# HOUSATONIC REST OF RIVER MUNICIPAL COMMITTEE

## AGENDA

**Rest of River Municipal Committee**
**March 9, 2018, 9:00 a.m., Lee Town Hall**

1. Introductions

2. Review of minutes of February 23, 2018 meeting

3. Executive Session – to discuss ongoing litigation

4. Comments on GE's Operation, Monitoring, and Maintenance Plans for Woods Pond Dam and Rising Pond Dam

5. Other Business
   - Reminder that there's a Citizens Coordinating Council meeting April 11, 2018

6. Adjournment

***City and Town Clerks: Please post this notice pursuant to M.G.L. Chapter 39, Section 23B.***

***Please Note: In the case of inclement weather on the day of the meeting, please call BRPC at 413-442-1521, ext. 15 to confirm if the meeting is still being held.***

# Technical Assistance Services *for* Communities
## GE-Pittsfield/Housatonic River Site

## TASC Summary of Operation, Monitoring and Maintenance Plans for Rising Pond and Woods Pond Dams

This fact sheet summarizes the operation, monitoring and maintenance (OM&M) plans for Rising Pond and Woods Pond dams at the GE-Pittsfield/Housatonic River site. EPA's Technical Assistance Services for Communities (TASC) program prepared the fact sheet. This fact sheet is funded by TASC. Its contents do not necessarily reflect the policies, actions or positions of EPA.

### *Background*

Beginning in the early 1900s, General Electric (GE) ran a large industrial facility in Pittsfield, Massachusetts. From 1932 to 1977, GE made and serviced electrical transformers containing polychlorinated biphenyls (PCBs). Disposal activities led to extensive PCB contamination around Pittsfield and in the Housatonic River. The river runs about 150 miles from its headwaters on the East Branch in Hinsdale, Massachusetts, and flows through Connecticut into Long Island Sound.

EPA banned the production of PCBs in 1979. Health effects from PCBs have been linked to cancer and other serious effects on the immune system, reproductive system, nervous system, endocrine system and other organs.

### *Current Status*

The GE-Pittsfield/Housatonic River site includes:

- Twenty cleanup actions outside the river:
  - Ten cleanup actions on the GE Plant site
  - Five cleanup actions in former oxbow areas
  - Three cleanup actions in floodplains, including some residential properties
  - The Allendale School property
  - The Silver Lake Area
- Five Groundwater Management Areas
- Upper two miles of the river:
  - The Upper ½-Mile Reach
  - The 1½-Mile Reach
- Rest of River (See definition in *Rest of River* section below)

A Consent Decree (CD) set out the process for EPA to select the Rest of River cleanup plan. After years of investigations, risk assessments, feasibility studies and discussions with stakeholders, EPA issued a Proposed Cleanup Plan (also referred to as a Draft Modification to GE's Reissued RCRA Permit) in June 2014. In October 2016, after reviewing public comments, EPA issued a Final Decision (Final Cleanup Plan). It estimates that the Rest of River cleanup will require 13 years of active remediation. In 2016, five entities, including GE, appealed the Final Cleanup Plan. The appeals process is ongoing. During the process, GE is required to implement uncontested components of the Final Cleanup Plan. The OM&M plans for Rising Pond and Woods Pond dams are included in these components.

The two plans have the same structure and contain similar content. The purpose of each OM&M plan is to describe GE's proposed OM&M program for either Rising Pond Dam or Woods Pond Dam. The overall objective of each plan is to minimize releases of PCBs in sediments and surface water that could be prevented by appropriate inspection, monitoring and maintenance activities for the dams.

## Rest of River

The CD for the site defines the Rest of River as the part of the Housatonic River and its backwaters and floodplain (excluding actual/potential lawns as defined in the CD) downstream of the confluence of the East and West Branches of the Housatonic River (the Confluence) in Pittsfield, Massachusetts. The site includes 16 reaches.

## Rising Pond and Woods Pond Dams

Both dams are owned by GE and are in Berkshire County, Massachusetts. Woods Pond Dam is between Reaches 6 and 7A in the towns of Lee and Lenox. Rising Pond Dam is between Reaches 8 and 9 in the town of Great Barrington. Figure 1 (adapted from Figure 1-2 of the Floodplain Pre-Design Investigation Work Plan - Reach 5A) shows the locations of the dams. Both dams are structures built to use run-of-the-river flows for power generation.

Woods Pond Dam has a maximum storage capacity of about 5,300 acre-feet and a structural height of 17.6 feet. Rising Pond Dam has a height of dam of about 40 feet and a maximum storage capacity of 710 acre-feet.

Under Massachusetts dam safety regulations, both dams are classified as having Significant Hazard potential (Class II). Class II dams are those located in places where their failure may cause loss of life and damage to homes, industrial and commercial facilities, and secondary highways or railroads, or cause the interruption of the use or service of important facilities. Massachusetts dam safety regulations require formal inspection of Class II dams by a licensed professional engineer every five years.

