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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

February 27, 1997

Lieutenant General Edward D. Baca
Chief, National Guard Bureau
2500 Army Pentagon
Washington, D.C. 20301-2500

Re: Massachusetts Military Reservation Training Range and Impact Area: EPA Region I Administrative Order SDWA I-97-1019

Dear General Baca:

Enclosed please find an Administrative Order issued pursuant to Section 1431 of the Safe Drinking Water Act, 42 U.S.C. § 300i. This Administrative Order (Order) is in response to the contaminants in, near or emanating from the Training Range and Impact Area at MMR which are present in or likely to enter the Cape Cod Aquifer. The Order requires response actions by the National Guard to address the circumstances that may present an imminent and substantial endangerment to the health of persons who are or may be users of Cape Cod Aquifer.

Please note that the Order reiterates my letter of February 21, 1997, in several respects, including that it requires action by March 14, 1997, on the part of the National Guard Bureau to provide information and to prepare a work plan for a comprehensive investigation, as well as to coordinate with a citizens advisory committee we plan to set up to monitor the work.

Also, the Order provides for an opportunity to confer within the next six days, at which you can discuss this matter with EPA representatives. If you request such a conference, please notify EPA in accordance with the provisions in the Order.

If you have questions, please contact Mindy Lubber or me at 617/565-3400.

Sincerely,

John P. DeVillars
Regional Administrator

cc:

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I

In the Matter of: Training Range and Impact Area, Massachusetts Military Reservation National Guard Bureau, Respondent Proceeding Under Section 1431(a) of the Safe Drinking Water Act, 42 U.S.C. § 300i(a)	**U.S. EPA Region I** **EPA Docket No.:** **SDWA I-97-1019** **ADMINISTRATIVE ORDER FOR RESPONSE ACTION**

ADMINISTRATIVE ORDER
FOR: MASSACHUSETTS MILITARY RESERVATION
TRAINING RANGE AND IMPACT AREA RESPONSE ACTIONS

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I. JURISDICTION

1. This Administrative Order (Order) is issued to Respondent National Guard Bureau pursuant to the authority vested in the Administrator of EPA by Section 1431(a) of the Safe Drinking Water Act (SDWA), 42 U.S.C. § 300i(a). The Administrator of EPA has delegated the authority to take these actions to the Regional Administrator of EPA Region I by EPA Delegation 9-17 (1200-TN-350) dated May 11, 1994.

II. STATE COORDINATION

2. Pursuant to Section 1431 of the SDWA, 42 U.S.C. § 300i, EPA consulted with the Commonwealth of Massachusetts and local authorities on this matter.

III. PARTIES BOUND

3. This Order shall apply to and be binding upon the Respondent, and upon its affiliated organizations, agents, contractors, and consultants.

IV. PURPOSE

4. This Order compels the Respondent to conduct measures to abate the threat to public health presented by the past and present contamination from the Massachusetts Military Reservation (MMR) Training Range and Impact Area by performing the work described more fully in the attached Scope of Work (SOW) appended to this Order as Appendix A, and enforceable hereunder.

V. DEFINITIONS

5. All other terms, not otherwise defined herein, shall have their ordinary meanings unless defined in SDWA, in which case the SDWA definition shall control.

"Contractor" shall mean any person, including the contractors, subcontractors, or agents, retained or hired by Respondent to undertake any Work under this Order

"Day" shall mean a calendar day, unless otherwise specified.

"Order" shall mean this SDWA § 1431 Administrative Order, any attachments or appendices to this Order, and all documents

that are to be produced or submitted pursuant to this Order. All attachments or appendices to this Order, and all documents that are to be produced or submitted pursuant to this Order are incorporated into this Order, and shall be enforceable hereunder.

"Work" shall mean all tasks and activities required by this Order or related to the performance of tasks and activities required by this Order.

VI. FINDINGS OF FACT

6. Respondent National Guard Bureau is an agency of the United States Government.

7. The Massachusetts Military Reservation (MMR) is an approximately 22,000 acre facility located on Cape Cod, in the townships of Bourne, Falmouth, Mashpee and Sandwich in Barnstable County, Massachusetts. Respondent's affiliated organization, the Massachusetts Army National Guard, conducts operations at MMR.

8. Approximately 14,000 acres of MMR constitutes the Training Range and Impact Area. For over forty years, military and law enforcement training has been conducted in the Training Range, including the Impact Area. This training has included the following:
   a. Small arms firing at several ranges in the Training Range and Impact Area involving the use of small caliber munitions;
   b. Artillery firing from gun and mortar locations in the Training Range into the Impact Area; and
   c. Detonation practice for explosives at two demolition ranges in or near the Training Range and Impact Area.

9. Up to 1,770,000 small arms rounds are fired annually at the Training Range and Impact Area.

10. The primary chemical constituent of the small arms used by Respondent at MMR is a lead core in a metal alloy jacket, usually composed of lead, copper, iron, antimony, and nickel.

11. In its artillery firing at MMR, munitions are used similar to those used in small arms training as well as explosive compounds. Up to 3,181 rounds of artillery and mortar are fired annually at the Training Range and Impact Area.

12. High explosives used at MMR include trinitrotoluene (TNT) and Royal Demolition Explosive, hexahydro-1,3,5-trinitro-1,3,5-

triazine (RDX). According to Respondent, TNT has been the most widely used military explosive since World War I. RDX has been used since World War II, and is used in combination with TNT.

13. One location for periodic detonation of explosives, including detonation of RDX and TNT, is known as "Demo 1." Demo 1 is a natural depression directly south of the Impact Area. This natural depression is approximately 30 feet above the ground water table.

