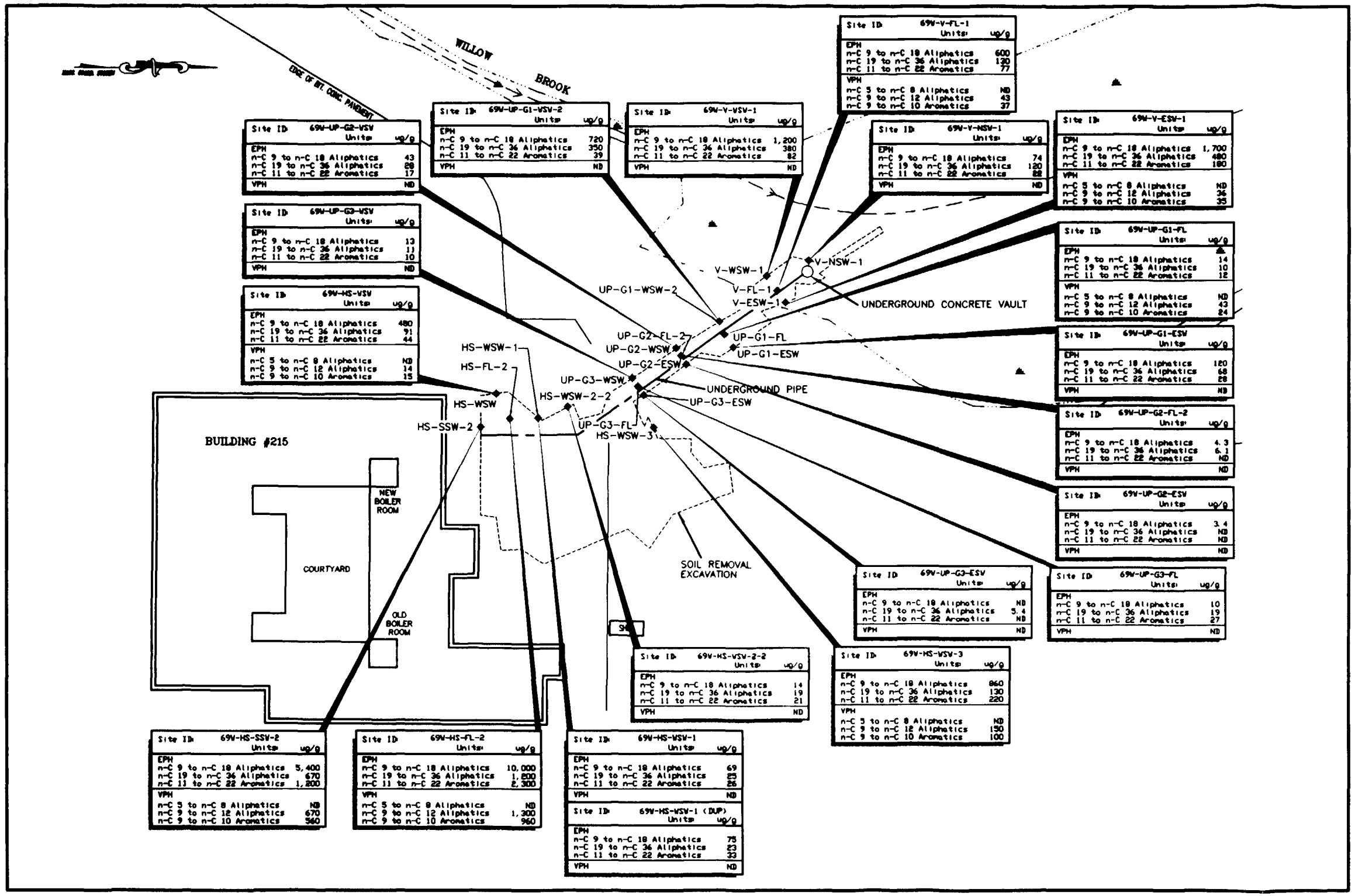
Harding Lawson Associates
Engineering and
Environmental Services

Site Plan
AOC 69W Record of Decision
Devens, Massachusetts

FIGURE
2

DRAWN	JOB NUMBER	FILE NUMBER	APPROVED	DATE	REVISED DATE
jph	45001	W9906003(b)		6/99	

T:\9144-05\9144F302.DWG 6/7/99 EJL



LEGEND

- EXCAVATION SOIL SAMPLES
- WETLANDS
- STREAM AND FLOW DIRECTION
- LIMITS OF BORDERING VEGETATED WETLANDS
- ND NOT DETECTED
- (DUP) DUPLICATE
- ug/g MICROGRAMS PER GRAM

0 40 80
Scale in feet

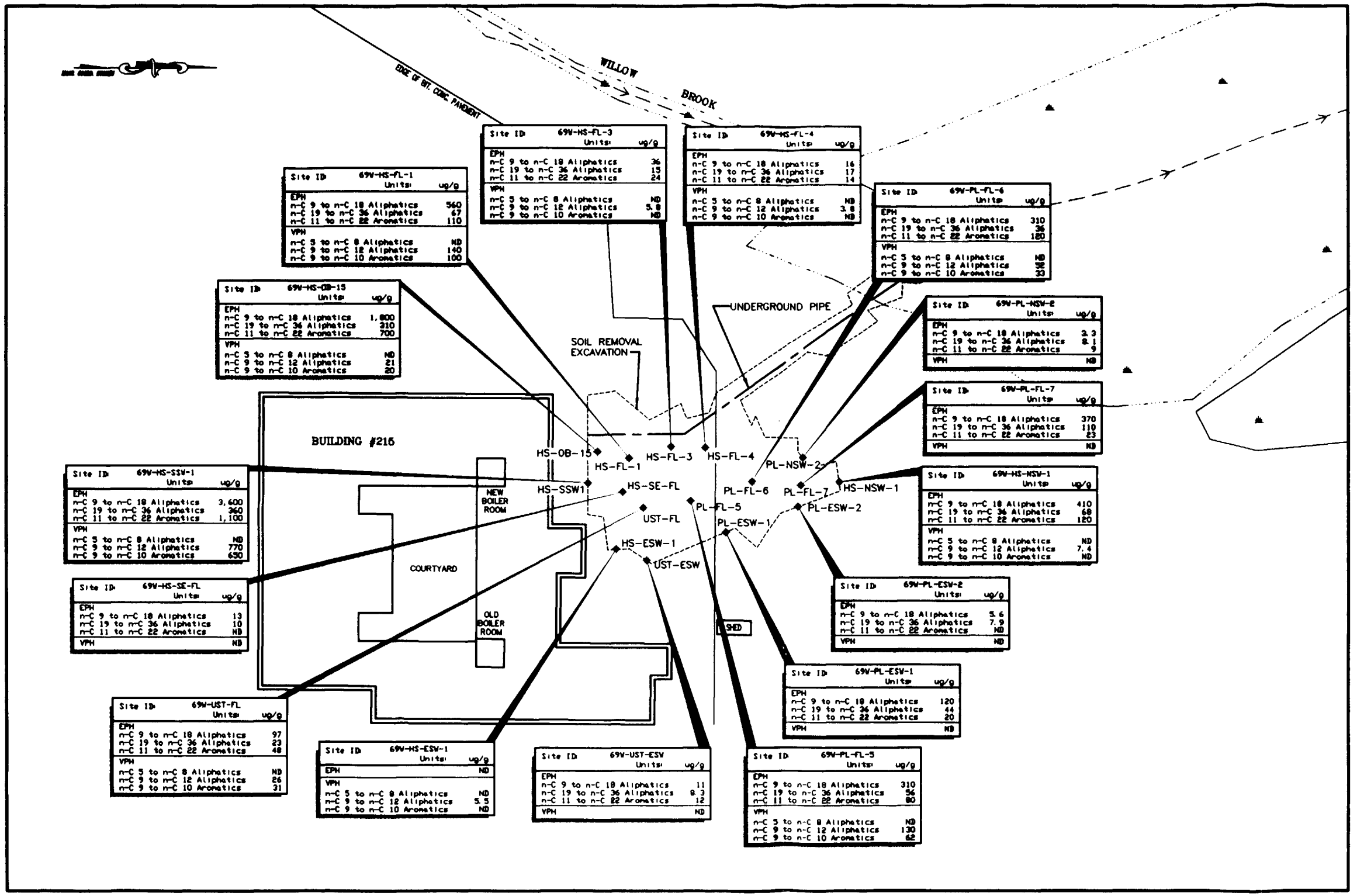
Harding Lawson Associates
Engineering and Environmental Services

EPH-VPH CONCENTRATIONS IN SOIL
1997 OFF SITE ANALYTICAL RESULTS
AOC 69W RECORD OF DECISION
DEVENS, MASSACHUSETTS

FIGURE 3 (WEST)

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
EJL	9144-05		06/7/99	00/00/00

T:\9144-05\9144F501.DWG 6/7/99 EJL



LEGEND

- EXCAVATION SOIL SAMPLES
- WETLANDS
- STREAM AND FLOW DIRECTION
- LIMITS OF BORDERING VEGETATED WETLANDS
- ND NOT DETECTED
- (DUP) DUPLICATE
- ug/g MICROGRAMS PER GRAM

0 40 80
Scale in feet

Harding Lawson Associates
Engineering and Environmental Services

EPH-VPH CONCENTRATIONS IN SOIL
1997 OFF SITE ANALYTICAL RESULTS
AOC 69W RECORD OF DECISION
DEVENS, MASSACHUSETTS

FIGURE 3 (EAST)

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED DATE
EJL	9144-05		06/7/99	00/00/00