## OM&M Plans for Rising Pond and Woods Pond Dams

GE submitted the OM&M plans to EPA in December 2017. Prior to this, GE has periodically submitted dam inspection reports to EPA, Massachusetts Department of Environmental Protection and the natural resources trustees identified in the CD. The CD required GE to submit a dam integrity study and conduct any interim measures needed to ensure dam integrity to prevent

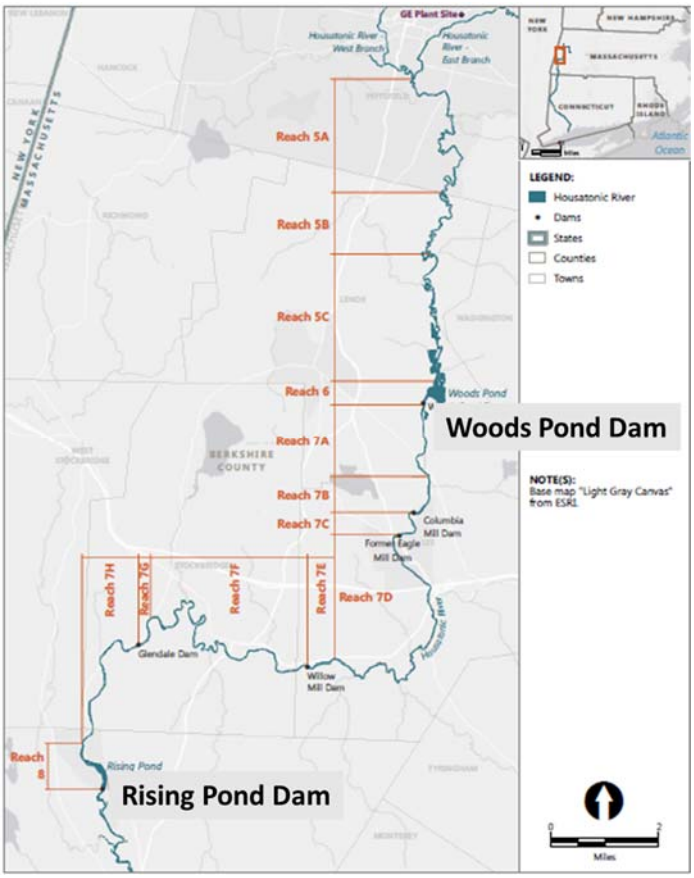


*Figure 1. Rising Pond and Woods Pond Dams*

catastrophic failures and/or substantial release of PCBs.

Each OM&M plan has nine chapters and four appendices:

1. Introduction and Background
2. Operations
3. Inspections
4. Maintenance and Repairs
5. Emergency Response
6. Training
7. Record-keeping and Reporting
8. Schedule
9. References

Appendix A. Condition Descriptions and Dam Terminology
Appendix B. Emergency Action Plan
Appendix C. Quarterly Observation Checklist
Appendix D. Biennial Engineering Phase 1 Inspection/Evaluation Checklist

## GE's Responsibility

The Final Permit requires that GE minimize the releases of PCBs related to dams and impoundments by ensuring inspection, monitoring and maintenance of the dams and impoundments and by operating the Woods Pond and Rising Pond dams. The OM&M plans state that GE will maintain the integrity of the dams, ensuring they contain contaminated sediments, conduct materials handling and off-site disposal activities, and manage engineering activities related to dam maintenance, repair, upgrades and enhancements. GE is required to address sedimentation in sluiceways, conveyances and other channels that transport water over, through or around the dams.

In addition, Massachusetts dam safety regulations state that dam owners are responsible for maintaining dam safety. As the owner of the two dams, GE is responsible for their operation and maintenance.

Both dams were inspected in December 2016 by GE's contractor (GZA GeoEnvironmental). They were found to be in satisfactory condition and in compliance with Massachusetts dam safety regulations.

## Normal and Flood Operations

No operator action is required for normal dam operations for either dam. The uncontrolled run-of-the-river overflow spillway conveys flow downstream. No operator action is required for river flow corresponding to a 100-year to 500-year flood event.

For Rising Pond Dam, GE will keep the spillway approach and discharge areas clear of debris that could hinder flow. When a 500-year storm event is forecast, GE will place sandbags on top of and adjacent to the forebay to help mitigate potential overflows and impound the reservoir.

For Woods Pond Dam, a 500-year flood event may result in about 1.8 feet of overtopping of the gravity dam section of the structure, which will require monitoring. If the water level in the raceway approaches the top of the raceway embankment, GE will verify that three stoplogs are in place in the upstream raceway closure structure and remove stoplogs from the downstream raceway stoplog structure to minimize potential for overtopping the raceway embankment. Stoplogs are hydraulic engineering controls used in floodgates to adjust the water level or discharge in a river, canal or reservoir.

## Emergency Operations

In the event of an actual or potential emergency, GE will follow the Emergency Action Plan in Appendix B of each OM&M plan. An emergency situation is defined as conditions which have or could potentially lead to a sudden, uncontrolled release of water. GZA GeoEnvironmental prepared the emergency action plans for GE. Each Emergency Action Plan is meant to be read, understood, tested annually and updated.

The emergency action plans include a notification flowchart with phone numbers to alert appropriate local and state authorities. The notification flowchart relies heavily on town dispatch/call centers – Lenox and Lee's for Woods Pond Dam and Great Barrington's for Rising Pond Dam.

## Inspections and Maintenance

The OM&M plans indicate that both dams are inspected quarterly by trained personnel and inspected by a licensed engineer experienced in dam engineering every two years. Massachusetts dam safety regulations require formal dam inspections by a licensed engineer every five years.

The OM&M plans include schedules for inspection and maintenance. See Figures 2 and 3.

The OM&M plans state that sediment will be removed from conveyances if there is a build-up of excess sediment that may interfere with water flow.

## Handling and Disposal of PCB-Contaminated Sediments and Soils

The OM&M plans state that sediments and soils removed during dam maintenance, repairs or other response activities will usually be sent off site for disposal. The materials will be tested for PCBs and other hazardous constituents. Materials containing 50 parts per million or more PCBs will be disposed

of at a Toxic Substances Control Act (TSCA)-authorized facility that can take PCB-contaminated wastes.

