Figure 7-9
Old Forge Dam
Emergency Action Plan
Dam Failure Inundation Limits
"Stormy Day" Scenario

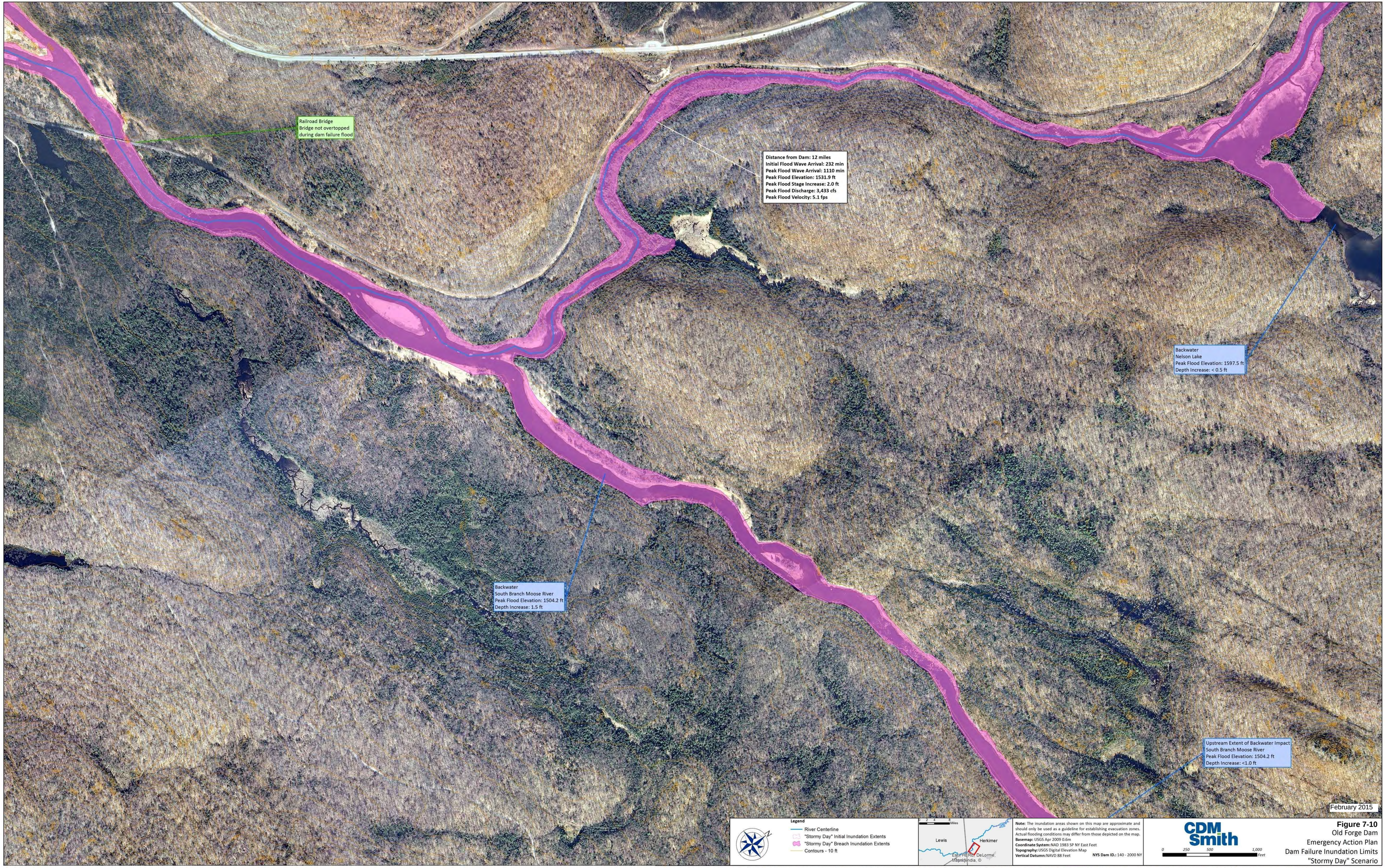


Figure 7-10
Old Forge Dam
Emergency Action Plan
Dam Failure Inundation Limits
"Stormy Day" Scenario

Figure 7-11
Old Forge Dam
Emergency Action Plan
Dam Failure Inundation Limits
"Stormy Day" Scenario

Part II, Section A

Dam Breach Study

Dam Breach Study

Old Forge Reservoir Dam

Dam Name:	Old Forge Reservoir Dam
State Dam ID #:	140-2000
NID ID#:	NY00315
Owner:	Hudson River-Black River Regulating District 350 Northern Boulevard Albany, New York 12204
Owner's Representative:	Robert S. Foltan, P.E. Chief Engineer (518) 465-3491
Owner Type:	State
Location:	Herkimer County Town of Webb, New York
Consultant:	Camp Dresser McKee & Smith William J. Friers, P.E. Senior Civil Engineer New York #: 055533

Hudson River-Black River Regulating District

June 2014
Rev. 1, November 2014
Rev. 2, February 2015

CDM Smith

4.3 Hydrologic and Hydraulic Analyses

4.3.1 Dam and Reservoir Data

The dam crest elevation as determined by the recent survey is at approximately El. 1709.0. The spillway crest elevation is at El. 1706.0, and the spillway length is approximately 36 feet. The length of the dam is approximately 129 feet. Flashboards have been installed raising the spillway crest elevation by one foot to El. 1707.0. The height of the spillway is approximately 9 feet.

4.3.2 Spillway Design Flood Analysis

A detailed hydrologic and hydraulic analysis was performed to determine the appropriate SDF for the Old Forge Dam. The contributing watershed area was determined to be 52.5 square miles including the 3,170-acre (4.95-square-mile) normal reservoir water surface of First through Fifth Chain of Lakes. The 17.1-square-mile basin of Sixth Lake is also included in the Old Forge watershed.

A model of this contributing watershed area was developed using the U. S. Army Corps of Engineers HEC-HMS hydraulic modeling system. HEC-HMS is a computer program that combines U. S. Soil Conservation Service (SCS) runoff methodology with standard hydrologic calculations for the purpose of evaluating the precipitation-runoff process. The calculations were performed to determine the peak SDF discharge and peak water surface elevation of the reservoir during a 150% 100-year storm event. The 24-hour 100-year rainfall for the Old Forge watershed was taken from the Northeast Regional Climate Center (NRCC) extreme precipitation analysis for the area, which is 5.6 inches. The depth was increased by 50% to 8.4 inches. A Type II SCS storm was used as the basis of the design hyetograph shape.

