Emergency Action Plan

Onion River Dam (Waldo Dam)
Field File No. 59.15
Key Sequence No. 307
Village of Waldo, Wisconsin

Prepared for:

Village of Waldo
April 2015
Updated August 20, 2018

EMERGENCY ACTION PLAN

ONION RIVER DAM AKA WALDO MILL POND DAM

LOCATED ON THE ONION RIVER IN THE VILLAGE OF WALDO, WISCONSIN

WDNR FIELD FILE NUMBER: 59.15 **DAM KEY SEQUENCE NUMBER:** 307

COUNTY: SHEBOYGAN COUNTY

DAM OWNER: VILLAGE OF WALDO

REPRESENTATIVE: VILLAGE PRESIDENT, GARY DEKKER

OFFICE: (920) 918-1701

MAILING ADDRESS: VILLAGE OF WALDO
ATTN: GARY DEKKER
810 W. SECOND STREET
WALDO, WI 53093

DAM OPERATOR: VILLAGE OF WALDO

REPRESENTATIVE: DIRECTOR OF PUBLIC WORKS &
VILLAGE ADMINISTRATOR: BRUCE NEERHOF

OFFICE: (920) 946-4448

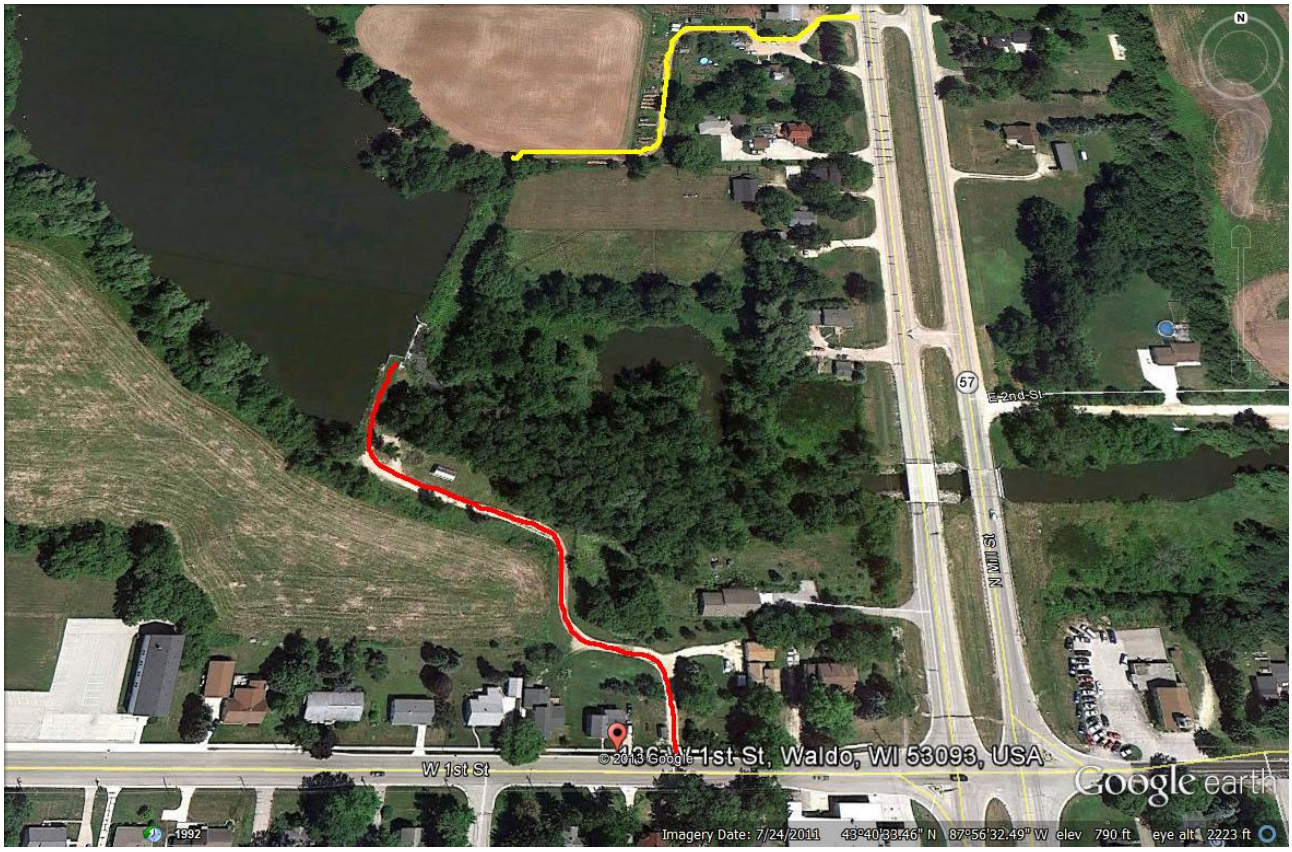
MAILING ADDRESS: VILLAGE OF WALDO
ATTN: BRUCE NEERHOF,
DIRECTOR OF PUBLIC WORKS/VILLAGE ADMIN.
810 W. SECOND STREET
WALDO, WI 53093

EMAIL GOES TO PHONE: **sbneerhof@att.net**

Location Map and Access

Access to Northern Side of Dam

The only access to the earthen embankment northeast of the concrete gravity dam section is through the farm of Brian Wimmler, 406 N Mill Street, Waldo. An easement exists, which is not maintained in a passable condition, necessitating access through Mr. Wimmler's driveway and along the perimeter of a field to the dam. The path is shown in yellow at the top of the image below.