APPENDIX B

APPENDIX B - TABLES

TABLE 1
DATA SUMMARY AND SELECTIONOF CHEMICALS OF POTENTIAL CONCERN
AOC 69W

RECORD OF DECISION
DEVENS, MASSACHUSETTS

	Range of SQLs	Frequency of Detection	Minimum Detected	Concentration Maximum Detected	Arithmetic Mean	95% UCL	Back-ground*	Region III RBC**	ARARs	CPC?	Notes
SURFACE SOIL (0 - 1 feet bgs)[a] (mg/kg)											
PAL METALS											
Aluminum	NA	6 / 6	5210	6160	5916.667	NC	18000	7800	NA	No	Less than RBC[1], Background[2]
Arsenic	NA	6 / 6	7.66	18	12.0383	NC	19	0.43	NA	Yes	Exceeds RBC[3], Background[2]
Barium	NA	6 / 6	14.1	22.4	18.2	NC	54	550	NA	No	Less than RBC[1], Background[2]
Beryllium	0.50-0.50	1 / 6	0.85	0.85	0.35	NC	0.81	0.15	NA	Yes	Exceeds RBC[3]
Calcium	NA	6 / 6	333	908	683.1667	NC	810	NA	NA	No	Essential Nutrient[4]
Chromium	NA	6 / 6	12.1	28.1	18.0167	NC	33	39	NA	No	Less than RBC[1], Background[2]
Cobalt	NA	6 / 6	2.51	5.36	4.1283	NC	4.7	470	NA	No	Less than RBC[1]
Copper	NA	6 / 6	5.59	29.9	11.7867	NC	13.5	310	NA	No	Less than RBC[1]
Iron	NA	6 / 6	6780	10300	8818.333	NC	18000	2300	NA	Yes	Exceeds RBC[3], Background[2]
Lead	NA	5 / 6	11.4	238	71.1	NC	61.1	NA	400 e	No	Less than ARAR[5]
Magnesium	NA	6 / 6	1360	2670	2405	NC	5500	NA	NA	No	Essential Nutrient[4], Background[2]
Manganese	NA	6 / 6	52.4	240	167.4	NC	380	180	NA	Yes	Exceeds RBC[3], Background[2]
Mercury	0.050-0.050	2 / 6	0.0755	0.0784	0.0423	NC	NA	2.3	NA	No	Less than RBC[1]
Nickel	NA	6 / 6	5.98	18.1	13.3133	NC	14.6	160	NA	No	Less than RBC[1]
Potassium	NA	6 / 6	367	993	630.1667	NC	2400	NA	NA	No	Background[2], Essential Nutrient[4]
Selenium	0.25-0.25	1 / 6	0.364	0.364	0.1648	NC	ND	39	NA	No	Less than RBC[1]
Sodium	NA	6 / 6	241	506	347.5	NC	131	NA	NA	No	Essential Nutrient[4]
Vanadium	NA	6 / 6	10.6	19.1	14.0667	NC	32.3	55	NA	No	Less than RBC[1], Background[2]
Zinc	NA	6 / 6	18.9	71.7	32.4833	NC	43.9	2300	NA	No	Less than RBC[1]
PAL SEMIVOLATILE ORGANICS											
Acenaphthylene	0.033-3	1 / 6	2	2	0.7055	NC	-	310 h	NA	No	Less than RBC[1]
Anthracene	0.033-3	1 / 6	1	1	0.5388	NC	-	2300	NA	No	Less than RBC[1]
Benzo[k]fluoranthene	0.066-7	1 / 6	2	2	1.0943	NC	-	8.8	NA	No	Less than RBC[1]
Chrysene	0.12-10	2 / 6	0.17	5	2.0383	NC	-	88	NA	No	Less than RBC[1]
Fluoranthene	0.068-1	4 / 6	0.19	9	3.2873	NC	-	310	NA	No	Less than RBC[1]
Fluorene	0.033-3	1 / 6	1	1	0.5388	NC	-	310	NA	No	Less than RBC[1]
Phenanthrene	0.20-0.70	5 / 6	0.065	9	3.0925	NC	-	310 h	NA	No	Less than RBC[1]
Pyrene	0.20-0.70	5 / 6	0.075	10	3.7742	NC	-	230	NA	No	Less than RBC[1]
PAL VOLATILE ORGANICS											
Acetone	0.017-0.017	1 / 6	0.069	0.069	0.0186	NC	-	780	NA	No	Less than RBC[1]
Toluene	0.00078-0.00078	3 / 6	0.001	0.0021	0.0009	NC	-	1600	NA	No	Less than RBC[1]
Trichlorofluoromethane	0.0059-0.0059	2 / 6	0.0055	0.0072	0.0041	NC	-	2300	NA	No	Less than RBC[1]
Xylenes	0.0015-0.0015	1 / 6	0.0027	0.0027	0.0011	NC	-	16000	NA	No	Less than RBC[1]

TABLE 1
DATA SUMMARY AND SELECTIONOF CHEMICALS OF POTENTIAL CONCERN
AOC 69W

RECORD OF DECISION
DEVENS, MASSACHUSETTS

	Range of SQLs	Frequency of Detection	Concentration: Minimum Detected	Concentration: Maximum Detected	Concentration: Arithmetic Mean	Concentration: 95% UCL	Concentration: Background*	Region III RBC**	ARARs	CPC?	Notes
SURFACE SOIL (0 - 1 feet bgs)[a] (mg/kg) - CONTINUED											
OTHER											
Total Petroleum Hydrocarbons	28-28	5 / 6	52.5	936	390.375	NC	-	NA	NA	Yes	No standard available[f]
SUBSURFACE SOIL (1 - 10 feet bgs)[b] (mg/kg)											
PAL METALS											
Aluminum	NA	2 / 2	2910	3060	2985	NC	18000	7800	NA	No	Less than RBC[1], Background[2]
Arsenic	NA	2 / 2	4.74	7.32	6.03	NC	19	0.43	NA	Yes	Exceeds RBC[3], Background[2]
Barium	NA	2 / 2	8.14	8.21	8.175	NC	54	550	NA	No	Less than RBC[1], Background[2]
Calcium	NA	2 / 2	369	463	416	NC	810	NA	NA	No	Essential Nutrient[4], Background[2]
Chromium	4.1-4.1	1 / 2	10.3	10.3	6.1625	NC	33	39	NA	No	Less than RBC[1], Background[2]
Cobalt	NA	2 / 2	2.22	2.88	2.55	NC	4.7	470	NA	No	Less than RBC[1], Background[2]
Copper	NA	2 / 2	4.6	5.14	4.87	NC	13.5	310	NA	No	Less than RBC[1], Background[2]
Iron	NA	2 / 2	5460	5880	5670	NC	18000	2300	NA	Yes	Exceeds RBC[3], Background[2]
Lead	NA	2 / 2	1.87	1.91	1.89	NC	48	NA	400 e	No	Less than ARAR[5], Background[2]
Magnesium	NA	2 / 2	1090	1430	1260	NC	5500	NA	NA	No	Essential Nutrient[4], Background[2]
Manganese	NA	2 / 2	56.4	90.3	73.35	NC	380	180	NA	No	Less than RBC[1], Background[2]
Nickel	NA	2 / 2	8.26	8.57	8.415	NC	14.6	160	NA	No	Less than RBC[1], Background[2]
Potassium	NA	2 / 2	460	515	487.5	NC	2400	NA	NA	No	Essential Nutrient[4], Background[2]
Sodium	NA	2 / 2	299	398	348.5	NC	131	NA	NA	No	Essential Nutrient[4],
Vanadium	NA	2 / 2	4.5	6.47	5.485	NC	32.3	55	NA	No	Less than RBC[1], Background[2]
Zinc	8.0-8.0	1 / 2	14	14	9.0075	NC	43.9	2300	NA	No	Less than RBC[1], Background[2]
PAL SEMIVOLATILE ORGANICS											
2-Methylnaphthalene	0.51-0.7	4 / 30	1.9	42	3.1797	2.858	-	310 h	NA	No	Less than RBC[1]
Acenaphthene	0.51-0.7	5 / 30	0.79	7.6	0.9312	1	-	470	NA	No	Less than RBC[1]
Acenaphthylene	0.06-0.7	2 / 30	9.6	16	1.1142	0.98	-	2300	NA	No	Less than RBC[1]
Benzo(a)anthracene	0.07-0.7	1 / 30	0.1	0.1	0.2655	0.35	-	0.88	NA	No	Less than RBC[1]
Benzo(b)fluoranthene	0.07-0.7	1 / 30	0.06	0.06	0.2642	0.354	-	0.88	NA	No	Less than RBC[1]
Chrysene	0.51-0.7	3 / 30	0.08	0.08	0.2652	0.347	-	88	NA	No	Less than RBC[1]
Fluoranthene	0.06-0.7	2 / 30	0.13	0.24	0.2732	0.333	-	310	NA	No	Less than RBC[1]
Fluorene	0.51-0.7	5 / 30	0.68	26	1.9132	1.584	-	310	NA	No	Less than RBC[1]
Naphthalene	0.51-0.7	3 / 30	7.1	12	1.1798	1.15	-	310	NA	No	Less than RBC[1]
Phenanthrene	0.51-7	3 / 30	1.5	9	0.8707	0.932	-	310 h	NA	No	Less than RBC[1]
Pyrene	0.06-0.7	2 / 30	0.18	0.18	0.2815	0.34	-	230	NA	No	Less than RBC[1]

TABLE 1
DATA SUMMARY AND SELECTIONOF CHEMICALS OF POTENTIAL CONCERN
AOC 69W

RECORD OF DECISION
DEVENS, MASSACHUSETTS

	Range of SQLs	Frequency of Detection	Minimum Detected	Concentration Maximum Detected	Concentration Arithmetic Mean	Concentration 95% UCL	Concentration Back-ground[a]	Region III RBC[**]	ARARs	CPC?	Notes
PAL VOLATILE ORGANICS											
Acetone	0.017-0.017	1 / 2	0.022	0.022	0.0153	NC	-	780	NA	No	Less than RBC[1]
Dichloromethane	0.012-0.012	1 / 2	0.025	0.025	0.0155	NC					
Toluene	0.0008-0.0008	1 / 2	0.0013	0.0013	0.0008	NC	-	1600	NA	No	Less than RBC[1]
SUBSURFACE SOIL (1 - 10 feet bgs)[b] (mg/kg) - CONTINUED											
OTHER											
Total Petroleum Hydrocarbons	28-28	2 / 5	57.5	902	27.8	NC	-	NA	NA	Yes	No standard available[7]
Extractable Petroleum Hydrocarbons (EPH)											
C11-C22 Aromatics	8.9-34	24 / 30	9	1,200	138	268	-	NA	NA	Yes	No standard available[7]
C19-C36 Aliphatics	0.15-4.6	26 / 30	5.4	670	119	1,998	-	NA	NA	Yes	No standard available[7]
C9-C18 Aliphatics	1.5-3.8	26 / 30	3.3	5,400	588	18,583	-	NA	NA	Yes	No standard available[7]
Volatile Petroleum Hydrocarbons (VPH)											
C-9-C12 Aliphatics	0.01-670	12 / 30	3.8	770	52.9	1,261	-	NA	NA	Yes	No standard available[7]
C9-C10 Aromatics	0.25-560	8 / 30	15	650	42.7	119	-	NA	NA	Yes	No standard available[7]
GROUNDWATER [c] (mg/L) - UNFILTERED											
PAL METALS											
Aluminum	0.141-0.141	4 / 10	0.39	0.448	0.2	NC	6.87	3.7	0.05 g	Yes	Exceeds ARAR[6], Background[2]
Arsenic	0.0025-0.0025	6 / 10	0.0052	0.19	0.04	NC	0.0105	0.000045	0.05 f	Yes	Exceeds RBC[3], Exceeds ARAR[6]
Barium	NA	10 / 10	0.0046	0.017	0.01	NC	0.0396	0.26	2 f	No	Less than RBC[1], Less than ARAR[5], Background[2]
Calcium	NA	10 / 10	15.5	25	20	NC	14.7	NA	NA	No	Essential Nutrient[4]
Copper	NA	1 / 10	0.01	0.01	0.004	NC		1.5	1.3	No	Less than RBC[1], Less than ARAR[5], Background[2]
Iron	0.0388-0.0388	9 / 10	0.44	26	5.2	NC	9.1	1.1	0.3 g	Yes	Exceeds RBC[3], Exceeds ARAR[6]
Lead	0.001 - 0.001	4 / 10	0.001	0.002	0.001	NC		NA	0.015	No	Less than ARAR[5], Background[2]
Magnesium	NA	10 / 10	1.7	3.02	2.2	NC	3.48	NA	NA	No	Essential Nutrient[4], Background[2]
Manganese		10 / 10	0.013	2.7	0.66	NC	0.291	0.084	0.05 g	Yes	Exceeds RBC[3], Exceeds ARAR[6]
Potassium	NA	10 / 10	1.6	5.1	2.3	NC	2.37	NA	NA	No	Essential Nutrient[4]
Sodium	NA	10 / 10	23.5	38	29	NC	10.8	NA	NA	No	Essential Nutrient[4]
PAL SEMIVOLATILE ORGANICS											
2-Methylnaphthalene (i)	0.0017-0.0017	2 / 10	0.008	0.6	0.06	NC	-	0.15 h	NA	Yes	Exceeds RBC[3]
Acenaphthene (j)	0.0017-0.06	1 / 13	0.01	0.01	0.004	NC	-	0.22	NA	No	Less than RBC[1]
Bis(2-ethylhexyl)phthalate (i)	0.0048-0.0048	4 / 10	0.0034	0.5	0.053	NC	-	0.0048	0.006 f	Yes	Exceeds RBC[3], Exceeds ARAR[6]
Dibenzofuran (i)	0.0017-0.06	1 / 10	0.0023	0.0023	0.004	NC	-	0.015	NA	No	Less than RBC[1]
Diethylphthalate (i)	0.002-0.11	3 / 10	0.002	0.003	0.007	NC	-	2.9	NA	No	Less than RBC[1]
Fluoranthene (j)	0.0052-0.01	2 / 13	0.0066	0.008	0.004	NC	-	0.15	NA	No	Less than RBC[1]