The 52.5-square-mile watershed was divided into 9 sub-basins including one for the Sixth Lake watershed. Each catchment was assigned an SCS curve number (CN) based on soil data obtained from

the national Soil Survey Geographic SSURGO database. The runoff from the design precipitation was routed through the Old Forge Dam to determine the SDF. Runoff from the Sixth Lake sub-basin was routed through the Sixth Lake reservoir which was represented with a storage-discharge curve obtained from HRBRRD. For the Old Forge Dam, the storage-elevation-discharge relationship was represented by curves estimated from spatial analysis of USGS elevation data for the reservoir shoreline and hydraulic details of the spillway structure.

The results of the hydrologic/hydraulic analyses indicate that the Old Forge Dam spillway cannot pass the 150% of the 100-year discharge. The peak inflow into the reservoir for 150% of the 100-year event would be 30,171 cfs, and the routed SDF discharge would be 1,375 cfs. This analysis is for an initial reservoir level at the normal summer pool (El. 1706.7) at the start of the 150% 100-year event with the gates closed. When the reservoir water surface elevation reaches the top of the flashboards (El. 1707.0), it is the operating policy to fully open the gates. The maximum reservoir level during the SDF is El. 1710.6 which is approximately 1.6 feet above the dam crest.

4.3.3 Dam Breach Analysis and Inundation Mapping

In accordance with NYS ECL Part 673, a dam failure analysis was performed for Old Forge Dam (ID#140 – 2000 NY) in Herkimer County. This analysis is limited to the following tasks:

- Failure Scenarios - There are two dam failure scenarios required for inundation mapping by NYSDEC: (1) “sunny day”, and (2) “stormy day”, which represents the SDF condition. For the Old

Forge Dam, the Spillway Design Flood (SDF) is associated with 150% of the 100-year flow where the discharge is 1,375 cubic feet per second (cfs) and the reservoir elevation is El. 1710.5 NAVD88 with the gates fully open.

- Data Review - Data was collected from the Hudson River Black River Regulating District (HRBRRD), the New York State Department of Transportation (NYSDOT), and U. S. Geological Survey (USGS) in support of this analysis.

  Dam and spillway dimensions and the stage-storage relationship for the reservoir (First Lake through Fourth Lake) were provided by HRBRRD. They are summarized in Section 3 of this EAP.

  Shoreline elevation data for the reservoir and channel cross sections were obtained from the USGS national elevation dataset (1/3 arc-second resolution).

  Bridge decking and channel bottom data at six river crossings was obtained from 2011 NYSDOT bridge inspection reports.

- Dam Breach Parameters - The dam breach size of opening and rate of failure were estimated from methods published by USACE (1997), and other empirical studies collected by the US Bureau of Reclamation Dam Safety Office (Wahl, 1998). These empirical studies provide guidelines based on the height of the dam face (Approximately 10 feet from downstream toe to dam top) and the volume of stored water (Approximately 20,900 acre-feet).

Table 4-2 summarizes the empirical guidelines of the characteristics of an Old Forge Dam failure described in by the Dam Safety Office literature review including one from the USACE (USACE, 1997; FERC 1987; Singh and Snorrason, 1982; Von Thun and Gillette, 1990, and MacDonald and Langridge-Monopolis, 1984).

Table 4-2, Empirically-Based Estimates of Dam Breach Characteristics

Empirical Study	Final Breach Average Width	Full Formation Time
USACE (1997)	10 – 30 ft	0.1 to 4.0 hours
FERC (1987)	20 – 40 ft	0.1 to 1.0 hours
Singh and Snorrason (1982)	20 – 50 ft	0.25 to 1.0 hours
Von Thun and Gillette (1990)	45 ft	0.31 hours
MacDonald and Langridge-Monopolis (1984)	N/A	0.77 hours

There is a dam breach routine in HEC-RAS that progressively creates a prescribed opening in a modeled inline structure at a specified rate. **Table 4-3** summarizes the input parameters used in the HEC-RAS simulation for a failure of the Old Forge Dam.

Table 4-3, Dam Breach HEC-RAS Input ParametersCharacteristics

Parameter	Value	Source
Final Bottom Width	34 ft	Empirical studies and channel restriction
Final Bottom Elevation	1696 ft NAVD88	Local topography
Left Side Slope	1.0	Limits of local topography
Right Side Slope	2.0	Limits of local topography
Breach Weir Coefficient	3.0	Conservative Assumption
Full Formation Time	0.25 hr	Approximate average empirical studies
Failure Mode	Overtopping	Assumption

The initial pool elevation in each dam failure simulation was a function of the associated initial flow conditions (e.g. "sunny day", SDF) and the rating curve developed for the dam.

4.3.3.1 Flood Routing Model

To determine the peak inundation extents resulting from an Old Forge Dam failure, a HEC-RAS model (USACE, 2010) was constructed from the best available data. The basic computational procedure used in HEC-RAS is based on the solution of the one-dimensional energy equation. Energy losses are evaluated for friction using the Manning equation and for contraction/expansion. The momentum equation may be used in situations where the water surface profile is rapidly varied. These situations include mixed flow regime calculations, hydraulic structures or bridges, and evaluation of profiles at river. The hydraulic response during a dam break is highly unsteady and the HEC-RAS modeling system is capable of simulating one-dimensional unsteady flow through a network of open channels.

The unsteady flow equation solver was adapted from Dr. Robert L. Barkau's UNET model (Barkau, 1992 and USACE, 2010). The unsteady flow component was developed primarily for subcritical flow regime calculations. However, following the release of Version 3.1, the model can now perform mixed flow regime (subcritical, supercritical, hydraulic jumps, and drawdowns) calculations in the unsteady flow computations module. Version 4.1.0 of HECRAS was used for this evaluation.

4.3.3.2 Model Extents

A detailed HEC-RAS model was built to represent the path of the dam break floodwave 15.3 miles downstream of the Old Forge Dam. From the dam, the detailed model extends along the Middle Branch Moose River from the Old Forge Dam past the confluences with the North Branch Moose River and then the South Branch Moose River, past the Herkimer County line, and extending into Oneida County. This reach drops more than 230 feet from beginning to end. The majority of the dam break floodwave dissipates during the first 15.3 miles of travel.

A second, less detailed and steady-state HEC-RAS model was built to represent the next 15 miles of the Moose River in Lewis County before its confluence with the Black River. This second reach drops more than 700 feet from beginning to end.

4.3.3.3 Model Development

HEC-RAS model pre-processing was performed using HEC-GeoRAS, which allows the user to develop channel cross sections from geospatial topographic data. Cross sections were built using the USGS National Elevation Database (1/3 arc second). Channel bathymetry was developed from NYS DOT bridge inspection reports at bridge structures and extrapolation from the shoreline elevations. Portions of the channel bottom without information were interpolated.

