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SUPERFUND RECORDS CTR	
Site	Centredale 0100
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United States Environmental Protection Agency
New England Region
Office of Site Remediation and Restoration
One Congress Street, Boston, MA 02114-2023

Enforcement-Sensitive Information Attached

Memorandum

Date: January 18, 2001

Subject: Request for Removal Action Centredale Manor Restoration Project, North Providence, Rhode Island—**Action Memorandum - Non-Time-Critical Removal Action (NTCRA)**

From: Anna F. Krasko, Remedial Project Manager
Office of Site Remediation and Restoration

To: Patricia L. Meaney, Director
Office of Site Remediation and Restoration

I. Purpose

The purpose of this Action Memorandum is to request and document approval for the proposed removal action and a 12-month and \$2 million exemption described herein for the Centredale Manor Restoration Project (the "Site"), North Providence, Rhode Island. The proposed removal actions will mitigate the human health threats posed by dioxin and other hazardous substances released from the Site by removing contaminated soils and sediments from properties subject to residential and recreational use, located in the floodplain of the Woonasquatucket River southerly from Route 44 down to an area just below the Lymansville Dam and by restoring Allendale Dam to minimize further migration of contaminated sediment in the River.

EPA is now in the process of conducting a remedial investigation and feasibility study to evaluate the full nature and extent of the contamination at the Site not already addressed by previously completed EPA time-critical removal activities or by this NTCRA.

II. Site Conditions and Background

CERCLIS Identifier:	RID981203755
Site Identifier:	016P
Category of Removal:	Non-Time-Critical
Nationally Significant/	
Precedent Setting:	Yes
NPL Status	Included on the NPL on March 06, 2000



SDMS DocID

11040

A. Site Description

1. Background

The main area of the Site, consisting of approximately 9.04 acres, is located in North Providence, Rhode Island, just south of Route 44 on the eastern bank of the Woonasquatucket River. The main area is known as 2072 and 2074 Smith Street. The entire Site extends down the Woonasquatucket River from the main portion of the Site south to the Lymanville Dam, and includes the partially-breached Allendale Dam. The Site consists of all contaminated areas within this area as well as any other location to which contamination from that area has come to be located, or from which that contamination came.

Currently, two high rise buildings (Centredale Manor and Brook Village, both low-income senior housing complexes) are located in the main area of the Site, which is zoned for residential occupancy. In addition to the buildings, the main area is covered by roadway and parking lots. On the eastern portion of the main area is a drainage swale that begins near the northern portion of the main area and extends south, then curves to the west and discharges south of the main area into the Woonasquatucket River and Allendale Pond.

The Site was used for disposal or treatment of wastes, including wastes containing hazardous substances. Between approximately 1940 and 1970, EPA has reason to believe that the main area of the Site was the location of a chemical manufacturing facility (which produced hexachlorophene, among other chemicals) and an incineration-based drum recycling facility. The first housing complex was built in approximately 1976 and the second housing complex was built in approximately 1982. Construction records show that hazardous substances were removed from the Site during the construction of the second complex. Samples indicate the presence of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) and other contaminants in soil and sediment at the main portion of the Site and in the River sediment and floodplain soils downstream.

The time critical removal action completed in a Summer of 2000 included construction on two interim soil caps over contaminated source areas and fencing to restrict access in the main area of the Site as well as downstream to the Allendale Dam, where elevated levels of dioxin were found in surface soils and sediments. The NTCRA focuses on the affected residential parcels on the east side of the Woonasquatucket River, downstream from the main portion of the Site and the breached Allendale Dam to a point just below the Lymanville Dam. The NTCRA is consistent with the long-term remedial strategy for

this Site to minimize exposure to and migration of contaminants and to restore the River to its productive uses.

2. Removal Site Evaluation

Prior to 1936, the properties were occupied by Centredale Worsted Mills, a woolens manufacturing plant. Atlantic Chemical Company, a chemical manufacturer, began operating on a portion of the Site in approximately 1940. Atlantic Chemical Company changed its name in 1953 to Metro-Atlantic, Inc. and operated until the late 1960s or early 1970s. In the late 1960s or early 1970s, Metro-Atlantic, Inc., changed its name to Crown-Metro, Inc. The chemical company ceased operating in the early 1970s. New England Container Company operated an incinerator-based drum reconditioning facility on a portion of the Site from 1952 until approximately 1969. A major fire in the early 1970s destroyed most of the structures at the Site. In the 1970s, RIDOH conducted a number of investigations at the property in response to complaints of fires, odors and fumes. Evidence suggests that the operations of the chemical company and the drum reconditioning facility at the Site included disposal of wastes from the facilities on-site into the soil and directly into Woonasquatucket River and resulted in releases and threats of releases of hazardous substances at the Site. Disposal also may have occurred during the construction of the two apartment buildings located at the Site.

From approximately 1970 to approximately 1986 the Rhode Island Department of Environmental Management (RIDEM) was involved in the inspection of the Site as well as oversight of response actions taken by others at the Site. Approximately 400 drums were observed by RIDEM representatives at the Site, some of which were visibly smoking. Some of these drums contained hazardous waste materials requiring off-site disposal; other (empty) drums were crushed and disposed off-site as non-hazardous waste. RIDEM also directed that soil unearthed from the Centredale Manor building footprint be disposed of at a solid waste landfill.

The Brook Village apartment complex and the Centredale Manor apartment complex were built in approximately 1977 and 1982, respectively. In November 1981, a Notice of Violation and Order was issued by RIDEM to the then-property owners (Joseph Buonanno and Edward Ricci) for violations of the State Hazardous Waste Management Act requiring the property owners to immediately identify all hazardous material on-site, then dispose of all hazardous wastes off-site. EPA has not been able to determine if Buonanno and Ricci ever attempted to comply with this Order.

EPA has conducted several investigations including a Preliminary Assessment of Centredale Manor and Brook Village in August of 1986 and a Screening Site Inspection in October of 1990. In 1996, as part of the EPA Providence Urban Initiative Program,

fish and eel tissue samples from the Woonasquatucket watershed were analyzed. This led to a joint advisory from the Rhode Island Department of Health and EPA against eating fish and eels from the Woonasquatucket River, due to polychlorinated biphenyls (PCBs), mercury, and dioxin contamination concerns. A Site Inspection Prioritization was done in May of 1997. In October 1997, EPA collected water and sediment samples for a number of analytes, including dioxin, behind seven dams on the Woonasquatucket River, both upstream and downstream from the main area of the Site.

These previous investigations led to an Expanded Site Inspection (ESI) in September of 1998. A total of 45 sediment and surface soil samples from Centredale Manor, Brook Village and the Woonasquatucket River were collected and analyzed. The ESI assessed the extent of contamination in areas of potential human exposure, the potential for source areas to be located up-river from the Centredale Manor property, and the presence of dioxin/furan and hexachloroxanthene (HCX) contamination. Dioxin was found in surface soils and exposed swale sediments at Centredale Manor at elevated levels up to 15.8 parts per billion (ppb).

The data was evaluated for public health implications by the Agency for Toxic Substances and Disease Registry (ATSDR). In a Draft Health Consultation and a Record of Activity (March 19, 1999), ATSDR concluded that although current exposures are probably low, significant risks could exist for children or adults who have frequent contact with contaminated soils or sediment. ATSDR made several recommendations, including that public access be restricted to surface soils which exceed 1 part per billion (ppb) of dioxin.

3. Physical Location and Site Characteristics

The Centredale Manor Restoration Project Superfund Site is located in the town of North Providence, Providence County, Rhode Island. The Site consists of two parcels, 2072 and 2074 Smith Street (or, Plat 14, Lots 200 and 250) located within the 100-year flood plain as defined by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, and the Woonasquatucket River (including its 100 year flood plain) from Route 44 southerly to a point just below the Lymansville Dam. The geographic coordinates for the main area of the Site are 41° 51' 29.5" north latitude and 71° 30' 28.5" west longitude.

The Woonasquatucket River runs along the western portion of parcels 2072 and 2074; a drainage swale runs along the eastern portion of parcel 2074 until it discharges into the Woonasquatucket River and the associated wetland system in the southern portion of the property. The centerline of the River is a North Providence/Johnston town line. The Woonasquatucket River widens at a point approximately 2,000 feet south of Route 44,

where it becomes Allendale Pond. Allendale Pond ends at Allendale Dam. Downstream of Allendale Dam, the River is channelized for approximately 400 feet and then widens into a forested wetland and Lymansville Pond which is formed by the Lymansville Dam. The Site consists of all contaminated areas within this area as well as any other location to which contamination from this area has come to be located, or from which this contamination originated. Downstream from the main portion of the Site, the Woonasquatucket River is bordered by densely populated residential neighborhood on the east side of the river and commercial/industrial parcels on the west side of the River.

Analyses of soil, wetland and floodplain samples at the Site indicate elevated levels of a number of hazardous substances or pollutants or contaminants, including dioxin, PCBs, chlorobenzene, tetrachloroethylene, trichloroethylene, benzene, toluene, and xylene. There is also evidence in historical records, interviews of certain individuals, and geophysical surveys that buried drums may be present on the main area of the Site. With respect to sources of dioxin releases, there are reports of hexachlorophene being manufactured by the chemical company operating at the main area of the Site and the dumping and burning of chemical residuals in drums being recycled at the main area of the Site.

From January 1999 through June 2000, EPA conducted time-critical removal activities at the Site. As a result, two vegetated interim soil caps were installed at the south end of the main area of the Site and between Centredale Manor and Brook Village parking lots where elevated levels of dioxin and other contaminants were found near the surface; these areas are immediately adjacent to the Woonasquatucket River and were prone to frequent flooding. In addition, a fence to restrict access and no-fishing warning signs were installed in the areas with elevated levels of contaminants from Route 44 down to the Allendale Dam. Additional information on the completed removal action is provided in Section II.B of the Action Memorandum.

4. Release or Threatened Release into the Environment of a Hazardous Substance, or, Pollutant or Contaminant

The critical contaminant of concern is 2,3,7,8-tetrachlorodibenzo-p-dioxin (dioxin). Dioxin is a hazardous substance as defined in Section 101(14) of CERCLA and is listed at 40 C.F.R. 302.4. Analytical data from the samples collected at the main area of the Site indicate dioxin concentrations up to 140 ppb in surficial soils or exposed swale sediments. Other contaminants as defined by Section 101(14) of CERCLA that have been released at the Site include, but are not limited to, PCBs up to 1300 ppm, chlorobenzene up to 1000 ppm, toluene up to 430 ppm, xylenes up to 380 ppm, tetrachloroethylene up to 1700 ppm, trichloroethene up to 2400 ppm and benzene up to 480 ppm. Elevated levels of numerous other chlorinated and aromatic VOCs, semi-

volatile organic compounds (SVOCs), notably polycyclic aromatic hydrocarbons (PAHs) and metals, were also identified in soils and sediment.

The past use of the Site as a chemical manufacturing company and an incineration-based barrel reclamation facility is consistent with the presence of dioxin. EPA has established that hexachlorophene was manufactured at the Site; dioxin is a well-documented byproduct of hexachlorophene production. At this time no information is available to estimate quantities of hazardous materials released at the Site. Production rates for the chemical company which operated at the Site are not known. Interviews with individuals familiar with former operations at the Site, indicate that thousands of drums could be handled on a monthly basis by a barrel reclamation facility. Contaminants may have been buried, released directly onto the ground, and/or released directly into the Woonasquatucket River. Additional releases of contaminants may have occurred during construction of the apartment complexes in the late 1970s and early 1980s.

These former industrial operations were located in the 100 year floodplain, on the shore of the Woonasquatucket River. As a result of these past releases, contaminants have migrated downstream and have impacted sediments in the Woonasquatucket River and downstream (primarily residential) properties through transport and deposition of contaminated soils and sediment. Dioxin in these downstream areas was found at levels up to 57 ppb in a depositional cove in the Allendale Pond area. The breach of the Allendale Dam in 1991 and its continuing deterioration are likely to facilitate continued transport of contaminated sediment further downstream. Significant concentrations of contaminants, including dioxin and PCBs were found in sediment depositional areas of Allendale Pond and near the Allendale Dam. The break in the Allendale Dam allowed expansion of the residential use into formerly submerged areas resulting in additional exposures to contaminants. Elevated levels of contaminants exist generally to a depth of two feet, primarily within the former boundaries of the Allendale Pond and the existing boundaries of Lymansville Pond, with concentrations generally decreasing further downstream from the source area at the Centredale Manor and Brook Village properties.

The Streamlined Human Health Risk Evaluation conducted as part of the Engineering Evaluation/Cost Analysis (EE/CA) for the NTCRA, focused on the soil and sediment of the Woonasquatucket River, including its flood plain, downstream from the Centredale Manor and Brook Village properties. This risk evaluation identified nine contaminants of concern, including dioxin, PCBs, chromium, arsenic, copper, and PAHs under residential and recreational exposure scenarios to sediment and soil in the river, ponds, banks, and flood plain areas. The findings of the Streamlined Human Health Risk Evaluation strongly indicate that the unacceptable risks to residents are due primarily to elevated levels of dioxin, and that the areas with elevated levels of PCBs and other contaminants are co-located with areas where elevated levels of dioxin were found. Due

to co-location of contaminants, the NTCRA is focused on dioxin as the primary contaminant of concern.

5. NPL Status

The Site was listed on the National Priority List (NPL) on March 06, 2000. This NTCRA follows completion of a time critical removal action designed to prevent access to contaminated areas and mitigate downstream transport of contaminants from the areas of heavily contaminated soils near the river. That Removal Action and the NTCRA will address the short term needs of the site. EPA also plans to implement long-term permanent response at the Site. EPA initiated a Remedial Investigation (RI) in August 1999, including a baseline ecological risk assessment (BERA). The BERA includes collection and analysis of biota samples, including bird and fish tissues. In September 2000, EPA also collected additional sediment and surface water samples in the Dyerville and Manton Ponds, downstream from Lymansville Dam, to aid in determining the extent of dioxin contamination in Woonasquatucket River. A source area and groundwater investigation are also being planned, with completion expected by Spring 2002. A decision document for the remedial response is expected in 2002. The Removal, Remedial and Site Assessment programs have closely coordinated their actions to date. The completed Removal Action and the NTCRA have been developed through a cross-program Agency team to be consistent with listing the Site on the NPL, and with any remedial actions.

B. Previous and Current Actions

1. Private Actions

In 1981 and 1982, during the construction of the Centredale Manor apartment complex, a number of exploratory and construction-related soil and drum removal activities were performed by contractors for the owners of the Centredale Manor under RIDEM's supervision. Several exploration borings and test pits were conducted and soil samples were taken and analyzed for metals, PCBs, Pesticides VOCs and SVOCs. Logs for several test pits indicate that oil/chemical odors were detected during excavation and analytical results for soil and groundwater tests indicated detection of several VOCs. Approximately 6,000 cubic yards of soil and unknown number of drums were removed from a footprint area for the building foundation and disposed off-site. The visible drums found at the land surface, along the banks of the Woonasquatucket River and culled from trash heaps at the property were segregated and the ones found to contain chemicals were sampled. According to RIDEM records, about 300-400 55 gallon drums were removed; of these about 30 drums had chemical residue which had to be analyzed. The empty drums were crushed and sent to a solid waste facility and at least eight drums containing

hazardous material, including a barrel containing sulfuric acid, were manifested as hazardous material and removed by Jet-Line Services to a Recycling Industries facility in Braintree, MA. There were reported instances of unearthed drums found under partially buried drums, which emitted smoke and odors upon exposure to the air (Field Summaries, Goldberg-Zoino & Associates, Inc.). Notes from RIDEM files indicate that the drum contents were analyzed only for limited specified parameters such as flash point, sulfate, pH, EP Toxicity (eight heavy metals), and VOCs; these notes specifically state that no PCB or dioxin analysis has been performed. These notes also state that this site is still potentially contaminated in the swamp area (John Leo notes, June-July 1982).

In March 1986, in response to reports by Providence Journal of buried tanks with hazardous waste near Centredale Manor, RIDEM's contractor, Geo-Centers, Inc., conducted ground penetrating radar (GPR) survey to see if these tanks exist. That survey identified three areas of interest, all in a marsh area south of the Centredale Manor parking lot which could indicate metal debris or chemically contaminated soil. According to the contractor's report, however, this GPR survey did not show anomalies that would normally be associated with buried metal tanks or containers.

2. Removal Actions

A series of Time-Critical Removal Actions were proposed in the initial Action Memorandum dated May 4, 1999, and the subsequent Action Memorandum to continue the response, dated September 13, 1999, and June 1, 2000. The Removal Program mobilized to the Site in January, 1999, and has completed the following actions:

- the site was prepared for activity by grubbing and clearing approximately six acres of undergrowth;
- over six hundred (600) soil samples were collected and shipped for dioxin and PCB analysis. The samples are comprised of hand auger samples and geoprobe samples from the source area and residential and recreational use areas, and sediment samples from Allendale Pond near the dam. In addition to dioxin and PCB analysis, a representative number of samples were also analyzed for VOCs, SVOCs, pesticides and metals.
- 850 feet of cedar fence was erected in high visibility areas at the Site; over 5,000 feet of chain-link fence has also been erected, primarily in residential areas adjoining Allendale Pond.
- the OSC and team members participated in weekly or biweekly Management Action Committee (MAC) meetings to inform the community, local and state

government of the progress and activity at the Site. Additional community outreach activities conducted by EPA included fact sheets and press releases about the on-going activities, as well as meetings with individual property owners and Brook Village and Centredale Manor residents to review sampling results and outline future activities.

- an interim protective cap (Cap #1) was constructed in the Summer of 1999 over a formerly wooded area immediately south of the Centredale Manor parking lot. This area is prone to flooding and has the highest concentrations of dioxin and PCB contamination in surface soil found at the Site.

- a second interim protective cap (Cap #2) was constructed over the grassed area between the Woonasquatucket River and the Centredale Manor building. This area is also prone to flooding and has significantly elevated levels of dioxin in surface soils. Proximity to the River also necessitated construction of flood control berm to control erosion of the cap. EPA began the cap construction in the Fall of 1999 and it was completed in June 2000 by the Potentially Responsible Parties under a Unilateral Administrative Order issued in April, 2000.

- Pursuant to an Approval Memorandum dated February 1, 2000, an Engineering Evaluation/Cost Analysis (EE/CA) was completed to evaluate alternatives for non-time-critical activities on affected residential properties and alternatives for control of contaminated sediment migration downstream of breached Allendale Dam.

Please refer to the Action Memoranda and the supporting Administrative Records for additional information.

3. Remedial Activities

EPA Remedial Program activities began in August of 1999. The following activities have been completed to date:

- approximately 350 soil, sediment and surface water samples (including quality control samples) were collected and analyzed for dioxin and HCH analysis in October and November, 1999. The samples were collected from the river, wetlands, ponds and residential-use areas. In addition to dioxin analysis, approximately 200 soil and sediment samples and over 40 surface water samples were analyzed for VOCs, SVOCs, pesticides/PCBs, and metals. Other analyses, such as grain size and TOC, were performed on over 50 sediment samples. In all

61 residential tax lots and/or adjacent areas along Woonasquatucket River were accessed and sampled during this effort.

- A pilot tree swallow study was conducted in Spring 2000 with nest boxes being set up in the Allendale Pond Area and in the Greystone Mill Pond, one of the upstream reference areas for the ecological risk assessment. Biota analysis is currently being performed by EPA contractors under an Inter-Agency Agreement with the Army Corps of Engineers and an ecological risk assessment is being planned.
- Field activities for the source area and groundwater investigation commenced in December 2000 and are planned to continue through the Spring and Summer 2001.
- The community relations activities continued, including MAC meetings and regular publications of fact sheets and press releases.

Please refer to the EE/CA Administrative Record for additional information.

C. State and Local Authorities' Roles

From 1970 to 1986, the Rhode Island Department of Environmental Management (RIDEM) conducted or supervised several investigations at the Centredale Manor property. About 300-400 drums were eventually inventoried at the property. Approximately 30 drums contained chemical residue which was tested, and at least eight drums were found to contain hazardous chemicals which required disposal as hazardous waste; the remaining empty drums were crushed and disposed off-site as non-hazardous. Legible drum labels and visual inspection of residual materials indicated that caustics, halogenated solvents, paint residuals, PCBs, and ink wastes may have been contained in the drums.

The Management Action Committee (MAC) was formed in January 1999 and includes representatives from EPA, RIDEM, RIDOH, ATSDR, Office of the Governor of Rhode Island, Office of North Providence Mayor, Offices of other federal and state elected officials, the Providence Urban River Team, and others. The MAC serves as an important forum for community involvement at the Site. The MAC meets either weekly or bi-weekly for site progress updates and to discuss upcoming site activities. As a team, the MAC has reviewed and provided comments to fact sheets, press releases and sampling plans. Through the MAC, EPA has disseminated to the affected community site specific information regarding the on-going field activities and planned future actions.

This Site was proposed for listing on the National Priorities List (NPL) on October 22, 1999, with the concurrence of the Governor of Rhode Island and with endorsement by the local officials.

RIDEM actively participates in planning and review of the technical documents for the EPA Remedial Activities but has limited resources to implement any removal/remedial activities..

III. Threats to Public Health or Welfare or the Environment

A. Threats to the Public Health or Welfare

1. Contaminants of Potential Concern

This section contains brief summaries of the toxicological profiles for the major Contaminants of Potential Concern (COPCs), including the single Contaminant of Concern (COC) at the Site, 2,3,7,8-TCDD.

The following chemicals were identified as COPCs based on a comparison of maximum site concentrations to risk-based COPC screening levels for residential land use:

- Dioxins
- PCBs/Polychlorinated Biphenyls (including Aroclors 1242 and 1254)
- Polyaromatic Hydrocarbons/PAHs (including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k) fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene)
- Metals (including antimony, arsenic, chromium, lead, and manganese)

Dioxins

The term "dioxin" refers to a group of 30 chemical compounds that share chemical structure and similar biological mechanisms of action. These compounds are members of three closely related families of chemicals: the chlorinated dibenzo-p-dioxins (CDDs), chlorinated dibenzofurans (CDFs), and certain polychlorinated biphenyls (PCBs). The most studied and one of the most toxic dioxins is 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). Dioxins are produced through combustion, chlorine bleaching of pulp and paper, certain types of chemical manufacturing and processing, and other industrial

processes. PCBs were widely used as coolants and lubricants in electrical equipment before their manufacture in the United States was ended in 1977.

Dioxins are potent animal toxicants with a potential to produce a broad spectrum of adverse effects in humans. Dioxins can alter the fundamental growth and development of cells in ways that have the potential to lead to many kinds of impacts, including adverse effects upon reproduction and development; suppression of the immune system; chloracne (a severe acne-like condition that sometimes persists for many years); and cancer. EPA characterizes TCDD as a "human carcinogen" based on evidence of animal and human studies and characterizes other dioxins as "likely human carcinogens". Dioxins are highly persistent in the environment and can accumulate in the tissues of animals.

PCBs/Polychlorinated Biphenyls/Aroclors

PCBs are a group of synthetic organic chemicals that contain 209 individual compounds (known as congeners). Mixtures of PCBs, or Aroclors, were manufactured for use in industry until 1977. EPA considers PCBs to be a probable human carcinogen based on evidence of the ability of PCBs to cause cancer in animal studies. Data on humans exposed to PCBs suggest an association between PCB exposure and human cancer, but lack of data on exposure dose, length of exposure, types of PCBs and other chemicals people were exposed to precludes identification of a cause and effect relationship based only on human studies. Studies in animals have also demonstrated immunological, reproductive, and neurological effects from PCB exposure. Studies in mice, monkeys, guinea pigs, and rabbits have shown PCBs to be immunosuppressive.

Polyaromatic Hydrocarbons/PAHs

PAHs are a large class of ubiquitous natural and anthropogenic chemicals, all with similar chemical structures. The compounds in this class are highly lipophilic and therefore are readily absorbed across GI and respiratory epithelia and become distributed widely in the tissues of treated animals, primarily to tissues high in fat. Although epidemiology studies suggested that complex mixtures that contain PAHs (coal tar, soots, coke oven emissions, cigarette smoke) are carcinogenic to humans, the carcinogenicity cannot be attributed to PAHs alone because of the presence of other potentially carcinogenic substances in these mixtures.

Benzo(a)anthracene, benzo(a)pyrene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene are classified in Group B2 (probable human carcinogens with sufficient evidence from animal studies). Benzo(a)pyrene is the most extensively studied member of the class, inducing tumors in multiple tissues of virtually all laboratory species tested by all routes

of exposure. Assignment of other individual PAHs to EPA cancer weight-of-evidence groups was based largely on the results of animal studies with large doses of purified compound. The EPA provides a slope factor for oral exposure to benzo(a)pyrene based on several dietary studies in mice and rats. Neither verified nor provisional quantitative risk estimates are available for the other PAHs in Group B2. A Relative Potency Factor (RPF) scheme for the Group B2 PAHs is based on the induction of lung epidermoid carcinomas in rats in the lung-implantation experiments. This scheme is used to convert concentrations of carcinogenic PAHs to benzo(a)pyrene equivalents or to adjust the benzo(a)pyrene slope factor to yield slope factors for each of the other Group B2 PAHs.

Oral noncancer toxicity data are available for acenaphthene, anthracene, fluoranthene, fluorene, and naphthalene. Adverse effects resulting from human exposures to these noncarcinogenic PAHs include hemolytic anemia with associated jaundice and occasionally renal disease. Animal studies, using high doses of naphthalene, resulted in reduced the growth rates.

Metals

Lead

Unborn children and young children are particularly sensitive to the adverse effects of exposure to lead. Exposure to a fetus through its' mother may cause premature births, lower birth weight, and decreased mental ability of the infant. Lead exposure is dangerous for young children because they absorb lead at a greater rate than adults, retain more of the lead they ingest, and are more sensitive to its effects. Effects include decreased intelligence and decreased growth. EPA has classified lead as a B2 carcinogen based on the results of animal studies.

