



# Schoharie County Board Of Supervisors

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Larry Bradt  
Vice Chairman

Secretary Kimberly D. Bose  
Federal Energy Regulatory Commission  
888 First St., N.E.  
Washington, DC 20426  
FERC Docket #P-2685-026

FILED  
SECRETARY OF THE  
COMMISSION  
2016 APR 12 P 2:11 PM  
FEDERAL ENERGY  
REGULATORY COMMISSION

Dear Secretary Bose,

Enclosed is a response to the New York Power Authority (NYPA) Initial Study Report, Section 2.5, pages 27-33, entitled "Effects of Project Operations on Downstream Flooding" being prepared by NYPA as a component of their license application. This paper is being submitted on behalf of the Schoharie County Board of Supervisors, the legislative body of the host county of the Blenheim/Gilboa Pumped Storage Project #2685.

Response to Section 2.5.2 STUDY OBJECTIVES. The Applicant (NYPA) is urged to take into consideration the following actions performed by the New York City Department of Environmental Protection (NYCDEP) owns and operators of Gilboa Dam and Schoharie Reservoir, located 5 miles upstream of the Blenheim/Gilboa Pumped Storage Project, (B/G). In action to enhance the Factor of Safety (FOS) quotient for the 1,324' long concrete spillway at ~665' long earthen dam, the NYCDEP improved this infrastructure sufficiently to the extent that can safely pass a design flood of 312,000 CFS. This is double the USGS .02 or "500 year" flood at Gilboa, USGS#135101, which is estimated to be 153,000 CFS. The 312,000 CFS design flood represents a doubling of the .02 event and approximates the hypothetical "1,000 year" flood. The drainage basin upstream of USGS gage, #135101 is 314 square miles.

The current design flood for Blenheim/Gilboa is either 165,000 CFS or 174,099 CFS. The reason for uncertainty regarding the actual design flood volume at Blenheim/Gilboa is conflicting data appearing on NYPA documents. The Schoharie County Board of Supervisors strongly urges NYPA to modify their earthen dam impounding the Lower Reservoir at Blenheim/Gilboa so as to be capable of passing a design flood greater than 174,099 CFS. The drainage basin upstream of Blenheim/Gilboa is 356 square miles. This 8% larger than that of the Gilboa Dam and Schoharie Reservoir, yet its design flood is 44% lower than that of the Gilboa Dam.

Two serious deficiencies were noted on Figure 2.5.3.1: entitled "Geographic Scope", they are as follows:

1. The failure to include the 29 miles of the main stem Schoharie Creek and its major tributary, the Batavia Kill, upstream of the Gilboa Dam and Schoharie Reservoir. The

Batavia Kill drainage basin is 68.8 square miles in area. It is located in the "High Peaks" of the Catskill Mountains and is a very productive water source. Both the Schoharie and Batavia Kill should be included in the proposed HEC-RAS analysis. To confine the HEC-RAS analysis solely to the area downstream of the Gilboa Dam, is to act as if the only drainage area that impacts Blenheim/Gilboa is the mere 42 square mile basin upstream of the Lower Reservoir and the Gilboa Dam. During the Hurricane Irene induced flood of August 28, 2011 c.6" of rain fell between the Gilboa Dam and Blenheim/Gilboa, in the aforementioned 42 square mile basin. Upstream of Prattsville, NY, in the High Peaks of the Catskills, more than twice that amount of precipitation occurred. This fact calls into question the validity of the site specific probable maximum precipitation estimates prepared for NYPA by RJ Associates in 2009. Any estimate of the PMP that does not include the TOTAL CATCHMENT of Blenheim/Gilboa is potentially dangerous to lives and property downstream of the "Power Project".

2. By predicting their hydrologic focus solely in Schoharie County, the Applicant has overlooked the presence of three "High Hazard" Schoharie Basin Dams. The dams being referred to are the C.D. Lane, Nauvo Road and Mitchell Hollow Flood Control Structures at the headwaters of the Batavia Kill. These dams are not shown on Figure 2.5.3-1, page 28 of the Initial Study Report. These dams were built in response to two deadly hurricane induced floods that occurred in 1955 and 1960. They were designed to capture runoff from a 1 or "100 year" flood. A copy of the Batavia Kill Stream Management Plan accompanies this submission. During the hurricane induced flood of August 28, 2011, the emergency auxiliary spillways of the three flood control dams became active, and as they were designed for a 1 flood, or 100 year recurrence interval event, the dams sustained severe structural damage. As the serious breaches occurred in the 3 dams nearly simultaneously, a sudden surge of water passed through the Batavia Kill enroute to Prattsville, the Schoharie Reservoir, Blenheim/Gilboa etc. This sudden surge is recorded in the 120,000 CFS peak flow at USGS gage #13500 Prattsville. The .02 or "500 year" flood estimate for this site is 99,100 CFS. To put in perspective, the largest measured discharge in the Hudson River at USGS gage #133574 is 120,000 CFS. The drainage basin for this gage is, 4,606 square miles. The gage at Prattsville measures the discharge of a 237 square mile basin. The failure of NYPA to include such a productive catchment within its analysis of downstream flooding is perplexing. Flood routing and HEC-RAS analysis of the upper reaches of the Schoharie Creek and Schoharie Reservoir should be conducted by the Applicant.