Ineffective flow areas were used at bridge and dam structures and where conveyance was constricted upstream or downstream of a necessary cross section. Manning roughness values for the main channel ranged from n = 0.03 to n = 0.08 based on based on field observations of the size of rocks in channel and vegetation, and the associated coefficients described by Chow (1959) and Arcement and Schneider (1989) Although this may be considered a bit higher than necessary, to represent a steep and rocky bottom, it was necessary to increase the roughness slightly for model stability in the steepest sections. The bank roughness coefficient was taken as 0.1 to represent the forested banks.

The dam failure analysis requires an accurate stage-storage relationship below the normal water surface elevation of the dam. The stage-storage curve was interpolated from data obtained from HRBRRD, which is described in Section 3 of this EAP.

The less detailed steady state hydraulic model representing the downstream portion from 15 to 31 miles downstream of the dam is based on the conservative assumption that there is little to no dissipation of the peak flood wave downstream of the detailed model extents. The steady state flow increases at confluences with tributaries based on area ratio of the contributing basin. The purpose of the steady state model is to determine if the peak water surface increase downstream of the first 15 miles is not a significant riparian hazard.

4.3.3.4 Dam Failure Simulations

There are two dam failure scenarios required for inundation mapping by NYSDEC: (1) “sunny day”, and (2) “stormy day” conditions.

1. “Sunny Day” Results

The “sunny day” scenario is a dam failure that occurs with a full reservoir (El. 1707.6 NAVD88) during normal flow conditions downstream of the dam in the critical routing reach. Table 4-4 summarizes the results of the “sunny day “dam breach simulation.

Table 4-4, "Sunny Day" Dam Breach Floodwave Modeling Results

Distance Downstream From Dam (miles)	"Sunny Day" Failure				
	Initial Wave Arrival Time (minutes)	Peak Flood Wave Arrival Time (minutes)	Peak Flood Stage Elevation (ft NAVD88)	Peak Flood Stage Increase (feet)	Peak Flood Flow Rate (cfs)
0.0 mile (Dam)	0	0	1707.6	0	3,233
0.25 mile	1	250	1704.2	7.5	3,114
0.5 mile	7	410	1702.5	7.9	3,100
1 mile	15	570	1694.3	7.6	3,096
1.5 miles	25	760	1684.2	6.8	2,845
2 miles	35	870	1682.7	6.4	2,746
3 miles	47	930	1682.4	6.5	2,736
4 miles	125	960	1681.7	6.3	2,722
6 miles	180	1,060	1680.0	6.8	2,710
8 miles	225	1,110	1665.0	4.7	2,708
10 miles	270	1,160	1604.7	2.9	2,707
12 miles	405	1,265	1531.4	2.8	2,707
Confluence with South Branch Moose River at 12.5 miles downstream of Old Forge Dam					
14 miles	540	1,370	1484.1	2.6	3,007
15.3 miles	580	1,450	1477.5	1.8	3,007
Herkimer and Oneida County Line – End of Detailed Hydraulic Study					

The "sunny day" dam failure simulation results in a floodwave as high as 8 feet that traveling down the Middle Branch Moose River channel with the front end of the wave travelling the first mile in 15 minutes. Within 10 minutes of the wave arrival, the water surface rises dramatically. The absolute peak flood elevation arrives many hours later as the tailwater propagates backwards as the wave moves down the channel. The peak discharge just downstream of the dam approached 3,100 cfs and dissipated to just under 2,700 cfs at the confluence with the South Branch Moose River. The peak velocity was between 3 to 5 feet per second (fps) for most of the reach.

Downstream of the confluence with the South Branch Moose River, the "sunny day" peak flood stage increase is below 2 feet from the normal flow conditions, with peak velocities in the range of 1.5 to 4 fps. The floodwave hazards associated with the dam failure in this portion of the reach are substantially less than those upstream of the confluence. No structures are overtopped in this portion of the floodwave path. Modeling results for the channel 15 to 31 miles downstream of the dam show the flood wave increases the river stage by 1.0 to 1.9 feet.

2. "Stormy Day" Result

The "Stormy Day" scenario is a dam failure that occurs with the reservoir and critical routing reach at the full spillway design flood (SDF) condition. **Table 4-5** summarizes the results from the "stormy day "dam breach simulation.

Table 4-5, "Stormy Day" Dam Breach Floodwave Modeling Results

Distance Downstream From Dam (miles)	Stormy Weather Failure				
	Initial Wave Arrival Time (minutes)	Peak Flood Wave Arrival Time (minutes)	Peak Flood Stage Elevation (ft NAVD88)	Peak Flood Stage Increase (feet)	Peak Flood Flow Rate (cfs)
0.0 mile (Dam)	0	0	1710.5	0	3,907
0.25 mile	1	200	1705.1	4.2	3,816
0.5 mile	3	360	1703.4	4.1	3,814
1 mile	10	550	1695.6	5.0	3,812
1.5 miles	15	670	1685.3	4.0	3,564
2 miles	20	730	1683.9	3.9	3,475
3 miles	30	790	1683.5	3.8	3,463
4 miles	45	855	1682.8	3.7	3,448
6 miles	75	920	1681.2	3.8	3,435
8 miles	120	965	1665.9	2.9	3,433
10 miles	165	1010	1605.3	2.0	3,433
12 miles	232.5	1110	1531.9	1.6	3,432
Confluence with South Branch Moose River at 12.5 miles downstream of Old Forge Dam					
14 miles	300	1210	1484.7	1.7	3,732
15.3 miles	340	1220	1477.8	1.3	3,732
Herkimer and Oneida County Line – End of Detailed Hydraulic Study					

The dam failure floodwave advances at a slightly faster rate than the "sunny day" scenario, taking only 10 minutes to travel the first mile downstream of the dam break. The peak discharge is 3,816 cfs directly downstream of the dam and 3,432 cfs just upstream the confluence with the South Branch Moose River just over 12 miles downstream of the dam. These peak discharges include the antecedent flood conditions of 1,375 cfs. The peak rise along Middle Branch Moose River above the antecedent "stormy day" conditions ranges from 2 to 5 feet. The peak velocities range from 3 to 6 fps.

Downstream of the confluence with the South Branch Moose River, the "stormy day" peak flood stage increase is below 2 feet from the normal flow conditions, with peak velocities in the range of 4 to 6 fps. As with the "sunny day" scenario, the floodwave hazards associated with the dam failure in this portion of the reach are substantially less than those upstream of the confluence. No structures are overtopped in this portion of the floodwave path. Modeling results for the channel from 15 to 31 miles downstream of the dam show that the flood wave increases the river stage by less than 1-foot.

4.3.3.5 Flood Inundation Maps

Post-processing of the HEC-RAS water surface profile data was performed using HEC-GeoRAS. The GIS extension creates a geospatial water surface and then intersects that surface with the available topography to determine the extent of flooding. Inundation Maps showing the peak extent of inundation for the "sunny day" and "stormy day" dam failure scenarios along the Middle Branch Moose River and the main branch of the Moose River have been developed for inclusion into the Emergency Action Plan for Old Forge Dam.

