

US EPA ARCHIVE DOCUMENT

July 14, 2004

CSTAG
U. S. EPA
M Street
Washington, DC 20460

Re: Superfund Site
Centerdale Manor, North Providence, RI

Dear CSTAG Review Team:

My name is Eugenia Marks; I hold a masters degree in environmental studies from Brown University. I am employed as a policy advocate by Audubon Society of RI. I have served on the Management Action Committee as the Urban Rivers/ public representative since the beginning of this project and have reviewed documents as they have been presented. Because I have many other projects, a full review of the sediment related documents is not possible and therefore I will be unable to fully cite the following comments.

Background related to comments:

Allendale Pond is an impoundment of the Woonasquatucket River immediately downstream from the Centerdale Manor Superfund Site, and the sediments captured by the impoundment contained dioxins and other hazardous materials from former upstream uses. A break in the Allendale dam (November, 1991)¹ allowed downstream transport and deposition of those contaminated sediments. Natural flood events during the years between the breach and the repair, may have augmented the deposition of contaminated sediments, then laid bare when the water previously covering them escaped through the breach. Also the exposed sediments were subject to erosion from upstream releases at Waterman Lake and Georgiaville Pond (annual Columbus Day occurrences) as well as occasional releases in spring when water levels were of concern for dam safety. The impact of these releases can be seen in the record of the continuous gage at Allendale dam, operated by the U. S. G. S.²

In addition, the U. S. G. S. gage data shows higher flood stages have occurred at times other than the Columbus Day releases.

The repair of the dam was completed in December 2001, with a ribbon cutting in February 2002. Thus, for a little more than 10 years erosion may have transported exposed sediments of Allendale Pond to downstream locations on the Woonasquatucket River and its flood plain.



Principles:

1. Control Sources Early

The impacts of downstream transport of contaminated sediments of Allendale Pond during flood events, either before or after the breach of Allendale Dam, have not been adequately characterized.

- a. In questioning EPA Management Action Team regarding possible downstream deposition, they could not document calculations about the hydrologic flow, re-suspension or extent of deposition of sediments that may have occurred during flooding between 1970s and 1991 or during the initial breach of Allendale Pond. (To support the notion that sediment transportation occurs, I submit that signature sediments from the Ciba-Geigy site on the Pawtuxet River, as a result of upstream releases from the Gainor Dam resuspending sediments at Ciba-Geigy, have been found in Narragansett Bay off Jamestown.)³
- b. Because there has been no regulation of releases from upstream sources (impoundments) during the period of exposed contaminated sediments, there is no calculation of any erosion that may have occurred. I believe this is insufficient control or management of the source. These unexpected flows affected equipment of the contractor for the PRP during remediation of the dam (October 2001).
- c. Attached print-outs in decade format show streamflow from the USGS continuous gage at Centerdale. Of particular interest are high flows in fall of 1993, spring 1994, late spring 1998.
- d. For assessment of human health exposure, early sampling of Lee Romano Field, used by North Providence Little League, consisting of an initial 6 samples which results were below actionable level 2,3,7,8-TCDC plus a later 5 samples, and sampling at North Providence Boys & Girls Club & Early Years Learning Center, seems prudent in view of frequency of use of those areas by young people. However, in the initial sampling in 1998, areas below Allendale dam were not sampled with as tight a grid as the area immediately around the Centerdale Manor. Lawn of the condominiums in the refurbished Allendale Mill below the Allendale dam is not shown to have been tested in the 1998 round. This is an area that may have been affected by erosion and deposition of exposed sediments from Allendale Pond. Sampling in September 1998 in Lyman Mill Pond, the impoundment immediately downstream of Allendale dam, was strategic, not systematic, that is not the 50-foot cell grid used in Centerdale.
- e. I believe that greater effort could have been exerted to characterize contamination on the western, Johnston side of the Woonasquatucket

River immediately opposite Centerdale Manor. The Johnston side bank is at a higher elevation and a residential neighborhood on this plateau may have received an exposure when the Atlantic/ Metro Chemical Company burned. Flooding would not have affected the Johnston side directly opposite Centerdale Manor.