Materials containing less than 50 parts per million PCBs that are Resource Conservation and Recovery Act (RCRA) hazardous wastes will be sent to a hazardous waste disposal facility. Other materials will be sent to a solid waste disposal facility. If GE wants to reuse any removed materials on site, it will provide EPA with a specific proposal for review and approval.

**Inspection and Maintenance Summary**

| Inspection | Frequency |
|---|---|
| Routine | Quarterly |
| Phase 1 Inspection/Evaluations | Biennial (every 2 years) |
| Ice Out | Annual (in conjunction with a quarterly inspection) |
| Post-Storm | After storm events (possibly in conjunction with a quarterly inspection, depending on timing); limited observations during storms |
| Penstock | Once every 4 years (in conjunction with a biennial engineering inspection) |

| Monitoring | Frequency |
|---|---|
| Headwater and Tailwater | Quarterly |
| Groundwater Levels | Quarterly |
| Grout Bag Depths | Annual (in conjunction with quarterly inspections) |
| Concrete and Masonry | Quarterly |
| Metal Components | Quarterly |

| Maintenance Type | Frequency |
|---|---|
| Vegetative Cutting | Annual |
| Spillway and Outlet Works Cleaning | At least annual and as needed, plus ahead of forecast high flows if needed |
| Gate Testing/Maintenance | Annual |
| Repair of Sparse Vegetation & Erosion | As needed |
| Tree Removal | As needed |
| Rodent Damage Control | As needed |
| Slope Traffic Damage Control | As needed |
| Seepage Damage Control | As needed |
| Riprap Damage Control | As needed |
| Sediment Removal from Conveyances | As needed |
| Weephole Cleaning | As needed |
| Concrete and Masonry Maintenance | As needed |
| Metal Component Maintenance | As needed |
| Spillway Toe Riprap Maintenance | As needed |
| Instrument Maintenance | As needed |
| Security Item Maintenance | As needed |
| Access Road Maintenance | As needed |
| Other | As needed |

*Figure 2. Rising Pond Dam Inspection and Maintenance Summary*

**Inspection and Maintenance Summary**

| Inspection | Frequency |
|---|---|
| Routine | Quarterly |
| Phase 1 Inspection/Evaluations | Biennial (every 2 years) |
| Ice Out | Annual (in conjunction with a quarterly inspection) |
| Post-Storm | After storm events (possibly in conjunction with a quarterly inspection, depending on timing); limited observations during storms |
| Scour Hole at Toe of Spillway | Once every 10 years (may be combined with a biennial engineering inspection) |

| Monitoring | Frequency |
|---|---|
| Headwater and Tailwater | Quarterly |
| Groundwater Levels | Quarterly |
| Concrete and Masonry | Quarterly |
| Metal Components | Quarterly |

| Maintenance Type | Frequency |
|---|---|
| Vegetative Cutting | Annual |
| Spillway and Raceway Structure Cleaning | At least annual and as needed, plus ahead of forecast high flows if needed |
| Raceway Closure Structure Testing & Maintenance | Annual |
| Sluiceway Structure Testing & Maintenance | Once every 10 years |
| Repair of Sparse Vegetation & Erosion | As needed |
| Tree Removal | As needed |
| Rodent Damage Control | As needed |
| Slope Traffic Damage Control | As needed |
| Riprap Damage Control | As needed |
| Sediment Removal from Conveyances | As needed |
| Concrete and Masonry Maintenance | As needed |
| Metal Component Maintenance | As needed |
| Instrument Maintenance | As needed |
| Security Item Maintenance | As needed |
| Other | As needed |

*Figure 3. Woods Pond Dam Inspection and Maintenance Summary*

**FOR MORE INFORMATION, PLEASE VISIT:**
https://www.epa.gov/ge-housatonic

Technical Assistance Services *for* Communities
Comments on GE-Pittsfield/Housatonic River Site
Rising Pond Dam and Woods Pond Dam OM&M Plans
February 23, 2018

**Contract No.:** EP-W-13-015
**Task Order No.:** 18 OSRTI-Multi Regions Support
**Technical Directive No.:** R1 2.1.2 General Electric (GE)-Pittsfield/Housatonic River Site

**Technical Assistance Services for Communities (TASC)**
**Comments on GE-Pittsfield/Housatonic River Site Operations,**
**Monitoring, And Maintenance Plans for Rising Pond Dam and Woods**
**Pond Dam**

## Introduction

This document lists TASC comments on the GE-Pittsfield/Housatonic River Site Operations, Monitoring, And Maintenance (OM&M) plans for Rising Pond Dam and Woods Pond Dam. GE submitted the plans to EPA for review. EPA may approve, conditionally approve, modify or disapprove them. This document is for the Berkshire Regional Planning Commission (BRPC) and municipalities to use as they develop comments on these plans to share with EPA. TASC does not make comments directly to EPA on behalf of communities. An accompanying TASC fact sheet summarizes these OM&M plans. This document and the accompanying fact sheet are funded by TASC. Their contents do not necessarily reflect the policies, actions or positions of EPA.

Community members could consider the following information as they develop comments for EPA.

## Comments

***Scheduled dam inspections.*** The OM&M plans exceed Massachusetts dam safety regulation requirements for frequency of inspection by a licensed professional engineer.

