



Agenda Date: 5/29/13  
Agenda Item: 5A

**STATE OF NEW JERSEY**  
**Board of Public Utilities**  
44 South Clinton Avenue, 9<sup>th</sup> Floor  
Post Office Box 350  
Trenton, New Jersey 08625-0350  
[www.nj.gov/bpu/](http://www.nj.gov/bpu/)

WATER

IN THE MATTER OF THE BOARD'S INVESTIGATION )  
INTO RELIABILITY ISSUES RELATED TO NEW )  
JERSEY AMERICAN'S SWIMMING RIVER )  
TREATMENT PLANT PIPE BRIDGE FAILURE )  
)  
) DOCKET NO. WO12070659

**Party of Record:**

**Michael A. Sgro**, Vice President, General Counsel & Secretary, New Jersey American Water Company, Inc.

**BY THE BOARD:**

On June 29, 2012, a pipe bridge owned by New Jersey-American Water Company, Inc. ("NJAWC" or "Company"), crossing the Swimming River in Monmouth County, New Jersey, collapsed. The bridge had supported three water pipelines (a 30-inch potable water main, a 36-inch potable water main, and a 42-inch raw water main) carrying water to and from the Swimming River Treatment Plant. The incident resulted in approximately 95,000 NJAWC customers in twenty two (22) Monmouth County communities, being subject to a precautionary boil water advisory and outdoor water ban.

On August 15, 2012, the Board Ordered NJAWC to retain Jerry Notte, P.E. of CH2M Hill as a Special Reliability Master ("SRM"), and approved a scope of work to conduct a review of the collapse, including both the cause of the failure and the recovery post failure.

At its February 20, 2013, agenda meeting, Jerry Notte presented his findings and submitted the report of the SRM on NJAWC's Swimming River Treatment Plant failure. At that time, the Board accepted the SRM report for filing purposes only and further directed that a thirty (30) day public comment period commence. The only party to file comments was NJAWC. In its comments, NJAWC indicated that while it had concerns about some aspects of the report, it accepted the report and indicated that the Company had begun implementing a number of the report's recommendations. The Board is also aware that since the bridge collapse, NJAWC has reviewed its other assets to ensure that there are no similar structures at risk of imminent collapse.

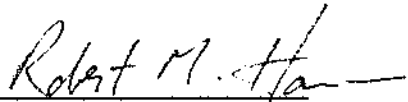
Overall, the SRM report made seventeen (17) recommendations for improvement to the Company's policies and procedures. The recommendations are attached to this Order. The Company indicates that it has already started implementing the recommendations and that five (5) recommendations are already complete.

Upon review of the report and NJAWC's comments, the Board has determined it is appropriate to implement the recommendations. The Board further believes it appropriate to require NJAWC to report its ongoing progress in implementing these recommendations. Therefore, the Board **HEREBY ORDERS** that the Company implement all seventeen (17) recommendations for improvement found in the SRM's report by December 31, 2014. The Board **FURTHER ORDERS** that the Company file status reports on the implementation with the Board every six (6) months beginning July 1, 2013 and subsequently by December 31, 2013; July 1, 2014; and with the final report due by December 31, 2014. Board Staff will determine if the recommendations are implemented in a satisfactory manner; and will bring the matter back before the Board if there is any dispute.

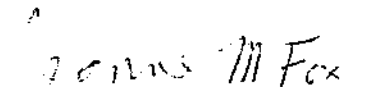
This Order shall be effective on June 1, 2013.

DATED: 5/29/13

BOARD OF PUBLIC UTILITIES  
BY:



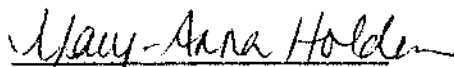
ROBERT M. HANNA  
PRESIDENT



JÉANNE M. FOX  
COMMISSIONER

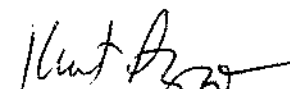


JOSEPH L. FIORDALISO  
COMMISSIONER



MARY-ANNA HOLDEN  
COMMISSIONER

ATTEST:



KRISTI IZZO  
SECRETARY

I HEREBY CERTIFY that the within document is a true copy of the original in the files of the Board of Public Utilities



IN THE MATTER OF THE BOARD'S INVESTIGATION INTO RELIABILITY ISSUES RELATED  
TO NEW JERSEY AMERICAN'S SWIMMING RIVER TREATMENT PLANT PIPE BRIDGE  
FAILURE – Docket No. WO12070659