14. On July 13, 1982, EPA formally determined that the Cape Cod aquifer is the sole or principal source of drinking water for Cape Cod, Massachusetts, and that the Cape Cod aquifer, if contaminated, would create a significant hazard to public health. 47 Fed. Reg. 30282. Among the findings on which EPA based this determination are the following:
    a. The Cape Cod aquifer is a single continuous aquifer which then served as the "sole source" of drinking water for the approximately 147,725 permanent residents and 424,445 peak seasonal residents of Cape Cod;
    b. There is no existing alternative drinking water source, or combination of sources, which provides fifty percent or more of the drinking water to the designated areas, nor is there any reasonably available alternative future source capable of supplying Cape Cod's drinking water demands; and
    c. As a result of its highly permeable soil characteristics, the Cape Cod aquifer is susceptible to contamination through its recharge zone from a number of sources. Since groundwater contamination can be difficult or impossible to reverse, and since this aquifer is relied on for drinking water purposes by the general population, contamination of the aquifer would pose a significant hazard to public health.

15. Currently the Cape Cod Aquifer serves as the sole drinking water source for approximately 200,000 permanent and 520,000 seasonal residents of Cape Cod.

16. The Training Range and Impact Area lie directly over the Cape Cod Aquifer. The Training Range and Impact Area represent a major groundwater recharge area, located above what may be the apex of the aquifer. Groundwater flows radially in all directions from the Training Range and Impact Area.

17. The part of an aquifer that directly supplies a public water supply well is known as a "wellhead protection area." The

Training Range and Impact Area lie directly above segments of several wellhead protection areas on Cape Cod.

18. Groundwater flow under the MMR has been calculated at an average of one to three feet per day; an estimated 6 million gallons of water per day are contaminated by plumes already known to be emanating from MMR.

19. To date, much of the Training Range and Impact Area have not been investigated for groundwater contamination. The only groundwater investigations performed to date in the Training Range and Impact Area are as follows: investigation of a chemical spill (CS-19) undertaken by the National Guard Bureau, and now the Air Force, as part of the overall MMR Installation Restoration Program (IRP); and sampling of wells near the perimeter of the Training Range and Impact Area as part of efforts to identify a long range water supply for Cape Cod.

20. In groundwater sampling undertaken as part of the IRP within the Impact Area in 1994, RDX was detected in two wells at concentrations of 6 and 22 parts per billion (ppb).

21. In groundwater sampling undertaken as part of the IRP within the Impact Area in 1995, RDX was detected in two wells at concentrations of 5.4 ppb and 19 ppb.

22. In soil sampling performed as part of the IRP in 1992, lead was detected in soils in the Impact Area at concentrations up to 1,830 parts per million (ppm). Other contaminants found in soils within the Impact Area include inorganic chemicals other than lead; volatile organic compounds; herbicides, dioxins, and furans; and explosive compounds.

23. Groundwater sampling was performed downgradient and outside of the Training Range and Impact Area as part of the long range water supply investigation for Cape Cod. During such sampling, lead was detected in one well near the Impact Area at 17 ppb.

24. In groundwater sampling undertaken downgradient and outside of the Training Range and Impact Area in July 1996 by a consultant for the Air Force Center for Environmental Excellence (AFCEE) as part of a study of options for a long-range water supply for the area, trinitrotoluene (TNT) was reported to be detected in a well at a concentration of .27 ppb.

VII. ENDANGERMENT AND RESPONSE

25. The detection of RDX, lead, and TNT in groundwater samples from the sole source aquifer underlying Cape Cod demonstrates the release or threat of release of contaminants from the Training Range and Impact Area.

26. EPA's Office of Solid Waste and Emergency Response (OSWER) Directive 9850.3, Chemical, Physical & Biological Properties of Compounds Present at Hazardous Waste Sites, identifies the hazard criteria for chemical compounds typically found at hazardous waste sites. The hazard criteria identify the specific categories for which chemical compounds have demonstrated a toxic effect. The hazard criteria listed for lead in this Directive are: reproductive toxicity, teratogenicity, chronic toxicity, domestic animal toxicity, and environmental toxicity.

27. Teratogens and reproductive toxins are compounds that have suggestive evidence of an effect in humans or a clearly "positive" result in at least one study in whole animals. Unsupported in vitro evidence is considered sufficient to classify a chemical as a reproductive or teratogenic hazard.

28. Chronic toxins are compounds that produce serious irreversible effects, other than cancer or reproductive effects, after extended oral, dermal or inhalation exposures.

29. Domestic animal toxins are compounds that cause a demonstrated serious toxic effect that has been seen in the field. Oral doses of chemicals that cause reproductive toxicity, teratogenicity, or subchronic toxicity may also be included as domestic animal toxins.

30. Environmental toxins are chemicals that are hazardous to either aquatic organisms or terrestrial wildlife.

31. EPA has established lifetime health advisories for contaminants, which provide the concentration of a chemical in drinking water that is not expected to cause any adverse non-carcinogenic effect over a lifetime of exposure with a margin of safety. The lifetime health advisory for RDX is 2 ppb.

32. Consumption of large amounts of RDX by humans has caused seizures, indicating that the nervous system is a primary target organ.

33. A 1984 Department of Defense study of female mice showed an increased incidence of liver tumors following chronic oral exposure to RDX.

34. In its cancer classification system, EPA has classified RDX as a possible human carcinogen (Group C carcinogen).

35. The lifetime health advisory for TNT is 2 ppb.

36. Chronic exposure to TNT by humans has been associated with skin irritation and cataracts. Exposure to very high levels of TNT in the workplace have been associated with disorders of the blood and abnormal liver functions.

37. Oral and inhalation exposures to TNT in animals have resulted in adverse effects on the blood and liver as well as the spleen and immune system. TNT has been found to cause serious effects on the male reproductive system in rats following high exposures to TNT. In a 1984 U.S. Army study, TNT was found to cause urinary bladder tumors in female Fisher rats.