Part II, Section B

Reviewing, Testing, Updating, Posting & Distributing the EAP

Plans for Reviewing, Exercising, Revising & Distributing the EAP

1. Reviewing:

   The Regulating District Staff performs internal review and training of the EAP Annually. Typical review items and training topics are outlined on the sample sheets listed below.

   - Sample Internal Review/Training for HR-BRRD personnel.
   - Sample Status Report Outline.

2. Testing:

   The Regulating District tests the EAP Annually with the use of a "Call-Out Drill". The typical outline for the "Call-Out Drill" is summarized on the sample sheet listed below.

   - Sample Emergency Situation - Annual Test Communication Sheet.

3. Revising:

   Revisions that occur as a result of the internal review and exercising of the EAP will be assembled into the EAP. Contact information shall be updated annually. See Part II, Appendix D for current contacts.

4. Updating:

   Revision to the EAP will be provided to all EAP Binder Holders annually.

5. Posting the EAP:

   The **Emergency Notice** (Part II, Section C) instructing observer to call the Regulating District Staff is posted at the Dam.

6. Distribution of the EAP:

   Copies of the EAP are distributed to all operational, supervisory and emergency personnel as per the **Document Distribution List**, Part II, Section D.

   See following pages for procedures used for reviewing, training and exercising the EAP.

INTERNAL CORRESPONDENCE

SUBJECT: Sample EAP Outline for Internal Review/Training

---

1. The refresher/meeting for the subject EAP was conducted on _____ at _____.

2. The following were in attendance:

   (See Sign In Sheet)

3. The suggested topics to review/discuss are as follows:

   A. EAP Review

   - Phone List Revisions – Operations Engineer to verify with master update list
   - Changes in Upstream or Downstream Occurrence
   - Verification of Plan Locations
   - Verification of Posted Notice Locations
   - Annual Test Date (after Internal Review/Training, and before the end of the year if possible

   B. Plan Review/Training

   - Chain of Command (Day/Night of Non-Business Hours)
   - Notification Flow Charts & Procedures
   - General Responsibilities
   - Inundation Maps

   C. Critique Items – The following items are provided as suggestions for discussion with Internal Review/Training attendees. No written response is required to these items at this time.

   - What type of emergency scenario to choose for “Call-Out Drill”?
   - Any concerns regarding telephone contacts.
   - How to shorten EAP implementation time
   - Additional revisions EAP (if any) as a result of the Internal Review/Training.

   Note: Internal Review/Training summaries will be used to make updates to the EAP.

   D. Other (topics)

   _____

   _____

   _____

INTERNAL CORRESPONDENCE

DATE:
TO: File,_____

SUBJECT: Emergency Action Plan Adequacy Review
Project Name:_____

The current status of this plan is as follows:

1. The EAP is reviewed annually for its content and adequacy.

2. Further checks include the following items:

   A. _____ No revision is required, other than the phone lists.
   B. _____ Revision(s) may be required because of possible flood plain hazard due to:

   _____ Road Construction
   _____ Residential Construction
   _____ Commercial Construction
   _____ New Public Recreation
   _____ New Private Recreation
   _____ New Water Impounding Structure
   _____ New Water Diversion Structure
   _____ New Water-Related Facilities
   _____ Other _____
   _____

3. A copy of the current EAP for this project is in a prominent location and readily accessible to Regulating District personnel at the following locations:
   _____
   _____
   _____

   Also, posted notices instructing observer to call the Engineering Staff are located at the following locations:
   _____
   _____
   _____

   Name,
   _____

   Title,
   _____

Emergency Situation – Annual Test Communication

1. This is _____ (Name), _____ (Title) with the Hudson River - Black River Regulating District (Regulating District).

For Annual Test Only

We are conducting our annual test of the Old Forge Dam Emergency Action Plan.

This is only a test. If it were not a test, we would advise you of the following information:

2. The emergency situation would be identified and confirmed by visual inspection at the time of the incident at Old Forge Dam, on the Middle Branch of the Moose River, Herkimer County as being either a **High Flow, Non-Failure, Potential Failure or Imminent Failure** Condition. After the identification of the Emergency Condition, the specific information of the Condition would be outlined by the following items:

3. **High Flow** condition is developing due to _____

_____

_____

_____

(Briefly describe situation)

Or

Non-Failure Condition is being investigated by the HRBRRD.
Failure has not occurred however, the Regulating District has made the following changes to the release from the Old Forge Reservoir Dam in order to mitigate failure. The changes are as follows,_____

_____

_____

(Briefly describe situation)

Or

Potential-Failure Condition is being investigated by the Regulating District.

Failure has not occurred however, the Regulating District has made the following changes to the release from the Old Forge Reservoir Dam in order to mitigate failure. The changes are as follows,_____

_____

_____

(Briefly describe situation)

Or

Imminent-Failure Condition has been identified by the Regulating District.

Failure (has occurred/is imminent) due to _____

_____

_____

_____

(Briefly describe situation)

Emergency Situation – Annual Test Communication (Continued)

4. The emergency situation was identified at about _____.
(hours)

5. We expect flooding of the flood-prone areas in the vicinity of the (river/creek) _____
_____
_____
_____
_____

5a. If conditions worsen, flooding may occur _____
_____
_____
_____

6. Current Emergency flow is _____, estimated at the Old Forge Dam.
(c.f.s.)

7. The estimated time of peak flood at the Old Forge Dam will be at _____on_____.
(hours) (date)

8. The estimated peak flood at the Old Forge Dam will be _____.
(c.f.s.)

9. When the Emergency condition becomes upgraded or downgraded, you will be notified by the Regulating District Engineering Staff.

For Annual Test Only

I REPEAT, THERE IS NO FAILURE AT THIS TIME. THIS IS ONLY A TEST.

THANK YOU FOR YOUR COOPERATION.

(Extra Info. - Optional)

You are encouraged to test your own internal plans/procedures including notifications to key decision makers in your organization. However, please use caution when transmitting this information so as not to cause alarm to the general public or businesses in the area (Hospitals, Schools, Nuclear Plants, etc.). If you receive any media inquiries regarding this exercise, please refer them to me (Name - Title -Phone No.).