Formal inspection by a licensed engineer is required every five years for dams classified as having significant hazard potential (Class II) and every two years for dams classified as having high hazard potential (Class I). The Rising Pond Dam and Woods Pond Dam both have significant hazard potential; the OM&M plans state that GE is planning to conduct formal inspections every two years. GE will have to send inspection reports to the Commissioner of the Massachusetts Department of Conservation and Recreation in order to be in compliance with Massachusetts dam safety regulations. Massachusetts dam

safety regulations state that reports from these formal inspections are to be sent to the Commissioner. The Commissioner has the authority to determine whether a dam meets accepted dam safety standards.

***Inspections following flooding or storm events.*** The OM&M plans indicate that the dams will be inspected following flooding or storm events as needed. The inspections will include the same activities as a routine quarterly inspection by trained personnel. Community members may want to ask EPA if inspection by trained personnel after a flood or storm event is adequate or if inspection by a qualified professional engineer is needed.

***Emergency Action Plan (EAP)***. All dams classified as having high hazard potential must have an EAP. Each of the OM&M plans includes an EAP. Massachusetts dam safety regulations require several elements in an EAP:

> (a) The identification of equipment, manpower and material available for implementation of the plan.
> (b) A notification procedure for informing local emergency agencies.
> (c) A dam failure inundation map for high hazard potential dams and a topographic map for significant hazard potential dams that shows streams that will be flooded.
> (d) A procedure for warning nearby residents if dam failure is imminent and a list of addresses and telephone numbers of downstream residents who may be affected by dam failure.

The two OM&M plans appear to meet these EAP requirements and provide additional information. Massachusetts requires that dam owners submit copies of a proposed EAP to local and state emergency agencies, and all local emergency coordinators involved in the plan, for review. Massachusetts also requires that dam owners review EAPs annually, update them and provide the updated EAPs to all involved agencies for review. GE will have to provide the EAPs and updates, as required, in order to remain in compliance with Massachusetts dam safety regulations.

***PCBs in dam sediment.*** The OM&M plans state that GE must address sedimentation in sluiceways, conveyances and other channels that transport water over, through or around the dam. However, the plans both indicate that the excess sediment will be removed where "*observations of conveyances indicate build-up of excess sediment within the conveyances that may interfere with the flow of water.*" Community members may want to ask EPA:

- Whether there are any other conditions that would require GE to address sediment in sluiceways, conveyances and other channels.
- How an observer will determine that excess sediment is interfering with the flow of water. Should this process be spelled out in the OM&M plans?

Section 4.3 of each OM&M plan addresses the handling, management, and disposition of removed sediments and soils. Section 4.3 does not provide any details about how sediment will be removed, stored, dewatered or transported from the site. Community members may want to ask EPA if these details should be added to the OM&M plans, or if the information will be included in a different document.

***Exercising gate, sluiceway and raceway controls.*** Community members may want to ask EPA if exercising the Rising Pond Dam gate operator system and the Woods Pond Dam raceway closure

structure controls annually, and the Woods Pond Dam sluiceway structure controls every ten years are appropriate frequencies for these maintenance activities.

***Guidance for dam owners***. The OM&M plans state that the procedures described were developed in accordance with EPA's Modified Permit as well as the guidance provided in the Federal Emergency Management Agency (FEMA) publication Dam Safety: An Owner's Guidance Manual (FEMA, 1987). Community members may want to ask EPA if GE should follow more up-to-date guidance. While FEMA's website for dam safety has several more recent technical manuals and guides, they may not be as comprehensive as the older guidance manual. For more information, see https://www.fema.gov/technical-manuals-and-guides.

***Other dams at Superfund sites***. An online search for OM&M plans for dams at Superfund sites found a 2003 OM&M plan for Allendale Dam in Rhode Island. This dam is classified as a low hazard dam by the state of Rhode Island. Allendale Dam was naturally breached in 1991 when its wooden crib failed. In 2001, EPA and the Rhode Island Department of Environmental Management oversaw the dam's reconstruction. The project's goal was to prevent a catastrophic failure that could enable downstream migration of additional dioxin-contaminated sediment from the Centredale Manor Restoration Project Superfund site. The OM&M plan is available at https://www3.epa.gov/region1/superfund/sites/centredale/48775.pdf.

The review also found dam inspection reports for the Argonaut Dam at the Argonaut Mine Superfund site in Jackson, California. The inspection reports are available from this website.

**TASC Contact Information**

Project Manager
Kirby Webster
802-227-7290
kwebster@skeo.com

Technical Advisor
Terrie Boguski
913-780-3328
tboguski@skeo.com

Task Order Manager
Emily Chi
541-238-7516
echi@skeo.com

Senior Program Manager
Eric Marsh
817-752-3485
emarsh@skeo.com

Vice President, Director of Finance and Contracts
Briana Branham
434-226-4284
bbranham@skeo.com

TASC Quality Control Monitor
Bruce Engelbert
703-953-6675
bengelbert@skeo.com

# HOUSATONIC REST OF RIVER MUNICIPAL COMMITTEE

DATE

Dean Tagliaferro, EPA Project Manager
GE-Pittsfield/Housatonic River Site
Boston, MA
Submitted via email to R1Housatonic@epa.gov

Re: Comments on the *Rest of River Operation, Monitoring, and Maintenance Plans for Woods Pond Dam and Rising Pond Dam.*

Dear Dean:

The Housatonic Rest of River Municipal Committee hereby submits the following comments on GE's *Rest of River Operation, Monitoring, and Maintenance Plans for Woods Pond Dam and Rising Pond Dam.* GE's submittal includes two separate documents, *Operation, Monitoring, and Maintenance Plan Woods Pond Dam – MA 00250 (hereafter referred to as the Wood Pond Dam OMM Plan)* and the *Operation, Monitoring, and Maintenance Plan Rising Pond Dam – MA 00250 (hereafter referred to as the Rising Pond Dam OMM Plan).* While these plans may satisfy the bare minimum requirements of the Massachusetts Office of Dam Safety (ODS), we do not believe they are sufficient for the protection of populations living downstream of these dams nor for the environment and properties that could potentially be contaminated by PCBs during a dam failure event of either of these dams.