Arsenic

Inorganic arsenic is a human poison. Organic arsenic is less harmful. High levels of inorganic arsenic in food or water can be fatal. Arsenic damages many tissues including nerves, stomach and intestines, and skin. Breathing high levels can give you a sore throat and irritated lungs. Lower levels of exposure to inorganic arsenic may cause nausea, vomiting, diarrhea, decreased production of red and white blood cells, abnormal heart rhythm, blood vessel damage, and a "pins and needles" sensation in hands and feet.

Long term exposure to inorganic arsenic may lead to a darkening of the skin and the appearance of small "corns" or "warts" on the palms, soles, and torso. Direct skin contact may cause redness and swelling.

The Department of Health and Human Services (DHHS) has determined that arsenic is a known carcinogen. Breathing inorganic arsenic increases the risk of lung cancer. Ingesting inorganic arsenic increases the risk of skin cancer and tumors of the bladder, kidney, liver, and lung.

Chromium

Animal studies show that Cr(VI) is generally more toxic than Cr(III), but neither oxidation state is very toxic by the oral route. The respiratory and dermal toxicity of chromium are well-documented. Compounds of both Cr(VI) and Cr(III) have induced developmental effects in experimental animals that include neural tube defects, malformations, and fetal deaths.

The inhalation of chromium compounds has been associated with the development of cancer in workers in the chromate industry. The relative risk for developing lung cancer has been calculated to be as much as 30 times that of study controls. There is also evidence for an increased risk of developing nasal, pharyngeal, and gastrointestinal carcinomas. Based on sufficient evidence for humans and animals, Cr (VI) has been placed in the EPA weight-of-evidence classification A, human carcinogen.

Manganese

Manganese is an essential trace element in humans that can elicit a variety of serious toxic responses upon prolonged exposure to elevated concentrations either orally or by inhalation. The central nervous system is the primary target. Initial symptoms are headache, insomnia, disorientation, anxiety, lethargy, and memory loss. These symptoms progress with continued exposure and eventually include motor disturbances, tremors, and difficulty in walking, symptoms similar to those seen with Parkinsonism. These motor difficulties are often irreversible.

Effects on reproduction (decreased fertility, impotence) have been observed in humans with inhalation exposure and in animals with oral exposure at the same or similar doses that initiate the central nervous system effects. An increased incidence of coughs, colds, dyspnea during exercise, bronchitis, and altered lung ventilatory parameters have also been seen in humans and animals with inhalation exposure.

2. Contaminant of Concern

Based on evaluation of the data collected and the risk screening evaluations performed, 2,3,7,8-TCDD was selected as the single Contaminant of Concern for the NTCRA. Other site-related contaminants contributing to elevated risk were found to be co-located with

exposure areas where elevated levels of dioxin were found. NTCRA focused on dioxin will result in a large risk reduction at the Site.

3. National Contingency Plan

Section 300.415(b) of the National Contingency Plan (NCP) provides that EPA may conduct a removal action when it determines that there is a **threat to human health** or welfare or the environment based on one or more of the eight factors listed in 300.415(b)(2) of the NCP. The following factors listed below are present at this Site:

1. "Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;" [300.415(b)(2)(i)].

With regard to actual or potential exposure to nearby human populations, EPA has documented elevated levels of contaminants including dioxin and PCBs in numerous areas at the Site which could result in human exposure. First, elevated levels of dioxin have been found in surface soils and sediments at properties subject to residential and recreational use along the floodplain of the Woonasquatucket River.

Elevated levels of dioxin in surface soil include levels above 1 ppb. EPA has recommended that 1 ppb (TEQs, or toxicity equivalent) be used as a starting point for residential soil cleanup level for CERCLA non-time critical removal sites and as a preliminary remediation goal (PRG) for remedial sites (Approach for Addressing Dioxin on Soil at CERCLA and RCRA Sites, OSWER Directive 9200.4-26, April 13, 1998). Based on this guidance, 1 ppb of dioxins (as 2,3,7,8-TCDD) has been established as the PRG for the Site for situations involving residential exposure scenario. For the areas evaluated for the NTCRA, the criteria of 1 ppb is used for residential and recreational areas where cancer risk was estimated to exceed 1×10^{-4} and non-cancer risk was estimated to exceed 1.0.

The EE/CA evaluated exposure to floodplain sediments and soils for current and future residential and recreational receptors along the Woonasquatucket River between the Centredale Manor property and Lymanville Dam. Possible exposures of residents to site-related contaminants would be through play and yard work near their homes. Possible exposures of recreational users would be through activities such as walking, or exploring the edges of the ponds and river. Assumptions used in exposure assessment for each scenario is described in detail in the EE/CA. Dermal and accidental ingestion exposures were considered for both, child and adult. Thirty-two different residential exposure areas and four recreational exposure areas were evaluated and carcinogenic and non-carcinogenic risk was calculated within each exposure area. The streamlined risk evaluation set a target cancer risk equal to or greater than one in ten thousand, or 1×10^{-4} ,

and a target noncancer risk hazard index (HI) equal or greater than 1 was used as an indicator of unacceptable risk.

Elevated levels of numerous hazardous substances have been found in surface soils at the residential-use areas and in areas used by recreational users of the River. EPA's time critical removal activities included placing a fence between houses and known areas of contamination at primarily residential parcels. However, the residential parcels were not fully evaluated at the time of the fence construction. Also, a fence is clearly a temporary measure.

EPA's time critical removal activities included placing fences and interim caps in the areas of surface soil contamination. However, the fences are clearly temporary measures and the caps are interim and will ultimately fail if no further action is taken where they are located. Contamination was found in Woonasquatucket River sediments between Route 44 and a point just below the Allendale Dam. The Woonasquatucket River becomes relatively shallow approximately 2,000 feet south of Route 44, in an area known as the Allendale Pond. Due to a 1991 breach of the Allendale Dam, the sediments in this portion of the river are readily accessible to neighborhood children who have been known to play in the area. Finally, data from the initial RI activities indicate that there are elevated levels of contaminants entering the Woonasquatucket River itself. The River is used by recreational boaters and wading fishermen. It is possible that these boaters and fishermen could come in contact with surface water contamination while in the Site area.

For additional information see EE/CA, Appendix B, Streamlined Human Health Risk Evaluation.

2. "High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate;" [300.415(b)(2)(iii)].

High levels of hazardous substances have been found in soils largely at or near the surface of the Site. These soils are in areas subject to erosion by the Woonasquatucket River as well as periodic flooding. Erosion and flooding appear to have caused the contaminated soil to migrate, since elevated levels of hazardous substances have been found in Woonasquatucket River sediments located in the downstream portion of the Site, including below the Allendale Dam.

3. "Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;" [§300.415(b)(2)(v)].

The land portions of the Site are located in the floodplain and have been frequently flooded during high river stage. These weather conditions have caused and will continue

to cause the migration of contaminated soil at the Site (particularly from those areas which are not covered by an interim cap) into the Woonasquatucket River and the migration of contaminated sediments further downstream. Allendale Dam, the first flood control structure downstream from 2072 and 2074 Smith Street (approximately 3,100 feet), was breached in November of 1991 and its condition is continuing to deteriorate. This is causing the release of contaminated sediment into downstream reaches of the river, particularly during flood events.

4. *"The availability of other appropriate federal or state response mechanisms to respond to the release;" [§300.415(b)(2)(vii)].*

There are no other known federal or state funds or response mechanisms available to finance this action.

IV. Endangerment Determination

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Action Memorandum, may continue to present an imminent and substantial endangerment to public health, or welfare, or the environment. Federal, state and local agencies are recommending that further immediate response actions be taken to reduce potential exposure.

V. Exemption from Statutory Limits

CERCLA §104(c) states that removal actions can exceed the 12-month and/or the \$2 million statutory limits if conditions meet either the "emergency exemption" criteria or the "consistency exemption" criteria. The consistency exemption requires that the proposed removal be appropriate **and** consistent with the remedial action to be taken. As described below, conditions and proposed actions at the Site meet the criteria for the consistency exemption.

A. Appropriateness

EPA OSWER directive 9360.0-12, "Guidance on Implementation of the Revised Statutory Limits on Removal actions", April 6, 1987, states that an action is appropriate if the activity is necessary for any *one* of the following reasons:

1. To avoid a foreseeable threat;
2. To prevent further migration of contaminants;
3. To use alternatives to land disposal; **or**,
4. To comply with the off-site policy

The removal actions outlined below **do meet criteria one, two and three**. The risk evaluation conducted as part of the EE/CA and summarized in this Action Memorandum demonstrate that contaminants in the soil and sediment cause an increase in risk of cancer and non-cancer health effects to residents living in the affected areas. Removal of the contaminated soil and sediment where exposure to contaminants is likely to occur will reduce the risk of these health effects.

Restoration of the Allendale Dam will reduce the migration of contaminated sediment and greatly reduce the threat of increased contamination of the downstream reaches of the river, including the abutting residential properties located in the floodplain of the River.

The removal action is also appropriate because the dioxin-contaminated soil and sediment will be incinerated, not disposed of in a landfill.

B. Consistency

This Site is on the National Priorities List (NPL). The completed time-critical removal action and this NTCRA have been coordinated by the Removal and the Remedial Programs and are likely to enhance the effectiveness of any possible remedial action. The removal action does not foreclose the planned remedial action and will not interfere with likely remedial alternatives to address soil, sediment and ground water contamination. The removal action will reduce the risk of adverse health effects to nearby residents and minimize migration of contaminants by removing all soil and adjacent exposed sediment from residential-use properties that contain dioxin in excess of 1 ppb; destroying the dioxin in that soil in an off-site incinerator; and restoring the Allendale Dam and returning Allendale Pond to its original elevation.

VI. Proposed Actions and Estimated Costs

A. Proposed Actions

Different technologies were evaluated in the EE/CA for their use and practicality for addressing the contaminants in the sediment and soils. Those that were determined to be likely to work were assembled into four possible removal alternatives. These alternatives were evaluated with regard to implementability, effectiveness, and cost. The elements of the alternatives evaluated included covering the soils in place, removing the soils and replacing them with clean soils, while either restoring the Allendale Dam and Pond or leaving it in its current state.

Costs for these alternatives ranged from \$1.6 million to over \$13 million, depending on the extent of action areas exposed by the currently receded waters of Allendale Pond.

Based on the EE/CA and the comments received during the public comment period, one of the alternatives (Alternative No. 3) was selected based on its effectiveness, implementability and cost. This alternative includes:

- a) removing all soil and adjacent sediment from residential-use properties that contains dioxin in excess of 1 ppb,
- b) replacing that soil with clean fill and loam placed to fit the existing grade,
- c) destroying the dioxin in that soil through controlled incineration at an off-site location, and
- d) restoring the Allendale Dam, and returning the Allendale Pond water level to its original elevation.

It is estimated that this Removal Action will require excavation of an aerial extent of approximately 17,500 sq. ft. of soil and sediments on residential use properties, with total volume of approximately 1,300 cu. yd., with additional estimated 1,100 cu. yd. of soil and sediments to be removed for the Allendale Dam restoration. This Removal Action is estimated to cost approximately \$2.6 million and will require almost one year to complete.

1. Proposed Action Description

The Removal Action includes excavation of impacted residential use soils and flood plain sediments and restoration of Allendale Dam. For additional information, please refer to EE/CA, Sections 3 and 4. Action areas under this alternative are presented in Figures 3-1 and 3-2 of the EE/CA and Figures 2 through 7 of the Action Memorandum. The key features of Alternative 3 are identified on Figure 3-8 of the EE/CA. A conceptual cross section of the Site under this alternative is depicted in Figure 3-9 of the EE/CA.

Pre-excavation sampling and analysis will be conducted to further establish horizontal and vertical delineation of contaminated areas where Removal Action is required. In addition, performance monitoring during the excavation program; and post-excavation confirmatory investigation will also be required to confirm that objectives of the Removal Action has been met.

Upon reconstruction of the Allendale Dam and re-establishment of the Allendale pond, a surveying and evaluation program of the excavated areas and established water levels in the Allendale Pond will be conducted to confirm that upon reconstruction of the Allendale Dam, no areas which were identified to exceed the dioxin level of 1 ppb remain under less than one (1.0) foot of water. If such areas

are found, a program will be implemented for additional excavation to meet objectives of the Removal Action.

The required investigations will be documented in the design and construction documents to be produced during implementation of the Removal Action. The overall scope of the work has not been significantly changed as a result of the public comment period. Several modifications has been added, however, including a requirement to have a provision in the construction of the Allendale Dam for future fish ladders and removal of the trees and shrubs within the Allendale Pond area to be inundated.

Key components of the Removal Action will include the following general steps:

Pre-Design and Design Steps:

- conduct sampling and immunoassay screening analysis with the appropriate percentage of samples to be analyzed by the fixed laboratory, to better define work areas where dioxin levels are greater than 1 ppb,
- finalize design drawings and specifications for restoration of Allendale Dam,
- define extent of sediments and soils containing dioxin concentrations greater than 1 ppb within the dam restoration work area,
- prepare design drawings and specifications and conduct necessary community relations activities.

Site Preparation:

- mobilize required equipment, materials, and support facilities,
- survey the work areas and areas to be inundated after restoration of Allendale Dam,
- clear and grub appropriate work areas, cut trees and shrubs within the areas to be submerged by higher water levels of Allendale Pond and trees from the Dam berm area,
- dismantle fence around work areas as needed,
- improve access to work areas as needed,
- establish erosion and sediment controls,
- provide dewatering of work areas as needed.

Excavation/Site Work:

- excavate impacted residential use soils and sediments using a combination of efforts, including hand-labor and heavy equipment (estimated depth of excavation is approximately two feet),
- perform confirmatory sampling and screening at the side and bottom of excavation to demonstrate that dioxin levels of 1 ppb have been met,
- backfill, place topsoil, and compact excavated areas,
- transport and dispose of excavated material, staging at central areas as necessary,
- Following restoration of historic water level in Allendale Pond, survey the areas to verify that areas of aquatic sediments with dioxin levels greater than 1 ppb are submerged under at least one foot of water; remove impacted sediments in the areas meeting the criteria for removal.

Restore Allendale Dam:

- install a temporary cofferdam structure,
- excavate soil and sediment from Dam work area and associated raceway as necessary,
- rebuild Dam according to drawings and specifications, including a provision for installation of fish ladders,
- install flood control structure and improve raceway gate, including water level controls for the Allendale Pond,
- remove temporary cofferdam structure and restore work area,
- provide restoration of disturbed areas, including wetlands mitigation,
- transport and dispose of excavated material.

Site Restoration:

- grade and hydroseed disturbed areas, install erosion controls as required,
- replace damaged or lost landscaping features as required,
- replace damaged or lost fencing as needed.

Post-Removal Site Controls:

- Inspect and repair backfilled areas, erosion controls and slope reinforcements on at least an annual basis for 30 years,
- maintain flood gate in working condition,
- Establish institutional controls for the structure of Allendale Dam.

Restoring Allendale Dam will reduce downstream migration of contaminated sediments and prevent a potential massive release of such sediments should the existing Dam fail completely. Excavation and off-site incineration of residential use soils and flood plain sediments will permanently eliminate human exposure to these soils and sediments.

Excavated soil or sediment which are found to be contaminated will be incinerated off-site, thus eliminating the contaminants and therefore the volume of contaminated material and satisfying the statutory preference for treatment

Implementation of the Removal Action is expected to have limited short-term impacts to the local community, workers, and the environment. Measures will be taken to ensure containment of any material removed from the dam site and excavation areas which is expected or found to be contaminated. These materials will be placed in sealed roll-off soil containers. Erosion controls, such as silt fence and haybales, will be installed in work areas bordering the Woonasquatucket River or associated ponds to prevent discharges of sediment or foreign materials into these water bodies. Releases of dust will be controlled by employing water sprayers or similar controls. Workers will be protected by wearing personal protective equipment.

An increase in heavy vehicle (dump trucks, flatbeds, etc.) traffic into and out of the work areas is expected along Woonasquatucket Avenue and Route 44 during the response. An increase in noise levels during construction is also expected. Efforts will be made to minimize the potential impact to the local community by working during regular hours and coordinating with the nearby residents.

Work under this Removal Action is expected to be readily implementable. Common construction techniques and services are expected to be used.

Contaminated soil and sediments from excavation operations will be treated and disposed of using off-site incineration for the maximum treatment of the waste material. Providers of off-site treatment and disposal services for dioxin-containing wastes are limited. Facilities, however, have been identified which are capable and are willing to provide this service, such as Bennett Environmental in Quebec, Canada. These vendors have provided price quotes which were used in the cost estimate for the Removal Action. Capacity at these facilities is expected to remain available well into the future.

Institutional controls will be used at the restored Dam in order to prevent another dam breach and the potential movement of contaminated sediments downstream.

Specifically, EPA expects that a negative easement restricting alteration of the Dam will be obtained from the owner of the Dam and enforced by the holder of the easement until such time as the Dam is no longer considered by EPA to be necessary for meeting response action objectives at the Site.

Post-removal site Controls will include maintenance of the Dam to assure a buildup of debris at the spillway does not occur and cause undue stress to the structure. The flood gate will also need to be maintained in working condition.

The Removal Action, including the Post-Removal Site Controls (PRSCs) are expected to be performed by Potentially Responsible Parties. Should implementation of the Removal Action become fund-lead, EPA expects to obtain a commitment from the State of Rhode Island to perform the PRSCs.

2. Contribution to Remedial Performance

The removal action objectives at the Site contribute to the remedial action expected to be performed at the Site and include the following:

- Prevent migration of contaminated sediments to downstream areas,
- Eliminate or reduce the risk of human exposure to flood plain sediments containing concentrations of dioxin in excess of removal action goals (1 ppb), and
- Eliminate or reduce the risk of human exposure to residential use soils containing concentrations of dioxin in excess of removal action goals (1 ppb).

The Removal Action will meet these objectives by removing contaminated soils and sediments in the residential use areas, and by restoring Allendale Dam to reduce the potential for contaminant migration. With proper maintenance, the dam is expected to last 75 to 100 years or more. The Removal Action is supportive of a long-term remedial solution to contamination at the Site by reducing the volume of contaminated material present and by preventing further contaminant migration. The restored Dam will also be equipped with a flow control structure that would allow for draining or lowering water levels in the Pond should the need for access to pond sediments develop in the future. "Do's and Don't's for the Woonasquatucket River" will remain in place and will continue to be applied throughout this Removal Action and on-going evaluations for the long-term remedial actions. This includes no swimming, wading, bathing, playing, or drinking the water in the River along with not eating anything you may find in the River, including fish, eels, turtles, or other animals and plants.

No additional remedial activities are expected to be performed in the areas of the Site that are the subject of this Action Memorandum. These areas are shown on Figures 3-1 and 3-2 of the EE/CA and Figures 2 through 6 of the Action Memorandum and are generally defined as the following areas where dioxin concentrations in soil and sediment exceed 1 ppb:

- flood plain sediments in Allendale Pond between elevations of 92.5 and 93.5 feet,
- flood plain sediments in Lymansville Pond between the existing shoreline and into the pond to a depth of one foot of water,
- residential use soils between elevation 93.5 feet and the 10 year flood elevation along the eastern shoreline of the Allendale Reach of the Woonasquatucket River, and
- residential use soils along the eastern shoreline of the Lymansville Reach of the Woonasquatucket River.

Restoring Allendale Dam will control migration of contaminated sediments beyond Allendale Pond, potentially minimizing the required extent of future remedial activities in the downstream areas. Restoration of the Dam will include replacement of the spillway and improvement of the flow control structure. These restoration activities will add controls for water levels in Allendale Pond which will enhance the effectiveness of any future remedial actions in the that area.

EPA plans to complete a Remedial Investigation/Feasibility Study (RI/FS) which will evaluate the need for, and the extent of, remedial actions for the main area of the Site and any other area along the River to which contamination from the main area of the Site may have come to be located.

3. Description of Alternative Technologies and Actions

In accordance with Section 3.0 of the EE/CA - Development of Removal Action Alternatives and Section 4.0 of the EE/CA - Analysis of Alternatives, a number of alternatives appropriate for addressing the removal action objectives were screened, identified and assessed. Three of the four alternatives to survive the screening process involved excavation of contaminated material. Two land disposal options were considered for the contaminated material to be excavated:

- consolidation and capping at protected area on-site
- stabilization and disposal at an off-site hazardous materials landfill

One alternative to land disposal for the contaminated material to be excavated was identified as being potentially able to achieve the removal action objectives and was screened during the development of the EE/CA Report:

- off-site treatment and disposal at a hazardous material incineration facility

This disposal option was incorporated into the three alternatives involving excavation of contaminated material, which were evaluated based on effectiveness, implementability, and cost:

Alternative 1 - Cap Impacted Residential Use Soils and Floodplain Sediments and Restore Allendale Dam

Alternative 1 features installation of low permeability cap over impacted residential use soils and floodplain sediments present between elevation 92.5 and 96 feet in Allendale Pond, capping small areas along Lymanville Pond, and restoration of Allendale Dam. Three disposal options for contaminated material to be excavated as necessary to facilitate restoration of the Dam were considered: (1) consolidation and capping at protected area on-site; (2) disposal at an off-site hazardous materials landfill; and; (3) off-site treatment and disposal at a hazardous material incineration facility. As for effectiveness, the EE/CA states that using Disposal Option 2 would result in decreased toxicity and mobility of the contaminants. Disposal Option 3 would eliminate contaminants and therefore the volume of contaminated material. Disposal Option 3 would also satisfy the statutory preference for treatment. As for implementability, the EE/CA indicates that Alternative 1 is readily implementable under any of the Disposal Options. Facilities with large capacities have been identified in relation to Disposal Options 2 and 3, although the facilities identified are located outside of the United States, which may result in some administrative difficulties. As for costs, Alternative 1 will total \$1,657,507 for Disposal Option 1, \$1,741,672 for Disposal Option 2, and \$1,790,722 for Disposal Option 3.

Alternative 3 - Excavate Impacted Residential Use Soils and Floodplain Sediments, Restore Dam

Alternative 3 features excavation of impacted residential use soils and floodplain sediments present between elevation 92.5 and 96 feet in Allendale Pond, small areas along Lymanville Pond, and restoration of Allendale Dam. As with Alternative 1, three disposal options for contaminated material were considered: (1) consolidation and capping at protected area on-site; (2) disposal at an off-site hazardous materials landfill; and; (3) off-site treatment and disposal at a

hazardous material incineration facility. The Alternative 3 analyses of effectiveness, implementability and cost are analogous to Alternatives 1, but involve disposal of excavated contaminated material from impacted areas in addition to material excavated in a vicinity of the Dam. As for costs, Alternative 3 will total \$1,816,743 for Disposal Option 1, \$2,296,384 for Disposal Option 2, and \$2,575,910 for Disposal Option 3.

Alternative 4 - Excavate Impacted Residential Use Soils and Floodplain Sediments

Alternative 4 features excavation of impacted residential use soils and floodplain sediments present between elevation 90 and 96 feet in Allendale Pond and small portions of Lymanville Pond. As with Alternatives 1 and 3, three disposal options were considered: (1) consolidation and capping at protected area on-site; (2) disposal at an off-site hazardous materials landfill; and (3) off-site treatment and disposal at a hazardous material incineration facility. The Alternative 4 analyses of effectiveness, implementability and cost are virtually identical to Alternatives 1 and 3, but involve larger volumes of impacted soil and floodplain sediments to be excavated and disposed off. Costs differ as follows: Alternative 4 will total \$4,480,170 for Disposal Option 1, \$10,283,524 for Disposal Option 2, and \$13,665,611 for Disposal Option 3.

Alternative 3 with Disposal Option 3 was selected for the reasons detailed in Sections 4.3 and 4.4 of the EE/CA.

4. Engineering Evaluation/Cost Analysis ("EE/CA") or Equivalent

Section 300.415(b)(4) of the NCP states that whenever a planning period of six months exists before on-site activities must be initiated, and the lead agency determines a removal action is appropriate, the lead agency shall conduct an EE/CA or its equivalent. EPA issued the EE/CA report in September 2000 and held a public comment period from October 3, 2000 to December 4, 2000, following the request for a 30-day extension. During the public comment period EPA held a public meeting on October 10, 2000, to present the EE/CA, and a hearing on November 1, 2000, to accept public comments.

The Management Action Committee, including representatives from RIDEM, has been apprised by EPA about the pending NTCRA and the range of removal alternatives being considered in the EE/CA. The State and the community have provided comments on the EE/CA, expressing general acceptance of the recommended Alternative.

EE/CA Report and written responses to comments received on the EE/CA are included in the Administrative Record for the NTCRA.

5. Applicable or Relevant and Appropriate Requirements (ARARs)

The Removal Action will attain all applicable or relevant and appropriate federal and state requirements (ARARs) that apply to the Site and this NTCRA. EPA considered and documented these ARARs in Section 4 and Appendix D of the EE/CA. The Removal Action will comply with EPA's Off-Site Rule (40 CFR 300.440).

Statement of Findings Regarding Wetlands and Floodplain

Under 40 CFR Part 6, Appendix A, "Statement of Procedures on Floodplain Management and Wetlands Protection", before undertaking an Agency action, EPA must determine whether or not the action will be located in or affect a wetlands. When it is apparent that a proposed or potential agency action is likely to impact a floodplain or wetland, the public must be informed through appropriate public notice procedures. An assessment must be prepared which describes the proposed action, discusses the effect on the wetlands/floodplain, and describes the alternatives considered.

