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**AFTER ACTION REPORT
FOR THE
CENTREDALE MANOR RESTORATION SITE
NORTH PROVIDENCE
PROVIDENCE COUNTY, RHODE ISLAND
3 MAY 1999 THROUGH 14 AUGUST 2000**

Prepared For:

U.S. Environmental Protection Agency
Region I
Emergency Planning and Response Branch
One Congress Street, Suite 1100
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1.0 INTRODUCTION

The following report, entitled *Interim After Action Report for the Centredale Manor Restoration Site, North Providence, Providence County, Rhode Island, 3 May 1999 through 14 August 2000*, is a chronological summary of the time-critical removal activities conducted by the U.S. Environmental Protection Agency (EPA), Region I, Emergency Planning and Response Branch (EPRB). These activities included the following: the collection of over 700 soil samples from surface and subsurface portions of the site, including soil samples from residential properties adjacent to the Woonasquatucket River, sediment samples in Allendale Pond, and sediment samples adjacent to Allendale Dam; the installation of over 850 feet of cedar fence in high visibility areas of the site; the installation of over 4,000 feet of chain-link fence along the perimeter of Allendale Pond and other residential areas; the construction of Interim Soil Cap No. 1 on the Centredale Manor property; the partial construction of Interim Soil Cap No. 2 adjacent to the Woonasquatucket River between the Centredale Manor and Brook Village apartment buildings; and monitoring of the professional engineering survey of the site. The IT Group, Inc., EPA's Emergency Rapid Response Services (ERRS) contractor, will generate the Final Data Summary Report, which will incorporate sampling and analytical data, corresponding sample location maps, and other pertinent information.

EPA also entered into an Inter-Agency Agreement with the Army Corps of Engineers (ACOE) New England District to complete a Flood Evaluation Study of the site and surrounding area, and to provide the On-Scene Coordinator (OSC) with flood control options and designs. The ACOE provided EPA with an engineering design for the completion of Interim Soil Cap No. 2. The design and specifications were furnished to Loureiro Engineering Associates, contractor to the Responsible Parties, who completed construction of the Interim Soil Cap No. 2.

EPA has implemented a variety of outreach activities regarding the Centredale Manor Restoration Site. A particularly significant community effort was the establishment of a Management Action Committee (MAC) to maintain an ongoing dialogue with State and community leaders regarding site activities. Members of the Committee included EPA, Rhode Island Department of Environmental Management (RI DEM), Agency for Toxic Substance Disease Registry (ATSDR), Rhode Island Department of Health (RI DOH), the representative of the Office of the Governor of Rhode Island, the representative of the office of U.S. Senator of Rhode Island Jack Reed, State of Rhode Island Senator John Celona, North Providence Mayor Ralph Mollis, Johnston Mayor William Macera, the Providence Urban Rivers Team (URT), and others. Additional outreach activities conducted by the EPA included generating and distributing fact sheets to affected residents; attending community and neighborhood meetings; issuing press releases to inform the media and the public of site activities; and meeting with individual property owners to review sampling results and outline future site actions.

2.0 SITE CONDITIONS AND BACKGROUND

2.1 Site Location and Description

The Centredale Manor Restoration Site (the site) encompasses the Centredale Manor property, portions of the Brook Village property, and approximately 36 acres of the 100-year floodplain of the Woonasquatucket River between Route 44 and the Allendale Dam (see Appendix A - Site Location Map). The Centredale Manor and Brook Village properties are zoned for residential use and encompass a total of 9.7 acres.

The Centredale Manor property is located at 2074 Smith Street (Route 44) in North Providence, Providence County, Rhode Island. The 5.24-acre parcel is registered as Plat 14, Lot 250 and in Book 117, page 414 in the North Providence Town Clerk's Office. An eight-story apartment building housing approximately 135 elderly and handicapped residents occupies 20,000 square feet of the property. Two paved parking lots are located to the north and southwest of the building. The remaining portions of the parcel are landscaped with maintained lawns and trees (see Appendix B - Pre-Removal Site Map).

The property is bordered to the north and northwest by the Brook Village property; to the east and southeast by a drainage swale, wetland area, and residential neighborhood; to the south by a wooded area and drainage channel; and to the southwest, west, and northwest by the Woonasquatucket River. The river and drainage channel converge approximately 0.2 miles south of the property. The topography of the property is generally flat, with a downward slope towards the drainage channel to the east. The wooded area south of the Centredale Manor building includes very uneven terrain with boggy conditions adjacent to the drainage channel.