First and foremost we respectfully request that at a minimum the EPA require GE to submit these plans to ODS and to the Massachusetts Emergency Management Agency (MEMA) for review and comment, as they are not currently listed in the cover letter as being copied on these submissions. Concurrently we respectfully remind our state agencies that the dams in question not only pose a safety hazard to people and property, but that the contaminated sediments behind these dams compound the risks to property and the environment.

We urge the EPA, ODS, MEMA and DEP to require GE to conduct detailed dam failure studies and inundation mapping for both Woods Pond and Rising Pond dams, studies which would include an evaluation of the impact of a failure on dams and tributary streams downstream of these dams. We note that within a few miles downstream of the Woods Pond dam there are three other dams within the town of Lee, the failure of which any one of them could expand the inundate areas to include large swaths of the Lee town center, including dozes of inhabited homes and businesses, and Housatonic Street (a main transportation corridor).

It is unclear to us whether the inundation boundaries depicted in the inundation maps are reliable in predicting the area of inundation that could occur in the event of dam failure. It stated in the Investigation of Potential Flood Limits (p. A-1) that a "dam break study was not performed for the Woods Pond Dam because it was not needed as per requirements of the DCR." However, the report goes on to state that inundation boundaries were nonetheless drawn based on guidance from previous reports. We request that the OSD review the inundation boundaries and the methodology used to determine these boundaries to ensure that the inundation areas are based on sound computer modeling and dam safety engineering principles (Appendix B, Emergency Action Plan, Woods Pond Dam, Lee/Lenox, MA NID MA 00731, GZA, Rev. Dec. 2017, pp. A-1-A-2) OSD's review is all the more important given the fact that Woods Ponds has been cited as containing some of the highest concentrations of PCBs in the state. We likewise request that the OSD review the Dam Break Analysis found in the Rising Pond Dam OMM (Appendix B, Emergency Action Plan Rising Pond Dam, Great Barrington, MA NID # MA00250, GZA, Rev. Dec. 8, 2017, pp. A-1-A-6). The Rising Pond narrative states that the model used to determine inundation does not calculate backwater effects created by downstream natural channel constrictions and that the model "will predict peak depths upstream of the constriction that <u>may be substantially lower than those actually encountered</u>." [emphasis added] GE should conduct studies that can more accurately predict inundation water areas and heights.

We stress these points about calculating the area of inundation for these dams not only to aid in the protection of human populations and property, but also to identify the potential areas that will be exposed to PCB contamination emanating from Woods and Rising Ponds. EPA's Modified Permit allows GE to leave behind large volumes of PCB-contaminated sediment in several impoundments along the Housatonic River between Reaches 5 and 8, and as the owners of those PCBs, it is GE's responsibility to develop the most detailed EAPs and inundation areas as technologically possible.

As part of the dam failure study reviews we urge the agencies to require GE to redraft with more detail the inundation maps for both Woods Pond and Rising Pond dams, and that these maps be provided to the Emergency Management Directors (EMDs) in the towns of Lee, Lenox, Stockbridge, Great Barrington and Sheffield, as appropriate for each dam. Clear and detailed inundation maps are a critical part of EAP planning, and we request that these maps be provided to the EMDs in not only in the 8"X11" format in the EAPs, but also in larger formats (e.g. 22" X 34") to more clearly show projected inundation areas.

In general, the inundation maps generated for the EAPs are insufficient in detail and scale, and do not meet the FEMA guidelines that are detailed in the *Federal Guidelines for Dam Safety, Emergency Action Planning for Dams, FEMA 64 / July 2013.* We request that GE redraft the inundation maps to meet the EAP Review Checklist found in Appendix A of this document, noting that both the Woods Pond and Rising Pond dam inundation maps lack most of these items. We especially note that the Woods Pond EAP inundation map does not provide critical information needed for public safety: peak flood state, floodwave arrival time, nor maximum water surface elevation at key road crossings, residential neighborhoods or business facilities. Below is the check list we refer to.

**Inundation Mapping**

- Does the inundation map include a north arrow and bar scale?
- Are the inundation areas clearly delineated and labeled? This is especially important if there are fair weather" failure and "PMF plus breach" inundation limits shown on the inundation maps.
- Does the inundation map include a qualification stating that the inundation limits for an actual am failure may vary in some ways from what is shown on the inundation map?

- Are local roads, drainages, and other landmarks clearly labeled on the base map?
- Is the downstream limit of the inundation mapping logical (e.g., at a major reservoir, river, other water course)?
- Were channel cross sections taken at critical downstream locations, such as at major road crossings, schools, major population centers, etc.?
- Is the following flood inundation information provided at important downstream cross sections:
  - Peak flood stage
  - Floodwave arrival time
  - Time to peak discharge
  - Maximum water surface elevation
  - Peak discharge

Additionally, and what we think is one of the most important guidelines, is FEMA's recommendation that "the dam owner should try to prepare maps using terms understood by all emergency responders. For example, a local responder may prefer that the maps show the expected height of water over a road instead of peak water elevation." [emphasis added] As the purpose of these maps is to aid dam owners and local first responders to react to a dam failure, we strongly urge the EPA and ODS to require that GE include the expected height of flood water at key roads, landmarks and population areas. Dam failures could result in first responders having to make extremely important decisions within minutes, and the flood height and time of flood wave arrival at critical points downstream are the two most important pieces of information that the maps convey, and thus should be the most clearly illustrated. This need has recently been raised by first responders across Berkshire County as they work with fellow town officials and MEMA in updating their hazard mitigation plans. Providing digital copies of the inundation maps in GIS would be extremely helpful, and could be provided to MEMA for inclusion in their online, GIS-based CEMP platform.