Google earth Image showing location of Waldo Mill Pond and Onion River Dam relative to STH 28 & STH 57 (North is up)

Access to Southern Side of Dam

The only **public** access to the Onion River Dam is by way of an unnamed gravel driveway, shown in red in the above picture, which begins just east of 136 West 1st Street (State Highway 28) and extends down to the southern tip of the Waldo Mill Pond. The entrance to the driveway is on the north side of Highway 28 and about 300' west of the intersection with southbound Highway 57. The driveway grants access to the southwestern portion of the earthen embankment, the abutment containing the lake drain and the concrete gravity dam.

Concurrence

By my signature, I acknowledge that I, or my representative, have reviewed this plan and concur with the tasks and responsibilities assigned herein for me and my organization.

1. _____ 08/21/2018
Signature — Gary Dekker; Village President — Date

Printed name and title: _____

2. _____ 8/21/18
Signature — Bruce Neergot; Dam Operator & Director Public Works — Date

Printed name and title: _____

3. _____ 8-21-18
Signature — Jason Lismann, Police Chief — Date

Printed name and title: _____

4. _____ 8-28-18
Signature — Steve Stelnhart; Emergency Management — Date

Printed name and title: Jason Parish CHIEF

5. _____ 10-2-18
Signature — Jason Parish; WFD Chief — Date

Printed name and title: Chris Goodwin 2018 ORIP PE

6. _____ 9/7/18
Signature — Ayres & Associates; Chris Goodwin — Date

~~Printed name and title:~~ _____

7. _____
~~Approval Signature~~ — ~~(State Dam Safety Engineer)~~ — ~~Date~~

Printed name and title: ANDREA STORN WDNR 10/1/18

8. _____
Approval Signature Andrea Storn (Regional Water Management Engineer) — Date

Printed name and title: _____

Purpose and Intent

The purpose of an Emergency Action Plan (EAP) is to provide the owner/operator of a dam with a clear plan of action when any dam emergency arises. An emergency is identified as any condition which:

- develops unexpectedly;
- endangers the structural integrity of the dam; and
- could result in the dam's failure producing downstream flooding, requiring immediate action.

By writing and implementing an EAP the owner/operator of a dam can reduce the risk of human life loss or injury and minimize property damage during an unusual or emergency event.

This is an EAP for the Onion River Dam located on the Onion River at the Waldo Mill Pond in the Village of Waldo, Sheboygan County, Wisconsin. The EAP provides a description of the dam and the area at risk as well as contact information for all parties involved in responding to or affected by an emergency at the dam. The EAP outlines what actions are required in the event of an emergency.

Description

Type of dam:	A 62-foot wide concrete gravity spillway with earthen embankments, with one transverse sliding valve gate-controlled lake drain.
Location of dam:	SE ¼ of SE ¼ of Section 14, T14N, R21E, on the Onion River
Height of dam:	The structure height is 15.0 feet; the elevation of the spillway crest is 793.7 feet.
Reservoir:	35 acres with a maximum depth of 7 feet. The normal reservoir elevation is 794.1 feet.
Use of dam:	Recreation
Hazard Rating:	Significant

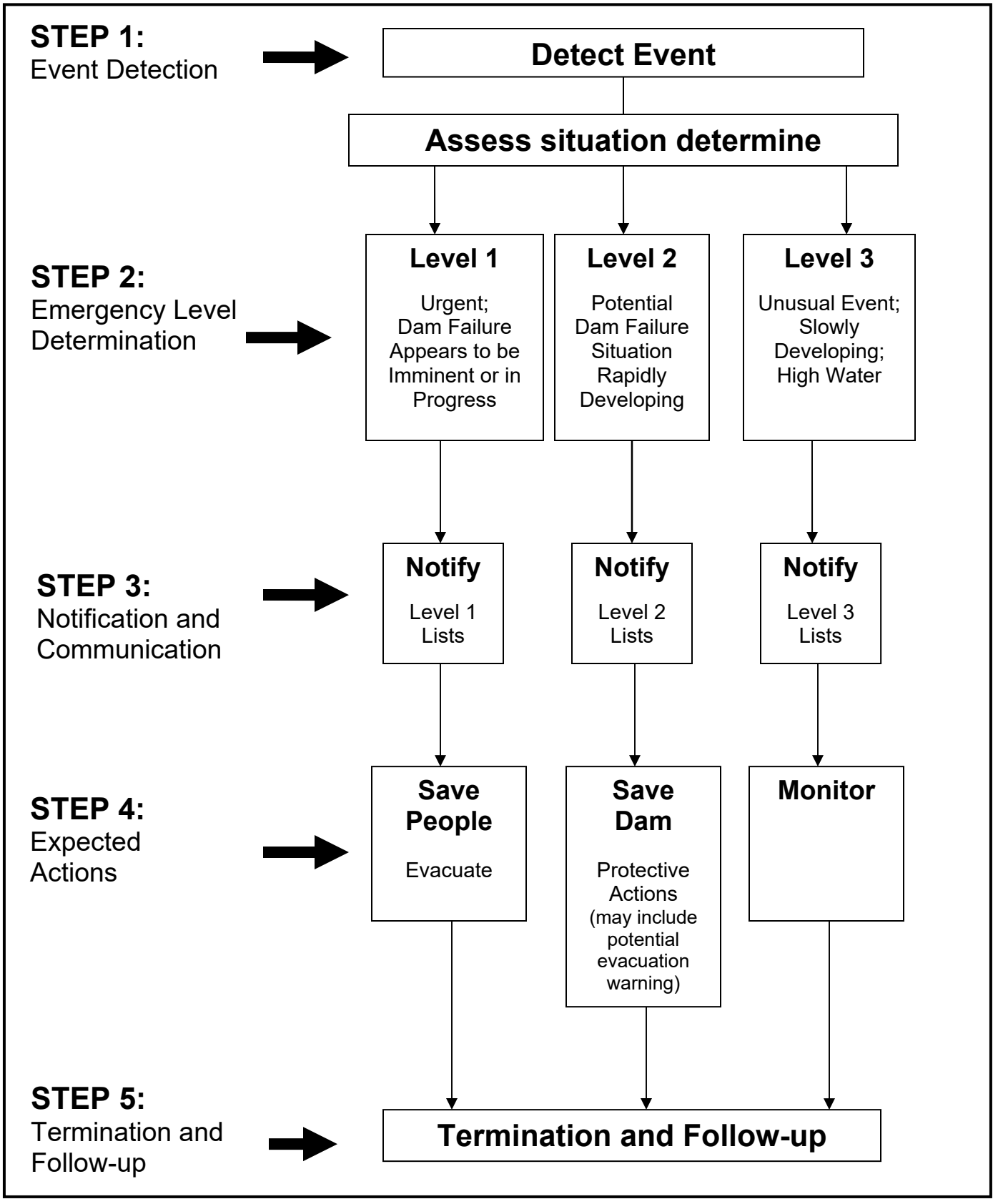
The contributing watershed area at the dam is 26.7 square miles. Downstream of the dam, Whitewater Creek flows approximately 2.6 stream miles to Hingham Mill Pond in the village of Hingham in Sheboygan County, Wisconsin. For the first stream mile below the dam, Onion River is within the developed area of the Village of Waldo. Downstream of the city limits the creek flows through farmland and wetlands.

