

Appendix C

Pleasure Lake Emergency Action Plan

EMERGENCY ACTION PLAN

**PLEASURE LAKE DAM
NYS ID DAM
NO. 163-1597
NAT DAM ID NO. NY00345
SULLIVAN COUNTY
NEW YORK**

SUBMITTED TO:

*FALLSBURG FISHING AND
BOATING CLUB
SULLIVAN COUNTY, NEW YORK*

**Engineering & Construction Management
Hydro-Nuclear-Fossil
Geotechnical Engineering
Seismic and Structural Engineering
Hydrological & Hydraulic Engineering
Tunnel Engineering
Environmental Engineering & Permitting**

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**PROJECT NO. 02-2683
JUNE 2008**



ENGINEERS & CONSULTANTS

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June 13, 2008
Project No. 02-2683

Mr. Peter Connery, P.E.
New York State Department of Environmental Conservation
Dam Safety Section, 4th Floor
625 Broadway
Albany, New York 12233-3504

**TRANSMITTAL
EMERGENCY ACTION PLAN
PLEASURE LAKE DAM
STATE DAM ID# 163-1597
TOWN OF FALLSBURG
SULLIVAN COUNTY, NEW YORK**

Dear Mr. Connery:

Transmitted herewith are three (3) copies of the revised Emergency Action Plan for the Pleasure Lake Dam. The Plan has been reviewed and updated to reflect the Department's July 31, 2007, review comments. Our responses to these comments are presented in this letter. To facilitate your review, NYSDEC comments are presented in **bold-faced type** and our responses are presented in regular type.

Draft EAP Comments

COMMENT NO. 5: Cover page – Add the State Dam ID # (163-1597) and the National Dam ID number (NY00345).

RESPONSE NO. 5: The dam identification numbers have been added to the cover sheet.

COMMENT NO. 6: Section 1.0 – Is the same notification flow chart to be use for all three emergency scenarios? Note that this scenarios are more typically referred to as Condition A, B or C. Using common terminology may be less confusing to emergency responders that may also be involved with other dams and EAPs.

RESPONSE NO. 6: The notification flow chart title box has been modified to indicate that the chart applies to all three condition classifications. In addition, the condition classifications descriptions in Section 4 have been changed to reflect the more typical alphabetic designations.

COMMENT NO. 7: Notification Flow Chart – Make it clear that the Club’s first call should be the County EMC. In the upper DEC box, delete the words “Bureau of Flood Protection” and substitute therefore “Dam Safety Section”. Also, Alon Dominitz should be listed first as the primary contact, with Joe Albert listed second as the backup. DEC only needs to be listed once on the flow chart, so consider deleting the lower box from the County EMC to DEC.

RESPONSE NO. 7: The requested changes have been made to the notification flow chart.

COMMENT NO. 8: Section 3 – Figure No. 1 should be labeled Figure 3-1. In the last sentence on page 3, is the following intended: ...has a Reservoir volume at normal pool of less than 1000 acre-feet?

RESPONSE NO. 8: The figure was previously corrected in the distribution sets and the suggested wording revisions have been incorporated in the text.

COMMENT NO. 9: Section 4, Section 4.1, 1st paragraph, second sentence, add the concept of “unusual conditions with the dam.” In Section 4.3.3, 1st sentence, consider adding the words “...a condition when there is a situation of concern, such a flooding, but there is no danger of Dam failure.” The 2nd sentence seems redundant.

RESPONSE NO. 9: We have added the concept of “unusual conditions with the dam” including examples to Section 4.1 and we have deleted the redundant sentence.

COMMENT NO. 10: Section 5.1, 2nd paragraph. Refer to Appendix B, which correctly states that EAPs should be reviewed and/or updated at least annually.

RESPONSE NO. 10: Reference to Appendix B has been added to Section 5.1.

COMMENT NO. 11: Section 5.3. A list of downstream residents should be included (perhaps in an Appendix for ease of future updates?), with contact information, organized in the specified order of notification from upstream to downstream. Consider dividing the list according to the sides of the stream, perhaps with separate teams responsible for notifications and evacuations for each side. Evacuation routes and collection centers should be identified, mapped and described.

RESPONSE NO. 11: Reference to a list of downstream residents has been added to *Section 1.0* and the list of downstream residents has been added to Appendix D. Since all the residences are group in a very small area it does not seem necessary to group them by location.

Evacuation routes have identified and described in Section 7.0. Figure 7-2 is showing evacuation routes, suggested collection areas, and road block locations have been added to the Plan.

COMMENT NO. 12: Section 6. It's acceptable to refer to the discussion of the availability /location of emergency supplies listed in the I&M Plan, but note that the I&M Plan does not discuss over aspects of preparedness such as backup communications or any enhanced monitoring. It is implied in the flow chart that land lines are considered the primary means of communication, with cell phones as backup (and then perhaps radios?), but perhaps these (and any others, as appropriate) should be considered further and more explicitly discussed herein. Enhanced monitoring (i.e. more frequent, over and above that discussed in the I&M Plan) would be appropriate when an emergency condition is declared, especially during weekends, holidays, nights and inclement weather; perhaps with the increment of monitoring increasing as the emergency condition rating increases.

RESPONSE NO. 12: The descriptions have been modified as suggested.

COMMENT NO. 13: Figure 7-1, Note 3 refers to dam break plus base flood. Does "base flood" equal to 100 year event, or the ½ PMF event? Also, has the inundation analysis been extended far enough downstream? Analysis should extent until the incremental rise between the non break and the dam break condition for each scenario is 2 feet or less.