Once an alternative is selected (in this instance, at the Action Memorandum stage, after public comment on the EE/CA), the Agency must make public a Statement of Findings which includes (a) why the action must be located in or affect the floodplain or wetlands; (b) a description of significant facts considered in making the decision to locate in or affect the floodplain or wetlands including alternative sites and actions; (c) a statement indicating whether the proposed action conforms to applicable State or local floodplain protection standards; (d) a description of the steps taken to design or modify the proposed action to minimize potential harm to minimize potential harm to or within the floodplain or wetlands; (e) a statement indicating how the proposed action affects the natural or beneficial values of the floodplain or wetlands.

a. why the action must be located in or affect the floodplain or wetlands;

This action must be located in floodplain and wetland areas because that is where the contaminants are located.

b. a description of significant facts considered in making the decision to locate in or affect the floodplain or wetlands including alternative sites and actions;

As stated above, this action must be located in floodplain and wetland areas because that is where the contaminants are located.

c. a statement indicating whether the proposed action conforms to applicable State or local floodplain protection standards;

There are both floodplain- and wetland- related ARARs listed in table 2B, attached to this Action Memorandum. These ARARs will be complied with to the extent practicable.

d. a description of the steps taken to design or modify the proposed action to minimize potential harm to or within the floodplain or wetlands;

Although excavation will temporarily disturb certain wetland and floodplain areas at the Site, once excavation is completed the affected area can be regraded and replanted to the extent practicable. It is believed that if the Dam is not restored, further contamination of the downstream floodplain will occur. Once the Allendale Dam is restored, it will be relatively simple to adjust the water level in Allendale Pond in order to help minimize potential harm to or within the floodplain or wetlands during flood events. Additionally, EPA expects that when compiling more specific design documents for this remedy, all practicable steps will be taken to minimize potential harm to or within the floodplain or wetlands, including wetland restoration activities and flood prevention planning activities.

e. a statement indicating how the proposed action affects the natural or beneficial values of the floodplain or wetlands

See Section VI.A.5.d. above.

6. Project Schedule

Pre-design and design work is expected to be completed six months from the date this Action Memorandum is approved. Excavation work is estimated to be completed in approximately 3 months, whereas the Dam will take approximately 6 months to re-build. Since work on these tasks may proceed simultaneously, the total on-site time to complete construction is expected to be approximately 6

months. Because of winter weather conditions and spring flooding conditions that could impede the construction process, up to an additional 3 months may be required.

EPA intends to offer the Potentially Responsible Parties the opportunity to implement the NTCRA. EPA plans to have a limited time frame to negotiate such agreement in order to start pre-design and design work in Spring of 2001, and the field activities in Summer of 2001.

B. Estimated Costs

The estimated present worth cost for the Removal Action, as presented in Section 4 of the EE/CA Report, is estimated at \$2,575,910. This present worth cost includes the estimated contractor costs plus a markup for construction contingency (10%), engineering design (6%), construction management and support (5%), and \$25,685 of present worth costs of 30 years of Post-Removal Site Controls.

In accordance with EPA's Action Memorandum Guidance Document (OSWER Directive 9360.3-01), EPA is required to calculate a "Project Ceiling Cost" to represent an estimated maximum project cost that cannot be exceeded without further management approval. The Project Ceiling Cost is calculated as follows:

PREVIOUS REMOVAL PROJECT CEILING	\$3.95 million
<u>Extramural costs:</u>	
<u>Regional Allowances*</u>	\$2.63 million
Extramural Costs Contingency (20% of Extramural Costs)	\$ 0.52 million
TOTAL PROPOSED EXTRAMURAL COSTS	\$3.15 million
<u>Intramural Costs:</u>	
Intramural Direct Costs:	\$0.20 million
Indirect Cost Rate**: (27.02% of extramural plus intramural direct costs)	\$0.91 million
TOTAL PROPOSED INTRAMURAL COSTS	\$1.11 million
TOTAL REMOVAL PROJECT CEILING	\$8.21 million

* Regional Allowances of \$2.63 million are calculated for the Removal Action to be performed in a year 2001, by applying a 3% annual increase of construction costs of \$2.55 million calculated in the EE/CA report for the year 2000.

** Indirect costs are costs that support the Superfund program as a whole and cannot be identified to any one site. *EPA Comptroller Policy Announcement No. 00-05*, May 26, 2000. Direct costs are costs incurred for site-specific activities at a particular site, such as costs for the assessment, investigation, and clean-up of a site. *Id.* Pursuant to guidance, the government allocates a portion of its indirect costs to the direct costs at each site. *Id.* The indirect costs in the Project Ceiling Cost are calculated pursuant to the *Guidance on Exercising CERCLA Enforcement Discretion in Anticipation of Full Cost Accounting Consistent with the Statement of Federal Financial Accounting Standards No. 4*, May 26, 2000. EPA used an estimate of 27.02% for the indirect cost rate based upon the indirect cost rate for FY 1999. The actual indirect cost rate for FY 2000 and beyond could change based upon subsequent indirect cost calculations. See *id.* and Memorandum: *Superfund Indirect Cost Rates for Fiscal Years 1990-2001*.

Although this is a removal action, EPA guidance for estimating costs for remedial actions suggests that the present worth cost estimate should reflect an accuracy of +50 percent to -30 percent. See *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*, October 1988, OSWER 9355.3-01, pg. 6-12. Since an EE/CA is similar to a remedial investigation/feasibility study, the estimated present worth cost of the Removal Action of \$2.63 million represents an expected cost range of between \$3.95 million to \$1.84 million. The extramural cost of \$3.15 million falls well within the upper range calculated for the present worth cost.

For additional information on the costs breakdown and assumptions used in the extramural cost estimate, please refer to Appendix F of the EE/CA.

VII. Expected Change in the Situation Should Action be Delayed or Not Taken

Delayed or no action will increase the human health and environmental risks by allowing for: (1) the continuation of direct contact, ingestion, and adsorption of dioxin and other hazardous substances by residents and recreational users of the Woonasquatucket River and its floodplain from the source area to an area just below the Lymanville Dam; and (2) the continued migration of sediment contaminated with dioxin and other hazardous substances past the breached Allendale Dam.

In its current state, Allendale Dam has the potential to fail completely. Under a worst-case scenario, complete failure of the dam would result in a one-time catastrophic release of contaminated sediment from Allendale Pond to downstream reaches of the Woonasquatucket River, including Lymanville Pond. Restoring the dam prior to such an event is crucial to

prevent the potential for a large scale release of contaminants from Allendale Pond to downstream areas.

Restoration of Allendale Dam is therefore a critical element for other response actions to be taken at the Site. Restoration of Allendale Dam would help prevent and control transport of contaminated aquatic sediments into lower reaches of the Woonasquatucket River.

VIII. Outstanding Policy Issues

A. Dredging Considerations

The FY 2001 VA HUD Appropriation Conference Report, which accompanied EPA's FY 2001 appropriations, includes the following language regarding EPA's use of dredging:

"The conferees remain concerned regarding the Agency's plans to conduct certain dredging or invasive remediation technology activities while these matters remain under study by the National Academy of Sciences (NAS). The pending NAS study is addressing dredging, capping, source control, natural recovery, and disposal of contaminated sediments, and is comparing the risks of each technology. The NAS expects to submit its draft report of this study during Fall 2000 and the conferees strongly encourage the NAS to issue a final report no later than January 2001. Accordingly, the conferees continue to direct the EPA to take no action to initiate or order the use of dredging or invasive remedial technologies where a final plan has not been adopted prior to October 1, 2000 or where such activities are not now occurring until the NAS report has been completed and its findings have been properly considered by the Agency. As in previous years, exceptions are provided for voluntary agreements and for urgent cases where contaminated sediment poses a significant threat to public health.

In adopting this direction to the Agency, the conferees do not intend to prevent EPA from publishing, issuing, or taking public comments on specific proposed or draft remediation plans; but do encourage the Agency to take into account the NAS study when available as it goes through the above process. However, any such plans are not to be finalized until June 30, 2001 or until the Agency has properly considered the NAS report, whichever comes first."

It should be noted that a colloquy between Senators Chafee, Levin, Lautenberg and Bond clarified this language somewhat. See Congressional Record - Senate, October 12, 2000. Specifically, this colloquy indicates that the EPA has the discretion to define "threat to public health" and "urgent case" as those terms are applied to the exceptions, and that the

EPA has the discretion to define "properly considered.". Further, the colloquy clarifies that "urgent cases" would include situations in which contaminated sediments cause significant risks to public health such as increase in cancer risks, reproductive effects, or birth defects.

Additionally, EPA interprets this colloquy to mean that after June 30, 2001, or when EPA has properly considered the NAS report, whichever comes first, the conferees intend that EPA could proceed to finalize any such plans and act on those plans through steps to initiate or order dredging and other technologies, as appropriate. Moreover, the colloquy clarifies that a direction to EPA to "properly consider the NAS report", is not a change in the CERCLA remedy selection process, it is not a call for EPA response to the report, and is not a direction to give the report more weight than it would otherwise receive. Rather, officials within the Agency who make remedy selection decisions need to review it as part of the larger body of research on scientific and technical issues associated with hazardous waste cleanup.

Furthermore, the colloquy regarding the Centredale Manor Restoration Project, clarifies that the conference report language on dredging and EPA review of the pending NAS study is not intended to delay progress towards cleaning up contamination at the Site while intending to ensure that EPA considers the findings of the NAS study in selecting remedies involving contaminated sediments.

Although conference report language is not legally binding, EPA has indicated in two memoranda that it intends to generally act in accordance with the views expressed in conference language to the extent possible within the confines of its statutory language. These May 17, 1999 and January 19, 2000, memoranda are included in the Administrative Record. These memoranda were issued following the FY 1999 and the FY 2000 VA HUD Appropriation Conference Reports, which accompanied EPA's FY 1999 and FY 2000 appropriations, and contained similar language. These Reports were considered by EPA in evaluation of removal actions for the Site as discussed in Section 3 of the EE/CA.

EPA is considering the FY 2001 Conference Report language even though the Removal Action consists primarily of dry excavation of former pond bottom areas and not dredging of current river bottom areas.

The National Academy of Sciences dredging study has not yet been issued and the full report is not expected to be available for another couple months. However, on January 5, 2001, the National Academy of Science' National Research Council issued the 15-page Executive Summary to the report entitled *A Risk Management Strategy for PCB-Contaminated Sediments*. Although the Executive Summary is specific to PCB-

contaminated sediments, and therefore is not directly applicable to the Site, EPA's review finds that the Agency's site-specific evaluations presented in the EE/CA report and the decision-making process for this Removal Action are consistent with the fundamental principles in the Executive Summary and the committee's conclusion that "[Because each PCB-contaminated site is unique], the selection of remediation options and a risk management strategy must be based on site-specific factors and risks." EPA hereby determines, consistent with the Conference Report, that this is an urgent case where contaminated sediment poses a significant threat to public health. Specifically, the contaminated sediments subject to this NTCRA are subject to residential and recreational use. As explained in section III.A. of this Action Memorandum and section 1.6 and Appendix B of the EE/CA, the contaminants in the sediments pose a significant risk to public health.

B. Dioxin Reassessment

The EPA Dioxin Reassessment effort began in 1991, when EPA announced that it would conduct a scientific reassessment of the health risks resulting from exposure to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) and chemically similar compounds collectively known as dioxin. The process for developing the Dioxin Reassessment has been open and participatory. Each portion of the reassessment has been developed in collaboration with scientists from inside and outside the Federal Government. In September, 1994, EPA released the public review draft of the Dioxin Reassessment Documents, which included three major reports: Estimating Exposure to Dioxin-Like Compounds, Health Assessment Document for 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) and Related Compounds, and Risk Characterization of 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) and Related Compounds. The September 1994 release of the draft Dioxin Reassessment Documents was followed by a 150-day comment period and 11 public meetings around the country to receive oral and written comments. In addition to this public review each document was reviewed by EPA's Science Advisory Board (SAB). In response to the SAB, public comments, and newly available scientific information EPA has been working to revise and updated the 1994 draft.

On June 12, 2000, EPA released a second draft reassessment, which is entitled *Exposure and Human Health Reassessment of 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD) and Related Compounds*. Based on a more complete understanding of dioxin toxicity, the draft finds that risks to people may be somewhat higher than previously believed. Following completion of the public and scientific review, EPA will issue a final dioxin reassessment document. At the same time, EPA also plans to publish a draft dioxin Risk Management Strategy for public comment. The strategy will propose EPA policy and programs for dioxin using reassessment as its scientific basis.

EPA OSWER Directive 92000.4-26, *Approach for addressing Dioxin in Soil at CERCLA and RCRA Sites*, issued on April 13, 2000, generally recommends 1 ppb (TEQs, or toxicity equivalent) to be used as a starting point for residential soil cleanup level for CERCLA non-time critical removal sites and as a preliminary remediation goal (PRG) for remedial sites, pending release of the final dioxin reassessment document. These recommended levels also apply to sediments in the event that this environmental medium is considered to be a direct exposure pathway for human receptors. Based on this guidance, 1 ppb of dioxins (as 2,3,7,8-TCDD) has been established as the PRG for the Site for situations involving residential use exposure scenario. During development of the human health risk screening in the EE/CA, EPA New England followed the required headquarters consultation procedures for dioxin sites.

It is anticipated that following issuance of the final dioxin reassessment report, OSWER will issue guidance, informed by the reassessment effort, that will provide a basis for the selection of dioxin cleanup levels. In accordance with the 1998 Guidance, EPA intends to review the Action Memorandum promptly following the release and analysis of the reassessment report and OSWER guidance, and, if necessary, to make changes to the Action Memorandum and cleanup actions, based on the information contained in the reassessment report and the OSWER guidance.

For additional information, please refer to EPA Dioxin Information Sheets 1 through 5, dated June 12, 2000, and EPA OSWER Directive 92000.4-26, *Approach for addressing Dioxin in Soil at CERCLA and RCRA Sites*, issued on April 13, 2000, included in the Administrative Record.

IX. Enforcement — Intended for Internal Distribution Only

See attached.

X. Recommendation

This decision document represents the selected non-time critical removal action (NTCRA) for the Centredale Manor Restoration Project Superfund Site in North Providence, Rhode Island. The removal action was developed in accordance with CERCLA, as amended, and is not inconsistent with the National Contingency Plan (NCP). This decision document is based on documents contained in the Administrative Record established for the Site. (See Appendix A for the Administrative Record File Index)

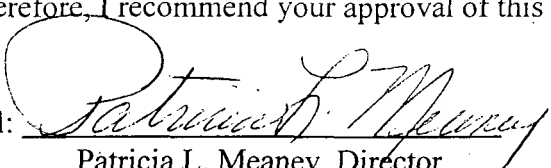
Action Memorandum
Centredale Manor Restoration Project
North Providence, Rhode Island
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Conditions at the Site meet the NCP §300.415(b)(2) criteria for removal and the CERCLA §104(c) consistency exemption from the 12-month and \$2 million limitations due to the presence of:

- "Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants or contaminants" [300.415(b)(2)(i)];
- "Actual or potential contamination of drinking water supplies or sensitive ecosystems" [300.415(b)(2)(ii)];
- "Hazardous substances or pollutants or contaminants in drums, barrels, tanks or other bulk storage containers, that may pose a threat of release;" [300.415(b)(2)(iii)].
- "High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate" [300.415(b)(2)(iv)],
- "Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released" [300.415(b)(2)(v)],
- "The availability of other appropriate federal or state response mechanisms to respond to the release" [300.415(b)(2)(vii)], and
- "Continued response action is otherwise appropriate and consistent with the remedial action to be taken" [CERCLA §104(c)].

The removal actions proposed in this Action Memorandum will abate, prevent, minimize, stabilize, mitigate and/or eliminate the release or threat of release of hazardous substances at the Site. Therefore, I recommend your approval of this Action Memorandum.

Approval: _____


Patricia L. Meaney, Director
Office of Site Remediation and Restoration
EPA New England Region

Date: _____

1/18/01

Disapproval: _____

Patricia L. Meaney, Director
Office of Site Remediation and Restoration
EPA New England Region

Date: _____

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Centredale Manor Restoration Project
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Attachments:

Enforcement Strategy (Confidential)

- Appendix A: Tables
- Appendix B: Figures
- Appendix C: Administrative Record File Index
- Appendix D: Responsiveness Summary and Transcript of November 1, 2000 Public Hearing.

APPENDIX A

TABLES

Action Memorandum
Centredale Manor Restoration Project
North Providence, Rhode Island

**TABLE 1
WILDLIFE
CENTREDALE MANOR RESTORATION PROJECT SITE
NORTH PROVIDENCE, RHODE ISLAND**

<u>Birds</u>	Killdeer	Skunk, Striped
American black duck	Mallard	Whitetail deer
American crow	Marsh hawk (Northern Harrier)	<u>Fish</u>
American goldfinch	Mourning dove	Bluegill
American robin	Mute swan	White sucker
American woodcock	Northern flicker	Tessellated darter
Barn swallow	Northern mockingbird	Largemouth bass
Belted kingfisher	Red-tailed hawk	American eel
Black crown night heron	Song sparrow	Pumpkinseed
Black-capped chickadee	Spotted sandpiper	Golden shiner
Black duck	Tree swallow	Fallfish
Blue jay	Tufted titmouse	Chain pickerel
Brown-headed cowbird	White-breasted nuthatch	Yellow bullhead
Canada goose	Wood duck	White perch
Chipping sparrow	<u>Mammals</u>	<u>Reptiles and Amphibians</u>
Common grackle	Coyote	Bullfrog
Double-crested cormorant	Eastern Cottontail	Eastern American toad
Downy woodpecker	Mink	Eastern garter snake
Eastern meadowlark	Muskrat	Eastern painted turtle
European starling	Opossum	Green frog
Gadwall	Raccoon	Snapping turtle
Great Blue Heron	Red Fox	Spotted turtle
Hooded Merganser	River Otter	

TABLE 2A
 CHEMICAL-SPECIFIC ARARs
 ACTION MEMORANDUM
 CENTREDALE MANOR RESTORATION PROJECT SITE
 NORTH PROVIDENCE, RHODE ISLAND

AUTHORITY	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	ACTION TO BE TAKEN TO ATTAIN ARAR
Federal Regulatory Requirements	OSWER Directive 9200.4-26, <u>Approaches for Addressing Dioxins in Soil at CERCLA and RCRA Sites</u> (Apr. 13, 1998)	To Be Considered	This Directive provides guidance in establishing cleanup levels for dioxins. A 1 µg/kg (ppb) concentration of dioxins (as 2,3,7,8-TCDD TE) has been established for surficial soils involving residential exposure scenarios. A cleanup range of 5 to 20 µg/kg of dioxin (as 2,3,7,8-TCDD TE) has been established for commercial and industrial exposure scenarios.	This OSWER policy aided in the establishment of dioxin PRGs for soil and sediment to be used in the removal action.
	EPA Region IX Risk-Based Concentrations (Oct 1997)	To Be Considered	Risk Based Concentrations (RBCs) are human-health-based allowable exposure guidance levels developed for carcinogenic and non-carcinogenic compounds, using reference doses and carcinogenic potency slopes obtained from EPA's Integrated Risk Information System (IRIS) database, EPA's Health Effects Assessment Summary Tables (HEAST), and standard exposure scenarios. RBCs are chemical concentrations corresponding to a fixed level of risk in various media.	RBCs were used in the EE/CA's human health risk evaluation to identify and select potential contaminants of concern.

TABLE 2B
LOCATION-SPECIFIC ARARs
ACTION MEMORANDUM
CENTREDALE MANOR RESTORATION PROJECT SITE
NORTH PROVIDENCE, RHODE ISLAND

AUTHORITY	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	ACTION TO BE TAKEN TO ATTAIN ARAR
Federal Regulatory Requirements	Protection of Wetlands (Executive Order 11990), 40 CFR 6.302(a) and Statement of procedures on Floodplain Management and Wetlands Protection (40 CFR 6, App. A)	Applicable	Federal agencies are required to avoid undertaking or providing assistance for new construction located in wetlands unless there is no practicable alternative and the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.	The Removal Action includes work in wetlands as defined in Section 4 of Appendix A. The Removal Action will include all practicable measures to minimize harm to wetlands. The selected Alternative is the least disruptive to wetlands.
	Floodplain Management (Executive Order 11988-40 CFR 6.302(b) and Statement of procedures on Floodplain Management and Wetlands Protection (40 CFR 6, App. A)	Applicable	Federal agencies are required to avoid impacts associated with the occupancy and modification of a floodplain and avoid support of floodplain development wherever there is a practicable alternative.	The expected impacts of the Removal Action are evaluated, in terms of the intent of this provision, and were considered during the preferred alternative selection process. Adverse impacts may be mitigated where feasible or necessary. The selected Alternative is least disruptive to floodplains
	Rivers and Harbors Act (33 U.S.C. Section 403); Section 10	Applicable	These regulations set forth criteria from the Army Corps of Engineers (ACOE) for placing dams/structures in navigable waters of the United States.	The substantive requirements of these regulations will be met for replacement of the Allendale Dam in the Woonasquatucket River.
	Clean Water Act - Section 404(b)(1) Guidelines for specification of disposal sites for dredged or fill material (40 CFR Part 230)	Applicable	These guidelines outline requirements for the discharge of dredged or fill materials into surface waters, including wetlands. Under these requirements, no activity that adversely impacts a wetland shall be permitted if a practicable alternative that would have less adverse impact exists. If there is no other practicable alternative, impacts must be mitigated.	Excavation/dredging and filling activity will only occur where there is no other practicable alternative and any adverse impacts will be mitigated. The selected Alternative is least disruptive to wetlands.

TABLE 2B
LOCATION-SPECIFIC ARARs
ACTION MEMORANDUM
CENTREDALE MANOR RESTORATION PROJECT SITE
NORTH PROVIDENCE, RHODE ISLAND
PAGE 2 of 2

Federal Regulatory Requirements (continued)	Fish and Wildlife Coordination Act (16 U.S.C. 661), Fish and Wildlife protection (40 CFR Section 6.302(g))	Applicable	This regulation requires that any federal agency proposing to modify a body of water must consult with the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service, and other related state agencies. That federal agency must consult with the appropriate government entity and also take action to prevent, mitigate, or compensate for project-related losses of fish and wildlife resources.	Each alternative would modify potential fish and wildlife habitats (at Allendale Pond). In implementing the Removal Action, EPA will consult with all appropriate state and federal agencies, such as the USFWS, and ensure that losses of these resources will be prevented, mitigated, or compensated.
State Regulatory Requirements	Hazardous Waste Management Act (RI General Laws 23-19.1-6, 23-19.1-7, and 23-19.1-10); Section 10, Land disposal activities	Relevant and appropriate	Rhode Island is delegated to administer the federal RCRA statute through its state regulations. The standards of 40 CFR 264 (including 264.18) are incorporated by reference.	The Dam must meet the surface impoundment portion of these state requirements. Again, they will be met to the extent practicable.
Criteria, Advisories, Guidance	Freshwater Wetlands Act (RI Gen. Laws 2-1-18 through 2-1-24); Rule # 10, Protection of Wetlands Functions and Values.	Applicable	Any activity which alters a wetland must avoid all probable impact to freshwater wetlands to the maximum extent possible. If impacts cannot be avoided, they must be reduced to the maximum extent possible.	Each alternative would include work in wetlands. The Removal Action will avoid impacts to wetlands to the maximum extent possible. Where impacts cannot be avoided, they will be reduced to the maximum extent possible.

TABLE 2C
ACTION-SPECIFIC ARARs
ACTION MEMORANDUM
CENTREDALE MANOR RESTORATION PROJECT SITE
NORTH PROVIDENCE, RHODE ISLAND

AUTHORITY	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	ACTION TO BE TAKEN TO ATTAIN ARAR
Federal Regulatory Requirements	Clean Water Act, Section 402; EPA administered permit programs: the NPDES (40 CFR Part 122), criteria and standards for the NPDES (40 CFR Part 125), Water quality standards (40 CFR Part 131)	Applicable	Contains discharge limitations, monitoring requirements, and best management practices. Substantive requirements under NPDES are written such that state and federal ambient water quality criteria (AWQC) are met. Permits are required for off-site discharges	All of the alternatives would involve substantial activities in the Woonasquatucket River/Allendale Pond which may disturb sediments. The Removal Action will include dewatering activities, reconstructing the Allendale Dam, and temporary rerouting the River to conduct excavations. These regulations will be complied with to the extent practicable.
State Regulatory Requirements	Hazardous Waste Management Act (RI General Laws 23- 19.1-6, 23-19.1-7, and 23- 19.1-10); Section 5, Generators	Applicable	These regulations apply to all generators of hazardous waste. They include requirements for identification, storage, shipment and labelling of waste	The Removal Action involves the generation of hazardous waste via excavation. Excavation and related activities will comply with this regulation.
	Hazardous Waste Management Act (RI General Laws 23- 19.1-6, 23-19.1-7, and 23- 19.1-10); Section 9. Operational requirements for treatment, storage, and disposal facilities.	Relevant and appropriate	The standards of 40 CFR 264 are incorporated by reference. This regulation governs facilities which treat, store, or dispose of hazardous wastes - including the placement of hazardous waste into or on any land or water. It includes monitoring, closure, post-closure and operation and maintenance requirements.	As part of the Removal Action, a dam will be built on-site. The substantive requirements of Section 10 will be met.

TABLE 2C
ACTION-SPECIFIC ARARs
ACTION MEMORANDUM
CENTREDALE MANOR RESTORATION PROJECT SITE
NORTH PROVIDENCE, RHODE ISLAND
PAGE 2 OF 2

AUTHORITY	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	ACTION TO BE TAKEN TO ATTAIN ARAR
State Regulatory Requirements (con't)	Waters and Navigation (RI Gen. Laws 46-12 and 46-13.1), Health and Safety (RI Gen Laws 23-19.1, 23-19.14); Remediation Regulations DEM-DSR-01-93 Section 8.01, A to D.	Relevant and Appropriate	This section regulates impacted media at contaminated sites	This section will be used as a performance measurement during post-removal sampling. If such sampling indicates an unacceptable human health risk, further action will be required and an additional decision document may be issued.
	Water Pollution (RI General Laws 46-12), Environmental Management (RI General Laws 42-17.1, Water Quality Regulations (R.I. Code R. 112-88.97-1), Rule #18	Applicable	Regulations designed to protect state surface water resources. Establishes water use classification and water quality criteria for waters of the state.	The Removal Action includes provisions for the protection of the Woonasquatucket River including Allendale and Lymansville Ponds, where construction activities (dam, excavation) occur in these waters.
	RI Air Pollution Control Regulation #5, Fugitive Dust	Applicable	Regulations designed to control releases of airborne particulate in the State of Rhode Island, including those caused by earth moving activities.	The Removal Action includes earth moving activities and land clearing. Where there is a possibility of fugitive dust, this regulation will be complied with.