- f. We still do not have an adequate characterization of deposition of contaminated sediments the shrub-forest wetland area on the west bank of the Woonasquataucke River, immediately downstream of the Allendale Dam. This area is a natural flood plain and contains an ancient oxbow, identified by a team from EPA via aerial photos. The area has been used illegally for dumping. Future land use should be made aware of the potential for human exposure, and the environmental risk is unknown.
- g. **Discussion:** The immediate and obvious human exposures were the first focus of sampling. Human health would have been protected to a higher degree had a model of flood flow, erosion, transport, and deposition of exposed sediments been accomplished to indicate areas for more intensive sampling, particularly on the riverside lawn of the Allendale condominiums and the upper portions of Lyman Mill Pond, where residences abut the shoreline, and the dam at Lyman Mill where youngsters play in the water's edge.

2. **Involve the Community Early and Often:** The community has been provided an opportunity for involvement since 1991. Conscientious effort has been made to contact directly residents on the North Providence side of the river above Allendale Dam. Although there are fewer residences on the Johnston side that would have been affected by flooding, notices provided by Northern RI Conservation District in coordination with MAC/ Urban Rivers through school programs ("Do's and Don't's for the Woonasquataucke") in Johnston and North Providence were designed to warn school-aged youngsters. In addition newsletters, press releases, and other materials have been produced in a timely manner to inform residents about activities and updates; these have been widely distributed. Documents related to the evaluation and cleanup of the site have been made available through libraries of North Providence and Johnston. There have been strategic public meetings to explain various steps of the cleanup process.

There was a period of inadequate notice to members of the Woonasquataucke River Watershed Council and its predecessor the Woonasquataucke Greenway Plan as to meetings of the Management Action Committee (MAC). I believe those have been resolved.

Less response has come from the Town of Johnston, apparently due to internal municipal issues. The EPA team has notified the Town of meetings. I ask that continued effort be directed at the Town of Johnston as there is greater

opportunity for exposure to Johnston residents due to residential land use and access on the Johnston side at Lyman Mill Pond.

3. Coordinate with States, Local Governments, Tribes and Natural Trustees.

- a. Better coordination or communication regarding the practice of upstream impoundment releases should have provided a management strategy to prevent erosion of exposed contaminated sediments during the years when the dam was breached. The Department of Environmental Management and authorities controlling the dams at Waterman Lake, Georgiaville Pond, and the Woonasquattuck Reservoir need to coordinate with U. S. EPA.
- b. The RI Department of Environmental Management, the Town of North Providence, and the Urban Rivers representative have been consistent in attending MAC meetings and coordinating information. The RI Department of Health and the ATSDR have attended critical meetings, but I think the public health would have been better served with the expertise of health professionals who know the site at the table on a continual basis.
- c. The Department of Transportation, the North Providence DPW, and a developer seem to have been less cooperative as a new paved area was constructed on the edge of the site. There were concerns about stormwater run-off causing erosion and suspension of sediments on the site. I believe that despite greater expense, the safer stormwater diversion would have been into the river north of the site. I had hoped that federal authority could force the Town to direct the stormwater from the new development to the less risky outlet to the river.
- d. As the contaminated area is managed, coordination between RI DEM, dam owner, and U. S. EPA will be required to assure continued integrity of the Lymans Mill dam so that sediments at the bottom of the impoundment are not released downstream.

4. Develop and Refine a Conceptual Site Model that Considers Sediment Stability I have discussed above concerns about a lack of a streamflow model that would show inundation resulting from high flows through the drained, exposed sediment area of Allendale Pond in the ten years after the breach. I think a refined model of erosion and transport may show the need to sample more systematically downstream to Lyman Mill Pond and possibly beyond. In addition, modeling the sediment stability of areas between Allendale and Lyman Mill that may have received an initial deposit of Allendale Pond sediments may continue to deposit those sediments into Lyman Mill Pond during flood events.

Recently (October 2003), ground-penetrating radar and coring were used to characterize the sediment depths in Lymans Mill Pond. The stability of these

sediments under flood conditions needs to be modeled to prevent downstream deposition.