Guidance for Determining the Emergency Level

Event	Situation	Emergency Level *
Embankment overtopping	Reservoir level is 1 foot below the top of the dam	2
	Water from the reservoir is flowing over the top of the dam	1
Seepage	New seepage areas in or near the dam	3
	New seepage areas with cloudy discharge	2
	Seepage with cloudy discharge; increasing flow rate	1
Sinkholes	Observation of new sinkhole in reservoir area or on embankment	2
	Rapidly enlarging sinkhole	1
Embankment/ structural component cracking	New cracks in the embankment/structural component greater than ¼-inch wide without seepage	3
	Cracks in the embankment/structural component with seepage	2
Embankment/ structural component movement	Visual movement/slippage of the embankment slope/structural component	2
	Sudden or rapidly proceeding slides of the embankment slopes/structural component	1
Security threat	Verified bomb threat that, if carried out, could result in damage to the dam	2
	Detonated bomb that has resulted in damage to the dam or appurtenances	1
Sabotage/ vandalism	Unauthorized operation of the dam	3
	Damage to dam or appurtenance with no impacts to the functioning of the dam	3
	Modification to the dam or appurtenances that could adversely impact the functioning of the dam	2
	Damage to dam or appurtenances that has resulted in seepage flow	2
	Damage to dam or appurtenances that has resulted in uncontrolled water release	1

* Emergency Level 1: Urgent; dam failure appears imminent or is in progress
* Emergency Level 2: Potential dam failure situation, rapidly developing
* Emergency Level 3: Nonemergency unusual event, slowly developing; high water

Level of Emergency Determination Chart



Emergency Action Plan Notification Flowchart

The purpose of the EAP Notification Flowchart is to provide a visual map of who is to be notified, the order of notification and who is responsible for notifying various individuals and agencies/organizations. The Notification Flowchart can be customized based on the level of emergency as determined under the Level of Emergency Determination Chart.

The Agency/Organization Notification List should be used as a quick reference for contact information for the Notification Flowchart. It can be customized based on the level of the emergency.

The Onion River Dam Emergency Action Plan Notification Flowchart can be found in Appendix A and was last updated on the date shown on the bottom of the page. The Agency/Organization Notification List can be found on page below, and was last updated on the date shown on the bottom of the page. The Notification Flowchart will be activated with a telephone call to 911. Contact with local authorities will be maintained throughout the dam emergency by cell phone. See Appendix A for the Communication Documentation Chart.

Hydraulic Shadow Map

The purpose of the Hydraulic Shadow Map is to provide a picture of the area that would be affected by a complete failure of the dam in order to determine who must be notified and/or evacuated in an emergency. The Hydraulic Shadow Map should clearly identify residences, businesses, storage facilities, bridges, downstream dams and other structures such as roads, power lines, sewer, gas and water lines and other infrastructure that could be affected by the failure of the dam.

Properties which have structures within the hydraulic shadow are identified on the map by address. These parties should be notified if a potential dam failure situation is rapidly developing (see Emergency Notification List). Development in the hydraulic shadow of the Onion River Dam shall be enforced in accordance with the Village Floodplain Zoning Ordinance. The Emergency Action Plan shall be updated as necessary if additional properties are identified within the hydraulic shadow. The Map can be found in Appendix B and was last updated on the date shown on the bottom of the page.

County Highway V could also be affected by a dam failure. Therefore, the Sheboygan County Highway Department should be contacted during an emergency situation as well.