The Brook Village Apartment property is located at 2072 Smith Street, North Providence, Rhode Island. This property is registered as Plat 14, Lot 200 and in Book 95, pages 817 and 818 in the North Providence Clerk's Office. The Brook Village apartment building is an 11-story building for elderly residents, which was built in 1977. A small paved parking lot is located north of the building, with four additional paved parking lots situated south of the building. The area surrounding the apartment building is landscaped with maintained lawns and trees. This property is bordered to the north by Route 44, to the east by a former tailrace and retail/commercial property, to the south by the Centredale Manor property, and to the west by the Woonasquatucket River.

The site also includes a portion of the floodplain of the Woonasquatucket River, which is defined in the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map as a 100-year floodplain. The 36 acres of the 100-year floodplain included as part of the site encompass the Woonasquatucket River from Route 44 southerly, up to and inclusive of the Allendale Dam and its associated structures, including the tailrace (sluiceway) of the dam, in North Providence, Providence County, Rhode Island. This floodplain area includes private properties, open fields, low-lying woodlands, and exposed sediments.

2.2 Site History/Previous Actions

In the 1930s, Centredale Worsted, a textile mill, was located on the Centredale Manor property. In 1936, Centredale Worsted Mills sold the property to the Olneyville Wool Combing Company. In 1940, the Olneyville Wool Combing Company sold the property to three individuals, H. Sweet, W. Clark, and M. Sweet. In April 1943, these three individuals sold the property to H. Bonino and J. Buonanno, who owned it for 3 months prior to transferring it to Centredale Enterprises, Inc., in July 1943. In 1971, Centredale Enterprises, Inc., sold the property to two individuals, J. Buonanno and E. Ricci and one business entity, Centredale Properties Corporation. In 1979, Centredale Properties Corporation sold its interest in the property to J. Buonanno and E. Ricci. They held title on the property until 1982, when the property was sold to Centredale Manor Associates. In 1995, Centredale Manor Associates sold the property to the Cornerstone Corporation.

No information regarding the types of textile activities conducted on the property, by either Centredale Worsted Mills or by the Olneyville Wool Combing Company, was found. These two companies operated on the Centredale Manor property during the 1930s through the mid-1940s.

A chemical manufacturing facility, Atlantic Chemical Company, Inc., (which changed its name in 1953 to Metro-Atlantic, Inc.) and a barrel reclamation facility, New England Container Co. Inc., operated on the Centredale Manor property between 1943 and 1971. Historical photographs indicated that the drum reclamation facility operated and stored drums on the southern portion of the property. Additional information regarding operations at these facilities is currently being sought by EPA. In 1972, a catastrophic fire destroyed most of the buildings on the property. The existing structures at the property were demolished in the mid-1970s. Construction of the Centredale Manor apartment building was completed in 1982.

In response to numerous complaints regarding odors and fumes at the property, RI DEM had conducted or supervised several investigations at the Centredale Manor property from 1970 to 1986. In October 1996, RI DOH and the EPA jointly issued an advisory against the consumption of fish and eels caught in the Woonasquatucket River. Signs were posted along the river, advocating a catch and release policy, and warning against consumption of fish and eels. Please refer to Appendix C for additional details (Appendix C - United States Environmental Protection Agency (U.S. EPA) Correspondence).

The EPA has conducted numerous investigations at the site. These investigations included the following: a Preliminary Assessment (PA) at Centredale Manor and Brook Village in August 1986; a Screening Site Inspection (SSI) in October 1990; a Site Inspection Prioritization (SIP) in May 1997; and an Expanded Site Inspection (ESI) in June 1998. In addition, the IT Group issued a *Final Site Investigation Report, Centredale Manor Restoration Project, North Providence, Rhode Island*, dated March 2000.

The ESI assessed the extent of contamination in areas of potential human exposure, investigated suspected source areas located up-river from the Centredale Manor property, and included the collection of samples to determine if dioxin/furan and hexachloroxanthene (HCX) contamination exists on the Centredale Manor property. A total of 45 sediment and surface soil samples from the Centredale Manor and Brook Village properties and the Woonasquatucket River were collected and analyzed for the ESI. Analytical results of these samples were received in January 1999, and indicated dioxin concentrations above one part per billion (ppb) in some areas. Since there existed a potential for human exposure to dioxin in these areas, several pre-removal activities were immediately initiated.

