**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION I**
**1 CONGRESS STREET, BOSTON, MA 02114**

**DATE:** January 26, 2000

**SUBJ:** Centredale Manor Restoration Project Superfund Site - Approval Memorandum to perform an Engineering Evaluation/Cost Analysis for a Non-Time Critical Removal Action

**FROM:** Anna Krasko, Remedial Project Manager NH/RI Superfund Section

**THRU:** Larry Brill, Chief
Office of Site Remediation and Restoration I

Rich Cavagnero, Chief
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**TO:** Patricia L. Meaney, Director
Office of Site Remediation and Restoration

## I. Subject

Investigations by the United States Environmental Protection Agency (EPA) and the Rhode Island Department of Environmental Management (RIDEM) have determined that there has been a release of hazardous substances to the environment at the Centredale Manor Restoration Project Superfund Site (the Site) in North Providence, Rhode Island. 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.

This memorandum documents the decision to proceed with two Engineering Evaluation/Cost Analyses (EE/CAs) for two non-time critical removal actions (NTCRAs) at the Site. The first EE/CA will address contaminated soils in the primarily residential parcels located in the floodplain of the Woonasquatucket River southerly from Route 44 (sampling analysis currently available shows that impacted residential parcels at the Site are primarily on the east side of Allendale Pond). The second EE/CA will address contaminants in the Woonasquatucket River

sediment and soils in its floodplain, including but not limited to the Allendale Pond and the Lymansville Pond areas. This approval memorandum authorizes the expenditure of federal funds for the EE/CAs. 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 ongoing EPA time-critical removal activities or by these EE/CAs.

The decision to proceed with two EE/CAs is consistent with EPA guidance regarding Superfund Accelerated Cleanup Model (SACM) early actions and 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. This memorandum is not a final Agency decision regarding the selection of a response action for the Site.

## II. Background

### A. Site Description and History

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, encompassing approximately 9.7 acres) and the Woonasquatucket River (including its floodplain) from Route 44 southerly to a point just below the Allendale Dam. The Woonasquatucket River runs along the western portion of parcels 2072 and 2074; a drainage swale runs along the eastern portion of the parcel 2074 until it discharges into the Woonasquatucket River in the southern portion of the property. 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. 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.

2072 and 2074 Smith Street are zoned for residential occupancy and are occupied by the Brook Village and Centredale Manor Apartments, consisting of multi-story apartment buildings housing approximately 135 and 200 elderly residents, respectively. The remainder of the two parcels includes parking lots and landscaped areas with grass cover. Both parcels are located within the floodplain and flood periodically. Most of the properties within the floodplain downstream from the Site on the North Providence (east) side of the river are zoned residential with a few parcels zoned for commercial use. On the Johnston (west) side of the river, properties are primarily zoned for industrial/commercial use.

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 a 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 building located at the Site.

Analyses of soil, wetland and floodplain samples at the Site indicates elevated levels of a number of hazardous substances or pollutants or contaminants, including dioxin, polychlorinated biphenyls (PCBs), chlorobenzene, tetrachloroethylene, trichloroethlene, 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 property. With respect to sources of dioxin releases, there are reports of hexachlorophene being manufactured by the chemical company operating at the Site and the burning of chemical residuals in drums being recycled 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 800 drums were observed by RIDEM representatives at the Site, some of which were visibly smoking. Many of these drums contained hazardous waste materials requiring off-site disposal; other (empty) drums were crushed and disposed of as non-hazardous. RIDEM also directed that soil unearthed at the Site be disposed of at a solid waste landfill.

The Brook Village apartment complex was built in approximately 1977.

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.

The Centredale Manor apartment complex was built in approximately 1982.

In August 1986, EPA's contractors conducted a Preliminary Assessment (PA) of the Centredale Manor property. The PA recommended a Screening Site Inspection, which was completed in October 1990. Soil sample analysis detected several volatile organic compounds (VOCs),

semivolatile organic compounds (SVOCs), pesticides, and two PCB cogeners (Aroclors 1242 and 1254).