RESPONSE NO. 13: The base flood is the Spillway Design Flood (SDF) for the Project which was selected by incremental analysis of the basin as submitted in the March, 2003, Hydrologic and Hydraulic Evaluation. The SDF for Pleasure Lake Dam is 0.4 PMF. Based on RIZZO's analysis as presented in the March, 2003, Report, a dam break under a 0.4 PMF condition causes a 0.1 foot increase in flood elevation at Thompsonville (see Table 3-7). The calculated water level at the confluence of Sheldrake Creek and the Neversink River due to a "sunny day" dam break is approximately El. 1100. There are three structures immediately downstream that may have some level of flooding. We suggest that these structures be investigated and if they are residences, they should be included in an updated version of the notification list.

COMMENT NO. 14: Include a designated list of plan holders to facilitate distribution of future revisions and updates, and for the coordination of training and exercises.

RESPONSE NO. 14: A designated list of Plan holders has been added to Appendix E of the Plan.

Please note that we have relocated our New York Area office. I can be reached at (914) 332-0037, extension 401.

Very truly yours,

Paul C. Rizzo Associates, Inc.



Hans Hasnay, P.E.
Project Manager
AHH/dc/crb/lsm
cc: Fallsburg Fishing and Boating Club

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**EMERGENCY ACTION PLAN
PLEASURE LAKE DAM
SULLIVAN COUNTY, NEW YORK**

1.0 NOTIFICATION FLOWCHART

The flowchart for a Dam failure condition will summarize the individuals to be notified and the responsibility for and priority of such notification in the event of a Dam failure emergency. Potential Dam failure conditions are further defined in *Section 4.0*. The Notification Flowchart and a list of the downstream residents to be contacted can be found in *Appendix D*.

2.0 STATEMENT OF PURPOSE

The purpose of this Emergency Action Plan (EAP) is to define responsibilities and provide procedures that are designed to notify the appropriate Emergency Management Personnel and other public safety officials of a possible, impending, or actual failure of Pleasure Lake Dam.

3.0 PROJECT DESCRIPTION

Pleasure Lake Dam is located on the southern end of the Pleasure Lake on the Sheldrake Stream, a tributary of the Neversink River, located in Sullivan County, New York. It is owned and operated by the Fallsburg Fishing and Boating Club (CLUB). A Site Location Map is provided as *Figure 3-1*.

The Pleasure Lake Dam is an earthfill embankment with a masonry gravity dam section along the downstream slope. The dam is less than 40 feet high and has a reservoir volume at normal pool of less than 1,000 acre-feet. The dam is approximately 470 feet long with a crest width that varies from 17 to 34 feet. The upstream slope of the earthfill has a one horizontal to one vertical (1H:1V) slope.

The Emergency Spillway is 25 feet long and 35 feet wide at the crest. It is cut into the east abutment of the embankment. The Emergency Spillway has a 250-foot-long trapezoidal channel with a bottom width of approximately 21 feet and side slopes of 4H:1V. The exit slope is approximately 20H:1V.

A single lane gravel roadway on the Dam Crest provides access to lakeside homes. Roadway traffic crosses a steel and wood bridge spanning two sluiceways and a spillway near the center of the dam. Two 4-foot-long sluiceways are located adjacent to an auxiliary spillway at the maximum dam section. The sluiceway walls are fitted with stoplog guides. Stoplogs are used to control the lake level and regulate flow from the reservoir.

The Pleasure Lake Watershed is approximately 13.6 square miles in area and land use consists of the small towns of Loch Sheldrake, South Fallsburg, undeveloped wooded areas, farmland, rural homesteads, and a golf course. Undeveloped wooded areas comprise more than half of the total watershed area. The Pleasure Lake Watershed Plan is shown on *Figure 3-2*.

Downstream areas that would be inundated in the event of a dam failure are located downstream of the Thompsonville-Sheldrake (Ranch Road) Bridge where there is a concentration of occupied dwellings. This bridge is located approximately one (1) mile from the dam. Based on the results of the dam break modeling, a catastrophic failure of the dam, either during “sunny day” or flood event conditions, could result in the loss of property or life.

4.0 EMERGENCY DETECTION, EVALUATION, AND CLASSIFICATION

This section presents the procedures for the timely detection, evaluation, and classification of an existing or potential emergency condition at Pleasure Lake Dam.

4.1 DETECTION OF AN EMERGENCY CONDITION

The early detection of an emergency condition at Pleasure Lake Dam and the evaluation of information are a critical component to the EAP. The CLUB operations and/or maintenance personnel that observe unusual conditions with the dam such as signs of slope movements, depressions, sinkholes, sand boils, cracking of concrete surfaces, discharges, abnormal reservoir levels, or water overtopping the dam, should immediately report the conditions to the CLUBS's Dam Safety Official. The Dam Safety Official will analyze the incoming information and will determine if an emergency situation exists.

The following list provides examples of discharges or reservoir levels that indicate if an abnormal condition exists at Pleasure Lake Dam. The examples are a partial listing of a dam emergency situation and in no means depict all potential emergency conditions of the Site.

Example 1: Unusual rise in surface elevations downstream of the dam. An unusual rise in downstream waters could be an indication of a breach or piping dam failure. The spillway should be checked to see if the rise in downstream water levels is explained by an increase in water discharged over the spillway.

Example 2: Water seepage at the dam, especially at the toe of the embankment. Any water that seeps through the dam, whether fast or slow moving, can indicate a potential piping dam failure. If the water source cannot be explained (such as water discharges by a toe drain), or if the water is murky or cloudy with sediment, an emergency condition may be imminent.

Example 3: A high water reservoir elevation at Pleasure Lake. A water surface elevation within two feet from the top of the dam and rising would indicate that dam overtopping is possible.

Example 4: An earthquake event. A slump or shift in the embankment alignment, a sinkhole, movement of the spillway, or other unusual depression/movement could indicate a potential dam failure emergency.