TABLE 1
DATA SUMMARY AND SELECTIONOF CHEMICALS OF POTENTIAL CONCERN
AOC 69W

RECORD OF DECISION
DEVENS, MASSACHUSETTS

	Range of SQLs	Frequency of Detection	Minimum Detected	Concentration Maximum Detected	Concentration Arithmetic Mean	Concentration 95% UCL	Back-ground*	Region III RBC**	ARARs	CPC?	Notes
Fluorene (j)	0.01-0.011	2 / 8	0.003	0.007	0.005	NC	-	0.15	NA	No	Less than RBC[1]
Naphthalene (i)	0.0005-0.0005	2 / 10	0.015	0.2	0.021	NC	-	0.15	NA	Yes	Exceeds RBC[3]
Phenanthrene (i)	0.0005-0.0005	2 / 10	0.002	0.15	0.015	NC	-	0.15 h	NA	No	Less than RBC[1]
PAL VOLATILE ORGANICS											
1,1,1-Trichloroethane (k)	0.0005-0.0013	1 / 10	0.0015	0.002	0.00035	NC	-	0.079	NA	No	Less than RBC[1]
Acetone (k)	0.013-0.036	2 / 10	0.013	0.014	0.009	NC	-	0.37	NA	No	Less than RBC[1]
Chloroform (k)	0.0005-0.0013	2 / 10	0.00055	0.00055	0.00034	NC	-	0.00015	NA	Yes	Exceeds RBC[3]
Ethylbenzene (l)	0.005-0.005	1 / 13	0.026	0.026	0.0047	NC	-	0.13	0.7 f	No	Less than RBC[1], Less than ARAR[5]
Toluene (k)	0.0005-0.0005	7 / 10	0.00045	0.0019	0.0007	NC	-	0.075	1 f	No	Less than RBC[1], Less than ARAR[5]
Trichloroethylene (k)	0.0005-0.0013	2 / 10	0.0033	0.0033	0.0005	NC	-	0.0016	NA	Yes	Exceeds RBC[3]
Xylenes (k)	0.00084-0.00084	1 / 10	0.0014	0.0014	0.00055	NC	-	1.2	NA	No	Less than RBC[1]
GROUNDWATER [c] (mg/L) - UNFILTERED - CONTINUED											
OTHER											
Extractable Petroleum Hydrocarbons (EPH)											
C9-C18 Aliphatics (j)	0.09-0.3	3 / 13	0.21	0.6	0.15	NC	-	NA	NA	Yes	No standard available[7]
C11-C22 Aromatics (j)	0.03-0.04	3 / 13	0.043	0.3	0.053	NC	-	NA	NA	Yes	No standard available[7]
Volatile Petroleum Hydrocarbons (VPH)											
C5-C8 Aliphatics (l)	0.0025-0.075	1 / 9	0.047	0.047	0.02	NA	-	NA	NA	Yes	No standard available[7]
C9-C12 Aliphatics (l)	0.032-0.065	4 / 13	0.032	0.34	0.061	NC	-	NA	NA	Yes	No standard available[7]
C9-C10 Aromatics (l)	0.012-0.02	4 / 13	0.014	0.61	0.082	NC	-	NA	NA	Yes	No standard available[7]
DOWNGRADIENT SEDIMENT [d] (mg/kg)											
PAL METALS											
Aluminum	NA	3 / 3	2930	4840	3843	NC	18000	7800	NA	No	Less than RBC[1], Background[2]
Arsenic	NA	3 / 3	5.46	14.0	10.8	NC	19	0.43	NA	Yes	Exceeds RBC[3], Background[2]
Barium	NA	3 / 3	7.13	11.4	9.5	NC	54	550	NA	No	Less than RBC[1], Background[2]
Calcium	NA	3 / 3	10.3	736	427	NC	810	NA	NA	No	Essential Nutrient[4], Background[2]
Chromium	NA	3 / 3	11.2	16.1	13.8	NC	33	39	NA	No	Less than RBC[1], Background[2]
Cobalt	NA	3 / 3	2.23	6.9	4.3	NC	4.7	470	NA	No	Less than RBC[1]
Copper	NA	3 / 3	6.56	23.4	13.6	NC	13.5	310	NA	No	Less than RBC[1]
Iron	NA	3 / 3	7010	10900	9370	NC	18000	2300	NA	Yes	Exceeds RBC[3], Background[2]
Lead	NA	3 / 3	11.4	30.0	20.7	NC	48	NA	400 e	No	Less than ARAR[5], Background[2]
Magnesium	NA	3 / 3	1580	2630	2123	NC	5500	NA	NA	No	Essential Nutrient[4], Background[2]
Manganese	NA	3 / 3	70.7	186	139	NC	380	180	NA	Yes	Exceeds RBC[3], Background[2]

TABLE 1
DATA SUMMARY AND SELECTIONOF CHEMICALS OF POTENTIAL CONCERN
AOC 69W

RECORD OF DECISION
DEVENS, MASSACHUSETTS

	Range of SQLs	Frequency of Detection	Concentration					Region III RBC**	ARARs	CPC?	Notes
			Minimum Detected	Maximum Detected	Arithmetic Mean	95% UCL	Back-ground*				
Nickel	NA	3 / 3	9 55	18 1	12 7	NC	14 6	160	NA	No	Less than RBC[1]
Potassium	NA	3 / 3	364	426	402	NC	2400	NA	NA	No	Essential Nutrient[4], Background[2]
Sodium	NA	3 / 3	259	307	275	NC	234	NA	NA	No	Essential Nutrient[4]
Vanadium	NA	3 / 3	7 91	10 4	8 9	NC	32 3	55	NA	No	Less than RBC[1], Background[2]
Zinc	NA	3 / 3	22 8	39 6	31.4	NC	43.9	2300	NA	No	Less than RBC[1]
PAL SEMIVOLATILE ORGANICS											
Benzo[k]fluoranthene	0 30-0 30	1 / 3	0 4	0 40	0 23	NC	-	8.8	NA	No	Less than RBC[1]
Chrysene	0 60-0 60	1 / 3	2	2	0 86	NC	-	88	NA	No	Less than RBC[1]
Fluoranthene	0 30-0 30	2 / 3	1	3	1 04	NC	-	310	NA	No	Less than RBC[1]
Phenanthrene	0 20-0 20	2 / 3	0 9	2	1	NC	-	310 h	NA	No	Less than RBC[1]
Pyrene	0 20-0 20	2 / 3	1	3	1 4	NC	-	230	NA	No	Less than RBC[1]
PAL VOLATILE ORGANICS											
Trichlorofluoromethane	NA	3 / 3	0 0082	0 0096	0 0091	NC	-	2300	NA	No	Less than RBC[1]
PESTICIDES/PCBS											
4,4-DDD	NA	3 / 3	0 0174	0 12	0 068	NC	-	2 7	NA	No	Less than RBC[1]
4,4-DDE	0 0077-0 0077	1 / 3	0 015	0 015	0 0076	NC	-	1 9	NA	No	Less than RBC[1]
4,4-DDT	NA	2 / 3	0 02	0 046	0 024	NC	-	1 9	NA	No	Less than RBC[1]
OTHER											
Total Petroleum Hydrocarbons	NA	3 / 3	66 8	290	162	NC	-	NA	NA	Yes	No standard available[7]
INDOOR AIR [m] (ug/m³)											
VOLATILE ORGANICS											
2-Methylheptane	4 4	2 / 5	5 2	19	7 3	NC	(n)	200	NA	No	Less than RBC[1]
Ethylbenzene	NA	5 / 5	2 8	470	102	NC		100	NA	Yes	
Nonane	4 4	1 / 5	7 2	7 2	3 2	NC	(n)	200	NA	No	Less than RBC[1]
Octane	4 4	1 / 5	21	21	5 9	NC	(o)	20	NA	Yes	
Toluene	NA	5 / 5	70	1000	297	NC		42	NA	Yes	
Acetone	NA	5 / 5	52	470	172	NC		37	NA	Yes	
Xylene	8 8	4 / 5	8	92	30 4	NC		730	NA	No	Less than RBC[1]
2-Methylheptane	4 4	1 / 5	8 7	8 7	3 5	NC	(n)	200	NA	No	Less than RBC[1]

TABLE 1
DATA SUMMARY AND SELECTIONOF CHEMICALS OF POTENTIAL CONCERN
AOC 69W

RECORD OF DECISION
DEVENS, MASSACHUSETTS

	Range of SQLs	Frequency of Detection	Concentration: Minimum Detected	Concentration: Maximum Detected	Concentration: Arithmetic Mean	Concentration: 95% UCL	Concentration: Back-ground*	Region III RBC**	ARARs	CPC?	Notes

NOTES:

a Samples included in data set are listed on Table 9-1

b Samples included in data set are listed on Table 9-1

c Samples included in data set are listed on Table 9-1

d Samples included in data set are listed on Table 9-1

e USEPA soil lead screening level (OSWER Directive 9355 4-12, 1994b)

f MCL (USEPA, 1996b)

g Secondary MCL (USEPA, 1996b)

h *Value for naphthalene used as surrogate*

i Data for SVOC analysis

j Data for EPH analysis

k Data for VOC analysis

l Data for VPH analysis

m Samples included in data set are listed on Table 9-1

n Value is RfC for the C9-C12 aliphatic fraction published by MADEP (1997), adjusted to represent a value of 10% of the RfC

o Value is the RfC for the C5-C8 aliphatic fraction published by MADEP (1997), adjusted to represent a value of 10% of the RfC.