In 1996, as part of the EPA Providence Urban Initiative Program, fish and eel tissue samples from the Woonasquatucket watershed were analyzed. This lead to a joint advisory from the Rhode Island Department of Health and EPA against eating fish and eels from the Woonasquatucket River, due to PCB, mercury, and dioxin contamination concerns.

In June 1998, EPA initiated an Expanded Site Inspection (ESI) of the Centredale Manor property. 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 contamination on the Centredale Manor property.

Additional soil and sediment samples were collected for dioxin analysis in September of 1998. Preliminary analytical results of the were available in January of 1999, and indicated that there were elevated levels of dioxin in surface soils adjacent to residential properties

In January of 1999, EPA initiated an emergency action in response to the preliminary data from the September 1998 sampling event. Temporary fencing was installed around areas of surface soil contamination. Over 300 additional surface soil samples were collected in February of 1999 to assess the extent of surface soil contamination.

An Action Memorandum was signed in May of 1999 to secure funds for performing a range of response actions including installation of chain-link fencing to prevent access to contaminated areas; characterization of subsurface contamination; locating and controlling the source(s) of contamination; and expansion of the community outreach efforts. In September of 1999, an Action Memorandum Addendum was signed to change the scope of the action and secure additional funds. The Addendum proposed that several interim actions be employed until such time that a long-term remedy can be initiated through the Remedial Program. These actions included the construction of temporary protective caps over areas of high soil contamination near residential housing; evaluation of flood conditions via an interagency agreement with the Army Corps of Engineers; implementation of flood management as recommended by the ACOE; and reconstruction of a drainage swale (the former tailrace) on the eastern edge of the property.

As of January 2000, the Removal program has collected several hundred additional soil and sediment samples for site characterization; completed one protective cap and partially completed another protective cap; installed chain-link fence to replace temporary fencing; and coordinated with the ACOE on a flood impact study for the site area. Currently, site activities have ceased for the winter and will resume early in spring of 2000 when work continues on the second protective cap.

A third cap south of the 2074 Smith Street parcel was originally planned as part of the EPA time-critical removal action, but when additional sampling showed contamination extending from that area much further south, EPA determined that addressing contamination in that area would be beyond the scope of a the time-critical removal action. Reconstruction of the drainage swale, based on preliminary flood control evaluations, was also determined to be beyond the time-critical removal action.

EPA initiated Remedial Investigation (RI) activities at the Site in August 1999. These activities include: the use of vapor-diffusion samplers to identify potential discharge areas for contaminated groundwater into the surface water bodies at the Site and collection of sediment, surface water and soil samples at the Site (including the floodplain area from Route 44 southerly to the Lymansville Dam). Data from these sampling activities will be available in early Spring of 2000. Additional Site evaluations for ecological risk assessments are currently being planned.

Results of investigations conducted to date show elevated levels of dioxin, PCBs, chlorinated solvents, such as trichloroethylene (TCE) and tetrachloroethylene (PCE), and numerous other compounds in soil/sediment on the 2072 and 2074 parcels in the area where the chemical manufacturing and drum recycling facilities formerly operated. Elevated levels of dioxin have been found in soil at residential properties in the floodplain located downstream from the 2072 and 2074 parcels. Elevated levels of dioxin and other hazardous substances have been found in soil and sediment in the Allendale Pond area and immediately downstream from the Allendale Dam. The Allendale Dam is currently breached, causing sediment to wash downstream. This information, along with material from the COE flood study which is currently being prepared and preliminary RI data, will be used by EPA in developing the EE/CAs.