TABLE 3
COMPARATIVE COSTS OF THE ALTERNATIVES
CENTREDALE MANOR RESTORATION PROJECT
NORTH PROVIDENCE, RHODE ISLAND

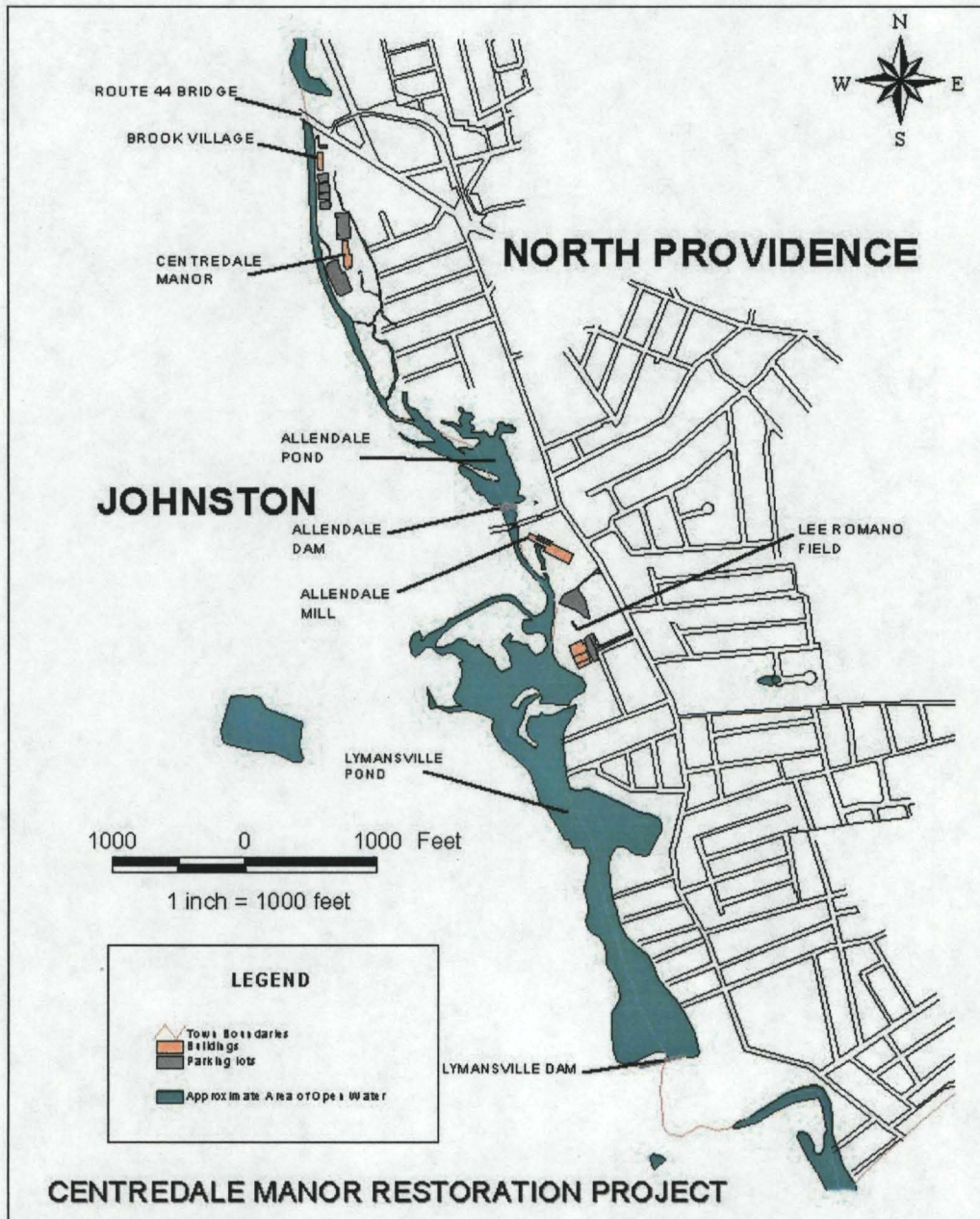
COST	ALTERNATIVE 1 Cap Residential Soils, Restore Dam	ALTERNATIVE 2 Cap Residential Soils	ALTERNATIVE 3 Excavate Residential Soils, Restore Dam	ALTERNATIVE 4 Excavate Residential Soils
Capital Costs (\$)	Disp Opt 1: \$1,627,711 Disp Opt 2: \$1,711,876 Disp Opt 3: \$1,760,926	\$2,519,123	Disp Opt 1: \$1,791,058 Disp Opt 2: \$2,270,699 Disp Opt 3: \$2,550,225	Disp Opt 1: \$4,480,170 Disp Opt 2: \$10,283,524 Disp Opt 3: \$13,665,611
PRSC, NPV (\$)	\$29,796	\$84,807	\$25,685	\$0.00
Total Costs, NPV (\$)	Disp Opt 1: \$1,657,507 Disp Opt 2: \$1,741,672 Disp Opt 3: \$1,790,722	\$2,603,930	Disp Opt 1: \$1,816,743 Disp Opt 2: \$2,296,384 Disp Opt 3: \$2,575,910	Disp Opt 1: \$4,480,170 Disp Opt 2: \$10,283,524 Disp Opt 3: \$13,665,611

APPENDIX B

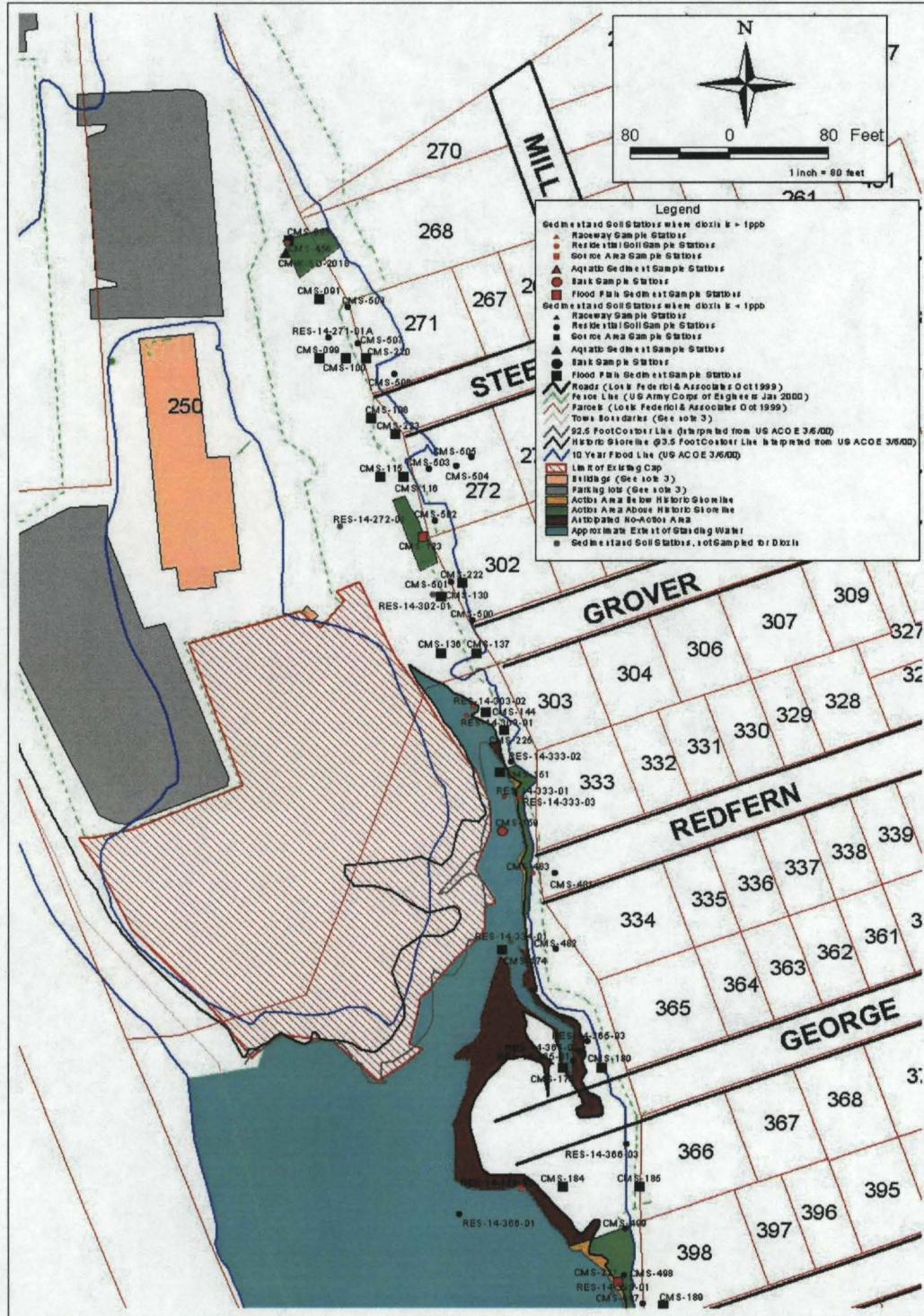
FIGURES

Action Memorandum
Centredale Manor Restoration Project
North Providence, Rhode Island

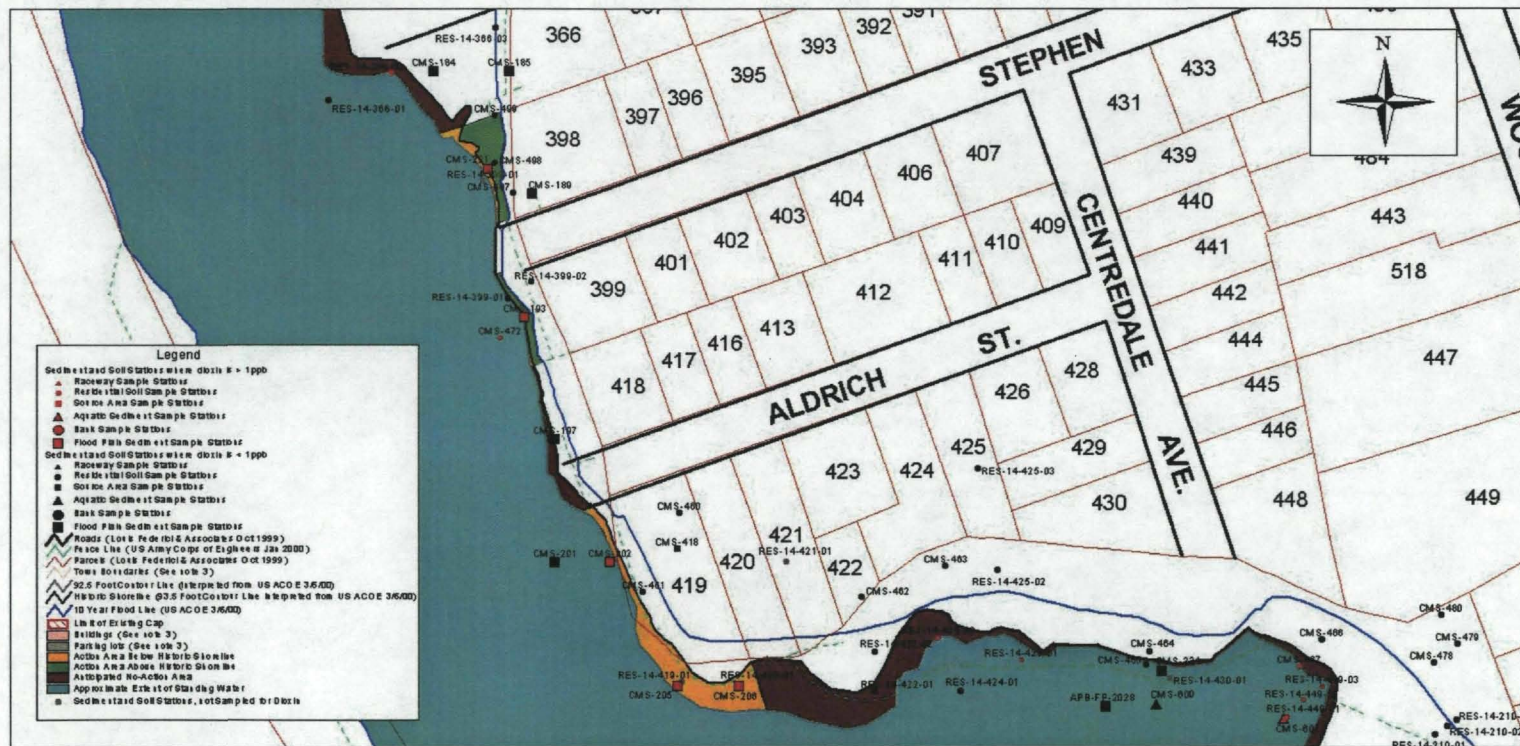
ACTION MEMORANDUM
FIGURE 1



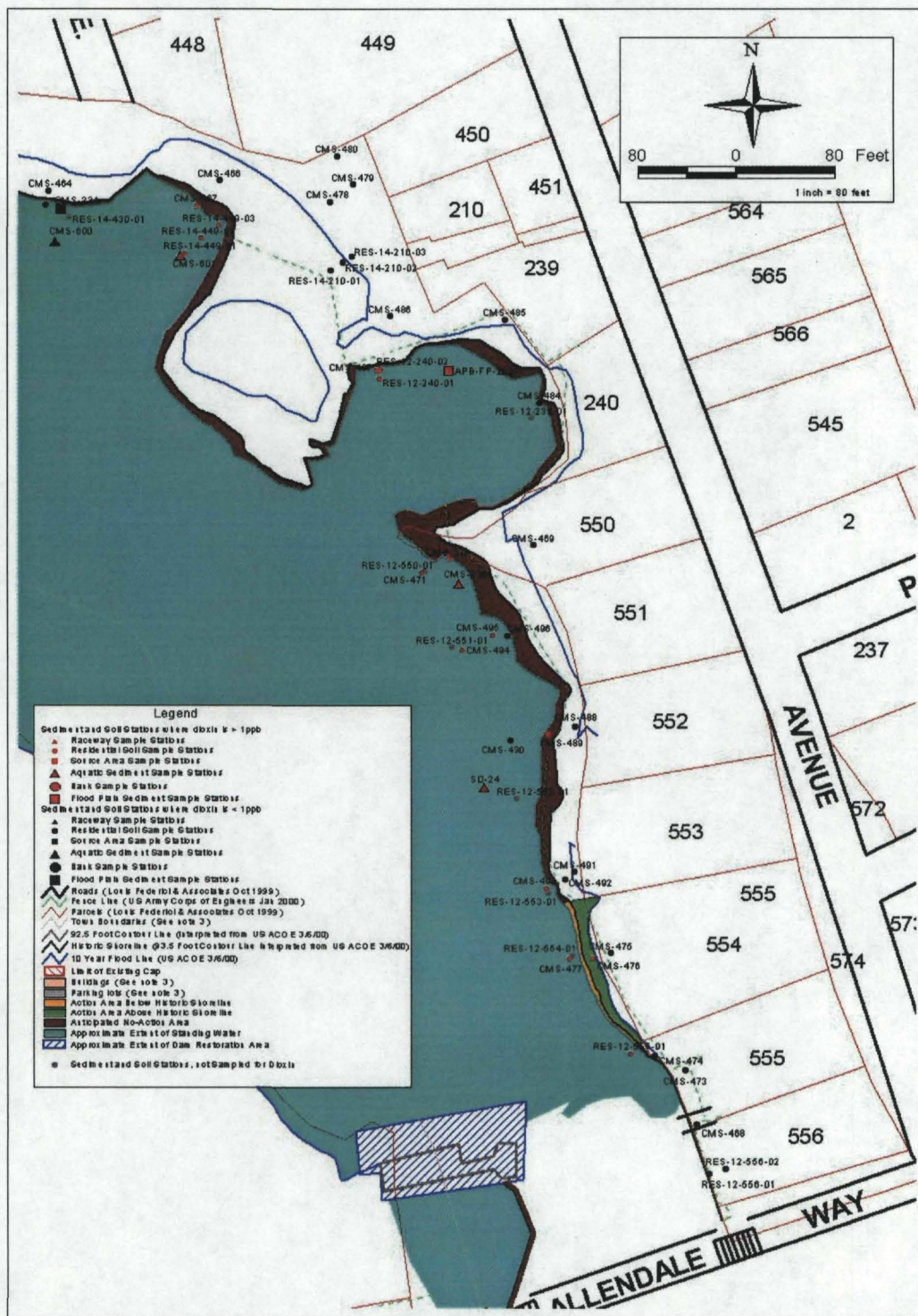
ACTION MEMORANDUM
FIGURE 2



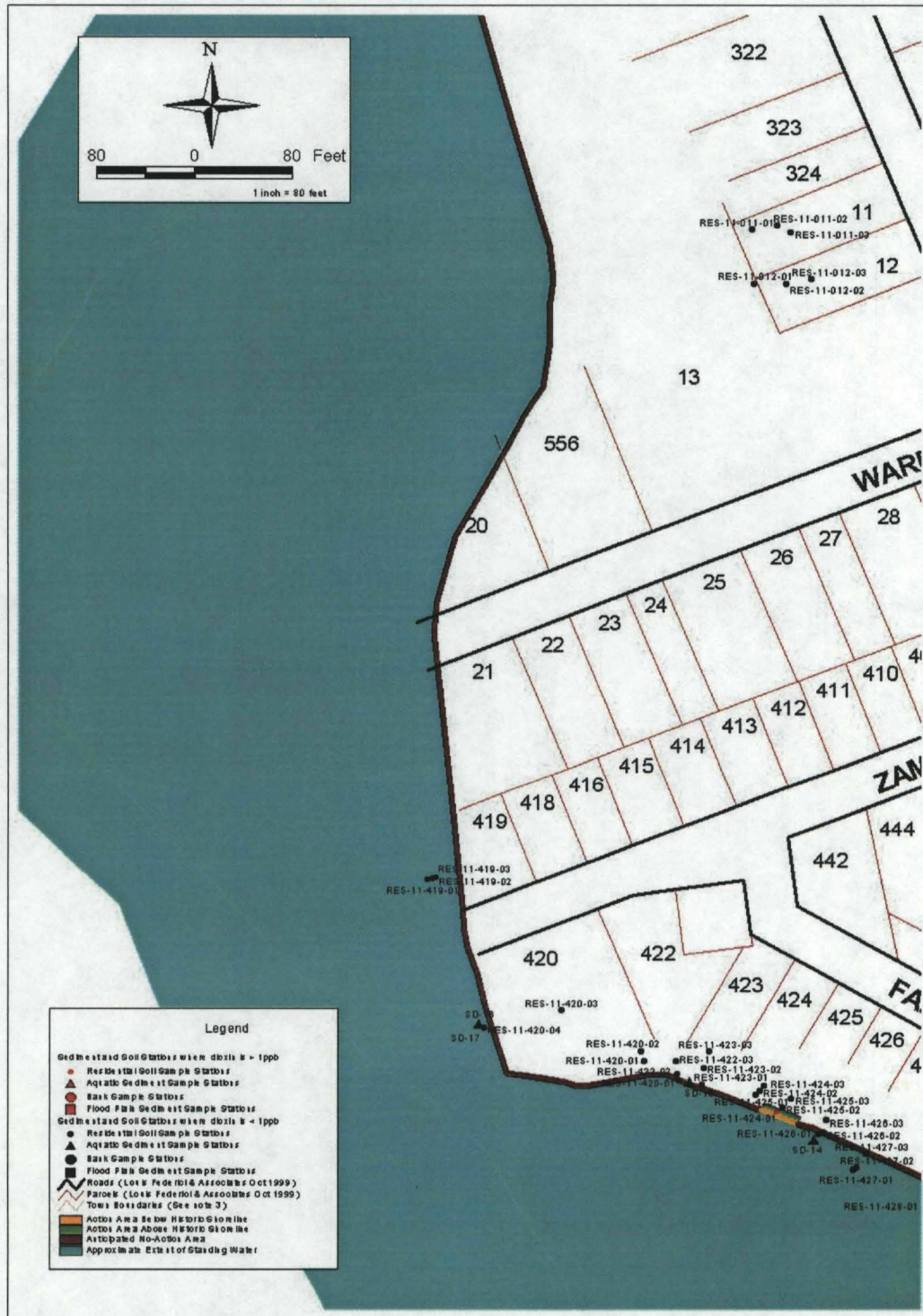
ACTION MEMORANDUM
FIGURE 3



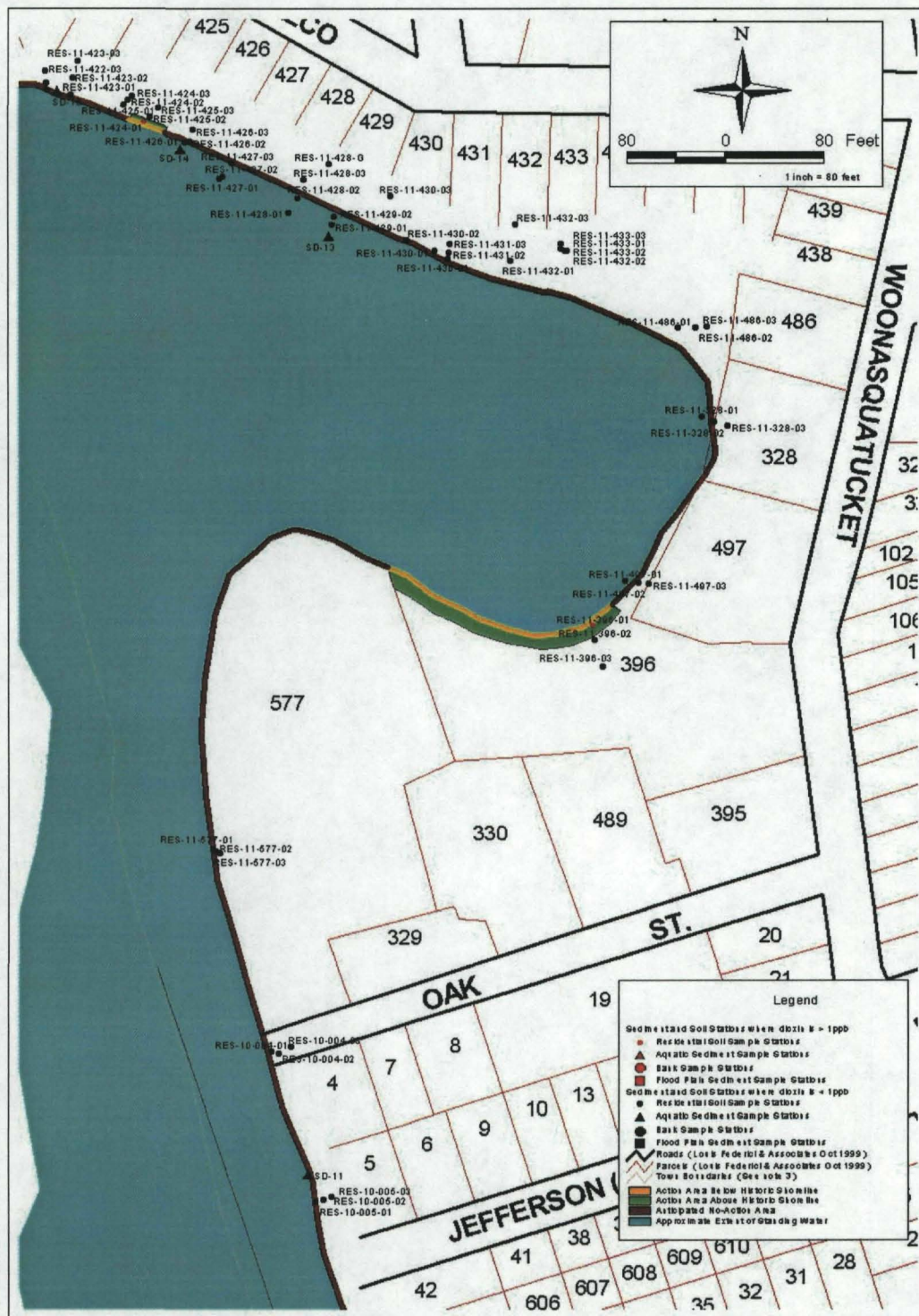
ACTION MEMORANDUM
FIGURE 4



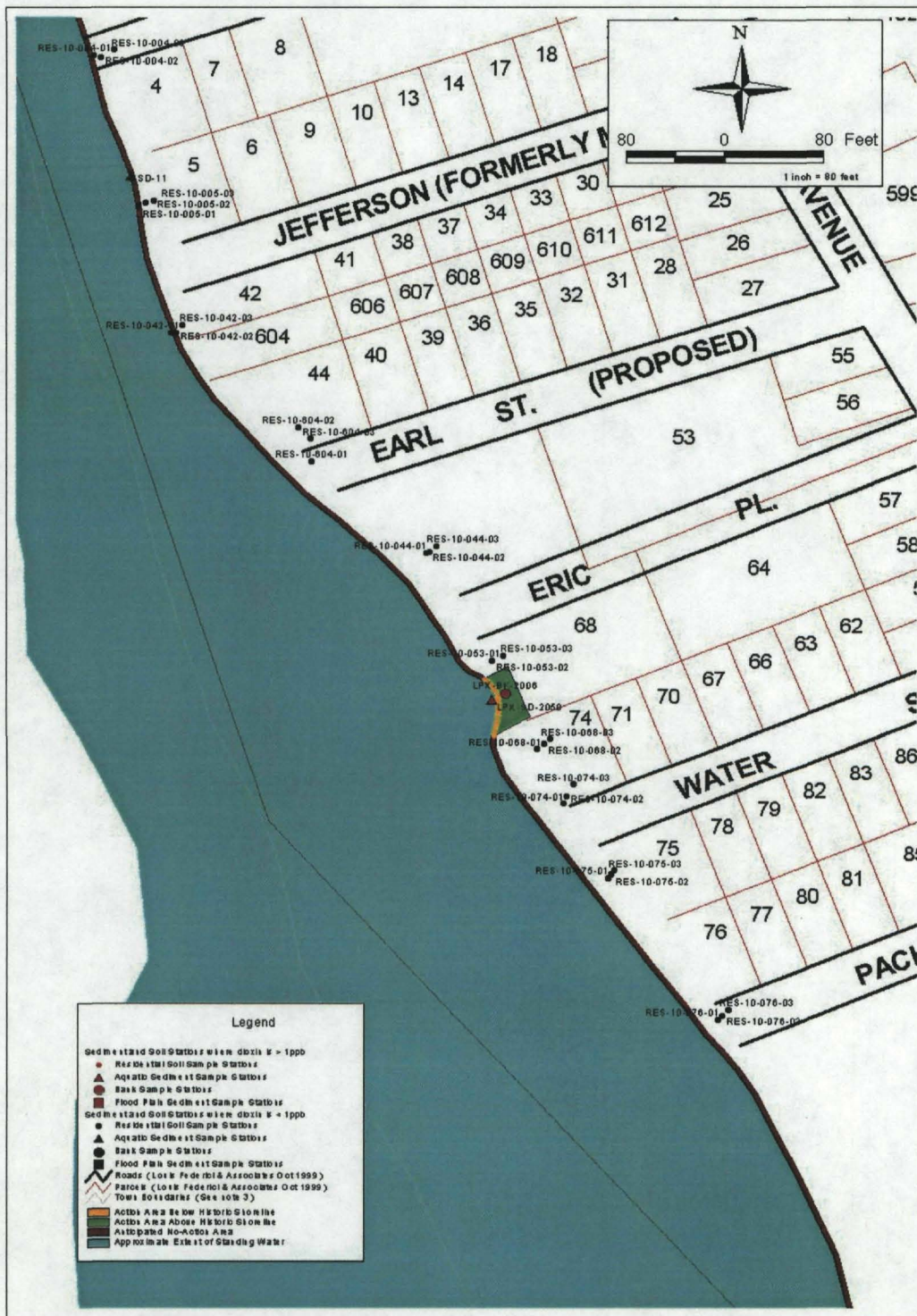
ACTION MEMORANDUM
FIGURE 5



US EPA ARCHIVE DOCUMENT



ACTION MEMORANDUM
FIGURE 7



APPENDIX C
ADMINISTRATIVE RECORD INDEX

Action Memorandum
Centredale Manor Restoration Project
North Providence, Rhode Island

Introduction to the Collection

This is the administrative record file for the Centredale Manor Restoration Project Superfund site, North Providence, RI, Non-Time Critical Removal Action, released January 2001. The file contains site-specific documents and guidance documents used by EPA staff in selecting a response action at the site.