38. In its cancer classification system, EPA has classified TNT as a possible human carcinogen (Group C carcinogen).

39. Pursuant to Section 1412 of SDWA, EPA has established a Maximum Contaminant Level Goal (MCLG) of zero for lead in drinking water. MCLGs are set at levels at which no known or anticipated adverse health effects will occur. Further, for certain public drinking water supply systems, EPA has established 15 ppb as the level at which corrosion control systems must be established in order to reduce lead levels in drinking water.

40. Lead is a reproductive hazard that can adversely affect the brain and central nervous system by causing encephalopathy and peripheral neuropathy. Lead exposure across a broad range of blood lead levels has been associated with a spectrum of pathophysiological effects, including interference with heme synthesis necessary for formation of red blood cells, anemia, kidney damage, impaired reproductive function, interference with vitamin D metabolism, impaired cognitive performance (as measured by IQ tests, performance in school and other means), delayed physical development, and elevations in blood pressure.

41. The continued release of RDX, lead and TNT, and any release of other contaminants from the Training Range and Impact

Area, may present an imminent and substantial endangerment to the health of persons.

42. The Work specified in the SOW appended to this Order will include, but not be limited to, the following: providing EPA and the public with any and all information in Respondent's possession or control on known or potential contaminants in soil and groundwater on, near and emanating from the Training Range and Impact Area; providing to EPA and the public an accelerated schedule and work plan for completing an independent, comprehensive study of the effects on public health from past, present, and future activities on and near the Training Range and Impact Area; and ensuring adequate public involvement in all the Work undertaken pursuant to this Order.

This Work is necessary to prevent, minimize, and/or mitigate the threat of an imminent and substantial endangerment to the health of persons posed by the actual or potential releases of RDX, lead, TNT and other contaminants into the surface soils and groundwater at and emanating from the Training Range and Impact Area.

VIII. CONCLUSIONS OF LAW

Based on the foregoing, EPA makes the following Conclusions of Law:

43. Respondent is a "person" as that term is defined in Section 1401(12) of the SDWA, 42 U.S.C. § 300f(12).

44. The RDX, lead and TNT found in the groundwater beneath or near the Training Range and Impact Area are "contaminants", as that term is defined in Section 1401(6) of SDWA, 42 U.S.C. § 300f(6).

45. The RDX, lead and TNT found in the groundwater beneath or near the Training Range and Impact Area are present in or likely to enter the Cape Cod Aquifer.

46. The Cape Cod Aquifer is an "underground source of drinking water", as that term is defined in 40 C.F.R. Section 144.3.

IX. DETERMINATIONS

Based on the foregoing and the EPA Administrative Record for this Order, EPA has determined that:

47. The contaminants present in or likely to enter the underground source of drinking water may present an imminent and substantial endangerment to the health of persons, within the meaning of Section 1431(a) of SDWA, 42 U.S.C. § 300i(a).

48. Respondent has caused or contributed to the endangerment described immediately above.

49. In accordance with the requirements of Section 1431 of the SDWA, EPA determines that the Commonwealth of Massachusetts and local authorities have not taken the actions necessary to protect the health of persons whose sole source of drinking water is the Cape Cod Aquifer (i.e. they have not ordered the steps required by this order).

50. The actions required by this Order are necessary to protect the health of persons who are or may be users of the Cape Cod Aquifer. Based on the endangerment described above, the response actions in this Order are necessary. The response actions will consist of Respondent's implementation of the Scope of Work appended to this Order. The Scope of Work is designed to prevent, minimize, and/or mitigate damage to the health which may otherwise result from the release or threat of release of contaminants.

X. ORDER

51. Based on EPA's jurisdiction, Findings of Fact, Conclusions of Law set forth above, the Administrative Record supporting issuance of this Order, and in order to abate or prevent any imminent and substantial endangerment to health, the Respondent is **ORDERED** to perform all Work required under this Order. The Respondent shall comply with the following provisions and perform all actions required by the terms and conditions of this Order.

XI. DESIGNATION OF SUPERVISING CONTRACTOR AND PROJECT COORDINATOR

52. Within **seven (7) days** after the effective date of this Order, the Respondent shall retain the services of a qualified and experienced Supervising Contractor for the purpose of performing the work required by this Order in accordance with the terms and conditions of the Scope of Work. Within the same **seven (7) day** period, the Respondent shall notify EPA in writing of the name, address, and qualifications of the proposed supervising contractor and the name and telephone number of the supervising contractor's primary contact person. The Respondent shall also notify EPA of the identity

and qualifications of any other contractor(s) or subcontractor(s) to be used at least **seven (7) days** in advance of their performing any work under this Order.

53. The supervising contractor shall be a qualified professional with substantial expertise and experience in the investigation and cleanup of hazardous waste sites and contaminated groundwater. EPA reserves the right to disapprove, based on professional qualifications, conflicts of interest, and/or deficiencies in previous similar work, any contractor or subcontractor or other person engaged directly or indirectly by the Respondent to conduct work activities under this Order. If EPA disapproves the selection of any proposed contractor, the Respondent shall notify EPA in writing of the name, address, and qualifications of another contractor within **seven (7) days** after receipt of the notice of disapproval.

54. The Respondent shall provide a copy of this Order to all contractors, subcontractors, laboratories, and consultants retained in connection with this Order within **seven (7) days** after the Order's effective date or of such retention, whichever is later. The Respondent shall ensure that all such contractors, subcontractors, laboratories and consultants will perform all work in conformity with SDWA, and the terms and conditions of this Order and Scope of Work. Respondent shall nonetheless be responsible for ensuring that its contractors and subcontractors perform the Work in accordance with this Order.

55. Within **seven (7) days** after the effective date of this Order, the Respondent shall designate a Project Coordinator who shall be responsible for administration of all of the Respondent's actions called for by this Order, and shall submit the designated coordinator's name, address, and telephone number to EPA. EPA will deem the project coordinator's receipt of any notice or communication from EPA relating to this Order as receipt by the Respondent.