Part II, Section C

Notification Posted Notice

NOTICE

If:

Dam(1) Failure is observed in progress or through inspection is deemed imminent,

Then, Immediately Notify:

Hudson River – Black River Regulating District Staff

Robert Foltan **(Chief Engineer)**	**518-465-3491 (Albany Office)** **518-461-6927 (Cell)**
(Administrator)	**518-661-5535 (Sacandaga Field Office)** **315-788-5440 (Watertown Office)**
Michael Mosher **(Operations Engineer)**	**518-465-3491 (Albany Office)** **518-366-8959 (Cell)**

Control Center:

Hudson River - Black River Regulating District
54 State Street, Suite 501
Albany, NY 12207

(1) The Term "Dam" Includes Earth Embankment, Concrete Structures, Spillway, and Gates

Part II, Section D

EAP Contacts & Distribution List

Edit Date:	Call Sequence No.	Alternates Identified	3 Ring Binder	Digital Copy (.pdf)	EAP Binder No.	Organization/Agency	Dam Facility	Title	Name	Emergency Phone	Office Phone	Mobile Phone	Fax / Alternate	Other	2nd Line	3rd Line	E-Mail
07/01/20					3	HR-BRRD	**Old Forge Dam**	**Chief Engineer**	Robert Foltan, P.E.	518-465-3491	518-465-3491	518-461-6927		518-439-3486	54 State Street, Suite 501	Albany, NY 12207	rfoltan@hrbrrd.ny.gov
	Confirmation	**Conference Call with HR-BRRD Staff. (Review Outline for Emergency Notification) - HR-BRRD Staff Assists with Notifications**															
08/10/15	1	Primary				Herkimer County Office of Emergency Services		Dispatcher		315-866-0974					109 Mary Street, Suite 1204	Herkimer, NY 13350	
08/07/15					14	Town of Webb		Police Chief	Ronald W. Johnston	315-866-0974	315-369-3157				P.O. Box 157	Old Forge, NY 13420	police@inletny.com
12/19/14					15	Old Forge Fire Department		Fire Chief	Charlie Bogradus		315-369-3424				P.O. Box 1170, 116 Fulton St.	Old Forge, NY 13420	oldforgefd@frontiernet.net
07/31/20					13	NYS Police-Old Forge		Trooper	Holly Armendola	315-369-3322	315-369-3333				Route 28, Main Street	Old Forge, NY 13420	holly.armendola@troopers.ny.gov
07/09/21					12	NYS Police - Remsen		Sgt/Sc	Christopher G. Budlong		315-831-4177				9400 State Route 12	Remsen, NY 13483	christopher.budlong@troopers.ny.gov
12/08/22					30	Town of Webb UFSD		Superintendent's Secretary	Mary Kate Russell		315-369-3222 ext. 2102	315-369-5234		315-369-2147	3002 NYS Rt. 28, P.O. Box 38	Old Forge, NY 13420	mrussell@towschool.org
11/14/22					17	Town of Webb Helth Center		Site Manager	Carletta Darling		315-369-6619	315-404-1333	315-369-6533		114 South Shore Road	Old Forge, NY 13420	cdarlin1@mvhealthsystem.org
04/19/22					16	Town of Webb		Supervisor	Bonnie Baker		315-369-3121	315-360-5480			3140 State Rte. 28	Old Forge, NY 13420	towsupv@frontiernet.net
11/08/19					10	Herkimer County Office of Emergency Services		Director	Albert Moxham	315-866-0974	315-867-1212	315-868-5501	315-867-5873		71 Reservoir Road	Herkimer, NY 13350	amoxham@herkimercountyny.gov
12/18/19					11	Herkimer County Sheriff's Office		Sheriff	Scott Scherer		315-867-1167		315-867-1354		320 North Main Street	Herkimer, NY 13350	sscherer@herkimercounty.org
12/12/22	2	Primary				Oneida County Office of Emergency Services	**Incremental Rise < 2 ft. Flooding is no longer considered a hazard.**	Emergency Dispatcher		315-736-0141	315-880-0300		315-765-2529		120 Base Road	Oriskany, NY 13424	911@ocgov.net
12/12/23		Alternate			20	Oneida County Office of Emergency Services		Director / Deputy Director	Edward Stevens/Fred Lampman	315-273-9373 (24 hr)	315-765-2522		315-765-2529		120 Base Road	Oriskany, NY 13424	estevens@ocgov.net; flampman@ocgov.net
08/28/20					21	Oneida County Sheriff's Office	**Incremental Rise < 2 ft. Flooding is no longer considered a hazard.**	Sheriff	Robert Maciol		315-765-2200				6065 Judd Road	Oriskany, NY 13424	rmMaciol@OneidaCountySheriff.us
12/27/16	3	Primary				Lewis County 911 Dispatch Center	**Incremental Rise < 2 ft. Flooding is no longer considered a hazard.**	Emergency Dispatcher		315-376-3511	315-377-2031		315-376-5647		Public Safety Building, 5252 Outer Stowe Street	Lowville, NY 13367 C/O Cheryl A. LaLonde Dispatch Supervisor	cheryllalonde@lewiscounty.ny.gov
12/20/18					22	Lewis County Fire & Emergency Management	**Incremental Rise < 2 ft. Flooding is no longer considered a hazard.**	Director of Fire And Emergency Management/ EMO Assistant	Robert A. Mackenzie III / Jennifer Maracchion		315-376-5305	315-771-6196	315-376-5293		Public Safety Building, 5252 Outer Stowe Street	Lowville, NY 13367	robertmackenzie@lewiscounty.ny.gov; jennifermaracchion@
01/23/19		Alternate				Lewis County		County Manager	Ryan Piche		315-376-5354				7660 N. State St.	Lowville, NY 13367	ryanpiche@lewiscounty.ny.gov
12/18/19					26	Lewis County Sheriff Department	**Incremental Rise < 2 ft. Flooding is no longer considered a hazard.**	Sheriff	Michael Carpinelli	315-376-3511	315-376-3511				Public Safety Building, 5252 Outer Stowe Street	Lowville, NY 13367	mikecarpinelli@lewiscounty.ny.gov
11/18/19	4	Primary			23	National Weather Service Buffalo		Hydrology Program Manager	Kirk Apffel	716-565-0013	716-565-0014				587 Aero Drive	Cheektowaga, NY 14225	kirk.apffel@noaa.gov; alb.stormreport@noaa.gov
10/01/21		Alternate			18	National Weather Service Forecast Office		Senior Service Hydrologist	Britt E. Westergard	518-626-7572 (24 hrs)					1400 Washington Avenue	Albany, NY 12222	britt.westergard@noaa.gov; alb.stormreport@noaa.gov
08/07/15	5	**County Emergency Manager's Conference Call**															
07/01/20					2	HR-BRRD		**Operations Engineer**	Michael Mosher		518-465-3491	518-366-8959			54 State Street, Suite 501	Albany, NY 12207	mmosher@hrbrrd.ny.gov
12/21/17	1	Primary				New York State Watch Center, Office of Emergency Management, Division of Homeland Security and Emergency Services		State Watch Center - S.W.C. (24/7)		518-292-2200	518-292-2360 518-292-2302	518-248-9047	518-322-4986		1220 Washington Ave. Building 22	Albany, NY 12226	NY.StateWatchCenter@dhses.ny.gov
12/20/18					19	NYS Homeland Security & Emergency Services, Office of Emergency Management - (Region IV)		Regional Director	Gerald Pedersen		315-438-8907	315-663-4191	315-438-3350		10 Alder Drive, Suite 103	East Syracuse, NY 13057	gerald.pedersen@dhses.ny.gov
12/12/22					25	NYS Homeland Security & Emergency Services, Office of Emergency Management – Planning Section		NYS Office of Emergency Management	Planning Section		518-292-2302		518-322-4988		1220 Washington Ave. Building 22, Suite 101	Albany, NY 12226-2251	nysoem.planning@dhses.ny.gov
11/22/16	2	Primary				National Grid Call Center		Shift Supervisor		315-460-2110	315-460-2130						
10/11/23	3	Primary		(.pdf)	27	American Red Cross		Disaster Preparedness Manager for Eastern New York	Cortney Shatraw	315-405-6112	315-782-4410	315-405-6112	315-782-4438	800-831-0927x1 Disaster Services Hotline	203 N Hamilton Street	Watertown, NY 13601	cortney.shatraw@redcross.org
12/12/23		Alternate				American Red Cross, Eastern NY Region Disaster Cycle Services		Disaster Program Manager	Anna Maison		315-715-2072			800-831-0927x1 Disaster Services Hotline	203 N Hamilton Street	Watertown, NY 13601	anna.maison2@redcross.org
08/29/24		Primary		(.pdf)	31	Adirondack Railroad	Railroad tracks located along M. Branch of Mooose River	Maintenance of Way Supervisor	Nick Sweet			315-617-3345			Thendara Station, 2568 State Route 28	Thendara, NY 13472	nasweet@adirondackrr.com
		Alternate		(.pdf)	31	Adirondack Railroad	Railroad tracks located along M. Branch of Mooose River	Operations Manager	Hank Crossman			315-750-5561			Thendara Station, 2568 State Route 28	Thendara, NY 13472	hankcrossman@adirondackrr.com
		Alternate		(.pdf)	31	Adirondack Railroad	Railroad tracks located along M. Branch of Mooose River	Director of Adminstration & Communication	Amanda Hill		315-793-7502	315-794-9878			Thendara Station, 2568 State Route 28	Thendara, NY 13472	amhill@adirondackrr.com
		Alternate		(.pdf)	31	Adirondack Railroad	Railroad tracks located along M. Branch of Mooose River	General Manager	Frank Kobliski			315-672-5047		315-569-6897	Thendara Station, 2568 State Route 28	Thendara, NY 13472	fkobliski@adirondackrr.com
		Alternate				Adirondack Railroad - Railroad Contract Services (RCS)	Railroad tracks located along M. Branch of Mooose River	Dispactcher			608-352-6001	608-352-6001			Janesville, WI		
08/21/24		Primary		(.pdf)	32	Twin Rivers Paper Company	Paper Company and dam		Tom Gigliotti		315-266-1784				7801 Lyonsdale Road	Lyons Falls, NY 13368	tom.gigliotti@twinriverspaper.com