Agency/Organization Notification List for Notification Flowcharts

Organization	Principal Contact	Title	Address	Phone	Email Address
Cascade Police Department	Jason Liermann	Chief of Police	525 North 6th Street Sheboygan, WI 53081	920-452-5585	cascadechief905@gmail.com
Hingham Sanitary District	Steve Oppeneer	Dam Operator	N3138 River Ridge Rd PO Box 43 Sheboygan, WI 53081	920-564-3671	soppeneer@wi.rr.com
National Weather Service	Brian Hahn	Hydrologist	N3533 Hardscrabble Rd Dousman, WI 53118	262-965-5064	brian.hahn@noaa.gov
Sheboygan County Emergency Management	Steve Steinhardt	Director	525 N 6th St Sheboygan, WI 53081	920-459-3360	steve.steinhardt@sheboygancounty.com
Sheboygan County Planning and Conservation	Aaron Brault	Director	525 N 6th St Sheboygan, WI 53081	920-459-3766	aaron.brault@sheboygancounty.com
Sheboygan County Sheriff's Department	Cory Roeseler	Sheriff	525 N 6th St Sheboygan, WI 53081	920-459-3509	cory.roeseler@sheboygancounty.com
State Emergency Hotline	N/A	Duty Officer	N/A	800-943-0003	N/A
Village of Waldo	Michelle Brecht	Clerk	PO Box 202 Waldo, WI 53093	920-528-8121	clerk@villageofwaldo.com
Village of Waldo	Gary Dekker	President	PO Box 202 Waldo, WI 53093	920-918-1701	gdekker1@wi.rr.com
Waldo Fire Department	Jason Parrish	Fire Chief	PO Box 202 Waldo, WI 53093	920-980-8713	wfd53093@hotmail.com
Waldo Public Works	Bruce Neerhof	Dam Operator	PO Box 6 Waldo, WI 53093	920-946-4448	sbneerhof@att.net
Wisconsin DNR	Andrea Stern	Water Management Engineer	141 NW Barstow St, Room 180 Waukesha, WI 53188	1-800-943-0003	andrea stern@wisconsin.gov

Emergency Notification Lists

Emergency Notification Lists are lists of the names, addresses and telephone numbers of individuals, businesses, critical facilities and other entities who would be affected by a failure of the dam and who must be notified and/or evacuated in an emergency. The lists have been grouped based on the severity of the emergency. The Emergency Notification Lists for the Onion River Dam can be found below and were last updated on the date shown on the bottom of the page.

Levels 1 and 2 Emergency Notification List

#	Name	Address	Telephone #	Critical Facility (Y/N)
1	Ted Johnson & Sharon Roitt-Johnson	226 N Mill St Waldo, WI 53093	(920)-912-5388	N
2	William & Jean Worth	2 E Second St Waldo, WI 53093	(920) 528-7700	N

Available Resources Chart

During an emergency, dam owners/operators may need to bring in outside resources such as such as heavy equipment, sandbags, pumps, siphons or divers. A listing of the resources including provider names, addresses and telephone numbers available to the owner/operator of the Onion River Dam can be found in the table below, and was last updated on the date shown on the bottom of the page. A map showing the location of the available resources can be found on page 11 and was last updated on the date shown on the bottom of the page. A map of the available resources can be used to determine alternative transportation routes if roads have been closed due to high water or other obstructions to traffic.

Available Resources	
Heavy equipment service and rental	**Pumps/Siphons**
Sheboygan County Transportation Dept. Highway Division 1211 North 23rd Street Sheboygan, WI 53081 920-459-3831	Quasius Construction, Inc. 1716 North 16th Street Sheboygan, WI 53081 920-457-5585
Ready-mix concrete supply	**Sand and gravel supply**
Taylor Ready-Mix & Trucking N7501 Werthermann Lane Sheboygan, WI 53083 920-565-2931	Taylor Ready-Mix & Trucking N7501 Werthermann Lane Sheboygan, WI 53083 920-565-2931
Diving Contractor	**Sand Bags**
Ayres Associates 3433 Oakwood Hills Pkwy Eau Claire, WI 54701 715-834-3161	Menards (Sand from Taylor Ready Mix) 4825 Vanguard Drive Sheboygan, WI 53083 920-565-3334

Reentry and Recovery

The emergency at the Onion River Dam will not be considered over until inspected by Ayres Associates (dam owner's engineer), and Sheboygan County Emergency Management and the Sheboygan County Sheriff's Department have been consulted. The DNR Regional Water Management Engineer for Sheboygan County, Nathan Zoch, will be contacted for technical assistance if needed. Evacuated residents will be allowed to return based on the plan developed by Sheboygan County Emergency Management and the Sheboygan County Sheriff's Department.

Once the emergency is declared over, Ayres Associates will inspect the dam for any damage. A post-disaster review of the inspection will be held with the DNR Regional Water Management Engineer to determine what actions may be needed to ensure that the dam is in compliance with state standards. The review may result in formal orders issued to the dam owner and may require the submittal of plans and specifications for repair.

After Action Review

After a dam emergency is ended, a review of the event should take place as soon as practicable, preferably within 45 days. The review will determine what was done correctly during the EAP activation, what was done incorrectly, and what could be improved. Any needed changes to the Onion River Dam EAP will be made by the Village of Waldo. Copies of the updated EAP, including an updated Approval/Concurrence sheet, will be kept by the Village of Waldo, owner of the Onion River Dam, and, Bruce Neerhof ,operator of the dam, and will be provided to all holders of the EAP, the State Dam Safety Engineer and the DNR Regional Water Management Engineer for Sheboygan County, Nathan Zoch.