The detection of an emergency condition may also be obtained from state, county, or town officials, and the general public. Once notification of an unusual condition is received by the CLUB from an external source, the CLUB will assess the data and determine if an emergency should be declared.

4.2 EVALUATION OF AN EMERGENCY CONDITION

When the CLUB receives notification of a potential emergency condition at Pleasure Lake Dam, the Dam Safety Official must evaluate the data and determine if an emergency condition should be declared. Input from real-time observations at the dam, discussions with the CLUB's maintenance personnel and weather forecasts will be needed in the evaluation process.

The evaluation of emergency conditions should consider the safety of the general public. The evaluation should be timely and on the side of caution. After the evaluation, a classification of the dam failure condition will be made.

4.3 Classification of the Dam Failure Condition

Following the evaluation of the emergency condition, one of three classifications can be declared:

4.3.1 Condition Classification A

This classification is called a **Dam Failure Warning** which indicates a condition when dam failure is imminent or has occurred.

Generally this situation is a condition where "time has run out" with respect to the failure of the dam. This is a situation where a failure has occurred, is occurring, or is about to occur. Once the CLUB has determined there is no longer any time available to attempt corrective measures to prevent dam failure, this warning should be issued and the emergency notification process should begin.

Emergency management agencies should interpret a **Dam Failure Warning Alert** as notification that the dam is failing and immediately implement evacuation and road closure procedures.

The CLUB will establish a command center on-site and assign a team of maintenance and engineering personnel who will be responsible for coordinating emergency action procedures, provide assistance to emergency management agencies, and, if possible, implement dam hazard reduction procedures.

4.3.2 Condition Classification B

This classification is called a **Dam Failure Watch** which indicates a condition when a potentially hazardous dam situation is developing.

Generally, a watch situation is a condition that “some amount of time” is available for further analyses to be made before dam failure is considered a foregone conclusion. This is a situation where a failure may eventually occur but pre-planned actions taken during certain events (e.g., major floods, earthquakes, evidence of piping) may moderate or alleviate failure. Even if failure is inevitable, more time is generally available in a Watch Condition than in a Warning Condition to issue warnings and/or take preparedness actions.

The CLUB will establish a command center on-site and assign a team of maintenance and engineer personnel to implement steps for the reduction or the elimination of the hazard potential. Periodic status Reports will be provided to the Emergency Management Personnel and local authorities.

The authorities will decide on the appropriate course of action. Because of the proximity of the residences near the Thompsonville-Sheldrake (Ranch Road) Bridge, this road should be closed and resident evacuation should be strongly considered. Emergency Management Agencies should interpret a Dam Failure Watch as a condition that requires constant evaluation to determine what action is needed to prevent injury or damage in the event of the dam failure.

4.3.3 Condition Classification C

This classification is called a **Non Failure Emergency** which indicates a condition. When there is a situation of concern, such as flooding, but there is no danger of dam failure.

The CLUB will continue to monitor the situation at the dam, and will have the option to notify the appropriate agencies of the situation. Appropriate agencies to contact may include highway departments and public safety personnel.

5.0 GENERAL RESPONSIBILITIES UNDER THE EAP

This section will specify the people and organizations responsible for the maintenance and operation of the dam and persons or groups responsible for implementing various phases of the EAP.

5.1 GENERAL RESPONSIBILITIES

5.1.1 Fallsburg Fishing and Boating Club Responsibilities

As Owner, the CLUB is responsible for the maintenance and operation of the Pleasure Lake Dam.

CLUB personnel will review the EAP on a regular basis to ensure that the Plan is up-to-date and that all personnel involved in the Plan are familiar with their duties and responsibilities. Such personnel are to be advised of the importance of a thorough understanding of the Plan. Documentation of the EAP review will be included in *Appendix B* of future revisions.

When initiating the EAP, CLUB personnel will clearly state that “the Emergency Action Plan for Pleasure Lake Dam is now being initiated.” They will briefly define what section will be implemented in the EAP (Dam Failure Warning or Dam Failure Watch) and if applicable, the portion of the dam that has failed or will fail, and the time of failure.

An example of what may be said during a Dam Failure Warning is:

“This is (name of personnel) from Fallsburg Fishing and Boating Club calling to initiate the Emergency Action Plan for Pleasure Lake Dam.

It is (time of call) and the (portion of the Dam) has failed. Please refer to the Dam Failure Warning Alert procedures described in your copy of the Emergency Action Plan for Pleasure Lake Dam and take appropriate action to notify the agencies/organizations under your jurisdiction and implement your own Emergency Plans.”

After making the necessary notifications, CLUB personnel will establish a command center on-site and assign a team of personnel to implement steps for the reduction or the elimination of the hazard potential.

5.1.2 Responsibility for Notification of Emergency Condition to State and Local Officials

The CLUB will normally be the party responsible for notifying the Sullivan County Office of Emergency Management (SCOEM) of an emergency situation at Pleasure Lake Dam. SCOEM will be responsible for notifying the appropriate New York state and local officials (e.g., New York State Police, Town of Thompson) of an emergency situation at Pleasure Lake Dam. However, such notification may also be provided by the CLUB, or other party. The responsibility of these authorized personnel is the same under both Condition A – Dam Failure Warning Alert (failure is imminent or has occurred) and Condition B – Dam Failure Watch Alert (potential failure is developing).

5.1.3 Responsibility for Evacuation of Downstream Areas

The notification and evacuation of the downstream area is normally the responsibility of the Sullivan County Office of Emergency Management Office (SCOEM). The SCOEM will notify local police to dispatch personnel to the downstream residences. The SCOEM will also telephone the residences and notify them of the emergency declaration.