The pre-removal activities conducted by EPA and Roy F. Weston, Inc., Superfund Technical Assessment and Response Team (WESTON-START) personnel included the following: installing over 600 feet of temporary high visibility fencing in select areas of Centredale Manor, Brook Village, and several residential properties; erecting over 20 multilingual warning signs on permanent posts at strategic locations along the Woonasquatucket River; monitoring the installation of new chain-link fencing at the Lee Romano Ballfield; and posting small bilingual warning signs on all installed fences. Also, the EPA Community Relations Office established The Woonasquatucket River Hotline, to provide information to the public regarding dioxin sampling results and site activities.

In January 1999, EPA Region I and WESTON-START personnel collected an additional 25 samples from the Centredale Manor property, the Lee Romano Ballfield, and The Boys and Girls Club property. In February 1999, representatives of EPA Region I, EPA Emergency Response Team (ERT), WESTON Response Engineering and Analytical Contract (REAC), and WESTON-START conducted soil sampling on and around the Centredale Manor and Brook Village properties. Over 200 soil samples were collected for dioxin/furan analyses. Data obtained from these sampling events indicated dioxin at elevated levels up to 117 ppb in surface soils and exposed sediments at the southern portion of the Centredale Manor property.

In addition, EPA, EPAERT, WESTON-START, and WESTON-REAC personnel conducted two geophysical investigations at the Centredale Manor and Brook Village properties in February and April 1999 to determine if any buried objects existed on site. Several large areas containing metal anomalies were identified via the geophysical surveys, and these areas were subsequently incorporated into the removal action extent-of-contamination sampling survey.

The analytical results of the ESI and the subsequent sampling event of January 1999 were evaluated for public health implications by ATSDR. In a *Draft Health Consultation and a Record of Activity dated 19 March 1999*, ATSDR concluded that although current exposures were potentially low, significant risks could exist for children or adults who have frequent contact with contaminated soils and/or sediments. ATSDR provided several recommendations, including that public access be restricted in areas where surface soil levels exceed 1 ppb. Occasional contact with sediments from the Woonasquatucket River was not expected to pose a public health problem. The final ATSDR Health Consultation was issued on 7 June 1999.

Based on the conditions found at the site, a Time-Critical Removal Action was deemed necessary by the U.S. EPA EPRB.

3.0 SUMMARY OF FEDERAL RESPONSE ACTIONS

3.1 **Organization of the Response**

ORGANIZATION OF RESPONSE		
Organization	Representatives	Responsibilities
U.S. EPA - Emergency Planning and Response Branch (EPRB) On-Scene Coordinator (OSC) One Congress Street, Suite 1100 Boston, MA 02114-2023 (617) 918-1230	Ted Bazenas	Responsible for the initiation, oversight, and completion of all removal activities. Provided project updates for neighboring residents and reporters, and coordinated with State and local officials.
U.S. EPA - Superfund Community Relations Section One Congress Street, Suite 1100 Boston, MA 02114-2023 (617) 918-1054	Angela Bonariggo	Community Involvement Coordinator responsible for press releases, site updates and fact sheets, meetings with residents, and coordinating the on-site "Open House" activities.
Roy F. Weston, Inc., Superfund Technical Assessment and Response Team (START) 37 Upton Drive Wilmington, MA 01887 (978) 657-5400	Renata E. Wynyck	Provided the OSC with technical assistance, sampling and analytical support, site documentation, site safety, and monitoring of EPA contractors. Coordinated use of WESTON Corporate personnel in providing an engineering design for Interim Cap No. 1. Acted as a liaison for the OSC during community activities and weekly Management Action Committee (MAC) meetings. Provided draft and final meeting minutes, and draft and final report preparation.
IT Group, Inc. Emergency Rapid Response Services (ERRS) Contractor 88C Elm Street Hopkinton, MA 01748-1656 (978) 435-9561	Michael Blodgett Andy Schkuta Steve McGinn	Provided personnel and equipment to complete site mobilization and site restoration activities, conducted sampling and site characterization activities, subcontracted laboratory analyses, conducted and monitored fence installation. Also coordinated bids for laboratory analyses, sediment sampling, transportation and disposal of Personal Protective Equipment (PPE) and site-derived liquids. Also constructed Interim Soil Cap Nos. 1 and 2, coordinated bids for a professional engineering survey and for hydroseeding activities. Provided oversight of subcontractors.