C. Nature and Extent of Contamination

As described above, several investigations have been performed and others are on-going at the Site. The current conceptual Site model is that there has been an ongoing release of hazardous substances from the former industrial operations at the 2072 and 2074 Smith Street parcels. When the chemical companies were operating it appears that releases were made directly to soil and wetland areas at the 2072 and 2074 Smith Street parcels, as well as directly to the Woonasquatucket River. There may have also been releases made directly to these areas during construction of the apartment buildings now located on-site. During former industrial operations and after those operations ceased, riverbank and floodplain areas, including downstream primarily residential properties, were impacted through transport and deposition of contaminated soils and sediment. Significant depositions of dioxin- and PCB-contaminated sediment exist within the areas of Allendale Pond, at the Allendale Dam, and just downstream from the Allendale Dam, approximately 2,000 feet downstream from the original source areas (2072 and 2074 Smith Street). Breach of the Allendale Dam in 1991 and its continuing deterioration are

likely to facilitate continued transportation of contaminated sediment further downstream, in the Lymansville Pond portion of the Woonasquatucket River.

Substantial quantities of contamination, possibly including buried drums, are thought to be in the ground on the two parcels where former industrial activities and dumping occurred along the Woonasquatucket River and at the southern-most end of these properties. Contamination in this area of the Site has migrated into the groundwater and is leaching into the River and adjacent wetlands. Groundwater is not being used as drinking water source and all residences are connected to public water supply. Discharge of contaminated groundwater, however, affects Woonasquatucket River, which is a valuable resource and is part of the American Heritage Rivers program. The river is expected to be useable for swimming, wading, and fishing in the future.

In addition to PCBs and dioxins, several VOCs, SVOCs and metals exceed the upper end of EPA's cancer risk range of $10^{-4}$ or EPA's noncancer hazard quotient of concern, in soils on the Centredale Manor and Brooks Village property, including the following highest concentrations, with "NC" denoting noncancer endpoints and "C" denoting cancer endpoints:

- 1,2-dichlorobenzene at 2,800,000 ppb (NC);
- benzene at 480,000 ppb (C);
- chlorobenzene at 1,000,000 ppb (NC);
- tetrachloroethene at 1,7000,000 ppb (C);
- trichloroethene at 2,400,000 ppb (C);
- cadmuim at 180,000 ppb (NC);
- lead at 3,160,000 ppb (NC); and
- manganese at 6,420,000 ppb (NC).

Soil on Centredale Manor and Brook Village properties, and in the floodplain downstream are contaminated by VOCs, SVOCs, Pesticides/PCBs and Dioxins that also exceeded risk-based soil ecological benchmarks, including the following highest concentrations:

- 1,2,4-trichlorobenzene at 340,000 ppb;
- benzene at 480,000 ppb;
- chlorobenzene at 1,000,000 ppb;
- toluene at 430,000 ppb;
- xylenes at 380,000 ppb;
- benzo(a)pyrene at 7,100 ppb;
- 4,4'-DDD at 1,200 ppb;
- 4,4'-DDE at 2,200 ppb;
- 4,4'-DDT at 410 ppb;
- aldrin at 1,200 ppb;
- chlordane at 350 ppb;

- dieldrin at 9,900 ppb;
- Aroclors 1242, 1248 and 1254 at 230,000 to 1,300,000 ppb;
- total PCBs at 1,300,000 ppb; and
- 2,3,7,8-TCDD at 140 ppb.

Metals in soil also exceed risk-based ecological benchmarks for soil, including the following highest levels:

- aluminum at 16,100,000 ppb;
- antimony at 27,800 ppb;
- arsenic at 49,300 ppb;
- cadmium at 180,000 ppb;
- chromium at 472,000 ppb;
- copper at 934,000 ppb;
- lead at 3,160,000 ppb;
- manganese at 6,420,000 ppb;
- mercury at 7,400 ppb;
- silver at 35,500 ppb;
- vanadium at 72,500 ppb; and
- zinc at 3,330,000 ppb.

While recent fencing and capping of several areas on-site have limited direct human exposure to contaminated surface soil and have slowed the continuing erosion of the contaminated soil into the River and wetlands, contaminated soil/sediment historically deposited into the River and floodplain represents a long-term source of exposure to hazardous substances as well as a continuing secondary source of contamination for the downstream areas. Surface and subsurface soils and sediments have been found to contain levels of dioxin as high as 45 ppb on the primarily residential properties along the Allendale Pond, 96 ppb at the Allendale Dam, and 340 ppb at the Centredale Manor property. Preliminary data indicates that levels of PCBs are as high as 1,300,000 ppb in soil at 2072 and 2073 Smith Street, and as high as 28,000 ppb in the Allendale Pond sediments.