Old Forge Dam EAP
Hudson River - Black River Regulating District
NYS Dam ID No. 140 - 2000

CONTACT - DISTRIBUTION LIST

Part II, Section D

Edit Date:	Call Sequence No.	Alternates Identified	3 Ring Binder	Digital Copy (.pdf)	EAP Binder No.	Organization/Agency	Dam Facility	Title	Name	Emergency Phone	Office Phone	Mobile Phone	Fax / Alternate	Other	2nd Line	3rd Line	E-Mail
08/28/24		Primary		(.pdf)	33	Northbrook Lyons Falls, LLC	Kosterville, Gouldtown, Lyons Falls Hydroelectric Facilities	Regional Manager, Operations & Maintenance - NY	Jerome Ortlieb		315-405-3636				Kruger Energy LP 423 Brunswick Avenue	Gardiner, ME 04345	Jerome.Ortlieb@Kruger.com
08/28/24		Alternate		(.pdf)	33	Northbrook Lyons Falls, LLC	Kosterville, Gouldtown, Lyons Falls Hydroelectric Facilities	EAP Coordinator	Sherri Loon						Kruger Energy LP 423 Brunswick Avenue	Gardiner, ME 04345	Sherri.Loon@kruger.com
10/02/23	4			(.pdf)	24	NYSDEC, Dam Safety		Section Chief	Donald Canestrari	24-hr/emergency 518-486-4326	Office: 518-402-8185	cell: 518-852-0415		Backup Office: 518-402-8138	625 Broadway, 4th Floor	Albany, NY 12233-3504	donald.canestrari@dec.ny.gov; courtney.white@dec.ny.gov
07/15/21					5	HR-BRRD		HR-BR Administrator			518-661-5535		518-661-5720		737 Bunker Hill Road	Mayfield, NY 12117	
07/09/21	1				7	HR-BRRD		Black River Area Superintendent	Michael Dicob		315-376-6672	315-778-9883	315-376-8835		116 Necessary Dam Road	Lowville, NY 13367	mdicob@hrbrrd.ny.gov
11/03/22	1				8	HR-BRRD		Black River Area Plant Operator	Joshua Rice		315-376-6672	315-286-7350	315-376-8835		116 Necessary Dam Road	Lowville, NY 13367	jrice@hrbrrd.ny.gov
07/01/20	1				9	HR-BRRD		Watertown Office Binder	Attn.: Megan Cole		315-788-5440				317 Washington Street, Room 614	Watertown, NY 13601	brao@hrbrrd.ny.gov
07/20/21	1				4	HR-BRRD		Engineering Assistant	Thomas Baker		518-661-5535	315-842-0438	518-661-5720		737 Bunker Hill Road	Mayfield, NY 12117	tbaker@hrbrrd.ny.gov
07/01/20	1					HR-BRRD		Conklingville Dam, Principal Plant Operator	Eric Johnson		518-696-3215	518-848-2651	518-696-3215	518-654-7706	233 Co. Rt. 8	Hadley, NY 12835	ejohnson@hrbrrd.ny.gov
11/04/22	1				4	HR-BRRD		Director of Administrative Services	Stephanie Ruzycky		518-661-5535	518-848-4262	518-661-5720	518-883-6238	737 Bunker Hill Road	Mayfield, NY 12117	sruzycky@hrbrrd.ny.gov
07/01/20	1				4	HR-BRRD		Mayfield Office Binder	Attn.:Stephanie Porter		518-661-5535		518-661-5720		737 Bunker Hill Road	Mayfield, NY 12117	sacfo@hrbrrd.ny.gov
07/01/20					28	HR-BRRD		Office Binder - BRFO			315-376-6672		315-376-8835		116 Necessary Dam Road	Lowville, NY 13367	mdicob@hrbrrd.ny.gov
07/01/20					29	HR-BRRD		Executive Director	John Callaghan		518-465-3491	518-590-4785			54 State Street, Suite 501	Albany, NY 12207	jcallaghan@hrbrrd.ny.gov
05/04/22					1	HR-BRRD		Office Binder - HRAO			518-465-3491				54 State Street, Suite 501	Albany, NY 12207	hrao@hrbrrd.ny.gov
08/29/24	¬ Latest Revision				33	¬ Largest Binder No.											