5. **Use an Iterative Approach in a Risk-Based Framework.** Risk management in the early stages focused on the Centerdale Manor site and then extended to residences along the east side of the Woonasquatucket and along the Allendale impoundment. Now the Management Action Team is looking further downstream to area of Lyman's Mill Pond where spikes of dioxin concentrations have been found. I ask that the iterations include the areas of Allendale Mill Condominium lawn on the east and forested wetland on the west side of the river between Allendale dam and Lyman Mill Pond to assess the deposition of sediments in flood conditions from Allendale Pond.
6. **Carefully Evaluate the Assumptions & Uncertainties Associated with Site Characterization Data & Site Models.** Since this has been an internal process with technical protocols, it is difficult to assess how carefully the assumptions and uncertainties have been evaluated. Reports from consultants and the agency raise these questions, but it is difficult to know whether review of assumptions and the notation of uncertainties have any effect on the analysis. I believe there are uncertainties regarding the extent of downstream risk and uncertainties associated with future behaviors, occurrences that may impact the integrity of interim solutions.
7. **Select Site-specific, Project-specific & Sediment-specific Risk Management Approaches that will Achieve Risk-based Goals.**
 - a. The swale behind Centerdale Manor has been capped, as has the contaminated area at the downstream end of the former tailrace south of Centerdale Manor. How long will these areas be monitored and by whom to assure that the caps remain integral? Who will prevent trees from rooting and being uprooted? Would removal and destruction of removed sediments present a better long-term risk to future users/ residents of the area?
 - b. Discern multiple ethnic and other cultural factors along the river related to risk communication. The elderly apartment dwellers and home-owners on Allendale Pond seem to have been served well. We hope that as the risks continue to be identified that similar attention will be afforded to other communities.
8. **Ensure that Sediment Cleanup Levels are Clearly Tied to Risk Management Goals.**
 - a. Environmental Risk: It appears that reproductive success of Tree Swallows has been adversely affected by this contamination. We do not have data on other species that use the aquatic habitat, for breeding such as odonates, or foraging such as otters. We ask that the ecosystem be

protected from exposure to contaminants that originated at the Centerdale site.

- b. **Human Health Risk:** Risk of exposure to youngsters digging for freshwater clams to use as fishing bait (observation on Manton Pond), mucking about in the edge of water (observations on Manton and Lyman Mill Pond), impaired adults enjoying the pond edge (Lyman Mill at ?Trudeau Center), or humans ingesting fish, eels or turtles downstream along Woonasquatucket needs effective risk assessment, communication, and management. **It is my opinion that future use of the area and therefore exposure is so uncertain because of frailties of institutional memory and function, the inability to control access without denying use of the river, the denial of goals of the Clean Water Act for fishable, swimmable water that removal of sediments provides the best public interest.**

9. **Maximize the Effectiveness of Institutional Controls & Recognize their Limitations.** Examples of the inability of the Town of Johnston to devote continuous staff to the Management Action Team is an indication of the inability of the well-meaning EPA to extend their information to the local target area, and thus effectiveness of Institutional Controls are not possible because there is no nexus. The strength of federal involvement needs to continue so that federal authority and federal funds flow to this site to protect the public and environmental health.
10. **Design Remedies to Minimize Short-term Risks while Achieving Long-term Protection.** I believe the EPA team has accomplished this principal. However, I do want to assure sufficient funding for modeling, sampling, analysis, and communication to assure long-term protection downstream of Allendale Pond.
11. **Monitor During and After Sediment Remediation to Assess & Document Remedy Effectiveness.** Environmental Monitoring of Allendale Pond to assess possible impact to indicator species Tree Swallows has occurred for 3 summers. I ask that continued monitoring be planned.

Notes

1. **ALLENDALE DAM, NORTH PROVIDENCE (1st CD)** - The Army Corps of Engineers was authorized by Section 358 of the 1992 Water Resources Development Act (WRDA) of 1992 (PL 102-508) to replace the breached Allendale Dam on the Woonasquatucket River in North Providence. The dam was naturally breached in November 1991. The Corps of Engineers will contribute 75 percent of the authorized cost of fixing the breach. Ownership of the structure is to be transferred to a nonprofit watershed council or the City of North Providence. The City of North Providence is required to provide the remaining costs. An early local estimate of \$90,000 turned out to be well under the reauthorization of \$360,000 included in the Water Resources Development Act of 1996. Currently, repair of the breach is

estimated at \$420,000. Sediments behind the dam contaminated with dioxin are being analyzed to determine construction requirements. EPA is investigating the upstream source of contamination with analyses of recent multilayer sampling due in October 1999. Costs for repair will undoubtedly rise pending identification and selection of appropriate remedial measures. *Prior to advertising for bids, we must resolve all outstanding environmental issues, execute a Project Cooperation Agreement (PCA), title to the dam must be transferred, and local funding must be made available. Repair of the dam and remediation of the contamination is being coordinated with EPA and the City of North Providence* exposed sediments and soils have been characterized and remediated.