Training, Testing and Annual Review

The purpose of an annual review of the EAP and training for dam owners and operators is to ensure that all contact information listed is accurate and that dam personnel are familiar with the EAP and understand their role in responding to a dam emergency. The annual review of and training for the Onion River Dam's EAP will occur during the month of September. Based on changes identified in the annual review, copies of updated pages will be provided to all holders of the EAP. Copies of the most current EAP will be kept by the Village of Waldo, owner of the Onion River Dam, and Bruce Neerhof, dam operator.

At least every five (5) years, the owner of the Onion River Dam will meet with the Sheboygan County Emergency Management Director to discuss what changes have been made to the Sheboygan County Hazard Mitigation Plan and to determine what opportunities exist for exercises. Also, the owner of the Onion River Dam will review the dam failure (hydraulic shadow) map to identify any significant land use changes in the hazard area. If changes have occurred then the dam owner/operator should notify the DNR Regional Water Management Engineer, Nathan Zoch.

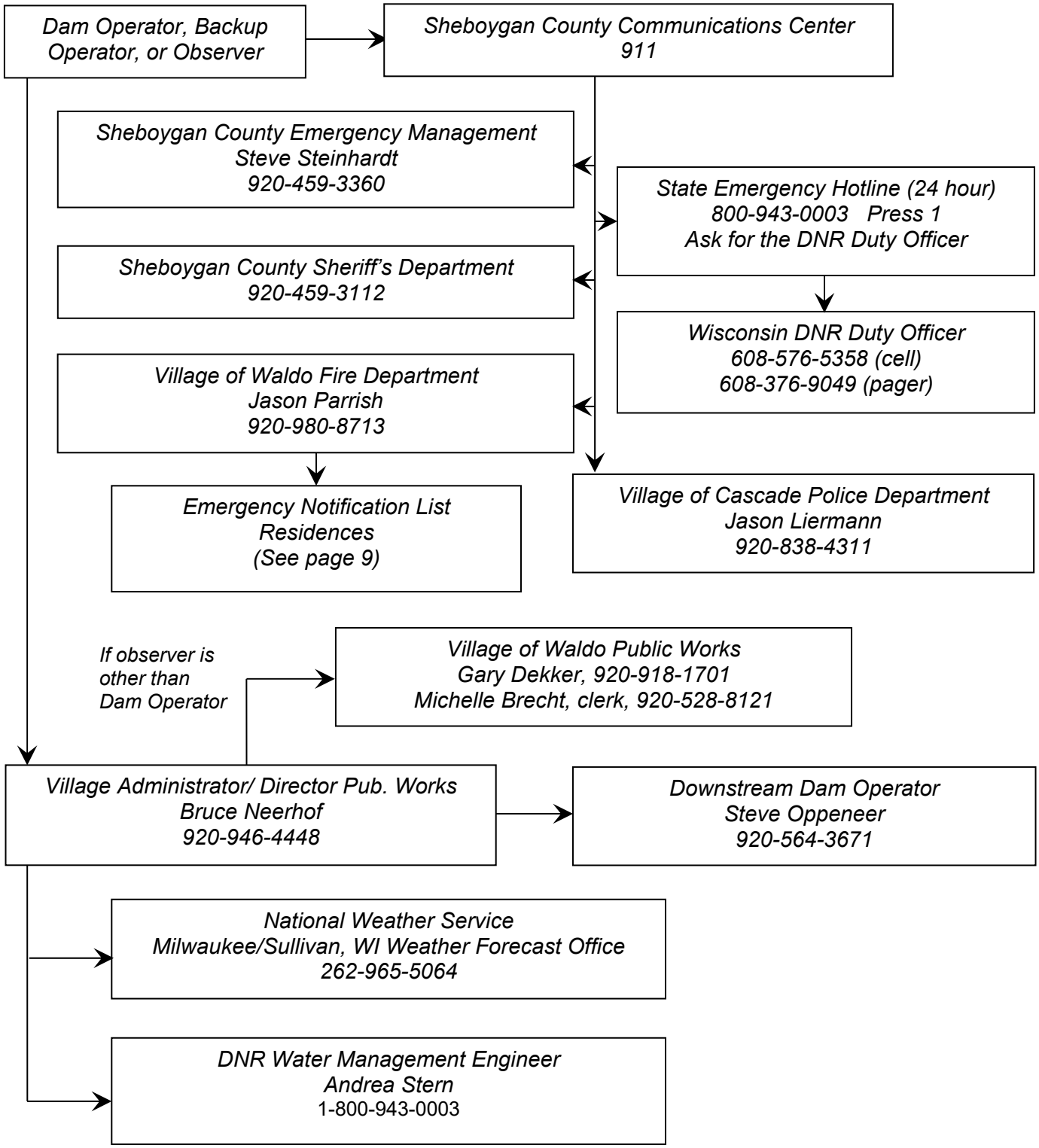
The dam owner/operator should work with local emergency management to determine what opportunities exist to conduct or participate in dam related EAP exercises.