Background Maximum concentration in Fort Devens background listed.

95 percent UCL of Fort Devens background groundwater See Appendix F for development of background

**Region III RBCs (USEPA, 1997a) Residential RBC for soil used for sediment and surface and subsurface soil evaluation, tap water RBC used for groundwater evaluation Ambient Air RBCs used for indoor air evaluation RBCs based on carcinogenic effects are associated with a $1x10^{-6}$ cancer risk level. RBCs based on noncarcinogenic effects are associated with an adjusted HQ of 0.1

Less than RBC[1] - Maximum detected concentration less than risk-based concentration

Background[2] - Sample concentrations detected are at or below background concentrations

Exceeds RBC[3] - Maximum detected concentration exceeds risk-based concentration

Essential Nutrient[4] - Analyte is an essential human nutrient (magnesium, calcium, potassium, sodium) and is not considered a CPC

Less than ARAR[5] - Maximum detected concentration is less than concentration shown in ARARs column

Exceeds ARAR[6] - Maximum detected concentration is greater than concentration shown in ARARs column

No standard available[7] - No standards available for comparison, analyte is considered a CPC

Chemicals selected as CPCs are shaded.

RBC - Risk-based concentration

mg - milligrams

kg - kilograms

L - liter

ARARs - Applicable or Relevant and Appropriate Requirements

MCL - Maximum Contaminant Level

CPC - chemical of potential concern

bgs - below ground surface

SQL - Sample Quantitation Limit

- - not applicable for organics

NC - 95 percent UCL not calculated for data sets with less then 10 samples or groundwater

NA - No value available

UCL - upper confidence limit

E 2

SUMMARY OF HUM. ALTH RISK ASSESSMENT

AOC 69W

RECORD OF DECISION

DEVENS, MASSACHUSETTS

EXPOSURE MEDIUM / RECEPTOR	CENTRAL TENDENCY		RME		ARE SITE RISKS UNACCEPTABLE?	
	Total Cancer Risk	Total Hazard Index	Total Cancer Risk	Total Hazard Index	Cancer Risk (exceeds USEPA acceptable cancer risk range?)	Non-Cancer Risk exceeds USEPA acceptable Hazard Index?) [2]
CHILD TRESPASSER: Current Land Use						
SURFACE SOIL:	$3x10^{-6}$	0.1	$6x10^{-6}$	0.2	NO	NO
SEDIMENT:	$5x10^{-7}$	0.05	$1x10^{-6}$	0.07	NO	NO
GROUNDWATER (Discharge to Surface Water) :	$1x10^{-6}$	0.2	$2x10^{-6}$	0.2	NO	NO
TOTAL CHILD TRESPASSER RISK:	$6x10^{-6}$	0.4	$1x10^{-5}$	0.6	NO	NO
SITE MAINTENANCE WORKER: Current Land USe						
SURFACE SOIL:	1×10^{-6}	0.07	$5x10^{-6}$	0.1	NO	NO
PUPIL: Future Land Use						
SURFACE SOIL:	$5x10^{-6}$	0.3	$9x10^{-6}$	0.3	NO	NO
SEDIMENT:	$5x10^{-7}$	0.05	$1x10^{-6}$	0.07	NO	NO
GROUNDWATER (Discharge to Surface Water) :	$1x10^{-6}$	0.2	$2x10^{-6}$	0.2	NO	NO
INDOOR AIR:	NC	0.4	NC	0.4	NO	NO
TOTAL PUPIL RISK:	$6x10^{-6}$	1	$1x10^{-5}$	1	NO	NO
EXCAVATION WORKER: Future Land Use						
SURFACE SOIL:	$1x10^{-7}$	0.1	$3x10^{-7}$	0.2	NO	NO
SUBSURFACE SOIL:	$6x10^{-8}$	0.9	$1x10^{-7}$	0.9	NO	NO
TOTAL EXCAVATION WORKER RISK:	$2x10^{-7}$	1	$4x10^{-7}$	1	NO	NO
ADULT RESIDENT: Future Land Use						
GROUNDWATER HYPOTHETICAL POTABLE USE [3]	$1x10^{-4}$	4	$3x10^{-3}$	25	YES	YES
CHILD RESIDENT: Future Land Use						
GROUNDWATER HYPOTHETICAL POTABLE USE [3]	$8x10^{-5}$	8	$2x10^{-3}$	57	YES	YES
TOTAL RESIDENT RISK:	$2x10^{-4}$	--	$3x10^{-3}$	--	YES	YES

NOTES

1 According to the National Contigency Plan for Superfund Sites, the acceptable cancer risk range is within or below 1 in 10,000 ($1x10^{-4}$) to 1 in 1 million ($1x10^{-6}$)

2 According to the National Contigency Plan for Superfund Sites, the acceptable non-cancer risk is a chemical dose that will not result in adverse health effects to sensitive subpopulations, this is often interpreted by the USEPA to be a HI of not greater than 1

3 Groundwater is not presently, nor will be in the future, used as a source of residential or industrial supply water Therefore, this evaluation represents a theortical exposure which does not and will not occur

RME = Reasonable Maximum Exposure

bgs = below ground surface

HI = Hazard Index

Table 3
Ecological Risk Assessment Summary
AOC 69W

Record of Decision
Devens, Massachusetts

Receptor	Medium		
	Surface Soil	Groundwater	Sediment
Small Mammals	Negligible	NA	None
Small Birds	None	NA	None
Predatory Mammals	None	NA	None
Terrestrial Plants	Pb at ZWS-95-42X? No signs of stressed vegetation	NA	NA
Soil Invertebrates	None	NA	NA
Aquatic Organisms	NA	Fe and Mn [1]. Negligible risk from other analytes	Negligible. Adverse effects observed in toxicity tests may be associated with low habitat quality

[1] Iron and manganese were detected in groundwater at concentrations that exceed AWQC; however, the soil removal action has mitigated the reducing conditions that may have contributed to the mobilization of these analytes in groundwater.

TABLE 4
EVALUATION CRITERIA AND. ALTERNATIVES
AOC 69W

RECORD OF DECISION
DEVENS, MASSACHUSETTS

NINE CRITERIA	NO ACTION	LIMITED ACTION WITH INSTITUTIONAL CONTROLS ★
Protects Human Health and Environment	◑	●
Meets Federal and State Requirements	○	●
Provides Long-term Protection	○	●
Reduces Mobility, toxicity, or volume	○	○
Provide Short-term Protection	◑	●
Can Be Implemented	●	●
Cost	$0	$195,300
State Acceptance	○	●
Community Acceptance	○	◑

● = Meets or exceeds criteria
◑ = Partically meets criteria
○ = Does not meet criteria
★ = Preferred alternative

TABLE 5
CHEMICAL-, LOCATION-, AND ACTION-SPECIFIC ARARS, CRITERIA, ADVISORIES, AND GUIDANCE
AOC 69W

RECORD OF DECISION
DEVENS, MASSACHUSETTS

MEDIA	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	ACTION TO BE TAKEN TO ATTAIN REQUIREMENT
GROUNDWATER Federal	Safe Drinking Water Act (SDWA) - Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLGs; 40 CFR 141.11-141.16 and 141.50-141.52	Relevant and Appropriate	MCLs are enforceable standards (based in part on the availability and cost of treatment) that specify the maximum permissible concentrations of contaminants in public drinking water supplies. MCLGs are non-enforceable health based goals that specify the maximum concentration at which no known or anticipated adverse effects on humans will occur.	Long-term groundwater monitoring will ensure that site contaminants do not migrate off-site. Implementation of Institiutional Controls prohibiting installation of drinking water wells at the site will prevent exposure. In addition, arsenic concentrations are expected to decrease following the soil removal which eliminated the majority of the source of the aquifers reducing conditions.
State	Massachusetts Groundwater Quality Standards; 310 CMR 6.00	Relevant and Appropriate	These standards designate and assign uses for which groundwaters of the Commonwealth shall be maintained and protected, and set forth water quality criteria necessary to maintain the designated uses. Groundwater at AOC 69W is classified as Class I, fresh groundwaters designated as a source of potable water supply.	Long-term groundwater monitoring will ensure that site contaminants do not migrate off-site. Implementation of Institiutional Controls prohibiting installation of drinking water wells at the site will prevent exposure. In addition, arsenic concentrations are expected to decrease following the soil removal which eliminated the majority of the source of the

TABLE 5
CHEMICAL-, LOCATION-, AND ACTION-SPECIFIC ARARS, CRITERIA, ADVISORIES, AND GUIDANCE
AOC 69W

RECORD OF DECISION
DEVENS, MASSACHUSETTS

MEDIA	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	ACTION TO BE TAKEN TO ATTAIN REQUIREMENT
	Massachusetts Drinking Water Regulations, 310 CMR 22.00	Relevant and Appropriate	These regulations list Massachusetts MCLs which apply to drinking water distributed through a public water system.	Long-term groundwater monitoring will ensure that site contaminants do not migrate off-site. Implementation of Institiutional Controls prohibiting installation of drinking water wells at the site will prevent exposure. In addition, arsenic concentrations are expected to decrease following the soil removal which eliminated the
	Massachusetts Hazardous Waste Management Regulations; 310 CMR 30.300	Applicable	These regulations contain requirements for generators including testing of wastes to determine if they are hazardous wastes and accumulation of hazardous waste prior to disposal.	Any hazardous waste (soils or groundwater) generated from long-term monitoring or excavation at AOC 69W will be managed in accordance with these regulations. Institutional Controls will limit contact to in-situ

APPENDIX C

APPENDIX C - RESPONSIVENESS SUMMARY

This Responsiveness Summary has been prepared to meet the requirements of Sections 113(k)(2)(B)(iv) and 117(b) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, which requires response to "significant comments, criticisms, and new data submitted in written or oral presentations" on a proposed plan for remedial action. The purpose of this Responsiveness Summary is to document Army responses to questions and comments expressed during the public comment period by the public, potentially responsible parties, and governmental bodies in written and oral comments regarding the Proposed Plan for Area of Contamination (AOC) 69W.

The Army held a 30-day public comment period from April 8 through May 10, 1999, to provide an opportunity for interested parties to comment on the Remedial Investigation (RI) report, Proposed Plan, and other documents developed to address contamination at AOC 69W, Devens, Massachusetts. The RI characterized soil and groundwater contamination at AOC 69W and evaluated potential human health and ecological risks. Based on the results of the RI and risk assessment, the Army concluded that under current land uses (including re-use as a school) AOC 69W did not pose unacceptable risks to human health or the environment. Hypothetical future use of the groundwater as a residential potable water source did exceed risk levels generally considered acceptable by the USEPA. The Army identified its proposal for Limited Action of long-term groundwater monitoring and institutional controls in the Proposed Plan issued on April 8, 1999.