Additionally, it is our understanding that updates to floodplain mapping for the Housatonic River Watershed is scheduled to occur within the next year or two. We ask that ODS and DEP require GE to incorporate this new data when it is available, recalculate the inundation areas as necessary, and provide new inundation maps to the EMDs as part of their annual EAP updates (maps in both 8" X 11" and 22" X 34" formats).

We note that GE's professional engineering firm for both dams is located in Norwood, MA, which is a 2 ½ hour drive from the sites. It might be prudent to require GE to bring in and familiarize a local engineering firm (with dam safety experience) as a co-partner.

Section 3.3 of both OMM Plans state that Post-storm observations will be conducted after high flow events. We ask that these plans be amended to specifically state that the observations will be conducted by a professional engineering firm with experience in dam safety.

Section 4.2.2 of both OMM Plans state that GE will remove built up sediment in conveyances that may interfere with the flow of water. This section does not describe how the observer will determine that excess sediment is interfering with the flow of water. The OMMs should be amended to describe this process in more detail.

Section 4.3 of both plans addresses the handling, management, and disposition of removed sediment and soils. This section should be revised to describe how GE proposes to dewater, store and transport sediment from the sites. We note that both dams are located near residential villages and that Woods

Pond dam is located within an ACEC. If these procedures are explained in another plan being required as part of the Modified Permit, this other document should be referenced.

Section 6.0 of both plans state that "Biennial engineering inspections and large repairs will be conducted/designed by a Professional Engineer experienced in dam safety engineering." The plan should describe what constitutes "large repairs," and explain why oversight of a professional engineer is not required for all maintenance and repairs.

In addition to these general comments, we provide the following comments relative to the individual OMMs.

**Woods Pond Dam OMM Plan**

OMM, Sec. 8.0, p. 18, Inspection and Maintenance Summary table. This table states that inspection of the scour hole at the toe of the spillway will be inspected once every 10 years. We ask that the ODS verify that such a long span of time is appropriate for this dam. Also, this table states that the most frequent inspections occur quarterly, while the EAP in Appendix B states that GE conducts "monthly and quarterly inspections as well as biennial Phase I inspections." (EAP, Sec. 4.5, p. 8) Monthly inspections are also recommended in Sec. 7.1, p. 21. These discrepancies should be clarified.

Appendix B, EAP, Sec. 3.1, p. 4, second paragraph. The Town of Stockbridge is in in the inundation area, but is not listed here. This should be rectified and it should be made clear to GE that emergency responders from Stockbridge be included in any EAP filings, updates and exercises.

Appendix B, EAP, Sec. 6.2, pp. 14-16, Samples Messages. The roads listed in the sample messages is far from complete and should be amended. According to the inundation map there are several streets in Lenox Dale and Lee that will be under water, involving dozens of homes, and the message should list every single one of these streets so that people are alerted and can move quickly. Also, the message to the general public should include predetermined evacuation routes, rather than generically ordering people to "proceed immediately to high ground away from the valley."

Appendix B, EAP, Sec. 6.5, p. 18. This section should clearly state how often and what type of staff training and orientation seminars will be held. It should also state that the EAP Coordinator has received training and/or certification in dam safety monitoring and emergency response.

Appendix B, EAP, Sec. 7.7.2, p. 25. The EAP states that there are no dams upstream to reduce flows into Woods Pond Dam. This section should be expanded to include the type of coordination that would be required during a dam failure and the potential impacts of dams downstream of Woods Pond. As the DEP and state agencies are aware, there are three dams within a few miles downstream of Woods Pond that could be impacted or structurally compromised during a dam failure event. PCB-contaminated sediments are being held back in each of these dams.

This section does not discuss coordination with major dam owners upstream of the Woods Pond dam, the failure of some which would far exceed the 500-year high peak flow estimate of the dam. The Woods Pond Dam OMM states that the 100-year peak discharge at the dam would be 11,700 cubic feet per second (cfs), and the 500-year peak discharge would be 12,100 cfs. Full Probable Maximum Flood (PMF) dam break estimates for the Cleveland Reservoir, located in Hinsdale, is approximately 258,150 cfs in the vicinity of the Pittsfield wastewater treatment plant (WWTP) a few miles north of Woods Pond

-- more than 22 times the 500-year storm peak. Other smaller reservoirs that discharge into the Housatonic River upstream of Woods Pond include the Sackett Reservoir with a Full PMF of 43,635 cfs near the WWTP and Ashley Reservoir with a Full PMF of 26,000 cfs near the WWTP, both of which are also far more powerful than the dam's 500-year peak discharge. The power of peak flows is a concern regarding catastrophic flooding and resuspension and wide dispersion of PCB sediments downstream of Woods Pond. The City of Pittsfield is the owner of the three reservoir dams, so establishing a coordination process could be fairly straightforward for GE and its consultants.