2. USGS. *Daily Streamflow for the Nation*, record for USGS station 01114500, Woonasquatucket River at Centerdale, RI. Website <http://waterdata.usgs.gov/nwis>.
3. Pers. Comm., Fred Presley, RI DEM, referencing work of John King, Ph. D., URI, Graduate School of Oceanography.

Thank you for this opportunity to comment.

Cordially,



Eugenia Marks

Attachments 1. aerial photo of Allendale area; 2. 1989 – 2000 Daily Stream Flow USGS 01114500 Woonasquatucket; 3. 1980 – 1990 Daily Stream Flow USGS 01114500 Woonasquatucket.



Allendale
Dam

Allendale
Mill

Lee Romano
Ball Field

Lymansville
Pond

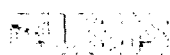
ALLE DALE AVE

DONALDSON AVE



0 100 200 400
Feet

Centredale Manor Restoration Project
This map created by the EPA New England GIS Center.
26-Jan-2004
Imagery is from an aerial photograph taken on Oct. 26, 1951.



Water Resources

Data Category:

Surface Water

Geographic Area:

United States

GO

Daily Streamflow for the Nation

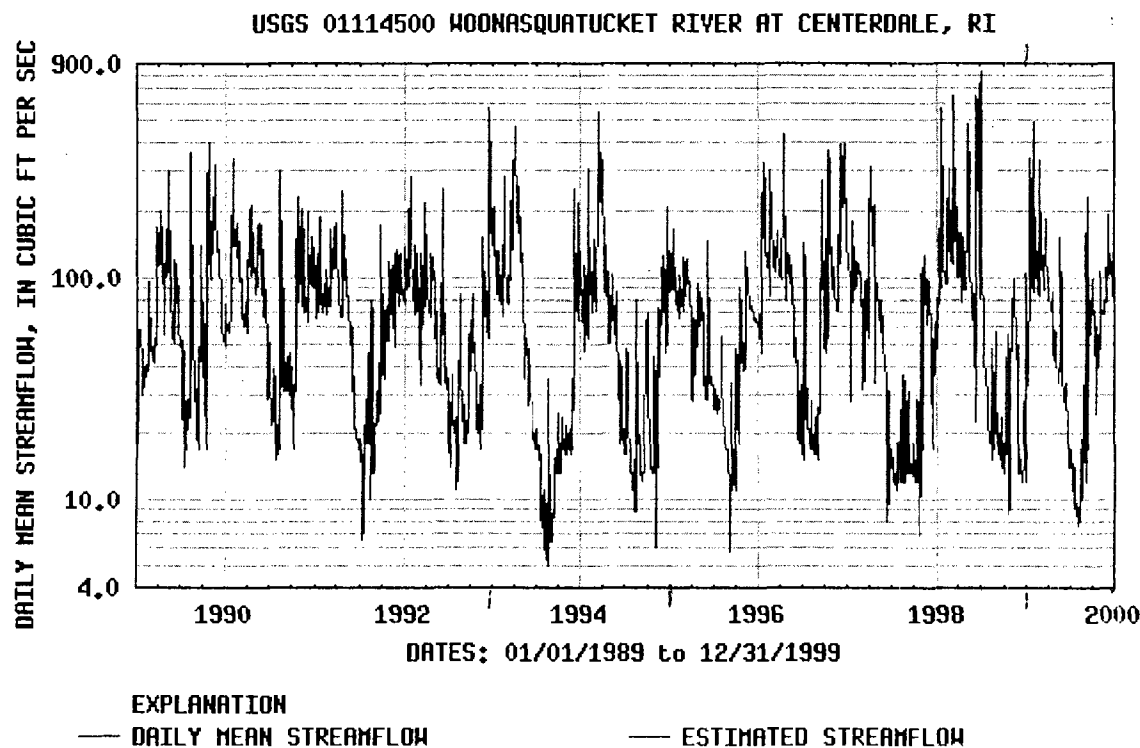
USGS 01114500 WOONASQUATUCKET RIVER AT CENTERDALE, RI

Available data for this site

Surface-water: Daily streamflow

GO

Providence County, Rhode Island
Hydrologic Unit Code 01090004
Latitude 41°51'32", Longitude 71°29'16" NAD27
Drainage area 38.30 square miles
Contributing drainage area 38.3 square miles
Gage datum 95.00 feet above sea level NGVD29

Output formats[Tab-separated data file](#)[Graph](#)[Reselect output format](#)[Download a presentation-quality graph](#)