Part II, Section E

Site Specific Concerns

Extreme Event Operation Plan & Notification Procedure

Site Specific Concerns

If a dam breach were to occur during a river flow condition of 150% of the 100year flood, downstream bridges, roads, and homes including the pedestrian/snowmobile bridge, NYS Route 28 Bridge, NYS Route 28 Bridge to Thendara, the Town of Webb Police Station, and homes immediately downstream of the Dam should be monitored for washout or flooding.

Access to Town Office Buildings, businesses, homes and camps from Route 28 may be limited.

The **Extreme Event Operation Plan and Notification Procedures** (**Plan** and **Procedures**) for the Old Forge Dam, EAP, has been developed to provide a description of the current operations plan during high flow events and to improve coordination with emergency management agencies and adjacent communities.

The intent of the **Plan** is to improve the current system [of notification] for affected upstream and downstream inhabitants and property owners, when there is a warning of an impending high flow event...

The **Procedures** incorporate both reservoir elevation and flow when considering the appropriate emergency level classification, response and notification of upstream and downstream inhabitants during **High Flow** emergency conditions.

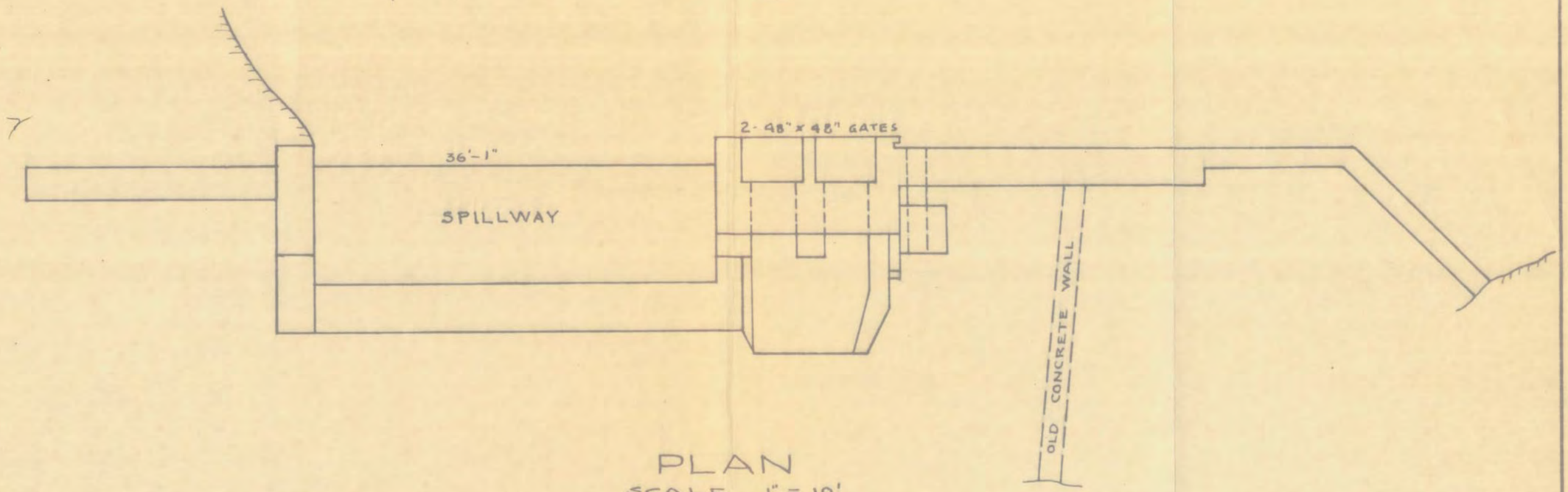
Elevation (ft) / Outflow (cfs)	Operation Procedures	Probable Impacts	Action taken
WSEL < 1707.06 = Top Flashboards on Spillway Crest			
Q > 0	Follow general operating plan and procedures. Discharge through outlet gates to target daily elevation.	None	None
WSEL > 1707.06			
Q = 0 - 360	Maximize discharge through gates to increase discharge as needed to lower WSEL < 1707.06.	None	None
Q = 360 - 700	Maximize discharge through gates, remove flashboards as needed to increase discharge and maintain WSEL < 1707.06. Field staff monitor 8 am – 4 pm, daily (Monday -Friday).	Minor flooding of shoreline upstream of dam, 5th through 1st Lakes.	Issue notification through NYALERT notification system.
Q > 700	Maximize discharge through gates, remove flashboards as needed to increase discharge and maintain WSEL < 1707.06. Field staff monitor 8 am – 4 pm, daily (Monday -Friday) and weekends as directed by Chief Engineer.	Flooding of shoreline upstream of dam, 5th through 1st Lakes and downstream of dam along Middle Branch of Moose River.	Activate EAP High Flow Condition.

Part II, Section F

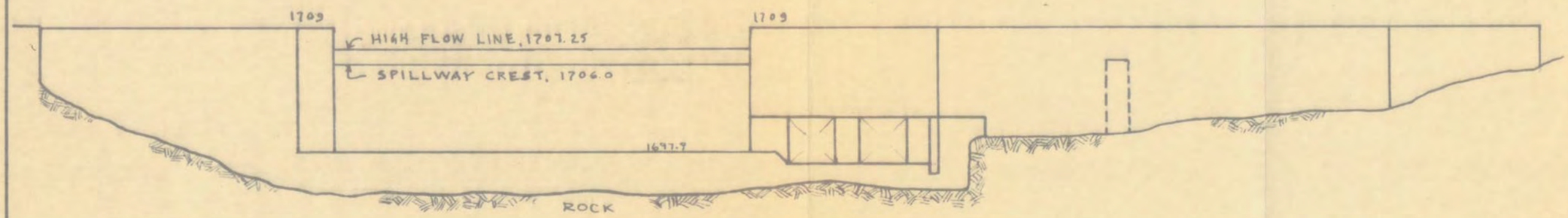
EAP Signatures

Part II, Section G

Project Drawings



PLAN
SCALE 1" = 10'