5.1.4 Responsibility for Duration, Security, Termination, and Follow-Up Evaluations of the EAP

The CLUB is responsible for the on-site monitoring of the situation at the dam and will keep local authorities informed of developing conditions from the time the emergency starts until the emergency has been terminated. The CLUB and local law enforcement officials will secure the area immediately adjacent to the dam to keep the public from entering an unsafe area.

The CLUB will coordinate with local authorities when determining that the emergency situation is to be terminated.

Following implementation of the Emergency Action Plan for Pleasure Lake Dam, the CLUB will prepare a follow-up evaluation of the Plan. This evaluation should have critical input from the

SCOEM and other officials involved in the Plan for recommendations on changes, additions, or deletions needed to improve the Plan.

5.1.5 EAP Coordinator Responsibility

Emergency Action Plan related activities will be coordinated by the Club Dam Safety Chairman. The coordinator will be responsible for preparing and distributing revisions to the Plan, establishing training seminars, and coordinating EAP exercises.

The coordinator will also act as the contact point for involved parties that have questions or comments about the Plan. The current coordinator for the CLUB is Mr. William Voegelin. He can be reached at 845-434-2990.

6.0 PREPAREDNESS

6.1 DAM SURVEILLANCE AND MONITORING PROGRAM

The normal Dam Surveillance and Monitoring Program for the Pleasure Lake Dam is fully described in the Pleasure Lake Inspection, Operation, and Maintenance Plan. The Plan addresses the action to be taken during a Non Failure Emergency flooding event.

During a Dam Failure Warning or Dam Failure Watch event (Condition *Classification A or B*) the dam is to be monitored from a safe location throughout the event.

Personnel monitoring the dam should use either land line telephones or mobile telephones to maintain communications. It is anticipated that emergency responders will use dedicated radio frequencies to communicate with the Sullivan County Emergency Control Center.

If the event does not result in a dam failure, the CLUB's professional engineer should fully inspect the dam to verify it is safe to resume normal operation.

7.0 INUNDATION MAP

The Pleasure Lake Dam Break Inundation Map is shown on *Figure 7-1*. This map shows the areas that would potentially be flooded by a dam failure. Note that the inundation limits portrayed on this map are approximate and should be used for emergency planning only.

Two failure events are shown on the inundation map. The red area shows the result of a “sunny day” dam break. This type of failure is one in which a normal, non-flooding stream flow exists before the dam failure. A sunny day failure is often considered to be more dangerous to the general public in that people don’t expect such a significant and rapid rise in water elevation. People may be fishing or wading in the downstream area prior to the sunny day failure.

The blue area shows the results of a flood situation dam break. This is often considered less dangerous to the downstream area since people are not likely to be utilizing the stream area during flooding conditions. The red and blue areas on the map illustrate those areas that will be flooded with a dam failure during high flow of 0.5 PMF.

The inundation map was prepared using USGS quadrangle mapping. Water surface elevations were marked at the key cross-section locations and were interpolated for areas between the cross-sections. The inundation map shows that both the towns of Fallsburg and Thompson will be affected by a dam break. It should be noted that the dam break analysis has been conducted for Pleasure Lake Dam does not imply that the dam is unstable or presents a safety concern to the public.

Figure 7-2 shows recommended evacuation routes and road block locations in the Thompsonville area.

8.0 DAM BREAK ANALYSIS

A description of the dam break analyses performed to assess the flooding impact of catastrophic failure of the Pleasure Lake Dam is included in *Appendix A*.

9.0 EMERGENCY ACTION PLAN REVIEWS

Plan reviews will be held annually with all personnel who have designated responsibilities under this EAP. The reviews are to ascertain that the parties fully understand their responsibilities.

Each time revisions are made to the Plan, the EAP will be re-distributed to the local agencies and company personnel who have responsibilities under this EAP. Those receiving revisions to the Plan will be requested to complete and sign a statement acknowledging receipt and understanding of the updated EAP. This document will be included in *Appendix B*.

The EAP will be reviewed and updated as necessary and on an annual basis. The annual review of the EAP will include two actions. A review of the notification flow chart and proper tables and appendices will occur to verify that the telephone number and designated contacts are current. In addition, each agency of the notification flow chart will be contacted to review their responsibilities in the event of an emergency.

Revision of the EAP should be distributed to the designated plan holders listed in *Appendix E*.

10.0 AGENCY REVIEW AND APPROVAL

The revised Plan will be submitted to the New York State Department of Environmental Conservation and the Sullivan County Emergency Control Center for review.

Once a review has been conducted and approvals have been received, documentation of submittal and approval of the EAP by the responsible parties will be included in *Appendix C*.