APPENDICES

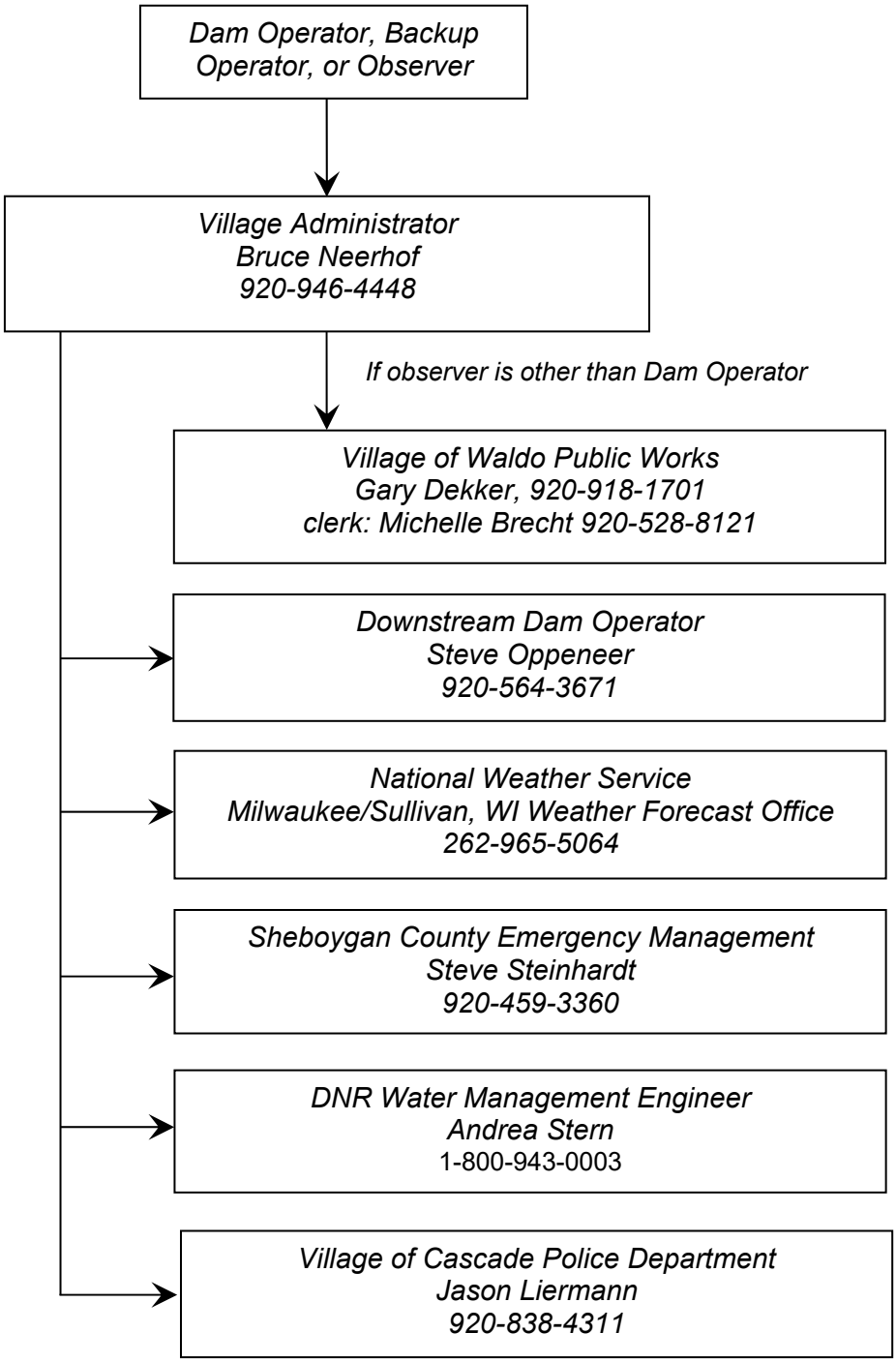
Appendix A: Emergency Action Plan Notification Flowchart: Level 1
Emergency Action Plan Notification Flowchart: Level 2
Emergency Action Plan Notification Flowchart: Level 3
Communication Documentation Chart
List of Holders of the Emergency Action Plan
Receipt of the Emergency Action Plan/EAP Updates Chart
Glossary of Terms