The file is presented in two media: this compact disc and related oversized documents and portions of documents that are available for review through the EPA New England Superfund Records Center.

In instances where a document has only a month and a year as the actual document date, EPA has assigned the last day of the month to those documents due to system requirements for a full document date.

When a collection of documents with multiple dates was listed as one index entry, the earliest document date was used.

This file includes, by reference, the Removal Action Administrative Record File, August 1999, the Removal Action Administrative Record File Addendum, January, 2000, and the Removal Action Administrative Record File Addendum II, October 2000.

The administrative record file is available for review at:

EPA New England Superfund Records Center
1 Congress Street, Suite 1100 (HSC)
Boston, MA 02114
(by appointment)
617-918-1440 (phone)
617-918-1223 (fax)

Marion J. Mohr Memorial Library
1 Memorial Avenue
Johnston, RI 02919
(401) 231-4980

Salvatore Mancini Union Free Library
1810 Mineral Spring Avenue
North Providence, RI 02904
(401) 353-5600

Questions about this administrative record file should be directed to the EPA New England site manager.

An administrative record file is required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA).

CENTREDALE MANOR RESTORATION PROJECT
ADMINISTRATIVE RECORD FILE
NTCRA JAN 2001

1. SITE ASSESSMENT

1. LETTER: SUPPORT FOR INCLUSION OF THE CENTREDALE SITE ON THE NPL.
TO: JOHN P DEVILLARS, US EPA REGION 1
AUTHOR: LINCOLN ALMOND, RI OFFICE OF THE GOVERNOR
DOC ID: 6923 08/20/1999 2 PAGES
2. REPORT: FINAL HAZARD RANKING SYSTEM PACKAGE, HRS DOCUMENTATION RECORD.
TO: US EPA REGION 1
AUTHOR: ROY F WESTON INC
DOC ID: 6855 10/13/1999 107 PAGES

2. REMOVAL RESPONSE

1. DRAWING: PRELIMINARY DESIGN FOR THE ALLENDALE DAM [OVERSIZE].
AUTHOR: US ARMY CORPS OF ENGINEERS
DOC ID: 8907 07/01/1997
2. REPORT: PRELIMINARY SPECIFICATIONS FOR DESIGN OF ALLENDALE DAM.
AUTHOR: US ARMY CORPS OF ENGINEERS
DOC ID: 9694 07/01/1997 151 PAGES
3. SAMPLING & ANALYSIS DATA: HUMAN HEALTH RISK SCREENING ANALYSIS FOR
RECREATIONAL EXPOSURE TO SEDIMENTS IN WOONASQUATUCKET RIVER,
PROVIDENCE, RI, WITH ATTACHED WOONASQUATUCKET RIVER
SEDIMENT/WATER QUALITY ANALYSIS REPORT, DATED JULY 31, 1998.
AUTHOR: ANN MARIE BURKE, US EPA REGION 1
DOC ID: 5671 02/24/1998 48 PAGES
4. SAMPLING & ANALYSIS DATA: DETERMINATION OF PCDD/PCDF LEVELS.
TO: RI DEPT OF HEALTH
AUTHOR: PACE ANALYTICAL SERVICES INC
DOC ID: 5675 09/09/1999 30 PAGES
5. REPORT: SAMPLING & ANALYSIS PLAN WOONASQUATUCKET RIVER SEDIMENT
INVESTIGATION.
TO: US EPA REGION 1
AUTHOR: NUS/TETRA TECH INC
DOC ID: 5655 09/30/1999 308 PAGES
6. SAMPLING & ANALYSIS DATA: VOC ANALYSES OF VAPOR SAMPLES COLLECTED
09/21/1999 AND 09/22/1999.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: US DOI/US GEOLOGICAL SURVEY
DOC ID: 5666 10/06/1999 9 PAGES
7. WORK PLAN: WORK PLAN, TECHNICAL ASSISTANCE, FINAL DRAFT.
TO: US EPA REGION 1
AUTHOR: NUS/TETRA TECH INC
DOC ID: 5672 10/31/1999 37 PAGES

CENTREDALE MANOR RESTORATION PROJECT
ADMINISTRATIVE RECORD FILE
NTCRA JAN 2001

2.REMOVAL RESPONSE (cont)

8. SAMPLING & ANALYSIS DATA: SUMMARY TABLES, LOCATION MAP FOR SOIL/SEDIMENT SAMPLING DATA.
TO: US EPA REGION 1
AUTHOR: IT CORP
DOC ID: 5765 12/02/1999 227 PAGES
9. MEMO : PRELIMINARY IDENTIFICATION OF SOIL & SEDIMENT MAXIMUM CONCENTRATIONS THAT EXCEED ECOLOGICAL SCREENING-LEVEL BENCHMARKS.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: CORNELL ROSIU, US EPA REGION 1
DOC ID: 5657 01/06/2000 3 PAGES
10. MEMO : COMPARISON OF MAXIMUM DETECTED CONCENTRATIONS REPORTED IN ENGINEERING EVALUATION/COST ANALYSIS APPROVAL MEMO TO EPA RISK RANGE.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: ANN MARIE BURKE, US EPA REGION 1
DOC ID: 5656 01/10/2000 2 PAGES
11. MEMO : APPROVAL MEMORANDUM TO PERFORM AN ENGINEERING EVALUATION/COST ANALYSIS FOR A NON-TIME CRITICAL REMOVAL ACTION.
TO: PATRICIA L MEANEY, US EPA REGION 1
AUTHOR: ANNA KRASKO, US EPA REGION 1
DOC ID: 5654 01/26/2000 14 PAGES
12. INDEX : ENGINEERING EVALUATION/COST ANALYSIS APPROVAL MEMORANDUM ADMINISTRATIVE RECORD INDEX.
AUTHOR: US EPA REGION 1
DOC ID: 6216 01/31/2000 6 PAGES
13. REPORT: SITE INVESTIGATION REPORT, FINAL.
TO: US EPA REGION 1
AUTHOR: IT CORP
DOC ID: 6010 03/16/2000 826 PAGES
14. REPORT: ENGINEERING EVALUATION/COST ANALYSIS WORK PLAN, DRAFT FINAL.
TO: US EPA REGION 1
AUTHOR: NUS/TETRA TECH INC
DOC ID: 6734 05/31/2000 33 PAGES
15. PHOTOGRAPH: AERIAL PHOTOGRAPHIC ANALYSIS, CENTREDALE MANOR SUBAREA, NORTH PROVIDENCE, RI [OVERSIZED].
AUTHOR: US ENVIRONMENTAL PROTECTION AGENCY
DOC ID: 6795 06/01/2000
16. MEMO : DIOXIN/FURAN IMMUNOASSAY TEST KIT CORRELATION STUDY.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: SCOTT CLIFFORD, US EPA REGION 1
DOC ID: 8452 08/02/2000 7 PAGES

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2.REMOVAL RESPONSE (cont)

17. REPORT: ENGINEERING EVALUATION COST ANALYSIS, FINAL.
TO: US EPA REGION 1
AUTHOR: NUS/TETRA TECH INC
DOC ID: 8461 09/30/2000 511 PAGES
18. LETTER: COMMENTS ON THE PROPOSED CLEANUP ALTERNATIVE.
TO: ANNA KRASKO, US EPA REGION 1
RICHARD C BOYNTON, US EPA REGION 1
AUTHOR: HOWARD CASTLEMAN, ROCHE CARENS & DEGIACOMO
DOC ID: 9725 10/11/2000 2 PAGES
19. LETTER: REQUEST FOR EXTENSION OF THE PUBLIC COMMENT PERIOD.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: LAURA A FORD, SWIDLER BERLIN SHEREFF FRIEDMAN
DOC ID: 9718 10/11/2000 2 PAGES
20. LETTER: REQUEST FOR EXTENSION OF THE PUBLIC COMMENT PERIOD.
TO: ANNA KRASKO, US EPA REGION 1
RICHARD C BOYNTON, US EPA REGION 1
AUTHOR: JANE SHERMAN, WOONASQUATUCKET RIVER WATERSHED COUNCIL
DOC ID: 9723 10/11/2000 1 PAGE
21. FORM : COMMENTS ON THE PROPOSED CLEANUP ALTERNATIVE.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: DANIEL MCCUSKER, NORTH PROVIDENCE (RI) TOWN OF
DOC ID: 9711 10/16/2000 2 PAGES
22. LETTER: COMMENTS ON THE PROPOSED CLEANUP ALTERNATIVE.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: JOHN PICKERING, NORTH PROVIDENCE (RI) TOWN OF
DOC ID: 9715 10/16/2000 37 PAGES
23. LETTER: COMMENTS ON THE PROPOSED CLEANUP ALTERNATIVE.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: JAMES F MCENERY, PROVIDENCE (RI) CITY OF
DOC ID: 9716 10/16/2000 2 PAGES
24. LETTER: RESPONSE TO 10/11/2000 LETTER FROM HOWARD CASTLEMAN.
TO: HOWARD CASTLEMAN, ROCHE CARENS & DEGIACOMO
AUTHOR: CATHERINE GARYPIE, US EPA REGION 1
DOC ID: 9726 10/19/2000 3 PAGES
25. LETTER: COMMENTS ON THE PROPOSED CLEANUP ALTERNATIVE.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: JOSEPH VITULLO
LEONA VITULLO
DOC ID: 9710 10/23/2000 1 PAGE
26. FORM : COMMENTS ON THE PROPOSED CLEANUP ALTERNATIVE.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: ROLAND MERGENER, NORTH PROVIDENCE (RI) TOWN OF
DOC ID: 9713 10/27/2000 2 PAGES

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2.REMOVAL RESPONSE (cont)

27. LETTER: COMMENTS ON THE PROPOSED CLEANUP ALTERNATIVE.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: SARAH R MARTINO, RI DEPT OF ENVIRONMENTAL MANAGEMENT
DOC ID: 9705 11/06/2000 3 PAGES
28. LETTER: COMMENTS ON THE PROPOSED CLEANUP ALTERNATIVE.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: ANN MCGOWAN, PROVIDENCE (RI) CITY OF
DOC ID: 9707 11/06/2000 1 PAGE
29. MEMO : COMMENTS ON THE PROPOSED CLEANUP ALTERNATIVE.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: GINA DEMARCO, NORTHERN RHODE ISLAND CONSERVATION DISTRICT
DOC ID: 9709 11/06/2000 1 PAGE
30. MEMO : COMMENTS ON THE PROPOSED CLEANUP ALTERNATIVE.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: ELSIE CIMORELLI, NORTH PROVIDENCE (RI) TOWN OF
DOC ID: 9704 11/16/2000 1 PAGE
31. LETTER: COMMENTS ON THE PROPOSED CLEANUP ALTERNATIVE.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: EUGENIA MARKS, AUDUBON SOCIETY OF RHODE ISLAND
DOC ID: 9737 11/27/2000 4 PAGES
32. LETTER: COMMENTS ON THE PROPOSED CLEANUP ALTERNATIVE.
AUTHOR: JEAN LYNCH, JOHNSTON (RI) TOWN OF
DOC ID: 9746 12/02/2000 2 PAGES
33. MEMO : COMMENTS ON THE PROPOSED CLEANUP ALTERNATIVE.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: BARRY SCHILLER, NORTH PROVIDENCE (RI) TOWN OF
DOC ID: 9702 12/03/2000 1 PAGE
34. LETTER: COMMENTS ON THE PROPOSED CLEANUP ALTERNATIVE.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: JEROME C MUYS JR, SWIDLER BERLIN SHEREFF FRIEDMAN
DOC ID: 9698 12/04/2000 4 PAGES
35. MEMO : COMMENTS ON THE PROPOSED CLEANUP ALTERNATIVE.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: JANE SHERMAN, WOONASQUATUCKET RIVER WATERSHED COUNCIL
JENNIFER PEREIRA, WOONASQUATUCKET RIVER WATERSHED COUNCIL
DOC ID: 9699 12/04/2000 3 PAGES
36. MEMO : ACTION MEMORANDUM AND RESPONSIVENESS SUMMARY.
TO: PATRICIA L MEANEY, US EPA REGION 1
AUTHOR: ANNA KRASKO, US EPA REGION 1
DOC ID: 11040 01/18/2001 112 PAGES

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3. REMEDIAL INVESTIGATION (RI)

1. REPORT: WOONASQUATUCKET RIVER SEDIMENT INVESTIGATION TECHNICAL MEMORANDUM, VOLUME 1, TEXT, FINAL.
TO: US EPA REGION 1
AUTHOR: NUS/TETRA TECH INC
DOC ID: 6771 06/30/2000 61 PAGES
2. MEMO : WOONASQUATUCKET RIVER SEDIMENT INVESTIGATION, VOLUME 2, APPENDICES, FINAL.
TO: US EPA REGION 1
AUTHOR: NUS/TETRA TECH INC
DOC ID: 6772 06/30/2000 942 PAGES
3. REPORT: DISTRIBUTION OF SELECTED VOLATILE ORGANIC COMPOUNDS DETERMINED WITH WATER-TO-VAPOR DIFFUSION SAMPLERS AT THE INTERFACE BETWEEN GROUNDWATER AND SURFACE WATER.
AUTHOR: US DOI/US GEOLOGICAL SURVEY
DOC ID: 8458 09/20/2000 15 PAGES

9. STATE COORDINATION

1. REPORT: COMPLAINTS RECEIVED BETWEEN 1970 AND 1978 [PART OF THE THE RIDEM FILE].
AUTHOR: RI DEPT OF HEALTH
DOC ID: 9301 05/06/1970 8 PAGES
2. REPORT: RIDEM FILE DOCUMENTS FROM 1979 TO 1982.
AUTHOR: RI DEPT OF ENVIRONMENTAL MANAGEMENT
DOC ID: 9302 12/12/1979 92 PAGES
3. LETTER: INITIATION OF INTERGOVERNMENTAL REVIEW, COMMENCEMENT OF FUND-LEAD REMEDIAL INVESTIGATION/FEASIBILITY (RI/FS) STUDY.
TO: DANIEL W VARIN, RI DEPT OF ADMINISTRATION
AUTHOR: LARRY BRILL, US EPA REGION 1
DOC ID: 8495 10/07/1999 4 PAGES
4. LETTER: REQUEST FOR ARARS.
TO: MATTHEW D DESTEFANO, RI DEPT OF ENVIRONMENTAL MANAGEMENT
AUTHOR: ANNA KRASKO, US EPA REGION 1
DOC ID: 8497 03/09/2000 2 PAGES
5. LETTER: POTENTIAL ARARS.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: MATTHEW D DESTEFANO, RI DEPT OF ENVIRONMENTAL MANAGEMENT
DOC ID: 8499 04/03/2000 3 PAGES

10. ENFORCEMENT/NEGOTIATION

1. LITIGATION: DEPOSITION OF KENNETH M. NERI, SR.
AUTHOR: KENNETH M SR. NERI
DOC ID: 9274 06/30/1999 71 PAGES

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10. ENFORCEMENT/NEGOTIATION (cont)

2. LITIGATION: DEPOSITION OF THOMAS B. CAMBIO.
AUTHOR: THOMAS B CAMBIO
DOC ID: 9275 06/30/1999 41 PAGES
3. LITIGATION: DEPOSITION OF JOHN TURCONE.
AUTHOR: JOHN TURCONE, METRO-ATLANTIC FORMER EMPLOYEE
DOC ID: 5760 11/30/1999 11 PAGES
4. LITIGATION: DEPOSITION OF [NAME WITHELD].
DOC ID: 5759 11/30/1999 23 PAGES
5. LETTER: TRANSMITTAL OF UNILATERAL ADMINISTRATIVE ORDER.
TO: COLBURN T CHERNEY, ROPES & GRAY
DEMING SHERMAN, EDWARDS & ANGELL
HOWARD CASTLEMAN, ROCHE CARENS & DEGIACOMO
JEROME C MUYS JR, SWIDLER BERLIN SHEREFF FRIEDMAN
KNOX L HAYNSWORTH III, BROWN MASSEY EVANS MCLEOD & HAYNSWORTH
LEONARD H FREIMAN, GOULSTON & STORRS
RICHARD J WELCH, MOSES & AFONSO
AUTHOR: CATHERINE GARYPIE, US EPA REGION 1
DOC ID: 9248 04/12/2000 3 PAGES
6. LITIGATION: DEPOSITION OF [NAME WITHELD].
DOC ID: 9305 08/31/2000 40 PAGES
7. LITIGATION: AFFADAVITS OF STEPHEN A. CAPRON, ANTHONY CAPUTO, DAVID
CARBONE, EDMUND W. IZZO AND RAYMOND NADEAU.
DOC ID: 9292 10/25/2000 11 PAGES

11. POTENTIALLY RESPONSIBLE PARTY

1. LETTER: RESPONSES TO REQUEST FOR INFORMATION PURSUANT TO SECTION 104 OF
CERCLA, SECTION 3007 OF RCRA.
TO: SHARON C FENNELLY, US EPA REGION 1
AUTHOR: NEW ENGLAND CONTAINER CO INC
DOC ID: 5617 03/19/1999 22 PAGES
2. MAP : SANBORN MAPS TO BE INCLUDED WITH NEW ENGLAND CONTAINER CO INC
RESPONSE TO US EPA INFORMATION REQUEST.
TO: SHARON C FENNELLY, US EPA REGION 1
AUTHOR: DEMING SHERMAN, EDWARDS & ANGELL
DOC ID: 5618 03/22/1999 4 PAGES
3. LETTER: ADP MARSHALL, INC. RESPONSE TO SECTION 104 REQUEST.
TO: SHARON C FENNELLY, US EPA REGION 1
AUTHOR: JOHN L III MARSHALL, MARSHALL PROPERTIES INC
DOC ID: 9184 04/01/1999 25 PAGES

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11. POTENTIALLY RESPONSIBLE PARTY (cont)

4. LETTER: ENCLOSURES TO ADP MARSHALL, INC. RESPONSE TO SECTION 104 REQUEST, PART 1.
TO: SHARON C FENNELLY, US EPA REGION 1
AUTHOR: JOHN L III MARSHALL, MARSHALL PROPERTIES INC
DOC ID: 9185 04/01/1999 215 PAGES
5. LETTER: ENCLOSURES TO ADP MARSHALL, INC. RESPONSE TO SECTION 104 REQUEST, PART 2.
TO: SHARON C FENNELLY, US EPA REGION 1
AUTHOR: JOHN L III MARSHALL, MARSHALL PROPERTIES INC
DOC ID: 10858 04/01/1999 185 PAGES
6. LETTER: CENTREDALE MANOR ASSOCIATES RESPONSE TO SECTION 104 REQUEST.
TO: SHARON C FENNELLY, US EPA REGION 1
AUTHOR: JOHN L III MARSHALL, MARSHALL PROPERTIES INC
DOC ID: 9182 04/07/1999 13 PAGES
7. LETTER: ENCLOSURES ASSOCIATED WITH CENTREDALE MANOR ASSOCIATES RESPONSE TO SECTION 104 REQUEST. [PART 1 OF 3]
TO: SHARON C FENNELLY, US EPA REGION 1
AUTHOR: JOHN L III MARSHALL, MARSHALL PROPERTIES INC
DOC ID: 9183 04/07/1999 274 PAGES
8. LETTER: ENCLOSURES ASSOCIATED WITH CENTREDALE MANOR ASSOCIATES RESPONSE TO SECTION 104 REQUEST. [PART 2 OF 3].
TO: SHARON C FENNELLY, US EPA REGION 1
AUTHOR: JOHN L III MARSHALL, MARSHALL PROPERTIES INC
DOC ID: 10886 04/07/1999 244 PAGES
9. LETTER: ENCLOSURES ASSOCIATED WITH CENTREDALE MANOR ASSOCIATES RESPONSE TO SECTION 104 REQUEST. [PART 3 OF 3].
TO: SHARON C FENNELLY, US EPA REGION 1
AUTHOR: JOHN L III MARSHALL, MARSHALL PROPERTIES INC
DOC ID: 10887 04/07/1999 133 PAGES
10. LETTER: CENTREDALE MANOR ASSOCIATES SUPPLEMENTAL RESPONSE TO SECTION 104 REQUEST.
TO: SHARON C FENNELLY, US EPA REGION 1
AUTHOR: RICHARD J WELCH, MOSES & AFONSO
DOC ID: 9271 04/14/1999 12 PAGES
11. LETTER: JOSEPH BUONANNO JR. RESPONSE TO SECTION 104 REQUEST.
TO: CATHERINE GARYPIE, US EPA REGION 1
AUTHOR: STEPHEN H BURKE, RATCLIFFE & BURKE
DOC ID: 9286 04/30/1999 11 PAGES
12. LETTER: BERNARD V. BUONANNO SR. RESPONSE TO SECTION 104 REQUEST.
TO: SHARON C FENNELLY, US EPA REGION 1
DOC ID: 9279 07/21/1999 12 PAGES

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11. POTENTIALLY RESPONSIBLE PARTY (cont)

13. LETTER: NOTICE OF POTENTIAL LIABILITY.
TO: BROOK VILLAGE ASSOCIATES LIMITED PARTNERSHIP
WILLIAM W WOLLINGER, WINN MANAGEMENT CO
AUTHOR: PATRICIA L MEANEY, US EPA REGION 1
DOC ID: 5642 09/15/1999 9 PAGES
14. LETTER: NOTICE OF POTENTIAL LIABILITY.
TO: CENTREDALE MANOR ASSOCIATES LIMITED PARTNERSHIP
AUTHOR: PATRICIA L MEANEY, US EPA REGION 1
DOC ID: 5643 09/15/1999 7 PAGES
15. LETTER: NOTICE OF POTENTIAL LIABILITY.
TO: NEW ENGLAND CONTAINER CO INC
AUTHOR: PATRICIA L MEANEY, US EPA REGION 1
DOC ID: 5646 09/15/1999 8 PAGES
16. LETTER: BROOK VILLAGE RESPONSE TO NOTICE OF POTENTIAL LIABILITY.
TO: EDWARD BAZENAS, US EPA REGION 1
AUTHOR: HOWARD CASTLEMAN, ROCHE CARENS & DEGIACOMO
DOC ID: 10943 10/07/1999 2 PAGES
17. LETTER: CENTREDALE ASSOCIATES RESPONSE TO NOTICE OF POTENTIAL LIABILITY.
TO: CATHERINE GARYPIE, US EPA REGION 1
AUTHOR: RICHARD J WELCH, MOSES & AFONSO
DOC ID: 5651 10/07/1999 2 PAGES
18. LETTER: CENTREDALE MANOR ASSOCIATES LIMITED PARTNERSHIP RESPONSE TO US
EPA NOTICE OF POTENTIAL LIABILITY.
TO: CATHERINE GARYPIE, US EPA REGION 1
AUTHOR: LEONARD H FREIMAN, GOULSTON & STORRS
DOC ID: 5649 10/07/1999 2 PAGES
19. LETTER: NEW ENGLAND CONTAINER CO INC RESPONSE TO NOTICE OF POTENTIAL
LIABILITY.
TO: CATHERINE GARYPIE, US EPA REGION 1
AUTHOR: DEMING SHERMAN, EDWARDS & ANGELL
DOC ID: 5652 10/07/1999 2 PAGES
20. LETTER: RESPONSE TO EPA'S REQUEST FOR SUPPLEMENTAL INFORMATION AND
DOCUMENTATION [CBI CLAIM REDACTED].
TO: SHARON C FENNELLY, US EPA REGION 1
AUTHOR: GZA GEOENVIRONMENTAL INC
DOC ID: 5614 12/21/1999 66 PAGES
21. LETTER: ALLENDALE MILLS ASSOCIATES LIMITED PARTNERSHIP ACKNOWLEDGMENT OF
SECTION 104 INFORMATION REQUEST.
TO: SHARON C FENNELLY, US EPA REGION 1
AUTHOR: RICHARD SHERMAN, EDWARDS & ANGELL
DOC ID: 9179 02/11/2000 1 PAGE