XII. NOTICE OF INTENT TO COMPLY

56. Respondent shall provide, within five (5) days after the effective date of this Order, written notice to EPA stating whether Respondent will comply with the terms of this Order. If Respondent does not unequivocally commit to perform the work required by this Order, Respondent shall be deemed to have violated this Order and to have failed or refused to comply with this Order. The absence of a response by EPA to

the notice required by this paragraph shall not be deemed to be acceptance of Respondent's assertions.

XIII. EPA TECHNICAL PROJECT COORDINATOR

57. The EPA Technical Project Coordinator (TPC) will administer EPA's responsibilities and receive all written notices, reports, plans and other documents required by this Order. Within five days after the effective date of this Order, EPA will notify Respondent of the identity of EPA's Project Coordinator. All submissions required by this Order shall be sent to EPA's TPC at the following address:

Attention: MMR Impact Area Technical Project Coordinator
U.S. Environmental Protection Agency
J.F.K. Federal Building
Boston, MA 02203-2211

58. EPA's TPC shall have the authority to modify the Scope of Work in writing. Absence of the TPC from the MMR shall not be cause for stoppage of work by the Respondent unless specifically directed by the TPC.

XIV. WORK TO BE PERFORMED; COMPLETION OF WORK

59. Immediately after retention of the supervising contractor, the Respondent shall commence the work detailed in the Scope of Work. All work performed by the Respondent shall be conducted in accordance with SDWA, applicable guidance documents provided by EPA, and the provisions of this Order including any standards, specifications, and time schedules contained in the Scope of Work or specified by the TPC.

60. Within **forty-five (45) days** after completing all work required under this Order, the Respondent shall submit for EPA approval a Completion of Work Report summarizing the activities conducted pursuant to the Scope of Work. The Completion of Work Report shall include the categories of information and conform to the requirements specified in the Scope of Work. The Completion of Work Report shall be certified by the supervising contractor, to the effect that all response activities have been completed in full satisfaction of the requirements of this Order.

61. When EPA determines that all work has been fully performed in accordance with this Order, and that all goals and objectives of this Order and the Scope of Work have been satisfied, EPA will provide written notice to the Respondent. If EPA

determines that all response activities have not been completed in accordance with the provisions of this Order, it will so notify the Respondent and provide a list of the tasks remaining and a schedule for their completion. The Respondent shall perform all remaining tasks and shall submit an amended Completion of Work Report in accordance with the EPA notice. If EPA determines that the remaining tasks have not been completed in accordance with the provisions of the EPA notice and this Order, the Respondent shall be in violation of this Order.

62. EPA's issuance of the notice referred to in the paragraph immediately above shall not preclude it from later determining, based upon new information or otherwise, that the Respondent has not completed all response activities in accordance with the provisions of this Order.

XV. SUBMISSIONS REQUIRING AGENCY APPROVAL; RESPONDENT'S OBLIGATION TO PROCEED

63. After review of any deliverable, plan, report or other item (submission) which the Respondent is required to submit for review and approval pursuant to this Order and Scope of Work, EPA may: (i) approve the submission; (ii) conditionally approve the submission with required modifications; (iii) disapprove the submission and notify the Respondent of deficiencies; or (iv) disapprove the submission and modify the deliverable, plan, report, or other item itself to cure any deficiencies. In the event EPA approves or conditionally approves the submission, or disapproves and modifies the submission itself, the Respondent shall perform all actions required by the submission, as approved, conditionally approved, or modified by EPA.

64. Upon receipt of a notice of disapproval with deficiencies ((iii) above), the Respondent shall correct the deficiencies and resubmit the submission within **seven (7) days** or such other time period specified in the notice of disapproval. Notwithstanding a notice of disapproval, the Respondent shall proceed to take any action required by any non-deficient portion of the submission. If EPA does not approve the submission as resubmitted, Respondent shall be in violation of the Order.

65. For each submission provided to EPA, the Respondent shall submit such copies as specified by the TPC. Any deliverable, plan, or report submitted to EPA pursuant to this Order shall be dated and shall include, in a prominent location in the document, the following disclaimer: "Disclaimer: This

document has been prepared pursuant to a government administrative order (U.S. EPA Region I SDWA Docket No. I-97-1019) and is subject to approval by the U.S. Environmental Protection Agency. The opinions, findings, and conclusions expressed are those of the authors and not necessarily those of the U.S. Environmental Protection Agency." In addition, any such deliverable, plan, or report which has not received final approval from EPA shall be marked "Draft" on each page.

XVI. INCORPORATION AND ENFORCEABILITY OF DOCUMENTS

66. The Scope of Work and all other appendices or attachments to this Order shall be deemed incorporated into, and made an enforceable part of, this Order. Upon approval by EPA, all contracts, deliverables, plans, reports, specifications, schedules, or other items required by or developed under this Order shall be deemed incorporated into, and made an enforceable part of, this Order. In the event of conflict between this Order and any document attached to, incorporated into, or enforceable hereunder, the provisions of this Order shall control.

XVII. ACCESS

67. To the extent Respondent owns, occupies, leases or controls property at the MMR, or property other than the MMR to which access is required in order to properly carry out the terms of this Order, it shall grant access to EPA, the Commonwealth of Massachusetts (the "State") and their officers, employees, agents, contractors, consultants, and other authorized representatives for purposes of implementing and monitoring work to be performed under this Order.

68. To the extent access to, use or ownership of, or easements over property other than the MMR are required for the proper and complete implementation of this Order, the Respondent shall use its best efforts to obtain access agreements or other interests in the property, in writing, sufficient to allow implementation of this Order within **twenty-one (21) days** after the Order's effective date. For purposes of this paragraph, "best efforts" include but are not limited to the payment of money, consistent with the Anti-Deficiency Act, in consideration of access to property.