REFERENCES

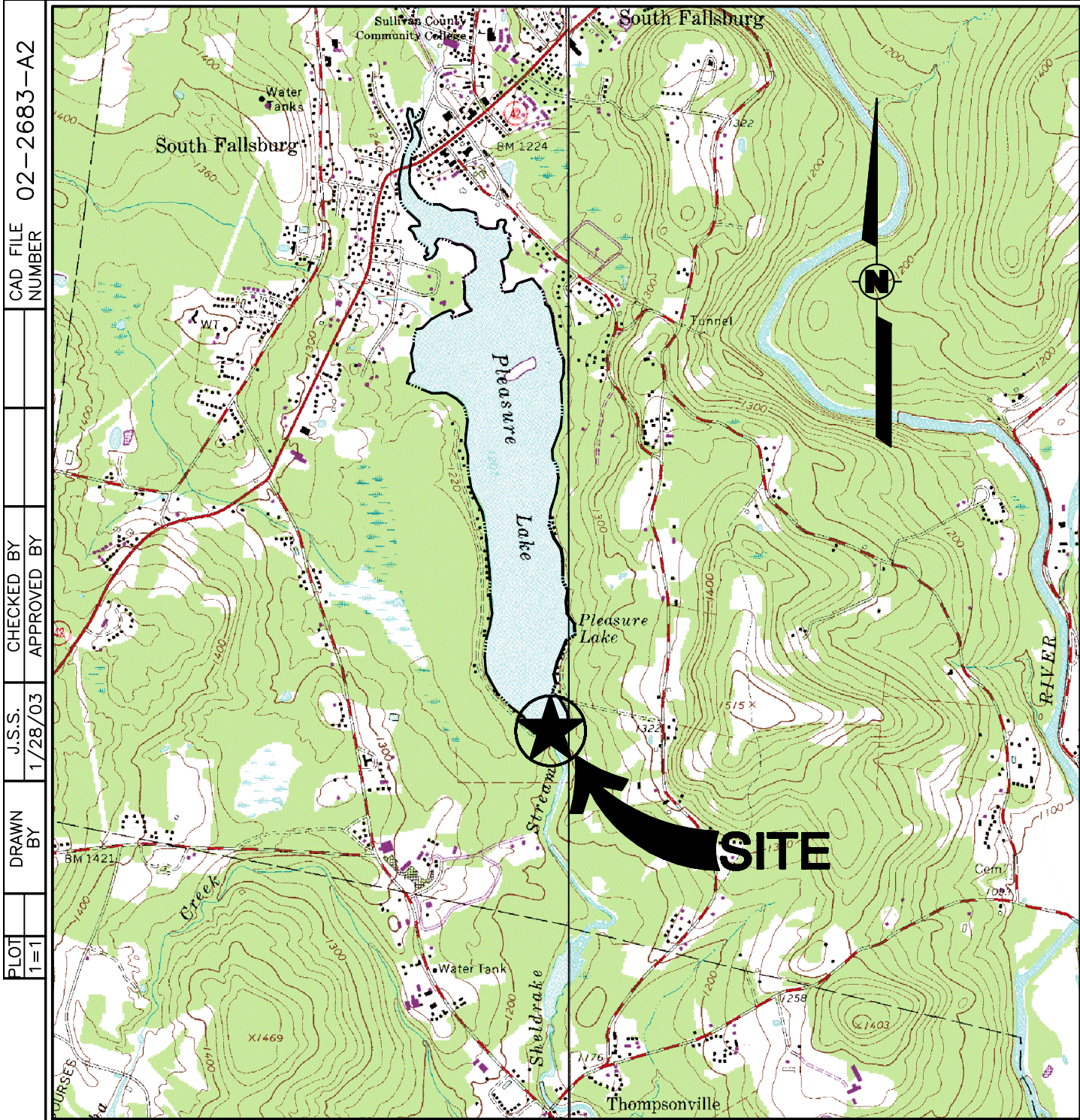
REFERENCES

Federal Energy Regulatory Commission (FERC), 1991, "Engineering Guidelines for Evaluation of Hydropower Projects," Chapter III Gravity Dams, Federal Energy Regulatory Commission, Office of Hydropower Licensing, Report No. FERC 0119-2, Washington DC, USA.

National Weather Service, "Simplified Dam Break (SMPDBK)" computer program, NWS, 1991.

Stetson-Harza, 1990, "Phase II Hydrological/Hydraulic Investigation of Pleasure Lake Dam for the Fallsburg Fishing and Boating Club," Stetson-Harza, Utica, NY.