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## IV-L: Flood Control District

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While it is reasonable to assume that flood events have been occurring in the Batavia Kill watershed long before the arrival of the earliest settlers, it was a pair of events in 1955 and 1960 which inflicted such great damage in the watershed that a permanent solution to flooding was sought.

After the 1960 flood, the Greene County Legislature adopted a local ordinance creating the Greene County Soil & Water Conservation District in order to allow the local municipalities access to federal flood protection funds.

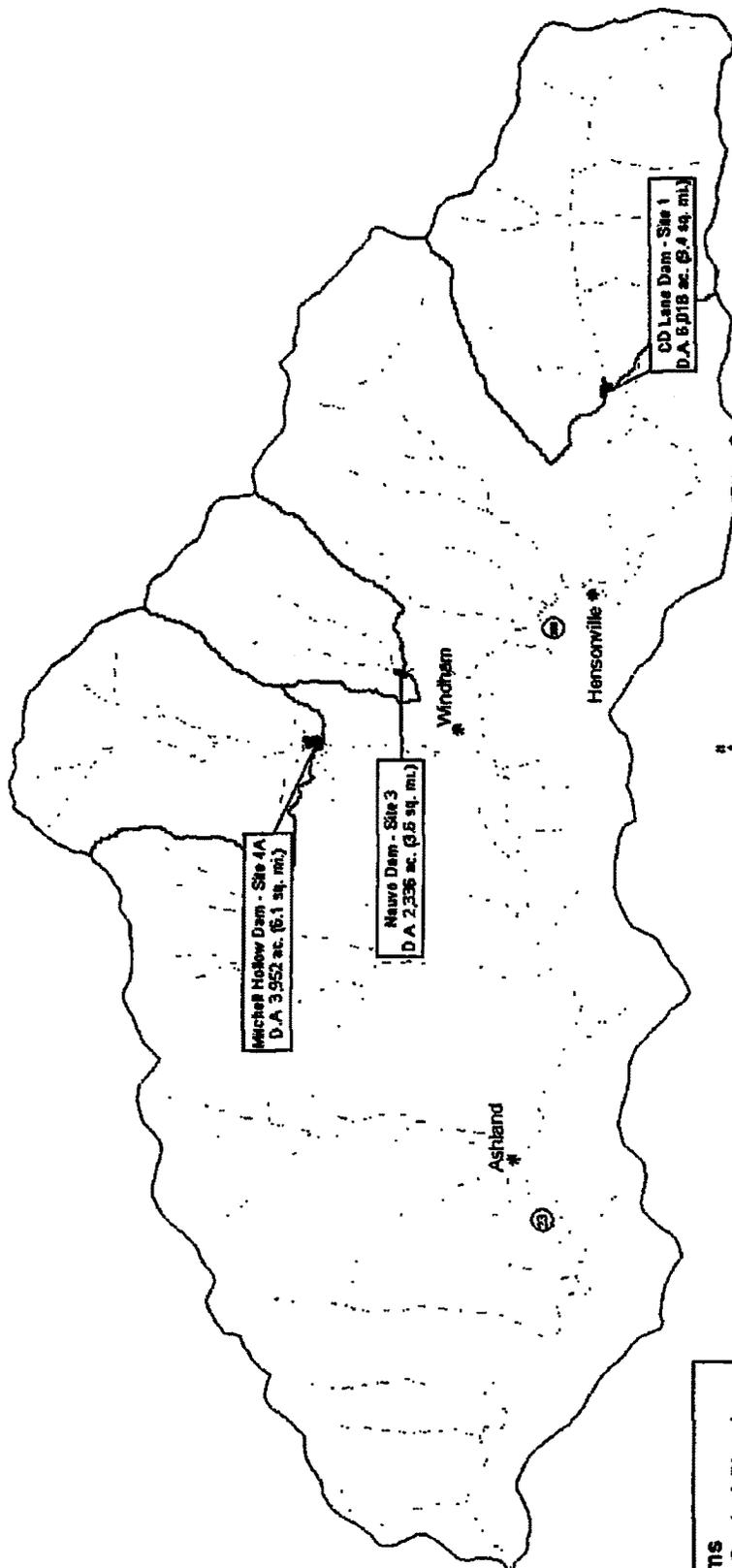


In July 1965, the USDA Soil Conservation Service (now known as the Natural Resources Conservation Service) completed a Watershed Work Plan for Watershed Protection, Flood Prevention, and Water Management in the Batavia Kill Watershed. The work plan called for the development of four flood control structures in the headwaters and on several tributaries to the Batavia Kill at an estimated cost of \$2.9 million (**Map IV-11**); three structures were built.

The work plan also called for over \$333,000 in land treatment measures such as soil stabilization and buffers. Cost-benefit calculations completed for the report indicated that the average annual damage costs of \$132,543 would experience a significant reduction to approximately \$2,563 per year. Annual secondary benefits were estimated to be worth \$14,231 with \$33,550 in benefits to public fish and wildlife to be provided by the project.

**Table IV-8 Summary of Flood Control Structures**

Site No.	Site Name	Drainage Area	Dam Height	Storage Capacity (rainfall)
1	C.D. Lane	9.6 mi <sup>2</sup>	69.3 ft	4.86 in
3	Nauvo Road	3.6 mi <sup>2</sup>	60 ft	4.20 in
4A	Mitchell Hollow	6.8 mi <sup>2</sup>	53.4 ft	4.05 in



Streams  
 Flood Control Structures  
 Roads  
 Drainage Area  
 Batavia Kill Watershed  
 Village/Hamlet

Source: Batavia Kill Watershed Flood Control Structure Drainage Areas - 1997  
 Total area of Flood Control Structures = 12,200 acres (18.1 percent of watershed)  
 Percentage of Flood Control Structures by Watershed Sub-Unit: 1997  
 Mitchell Hollow Dam - Site 4A = 6.1 sq. mi. (50.0%)  
 Nauvo Dam - Site 3 = 3.5 sq. mi. (28.7%)  
 CD Lane Dam - Site 1 = 3.4 sq. mi. (28.3%)

Scale 1:72000  
 6000 0 6000 12000 18000 Feet