Appendix B, EAP, Sec. 8.0, p. 26. The last sentence in this section states that it is "incumbent upon the Towns of Lenox, Lee, and Stockbridge to locate key local landmarks and modify the inundation maps, as they deem appropriate." We disagree with this directive. It is incumbent upon GE, as the dam owner, to work with the towns to identify landmarks, and it is most certainly incumbent upon GE and its consultants to modify the maps, as development of the maps is a specialized technical capability.

Appendix B, EAP, Table 6, Major Utilities List. The Tennessee Gas Pipeline and Housatonic Railroad are in the inundation area and should be listed in this table.

Appendix B, EAP, Appendix B, Training. This section should be amended to clearly lay out the content of the trainings and a timeline for holding them. The trainings should also be extended to include first responders in the towns of Lenox, Lee and Stockbridge.

**Rising Pond Dam OMM Plan**

Sec. 8.0, p. 19, Inspection and Maintenance Summary table. This table states that inspection of the scour hole at the toe of the spillway will be inspected once every 10 years. We ask that the ODS verify that such a long span of time is appropriate for this dam. Also, this table states that the most frequent inspections occur quarterly, while the EAP in Appendix B states that GE conducts "monthly and quarterly inspections as well as biennial Phase I inspections." (EAP, Sec. 3.5, p. 7). Monthly inspections are also recommended in Sec. 6.1, p. 21. These discrepancies should be clarified.

Appendix B, EAP, Sec. 3.1, p. 4, second paragraph. The Town of Sheffield is in in the inundation area but is not listed. This should be rectified, and it should be made clear to GE that emergency responders from Sheffield be included in any EAP filings, updates and exercises.

Appendix B, EAP, Sec. 5.2, pp. 14-16, Samples Messages. The roads listed in the sample messages is far from complete and should be amended. According to the inundation map there are several streets in Great Barrington and Sheffield that will be under water, involving dozens of homes and key local businesses, and the message should list every single one of these streets so that people are alerted and can move quickly. Also, the message to the general public should include predetermined evacuation routes, rather than generically ordering people to "proceed immediately to high ground away from the valley."

Appendix B, EAP, Sec. 7.0, p. 26. The last sentence in this section states that it is "incumbent upon the Towns of Great Barrington and Sheffield to locate key local landmarks and modify the inundation maps, as they deem appropriate." We disagree with this directive. It is incumbent upon GE, as the dam owner, to work with the towns to identify landmarks, and it is most certainly incumbent upon GE and its consultants to modify the maps, as development of the maps is a specialized technical capability.

Appendix B, EAP, Table 2. This table needs to be corrected to list both the Board of Selectmen chair and the Town Manager's office.

Appendix B, EAP, Table 5, Major Utilities List. It should be noted that Western Mass. Electric is not the same thing as National Grid. The Housatonic Railroad is in the inundation area and should be listed here.

Appendix B, EAP, Appendix B, Training. This section should be amended to clearly lay out the content of the trainings and a timeline for holding them. The trainings should also be extended to include first responders in the town of Sheffield.

Appendix B, EAP, Appendix E, Inundation Maps. The inundation maps are extremely difficult to read due to the small size (8.5" X 11"), the over-crowding caused by the topographic lines and the blurriness of aerial map underlying the topographic features. As a result, it is very difficult to discern the boundaries of the inundation area and the homes and businesses that would be flooded. This map should be revised to more clearly aid first responders in determining who to evacuate during a dam failure. Again, we urge GE to show projected water height at key roads and landmarks.

Appendix B, EAP, Appendix E, Inundation Maps. The dam failure analysis and area of inundation abruptly ends north of the Egremont Road intersection with Route 7, with a note stating that the inundation area is the same as the 100-year flood event shown on FIRM maps. This is not helpful to first responders trying to protect the public. The analysis should be conducted as far south as necessary to determine where the floodwaters would be expected to be diminished to a level that is not dangerous to people and property.

# HOUSATONIC REST OF RIVER MUNICIPAL COMMITTEE

## Meeting Minutes

**Rest of River Municipal Committee, March 9, 2018, Lee Town Hall**

**1. Introductions.** The meeting opened at 9:10 a.m. Attending the meeting were the following Committee members:

Christopher Ketchen, Lee Town Chief Administrative Officer
Christopher Ketchen, Lenox Town Manager
Christopher Rembold, Great Barrington Planner
S. Shatz, Stockbridge Representative
Rene Wood, Sheffield Representative

Others present:

Lauren Gaherty, BRPC

**2. Review of minutes of January 5, 2018 meeting**. Motion to accept the minutes as presented was made by S. Shatz and seconded by C. Rembold. Several corrections were made and accepted by the motioners. Minutes were unanimously accepted as corrected.

**3. Executive Session – to discuss ongoing litigation.** At 9:13 a.m. L. Gaherty requested a motion to go into Executive Session to discuss legal strategy for potential mediation or actual litigation regarding the EPA Rest of River Clean-up and the appeals of the EPA's Permit and the EAB decision. Such discussion, if held in open meeting, may have a detrimental effect on the legal position of the Rest of River Municipalities legal action with EPA and GE. After the Executive Session, the Rest of River Committee will reconvene in regular session. Motion made by R. Wood, seconded by C. Rembold; motion carried unanimously. Roll call vote: C. Ketchen, Lee, AYE; C. Ketchen, Lenox, AYE; R. Wood, Sheffield, AYE; C. Rembold, Great Barrington, AYE; S. Shatz, Stockbridge, AYE.