69. Such written access agreements or other interests obtained pursuant to the preceding paragraph shall provide EPA, the State, and their officers, employees, agents, contractors, consultants, and other authorized representatives access to the MMR at all times for purposes of implementing and

monitoring work under this Order. Such written access agreements or other interests shall specify that the Respondent is not EPA's representative or agent with respect to liability associated with the MMR.

70. In the event that access agreements or other interests sufficient for implementation and monitoring of work under this Order are not obtained within the time period specified above, the Respondent shall notify EPA in writing within **three (3) days** thereafter regarding the lack of such agreements and the efforts made by the Respondent to obtain them. Lack of access shall not excuse or justify failure to perform any activity or to meet any deadline not requiring or directly dependent upon such access.

XVIII. QUALITY ASSURANCE/SAMPLING

71. The Respondent shall submit immediately to EPA and the State, upon receipt, the results of all sampling or tests and all other data generated by the Respondent, its contractor(s), or on the Respondent's behalf in the course of implementing this Order. The Respondent shall also provide the quality assurance/quality control procedures followed by all sampling teams and laboratories performing data collection and/or analysis.

72. Upon request, the Respondent shall allow EPA, the State, or their authorized representatives to take split and/or duplicate samples of any samples collected by the Respondent while performing work under this Order. The Respondent shall notify EPA and the State not less than four (4) days in advance of any sample collection activity. In addition, EPA shall have the right to take any additional samples that it deems necessary.

73. The Respondent shall assure that EPA and its authorized representatives are allowed access to any laboratory utilized by the Respondent in implementing this Order. Upon request, the Respondent shall have a designated laboratory analyze samples submitted by EPA for quality assurance monitoring.

XIX. ACCESS TO INFORMATION; RECORD PRESERVATION; CONFIDENTIALITY CLAIMS

74. Upon request, the Respondent shall provide EPA with copies of all records, documents, and other information generated by the Respondent and its contractor(s) which relates in any way to the Training Range and Impact Area or to the implementation of this Order, including but not limited to,

sampling and analysis records, field sheets and field notes, engineering logs, chain of custody records, contracts, bills of lading, trucking logs, manifests, receipts, reports, and correspondence. In addition, the Respondent's employees, agents, or representatives with knowledge of facts concerning the conditions at the Training Range and Impact Area or performance of work under this Order shall be made available to EPA to provide such information.

75. For a period of at least five (5) years following completion of all work conducted by the Respondent pursuant to this Order, the Respondent shall preserve all documents, records, and information of whatever kind, nature or description in their possession and/or control or that of their employees, agents, accountants, contractors, attorneys, successors and assigns, that relate in any way to the performance of work under this Order, or relate in any way to releases or threatened releases of contaminants which relate to the Training Range and Impact Area. After this five (5) year period has expired, the Respondent shall provide EPA with thirty (30) days advance written notice prior to the destruction of any such records, documents, or information. The Respondent shall send such notice, accompanied by a copy of this Order, to:

> Attention: MMR Impact Area Counsel
> Office of Environmental Stewardship
> U.S. Environmental Protection Agency
> J.F.K. Federal Building
> Boston, Massachusetts 02203-2211
>
> Re: Response Action at Massachusetts Military Reservation
> SDWA Docket No. I-97-1019

Upon request, the Respondent shall provide to EPA copies of all such records, documents, or information.

76. The Respondent may assert a confidentiality claim, if appropriate, covering the information required by or requested under this Order, pursuant to Section 1445(d)(1) of SDWA, 42 U.S.C. § 300j-4(d)(1). However, pursuant to Section 1445(d)(2) of SDWA, 42 U.S.C. § 300j-4(d)(2), any information shall be disclosed to the public to the extent that it deals with the level of contaminants in drinking water.

XX. CREATION OF DANGER; EMERGENCY RESPONSE

77. Upon the occurrence of any incident or change of conditions during the activities conducted pursuant to this Order that causes or threatens a release of hazardous substances from the facility or an endangerment to the public health or welfare or the environment, the Respondent shall immediately take all appropriate action to prevent, abate or minimize such release or endangerment. The Respondent shall also immediately notify the TPC or, in the event of his/her unavailability, shall notify the Regional Duty Officer of the Emergency Planning and Response Branch, EPA Region I, telephone (617) 223-7265. In taking any actions under this paragraph, the Respondent shall act in accordance with all applicable provisions of the Health and Safety Plan prepared pursuant to the Scope of Work.

78. The Respondent shall submit a written report to EPA within **seven (7) days** after each incident specified above, setting forth the events that occurred and the measures taken and to be taken to mitigate any release or endangerment caused or threatened by the incident and to prevent the reoccurrence of such an incident.

79. Nothing herein shall limit the power and authority of EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at, or from the facility.

XXI. AMENDMENTS

80. This Order, other than the Scope of Work, may only be amended in writing by signature of the Regional Administrator of EPA Region I. Amendments to the Scope of Work may only be made in writing by the TPC.

81. No informal advice, guidance, suggestion, or comment by EPA regarding reports, plans, specifications, schedules, and any other writing submitted by the Respondent shall be construed as relieving the Respondent of their obligation to obtain such formal approval as may be required by this Order.

XXII. OTHER APPLICABLE LAWS

82. All actions required pursuant to this Order shall be undertaken in accordance with the requirements of all applicable local, state, and federal laws and regulations,

including but not limited to, the laws relating to occupational health and safety and worker's compensation.

XXIII. ENFORCEMENT; PENALTIES FOR NONCOMPLIANCE

83. Violation of this Order, or failure or refusal to comply with this Order, may subject the Respondent to a citizen's civil action under Section 1449 of SDWA, 42 U.S.C. § 300j-8, for civil penalties of up to fifteen thousand dollars ($15,000) for each day in which such violation occurs or failure to comply continues, as provided in Section 1431(b) of SDWA, 42 U.S.C. § 300i(b).