Batavia Kill Watershed Flood Control Structure Drainage Areas - 1997  
 Total area of Flood Control Structures = 12,200 acres (18.1 percent of watershed)  
 Percentage of Flood Control Structures by Watershed Sub-Unit: 1997

**Batavia Kill Watershed  
 Flood Control Structure  
 Drainage Areas**  
 Map IV.11  
 Greene County Soil & Water Conservation District  
 Batavia Kill Stream Corridor Management Plan

By the time the last of the first three structures was completed in the summer of 1976, the total cost had risen to \$3.6 million for construction, or a total cost of \$4.5 million when amortized at 3.25% over 100 years. A fourth site (2B) identified in the original work plan was eliminated due to negative environmental impacts and the lack of a favorable cost-benefit relationship (Soil Conservation Service 1978).



**Figure IV-47:** Damage to north emergency spillway on the C.D. Lane dam as the result of flows from tropical storm Floyd.

All of these structures were designed to store up to a 100-year flood event before flow occurs in the emergency spillway, and provide 100 years of storage for sediment accumulation. At the present time, all three structures are well maintained and operated by the Batavia Kill Watershed Protection District. The structures at Mitchell Hollow and Nauvo were the first completed in the early 1970's, with the final structure at Big Hollow completed in 1976. Since the completion of the flood control project, negative flood impacts in the Batavia Kill watershed have been significantly reduced.

The Batavia Kill Flood Protection District is managed by a Board of Directors, and receives its operating funds from the county legislature for the purpose of managing and maintaining the structures. The Board of Directors includes representation of the Greene County Soil & Water Conservation District. The Watershed District employs a part-time Contracting Officer. In addition, the GCSWCD and the Natural Resource Conservation Service provide technical and administrative assistance to the Watershed District. Additional discussions regarding the Batavia Kill Watershed District is provided in later sections of this SMP.

# GILBOA DAM RECONSTRUCTION PROJECT

## 1996 Flood Flow vs. Final Design Flood Flow

1996 Flood: 6.6 ft  
Elev. 1136.6 ft  
70,800 cfs

17.8 ft

DESIGN FLOOD  
100% PMF  
Elev. 1,147.8 ft  
312,000 cfs

ORIGINAL PROFILE

FINAL PROFILE

2006 ANCHORS

EARTH BACKFILL

BEDROCK