FIGURES



CAD FILE NUMBER 02-2683-A2

J.S.S. CHECKED BY
1/28/03 APPROVED BY

DRAWN BY

PLOT 1=1



FIGURE 3-1

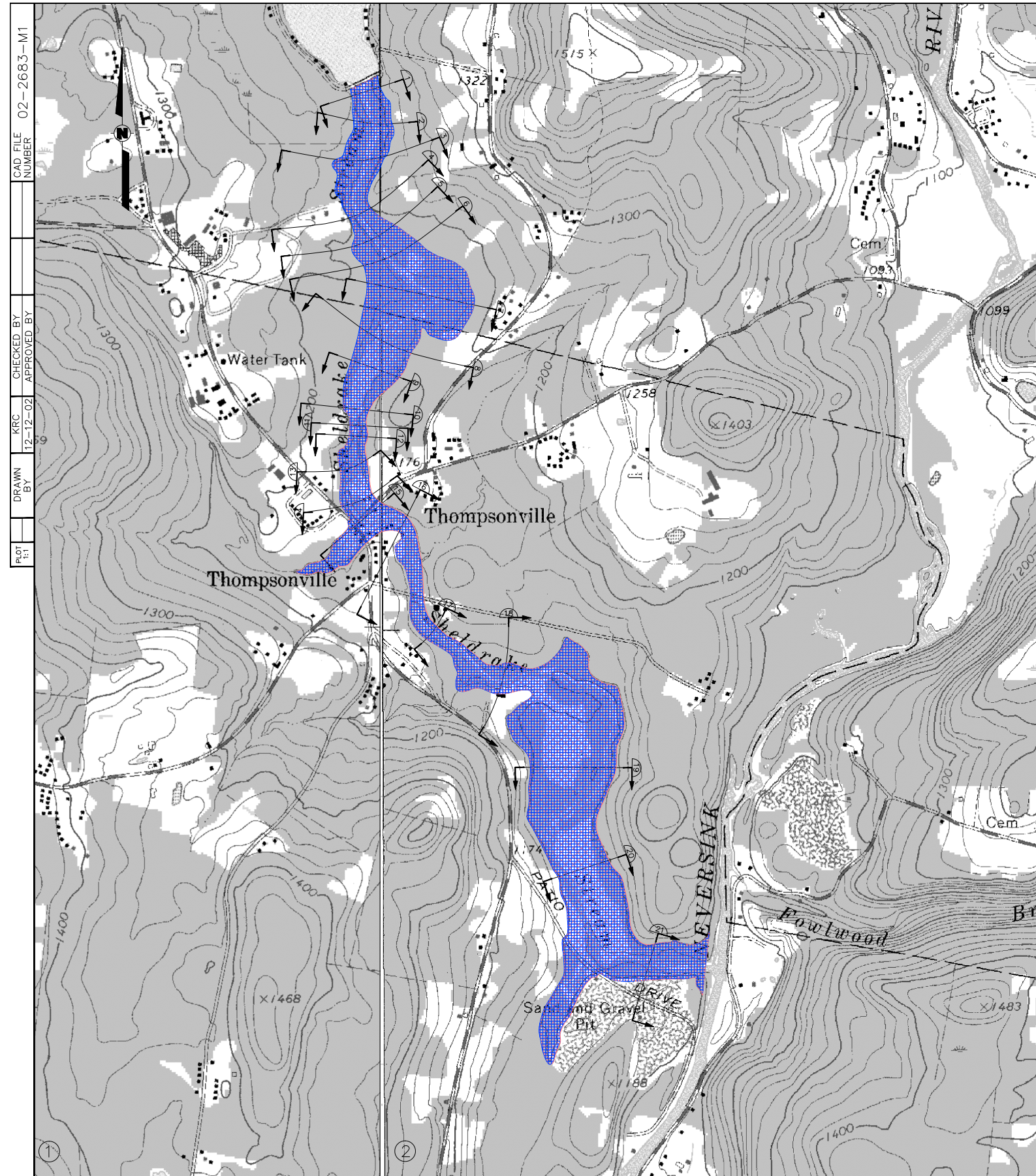
SITE LOCATION MAP
HYDROLOGIC AND HYDRAULIC EVALUATION
PLEASURE LAKE DAM

PREPARED FOR

FALLSBURG FISHING AND BOATING CLUB
SULLIVAN COUNTY
FALLSBURG, NEW YORK

REFERENCES:
U.S.G.S. 7.5 MIN. TOPOGRAPHIC MAPS:
WOODRIDGE, NEW YORK QUADRANGLE,
DATED: 1966, PHOTOREVISED: 1982;
MONTICELLO, NEW YORK QUADRANGLE,
DATED: 1966, PHOTOREVISED: 1982.

PCRA Paul C. Rizzo Associates, Inc.
ENGINEERS & CONSULTANTS



CAD FILE NUMBER 02-2683-M1
 CHECKED BY KRC
 APPROVED BY 12-12-02
 DRAWN BY
 PLOT 1:1

SECTION DATA

SECTION DETAILS		SUNNY DAY BREACH		
SECTION	MILES DOWN STREAM	MAX FLOOD ELEV. (FT)	MAX FLOW (CFS)	TIME TO MAX ELEV. (HR)
1	0.00	1206.7	29028	0.50
2	0.10	1203.3	20918	0.53
3	0.19	1198.6	20094	0.56
4	0.25	1198.6	19893	0.56
5	0.33	1188.6	19694	0.61
6	0.44	1187.8	19497	0.63
7	0.59	1181.6	19302	0.68
8	0.69	1168.2	19109	0.69
9	0.81	1167.6	18918	0.70
10	0.93	1167.6	18729	0.70
11	0.96	1167.6	18542	0.83
12	0.98	1167.6	18356	0.84
13	1.08	1164.5	18173	0.85
14	1.12	1159.0	17991	0.86
15	1.19	1159.0	17811	0.87
16	1.30	1144.8	17633	0.87
17	1.57	1127.3	17457	0.88
18	1.80	1124.8	17282	0.91
19	2.29	1103.2	17109	1.04
20	2.58	1103.2	16938	1.14
21	2.92	1103.2	16769	1.22

SECTION DETAILS		FLOOD EVENT BREACH		
SECTION	MILES DOWN STREAM	MAX FLOOD ELEV. (FT)	MAX FLOW (CFS)	TIME TO MAX ELEV. (HR)
1	0.00	1208.1	26689	0.50
2	0.10	1204.7	19232	0.54
3	0.19	1200.3	18472	0.58
4	0.25	1200.3	18204	0.58
5	0.33	1188.5	18022	0.61
6	0.44	1187.9	17842	0.65
7	0.59	1181.8	17663	0.70
8	0.69	1168.0	17487	0.70
9	0.81	1167.5	17312	0.71
10	0.93	1167.5	17139	0.72
11	0.96	1167.5	16967	0.85
12	0.98	1167.5	16797	0.86
13	1.08	1164.1	16629	0.87
14	1.12	1158.7	16463	0.88
15	1.19	1158.7	16299	0.89
16	1.30	1144.6	16136	0.90
17	1.57	1127.0	15974	0.91
18	1.80	1124.7	15814	0.92
19	2.29	1103.1	15656	1.06
20	2.58	1103.1	15500	1.17
21	2.92	1103.1	15345	1.26

- LEGEND**
- FLOOD EVENT DAM BREAK INUNDATION ZONE
 - FAIR WEATHER DAM BREAK INUNDATION ZONE
 - APPROXIMATE SECTION LOCATION

- NOTES:**
1. THE INUNDATION MAPPING IS BASED ON ANALYSES PERFORMED USING THE NATIONAL WEATHER SERVICE HYDROLOGIC RESEARCH LAB "SIMPLIFIED DAM BREAK MODEL" (1991).
 2. THE PINK AREA ON THE MAP REPRESENTS THE FLOOD LIMITS IF THE DAM SHOULD FAIL WHEN THE STREAM IS AT NORMAL LEVELS PRIOR TO DAM FAILURE.
 3. THE BLUE AREA ON THE MAP REPRESENTS THE FLOOD LIMITS IF THE DAM SHOULD FAIL COINCIDENTALLY WITH THE OCCURRENCE OF A BASE FLOOD THAT OVERTOPS THE DAM EMBANKMENT, TRIGGERING A DAM FAILURE. THIS FLOOD WOULD BE ASSOCIATED WITH AN EXTREME INTENSITY, LOW PROBABILITY PRECIPITATION EVENT.
 4. THE INUNDATED AREAS SHOWN ON THIS MAP REFLECT EVENTS OF AN EXTREMELY REMOTE PROBABILITY. THESE RESULTS ARE NOT IN ANY WAY INTENDED TO REFLECT UPON THE INTEGRITY OF THE DAM.