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11. POTENTIALLY RESPONSIBLE PARTY (cont)

22. LETTER: NOTICE OF POTENTIAL LIABILITY.
TO: CROWN METRO INC
AUTHOR: PATRICIA L MEANEY, US EPA REGION 1
DOC ID: 8486 02/28/2000 10 PAGES
23. LETTER: NOTICE OF POTENTIAL LIABILITY.
TO: EMHART INDUSTRIES INC
AUTHOR: PATRICIA L MEANEY, US EPA REGION 1
DOC ID: 8487 02/28/2000 11 PAGES
24. LETTER: BERNARD V. BUONANNO SR. RESPONSE TO SECTION 104 REQUEST.
TO: SHARON C FENNELLY, US EPA REGION 1
AUTHOR: BERNARD V SR. BUONANNO, NEW ENGLAND CONTAINER CO INC
DOC ID: 9280 03/03/2000 12 PAGES
25. LETTER: TRANSMITTAL OF BERNARD V. BUONANNO SR. RESPONSE TO SECTION 104 REQUEST.
TO: CATHERINE GARYPIE, US EPA REGION 1
AUTHOR: DEMING SHERMAN, EDWARDS & ANGELL
DOC ID: 9283 03/03/2000 1 PAGE
26. LETTER: ALLENDALE MILL ASSOCIATES LIMITED PARTNMERSHIP RESPONSE TO SECTION 104 REQUEST.
TO: CATHERINE GARYPIE, US EPA REGION 1
AUTHOR: RICHARD SHERMAN, EDWARDS & ANGELL
DOC ID: 9180 03/06/2000 61 PAGES
27. LETTER: EMHART INDUSTRIES INC RESPONSE TO NOTICE OF POTENTIAL LIABILITY.
TO: EDWARD BAZENAS, US EPA REGION 1
AUTHOR: JEROME C MUYS JR, SWIDLER BERLIN SHEREFF FRIEDMAN
DOC ID: 8493 03/16/2000 2 PAGES
28. LETTER: CROWN METRO INC RESPONSE TO NOTICE OF POTENTIAL LIABILITY.
TO: EDWARD BAZENAS, US EPA REGION 1
AUTHOR: KNOX L HAYNSWORTH III, BROWN MASSEY EVANS MCLEOD & HAYNSWORTH
DOC ID: 8491 03/17/2000 2 PAGES
29. LETTER: ALLENDALE MILL ASSOCIATES LIMITED PARTNMERSHIP SUPPLEMENTAL RESPONSE TO SECTION 104 REQUEST.
TO: CATHERINE GARYPIE, US EPA REGION 1
AUTHOR: RICHARD SHERMAN, EDWARDS & ANGELL
DOC ID: 9181 03/31/2000 275 PAGES

13. COMMUNITY RELATIONS

1. NEWS CLIPPING: VARIOUS ARTICLES FROM THE 1970S AND 1980S ABOUT METRO-ATLANTIC AND CENTREDALE MANOR SITE.
DOC ID: 9304 28 PAGES
2. NEWS CLIPPING: VARIOUS NEWSPAPER ARTICLES FROM 9/1994 TO 2/1999 REGARDING ALLENDALE DAM IN NORTH PROVIDENCE.
DOC ID: 10890 09/30/1994 16 PAGES

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13. COMMUNITY RELATIONS (cont)

3. MEMO : MINUTES FROM MANAGEMENT ACTION COMMITTEE MEETINGS, JANUARY 1999
TO NOVEMBER 2000.
AUTHOR: RENATA E WYNNYK, ROY F WESTON INC
US EPA REGION 1
DOC ID: 8569 01/25/1999 119 PAGES
4. PRESS RELEASE: EPA SEEKS INFORMATION ON PAST OPERATIONS AT THE CENTREDALE
MANOR SITE IN NORTH PROVIDENCE.
AUTHOR: US EPA REGION 1
DOC ID: 9733 05/13/1999 2 PAGES
5. FACT SHEET: AGENCIES SITE CONTACTS.
AUTHOR: US EPA REGION 1
DOC ID: 5609 09/01/1999 1 PAGE
6. FACT SHEET: EPA ANNOUNCES NEW ROUND OF SAMPLING RESULTS FOR
WOONASQUATUCKET RIVER & CENTREDALE MANOR.
AUTHOR: US EPA REGION 1
DOC ID: 5611 09/17/1999 3 PAGES
7. FACT SHEET: SITE UPDATE. VOLUME 1, NO. 1.
AUTHOR: US EPA REGION 1
DOC ID: 5608 09/30/1999 4 PAGES
8. PRESS RELEASE: US EPA FORMALLY PROPOSES CENTREDALE MANOR RESTORATION
PROJECT TO SUPERFUND LIST.
AUTHOR: US EPA REGION 1
DOC ID: 5612 11/05/1999 2 PAGES
9. FACT SHEET: PROJECT UPDATE, VOLUME 2, NO. 1.
AUTHOR: US EPA REGION 1
DOC ID: 5613 01/31/2000 2 PAGES
10. PRESS RELEASE: EPA APPROVES CENTREDALE MANOR/WOONASQUATUCKET RIVER FOR
SUPERFUND LISTING.
AUTHOR: US EPA REGION 1
DOC ID: 9307 02/01/2000 2 PAGES
11. PRESS RELEASE: FISH ADVISORY FROM HEALTH AND DEM.
AUTHOR: RI DEPT OF HEALTH
DOC ID: 10316 04/06/2000 1 PAGE
12. REPORT: COMMUNITY RELATIONS PLAN.
AUTHOR: US EPA REGION 1
DOC ID: 8568 04/24/2000 46 PAGES
13. PRESS RELEASE: CAPPING WORK RESUMES NEXT WEEK AT CENTREDALE MANOR
RESTORATION PROJECT.
AUTHOR: US EPA REGION 1
DOC ID: 6733 05/12/2000 1 PAGE

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13. COMMUNITY RELATIONS (cont)

14. FACT SHEET: CENTREDALE MANOR RESTORATION PROJECT UPDATE, VOLUME 2, NO.2.
AUTHOR: US EPA REGION 1
DOC ID: 6856 08/31/2000 4 PAGES
15. FACT SHEET: EPA PLANS CLEANUP FOR AREAS NEAR THE WOONASQUATUCKET RIVER.
AUTHOR: US EPA REGION 1
DOC ID: 8901 09/01/2000 8 PAGES
16. LIST : COMMUNITY RELATIONS MAILING LIST [CONFIDENTIAL].
AUTHOR: US EPA REGION 1
DOC ID: 8567 09/28/2000
17. NEWS CLIPPING: PUBLIC NOTICE OF COMMENT PERIOD FOR THE PROPOSED PLAN.
AUTHOR: PROVIDENCE JOURNAL/EVENING BULLETIN
DOC ID: 9730 10/03/2000 3 PAGES
18. PRESS RELEASE: EPA ANNOUNCES ITS PREFERRED CLEANUP OPTION FOR FLOODPLAIN AREAS ALONG WOONASQUATUCKET..
AUTHOR: US EPA REGION 1
DOC ID: 9731 10/03/2000 2 PAGES
19. PRESS RELEASE: EPA EXTENDS PUBLIC COMMENT PERIOD ON PREFERRED CLEANUP OPTION FOR FLOOD PLAIN AREAS ALONG WOONASQUATUCKET.
AUTHOR: US EPA REGION 1
DOC ID: 9727 10/23/2000 2 PAGES
20. NEWS CLIPPING: PUBLIC NOTICE FOR EXTENSION OF THE COMMENT PERIOD FOR THE PROPOSED PLAN.
AUTHOR: PROVIDENCE JOURNAL/EVENING BULLETIN
DOC ID: 9729 10/27/2000 1 PAGE
21. PRESS RELEASE: EPA EXTENDS PUBLIC COMMENT PERIOD ON PREFERRED CLEANUP OPTION FOR FLOOD PLAIN AREAS ALONG WOONASQUATUCKET.
AUTHOR: US EPA REGION 1
DOC ID: 9728 10/31/2000 1 PAGE
22. NEWS CLIPPING: VARIOUS NEWSPAPER ARTICLES REGARDING THE SITE FROM 9/1998 TO 11/2000.
DOC ID: 8904 11/02/2000 114 PAGES

14. CONGRESSIONAL RELATIONS

1. PUBLIC MEETING RECORD: COMMENTS IN THE CONGRESSIONAL RECORD REGARDING DREDGING ISSUE [SENATE, 10/12/2000 AND HOUSE OF REPRESENTATIVES, 10/19/2000].
AUTHOR: US CONGRESS
DOC ID: 9734 10/12/2000 6 PAGES
2. PUBLIC MEETING RECORD: US EPA'S 2001 APPROPRIATIONS BILL.
AUTHOR: US CONGRESS
DOC ID: 9735 10/14/2000 1 PAGE

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16. NATURAL RESOURCE TRUSTEE

1. LETTER: NOTIFICATION OF POTENTIAL DAMAGE TO NATURAL RESOURCES.
TO: ANDREW RADDANT, US DEPT OF THE INTERIOR
KENNETH FINKELSTEIN, US DEPT OF COMMERCE/NOAA
AUTHOR: LARRY BRILL, US EPA REGION 1
DOC ID: 8498 10/07/1999 5 PAGES

17. SITE MANAGEMENT RECORDS

1. REPORT: FILE REPORTS AND NEWSPAPER ARTICLES FROM 1961 TO 1975.
AUTHOR: CENTREDALE FIRE DEPT
DOC ID: 9303 04/10/1961 56 PAGES
2. MAP : FLOOD INSURANCE RATE MAP, TOWN OF JOHNSTON, RI, PROVIDENCE
COUNTY, INDEX AND PANELS 10 OF 20 AND 20 OF 20 [OVERSIZED].
AUTHOR: US FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
DOC ID: 5763 11/17/1993
3. REPORT: FLOOD INSURANCE STUDY, TOWN OF JOHNSTON, RI, PROVIDENCE COUNTY.
AUTHOR: US FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
DOC ID: 5764 11/17/1993 43 PAGES
4. LETTER: INFORMATION ON THE ALLENDALE DAM PROJECT FROM THE ARMY CORPS OF
ENGINEERS.
TO: JOSEPH E RENDINE, NORTH PROVIDENCE PLANNING DEPARTMENT
AUTHOR: ROBERT J GAUVREAU, US ARMY CORPS OF ENGINEERS
DOC ID: 9741 02/22/1995 3 PAGES
5. PRESS RELEASE: CHAFEE SECURES FUNDING FOR HISTORIC ALLENDALE DAM
RESTORATION.
AUTHOR: JOHN CHAFEE, US SENATE
DOC ID: 9742 09/17/1996 1 PAGE
6. MEMO : APPROACH FOR ADDRESSING DIOXIN IN SOIL AT CERCLA AND RCRA SITES.
AUTHOR: TIMOTHY FIELDS JR, US EPA/OFFICE OF SOLID WASTE & EMERGENCY
RESPONSE
DOC ID: 8484 04/13/1998 7 PAGES
7. LETTER: INFORMATION ON ALLENDALE DAM REPAIR PROJECT.
TO: JOHN CHAFEE, US SENATE
AUTHOR: MICHAEL W PRATT, US ARMY CORPS OF ENGINEERS
DOC ID: 9740 06/29/1998 3 PAGES
8. LETTER: ARMY CORPS OF ENGINEERS RECOMMENDATION FOR SEDIMENT SAMPLING FOR
DIOXIN AT ALLENDALE DAM.
TO: RICHARD C BOYNTON, US EPA REGION 1
AUTHOR: JOE BOCCHINO, US ARMY CORPS OF ENGINEERS
DOC ID: 9739 04/02/1999 13 PAGES
9. LETTER: BORING LOGS AND GROUNDWATER ELEVATION DATA FOR THE BROOK VILLAGE.
TO: ANNA KRASKO, US EPA REGION 1
AUTHOR: HEATHER A BOYD, GOLDMAN ENVIRONMENTAL CONSULTANTS
DOC ID: 10942 08/11/1999 9 PAGES

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17. SITE MANAGEMENT RECORDS (cont)

10. MAP : FLOOD INSURANCE RATE MAP, NORTH PROVIDENCE, RI, PROVIDENCE
COUNTY, INDEX AND PANELS 1-3 OF 3 [OVERSIZED].
AUTHOR: US FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
DOC ID: 5761 12/06/1999
11. REPORT: FLOOD INSURANCE STUDY, TOWN OF NORTH PROVIDENCE, PROVIDENCE
COUNTY.
AUTHOR: US FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
DOC ID: 5762 12/06/1999 34 PAGES
12. MEMO : IMPLEMENTING FY2000 APPROPRIATIONS REPORT LANGUAGE ON SEDIMENT
DREDGING.
AUTHOR: BARRY N BREEN, US EPA/OFFICE OF SITE REMEDIATION ENFORCEMENT
STEPHEN D LUFTIG, US EPA/OFFICE OF EMERGENCY & REMEDIAL RESPONSE
DOC ID: 6932 01/19/2000 8 PAGES
13. MAP : ORTHOIMAGE AND TOPOGRAPHIC SURVEY OF THE CENTREDALE MANOR SITE
[OVERSIZE].
AUTHOR: US ARMY CORPS OF ENGINEERS
DOC ID: 8909 03/04/2000
14. FACT SHEET: DIOXIN: REASSESSMENT INFORMATION: INTRODUCTION TO FIVE FACT
SHEETS.
AUTHOR: US EPA/OFFICE OF RESEARCH & DEVELOPMENT
DOC ID: 6761 06/12/2000 2 PAGES
15. FACT SHEET: DIOXIN: SUMMARY OF DIOXIN REASSESSMENT SCIENCE: INFORMATION
SHEET #1.
AUTHOR: US EPA/OFFICE OF RESEARCH & DEVELOPMENT
DOC ID: 6762 06/12/2000 2 PAGES
16. FACT SHEET: DIOXIN: SCIENTIFIC HIGHLIGHTS FROM DRAFT REASSESSMENT (2000):
INFORMATION SHEET #2.
AUTHOR: US EPA/OFFICE OF RESEARCH & DEVELOPMENT
DOC ID: 6763 06/12/2000 6 PAGES
17. FACT SHEET: DIOXIN REASSESSMENT PROCESS: EPA IS MOVING TOWARD COMPLETION
OF THE DIOXIN REASSESSMENT: INFORMATION SHEET #3.
AUTHOR: US EPA/OFFICE OF RESEARCH & DEVELOPMENT
DOC ID: 6764 06/12/2000 3 PAGES
18. FACT SHEET: DIOXIN: SUMMARY OF MAJOR EPA CONTROL EFFORTS: INFORMATION
SHEET #4.
AUTHOR: US EPA/OFFICE OF RESEARCH & DEVELOPMENT
DOC ID: 6765 06/12/2000 2 PAGES
19. FACT SHEET: DIOXIN: EPA CROSS-MEDIA DIOXIN STRATEGY: INFORMATION SHEET #5.
AUTHOR: US EPA/OFFICE OF RESEARCH & DEVELOPMENT
DOC ID: 6766 06/12/2000 1 PAGE

CENTREDALE MANOR RESTORATION PROJECT
ADMINISTRATIVE RECORD FILE
NTCRA JAN 2001

17. SITE MANAGEMENT RECORDS (cont)

20. LETTER: TRANSMITTAL OF THE EXECUTIVE SUMMARY OF THE NATIONAL ACADEMY OF SCIENCES REPORT.

TO: NORINE NOONAN, US EPA HEADQUARTERS

AUTHOR: BRUCE ALBERTS, NATIONAL RESEARCH COUNCIL

DOC ID: 10842 12/29/2000 1 PAGE

21. REPORT: EXECUTIVE SUMMARY FOR THE NATIONAL ACADEMY OF SCIENCES REPORT, "A RISK MANAGEMENT STRATEGY FOR PCB-CONTAMINATED SEDIMENTS", DECEMBER 2000.

AUTHOR: NATIONAL ACADEMY OF SCIENCES

DOC ID: 10889 01/05/2001 23 PAGES

20. RECORDS MANAGEMENT

1. LIST : SELECTED KEY GUIDANCE DOCUMENTS.

DOC ID: 9205 1 PAGE

APPENDIX D

RESPONSIVENESS SUMMARY
AND
TRANSCRIPT OF NOVEMBER 1, 2000 PUBLIC HEARING

Action Memorandum
Centredale Manor Restoration Project
North Providence, Rhode Island

RESPONSIVENESS SUMMARY

**CENTREDALE MANOR RESTORATION PROJECT
SUPERFUND SITE
NORTH PROVIDENCE, RHODE ISLAND**

ACTION MEMORANDUM

JANUARY 2001

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND REGION**

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1.0 INTRODUCTION:

An Engineering Evaluation/Cost Analysis (EE/CA) report has been prepared to evaluate alternative approaches to a Non-Time-Critical Removal Action (NTCRA) at the Centredale Manor Restoration Project Superfund Site (Site). The purpose of the NTCRA is to reduce exposure to residential and recreational users of property located at the Site from contact with contaminants that have been found in the soil and sediment of the Woonasquatucket River downstream of the Centredale Manor and Brook Village properties. This Responsiveness Summary describes comments to the EE/CA and the recommended alternative for the NTCRA, which were received by the U.S. Environmental Protection Agency during the 60-day public comment period.

1.1 Summary of the EE/CA

The need to perform a NTCRA has been documented in the Approval Memorandum signed by EPA New England on February 1, 2000. The need for the action is based on the presence of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) in sediment and soils located on properties that are used for residential purposes.

Dioxins were first identified in 1996 in fish collected from the Woonasquatucket River. Since that time, additional studies have found dioxins in the soil and sediments. Historical records and other information indicate that dioxin sources at the Site include at least the former location of a chemical manufacturing facility and an incinerator-based drum recycling facility. These facilities operated prior to the early 1970s on the property that is now occupied by the Centredale Manor and Brook Village apartment complexes.

Assessment of the data collected by EPA since 1997 for this Site indicates that dioxin is present at elevated concentrations in soil and sediment currently exposed on or adjacent to residential properties. The location of this dioxin is largely due to the 1991 breach in the Allendale Dam, which allowed dioxin to migrate from the Centredale Manor and Brook Village properties downstream to at least the point directly downstream of the Lymansville Dam. Elevated levels of dioxin exist generally to a depth of two feet, primarily within the former boundaries of the Allendale Pond, and the existing boundaries of Lymansville Pond.

Since the breach of the Allendale Dam, much of the bottom of Allendale Pond is intermittently exposed, particularly during periods of dry weather. The condition of the Dam is continuing to deteriorate. This has the potential for causing the release of contaminated sediment into downstream reaches of the Woonasquatucket River,

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particularly during flood events. In its current state, Allendale Dam has the potential to fail completely. Under a worst-case scenario, collapse of the Dam would result in a one-time major downstream release of contaminated sediment from Allendale Pond.

The EE/CA report presents a risk evaluation, which is a demonstration that contaminants in the soil and sediment may provide an increase in risk of cancer and non-cancer health effects to persons using the land which is the subject of the NTCRA for recreational or residential purposes over an extended period of time. The risk evaluation shows that among the chemicals at the Site present at elevated levels, dioxin provides the highest risk of these health effects, and thus supports the EPA recommendation for a removal action. Isolation or removal of the soil and sediment with dioxin at concentrations in excess of 1 part per billion (ppb) will reduce the risk of these health effects dramatically. Restoring the Allendale Dam is crucial to prevent the potential for a large scale release of contaminants from Allendale Pond to downstream areas in the near term.

The EE/CA report also presents a similar evaluation for ecological receptors such as birds, mammals and other animals that live in or near the affected areas. It was determined that while some of these animals may be affected by the contaminants present, further studies, including fish consumption risk assessment, were necessary prior to recommending a response action based on these exposures. Therefore, it was determined that a removal action should be initiated to reduce the risk of health effects to nearby residents, provided it would be performed to support additional actions in the future if they were deemed necessary.

The contaminants data was evaluated to determine which areas should be included in the NTCRA. It was determined that those areas with dioxin present at concentrations above 1 ppb in the surface soil and adjacent sediment that is under less than one foot of water should be included. This assessment found 11 areas (eight adjacent to Allendale Pond and three adjacent to Lymanville Pond) to be included in this action.

Different technologies were evaluated for their use and practicality to address the contaminants in the sediment and soils. Those that were determined to be likely to succeed were assembled into four possible removal alternatives for the exposure areas impacted above the action level of 1 ppb of dioxin:

- Alternative 1 - Cap Residential Use Soils and Flood Plain Sediments and Restore Allendale Dam;
- Alternative 2 - Cap Residential Use Soils and Flood Plain Sediments with no restoration of Allendale Dam;

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- Alternative 3 - Excavate Residential Use Soils and Flood Plain Sediments and Restore Allendale Dam; or
- Alternative 4 - Excavate Residential Use Soils and Flood Plain Sediments with no restoration of Allendale Dam.

Alternatives were developed that would prevent downstream migration of contaminants, reduce risk to residents, and properly treat and dispose of wastes generated.

The alternatives were evaluated according to three criteria: implementability, effectiveness, and cost. The elements of the alternatives evaluated included covering the soils in place, removing the soils and replacing them with clean soils, and various disposal methods of excavated soils.

Costs for these alternatives were estimated from \$1.6 million to over \$13 million, depending largely on the size of the area left exposed by the receded waters of the Allendale Pond resulting in increase of health risks. One of the alternatives (Alternative No. 3) was selected as a preferred alternative based on the effectiveness, implementability and cost. This alternative includes:

- a) removing soil and adjacent exposed sediment from properties subject to residential and recreational use that contains dioxin in excess of 1 ppb,
- b) replacing that soil and sediment with clean fill and loam placed to fit the existing grade,
- c) destroying the dioxin in that soil through controlled incineration at an off-site location, and
- d) restoring the Allendale Dam, and returning Allendale Pond water level to its original elevation.

The EE/CA report estimated that this alternative will cost approximately \$2.6 million and will require almost one year to complete.

1.2 Summary of Community Involvement in the EE/CA and NTCRA

EPA issued the EE/CA report (Tetra Tech NUS, Inc., September 2000) in September 2000 and held a public comment period from October 3, 2000 to December 4, 2000, including a 30-day extension. During the public comment period EPA held a public meeting on October 10, 2000, to present the EE/CA, and a hearing on November 1, 2000, to accept public comments. Prior to the October public meeting, a fact sheet was

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distributed to the Management Action Committee (MAC) and the Site mailing list.¹ The public hearing was recorded by a court reporter. The transcript from the public hearing is included in the Administrative Record for the Action Memorandum. This transcript provides the statements made by elected officials that were able to attend the meeting, as well as several statements provided by other stakeholders. Many of the representatives who provided statements at the hearing stated that they would also submit specific comments in writing.

Comments received during the public comment period were collected by regular mail, delivery, and electronic mail. Comments were received from the general public and residents abutting the areas where removal actions are proposed for the NTCRA. Comments were also received from community/environmental groups, government agencies, municipalities, and potentially responsible parties (PRPs).

¹ The MAC is the Management Action Committee which was formed in January 1999 and includes representatives from EPA, RIDEM, RIDOH, ATSDR, Office of the Governor of Rhode Island, Office of North Providence Mayor, Offices of other federal and state elected officials, the Providence Urban River Team, and others. The MAC serves as an important forum for community involvement at the Site. The MAC meets either weekly or bi-weekly for site progress updates and to discuss upcoming site activities. As a team, the MAC has reviewed and provided comments to fact sheets, press releases and sampling plans. Through the MAC, EPA has disseminated to the affected community site specific information regarding the on-going field activities and planned future actions.

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2.0 OVERVIEW OF COMMENTS

The following commentors expressed general support for EPA's preferred alternative, although it should be noted that some support was conditional and other comments were also offered (and are addressed below):

WRITTEN:

- Rhode Island Department of Environmental Management (RIDEM) (Martino)
- Audubon Society of Rhode Island (Marks)
- Woonasquatucket River Watershed Council (Sherman)
- Northern Rhode Island Conservation District (DeMarco)
- Emhart Industries, Inc. (Muys)
- Daniel McCusker
- Joe & Leona Vitullo
- Elsie Cimorelli
- John Pickering

VERBAL

- Johnston Mayor Mecera
- Rhode Island State Senator Celona
- RIDEM (DeStefano)
- Audubon Society of Rhode Island (Marks)
- Allendale Dam Restoration Committee (Pitassi)

Other comments were received from:

WRITTEN:

- Ann McGowan
- Roland Mergener
- Barry Schiller
- Jean Lynch
- Brook Village Associates Limited Partnership (Castleman)
- James McEnery

VERBAL

- North Providence Environmental Council (McElroy)

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2.1 Responses to Comments

Comment 1 - Dredging of the Remaining Affected Sediment

The Northern Rhode Island Conservation District (at p. 1) recommended first removing the sediment from the dried up ponded area, then routing the River to run over the restored area with pipes or appropriate device, then also dredging under the River itself. They stated that they felt contaminated sediment removal is imperative.

The Woonasquatucket River Watershed Council (at p. 1) stated that they believe that the best action is to remove all of the contaminated soils and sediments at Allendale Pond prior to the reconstruction of the Dam. They also stated the action should include a commitment to future dredging to remove all contaminated sediment from the pond and riverbed. They are opposed to covering any remaining contaminated sediment with a penetrable aqueous cap. They also stated that additional sediment removal downstream of Allendale Dam may be warranted as part of a future action to remove all human health risks and that Lymanville Dam has not effectively prevented the downstream migration of contaminated sediments.