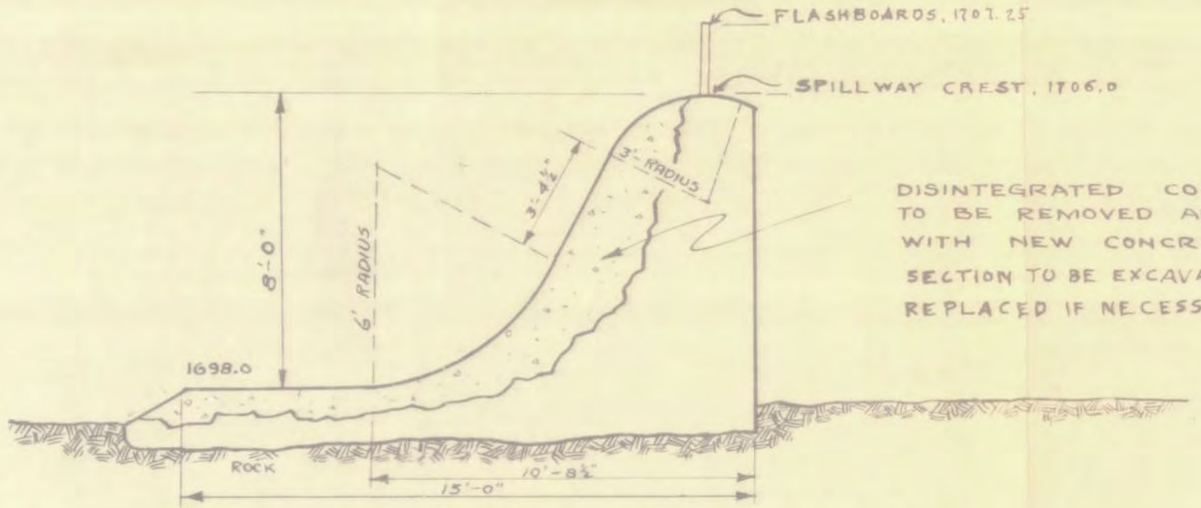
ELEVATION
SCALE 1" = 10'

STATE OF NEW YORK
BLACK RIVER REGULATING DISTRICT

OLD FORGE RESERVOIR
REBUILDING OF SPILLWAY

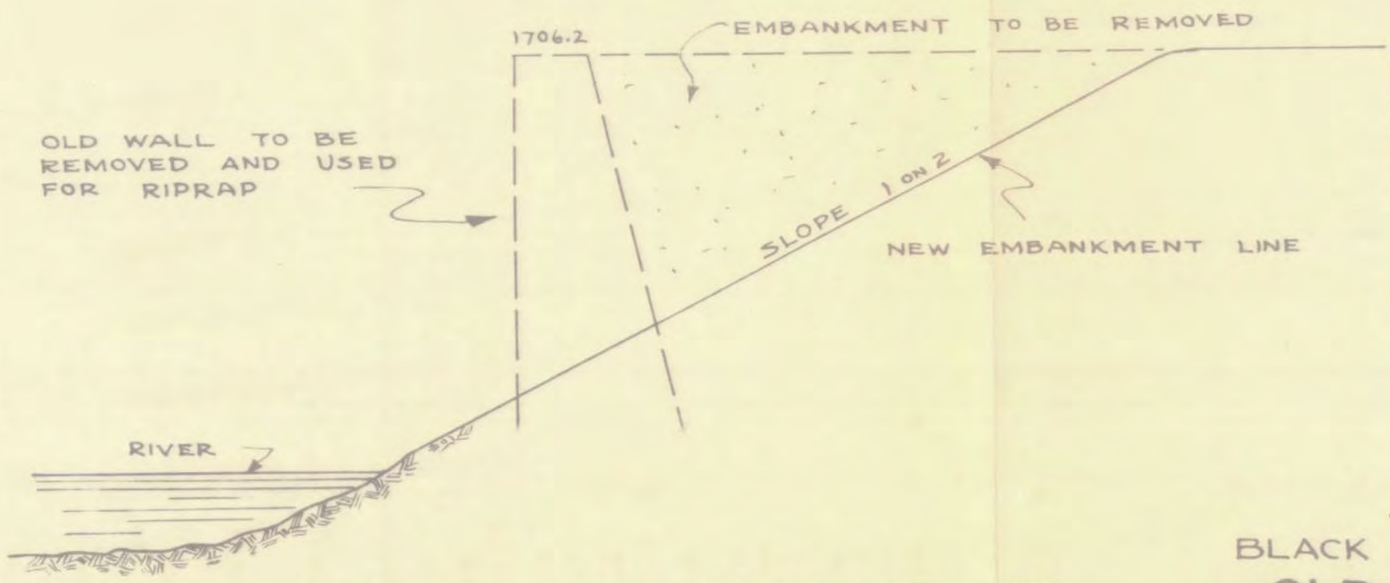
DATE OCT. 27'53

FILE NO. MX - 3.46
ACC. NO. M-1309



DISINTEGRATED CONCRETE TO BE REMOVED AND REPLACED WITH NEW CONCRETE; ENTIRE SECTION TO BE EXCAVATED AND REPLACED IF NECESSARY.

SECTION THRU DAM
SCALE ¼"=1'-0"



SECTION FOR REMOVAL OF OLD WALL
SCALE ¼" = 1'-0"

STATE OF NEW YORK
DEPARTMENT OF PUBLIC WORKS
DIVISION OF CONSTRUCTION
ALBANY, N. Y. Nov. 5, 1953

This plan for Re- constructing dam No. 140-2000 Black River watershed is hereby approved under the provisions of Section 548 of the Conservation Law.

Examined and recommended to the Chief Engineer for approval.

Senior ~~ASSOCIATE~~ CIVIL ENGINEER

APPROVED

CHIEF ENGINEER
Department of Public Works

By: _____
Deputy Chief Engineer

STATE OF NEW YORK
BLACK RIVER REGULATING DISTRICT

OLD FORGE RESERVOIR
REBUILDING OF SPILLWAY

DATE OCT. 27'53

FILE NO. MX-3.46
ACC. NO. M-1310

NOTICE

If:

Dam(1) Failure is observed in progress or through inspection is deemed imminent,

Then, Immediately Notify:

Hudson River – Black River Regulating District Staff

Robert Foltan **(Chief Engineer)**	**518-465-3491 (Albany Office)** **518-461-6927 (Cell)**
(Administrator)	**518-661-5535 (Sacandaga Field Office)** **315-788-5440 (Watertown Office)**
Michael Mosher **(Operations Engineer)**	**518-465-3491 (Albany Office)** **518-366-8959 (Cell)**

Control Center:

Hudson River - Black River Regulating District
54 State Street, Suite 501
Albany, NY 12207

(1) The Term "Dam" Includes Earth Embankment, Concrete Structures, Spillway, and Gates