XXIV. DISCLAIMER OF LIABILITY BY EPA

84. By issuance of this Order, EPA assumes no liability for injuries or damages to persons or property resulting from acts or omissions by the Respondent, its officers, employees, agents, representatives, successors, assigns, contractors, or consultants in carrying out activities pursuant to this Order. EPA shall not be held as a party to any contract entered into by the Respondent or its employees, agents, representatives, successors, assigns, contractors, or consultants in carrying out activities pursuant to this Order.

XXV. NO RELEASE FROM LIABILITY

85. Nothing in this Order shall constitute or be construed as a satisfaction or release from any claim, cause of action, or demand in law or equity against the Respondent or any other person, whether or not a party to this Order, for any liability such person may have for any conditions or claims arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous substances, hazardous wastes, pollutants, or contaminants found at, taken to, or taken from the facility, including but not limited to any and all claims of the United States for money damages and interest under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), or under any other applicable statute or the common law.

XXVI. RESERVATION OF RIGHTS BY EPA

86. The United States reserves all rights it may have to take any further civil, criminal, or administrative enforcement action against the Respondent and all other persons pursuant to any available legal authority, including the right to seek

injunctive relief; the recovery of money expended or to be expended (plus interest); monetary penalties; criminal sanctions; and/or punitive damages regarding: (i) any violation of this Order; or (ii) any actual or potential threat to human health or welfare or the environment, or any release or threat of release of hazardous substances on, at, in, or near the facility. Nothing in this Order shall preclude EPA from taking any additional enforcement actions, including modification of this Order or issuance of additional Orders, and/or additional actions as EPA may deem necessary, or from requiring Respondent in the future to perform additional activities pursuant to SDWA, or any other applicable law.

87. EPA further expressly reserves the right both to disapprove work performed by the Respondent and to request or order the Respondent to perform tasks in addition to those detailed in the Order. In addition, EPA reserves all rights it may have to undertake response actions at any time and to perform any and all portions of the work activities which the Respondent has failed or refused to perform properly or promptly, and to seek reimbursement from Respondent for its costs, or seek any other appropriate relief.

88. Notwithstanding any other provision of this Order, EPA shall retain all of its information gathering, entry, inspection, and enforcement authorities and rights under any applicable law, regulation, or permit.

XXVII. OPPORTUNITY TO CONFER

89. Within **three (3) days** after signature of the EPA Regional Administrator on this Order, the Respondent may request a conference with the Regional Administrator of EPA Region I or his designee to be held no later than **six (6) days** after issuance of this Order. Requests for a conference should be submitted to:

Timothy M. Conway or Margery Adams
U.S. Environmental Protection Agency
JFK Federal Building -- SEE
Boston, Massachusetts 02203-2211
(617) 565-3454 (Conway) or 565-3746 (Adams)
FAX (617) 565-1141

90. The purpose and scope of the conference shall be to discuss the issue(s) which Respondent would like the Regional Administrator to consider in connection with this Order. Respondent should submit copies of all necessary information

regarding the issue(s) to be discussed. The conference is not an evidentiary or adversarial hearing and is not part of any proceeding to enforce or challenge the Order. At any conference held pursuant to this section, the Respondent may appear in person or by attorney or other representative.

XXVIII. EXCUSED DELAY - FORCE MAJEURE

91. Respondent's activities under this Order shall be performed within the time limits set forth herein, or otherwise established or approved by EPA, unless performance is delayed or prevented by events which constitute "force majeure". For purposes of this Order, "force majeure" is defined as any event arising from causes beyond Respondent's control. "Force majeure" shall not include any inability of Respondent to pay the costs or expenses associated with complying with this Order, or increases in such costs or expenses, except as provided below in Section XXX, Anti-Deficiency Act. When an event constituting "force majeure" occurs, Respondent shall perform the affected activities within a time period not to exceed the time provided in this Order and the period of delay attributable to "force majeure". Respondent shall use its best efforts to avoid or minimize any delay or prevention of its performance of their obligations under this Order, and to discover and keep apprised of any and all circumstances which may result in a delay or prevention of the work required under this Order. A delay caused by EPA, and otherwise conforming with the terms of this Section, shall be treated as beyond the Respondent's control.

92. Respondent shall verbally notify the EPA Technical Project Coordinator as soon as possible, and not later than forty-eight (48) hours, after the discovering that circumstances have occurred or are likely to occur which may delay or prevent the performance of any activity required by this Order, regardless of whether or not those circumstances constitute a "force majeure". If the TPC cannot be reached, Respondent shall leave a telephone message at the TPC's office. Respondent shall also notify EPA in writing within seven (7) days after the date Respondent first became aware of the circumstances which may delay or prevent any performance of any activity required by this Order. Such written notice shall be accompanied by all available pertinent documentation including, but not limited to, third-party correspondence, and shall contain: 1) a description of the circumstances and the Respondent's rationale for interpreting such circumstances as being beyond its control; 2) the actions (including pertinent dates) Respondent has taken and/or intend to take to minimize any delay; and, 3)

the date or time period Respondent proposes to complete the delayed activities. Such notification shall not in and of itself relieve Respondent of any of its obligations under this Order. Respondent's failure to timely and properly notify EPA as required by this paragraph shall nullify any claim of "force majeure" and resulting entitlement to any extension of time therefor. Respondent shall have the burden of proving to EPA's satisfaction that an event constituting "force majeure" has occurred.

XXIX. EFFECTIVE DATE; COMPUTATION OF TIME

93. The obligations required by this Order shall become effective pursuant to the Safe Drinking Water Act **seven (7) days** after the Order is signed by the EPA Regional Administrator, consistent with the opportunity to confer described above in Section XXVII, Opportunity to Confer. All times for performance of Work under this Order shall be calculated from the effective date. When computing any period of time under this Order, if the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the next working day.