REFERENCES:

1. U.S.G.S. 7.5 MIN. TOPOGRAPHIC MAP WOODRIDGE QUADRANGLE, NEW YORK PHOTO REVISION, 1982; SCALE 1"=2000'
2. U.S.G.S. 7.5 MIN. TOPOGRAPHIC MAP MONTICELLO QUADRANGLE, NEW YORK PHOTO REVISION, 1982; SCALE 1"=2000'



FIGURE 7-1
 DAM BREAK INUNDATION MAP
 HYDROLOGIC AND HYDRAULIC EVALUATION
 PLEASURE LAKE DAM
 PREPARED FOR
 FALLSBURG FISHING & BOATING
 SULLIVAN COUNTY, NEW YORK

APPENDIX A

DAM BREAK ANALYSIS

DAM BREAK ANALYSIS

Dam break analyses were performed to assess the flooding impact of catastrophic failure of the Pleasure Lake Dam. The computer program Simplified Dam Break (NWS, 1991) was used to perform the analyses. The primary point of interest downstream is the Thompsonville-Sheldrake (Ranch Road) Bridge where there is a concentration of occupied dwellings; however, the entire stream valley to the confluence with the Neversink River was evaluated. The analyses consider both “sunny day” and flood event type dam failures. Input parameters include:

- Type of dam (earth);
- Reservoir stage-volume relationship;
- Reservoir volume (4,068 acre-feet);
- Reservoir area (206 acres);
- Reservoir level at time of failure (EL 1,214, one foot above crest);
- Dam breach elevation (EL 1,213);
- Average final breach width (90 feet);
- Breach bottom (EL 1,184);
- Time of dam failure (30 minutes);
- Non-breach flow at time of failure (4,700 cfs for flood event failure and 0 cfs for sunny day failure); and
- Downstream geometry and conditions.

Reservoir volume, area, and elevation parameters are developed from the existing reservoir conditions. Dam break parameters (breach width, time of failure, and breach bottom) are selected based average recommended values published in federal dam evaluation guidelines (FERC, 1991). The trigger elevation was selected as one foot above the crest of the dam. The non-breach flow is selected as the flow at the Thompsonville-Sheldrake (Ranch Road) Bridge at the time of breach failure.

Downstream geometry and conditions are selected based USGS topographic mapping, previous analyses (Stetson-Harza, 1990), and observed conditions. There are 21 downstream cross-sections defined for the approximate 2.5-mile stretch of Sheldrake Stream to the confluence with Neversink Creek.

The dam break model was run for both the sunny day failure and flood event failure conditions. At the downstream bridge, the peak dam break flood wave for the sunny day and flood event failures was estimated to be 1159.0 and 1158.7, respectively. It was determined that the sunny day breach has a slightly higher floodplain elevation near the downstream point of interest and at points beyond, because during the flood event failure, water in the downstream channel provides energy dissipation and a quicker attenuation of the peak flood wave from the dam break. Based on the results of the dam break modeling, a catastrophic failure of the dam, either during “sunny day” or flood event conditions, could result in the loss of property or life.