R. Mergener (at p. 1) stated that the proposed removal action fell short of the town's priority to have the River fishable and swimmable. This commentor agreed that the dioxin and PCBs may be a first priority, but wished to see a clear timeline and cost to complete cleanup of the contaminants.

EPA Response: The purpose of the NTCRA is to reduce exposure to contaminants that have been found in the soil and sediment of the Woonasquatucket River subject to residential and recreational use and located downstream of the Centredale Manor and Brook Village properties. Like the time-critical removal activities EPA has completed at this Site, EPA considers this NTCRA to be one step in the process of final cleanup at the Site. EPA has not advocated "an aqueous cap" as a long-term solution to contamination at the Site (also see Response to Comment 15). EPA expects to address the remaining contaminated sediments in the Woonasquatucket River through the remedial process. That process includes a Remedial Investigation including human health and ecological risk assessments (which EPA is conducting now). If these risk assessments demonstrate that actionable risk is present, a feasibility study, similar to the EE/CA will be prepared to identify alternatives for removal of that risk, including an estimate of the cost to implement these actions. While EPA's goal is to remove the risk associated with contaminated sediments from the ponds, this must be justified by the conclusions of these investigations, documenting a need for an action. It also needs to be noted that should such action be determined to be necessary, site-specific cleanup levels for dioxin and

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possibly other site-related contaminants for the exposure scenarios other than direct human contact, would need to be established through the above process.

Comment 2 - Future Remedial Actions Should Not Be Limited By This Action

Rhode Island State Senator Celona indicated (verbal comments in transcript at p. 5) that while he is appreciative of EPA's efforts thus far, additional work will be required at the Site beyond this NTCRA.

The Woonasquatucket River Watershed Council (at p.1) stated that they cannot support alternative three if it compromises, in any way, the future removal of all the soil and sediment that is contaminated above actionable levels. They stated that it should be made clear now that if the current exposed and contaminated soil is covered by water, that will not reclassify the soil as sediment, thus eliminating remediation opportunities in the event future congressional actions restrict sediment removal.

R. Mergener (at p.1) expressed a concern that EPA develop a more complete cleanup plan.

J. Lynch expressed (at p. 2) the need for EPA to find a permanent solution to the problems present at the Site.

RIDEM (written comments at pp. 1-2, verbal comments in transcript at p. 8) stated that it concurs with the preferred alternative with the understanding that the NTCRA will not be the final solution for all environmental concerns at the Site. RIDEM also stated that since it is likely that the on-going ecological risk assessment will find that a future removal of additional sediment may be warranted as part of a future remedial action, either as much of the contaminated material should be removed prior to the flooding of the pond, or that the removal of any sediment based on future studies is not restricted due to this removal action. That is, if it is determined in the future that these areas need to be remediated, the fact that they have been submerged under water can not, and should not be used as a reason for them not to be removed.

The Audubon Society stated (written comments at p. 1, verbal comments in transcript at pp. 8-9) that it concurs with EPA's preferred alternative as an interim solution only.

EPA Response: EPA agrees that presence of water overlying sediment should not prevent additional remedial measures if those actions are justified by the risk assessments. The Action Memorandum states that future remedial actions are not limited by this removal action and that this action is supportive of a long-term remedial solution to

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contamination at the Site. Results of the Remedial Investigation and any Feasibility Study EPA may conduct (see EPA Response to Comment 1) are expected to be made available for public comment in Spring 2002.

Comment 3 - Transfer of Contaminants

The North Providence Environmental Council stated (verbal comments in transcript at p. 10) its concern over transferring the problem to someone else through transportation of waste to another location.

J. Pickering expressed concern about waste material left in source area under the cover material installed by EPA in 1999.

EPA Response: The preferred alternative provides for treatment of excavated wastes through incineration. Incineration is the most complete treatment available, with 99.9999 percent destruction removal efficiency (DRE), rendering the waste non-hazardous. This process will transfer the material to another location for treatment, although it will not transfer the problem.

EPA believes that development and construction of an incinerator in North Providence that could attain DREs that would protect human health and be legally used to treat sediment containing dioxin such as is present in the River would result in public apprehension and concern. It is, therefore, our assessment that the siting of a hazardous waste incinerator in the North Providence area is not a viable option and that the waste should be removed from North Providence to an existing and currently permitted incinerator.

Regarding the concern over the wastes left in the ground under the cover material installed in 1999, EPA believes that, given the requirements of the National Contingency Plan, it was the most appropriate way to stabilize the waste in a short term given proximity to the housing complexes. EPA is currently conducting tests to evaluate the current risks associated with the waste that was capped. If these risk assessments demonstrate that actionable risk is present, a feasibility study, similar to the EE/CA, will be prepared to identify alternatives to address that risk. We will continue to inform the community of our progress and look forward to continued input.

Comment 4 - Fish Ladders

The Audubon Society stated (written comments at p. 1, verbal comments in transcript at p. 9) that a fish ladder needs to part of the reconstruction of the Allendale Dam.

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The Northern Rhode Island Conservation District (at p.1) advised that EPA include a fish ladder with the restoration of the Allendale Dam.

The Allendale Dam Restoration Committee indicated (verbal comments in transcript at pp. 11-12) that a fish ladder needs to part of the reconstruction of the Allendale Dam.

EPA Response: Installation of a fish ladder may enhance the habitat value of the River and pond, assuming contamination in the inundated sediments of Allendale Pond does not adversely impact the fish population. It appears that such an amenity could be appropriate in the future, when fish runs and health of the River along its entire length are considered. Although fish ladders in themselves are not part of the objective of this NTCRA, EPA will coordinate with any party who is interested in funding these enhancements during design and implementation.

Comment 5 - Impact to the Aesthetic Quality of the River Downstream

The Woonasquatucket River Watershed Council stated concern over impact to the aesthetic quality of the Woonasquatucket River as a whole. They pointed out that the River is an economic and recreational asset of the State of Rhode Island. The Woonasquatucket River, designated as one of 14 American Heritage Rivers in the Nation, is used by paddlers and is home to a canoe and kayak rental facility. It is the centerpiece of Water Place Park in downtown Providence, and an important element in the powerful art installation, Water Fire, a regional tourist attraction. The Council pointed out that maintenance of flow is critical to the economic and recreational health of the state and the capital city.

EPA Response: EPA anticipates no appreciable change in flow to Providence due to the restoration of the Allendale Dam. The flow regime is likely to resume to that which existed prior to 1991, when the spillway breached.

Comment 6 - Previous Dam Activities

The Allendale Dam Restoration Committee indicated (verbal comments in transcript at pp. 11-12) that there may be design plans available to EPA which were previously funded by the federal government. It also indicated that EPA may have difficulty gaining access to certain properties in order to conduct Dam restoration activities. It noted that Dam restoration may assist the area in mosquito control. The Committee also recommended (verbal comments in transcript at p. 13) that EPA reseed the embankment that it will be affecting during the NTCRA.

Emhart questioned the fate of federal monies previously earmarked and the availability of design plans for the dam restoration, and requested these be used to support the project.

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EPA Response: The preliminary design and specification prepared by the U.S. Army Corps of Engineers (COE) in 1997 can be utilized, with appropriate modifications, as a basis for the design and construction of the Allendale Dam in this NTCRA. The COE has reported to the EPA that limited funds (\$9,000)-remains in the account. The COE authorization to spend the limited remaining funds would require executing a cost sharing agreement with local interests and would also require that local interests take ownership of the Dam. EPA intends to use access authority under the Superfund Law to gain access to the Dam and the required work areas in order to implement the NTCRA. It is possible that Dam restoration may assist in mosquito control, although mosquito control in itself is not part of the objective of this NTCRA. EPA intends to provide erosion control and restoration measures, such as seeding, of the areas disturbed during implementation of the NTCRA, including the Dam embankment.

Comment 7 - Risk from Current Use of River and Ponds

The Woonasquatucket River Watershed Council (at p. 2) expressed concerns that EPA is sending "mixed messages" to the community regarding swimming in the Woonasquatucket River after the implementation of the NTCRA. Specifically, an example of information reportedly provided at the informal poster session in October at North Providence Town Hall was included in the comment. A North Providence resident asked if, under the proposed action, the pond would be swimmable. The answer from EPA was yes, as far as the dioxin contamination was concerned, although given other factors including bacteria contamination they would not recommend it.

EPA Response: EPA stated in the Action Memorandum and is continuing to emphasize that the Do's and Don'ts of the Woonasquatucket River do apply now and will continue to apply after the completion of this interim removal action. The risk assessment presumes that aquatic sediments, that is, sediments under more than one foot of water are not contacted on the same regular basis as soils and sediments near the shore line. EPA realizes that cleanup of this Superfund Site is only a part of the overall comprehensive solution to return Woonasquatucket River to more productive use. EPA is committed working with other Agencies and organizations to confront the many challenges with which we are faced in combating pollution in urban rivers environment. To that end, our efforts in working with the MAC and dissemination of information regarding Superfund program activities to the affected community has proved to be successful. While proceeding with a number of successive cleanup actions at this Superfund Site, EPA is continuing educational efforts to inform the community of this and many other sources of contamination in the River and to promote its safe and responsible use. We hope that data collected by EPA regarding the River contamination and evaluations of various cleanup alternatives based on sound science will aid the community and environmental

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groups in becoming better informed about the problems associated with this Superfund Site as well as the Woonasquatucket River in general.

Comment 8 - Aquatic Sediment and Risk To Humans

Woonasquatucket River Watershed Council requested clarification about the statement in the EE/CA report that "aquatic sediments do not present an elevated level of risk to humans" and reiterated the concern for the mixed messages the community is receiving about the relative dangers of this contamination.

RIDEM requested (written comments, p. 3) that the statement in the EE/CA report indicating that "aquatic sediments do not present an elevated level of risk to humans" be clarified. Specifically, EPA should clarify if this is the case without any conditions, or if this is the case if the "Do's and Don'ts of the Woonasquatucket River" are followed.

EPA Response: EPA believes that the statement referenced above is true even if the "Do's and Don'ts" for the Woonasquatucket River are not followed. This opinion is founded in the presumption that aquatic sediments (sediments under more than one foot of water) are not anticipated to be contacted by residents or other persons recreating in this area at a frequency and duration necessary to cause an unacceptable increased risk of cancer. This is partly because dioxin was not detected in the surface water of Allendale Pond, but also because of the nature of the activity and contact in these areas. Swimming is anticipated to be less frequent than shoreline activities, and sediments contacted under water are anticipated to be removed from the skin as it passes through the water, resulting in a very short contact period.

The risk evaluations performed in the EE/CA included recreational exposures to flood plain sediments (areas expected by field scientists to be covered by less than one foot of water for the bulk of the year), assuming that "Do's and Don'ts" are not followed. These areas include the exposed sediment of Allendale Pond that is anticipated to be covered through restoration of the Dam. Quantitative risk calculations for exposure to aquatic sediments were not performed in the EE/CA due to the presumptions described above.

EPA believes that posted restrictions, including Fishing Advisory posted by RI Department of Health for the Woonasquatucket River below the Smithfield town line should remain in effect. As part of on-going investigations for this Site under the Superfund program, EPA is conducting ecological and fish/aquatic organisms consumption risk assessments to determine what additional actions may be required, including establishment of site-specific action levels in aquatic sediment for dioxin and other site-related contaminants, should elevated risks be found. These additional risk

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assessments will include risk associated with sediments not addressed by this NTCRA. EPA is also continuing the public outreach efforts for the Woonasquatucket River, including providing information on other sources of pollution, such as industrial discharges and sewage contamination, in an effort to further safe and responsible use of the River based on the up-to-date testing data and scientific assessments.

Comment 9 - Continued Use of Do's and Don'ts for the Woonasquatucket River

Two RIDEM comments (written comments, pp. 2-3) focused on the "Do's and Don'ts" for the Woonasquatucket River". One stated that since this removal is only a part of the final remedy for this Site, and only portions of the contaminated sediments will be removed from the River at this time, it must be clear to all that the "Do's and Don'ts" for the Woonasquatucket River" are to remain in place and will continue to be applied throughout the implementation of this NTCRA. The State also expressed concern about how any long and/or short term usage restrictions would be implemented in order to keep receptors, particularly children, away from the River before the final remedy is implemented.

EPA response: The Action Memorandum clarifies the need to continue the "Do's and Don'ts" for the River until a final remedy is selected and completed. During the implementation of the NTCRA, fencing and signs will remain in place until the removal action is complete and the pond is stabilized. After that time, the need to keep the fencing will be reevaluated, and some of it may be removed after discussions with local residents. In the interim period between the completion of the NTCRA and the selection of the final remedy for the River, EPA will continue to work with the State and local entities to promote an educational effort and public outreach to help residents of North Providence and Johnston understand the use limitations of the River and ponds due to the continued presence of dioxin and other pollutants.

Comment 10 - Sediment Exposed During Low Water Periods

RIDEM requested (written comments, p. 2) that seasonal water level variations be taken into account. RIDEM requests that EPA evaluate historical water levels of Allendale Pond. If this evaluation shows that there are times during low flow where the water level drops below the top level of the dam, additional contaminated soils and sediments in the Allendale Pond area should be excavated.

The Woonasquatucket River Watershed Council (at p. 2) also stated that more study is needed to evaluate low flow water levels so that the appropriate amount of contaminated soil and sediment is removed during the initial removal action. The River is at times very

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turbulent, and in the summer months there are long periods of low flow. They assert that removal of all the contaminated soil and "low flow" sediment now, coupled with constant monitoring of the water levels, will lessen the likelihood of emergency removal actions in the future because low flow conditions will not create added risks to human health.

EPA Response: The preferred alternative does incorporate a safety factor to reduce the possibility that sediments exposed during low water periods would be contacted by residents abutting the pond and River. Because the Allendale Dam is to be restored to an elevation of 93.5 feet, as the dam is overtopped, the elevation of water at the pond banks would be somewhat higher than an elevation of 93.5. Under alternative 3, the soil and sediment with dioxin levels above 1 part per billion (ppb) between the 10 year flood elevation (approximately 96 feet for most of Allendale Pond) to a lower elevation of 92.5 feet will be removed, thus reducing the resident's exposure to exposed sediments under conditions where the water level is fully one foot below the dam spillway.

Based on the information we currently have, EPA does not believe this to be an issue. If RIDEM or the Woonasquatucket River Watershed Council have new information that they can provide to EPA, we will review it during the design.

Comment 11 - Water Flow Downstream After Dam Restoration

RIDEM stated (written comments, p. 2) that after replacing the Allendale Dam, an adequate flow of water will need to be maintained downstream at all times to be protective of downstream aquatic life. RIDEM suggested that this can be achieved through the incorporation of proper engineering controls for the dam to allow water to be passed through the dam if needed.

The Woonasquatucket River Watershed Council (at p. 2) also stated that maintenance of flow is critical to the economic and recreational health of the State of Rhode Island and Providence, given the many activities which occur on the Woonasquatucket River (canoeing, kayaking, WaterFire).

EPA Response: The Dam operated without any flow control for an extended time prior to the breach in 1991, and dry periods may have reduced water flow in the reach between Lymansville and Allendale prior to that date. Replacing the spillway will only restore that dynamic to the ecosystem in that portion of the Woonasquatucket River. The need to keep a downstream flow to protect new aquatic life that has developed since 1991 will be evaluated during NTCRA design activities in terms of increased risk to the public by possibly further lowering the water table below 92.5 feet.

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Comment 12 - Allendale Raceway

RIDEM stated (written comments, p. 3) that the NTCRA must ensure that the former raceway is properly closed and can not possibly be a vehicle for contaminated sediment transport around the Allendale Dam and downstream towards Lymansville Pond.

EPA Response: The EE/CA calls for removal of contaminated sediment in the Allendale Raceway, and this will be completed as part of the NTCRA as described in the Action Memorandum. The EE/CA does not address the gate of the raceway at the east end of Allendale Dam because it is currently closed, preventing transport of contaminants which supports the removal action objectives.

It is EPA's recommendation that since the sediment containing dioxin will be removed from the raceway, the design of the Allendale Dam should include provisions for possible modifications to the existing raceway and the gate in the event that a fish ladder is funded in a future.

It will likely be determined during NTCRA design activities that the race gate or raceway structure not be disturbed until a final remedy is selected for the Allendale Pond sediments. The future of the raceway as a structure will be evaluated in conjunction with the views of the owners of the raceway property, the public requests for a fish ladder, and the remainder of the contaminated sediments within Allendale Pond.

Comment 13 - Source of the Contamination

Emhart, states (at p. 2) that the EPA "erroneously" identifies the sole source of contaminants at the Site as the Brook Village and Centredale Manor properties. They state that other potentially responsible parties (PRPs) exist for the Site who have not been identified and put on notice. It suggests that other industrial facilities both formerly and currently contribute contaminants to the Woonasquatucket River, and should be pursued, particularly since dioxin is not the only contaminant which will be excavated during the NTCRA.

EPA Response:

To the extent that the comment raises enforcement issues, these matters are not the subject of the public comment period. The concentrations and distribution of dioxins found in the soil and sediment has directed the investigations to the River and more specifically the Centredale Manor and Brook Village properties. EPA believes that the contamination at the Site was primarily caused by former chemical company operations (including the manufacture of hexachlorophene, which has dioxin as a by-

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product) and a former drum recycling operations (including uncontrolled incineration of drum residuals, which can cause the release of dioxin) at these properties prior to the early 1970s. As described in the EE/CA report, sediments in the Woonasquatucket River from Esmond to below Olneyville have been investigated, and highest concentrations of dioxin in the River have been found in sediment in the Allendale Pond, immediately downstream of the Centredale Manor property, where highest dioxin concentrations (above 100 ppb) were found in soil.

Additionally, the fact that hexachloroxanthene (HCX) along with the 2,3,7,8-TCDD was found at the Site, indicates that this dioxin contamination originated from the manufacture of hexachlorophene, which records show occurred at the Site. Dioxins and furans exist in the environment everywhere but at much lower concentrations than these found at the Site.

Comment 14 - Identification of PRPs Including Other Source Areas

R. Mergener asked (at p.1) if EPA is making progress with "collecting justice from the original polluters."

B. Schiller indicated (at p.1) that those responsible for causing the contamination should be held accountable.

Emhart (at p. 2) also called attention to the fact that in cleaning up dioxin, the cost of removing and treating for other contaminants (PCBs, PAHs, and VOCs) is incorporated within the effort, and they feel that EPA has not adequately investigated other source(s) of these contaminants along the River.

EPA Response:

These comments generally address enforcement matters which are not the subject of the public comment period. In listing the Site on the National Priority List (NPL), EPA identified the Site as (1) the main area of the Site, consisting of approximately 9.04 acres, located in North Providence, Rhode Island, just south of Route 44 on the eastern bank of the Woonasquatucket River (known as 2072 and 2074 Smith Street); and (2) extent of the entire Site down the Woonasquatucket River from the main portion of the Site south to an area just below the Lymanville Dam. EPA's definition of the Site consists of all contaminated areas within this area as well as any other location to which contamination from that area has come to be located, or from which that contamination came. The EE/CA identified dioxin as the single contaminant of concern for this NTCRA, which

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EPA believes has primarily originated at the Brook Village and Centredale Manor properties as explained in a response to Comment 12 above.

Since January 1999, EPA has conducted a number of PRP search activities for the Centredale Manor Restoration Project Superfund Site. These have included locating and interviewing persons familiar with former operations at the Site and conditions of the property at 2072 and 2074 Smith Street prior to and during construction of the apartment complexes. EPA also obtained a title search and reviewed RIDEM files, old newspapers, and fire department records to determine historic information about former releases at the Site. In 1999 and 2000, EPA issued over thirty 104(e) information request letters and conducted several administrative depositions. EPA is continuing its search activities, including searching for other possible sources of contaminants in the River. EPA has also sought the assistance of PRPs at the Site in its PRP search effort.

Based on EPA's investigations to date, EPA believes that all major sources of contamination have been identified.

Comment 15 - Completing the Ecological Risk Assessment Prior to Implementing the Preferred Alternative

Emhart notes (p. 3) that it would be more efficient and cost-effective to complete the ecological risk assessment before implementing the proposed NTCRA. If EPA implements a removal action at a later date to address any alleged ecological risks it will likely incur the same costs for a second time.

EPA Response: The justification for completion of a NTCRA is documented in the Approval Memorandum included in the public record. Reducing the increased risk to those most likely to be exposed in a timely manner is EPA's highest priority. No additional response actions are expected to be performed in the areas of the Site that are to be excavated pursuant to this Action Memorandum. EPA believes that it is necessary to meet the removal objectives outlined in the EE/CA prior to the time in which the ecological risk assessments can be completed. Therefore, the removal action will take place as soon as it is possible. We expect this Removal Action to be consistent with a long-term remedial solution to contamination at the Site by reducing the volume of contaminated material present and by preventing further contaminant migration. The restored Dam will also be equipped with a flow control structure that would allow for draining or lowering water levels in the Pond should the need for access to pond sediments develop in the future. EPA believes that there will be a cost savings since additional testing and remediation of downstream areas, which would be impacted by contaminant migration if the NTCRA was delayed, will not be required.

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Comment 16 - Responsibility for Funding Allendale Dam Restoration

Emhart questioned (at p. 3) the responsibility of the repair of the Allendale Dam. They point out that prior to 1989, the dam was owned by Allendale Mill Associates Limited Partnership, as part of the property that was developed into the Mill at Allendale Condominium. Emhart believes that it was the prior and current owners' obligation to maintain the Dam and such owners should be held responsible for its repair and subsequent maintenance.

EPA Response: This comment addresses enforcement matters which are not the subject of the public comment period.

Comment 17 - Continuing Monitoring

The Woonasquatucket River Watershed Council (at p. 2) stated that monitoring of downstream sediment is essential until it has been clearly established that remedial actions have contained the contamination.

EPA Response: EPA is continuing study on the extent of site-related sediment contamination on the Woonasquatucket River as part of the on-going remedial investigations. In September 1999, EPA collected additional sediment samples in the Manton and Dyerville areas of the River, in addition to sediment sampling already done in the Allendale and Lymanville areas of the River. This data will be used to conduct the risk assessments being performed by EPA to determine what remedial actions may be warranted for the Site. The report and the recommended cleanup approach, including any long-term monitoring, are anticipated to be available for the public comment in Spring 2002. Since the remedial investigation is currently on-going, no additional monitoring of downstream sediment is proposed as part of this NTCRA.

Comment 18 - Evaluation of Risk to Johnston Residents

The Audubon Society of Rhode Island stated (written comments at pp. 1-2) that it appears that the Johnston side of the River had not been evaluated in the EE/CA to the same extent as the North Providence side, noting that none of the maps show residential properties on the Johnston side of the River.

EPA Response: As shown by the Johnston tax plat maps, the residential lots on the Johnston side of the River do not abut the River or ponds of the study area. A right-of-way and a series of industrial properties are present between the river/ponds and the residential properties. This precludes the use of the waters edge from residential use (i.e. gardening, lawn care, etc).

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However, flood plain sediments and bank sediments obtained from the Johnston side of the River were included in the risk evaluation under a recreational exposure scenario. These evaluations estimated risks to children age 0-18 years exploring the edges of the Ponds and River in the Lymansville reach, where public access to shoreline exist. These evaluations also estimated risks to adolescents visiting the shoreline areas from both the North Providence and Johnston sides. This scenario is anticipated to be representative of how Johnston residents may interact with contaminants at the Site.

Data from the following samples collected from the Johnston side of the River and ponds were used in the recreational exposure scenarios described above. Samples CMS-023, CMS-024, CMS-025, SD-20, and SD-23 were included in the sample set for the Allendale Pond area. Samples CMS-017, CMS-018, CMS-019, CMS-020, CMS-021, CMS-022, CMS-446, and CMS-447 were included in the sample set for the recreational area north of Allendale Pond. Samples WRL-BK-2005 and WRL-BK-2004 were included in the sample set for the Lymansville Reach area. Samples SD-12 and LPX-BK-2008 were included in the sample set for the Lymansville Pond area. This data, along with locations of the samples, are presented in the EE/CA Report.

Comment 19 - Combination of Two EE/CAs Into One

The Audubon Society of Rhode Island (written comments at pp. 2-3) also requested clarification on why the two EE/CAs were described in the January 26, 2000 memo were combined. In particular, they are concerned that there has not been sufficient monitoring to adequately assess any migration either in the floodplain below the breached Allendale Dam or beyond Lymansville Dam. They specifically reference sample location WRM-SD-2054.

EPA Response: The efforts were combined because although the EE/CAs were originally scoped to address different media, the plausible removal action alternatives for these media were directly interrelated. The solution for one of the media relied on and was impacted by that for the other. Therefore they had to be combined to provide a logical process to reach a removal action decision. The resultant NTCRA meets the removal action objectives envisioned in the Approval Memorandum for both EE/CAs. Additionally, see EPA Response to Comment 20, below.

Comment 20 - Downstream Migration of Contaminants and Scope of the NTCRA

The Audubon Society of Rhode Island stated concern that sufficient monitoring had not occurred to adequately assess any migration either in the floodplain below the breached Allendale Dam or beyond Lymansville Dam.

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A. McGowan who abuts the Woonasquatucket River in the Manton area requested that the Manton and Dyerville areas be tested and considered for cleanup as well.

EPA Response: Samples of sediments and soils have been collected in the flood plain areas between Allendale Dam and Lymansville Pond, and also below Lymansville Dam. This data is included in the EE/CA Report and more samples have been collected in the Fall of 2000 in the Manton and Dyerville areas of the River, downstream of the Lymansville Dam. This data is currently being evaluated and will be made available to the public in early 2001. EPA will continue to assess the new data to determine if these areas should be included as part of the Superfund Site. Data from these samples along with all the other data will be used to develop a cleanup approach and a permanent remedy for the Site.

Comment 21 - Ecological Impacts

The Audubon Society of Rhode Island (written comments at p. 2) stated that an analysis of ecological impacts are not included in the EE/CA. They expressed concern that EPA's assertion that more widespread removal actions may have a detrimental effect on ecology at the Site is not fully supported. They also stated their preference that as a part of the removal action there would be some opportunity to assess wildlife nesting and affected foraging habitat for those species in the area of the Site. In review of Appendix C, the Society requested additional data (regarding aquatic habitat quality, foraging locations for migratory bird species) and mapping that they assert is appropriate for an ecological risk assessment.