XXX. ANTI-DEFICIENCY ACT

94. Nothing in this Order shall require the Respondent to violate the Anti-Deficiency Act.

XXXI. SEVERABILITY

95. If a court issues an order that invalidates any provision of this Order, or finds the Respondent has sufficient cause not to comply with one or more provisions of this Order, Respondent shall remain bound to comply with all provisions of this Order not invalidated by such court's order.

XXXII. TERMINATION

96. The provisions of this Order shall remain in full force and effect until all actions required by this Order have been completed and EPA has notified the Respondent, in writing, that the actions required by this Order have been completed. Respondent shall notify EPA in writing at such time as it believes that all such actions have been completed. EPA shall have sole discretion in determining whether all such actions have in fact been completed. Failure to complete all actions required hereunder as directed by EPA shall be deemed a violation of this Order. EPA's provision of written notice to Respondent pursuant to this paragraph shall not be

construed as a waiver of any of EPA's rights to take further enforcement action under SDWA or any other laws.

IT IS SO ORDERED. Issued at Boston, Massachusetts this 27th day of February, 1997.

John P. DeVillars
Regional Administrator, Region I
U.S. Environmental Protection Agency

SCOPE OF WCRK
MASSACHUSETTS MILITARY RESERVATION
TRAINING RANGE AND IMPACT AREA

Appendix A to EPA Region I Administrative Order
SDWA I-97-1019

SCOPE OF WORK
MASSACHUSETTS MILITARY RESERVATION - ADMINISTRATIVE ORDER

I. INTRODUCTION AND PURPOSE

This Scope of Work (SOW) defines the response actions and obligations that Respondent is obligated to perform to implement the Work required under the Administrative Order, Docket Number SDWA I-97-1019 (the "Order"), issued by the United States Environmental Protection Agency (EPA) regarding the Training Range and Impact Area at Massachusetts Military Reservation (MMR) on Cape Cod, Massachusetts.

II. RESPONSE ACTIVITIES

Respondent shall perform the following Work:

A. By March 14, 1997, Respondent shall provide EPA and the public any and all information in its possession or control on known or potential contaminants in soil and groundwater on, near and emanating from the Training Range and Impact Area of MMR (as referenced on the attached map). This information should provide a basis for a preliminary analysis of the potential effects on public health and the environment from past and current activities on and near the Training Range and Impact Area to be completed. The information to be provided by Respondent shall include the following:

1. All information relating to soil sampling undertaken at or near the Training Range and Impact Area;

2. All information relating to groundwater sampling undertaken at or near the Training Range and Impact Area;

3. All information relating to the potential health or environmental effects of past and current activities in the Training Range and Impact Area, including but not limited to the following:
   a. Small arms firing;
   b. Artillery firing;
   c. Detonation practice for explosives at demolition ranges.
   d. Presence of unexploded ordnance (UXO), partially exploded ordnance or residue from UXO or partially exploded ordnance;

4. All information relating to past or present burial of explosives or munitions at or near the Training Range and Impact Area; and

5. A compilation of the amounts, types and composition of munitions used in the Training Range and Impact Area,

including but not limited to bullets, mortar, artillery and ordnance,the byproducts and potential contaminants associated with each type of munitions, an analysis of where the byproducts of munitions used in the Training Range and Impact Area activities are expected to be found, and the number of rounds of each type of munition used.

B. By March 14, 1997, Respondent shall provide to EPA's Technical Project Coordinator and make available to the public an accelerated schedule and work plan with specific dates for conducting and completing an independent, comprehensive study of the effects on public health and the environment of past, present and future activities on or near the Training Range and Impact Area. Such accelerated schedule and work plan shall include the following:

1. Description of comprehensive soil sampling to be performed at and near the Training Range and Impact Area;

2. Description of comprehensive groundwater sampling to be performed at and near the Training Range and Impact Area;

3. Description of comprehensive stormwater sampling to be performed at and near the Training Range and Impact Area;

4. Description of comprehensive surface water sampling to be performed at and near the Training Range and Impact Area;

5. To the extent not addressed in 1-4 immediately above, a description of how Respondent will complete all activities proposed by the National Guard Bureau in its "Draft Action Plan for the Camp Edwards Impact Area Groundwater Study", as modified by the incorporation of all comments in the "EPA Review Comments on 'Draft Action Plan for the Camp Edwards Impact Area Groundwater Quality Study' dated December 1996", submitted by EPA to Ernest Keating of the MMR Unified Environmental Planning Office on January 15, 1997;

6. Description of pollution prevention measures to be undertaken by Respondent to mitigate the effects on public health and the environment from any current and/or future activities at the Training Range and Impact Area, including but not limited to installation of bullet traps and clay liners, as well as an assessment of the likely effectiveness of the pollution prevention measures;

7. Description of health and safety measures to be undertaken by Respondent in performance of the Work under this Order, including all plans, training and other health and safety measures necessary.

C. Within 15 days of receiving EPA's approval or modification of the accelerated schedule and work plan described immediately above in Section II.B. of this SOW, Respondent shall initiate performance of all activities in the accelerated work plan as approved or modified.

D. In addition to any other requirement of this Order and SOW, during the period in which Respondent are performing response activities pursuant to the Order, Respondent shall submit to EPA written monthly progress reports that: (1) describe the actions which have been taken toward achieving compliance with this Order during the previous month; (2) include a summary of all results of sampling and tests and all other data received or generated by Respondent or its contractors or agents in the previous month; (3) identify all work plans, plans and other deliverables required by the Order that were completed and submitted during the previous month; (4) describe all actions scheduled for the next six weeks and provide other information relating to the progress of Work under the Order; include information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule for implementation of the Work, and a description of efforts made to mitigate those delays or anticipated delays. Respondent shall submit these progress reports to EPA by the tenth day of every month following the effective date of the Order. If requested by EPA, Respondent shall also provide briefings for EPA to discuss the progress of the Work.

E. Within 45 days after Respondent concludes that it has completed all response activities under the Order, Respondent shall submit to EPA a report (the "Completion of Work Report") describing in detail the Work undertaken under the Order and the results of the Work.