Appendix B: Hydraulic Shadow Map
Potentially Affected Structures Map

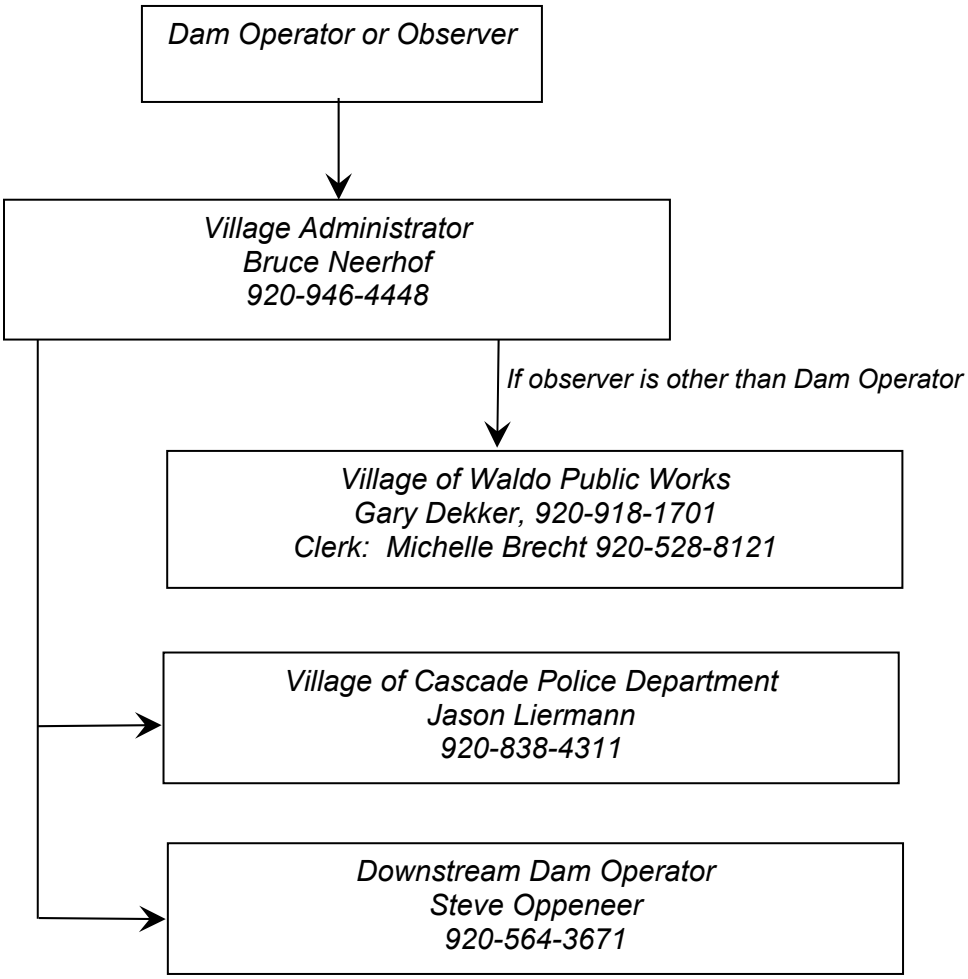
ONION RIVER DAM
EMERGENCY ACTION PLAN NOTIFICATION FLOWCHART
LEVEL 1



ONION RIVER DAM
EMERGENCY ACTION PLAN NOTIFICATION FLOWCHART
LEVEL 2



ONION RIVER DAM
EMERGENCY ACTION PLAN NOTIFICATION FLOWCHART
LEVEL 3



Communication Documentation Chart for the Onion River Dam

Time	Person contacted	Method of contact	Reason for contact
AM PM			
AM PM			
AM PM			
AM PM			
AM PM			
AM PM			
AM PM			
AM PM			
AM PM			

Date									

List of Holders of the Emergency Action Plan for the Onion River Dam

#	Name	Address	Telephone #
1	Village of Waldo Clerk Michelle Brecht	PO Box 202 Waldo, WI 53093	920-528-8121
2	Village of Waldo President Gary Dekker	PO Box 202 Waldo, WI 53093	920-918-1701
3	Village of Waldo Public Works & Village Administrator Bruce Neerhof	PO Box 6 Waldo, WI 53093	920-946-4448
4	Waldo Fire Department Jason Parrish	PO Box 202 Waldo, WI 53093	920-980-8713
5	Sheboygan County Emergency Management Steve Steinhardt	525 N 6th St Sheboygan, WI 53081	920-459-3360
6	Sheboygan County Sheriff's Department Cory Roeseler	525 N 6th St Sheboygan, WI 53081	920-459-3509
7	Cascade Police Department Jason Liermann	525 N 6th Street Sheboygan, WI 53081	920-838-4311
8	Downstream Dam Operator Steve Oppeneer	N3138 River Ridge Rd Sheboygan, WI 53081	920-564-3671
9	National Weather Service Brian Hahn	N3533 Hardscrabble Rd Dousman, WI 53118	262-965-5064
10	Wisconsin DNR Andrea Stern	141 NW Barstow St, Room 180 Waukesha, WI 53188	1-800-943-0003
11	Chris Goodwin Goodwin@Ayres-Associates.com Ayres & Associates	3433 Oakwood Hills Pkwy Eau Claire, WI 54701	1-715-831-7682

Receipt Confirmation Chart

Emergency Action Plan/ Emergency Action Plan Updates

#	Name	Address	Date of Re

GLOSSARY OF TERMS

Abutment – That part of the valley side or concrete walls against which the dam is constructed. An artificial abutment is sometimes constructed where there is no suitable natural abutment. Right and left abutments are those on respective sides of an observer when viewed looking downstream. The wall between a spillway or gate structure and the embankment can also be referred to as an abutment.

Alterations – Such changes in the design of the dam as may directly affect the integrity of the dam and thereby affect the safety of persons, property or natural resources.

Appurtenant Structures – The structures or machinery auxiliary to dams which are built to operate and maintain dams; such as outlet works, spillway, powerhouse, tunnels, etc.

Auxiliary Gate- A stand by or reserve gate used only when the normal means of water control is not available or at capacity.

Auxiliary Spillway (Emergency Spillway) - A secondary spillway designed to operate only during exceptionally large floods.

Boil - An upward disturbance in the surface layer of soil caused by water escaping under pressure from behind or under a water-retaining structure such as a dam or a levee. The boil may be accompanied by deposition of soil particles (usually silt) in the form of a ring (miniature volcano) around the area where the water escapes.

Breach – An opening or a breakthrough of a dam sometimes caused by rapid erosion of a section of earth embankment by water. Dams can be breached intentionally to render them incapable of impounding water.

Conduit - A closed channel to convey the discharge of water through or under a dam.

Core – A zone of material of low permeability in an embankment dam.

Corewall - A wall built of impervious material, usually of concrete or asphaltic concrete in the body of an embankment dam to prevent leakage.

Crest of Dam - The crown of an overflow section of the dam. In the United States, the term "crest of dam" is often used when "top of dam" is intended. To avoid confusion, the terms crest of spillway and top of dam should be used in referring to the overflow section and dam proper, respectively.

Cutoff Wall - A wall of impervious material (e.g., concrete, asphaltic concrete, steel sheet piling) built into the foundation to reduce seepage under the dam.