ORGANIZATION OF RESPONSE		
Organization	Representatives	Responsibilities
US Army Corps of Engineers (ACOE) New England District 696 Virginia Road Concord, Massachusetts 01742-2751 (508) 946-2819	Tim Beauchemin Mark Otis	Assisted EPA OSC with interim flood control issues. Provided EPA with a flood control study of the site, recommendations for flood control, and an engineering design for Interim Cap No. 2.

3.2 Chronology of Removal Activities

Week of 3 May 1999

On 4 May, the Action Memorandum *Request for a Removal Action at the Centredale Manor Site, North Providence, Rhode Island* was signed by the director of the Office of Site Remediation and Restoration (see Appendix C).

On 7 May, EPA On-Scene Coordinator (OSC) Ted Bzenas, IT Group ERRS Response Manager (RM) Michael Blodgett, and WESTON-START Site Lead (SL) Renata Wynnyk arrived at the Centredale Manor property and performed a site walk. The OSC, RM, and SL also met with Anne Vaccaro, the building manager at the Centredale Manor apartment building. Site activities, including the proposed locations for the site trailers, were discussed.

Week of 10 May 1999

On 11 May, ERRS RM and two Recovery Technicians (RTs) measured linear footage for fence installation at the Centredale Manor and Brook Village properties. In addition, the eastern edge of the drainage swale located on site and portions of residential properties abutting Allendale Pond were measured for fence installation. The WESTON-START SL compiled a list of property owners with corresponding addresses for OSC Bzenas.

Week of 17 May 1999

On 17 May, an organization meeting for sampling activities was held at the EPA Region I Headquarters, located in Boston, Massachusetts. Present at the meeting were EPA OSC Ted Bzenas, EPA Quality Assurance (QA) Officer Andrew Beliveau, ERRS RM Michael Blodgett, ERRS QA Officer Michael Quinlan, WESTON-START QA Officer George Mavris, and WESTON-START SL Renata Wynnyk. Sampling events, personnel requirements, scheduling, and project and data management were discussed.

Site mobilization activities commenced. A large rental office trailer (command post trailer) was delivered and set up in the main parking lot of Centredale Manor. The OSC and RM determined the size and placement of chain-link fencing and fence gates at the Centredale Manor and Brook Village properties.

SL Wynnyk delivered 29 additional warning signs to the site. These signs were requested by the EPA Community Involvement Coordinator Angela Bonarrigo, and contained additional warnings regarding public use and recreational activities in the Woonasquatucket River.

On 19 May, the Management Action Committee (MAC) initiated a schedule of weekly meetings to maintain an open dialogue regarding site activities. Weston START prepared a weekly memorandum documenting the meetings. The memoranda are located in the Removal Site file.

Week of 24 May 1999

On 24 May, SL Wynnyk accompanied by WESTON-START members Dennis McGrath and Mark Neira, installed five additional warning signs on individual wooden posts along the Woonasquatucket River at locations specified by EPA Community Relations member Angela Bonarrigo. Also, WESTON-START personnel attached four additional warning signs to previously erected posts and signs.

The regularly scheduled MAC meeting was held.

Week of 31 May 1999

The ERRS RM and four RTs arrived on site and began clearing and grubbing undergrowth along the high visibility fence located at the Centredale and Brook Village properties. The ERRS crew also removed debris and deepened a stormwater overflow channel adjacent to the storm drain located on the Brook Village property.

The regularly scheduled MAC meeting was held.

Week of 7 June 1999

The ERRS crew continued clearing and grubbing southern sections of the Centredale Manor property.

SL Wynnyk and WESTON-START member Bill Lincourt arrived on site and used the Global Positioning System (GPS) unit to relocate and re-enter specific sample point coordinates into a central Geographic Informational System (GIS)/GPS data file. OSC Bzenas determined which sample points were to be resampled and entered into the GIS/GPS data file (see Appendix D - Sample Location Map).

Fall River Electrical Associates arrived and installed a 40-foot Class Three (3) electrical pole, electrical conduit lines, and ground pipes. Electrical service was initiated for the command post trailer.

Mr. Paul Hruda, a representative of the Centredale Manor Management Company, arrived on site and met with OSC Bzenas.

Mr. Thomas Cambio arrived on site and met with OSC Bzenas.

Week of 14 June 1999

The ERRS crew began to measure and set up a proposed fence line on the Brook Village property. The crew began to install sections of cedar picket fence along the proposed fence line (see Appendix E - Post-Removal Site Map). Fence installation was halted, due to elevated air monitoring readings on the PE MicroFID (Flame Ionization Detector), and the Photovac Photo-ionization Detector (PID). The elevated air monitoring readings were located in the proximity of sample location CMS-065, which was situated southwest of Brook Village Parking Lot No. 5. The fence installation resumed after soil sample analytical results were received and reviewed by the OSC, RM, and SL. The ERRS crew continued clearing and grubbing southern portions of the Centredale Manor property.