F. EPA shall review the Completion of Work Report. If EPA determines that no further Work is necessary under the Order, EPA will so notify Respondent. If EPA determines that further Work is necessary under the Order, EPA will notify Respondent of such Work, and will either provide a schedule for completion of such Work, or will direct Respondent to submit within a specified time period a schedule for completion of such Work.

III. SUBMISSIONS REQUIRING AGENCY APPROVAL

Plans, reports, and other deliverables identified in this SOW, or identified in EPA's approval or modification of the accelerated schedule and work plan to be submitted pursuant to this SOW shall be delivered to EPA in accordance with the Order and this SOW.

IV. PUBLIC INVOLVEMENT

Respondent shall ensure adequate public involvement in all the Work undertaken pursuant to the Order and SOW. By March 14, 1997, Respondent shall submit to EPA a plan for ensuring adequate public involvement, including but not limited to the following:

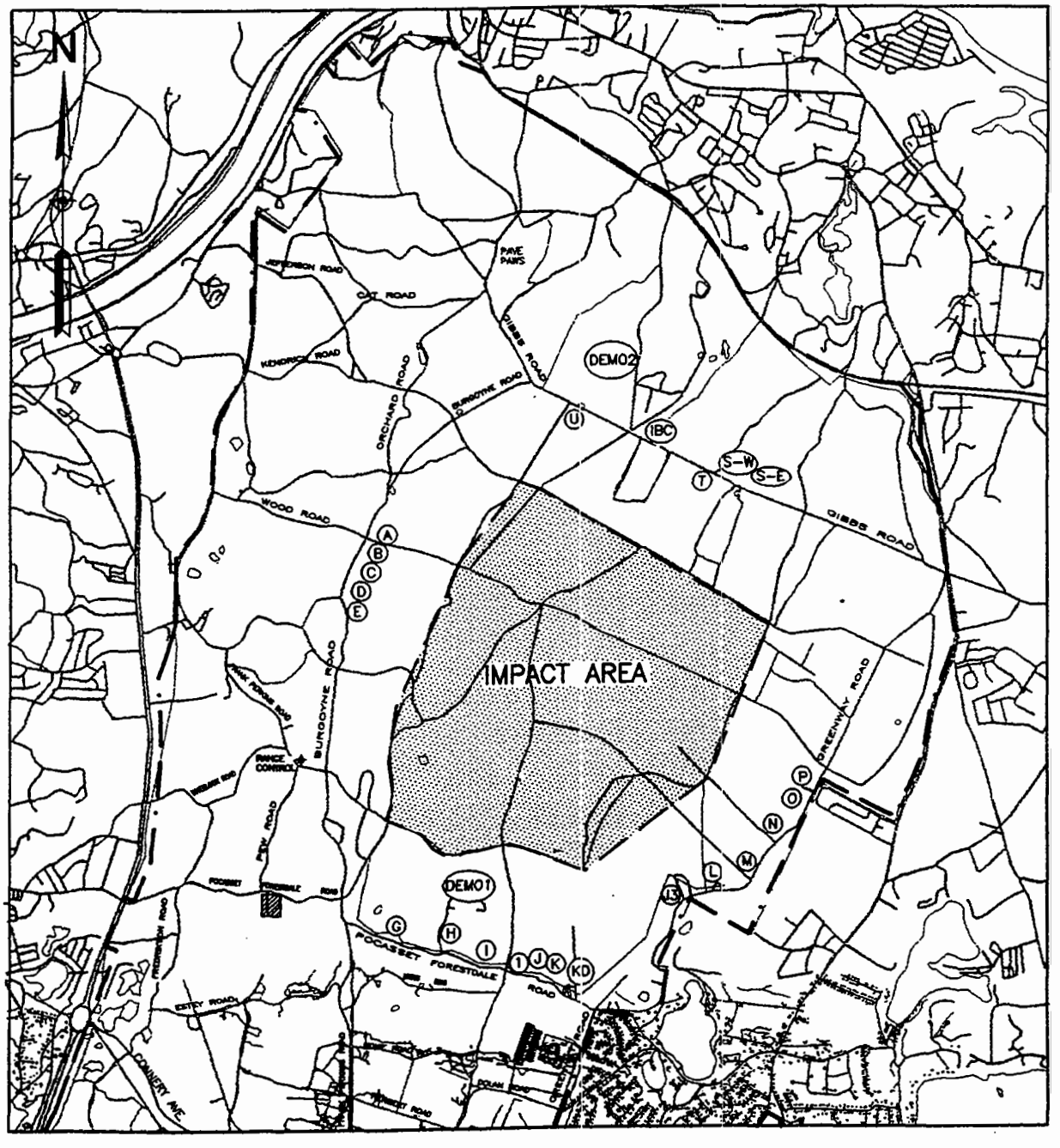
A. Making immediately available to the public all nonprivileged information obtained or compiled pursuant to this Order;

B. Coordinating the Work under this Order and SOW with the citizens advisory committee to be established by EPA to oversee and monitor the Work, and providing resources for the effective functioning of the citizens advisory committee;

C. Providing periodic oral and written updates to the public on the progress of the Work;

D. Sharing immediately with the public all conclusions reached by Respondent or its representatives with respect to the effects of past and present activities at the Training Range and Impact Area; and

E. Coordinating the Work under this Order and SOW with the response actions being undertaken at MMR by the Installation Restoration Program.



LEGEND

- INSTALLATION BOUNDARY
- IMPACT AREA BOUNDARY
- (A) EXISTING RANGE
- EXISTING AMMUNITION SUPPLY POINT (ASP)

0 2500 5000 FEET

1"=5000'

Source: Massachusetts Military Reservation

EXISTING RANGE AND MANEUVERING AREA AT MMR

File Name: J:\6650-14\6650F036.DWG

Figure 3-4