All documents considered in arriving at the Limited Action decision were placed in the Administrative Record for review. The Administrative Record contains all supporting documentation considered by the Army in choosing the remedy for AOC 69W. The Administrative Record is available to the public at the Devens Base Realignment and Closure (BRAC) Environmental Office, 30 Quebec Street, Devens RFTA, and at the Ayer Town Hall, Main Street, Ayer. An index to the Administrative Record is available at the U.S. Environmental Protection Agency (USEPA) Records Center, 90 Canal Street, Boston, Massachusetts and is provided as Appendix D to the Record of Decision.

This Responsiveness Summary is organized into the following sections:

I. **Statement of Why the Army Recommended Limited Action**-This section briefly states why the Army recommended Limited Action consisting of long-term groundwater monitoring and institutional controls for AOC 69W.

II. **Background on Community Involvement**-This section provides a brief history of community involvement and Army initiatives to inform the community of site activities.

III. **Summary of Comments Received During the Public Comment Period and Army Responses**-This section provides Army responses to oral and written comments received from the public and not formally responded to during the public comment period. A transcript of the public meeting consisting of all comments received during this meeting and the Army's responses to these comments is provided in Attachment A of this Responsiveness Summary.

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I. STATEMENT OF WHY THE ARMY RECOMMENDED LIMITED ACTION

The Army recommended Limited Action because under current conditions AOC 69W poses no unacceptable risks to human health of the environment. Furthermore, the Removal Action performed by the Army in 1997-1998 has eliminated the majority of the petroleum contaminated soils which would otherwise be a continuing source of contamination. The fuel oil UST, piping, and oil recovery system were also removed. The contaminated soil adjacent to and underneath the school that exceeds the MCP Method 1 S-1/GW-1 soil standards is below a paved area which minimizes any further migration of contaminants and potential future exposure. Because the soil Removal Action eliminated the majority of source area contaminants, estimated risks and interpretations represent worst-case estimates that are unlikely to be exceeded under future land use conditions. The Limited Action enables the Army to continue monitoring site conditions and places limitations on future use to minimize the potential for future exposures.

Risks associated with hypothetical future potable use (worst-case) exposure to AOC 69W groundwater, exceed levels considered acceptable by USEPA due largely to elevated concentrations of arsenic. The soil removal will act to lessen reducing conditions in the groundwater and therefore arsenic concentrations are expected to continue to decrease. The Army will monitor the groundwater for site contaminants and observe groundwater conditions over time. A long-term groundwater monitoring plan will be prepared which will include the identification and location of new groundwater monitoring wells and existing monitoring wells to be sampled. The sampling frequency and analytical parameters to be evaluated will also be identified within this plan. The objective of the monitoring well be to verify that elevated arsenic concentrations will continue to decrease and not migrate further downgradient. Monitoring will be performed for five years, after which the sampling frequency will be reassessed pending the results of the five-year site review.

Institutional controls will also be implemented at AOC 69W to limit the potential exposure to the contaminated soil and groundwater under both existing and future site conditions. These institutional controls will ensure that exposure to remaining contaminated soils beneath and adjacent to the building are controlled and the extraction of groundwater from the site for industrial and/or potable water supply would not be permitted. The institutional controls for AOC 69W will be incorporated either in full or by reference into all deeds, easements, mortgages, leases or any other instruments of transfer prior to the transfer of the property to MassDevelopment.

As part of the five-year review process, existing land use will be evaluated to ensure that the institutional control requirements are still being met. If the future proposed land use at AOC 69W is inconsistent with these institutional controls, then the site exposure scenarios to human health and the environment will be re-evaluated to ensure that this response action is appropriate.

II. BACKGROUND ON COMMUNITY INVOLVEMENT

The Army has held regular and frequent information meetings, issued fact sheets and press releases, and held public meetings to keep the community and other interested parties informed of activities at AOC 69W.

In February 1992, the Army released, following public review, a community relations plan that outlined a program to address community concerns and keep citizens informed about and involved in remedial activities at Fort Devens. As part of this plan, the Army established a Technical Review Committee (TRC) in early 1992. The TRC, as required by SARA Section 211 and Army Regulation 200-1, included representatives from USEPA, USAEC, Fort Devens, Massachusetts Department of Environmental Protection (MADEP), local officials, and the community. Until January 1994, when it was replaced by the Restoration Advisory Board (RAB), the committee generally met quarterly to review and provide technical comments on schedules, work plans, work products, and proposed activities for the study areas at Fort Devens. The Site Investigation, Area Requiring Environmental Evaluation, and RI reports; Proposed Plan; and other related support documents were all submitted to the TRC or RAB for their review and comment. The Community Relations Plan was updated to address BRAC issues and reissued in May 1995.

The Army, as part of its commitment to involve the affected communities, forms a RAB when an installation closure involves transfer of property to the community. The Fort Devens RAB was formed in February 1994 to add members of the Citizen's Advisory Committee (CAC) to the TRC. The CAC had been established previously to address Massachusetts Environmental Policy Act/Environmental Assessment issues concerning the reuse of property at Fort Devens. The RAB initially consisted of 28 members (15 original TRC members plus 13 new members) representing the Army, USEPA Region I, MADEP, local governments, and citizens of the local communities. The RAB currently consists of 19 members. It meets monthly and provides advice to the installation and regulatory agencies on the Devens RFTA cleanup programs. Specific responsibilities include: addressing cleanup issues such as land use and cleanup goals; reviewing plans and documents; identifying proposed requirements and priorities; and conducting regular meetings that are open to the public.

On April 8, 1999, the Army issued the Proposed Plan, to provide the public with a brief explanation of the Army's proposal for Limited Action at AOC 69W. The Proposed Plan also described the opportunities for public participation and provided details on the upcoming public comment period and public meetings.

During the weeks of April 12 and 26, 1999, the Army published a public notice announcing the Proposed Plan and public information meeting in the Lowell Sun, Worcester Telegram and Gazette, Fitchburg-Leominster Sentinel Enterprise, and the Public Spirit. The Army also made the Proposed Plan available to the public at the public information repositories at the Davis Public Library at the Devens RFTA, the Ayer Public Library, the Hazen Memorial Library in Shirley, the Harvard Public Library, and the Lancaster Public Library.

From April 8 through May 10, 1999, the Army held a 30-day public comment period to accept public comments on the Proposed Plan and on other documents released to the public. On May 5, 1999, the Army held a formal public hearing at Devens RFTA to present the Army's Proposed Plan to the public and to provide the opportunity for open discussion concerning the Proposed Plan. The Army also accepted verbal or written comments from the public at the meeting. A transcript of this meeting, public comments, and the Army's response to comments are attached to this Responsiveness Summary.

All supporting documentation for the decision regarding AOC 69W is contained in the Administrative Record for review. The Administrative Record is a collection of all the documents considered by the Army in choosing the plan of action for AOC 69W. On May 5, 1999, the Army made the Administrative Record available for public review at the Devens BRAC Environmental Office, and at the Ayer Town Hall, Ayer, Massachusetts. An index to the Administrative Record is available at the USEPA Records Center, 90 Canal Street, Boston, Massachusetts and is provided as Appendix D.

III. SUMMARY OF COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD AND ARMY RESPONSES

The following comments were received during the public comment period.

Oral comments received at the public hearing on May 5, 1999 as recorded on the official transcript.

Commentor: Kevin O'Malley – Ayer Superintendent of Schools

Comment: In terms of that category of institutional controls, have the uses that a school would ordinarily make of a facility and of grounds been explored to the extent that any of them would be prohibited into the future, (examples) a science class planting a bush, a field trip, or a group of kids playing in a playground setting, et cetra? Are we to feel comfortable based on your findings that there are no risks to children in using the outside facility?

Response: The institutional control pertaining to exposure to subsurface soil is based on the residual soil contamination located adjacent to the school building and beneath the paved parking lot at depths of 6 to 10 feet below ground surface. The institutional controls for exposure to soils would therefore only pertain to subsurface soils, those soils located at depths greater than 3 feet below ground surface. It is anticipated that this restriction would in no way impact the ordinary use of the facility either indoors or out.

The human health risk assessment has shown that there is no unacceptable risk posed by the site to either pupils or teachers.

Comment: We are, all of us, concerned about indoor quality of air. Are we to be assured that the quality of the air in the facility going on into the future will not be affected by this particular event in the past? In other words, could there be recesses, places that would be stirred up by habitation activity that might contaminate the air in a way that we would have to come back and remediate it; whereas, right now; because everything is sedentary, things are testing out wonderful?

Response: The indoor air sampling was performed in October of 1997 during a time that the school building was inactive and sealed. This represents a worst-case scenario insofar as any contaminant vapors present would be allowed collect within the school building without being ventilated. Only three analytes (ethylbenzene, 2-methylheptane, and xylene) were detected in indoor air that are potentially attributed to subsurface contamination beneath the school. Of these, none were detected in the vicinity of the northwestern portion of the school at concentrations high enough to include them in the risk assessment and only ethylbenzene was detected at a concentration within the school building at a concentration that included it as a contaminant of potential concern. The results of the human health risk assessment show that there are no unacceptable risks to either pupils or teachers from indoor air. The USEPA performed additional air sampling and conducted an independent risk assessment which also showed no unacceptable levels of risk.

Occupation of the school would not act to increase petroleum-related contamination within the school building as these soils are beneath the school foundation and paved parking lot. In addition, the occupation and use of the school would also result in constant ventilation of the school building through the opening of doors and windows.

Comment: What, if any, ongoing relationship will this study from the Army have with this facility and grounds? Will the change of deed or the change of ownership status affect that kind of relationship?

Response: The Army proposes to perform long-term monitoring of the groundwater at the site until such time as it is agreed by the Army and the USEPA that monitoring is no longer required. This time frame will not be shorter than five-years.

Comment: Does your (Army) concern go beyond environmental to structural building issues in the transfer of the property?

Response: Prior to transfer of the property to MassDevelopment the Army will issue a Statement of Condition documenting the physical condition of the property. The property is then transferred as is.

Commentor: Mary Ann Gapinski – School Nurse, Parker Charter School

Comment: While we concur with the conclusions that there are no unacceptable human health risks with the building as it is now, we are concerned about the surveillance of it in the long-term.

Table 9-11 which was the quantitative risk summary of the remedial RI, it states time and time again that the indoor air was not evaluated; that it was not calculated; that there was no VOCs noted; and probably not in a building that had been closed for numerous years. We – I'm sure that the indoor area quality reports that have come back would justify that statement.
However, in stirring up the activity there with 400-plus students and faculty at the site, we are concerned about the potential for the VOCs and sediment inhalation of those, and not just the cancer risk. I know the ATSDR did potentials on that, and that came back inclusive as well.
However, our major concern at this time – and again much of this concern is due to the population which will be in that building, namely school age children – that we're talking about asthma and other respiratory ailments that are common among this age population. So it's not just the cancer risks that need to be looked at, but other health concerns.