APPENDIX B

**EMERGENCY ACTION PLAN REVIEWS
(NOT INCLUDED)**

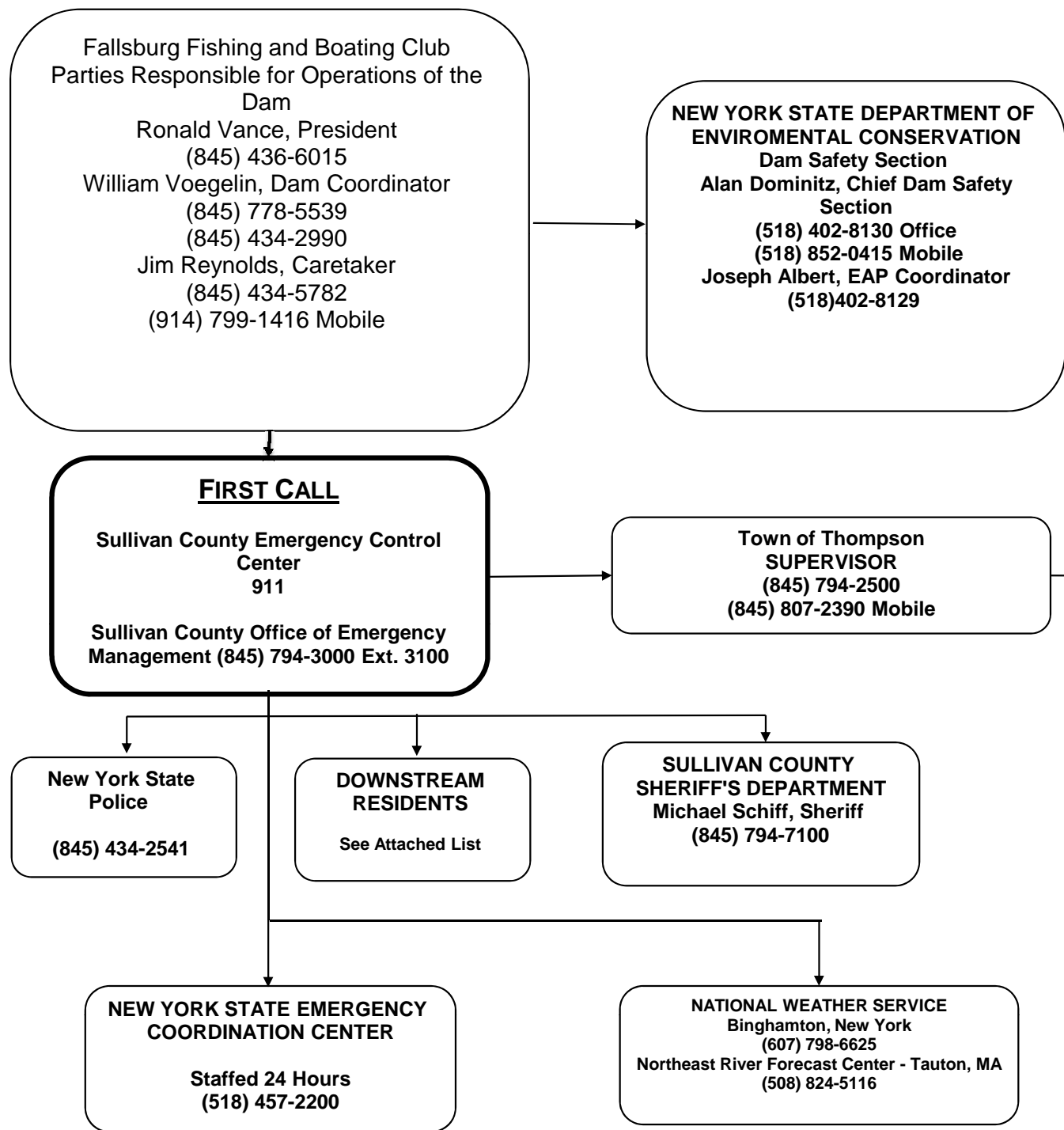
APPENDIX C

**AGENCY REVIEW AND APPROVAL
(NOT INCLUDED)**

APPENDIX D

ORGANIZATIONAL FLOW CHART AND LIST OF DOWNSTREAM RESIDENTS

APPENDIX D



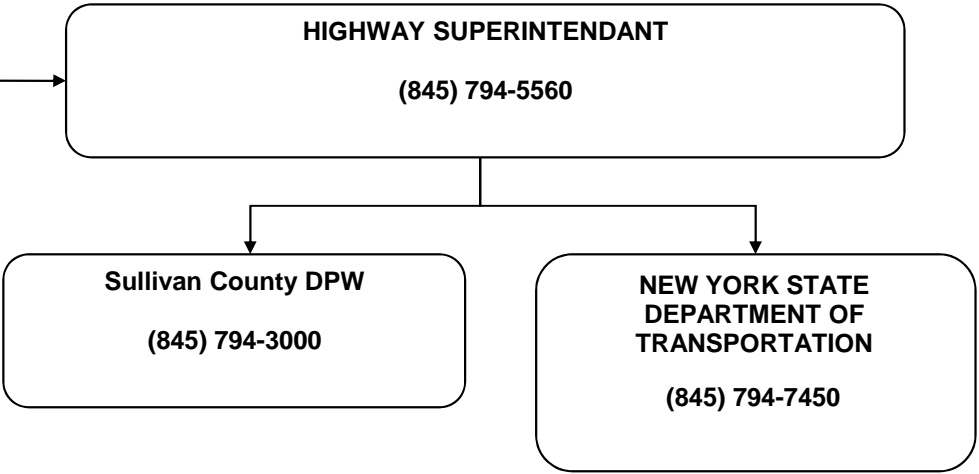
Fallsburg Fishing and Boating Club

PLEASURE LAKE DAM
Thompsonville, New York

Dam Break Emergency
WARNING FLOW CHART

FOR CONDITION CLASIFICATION A, B, & C

Note: Pleasure Lake and its dam are located in the Town of Fallsburg. But any damaged caused by the dam failing would be in the Town of Thompson.



DOWNSTREAM RESIDENTS

LOT BLOCK	OWNER	TELEPHONE
16-1-21.1	Gray / D'Amico Francine Ranch Road PO Box 60 Thompsonville, NY 12784	(845) 436-8458
16-1-21-2	Sheldon P. Silverman (Eileen) 329 Ranch Road PO Box 6 Thompsonville, NY 12784	(845) 434-8747
16-1-23	Natving – Soloman Valerie 1057 Poplar Circle Weston, FL 33326	Armand Breton (845) 434-3400
16-1-25	Hinkley Rose PO Box 150 Thompsonville, NY 12784	Goetz (845) 436-1735 Kenneth Hopkins (845) 434-4122
15-1-38	Massive Marrin PO Box 51 Thompsonville, NY 12784	(845) 434-4122
16-1-36	Fernandez Juan PO Box 221 Thompsonville, NY 12784	(845) 436-7980

Last Updated: February 5, 2007

APPENDIX E

PLAN DISTRIBUTION LIST

**EMERGENCY ACTION PLAN
PLEASURE LAKE DAM
SULLIVAN COUNTY, NEW YORK.**

PLAN DISTRIBUTION LIST

- Town of Thompson, New York Supervisor

- Richard Martinkovic
Town of Thompson, NY Highway Supervisor
Office of Emergency Management
Sullivan County Emergency Control Center

- Sullivan County Sheriff's Department
Monticello, New York

- New York State Police
Liberty, New York

- New York State Department of Environmental Conservation,
Dam Safety Section, Albany, New York (3 copies)