Sediments near Allendale Dam are contaminated with SVOCs, Pesticides/PCBs, Dioxins, and metals that exceeded risk-based sediment ecological benchmarks, including the following highest concentrations:

- Anthracene at 720 ppb;
- Acenaphthylene at 770 ppb;
- benzo(a)anthracene at 2,500 ppb;
- benzo(a)pyrene at 2,900 ppb;
- phenanthrene at 2,100 ppb;
- pyrene at 6,600 ppb;

- fluoranthene at 4,100 ppb;
- fluorene at 320 ppb;
- naphthalene at 290 ppb;
- chrysene at 3,600 ppb;
- dieldrin at 170 ppb;
- 4,4'-DDE at 170 ppb;
- endosulfan I at 28 ppb;
- total PCBs at 9,100 ppb;
- 2,3,7,8-TCDD at 93 ppb;
- lead at 629,000 ppb;
- silver at 8,900 ppb;
- cadmium at 5,500 ppb;
- chromium at 382,000 ppb; and
- mercury at 890 ppb.

## III. Threat to Public Health, Welfare, or the Environment

Section 300.415(b)(2) of the National Contingency Plan (NCP) lists a number of factors for EPA to consider in determining whether a removal action is appropriate, including:

- (i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;

- (ii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

- (iii) Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release;

- (iv) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate;

- (v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;

- (vi) Threat of fire or explosion;

- (vii) The availability of other appropriate federal or state response mechanisms to respond to the release; and

- (viii) Other situations or factors that may pose threats to public health or welfare or the environment.

An evaluation of the conditions at the Centredale Manor Restoration Project Superfund Site conclude that factors (i), (ii), (iii), (iv), (v), and (vii) are applicable as described below.

(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants -

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 at primarily residential parcels along the floodplain of the Woonasquatucket River. Elevated levels of dioxin in surface soil include levels above the Agency-recommended 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 for remedial sites (Approach for Addressing Dioxin on Soil at CERCLA and RCRA Sites, OSWER Directive 9200.4-26, April 13, 1998). 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 have not been fully evaluated and a fence is clearly a temporary measure. Second, elevated levels of numerous hazardous substances have been found in surface soils at 2072 and 2074 Smith Street–including areas as close as 50 feet from the apartment complexes located on these parcels. Because the contaminants are found at the surface of the soil, they are readily accessible to residents of and visitors to the apartment complexes at 2072 and 2074 Smith Street, as well as neighborhood children who have been known to play in the southern portion of this area.

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. Further, 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 break in 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 occasionally 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.

With regard to actual or potential exposure to animals or the food chain, in the fall of 1999 the Rhode Island Department of Health (DOH) documented elevated levels of dioxin in fish tissue from fish collected in the portion of the Woonasquatucket River which flows through the Site. A joint advisory from DOH and EPA which warns against eating fish and eels from the

Woonasquatucket River is currently in effect due to PCBs, mercury and dioxin contamination concerns. Although other animal/food chain studies have not been conducted, there is potential for exposure of animals or the food chain to hazardous substances or pollutants or contaminants. As explained above, elevated levels of hazardous substances have been found in surface soils, sediment, surface water and wetland areas. All of these areas are natural habitat for numerous species of plants and animals (ecological receptors). Although interim caps may temporarily prevent access to certain surface soils at the Site, fences do not restrict animal access to contaminants.