And along with this, we would just like to add in the record that perhaps as part of the AUL, the land restrictions for this, that could be included a ventilation system that is performance standard; that is up to date; that the controls be set for that specifically with these potential VOCs in the building.

Response: Table 9-11does state that carcinogenic risks were not calculated for exposure to indoor air because there were no anlaytes detected that qualified as contaminants of potential concern. However, non-carcinogenic health risks were calculated. This assessment showed that risk levels were well below the USEPA threshold level.

In addition, please refer to the response to the second comment by Mr. Kevin O'Malley.

Comment: In some of the original documents regarding this AOC 69W, we found that there was some proposed lease and transfer restrictions that were – included asbestos, lead paint, radon, the groundwater exposure, and the subsoil excavation concerns.

Now, we understand, you know, the groundwater and the subsoil excavation concerns; and those will remain with the deed. And then we also understand that the asbestos, the lead paint, and the radon issues have all been, we hope, remediated by the renovations that are being done by the DCC there.

However, my question is, will any of those other issues remain in the deed transfer restrictions – the asbestos, the lead paint, and the radon issues – or are those all considered remediated and gone from concerns?

Response: It is the Army's understanding that the asbestos, lead paint, and radon issues have been addressed by the DCC. The deed restrictions imposed will only pertain to the potential future exposure to groundwater as a potable water source and to subsurface soil.

Commentor: Sally Kent – Environmental Chemistry Teacher, Parker Charter School

Comment: We're very much interested in using this whole school as a case study for a year's worth of curriculum. I'm looking for support; and, also because as we go into this and we bring in a whole lot of families involved and students into the building, I want the families and the students to be reassured that they're moving into a safe building. So I think it's – it would be very good for them to have a good in-depth study so they all feel comfortable with going into – they feel educated about the process.

I would also like to find out about being able to use the site once were in the building as our environmental class – chemistry class. Will we be allowed to sample the soil ourselves? Will there be any restricted areas to go to the water for samples? Will we be allowed to take sediment from the streams nearby? How will we be restricted as environmental and analytical chemists?

Response: The deed restrictions imposed will pertain to groundwater as a potable water source and to subsurface soil (soil at a depth greater than three feet below ground surface). Any future school activities would have to take these restrictions into account. As has been stated previously, these restrictions should not impinge upon normal activities either inside or outside of the school facility.

Commentor: Carol Case – Parent of students at Parker Charter School

Comment: Once all this testing is ongoing, can you tell me how the results of that test will be – where those results will be kept and how people at the school or elsewhere of interest would have access to that information?

Response: The results of the long-term groundwater monitoring will be made available on an annual basis in the form of a long-term monitoring report. This report will be a part of the public record and will be sent to all parties on the document distribution list as well as the document repositories located at the local libraries. In addition, representatives of the Parker Charter School will continue to be invited to information and planning meetings to be held between the Army, USEPA, and MADEP.

Commentor: Charlie Jones – Ayer School Committee

Comment: You (Army, J. Chambers) said that you could have restrictions that go – pass on with the deed. But as you pointed out, currently the Army is leasing that facility and has not transferred it over to Devens.

Do you foresee any delay in transferring the property over so that the property can then be used or – while ongoing, long-term investigations or long-term remedies are taking place; or do you see that this will – what you've done will facilitate the transfer of the property?

Response: The Limited Action proposed in this Record of Decision should not delay the transfer of the school property to MassDevelopment.

The following written comment was received during the public comment period:

Commentor: Carol M. Case – Parent of students at the Parker Charter School

Comment: In a question I posed during the May 5th public hearing, I asked how the results gathered from the ongoing site monitoring would be maintained and disseminated, and by whom it could be accessed.

While having this information available to a public review board is acceptable, there should also be a commitment on the part of the Army to pro-actively provide this information to the parties of interest. This should in particular include the building owners, lessees, and occupants, whether at any given time they happen to be the same or separate parties.

This would ensure that there is adequate notice of issues that might require remedial action or that might significantly or otherwise interrupt normal use of the building and site.

Response: Please refer to the response to Ms. Case's earlier comment.

ATTACHMENT A - PUBLIC MEETING TRANSCRIPT

Volume I
Pages 1 to 19

PUBLIC MEETING REGARDING PROPOSED PLAN FOR AOC 69W

U.S. Army Reserve
Forces Training Area

Devens, Massachusetts

MODERATOR: Jim Chambers

Held at:

U.S. Army RFTA Headquarters
Building 679
Quebec Street
U.S. Army Reserve Forces Training Area
Devens, Massachusetts
Wednesday, May 5, 1999
8:02 p.m.

(William J. Ellis, Registered Professional Reporter)

* * * *

P R O C E E D I N G S

JIM CHAMBERS: Good evening. Welcome. My name is Jim Chambers. I'm the Base Realignment And Closure Environmental Coordinator for the Army at Devens.

Tonight, we're going to have the formal public hearing now on the proposed plan for Area of Contamination 69W. That's a fuel -- heating fuel release that -- at the former elementary school at the former Fort Devens. We've just concluded the information session, and now we'll proceed to the formal hearing.

As it is a formal hearing, I ask that if you choose to make comments this evening, that you stand, speak loudly and clearly, please announce your name and address and -- if your name -- spell it if necessary, please.

Again, we are recording this with a court stenographer this evening. These comments will -- this is part of a public hearing period. The written comment period began April 8. It's a 30-day period. It ends May 10.

The formal hearing tonight, all the comments we receive, the Army, as part of the

Superfund process, is required to respond to. We will respond to those in what's referred to as a Responsiveness Summary which is included in the Record of Decision for this site. The Record of Decision is the formal declaration of what we propose to do with this site.

So we've issued a proposed plan for you all to review. The Record of Decision is the Army and the United States Environmental Protection Agency formally agreeing that that is the selected remedy.

So with that, I'd just like to again introduce myself, Jim Chambers from the Army; Mark Applebee from the Army Corp. of Engineers; Rod Rustad -- spell your name, Rod.

ROD RUSTAD: R-u-s-t-a-d.

JIM CHAMBERS: Is with Harding Lawson Associates. They're the consultant that worked with the Army on this site; Mr. Jerry Keefe from the EPA is here; and Mr. David Salvadore from the Massachusetts Department of Environmental Protection.

And with that, we'll begin the formal comment period. So please stand, and we'll try to do this -- if there's more than one person, I'll try

to get to everybody.

So questions? Comments?

KEVIN O'MALLEY: At least we have no questions. Let me start the ball rolling.

I'm Kevin O'Malley. I'm the Superintendent of Schools in Ayer and the potential eventual owner or representative of -- the School Committee of Ayer representative. And we have numerous questions, but if I could put two on the table now.

One. In terms of that category of institutional controls, have the uses that a school would ordinarily make of a facility and of grounds been explored to the extent that any of them would be prohibited into the future, a science class planting a bush, a field trip, or a group of kids playing in a playground setting, et cetera? Are we to feel comfortable based on your findings that there are no risks to children in using the outside facility?

If I could ask my second question now, then I'll sit down.

Second. We are, all of us, concerned about indoor quality of air. Are we to be assured that the quality of the air in the facility going on into

the future will not be affected by this particular event in the past? In other words, could there be recesses, places that would be stirred up by habitation activity that might contaminate the air in a way that we would have to come back and remediate it; whereas, right now, because everything is sedentary, things are testing out wonderful?

So with those two questions to begin with, could I see if I can get some response.

JIM CHAMBERS: Well, first of all, when they did the risk assessment as part of the remedial investigation -- as part of that process, you look to see how people might come in contact with the contamination. And so that they looked at -- and what type of activity might be involved. So they looked at adults and children.

And because this area is paved, and there is a building on top of the area, and because of the depth of the contamination that's been left behind, there is no risk expected for the scenario that you described.

KEVIN O'MALLEY: Well, there is a good percentage of the property that is not paved.

JIM CHAMBERS: But the contamination

doesn't extend out to there.

KEVIN O'MALLEY: Okay.

JIM CHAMBERS: This is the extent of the excavation that was done. The residual soil contamination is in this area right here, and that's all under -- at a depth of ten feet below pavement and below the building.

KEVIN O'MALLEY: Air. Do you have --

JIM CHAMBERS: Air quality. The Army's focus when they did the air quality testing was to associate the -- what impact on the air quality might have resulted from this fuel release. We find nothing that is associated with that. In fact, as -- all the risk -- I mean all the air quality testing that's been done shows that there are -- there is no concern.

So if there should be something in the future, we don't expect it to be from this site. The only way that -- from this would be if the pavement were to be removed or the building to be removed, and that would possibly stir up the soils that have the contamination in it. And that would be part of the restrictions, that we notify -- that in the future, if any type of construction work is

done, that there's a notification that the soils that are -- if soils should be excavated from that site, that they have to be managed properly.

KEVIN O'MALLEY: If I could have a follow-up.

Is it to be assumed that at the original site of contamination that there had been some air pollution, some air problems; and that -- that -- what I'm trying -- you know, I'm legitimately concerned with surprises relative to air quality down the road. And so had there been air pollution, and it's all fine now and massive numbers of kids stirring up the environment, et cetera, et cetera.

JIM CHAMBERS: I can't speak to the past. The Town of Ayer -- the School Department of the Town of Ayer was in operational control of the school during that time. And the Army --

KEVIN O'MALLEY: I'm worried about the future.

JIM CHAMBERS: Well, I'm just saying -- you asked -- the first question was is it to be assumed that there was air problems in the past. I have no knowledge of there being problems in the past.

As to the future --

KEVIN O'MALLEY: Nor do we, by the way, for the record. I'm just trying to project the future.

So what you're saying in essence, both inside and outside, this is a fairly clean bill of health relative to the use of students and staff as a school facility and grounds?

JIM CHAMBERS: Yes, from the perspective of this --

KEVIN O'MALLEY: From your analysis --

JIM CHAMBERS: -- situation.

KEVIN O'MALLEY: -- analysis of pollution in this study.

MARY ANN GAPINSKI: I guess I'll go next.

I'm Mary Ann Gapinski, and I'm from the Parker Charter School, the school nurse there, and coordinator of what we've labeled our environmental subcommittee.

First, I want to extend publicly our thanks to the BRAC office, namely Jim Chambers and his staff, for all the cooperation that we've received from them with our investigation. We've been overseeing this remediation of this oil spill since the fall of '97. We've been following their activities and have greatly appreciated all that

they have done and all the work that the Army has -- and time and effort that's been put into it. And they've been extremely cooperative, they, along with the representatives from the EPA and the Mass. Department of Environmental Protection. However, we still do have some concerns.

While we concur with the conclusions that there are no unacceptable human health risks with the building as it is now, we are concerned about the surveillance of it in the long-term.

In looking at Table No. 9-11 which was the quantitative risk summary of the remedial RI, it states time and time again that the indoor air was not evaluated; that it was not calculated; that there was no VOCs noted; and probably not in a building that had been closed for numerous years. We -- I'm sure that the indoor area quality reports that have come back would justify that statement.