SERVICE LIST

Michael Sgro, Esq.  
New Jersey-American Water Company  
1025 Laurel Oak Road  
Voorhees, NJ 08043

Maria Moran, Director  
Division of Water  
Board of Public Utilities  
44 South Clinton Avenue, 9<sup>th</sup> Floor  
Post Office Box 350  
Trenton, NJ 08625

Stefanie A. Brand, Esq., Director  
Division of Rate Counsel  
140 East Front Street, 4<sup>th</sup> Floor  
Post Office Box 003  
Trenton, NJ 08625

Caroline Vachier  
Division of Law  
Department of Law & Public Safety  
124 Halsey Street  
Post office Box 45029  
Newark, NJ 07101

Geoffrey Gersten  
Division of Law  
Department of Law & Public Safety  
124 Halsey Street  
Post office Box 45029  
Newark, NJ 07101

# New Jersey American Water Company Swimming River Treatment Plant Bridge Failure Special Reliability Master Report

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## WO12070659

## Recommendations

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### Recommendations:

#### 1. Inspection O&M History of SRWTP Pipe Bridge and Piping (Historic O&M Practices)

1. **Enhance existing asset risk register for all high-consequence assets** – It is recommended that NJAW consider a system-wide audit and review of potential data gaps or shortfalls in specific assets that represent those where the “consequence of failure” is highest (such as stream, river, and highway crossings that represent large service areas). Once these data gaps and shortfalls have been identified, a strategic plan should be developed and endorsed by NJAW leadership to carry out full and detailed assessments of each asset in order to quantify and characterize the relative risk scores.
2. **Create Special Risk Categorization (for assets deemed to be in imminent failure)** – Current inspection protocols do not allow for a category that is elevated to “imminent failure”. The existing asset register should accommodate a category for an asset that reaches this elevated level based on field inspections and further assessments by a qualified consultant with expertise in the particular asset, when such an assessment is appropriate. Those assets that are considered in a state of “imminent failure” that also are classified as highest consequence of failure should be fast-tracked for both immediate stabilization and permanent renewal or replacement. For assets considered unique in their function, NJAW should retain the technical support of an independent consultant with expertise in the particular asset.
3. **Develop Inspection Protocol of Pipeline Bridges and Similar Assets** - All bridge structures (both owned by NJAW or others) that carry water mains should be inspected on a regular basis. If the asset has a functional purpose within the service area of the NJAW but is not owned and maintained by the NJAW, arrangements through instruments such as inter-municipal agreements or other binding contracts should be negotiated and maintained. Inspections should be performed by licensed Professional Engineers who are experienced in inspecting similar structures. This would require all visible above ground components be inspected every two years and all underwater bridge components be inspected every five years. If NJAW has a water main on a bridge structure owned by others, it should ensure that it has appropriate access agreements in place to ensure that the appropriate inspections can take place at the appropriate interval.
4. **Implement Scour Inspection Program (5-year cycle)** - A Scour Inspection should be performed as an integral part of the underwater inspection and should be performed at least once every five years. A Scour Inspection would document the existing mud-line elevation at every Submerged Structural Unit herein defined as any asset that located below a pool level such as a river, stream, or reservoir. Such information should be compared with the previous data to determine if submerged portions of foundations are being undermined.
5. **Perform Routine Soils Investigation Prior to Construction of Pile Supported Structures** - A soils investigation is routinely performed for NJAW projects prior to the construction of any pile supported structure. When scour is noted, it is imperative that the remaining soil be investigated for load capacity based upon the actual embedment length of the pile.

## 2. Post-Hurricane Response Planning (Citations from AAR)

In general, NJAW has endeavored to initiate the highest priority recommendations cited in the AAR. Some of the citations were already being managed through emergency contracts and master service agreements already in place. We believe that NJAW has followed its best-practices that were already in place before Hurricane Irene and they should continue to complete and implements its AAR recommendations. In addition, though, we have the following additional recommendations:

**6. Improved Equipment Inventory** – As indicated in its AAR draft recommendations, NJAW should evaluate and improve equipment and supply-chain inventories for event response. NJAWC has a pre-qualified vendor list that includes major vendors such as US Pipe, JFC, HMM, [list]; the pre-qualified vendor list should be enhanced to include a specific equipment vendor list. A specific vendor equipment list should be maintained so that supplies are available, in addition to the enhanced inventories maintained by NJAW. NJAW should also consider enhancing its use of emergency contracts to ensure product availability when vendors are resource challenged.