(ii) Actual or potential contamination of drinking water supplies or sensitive ecosystems -

The Woonasquatucket River and its associated wetlands and floodplain represent a sensitive ecosystem at the Site. Numerous media in this ecosystem have been affected by contamination: sediment, surface water, soil, and wetland areas. Although an ecological risk assessment has not yet been conducted at the Site, numerous birds, fish and animals have been observed at the Site by EPA employees and EPA contractors, including but not limited to:

- great blue herons;
- black crown night herons;
- black ducks;
- mallard ducks;
- Canada geese;
- spotted sandpipers;
- hooded merganser;
- bufflehead;
- muskrat;
- mink;
- squirrels;
- snapping turtles;
- small mouth bass;
- large mouth bass;
- sucker fish; and
- sunfish

These ecological receptors would likely be damaged by exposure to the types of hazardous substances found at the Site.

(iii) Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release - There is evidence in historical records, interviews of certain individuals, and geophysical surveys that drums and other waste material may be buried at the property. Drum carcasses were found by EPA in some areas of the Site. Buried drums and waste material may be leaching contaminants into the Woonasquatucket River.

(iv) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate - 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 hazardous substances have been found in Woonasquatucket River sediments located in the downstream portion of the Site, including below the Allendale Dam. In addition, high levels of chlorinated solvents (TCE and PCE) found at the groundwater/surface water interface in the river indicate migration of contaminants from suspected buried waste near the riverbanks and likelihood of a non-aqeous phase liquid source of contamination that may continue to impact surface water and sediment.

(v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released - 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, was breached in 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.

(vii) The availability of other appropriate federal or state response mechanisms to respond to the release - There are no other known federal or state funds or response mechanisms available to finance this action.

Based upon the NCP factors previously listed, a current or potential threat exists to public health or welfare or the environment due to the release or threat of release of hazardous substances into the environment. A NTCRA is therefore appropriate to abate, prevent, minimize, stabilize, mitigate, or eliminate such threats. In particular, NTCRAs are necessary to remove, control or contain the risk from the potential exposure to the release of hazardous substances from the Site. The first NTCRA will remove, control or contain the risk of potential exposure to contaminated soils in the primarily residential parcels located in the floodplain of the Woonasquatucket River southerly from Route 44 (sampling analysis currently available shows that impacted primarily residential parcels at the Site are primarily on the east side of Allendale Pond). The second NTCRA will remove, control or contain the risk of actual or potential exposure to contaminants in the Woonasquatucket River sediment and soils in its floodplain southerly from Route 44, including but not limited to the Allendale Pond and the Lymansville Pond areas.

This removal is designated as non-time critical because more than six months planning time is available before on-site activities must be initiated. Prior to the actual performance of a non-time critical removal at this Site, Section 300.415(b)(4) of the NCP requires that an engineering

evaluation/cost analysis (EE/CA) be performed in order to weigh different response options.

## IV. Endangerment Determination

There may be an imminent and substantial endangerment to the public health or welfare or the environment because of an actual or threatened release of a hazardous substance from the Site.

## V. Scope of the EE/CA

The purpose of the EE/CA will be to evaluate alternatives for response measures to the contaminated sediments and soil at the Site within the floodplain downgradient from the Centredale Manor property. The EE/CA will consider alternatives which meet the following general removal action objectives:

* Prevent, to the extent practicable, human exposure to contaminated soils in the primarily residential parcels located in the floodplain of the Woonasquatucket River southerly from Route 44 (sampling analysis currently available shows that impacted primarily residential parcels at the Site are primarily on the east side of Allendale Pond) ; and

* Prevent, to the extent practicable, continued environmental impacts from high concentrations of contaminants in the Woonasquatucket River sediment and soils in its floodplain, including but not limited to the Allendale Pond and the Lymansville Pond areas.

Pursuant to EPA guidance on EE/CAs, alternatives will be evaluated based upon effectiveness, implementability, cost and compliance with ARARs to the extent practicable. Further, alternatives which exceed $2 million dollars will be evaluated to determine their consistency with future remedial actions to be taken at the Site.

In developing the range of alternatives to be evaluated in the EE/CA, EPA will consider 300.415(d) of the NCP as well as relevant guidance.