However, in stirring up the activity there with 400-plus students and faculty at the site, we are concerned about the potential for the VOCs and sediment and inhalation of those, and not just the cancer risk. I know the ATSDR did potentials on that, and that came back inclusive as well.

However, our major concern at this time -- and again much of this concern is due to the population which will be in that building, namely school age children -- that we're talking about asthma and other respiratory ailments that are common among this age population. So it's not just the cancer risks that need to be looked at, but other health concerns.

And along with this, we would just like to add in the record that perhaps as part of the AUL, the land restrictions for this, that could be included a ventilation system that is performance standard; that is up to date; that the controls be set for that specifically with these potential VOCs in the building.

So those are basically my concerns, and I would like to go on record with having those acknowledged. Thank you.

THE REPORTER: Could you spell your name, please, ma'am.

MARY ANN GAPINSKI: G-a-p-i-n-s-k-i.

THE REPORTER: Thank you.

JIM CHAMBERS: Thank you. We'll consider those, and those comments we'll respond to formally

in the written response.

MARY ANN GAPINSKI: Thank you.

JIM CHAMBERS: Well, anybody else?

(Pause)

JIM CHAMBERS: Okay. Well, we'll wait about five more minutes or so to see if somebody else shows up; and then we'll formally close the hearing.

Again, please sign in if you haven't done so already; and there's copies of the slides that we presented tonight, as well as copies of the proposed plan. It won't be necessary for you all to stay if you're done, but we'll keep it open for another five minutes or so.

Yes.

SALLY KENT: My name is Sally Kent. I teach Environmental Chemistry at the Parker Charter School.

And we're very much interested in using this whole school as a case study for a year's worth of curriculum. I'm looking for support; and, also, because as we go into this and we bring in a whole lot of families involved and students into the building, I want the families and the students to be

reassured that they're moving into a safe building. So I think it's -- it would be very good for them to have a good in-depth study so they all feel comfortable with going into -- they feel educated about the process.

I also would like to find out about being able to use the site once we're in the building as our environmental class -- chemistry class. Will we be allowed to sample the soil ourselves? Will there be any restricted areas to go to the water for samples? Will we be allowed to take sediment from the streams nearby? How will we be restricted as environmental and analytical chemists?

JIM CHAMBERS: Thank you for that comment. We will respond to that formally as well.

I might add that when you do occupy the school, if there are conditions that we restrict as a result of deed restrictions, that if you were to submit a proposal, we would consider it and evaluate whether or not it contradicted any restrictions that we might put in place.

KEVIN O'MALLEY: Kevin O'Malley again, filling in the five minutes.

What, if any, ongoing relationship will

this study from the Army have with this facility and grounds?

JIM CHAMBERS: Well, as I said, we have -- we propose long-term monitoring. So we will be monitoring groundwater for this site until such time as it's agreed by the Army and the EPA that monitoring is no longer required. When we reach that point, we would then notify the public again that that's the agreement that we've -- intend.

KEVIN O'MALLEY: Will the change of deed or the change of ownership status affect that kind of relationship?

JIM CHAMBERS: Okay. Deed restrictions -- the parcel is a leased parcel. It's been leased in furtherance and conveyance to the Massachusetts Development -- Mass. Development; and in order for them to take possession, we'll have to actually convey the property. And then if they convey to the Town of Ayer, this deed restriction will run with that land.

And, again, once -- as we do the monitoring and stuff, we would review the further requirement for deed restrictions as well.

KEVIN O'MALLEY: Could you --

JIM CHAMBERS: And we do -- the sampling would be --

KEVIN O'MALLEY: Would you spell that out a little bit.

JIM CHAMBERS: The sampling will be done annually. As this is a CERCLA site or Superfund site, that there are five-year reviews required as well. And so annually, there will be a report saying what the results of the sampling are. And in the five-year period, there will be a review of what's transpired over those five years and whether there's a necessity to continue with the remedial action as proposed.

KEVIN O'MALLEY: So you could restrict a deed after it has been transferred relative to a Superfund?

JIM CHAMBERS: Retract it. Yes, we could retract it.

Yes.

CAROL CASE: My name is Carol Case, C-a-s-e. I'm a parent of students at the Parker School. I'm just wondering once all this testing is ongoing, can you tell me how the results of that test will be -- where those results will be kept and

how people at the school or elsewhere of interest would have access to that information.

JIM CHAMBERS: Yes. First of all, as part of our community relations process, we have a -- what's called a Restoration Advisory Board. And that's a group of citizens from the communities that we meet with on a monthly basis, and we report to them the status of latest updates on what we're doing, as well as we send out reports to members of the Restoration Advisory Board. We send copies to information repositories, and there's an information repository in each of the public libraries of the four towns associated with Devens -- Ayer, Harvard, Shirley, and Lancaster.

And, periodically, we put out a notice of the documents that are available at the libraries.

CHARLES JONES: Charles Jones, Ayer School Committee.

Back to the issue on the deed, you said that you could have restrictions that go -- pass on with the deed. But as you pointed out, currently the Army is leasing that facility and has not transferred it over to Devens.

Do you foresee any delay in transferring

the property over so that the property can then be used or -- while ongoing, long-term investigations or long-term remedies are taking place; or do you see that this will -- what you've done will facilitate the transfer of the property?

JIM CHAMBERS: Well, in order to transfer the property, we have to have what's known as a finding of suitability to transfer. In that, we update the latest environmental condition of the property; and we propose -- I foresee that we will propose that we could transfer the property.

So I don't anticipate a problem as a result of this environmental issue.

KEVIN O'MALLEY: Does your concern go beyond environment to structural building issues in the transfer of the property? Do you check the roof and pass it over in good condition, for instance?

JIM CHAMBERS: The Army transfers the buildings as is to the Mass. Development; and should they choose to warrant it, you can take it up with them.

MARY ANN GAPINSKI: Mary Ann Gapinski again for the Parker Charter School.

In some of the original documents regarding

this AOC 69W, we found that there was some proposed lease and transfer restrictions that were -- included asbestos, lead paint, Radon, the groundwater exposure, and the subsoil excavation concerns.

Now, we understand, you know, the groundwater and the subsoil excavation concerns; and those will remain with the deed. And then we also understand that the asbestos, the lead paint, and the Radon issues have all been, we hope, remediated by the renovations that are being done by the DCC there.

However, my question is, will any of those other issues remain in the deed transfer restrictions -- the asbestos, the Radon, and the lead paint issues -- or are those all considered remediated and gone from concerns?

JIM CHAMBERS: In the deed, the Army puts notifications of the -- either the existence or the suspected existence of those substances, and -- I guess I'll have to check on that answer, and we'll respond to that in the Responsiveness Summary as well. I'm not sure how long that is carried forward for.

MARY ANN GAPINSKI: Okay.

JIM CHAMBERS: All right. Are there any additional comments?

(Pause)

JIM CHAMBERS: All right. With that, I'm going to -- last call.

All right. Thank you all for coming out this evening.

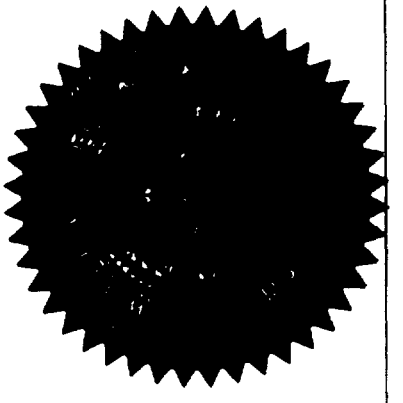
(Whereupon, the proceedings were adjourned at 8:26 p.m.)

C E R T I F I C A T E

I, William J. Ellis, Registered Professional Reporter, do hereby certify that the foregoing transcript, Volume I, is a true and accurate transcription of my stenographic notes taken on May 5, 1999.

William J. Ellis

Registered Professional Reporter



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APPENDIX D

APPENDIX D - ADMINISTRATIVE RECORD INDEX

ADMINISTRATIVE RECORD
AOC 69W

RECORD OF DECISION
DEVENS, MASSACHUSETTS

Document Number	MastDoc Number	DOC_TITLE	AUTHOR_LOC	DOC_DATE
1095	1095	Draft Remedial Investigation/Feasibility Study Work Plan Addendum for Supplemental Air Sampling, AOC 69W - Devens Elementary School, ABB Environmental Services, Inc, July 1997.	ABB Environmental Services, Inc.	01-Jul-97
1096	1096	Final Remedial Investigation/Feasibility Study Work Plan Addendum for Supplemental Air Sampling, AOC 69W - Devens Elementary School, ABB Environmental Services, Inc, October 1997.	ABB Environmental Services, Inc.	01-Oct-97
1269	1095	Responses to Comments, Draft Supplemental RI Report, AOC 69W	ABB Environmental Services, Inc.	01-Apr-98
1025	1025	Draft Task Order Work Plan, AOCs 57, 63AX and 69W, Data Item A002	ABB Environmental Services, Inc.	01-Jul-95
1026	1025	Comments on the Draft Task Order Work Plan, AOCs 57, 63AX and 69W, Data Item A002	Jerome C. Keefe, USEPA Region I	18-Aug-95
1027	1025	Comments on the Draft Task Order Work Plan, AOCs 57, 63AX and 69W, Data Item A002	D. Lynne Welsh, MADEP	15-Sep-95
37	37	Final Task Order Work Plan, AOCs 57, 63AX and 69W, Data Item A002	ABB Environmental Services, Inc.	01-Jan-96
38	1025	Response to Comments, Draft Task Order Work Plan, AOCs 57, 63AX and 69W, Data Item A002	ABB Environmental Services, Inc.	01-Jan-96
39	1025	MADEP Rebuttals to the Army Response to Comments for the Draft Task Order Work Plan, AOCs 57, 63AX, & 69W, Data Item 002, AND (2) MADEP Comments on the Final Task Order Work Plan, AOCs 57, 63AX, & 69W, Data Item 002	Christopher J. Knuth, MADEP	27-Feb-96
40	37	USEPA Comments on the Final Task Order Work Plan for Areas of Contamination 57, 63AX, & 69W	Jerome C. Keefe, USEPA Region I	27-Feb-96
1028	37	MADEP Comments on the Final Task Order Work Plan, AOCs 57, 63AX, & 69W, Data Item 002	Christopher J. Knuth, MADEP	27-Feb-96
1145	0	MADEP Comments on the Rebuttals to Army Responses to Comments for Draft Task Order Work Plan, AOC 57 and 69W and Comments on Final Task Order Work Plan AOC 57, 63AX and 69W.	Christopher J. Knuth, MADEP	27-Feb-96