Dam – A barrier built for impounding or diverting the flow of water.

Dike (Levee) – An embankment, usually applied to embankments or structures built to protect land from flooding.

Drain, Layer or Blanket – A layer of pervious material in a dam to facilitate drainage. Includes toe drain, weephole and chimney drain.

Drawdown – The resultant lowering of water surface level due to release of water from the impoundment.

Embankment – Fill material, usually earth or rock, placed with sloping sides.

Embankment Dam (Earth Dam / Earthfill Dam) - Any dam constructed of excavated natural materials, usually earth or rock, placed with sloping sides.

Emergency Action Plan – A predetermined plan of action to be taken to reduce the potential for property damage and loss of lives.

Energy Dissipater - Any device constructed in a waterway to reduce or destroy the energy of fast-flowing water.

Engineer/Consultant – A licensed or registered engineer in a given state; offers experience and expertise in the design and inspection of dams.

Failure – An incident resulting in the uncontrolled release of water from a dam.

Foundation of Dam - The natural material on which the dam structure is placed.

Freeboard – The vertical distance between a stated water level and the top of a dam.

Gate or Valve – In general, a device in which a leaf or member is moved across the waterway to control or stop the flow.

Gravity Dam - A dam constructed of concrete and/or masonry that relies on its weight for stability.

Groin - That area along the contact (or intersection) of the face of a dam with the abutments.

Height of Dam - The vertical measurement expressed in feet as measured from the downstream toe of the dam at its lowest point to the elevation of the top of the dam.

Hydraulic Shadow Map - A map delineating the area that would be inundated in the event of a dam failure.

Impoundment – Water or wastewater held back by a dam.

Maintenance – The upkeep necessary for efficient operation of dams and their appurtenance works. It involves labor and materials, but is not to be confused with alterations or repairs.

Masonry Dam - Any dam constructed mainly of stone, brick, or concrete blocks that may or may not be joined with mortar. A dam having only a masonry facing should not be referred to as a masonry dam.
Ogee Spillway (Ogee Section) - An overflow weir in which in cross section the crest, downstream slope, and bucket have an "S" or ogee form of curve. The shape is intended to match the underside of the nappe at its upper extremities.

One percent/One Hundred Year (100-YEAR) Flood -The flood magnitude expected to be equaled or exceeded on the average of once in 100 years. It may also be expressed as an exceedance frequency with a 1% chance of being exceeded in any given year.

Operator – The owner, or an agent or employee of the owner.

Outlet – An opening through which water can freely discharge for a particular purpose from an impoundment.

Owner – Any person who owns, leases, controls, operates, maintains or manages a dam or impoundment.

Phreatic Surface – The upper surface of saturation in an embankment.

Piping – The progressive development of internal erosion by seepage, appearing downstream as a hole or seam discharging water that contains soil particles.

Plunge Pool – A natural or sometimes artificially created pool that dissipates the energy of free-falling water. The pool is located at a safe distance downstream of the structure from which water is being released.

Primary Spillway (Principal Spillway) - The principal or first used spillway during flood flows.

Repair – To essentially restore a dam to its approved design condition.

Riprap – A layer of large stones, broken rock or precast blocks placed in a random fashion on the upstream slope of an embankment dam, on a reservoir shore, or on the side of a channel as a protection against wave and ice action.

Scarp - The nearly vertical, exposed earth surface created at the upper edge of a slide or a breached area along the upstream slope of an earthen embankment.

Seepage - The movement of water that may take place through the dam, its foundations, or its abutments.

Slide - The movement of a mass of earth fill down a slope. In embankments and abutments, this involves the separation of a portion of the slope from the surrounding material.

Slump Area – A portion of earth embankment which moves downslope, sometimes suddenly, often with cracks developing.

Spillway - A structure over or through which flood flows are discharged. If the flow is controlled by gates, it is considered a controlled spillway; if the elevation of the spillway crest is the only control, it is considered an uncontrolled spillway.
Spillway Channel - A channel conveying water from the spillway crest to the river downstream.

Stilling Basin – A basin constructed to dissipate the energy of fast-flowing water, eg. from a spillway or bottom outlet, and to protect the river bed from erosion.

Stoplogs – Logs or timbers, steel or concrete beams placed on top of each other with their ends held in guides on each side of a channel or conduit.

Storage - The retention of water or delay in runoff either by planned operation, as in a reservoir, or by temporarily filling the overflow areas, as in the progression of a flood crest through a natural stream channel.

Tailwater Level - The level of water in the discharge channel immediately downstream of the dam.

Toe of Dam - The junction of the downstream face of a dam with the ground surface. Also referred to as the downstream toe. For an embankment dam, the junction of the upstream face with the ground surface is called the upstream toe.

Toe of Embankment – The junction of the face of the dam with the ground surface.

Top of Dam - The elevation of the uppermost surface of a dam, usually a road or walkway, excluding parapet wall, railings, etc.

Trash Rack – A structure of metal or concrete bars located in the waterway at an intake to prevent the entry of floating or submerged debris.

Valve - In general, a device fitted to a pipeline or orifice in which the closure member is either rotated or moved transversely or longitudinally in the waterway so as to control or stop the flow.

Weir - A low dam or wall built across a stream to raise the upstream water level is termed a fixed-crest weir when uncontrolled. A structure built across a stream or channel for the purpose of measuring flow; sometimes described as a measuring weir or gauging weir. Types of weirs include broad-crested weirs, sharp-crested weirs, ogee weirs, and V-notched weirs.