**7. Pre-Qualified Vendor List** – NJAW has a pre-qualified vendor list (a best practice) that includes emergency services contracts with major vendors, as noted in the previous recommendation. The Company should consider expanding its pre-qualified list of vendors to including more equipment suppliers, consultants, and contractors to provide on-call services and support to quickly mitigate emergency situations. This is especially important, where practical, for those critical assets that are classified as “high consequence of failure” and are uniquely suited for the expert to evaluate and quickly mitigate in order to avoid its failure and catastrophic consequence. Case-in-point is the SRWTP pipe bridge which represented an number of asset types combined into a single asset feature.

## 3. Post- Bridge Collapse Response (Citations from AAR)

**Continuation of AAR Recommendations** – NJAW has initiated recommendations outlined in the AAR. It is recommended that NJAW continue and complete all recommendations in the AAR.

**8. Enhanced Training** – NJAW should consider expanding OEM drills and training. Specifically there is a need to improve or expand NJAW employee training necessary to know and understand their respective role in Event Management Practices and how Incident Command Management Practices are to be implemented.

**9. Call Structure** – NJAW should create a more refined event management call structure to ensure timely and efficient communication with the event management leadership team.

**10. Bypass and Isolation Strategies** – Specific bypass strategies or isolation plans (where cost-effective) should be developed for all high-priority assets as part of NJAW’s Contingency Planning. Best case analysis should be used to determine the appropriate plan. Bypass strategies should include well-developed plans that identify equipment, resources, costs, and implementation.

**11. Boil Water Advisory and Order Protocol** – It is recommended that NJAW develop a written protocol that would be incorporated into the Event Management Practices that would provide useful guidance in determining how, where, and when an advisory or order is required.

**12. Regulated Information** – Procedures are needed by NJAW to better manage the type and content of information requested from and subsequently shared by the Command Post and the EOC with key external stakeholders. Reference, again, is made to the current AAR and its full implementation by NJAW.

## 4. Initial Post-Hurricane Pipe Bridge Inspection

**13. Management of High-Risk Assets** – Despite such situations being rare (and, in this case, involving a unique asset), in consideration of those assets that are categorized by NJAW as having a condition elevated internally or by an outside forensic expert as being in a state of “imminent failure”, “no remaining service life”, or “likely to fail” (such as if the SRWTP Pipe Bridge had been identified in this way) NJAW should make necessary changes within the Company’s Asset Strategy and Prioritization Guidelines to accommodate such elevated conditions, perhaps into a more formal process for identifying and managing emergency projects

and other “emergency improvements” to ensure the appropriate priority is assigned promptly. Rehabilitation or replacement, including temporary measures to protect the functional performance, of that asset would then move quickly irrespective of financial, regulatory, or environmental constraints.

## **5. Post-Hurricane Pipe Bridge Repair and Rehabilitation Plan**

**14. Establish Permit Application Protocols Prior to Design** – NJAW should require written guidance on permits from consulting engineers, such as whether or not permits are required, what the permit application requirements are, what the permit restrictions are likely to be; and require documented support for the consultant’s expertise with a given permit application; and NJAW should review and understand all required permits that may be necessary to perform asset repair and rehabilitation work in various locations. Additionally, the investigative process for determining which permits are required for each given item of work should be determined early in the design process. Also, emergency work, if possibly executed in the absence of a permit, must be identified as soon as possible.

**15. Event management handbook** – NJAW currently maintains a variety of emergency response plans. NJAW should consider the need to improve and consolidate these plans, with particular emphasis placed on the tracking and maintenance of these plans. In addition, NJAW should create an Event Management Handbook that would include critical information designed for responders who are not familiar with the actual asset systems.

## **6. Governance Associated with Post-Hurricane CIP and Funding**

**16. Create, Fund and Appointment High-Risk Asset Manager** - NJAW should consider the creation of a role that would include responsibility for assets that have been elevated to a high-risk status (based on NJAW’s current and enhanced system of scoring assets based on likelihood and consequence of failure) such as the pipe bridge following Hurricane Irene. Under the oversight of this manager, an expedited process of moving from the initial elevated risk characterization (such as “imminent failure”) through repair, rehabilitation or replacement would be executed with precision and an unimpeded schedule.

**17. On-Going Enhancement of Training Manuals** – NJAW must continually work of updating SOPs, emergency response planning and documentation, system redundancy, etc. as a requisite to effectively manage future events. An outside consultant may be considered as a resource to perform a full audit of these documents for improvement.