**4. Continuation of Regular Meeting.** The Committee returned to regular meeting session at 10:10 a.m.

**5. Comments on GE's Operation, Monitoring and Maintenance Plans for Woods Pond Dam and Rising Pond Dam.** L. Gaherty has asked SKEO to review dam references they included. L. Gaherty conference called in SKEO's staff members Kirby Webster and Terri Boguski, who are providing TASC for the Committee on this matter. Committee members had L. Gaherty's draft letter and two

TASC documents provided by SKEO, both of which were reviewed. Comments are due March 15th to the EPA.

Discussion ensued with the following points to be included in the draft letter:

- Information garnered from OM&M plans for Allendale Dam in RI and Argonaut Dam in CA led to requesting a stated time records retention period for both OM&Ms, such as any records having to do with dam inspections etc. At present in the submitted OM&Ms, neither has a specified time period – the OM&Ms are silent on record retention. All agreed a historical record can be extremely useful. Also, costs for dam operation and maintenance were listed in the Argonaut OM&M and the costs were to be confirmed. This will also be requested for each OM&M.
- The Woods Pond Dam OM&M calls for "exercising" key controls, such as the sluice gate every 10 years. The Rising Pond Dam OM&M calls for similar exercising of key components and controls. This is too long of a time frame between such exercising. The Committee's letter will request a shorter period of time, possibly annually, and dependent on dam circumstances for key structures in each dam's OM&M plan. Allendale Dam in RI is required to exercise their sluice gate every three months.
- Question to be asked re: inspection periods stated in both OM&Ms. Shorter periods between inspections needed?
- Do both OM&Ms call for professional engineers to perform inspections after "heavy rains"? Will requests inspections to be done by professional engineers. However this term is not defined. A request to define the term heavy rains more completely will be included.
- Following on above point, no mention is made in either OM&M of what will happen if any flood event, such as the 100 year flood event or the 500 year flood event, is re-characterized by the EPA?
- Modeling software should be used to model the flow from damage to either dam (inundation maps) as well as to create and share flow models for impacted municipalities on a regularly established basis. Particularly when FIRMA maps are updated. Storm damage and modeling reports will be requested for modeling mentioned in each OM&M plan. Modeling software would be especially good for understanding domino effect of an upstream dam failures impact on downstream dams.
- Following discussion of the Allendale Dam in RI, it will be requested to add a Notice of Release of Water written communication providing a two week notice for any planned release of upstream water be sent to all downstream dam owners and an immediate notification by phone be made, with written communication to follow, to both upstream and downstream dam owners for any unplanned release. It will further be requested that a call down list for upstream and downstream dam owners be established, included and reviewed on a regular basis to assist in the recommended communications for planned and unplanned releases of water. SKEO provided a link to this letter for Allendale Dam in RI.
- Inundation maps associated with both OM&Ms require more work, including printing them in a useful, readable size to show roads, features and extend of inundation; that it is the responsibility of GE, not the towns; that the contact drill downs require towns to be added; phone numbers, names and titles to be verified/included and that additional utilities, such as waste water treatment plants/systems, water company water wells (private water

company in Sheffield), downstream dams, the Housatonic Railroad separately listed for the track and land (DOT), electrical substations, WSBS, cell towers, etc. and update to date contact information, needs to be included, and a correct listing of electrical companies and contacts be included.

- Following discussion of the Allendale Dam in RI, it will be requested to add a Notice of Release written communication providing a two week notice for any planned release of upstream water be sent to all downstream communities and an immediate notification by phone be made, with written communication to follow, to both upstream and downstream communities for any unplanned release. It will further be requested that a call down list for upstream and downstream dam owners be established and reviewed on a regular basis to assist in the recommended communications for planned and unplanned releases of water.
- The procedures developed for both OM&M plans should be based on the latest FEMA publication(s) for Dam Safety: An Owner's Guidance Manual and not the one published by FEMA in 1987. This may require a combination of newer and the 1987 manual, as cited in the TASC comments.
- Section 4.3 had no details on how to handle the subject matter listed, such as sedimentation removal from maintenance plans. More complete discussion and details on these listed items will be requested.

At the end of the SKEO conference call, it was reviewed that both the Committee and SKEO were not aware of any more GE documents for comment on the horizon and this project was the last SKEO has authorization to provide TASC documents for the ROR Committee. L. Gaherty to follow-up with Jim Murphy or Dean Tagliaferro.

After the call, the Committee reviewed L. Gaherty's draft letter and several additional suggestions were made, all of which were accepted (and incorporated into the above bullet points).

On a motion by R. Wood, seconded by C. Ketchen and unanimously approved, L. Gaherty was authorized to incorporate the agreed upon changes, as well as any additional comments emailed to her by Monday March 12, and comments resulting from the SKEO conference call, into the draft letter and send it to the EPA on behalf of the Rest of River Municipal Committee.

**6. Adjournment.** The meeting adjourned at 10:56 a.m., on a motion to adjourn made by S. Shatz, seconded by C. Ketchen and unanimously approved.

<u>Meeting Materials:</u>

- Revised Meeting Agenda 3-9-18
- Meeting Minutes of 2-23-18
- Draft letter to Dean Tagliaferro, EPA Project Manager; *Comments on Rest of River Operation, Monitoring, and Maintenance Plans for Woods Pond Dam and Rising Pond Dam*
- TASC Comments on Rising Pond Dam and Woods Pond Dam OM&M Plans
- TASC Summary of Operation, Monitoring and Maintenance Plans for Rising Pond and Woods Pond Dams

Respectfully submitted,
Rene Wood, Sheffield's Representative