ADMINISTRATIVE RECORD
AOC 69W

RECORD OF DECISION
DEVENS, MASSACHUSETTS

Document Number	MastDoc Number	DOC_TITLE	AUTHOR_LOC	DOC_DATE
1147	0	MADEP Comments on the Draft Addendum to the Risk Assessment Approach Plan, Elementary School, AOC 69W	John Regan, MADEP	27-Mar-98
1242	0	USEPA Comments on the Draft RI/FS Task Work Plan Addendum for AOCs 69W and 57	James P. Byrne, USEPA	01-Jun-96
1243	0	MADEP Review of Response to Comments, Draft RI/FS Task Work Plan Addendum for AOCs 69W and 57	Christopher J. Knuth, MADEP	12-Sep-96
1329	1329	Removal Action Report Contaminated Soil Removal - Phase II, Area of Contamination 69W, Devens Elementary School, Devens, MA	Weston	01-May-98
1328	1329	USEPA New England's Comments on the AOC 69W Removal Action Report	James P. Byrne, USEPA	26-Jun-98
1324	0	USEPA Comments on the Draft Action Memorandum for AOC 69W, Devens, MA (Roy F. Weston, September 1997)	Jerome C. Keefe, USEPA	07-Oct-97
1323	0	MADEP Comments on the Contaminated Soil Removal Phase II AOC 69W, Elementary School, Draft Action Memorandum, Devens, MA (Roy F. Weston, September 1997)	David M. Salvadore, MADEP	10-Oct-97
1325	1325	Final Action Memorandum, Contaminated Soil Removal, Phase II, Area of Contamination (AOC) 69W, Elementary School, Devens, MA	Weston	01-Dec-97
1322	0	MADEP Comments on the Contaminated Soil Removal Phase II AOC 69W, Elementary School, Draft Action Memorandum, Devens, MA (Roy F. Weston, September 1997)	David M. Salvadore, MADEP	20-Jan-98
1170	0	USEPA Comments on the Fort Devens Elementary School Air Quality Testing (AOC 69W)	Jerome C. Keefe, USEPA	25-Mar-97
1286	1286	Final Report - Indoor Air Sampling Study, Area of Contamination 69W, Devens Elementary School, Devens, MA	Peter R. Kahn, USEPA	01-Jun-98
1106	1106	Draft Air Sampling Results, AOC 69W, Fort Devens Elementary School, November 13, 1996.	ABB Environmental Services, Inc.	01-Nov-96

ADMINISTRATIVE RECORD
AOC 69W

RECORD OF DECISION
DEVENS, MASSACHUSETTS

Document Number	MastDoc Number	DOC_TITLE	AUTHOR_LOC	DOC_DATE
1107	1106	USEPA Comments dated December 3, 1996 from Jerry Keefe on "Draft Air Sampling Results, AOC 69W, Devens Elementary School".	Jerry Keefe	01-Dec-96
1108	1106	MADEP Comments dated December 13, 1996 from Christopher Knuth on "Draft Air Sampling Results, AOC 69W, Devens Elementary School".	Christopher Knuth	01-Dec-96
1169	0	MADEP Comments on Elementary School Air Quality Testing, AOC 69W (Devens Commerce Center, January 3, 1997)	Christopher J. Knuth, MADEP	10-Feb-97
1109	1106	Responses dated (April 14, 1997) to USEPA and MADEP Comments on "Draft Air Sampling Results, AOC 69W, Devens Elementary School".	ABB Environmental Services, Inc.	01-Apr-97
1151	1106	USEPA Comments on the December 1997, Draft Supplemental Air Sampling Report, AOC 69W, Elementary School	Jerome C. Keefe, USEPA	05-Feb-98
1266	1266	Draft RI Report, AOC 69W, Volumes I through III, April 1998	ABB Environmental Services, Inc.	01-Apr-98
1321	1266	USEPA New England's Comments on the Draft Remedial Investigation Report (RI Report) for Area of Contamination (AOC) 69W, Devens, MA (April 1998)	Jerome C. Keefe, USEPA	23-Jun-98
1320	1266	MADEP Comments on the Draft Remedial Investigation Report, Area of Contamination (AOC) 69W (ABB, April 1998)	David M. Salvadore, MADEP	26-Jun-98
1362	0	MADEP Comments on the Final Remedial Investigation Report Area of Contamination (AOC) 69W, Devens, MA., LA, August 1998	David M. Salvidore, MADEP	26-Sep-98
1252		MADEP Comments on Task Order No. 0001, Modification No. 1, Fort Devens RI/FS Task Work Plan Addendum for AOC 69W (ABB-ES, June 28, 1996)	Christopher J. Knuth, MADEP	24-Jul-96
1251		MADEP Comments on Task Order No. 0001, Modification No. 1, Fort Devens Final RI/FS Task Work Plan Addendum for AOC 69W (ABB-ES, August 28, 1996)	Christopher J. Knuth, MADEP	12-Sep-96

ADMINISTRATIVE RECORD
AOC 69W

RECORD OF DECISION
DEVENS, MASSACHUSETTS

Document Number	MastDoc Number	DOC_TITLE	AUTHOR_LOC	DOC_DATE
1218	0	USEPA Comments on the Risk Assessment Approach Plan for AOC 69W	Jerome C. Keefe, USEPA	30-Jan-97
1219	0	MADEP Comments on the Risk Assessment Approach Plan (RAPP), Remedial Investigation Report AOC 69W	Christopher J. Knuth, MADEP	11-Feb-97
1167	0	USEPA Comments on the RI/FS Task Work Plan Addendum for Supplemental Air Sampling, AOC 69W, Devens Elementary School	James P. Byrne, USEPA	23-Jul-97
1110	1095	Draft Response to Comments on "Draft RI/FS Task Work Plan Addendum for Supplemental Air Sampling AOC 69W-Devens Elementary School", August 1997.	ABB Environmental Services, Inc.	01-Aug-97
1166	1095	USEPA Comments on the August 1997 Response to Comments for the July 1997 Draft RI/FS Work Plan Addendum for Supplemental Air Sampling for AOC 69W	Jerome C. Keefe, USEPA	15-Aug-97
1168	0	MADEP Comments on the Army Draft Response to Comments on Draft RI/FS Work Plan Addendum for Supplemental Air Sampling, AOC 69W (August 1997)	John Regan, MADEP	16-Sep-97
1304	0	MADEP Comments on the Draft Supplemental Air Sampling Report, AOC 69W, Devens Elementary School, (ABB, December 1997)	John Regan, MADEP	02-Mar-98
1312	1312	Quality Assurance Project Plan, Indoor Air Sampling Study, Area of Contamination 69W, Devens Elementary School, Devens, MA	USEPA	01-Apr-98
1148	0	USEPA Comments on the Addendum to the Risk Assessment Approach Plan for the Elementary School, AOC 69W	James P. Byrne, USEPA	06-Apr-98
1407	1391	MADEP Comments on the Area of Contamination (AOC) 69W, (Former Fort Devens Elementary School), Draft Proposed Plan, Devens, Massachusetts, November 1998.	David M. Salvadore, MADEP	27-Jan-98
1391	1391	Draft Proposed Plan, AOC 69W (Former Fort Devens Elementary School), Devens, MA	Harding Lawson Associates	01-Nov-98

ADMINISTRATIVE RECORD
AOC 69W

RECORD OF DECISION
DEVENS, MASSACHUSETTS

Document Number	MastDoc Number	DOC_TITLE	AUTHOR_LOC	DOC_DATE
1394	1391	USEPA Comments on the Proposed Plan for AOC 69W (Former Fort Devens Elementary School)	Jerry Keefe, USEPA	08-Jan-99
1406	0	USEPA Comments on the AOC 69W Proposed Plan - February 1999	Jerry Keefe, USEPA	19-Mar-99
1412	1412	Proposed Plan, AOC 69W (Former Fort Devens Elemenary School), U.S. Army Reserve Forces Training Area, Devens, Massachusetts	U.S. Army Corps of Engineers	01-Apr-99

APPENDIX E

APPENDIX E - DECLARATION OF STATE CONCURRENCE

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Central Regional Office, 627 Main Street, Worcester, MA 01608

ARGEO PAUL CELLUCCI
Governor

JANE SWIFT
Lieutenant Governor

BOB DURAND
Secretary

LAUREN A. LISS
Commissioner

June 22, 1999

Mr. John Devillars
Regional Administrator
U.S. Environmental Protection Agency
JFK Federal Building
Boston, MA 02203

RE: Record of Decision for Area of Contamination (AOC)69W, Former Fort Devens Elementary School, Devens Massachusetts, Harding Lawson Associates, June 1999.

Dear Mr. Devillars:

The Massachusetts Department of Environmental Protection (MADEP) has reviewed the Record of Decision (ROD) proposed by the United States Army for AOC 69W.

The ROD documents two heating oil releases at the school from failed underground oil supply pipes; the releases totaled approximately 14000 to 16000 gallons. A 1972 oil release occurred in the area of a former underground storage tank (UST) and a 1978 release occurred as a result of a broken pipe under the school building. The removal of approximately 3000 cubic yards of oil contaminated soil in 1997 and 1998 resulted in reducing the concentrations of petroleum contamination in soil in the area of the former USTs to acceptable levels. A much smaller volume of contaminated soil remains inaccessible under the building and therefore will not be removed.

Risks associated with the hypothetical future use of groundwater from the site as drinking water exceed levels considered acceptable to the USEPA and MADEP. Institutional controls will limit potential future human exposure to contaminated soil beneath the building and the use of groundwater from the site.

The Army's selected remedy for AOC 69W is a Limited Action that includes:

A Long term groundwater monitoring plan with (5) year data performance reviews, to ensure that any residual contamination does not migrate off-site.

Implementation of institutional controls that restrict the use of groundwater from the site and limit the potential human exposure to contaminated soil.

MADEP concurs with the ROD for AOC 69W and would like to thank the United States Army, particularly Jim Chambers, BRAC Environmental Coordinator, and Jerry Keefe, Environmental Protection Agency for their efforts to ensure that the requirements of the MADEP are met.

Sincerely,

Robert W. Golledge Jr.
Regional Director
Central Regional Office

RWG/RB/DS/jc

cc: Fort Devens Mailing List
Information Repositories
Jerry Keefe, EPA
Jim Chambers, BRAC
Ron Ostrowski, DCC
Jeff Waugh, ACOE
Pat Plante, ABB
Mark Applebee, ACOE

W:/first/aoc69rod

APPENDIX F

APPENDIX F - GLOSSARY OF ACRONYMS AND ABBREVIATIONS

AOC	Area of Contamination
AREE	Area Requiring Environmental Evaluation
bgs	below ground surface
BRAC	Base Realignment and Closure
CAC	Citizen's Advisory Committee
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EPH	extractable petroleum hydrocarbons
HI	hazard index
MADEP	Massachusetts Department of Environmental Protection
MCL	Maximum Contaminant Level
MCP	Massachusetts Contingency Plan
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
PAH	polyaromatic hydrocarbons
RAB	Restoration Advisory Board
RfD	reference dose
RI	Remedial Investigation
RFTA	Reserve Forces Training Area
SARA	Superfund Amendments and Reauthorization Act
SI	Site Investigation
SVOC	semivolatile organic compound
TPHC	total petroleum hydrocarbons
TRC	Technical Review Committee
USAEC	U.S. Army Environmental Center
USEPA	U.S. Environmental Protection Agency

UST	underground storage tank
VOC	volatile organic compound
VPH	volatile petroleum hydrocarbons