EPA Response: The Streamlined Ecological Risk Evaluation provided in Appendix C of the EE/CA report was prepared to determine if contaminant concentrations were present that could direct a NTCRA. However, it was the finding of this evaluation that, based on literature reference values, there did not appear to be discrete areas of high concentrations of contaminants in the aquatic sediment that could be addressed through a NTCRA. Instead, it was concluded that a full Ecological Risk Assessment was appropriate to help select a permanent remedy for the River and ponds. The EPA concurs with the Audubon Society of Rhode Island that additional data assessments, including food web modeling, effects testing, and contaminant uptake testing should be conducted prior to evaluation of that permanent remedy, and is currently conducting such evaluation. EPA plans collection of biota samples in the Spring and Summer of 2001. EPA has added the Hooded Merganser and Double-crested Cormorant listed in the Society's letter, to the list of birds observed or reported to EPA by the public.

The ecological impact of restoration of the Allendale Dam was not assessed in great detail for the EE/CA because it calls for the restoration of a former habitat of a different

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type. The EPA recognizes that existing vegetated marsh habitat will be flooded and thus transformed back into pond habitat. Evaluation of the loss of habitat is only useful if compensatory habitat is to be found or created. Development of compensatory habitat in this case is not justified, since the area is to be restored to a condition that was presumably present for over a century.

Comment 22 - Removal and Restoration of Trees

The Audubon Society of Rhode Island requested (written comments, p. 4) that trees in the area to be inundated by the reconstruction of Allendale Dam be cut to stump to avoid lifting roots out of contaminated sediment by blow-down after trees have died from drowning. They further requested that these trees be replaced in the area along the River, either as street trees or on other property.

EPA Response: EPA concurs with the approach for removal of trees and shrubs from the area to be inundated after dam restoration. Although replacement of the trees in itself are not part of objective of this NTCRA, which is to remove the exposure to contaminants that pose an elevated risk, these enhancements can be coordinated with local environmental groups and residents. Replanting of trees in place of the ones removed from the Allendale Pond area would have to be funded, however through non-federal sources.

Comment 23 - Non-Cancer Risk Evaluation

The Audubon Society of Rhode Island believed (written comments at pp. 2-3) the non-cancer risk from pollutants was not evaluated, and particularly noted concern from lead, cadmium, and VOCs. They requested that attention be paid to limiting dust production in the removal of soil and sediments and other activity so as to control the pathway for further lead exposure to local residents. They also recommend that EPA undertake periodic indoor air sampling and analysis.

EPA Response: Non-cancer risks were evaluated in the human health risk evaluation and are shown in Tables B-4.1 through B-4.32 of the EE/CA. They are also summarized on the right-hand side of Table B-6. Non-cancer risks for contaminants other than lead are evaluated by estimation of Hazard Quotients and Hazard Indices. Target organ-specific hazard indices greater than 1.0 indicate the possibility of adverse non-cancer health effects. In this risk evaluation, eight residential exposure points exceeded the target organ-specific hazard index of 1 for the immune system resulting from exposures to Aroclor 1254 and one location exceeded the target organ-specific hazard index of 1 for skin resulting from exposures to arsenic. Each of these locations also had unacceptable cancer risks due to the presence of dioxins.

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It is agreed that elevated concentrations of lead are of concern, especially to neurological development in children. Risks from lead exposure at this site were evaluated qualitatively in the risk assessment through a comparison of lead concentrations in soil or flood plain sediment to EPA's Office of Solid Waste and Emergency Response soil screening level of 400 ppm for residential land use. Fifteen residential locations and three recreational areas were identified in Table B-6 as having maximum lead concentrations greater than 400 ppm. Most of these locations also showed actionable cancer risks from the presence of dioxin, and these soils will therefore be removed during the NTCRA.

Elevated levels of lead are common in urban environments, and such areas, in themselves, are not generally considered for cleanup under the Superfund program. EPA New England has collaborated with the States to launch Lead Safe Yards project aimed at reducing lead exposure in residential yards. A \$250,000 program to test and clean selected properties was announced recently for Rhode Island and is being handled by the Rhode Island Housing and Mortgage Finance Corporation.

Cadmium was not selected as a Contaminant of Potential Concern (COPC) because it was not detected in residential soils, flood plain sediments, or bank sediments at concentrations greater than risk-based screening criteria. Therefore, no further evaluation of cadmium exposures was included in the human health risk evaluation.

VOCs were not analyzed in the sediments and surface soils from the study area as environmental conditions and their location would preclude acquiring meaningful results in these media. Surface soils and sediments are subjected to too many disturbances and temperature changes to retain remnant concentrations of VOCs over time at extended distances from the discharge source. VOCs in indoor air are expected to be evaluated at the Centredale Manor building as a part of the source area investigation which is currently underway.

Monitoring for potential fugitive dusts will be performed, and appropriate engineering controls would be used to minimize or prevent adverse impacts from construction activities for the NTCRA.

Comment 24 - Fencing Around Lymansville Pond

The Audubon Society of Rhode Island requested (written comments at p. 3) EPA consider fencing and further signage in the areas around Lymansville to prevent human exposure.

EPA Response: EPA has considered this option. The fence was erected to prevent residents exposure to soils containing dioxin greater than 1 ppb. The Lymansville area

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only has small areas of soils where dioxin exceeds 1 ppb, and the residents owning this property have been notified of this condition. Since these limited areas have been controlled in this fashion, and the Removal Action to remove these soils is expected to be implemented in a near future, EPA believes that such fencing is not necessary. Warning signage has been posted, however, in the Lymanville areas, on both, Johnston and North Providence sides of the River.

Comment 25 - Allendale Flooding

J. Lynch, a representative of the Northern Rhode Island Conservation District and the Woonasquatucket River Watershed Council (at p. 1) stated a concern that flooding may cause contaminants to redistribute to residential properties once again.

EPA Response: The chemical nature of dioxins bind them to the soil and sediment particles, and so they are only subject to movement by resuspension of those particles (presumably during flood conditions). The River water itself was not found to contain dioxin. While the Allendale Dam is in the breached condition, water currents under flood conditions cause sediments to be stripped from the central channel and the banks where soils are exposed, and be carried down stream with flow to settle where flow is reduced.

Restoration of the Dam will provide a large stable area as a settling basin for sediments. In addition, the Action Memorandum calls for flow control at the Allendale Dam to alleviate flooding potential along the shores of the Allendale Pond. Finally, EPA anticipates that the quantity of contaminants available for transport within Allendale Pond will be significantly less than it was when the contaminants were originally produced. In addition, erosion of the source area has been controlled in part by the recent completion of the interim caps. While the banks of the source area are protected by the cap materials, and more contaminated sediment behind the Allendale Dam will be removed by the NTCRA, the potential for contaminants to be re-suspended will be significantly lower, with very little potential for re-contamination.

Comment 26 - Return of Woonasquatucket River to Water Suitable for Recreational Use and Sustaining Aquatic Habitat

The Audubon Society (written comments at p. 1, verbal comments in transcript at p. 9) stated that while it understands that EPA's objective with this NTCRA is to reduce risk to human health by removing certain pathways, it would ultimately like the cleanup to focus on the Clean Water Act stipulations that the water in the Woonasquatucket River be suitable for recreational use and sustaining aquatic habitat.

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The Northern Rhode Island Conservation District (at p. 1) acknowledges that the NTCRA is an interim measure, but nonetheless recommends that EPA propose appropriate followup measures to ensure that the Woonasquatucket River is fishable and swimmable.

R. Mergener (at p. 1) expressed concern that the priority for the response activities at the Site seems to have shifted to cost effectiveness from the priority of creating a river which is accessible to recreational users (including fishing, swimming, and boating), which EPA first espoused.

B. Schiller (at p. 1) recommends that EPA pursue a vision of cleaning up the Woonasquatucket River so that a viable Greenway is possible in the area - allowing access for activities such as hiking, fishing, wading, swimming and biking (particularly along the abandoned rail line on the Johnston side of the Woonasquatucket River).

EPA Response: EPA realizes that cleanup of the Centredale Manor Restoration Project Superfund site is only a part of the overall comprehensive solution to mitigate pollution in the Woonasquatucket River. EPA has begun comprehensive evaluations to determine the extent of long-term risks to human health and the environment posed by contamination from the Site. If such unacceptable risk is found, the National Contingency Plan (NCP) which governs the Superfund Program requires EPA to conduct evaluation of the cleanup alternatives and to select a remedy to eliminate or reduce such risks, based on the criteria of effectiveness, implementability and cost. EPA is currently conducting an extensive ecological and fish consumption risk assessments, including collection and analysis of biota in the River, to estimate these risks and to determine what additional actions may be required by the Superfund Program.

Earlier risk screens performed by EPA on a limited data available at that time (see Woonasquatucket River Sediment/Water Quality Analysis Project Report, USEPA, Region 1 OEME, dated July 31, 1998, as amended by a memorandum dated February 24, 1998) concluded that adverse health effects to children from contacts with sediments during recreational exposures are unlikely. The report also recommended a number of additional site investigations to be conducted, some of these have been already performed as part of the EE/CA and others are still on-going. Since publishing of that Report, extensive sampling, along with the risk evaluations presented in the EE/CA report for the recreational use of the River, indicates that dioxin and other contaminants from the Site currently do not pose an unacceptable risk to recreational users of the River, including hiking, wading, and biking in the areas of the proposed Greenway on the Johnston side of the River. This assessment does not include fish consumption: that evaluation needs to include bioaccumulation effect from contamination in the sediments up the food chain which is currently being conducted by EPA as part of the extensive Remedial

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Investigation risk assessments. Given other sources of pollution in the River, such as sewage contamination and industrial discharges, EPA recommends that posted restrictions (Do's and Don'ts for the Woonasquatucket River), including ban on fish consumption, remain in effect. EPA expects that actions under other State and EPA programs, such as the Clean Water Act, would also be implemented in the Woonasquatucket River and its watershed to achieve the goal of returning this River to its full productive use.

See also Responses to Comments 1, 7, 8, 18 and 21.

Comment 27 - Threats to Children's Health

Johnston Mayor Macera expressed concern (verbal comments in transcript at p. 5) regarding the threats posed by the Site to children's health

The Audubon Society (written comments at p. 1) expresses concern regarding whether the NTCRA will address threats to the health of children on the Johnston side of the Woonasquatucket River.

J. Lynch expressed (at p.1) concern that EPA respond to the threats posed by the Site to children's health

EPA Response: The exposure assessment documented in the EE/CA report, identified children and adolescents as sensitive groups of potential human receptors under both, recreational and residential exposure scenarios.

Residents were assumed to be exposed to floodplain sediments and soils frequently. The child resident under the age of six years was considered the most sensitive receptor for noncarcinogenic health effects and was a receptor of concern in the risk assessment for dermal contact and incidental ingestion of soil and sediment. For evaluating cancer risks to residents, exposure as children and adults were considered summarily. The evaluation used higher exposure rates for children than for adults.

Recreational receptors were assumed to come in contact with sediments and soil through activities such as walking, or exploring floodplain areas and edges of the ponds and river, and children and adolescents were considered to be the most sensitive receptors. These evaluations estimated cancer risks to children age 0-18 years in the Lymanville reach, where public access to shoreline exist adjacent to the Allendale Mill Apartment Complex, the Lee Romano Baseball Field, and the Boys and Girls Club. The child under the age of six years was considered the most sensitive receptor for noncarcinogenic health effects in

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this area. The evaluations also estimated cancer and noncancer risks to adolescents (age 9-18) expected to visit the shoreline areas from both the North Providence and Johnston sides of the River.

Results of these risk assessments indicated that adverse health effects from incidental ingestion and dermal contacts with sediment and soils were unlikely for recreational users of the River, including children. Residential-use areas where unacceptable health risks were found are proposed to be remediated under this Removal Action. Removal of contaminated soil and floodplain sediments will result in a large risk reduction at the Site, which is pertinent to the protection of children's health.

Comment 28 - Stillwater Park

B. Schiller expressed (at p.1) concerns regarding open space availability at Stillwater Park

EPA Response: Stillwater Park is not part of the Centredale Manor Restoration Project Superfund Site.

Comment 29 - Errors in Background Information

Brook Village Associates Limited Partnership expressed concern (at pp. 1-2) that EPA made several errors in the Background Information section of the EE/CA

EPA Response: EPA provided a response letter dated October 19, 2000, with corrections. The Brook Village letter and EPA response can be found in the Administrative Record for the Site.

Comment 30 - Typographical errors

RIDEM provided two comments (written comments, p. 3) regarding typographical errors in the EE/CA. The first was noted in the Executive Summary, Page E-1, Paragraph 3: Dioxins were identified in 1996, not 1998, in fish tissues collected from the Woonasquatucket River. The second was regarding Short Term Effectiveness, Page 4-25, Paragraph 4: The restoration of Allendale Dam was erroneously stated as a feature within Alternative 4.

EPA Response: The Action Memorandum provides the corrected information for these issues.

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Comment 31 - Other Environmental Issues

J Pickering raised a number of other local and general environmental issues that concern him, including consumption of contaminated fish from the Woonasquatucket River and Narragansett Bay, Johnston Landfill and, in his views, bird-transferred related contamination in the Scituate Reservoir, odor problem from Smithfield Road dump, and nation-wide problems with groundwater and air pollution from toxic chemicals.

EPA Response: EPA has a variety of regulatory programs and works with the state and local environmental offices, elected officials and members of the public to address many pollution-related health issues and to clean up air, water and land. Clean up of the Centredale Manor Restoration Project in North Providence is only a part of the overall comprehensive solution to restore Woonasquatucket River to its productive use. Johnston Landfill, Scituate Reservoir, and Smithfield Road dump are not part of this Project.

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

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IN RE: CENTREDALE MANOR *
 RESTORATION PROJECT *
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NOTARIES OFF.
 CENTREDALE 0000

11/1/00
 (9351)

Wednesday, November 1, 2000
 7:20 p.m.
 North Providence Town Hall
 North Providence, RI

APPEARANCES

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 ANNA KRASCO

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1 Wednesday, November 1, 2000

2 (Commencing at 7:20 p.m.)

3 MR. BOYNTON: Now, I'd like to
4 continue the formal part of the hearing, and I
5 will be recording this, as I mentioned before.
6 And, as I said before, we had a meeting here on
7 October 10th and we got information from the
8 meeting where everybody had asked questions and
9 we responded to those questions. Tonight we will
10 be taking oral comments and we'll respond to
11 those in a document that will be part of the
12 decision and respond in writing and the comment
13 period will close on December 4th.

14 First of all, I'd like to mention some of
15 the officials that are here, State Senator John
16 Celona; Mayor Macera from Johnston; Cheryl Bozzi
17 from Mayor Mollis' office; Paul Caranci, North
18 Providence Councilman; Ian Lang from Senator
19 Chafee's office; Nancy Langroll from Senator
20 Reed's office; and also Matt DeStafano, who is
21 going to represent the DEM here tonight. So, I
22 would like to give those folks an opportunity to
23 make oral comments first, any of those folks.

24 Mayor Macera.

1 MAYOR MACERA: Yes. I just want to
2 say that I've been following all of this since
3 its inception by way of reports that I got on a
4 monthly basis. I realize it's been a major big
5 problem, in particularly on this area, this
6 residential area, and also through Jean Lynch,
7 who has been totally devoted to the work in the
8 Town of Johnston on this project and a number of
9 other projects, and I commend you on the work
10 that you have done.

11 It looks like, after all -- sometimes when
12 you begin these things, you don't see the light
13 at the end of the tunnel, and that's what it's
14 like for us in Johnston right now with the
15 Landfill Action Committee, and every time you
16 uncover another problem, then another problem, it
17 seems like there's never a light at the end of
18 the tunnel, and sometimes it's easy to give up
19 hope, but people like Jean have hung in there.
20 We've been meeting with -- we've met periodically
21 with reports. So, I congratulate you on this.
22 It was a monumental task. It looks like you
23 brought it to a very good conclusion. And, I
24 support the efforts, you know that the way the

1 Town of Johnston has evolved, in the sense that
2 down below in the Manton area, and, as Jean told
3 me, kids very often go down at the river and play
4 in the river. I know I have one in the back of
5 my house, and my son is going to be eleven years
6 old and he's got all his friends in the
7 neighborhood and they're down in the back of that
8 river playing. Kids just tend to run and play
9 near rivers. So, I congratulate you. This is a
10 major, major accomplishment so far. Now it's
11 just a question of getting the money and getting
12 the project done. So, however I can support
13 that, whatever way I can do that, through Jean,
14 especially by her presence at these meetings, and
15 our new town planner was not able to be here this
16 evening, but I will be happy to support whatever
17 you have to do.

18 MR. BOYNTON: Thank you, Mayor Macera.

19 I'd also like to mention that Tony Phillips
20 is here from the Governor's office.

21 Are there any others?

22 John Celona, would you like to make a
23 statement.

24 MR. CELONA: Thank you, Dick. I, too,

1 would like to thank everyone involved,
2 particularly the management team and also the
3 EPA, the Congressional Delegation, particularly
4 Nancy Langlois, who has been a fixture at all of
5 the management meetings that I've been to many,
6 many months and years. Just before I got here
7 tonight I was looking through my notes in the
8 first hearing that we had, or the very first
9 meeting that we had in August of 1998 in the
10 library, when we had the EPA down here, Bob
11 Mendosa, and my opening remarks were that the
12 health, safety and wellbeing of the people living
13 around the Woonasquatucket River was of paramount
14 concern. They were that then and they are now.
15 And, additionally, I also said that we wanted to
16 restore the Woonasquatucket to its environmental
17 type, which we are moving along that road. This
18 is not -- unfortunately, this is not the ending.
19 This is perhaps maybe the beginning of our
20 cleanup process. We still have other areas to
21 address, but I'm confident in the abilities of
22 the EPA, Environmental Congressional Delegation
23 and also the people on the management team,
24 myself and the Mayor and all of the experts from

1 DEM and the Health Department to get this job
2 completed.

3 One last thing I'd like to say. Initially,
4 I often said I wanted this Woonasquatucket River
5 situation to be a sprint, but then it turned into
6 a long distance race, but now it's a marathon,
7 but it's a marathon that we can win, we will win
8 for the benefit of the people, for their health
9 and safety and also for the environment. And,
10 Mayor Macera, I'm very happy to know that the
11 sediment will not be going to Johnston.

12 So, again, I'd like to, most importantly,
13 thank the people, thank the people for, in and
14 around the Woonasquatucket River, for their
15 patience, for their cooperation in this effort,
16 for not panicking, and, again, I would also like
17 to thank the authorities and the Federal
18 Government and also the local and state
19 government, because without that cooperation, we
20 wouldn't be where we are today and where we hope
21 to get in the future. Thank you.

22 MR. BOYNTON: Thank you, Senator
23 Celona. Matthew DeStefano of the Department of
24 Environmental Management wishes to make a

1 statement.

2 MR. DeSTEFANO: Hi. I am Matt
3 DeStefano. I work for DEM. I also had a long
4 list of comments, and I think I would rather
5 submit them in writing.

6 What I will say is, first and foremost, I
7 will state for the record that the State is in
8 concurrence with the EPA in choosing this
9 recommended alternative. And, we understand that
10 that statement, removal action is not intended to
11 be a final solution for all the problems at the
12 site and this is an interim start. I would like
13 to stress that this is, and we will be working
14 with EPA and the community to go forward from
15 this point to other investigations in the
16 SuperFund process to evaluate any other
17 contamination that is not addressed in this
18 removal action. Thanks.

19 MR. BOYNTON: Thank you, Matt.
20 Eugenia marks, representing the Audubon Society
21 of Rhode Island.

22 MS. MARKS: I would like to comment,
23 that the Audubon concurs with the interim
24 solution, to remove the bank sediments that will

1 provide exposure -- to provide exposure to people
2 living on the bank and to incinerate them, to
3 send them off site for incineration.

4 I do have further comments, and I will be
5 submitting more detailed written comments before
6 the close of the comment period. But, I too, am
7 concerned that we recognize this as an interim
8 measure, that in the reconstruction of the dam I
9 would hope that there would be a fish ladder
10 provided for, and even though there will be
11 sediments remaining in the Allendale Pond, that
12 will be above that one part per billion
13 threshold, that I will be following this issue to
14 assure that at some point those are removed,
15 because, again, it's an interim solution and
16 there are ongoing ecological tests that will
17 reveal what needs to be done further. But, the
18 concern that wildlife, as well as the long-term
19 possibility for humans to reuse this river under
20 the guidelines of fishable, swimmable waters,
21 that the Clean Water Act assures us, that that
22 will be attained.

23 I'm also going to be commenting on the
24 other contaminants that have been found in the

1 studies that are ongoing to this point so that we
2 focus on dioxins, but there are also other
3 contaminants that need to be addressed.

4 And, as I said, I will be speaking in more
5 detail on other issues in written comments..
6 Thank you.

7 MR. BOYNTON: Thank you. Are there
8 others that would like to make a comment on the
9 record? Oral comments? Yes, sir. State your
10 name and your affiliation, please.

11 MR. McELROY: Paul McElroy, North
12 Providence Environmental Council.

13 My concern is that we are transferring our
14 problem to someone else and I don't think that's
15 fair. You know, we generated this problem. We
16 should deal with it ourselves and not send it off
17 to some other part of the world where it's going
18 to create another problem.

19 I have more comments, which will be written
20 and sent in.

21 MR. BOYNTON: Thank you. Anyone else
22 like to make an oral comment for the record
23 tonight? Yes. Thank you.

24 MR. PITASSI: Just a couple of

1 comments. Steve Pitassi. Several years ago -- a
2 few years ago, I should say, we formed the
3 Allendale Dam Restoration Committee and we tried
4 to get the Allendale Dam rebuilt. Through the
5 efforts of the late Senator John Chafee, who took
6 a lot of time to come down to North Providence,
7 visit the area, spent a lot of time here, through
8 the efforts of Representative Bambilyn Cambio,
9 Senator John Celona, the entire Town Council,
10 including Paul Caranci who is here tonight, we
11 were able to fund what we thought would be
12 rebuilding the Allendale Dam, and we had, again,
13 the efforts of the late Senator Chafee, \$250,000
14 from the Federal Government, around \$55,000 from
15 the State, if I'm willing, you know, John to say
16 something, on about 20 or 30 thousand dollars
17 from the Town, and it was a bipartisan effort to
18 get the dam rebuilt. Obviously, later the EPA,
19 through its own efforts, found a dioxin and
20 basically stopped our project.

21 Why am I bringing it up here tonight. I'm
22 bringing it up here tonight because there's been
23 a lot of work that has already been done and it
24 may be able to save the EPA quite a bit of money,

1 such as the design plans for the Allendale Dam
2 have been completed, and Joe Bakino, at the Army
3 Corps of Engineers, has plans, so I think it may
4 help you and probably alleviate or eliminate or
5 reduce some of the costs.

6 Another area of concern at that time was
7 access to the dam. We were having trouble, how
8 were we going to rebuild it, from which side
9 would we access it because it was private land
10 involved, and, again, the Mayor, Mayor Mollis sat
11 in on some of those meetings, and he probably
12 already informed you of that. There were certain
13 times you could rebuild the dam because of the
14 flow of water, et cetera. But, I think it's
15 great that this project is underway. I think
16 there's always been a risk there of stagnant
17 water, especially with the problem with
18 mosquitoes that have surfaced in the past year or
19 two, and I think it's great to see, you know, the
20 project underway.

21 I concur with -- I forget her name -- Jean
22 I guess, regarding the fish ladders. I think
23 it's important, and you should take that into
24 consideration when you rebuild the dam. And, the

1 last piece of information, I think you have to
2 look at all details of rebuilding the dam, even
3 as far as the planting of seeds along the
4 embankment. There's certain seeds that will help
5 the nature, et cetera, take its course, and
6 maybe, you know, you can -- or you've already
7 looked into that. Thank you very much, and
8 you're doing a great job.

9 MR. BOYNTON: Thank you, Mr. Pitassi.
10 Do we have any more comments? All right. Before
11 I close the hearing, I would want to thank the
12 Management Action Committees, which is made up of
13 John Celona, Mayor Macera, Mayor Mollis, Eugenia
14 Marks, Matt DeStefano, Angelo Anarico (phonetic)
15 and myself. Did I miss anybody? Tony Phillips,
16 Department of Health, Bob Anasize (phonetic), and
17 ATSDR. And, they've been instrumental in helping
18 us and advising us on how to draft a remedy for
19 this interim solution that we think is
20 appropriate for this situation.

21 With that, I'll close the hearing. So the
22 hearing is closed, and now we can open it up for
23 some questions, if you have any.

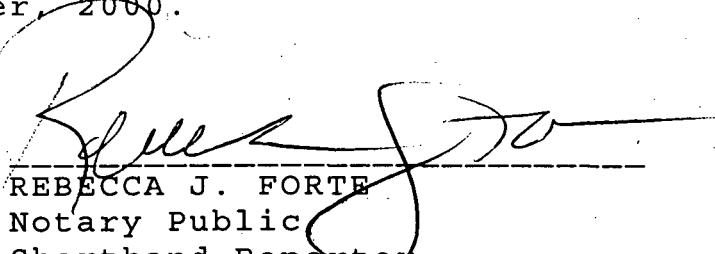
24 (HEARING CLOSED AT 7:53 P.M.)

C E R T I F I C A T E

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PROVIDENCE, SC.

I, REBECCA J. FORTE, do hereby certify that I am expressly approved as a person qualified and authorized to take depositions pursuant to Rules of Civil Procedure of this Court, especially, but without restriction thereto, under Rules; that transcript contains a true record of proceedings.

IN WITNESS WHEREOF I hereunto set my hand this
12th day of November, 2000.



REBECCA J. FORTE
Notary Public
Shorthand Reporter
My Commission Expires 7/15/2001