EPA plans to develop two EE/CA based upon the above objectives. The first EE/CA will evaluate options to address the contaminated soils in the primarily residential parcels located in the floodplain of the Woonasquatucket River southerly from Route 44. The second EE/CA will address contaminants in the Woonasquatucket River sediment and soils in its floodplain southerly from Route 44, including but not limited to the Allendale Pond and the Lymansville Pond areas.

## VI. Enforcement Strategy

On September 15,1999, EPA mailed Notice of Potential Liability letters to three Potentially Liable Parties (PRPs): Centredale Manor Associates Limited Partnership (CMA), Brook Village Associates Limited Partnership (BVA), and New England Container Corporation (NECC). CMA is a current

owner of the Site, through its purchase of 2074 Smith Street on March 18, 1982. BVA is a current owner of the Site, through its purchase of 2072 Smith Street on October 19, 1976. NECC is a former operator at the time of disposal of hazardous substances at the Site.

On November 26, 1999 and December 2, 1999, EPA mailed Administrative Orders by Consent for the Remedial Investigation/Feasibility Study (RI/FS) and remaining time-critical removal actions, respectively, starting the formal negotiation period with BVA and CMA - the two parties who originally indicated willingness to participate in Site activities. Negotiations of both AOCs concluded unsuccessfully on December 20, 1999. EPA is currently evaluating whether it is appropriate to order the PRPs to perform the work described in the proposed AOCs. EPA expects to offer the PRPs the opportunity to perform any additional work determined by EPA to be appropriate for the Site, such as conducting an EE/CA or implementing any future Action Memorandum or Record of Decision.

## VII. Estimated Costs

The EE/CAs for the proposed NTCRAs at the Centredale Manor Restoration Project Superfund Site will either be performed by one or more PRPs with oversight by EPA or will be performed by EPA. If EPA performs the EE/CAs, they will likely be developed by an EPA contractor under the Response Action Contracts (RACs) program.

Extramural costs associate with the preparation of each EE/CA described above, including community relations activities and development of an Administrative Record, is expected to be approximately $100,000. Based upon preliminary EPA estimates, costs associate with the removal action for the soil on primarily residential properties may be in $3 to $6 million range. An additional $5 - $10 million may be required to address the contaminants in the Woonasquatucket River sediment and soils in its floodplain. The costs will be significantly impacted by the volume of soil that may require disposal as hazardous waste.

## VIII. Other Considerations

The proposed NTCRAs are congruent with the anticipated remedial actions to minimize exposure to and migration of contaminants and to restore the River to its productive uses. The data collected to date by the removal and remedial programs and the conceptual Site model presented in Section II of this memorandum documents that the nature of the threat at the Site requires a remedial response consistent with the proposed NTCRAs.

The proposed NTCRAs are one part of a three phased approach to address concerns at the Centredale Manor Restoration project Superfund Site. The other two components are (1) the EPA time-critical removal action which began in January of 1999 and is currently nearing completion which provides interim soil caps over certain source areas, protective fencing around areas with elevated contaminant levels, and flood control measures as recommended in the COE flood study which is

currently being prepared, and (2) the two-year phased RI/FS which will fully characterize the Site, followed by implementation of the selected remedy.

It is anticipated that the first EE/CA will be completed within four months of being funded and the second EE/CA will be completed within six months of being funded. These EE/CAs will form the basis of Action Memoranda which will document the cleanup approach. Procurement of the response action contractor and construction of the NTCRAs will begin immediately following approval of the Action Memoranda.

The State of Rhode Island supports an early action at this Site.

## IX. Recommendation

Ongoing investigations have determined that there has been a release of hazardous substances to the environment. Additionally, the conditions at the Site meet the NCP Section 300.415(b) criteria for a removal. Consistent with Section 104(b) of CERCLA and NCP Section 300.415(b)(4), further investigation is necessary to plan and direct the future removal actions. We recommend your approval of this request to perform two EE/CAs at the Centredale Manor Restoration Project Superfund Site. The total estimated extramural cost of performing both EE/CAs is $200,000.

2/1/00
Date

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