A decontamination trailer and a small office trailer were delivered to the site. These trailers were staged adjacent to the command post trailer. In addition, telephone service was connected to the site.

The regularly scheduled MAC meeting was held.

Week of 21 June 1999

Subsurface soil sampling activities were initiated, and ERRS personnel including six RTs, three Senior Chemists (SC), one Foreman (FM), and one Project Accountant (PA) arrived on site. Additional WESTON-START personnel consisting of members Brad Bowen, Joanne Savitski, and Christopher Sklaney mobilized to the site. Also, a Geoprobe unit, and a Geoprobe operator from Zebra, Inc., arrived on site.

Two soil sampling teams were established: one team utilized the Geoprobe unit, and the second team utilized hand augers. ERRS and WESTON-START personnel were included on each sampling team, which consisted of a geologist, a Health and Safety (H/S) monitor - recordkeeper, and two RTs. Subsurface soil sampling was initiated on the Centredale Manor property, south of the residential building. In addition to the sampling activities being conducted on site, two RTs continued clearing and grubbing overgrown areas. The remaining ERRS crew set up a decontamination area, and staged site supplies and personal protective equipment (PPE).

Site security, provided by Professional Security Services of Providence, RI, was initiated during the non-working hours of 1730 hours to 0700 hours, Monday through Friday, and 24 hours on Saturday, Sunday, and holidays.

A representative from American Drilling Services (ADS) arrived on site, and met with SC Steve McGinn.

Two representatives from the Narragansett Electric Company (NEC) and one representative from the Fall River Electric Company completed electrical power installation to the site trailers.

Two members from Goldman Environmental Company (GEC) arrived on site and met OSC Bzenas. GEC personnel collected soil samples at a depth of 1 foot in the proximity of CMS-065.

The regularly scheduled MAC meeting was held.

Week of 28 June 1999

The two ERRS/WESTON-START sampling teams continued subsurface soil sampling on the Centredale Manor property. One FM and two RTs began locating and clearing sampling locations in the floodplain area, located south of the wooded area at Centredale Manor and extending toward Allendale Dam. After sample locations were marked and cleared of vegetation, the ERRS crew began to install additional high visibility fencing in portions of the floodplain area. This high visibility fencing was installed at 562 Woonasquatucket Avenue, 566 Woonasquatucket Avenue, and at 41 Stevens Street. The crew also continued cedar fence installation on the Brook Village property, until all available posts and sections were utilized.

EPA Community Involvement Coordinator Angela Bonariggo arrived on site and met with OSC Bzenas.

Three representatives from NEC, including a senior environmental engineer, arrived on site and met with OSC Bzenas and SL Wynnyk. A site walk was conducted on the Johnston, Rhode Island (western) side of the Woonasquatucket River. OSC Bzenas correlated previous sampling locations from the February 1999 EPA/ERT and WESTON-REAC sampling event with Dioxin Toxic Equivalency (TEQ) values. Twenty-four sample points were located along a "greenway", which is owned by NEC. The former sampling locations and their respective results were identified to the NEC representatives. During the site walk, OSC Bzenas noticed debris among which was several large, solid pipes. Concerns were raised that the abandoned pipes could contain asbestos-containing materials (ACM). The NEC environmental engineer informed the OSC that NEC has an asbestos disposal contractor, and that if the pipes were analyzed and contained asbestos, NEC would responsibly transport and dispose of them.

Two attorneys from the EPA Enforcement Branch, Catherine Garypie and Donna Murray, with court reporter Vivian Dafoulas, arrived on site. Two depositions were taken from private citizens.

The regularly scheduled MAC meeting was held.

Week of 5 July 1999

The two ERRS/WESTON-START sampling teams continued subsurface soil sampling. Four RTs installed approximately 900 feet of high visibility fencing, with caution signs, along a section of the NEC greenway, located in Johnston, Rhode Island.

A sales representative from the Cosco Fence Company (Cosco, Inc.) arrived on site, and met with RM Blodgett.

EPA Remedial Project Manager (RPM) Anna Krasko arrived on site and met with OSC Bzenas.

EPA Quality Control (QC) chemist, Andy Beliveau, arrived on site, and observed daily sampling and shipping activities.