Questions about data h2oteam@usgs.gov
Feedback on this website support_nwisweb@usgs.gov
Surface Water for USA: Daily Streamflow
<http://waterdata.usgs.gov/nwis/discharge?>

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Water Resources

Data Category:

Surface Water

Geographic Area:

United States

GO

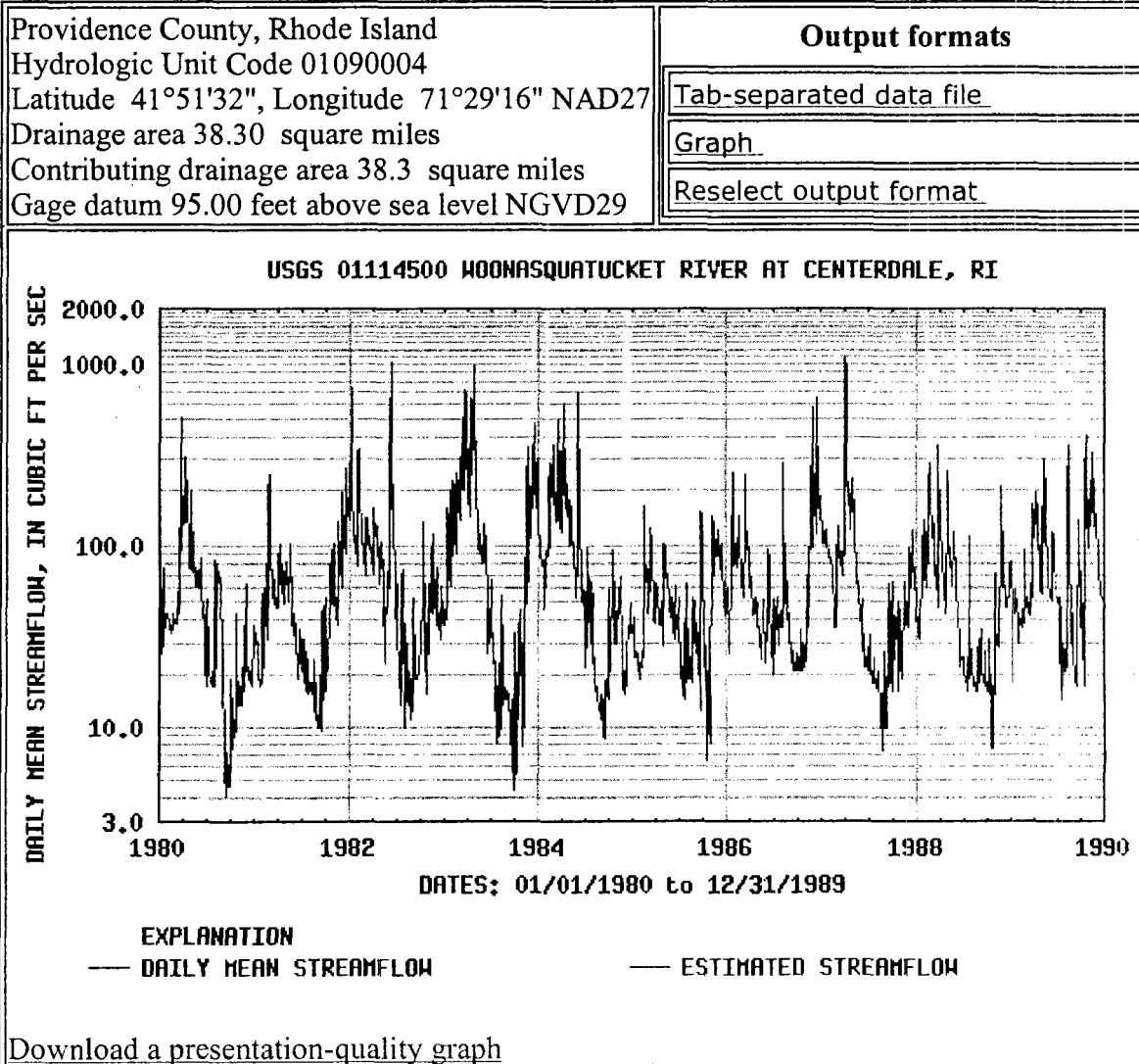
Daily Streamflow for the Nation

USGS 01114500 WOONASQUATUCKET RIVER AT CENTERDALE, RI

Available data for this site

Surface-water: Daily streamflow

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