NOT FOR PUBLIC DISTRIBUTION

(City) Flood Prevention structure

(Name) Lake
(County)
(City), (State)

Floodwater Retarding

National Inventory of Dams ID#: Mxxxxxx

OWNER: City of (Name)
March 2008

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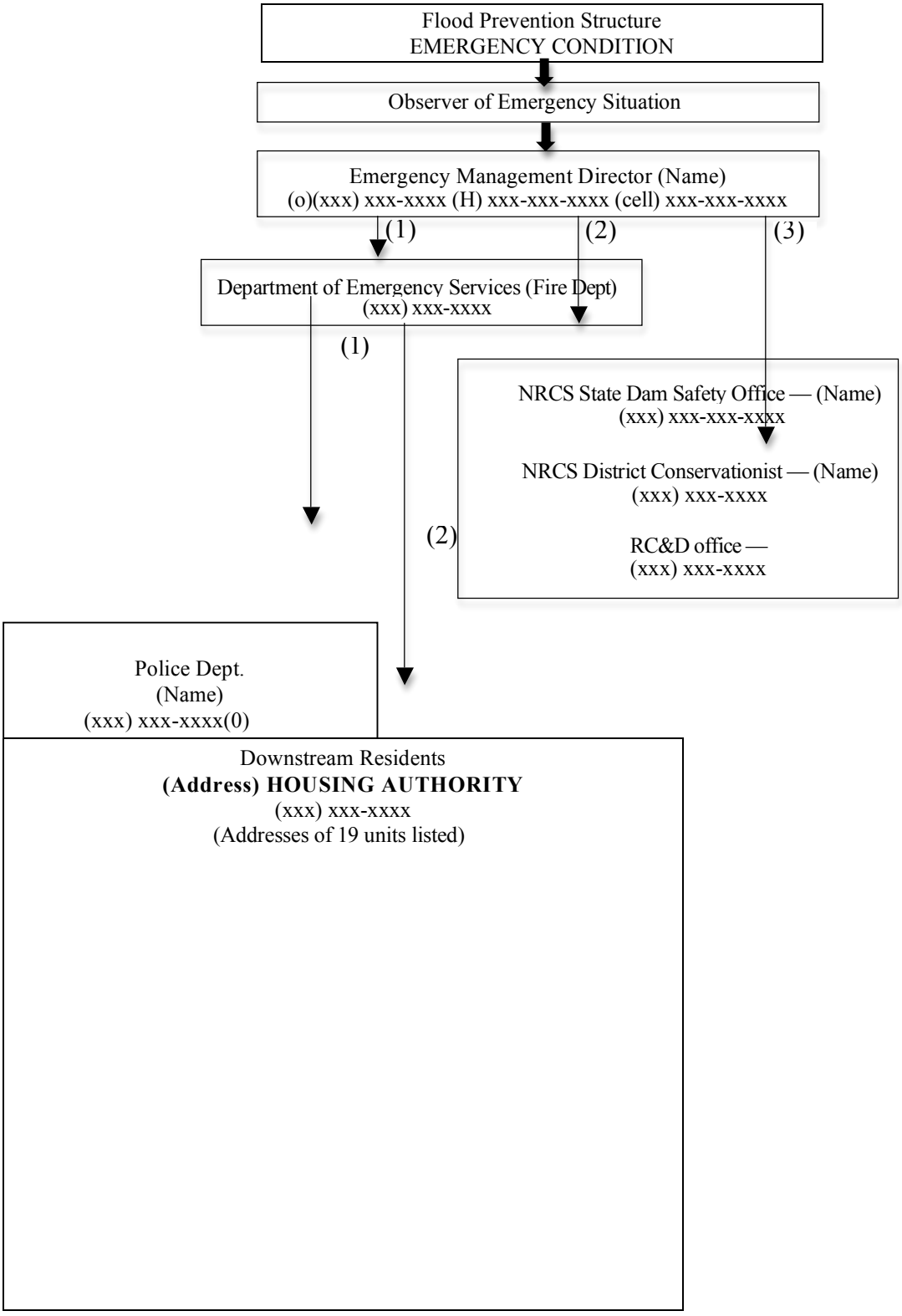
I. NOTIFICATION FLOWCHART

Potential Failure or Imminent Failure (see page 6)



(Name) Clinic
(Address and Phone Number)

(Name) Store
(Address and Phone Number)

(Name) Auto Dealership
(Address and Phone Number)

(Youth Organization Name) House
(Address and Phone Number)

(Names, addresses and phone numbers of 19 families were then listed.)

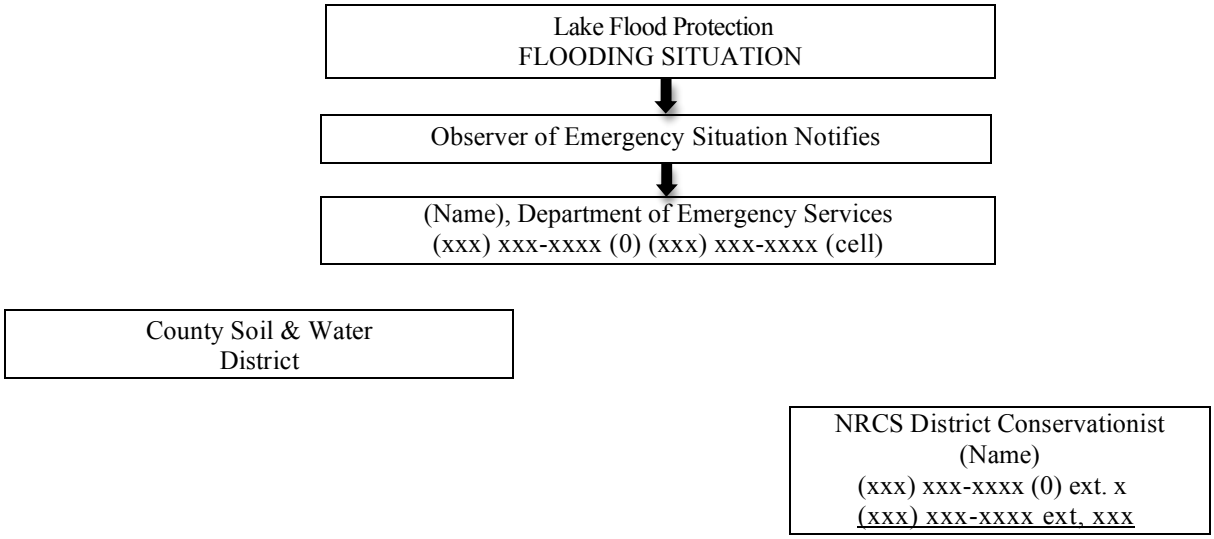
State Department of Transportation — (Name) Local rep.

(1) Priority of Call
(0) Office phone
(H) Home phone
(cell)

See inundation map for location of residents

(Name), County Director, Emergency Management Agency, is responsible for ordering any evacuations.

NOTIFICATION FLOWCHART



- Notify downstream residents of potential flooding
- If necessary, implement preventative actions described on pages 8-10 of this plan.
- **If situation deteriorates, be prepared to implement the Notification Flowchart for potential or imminent failures on page 3.**

II. STATEMENT OF PURPOSE

The purpose of this plan is to prescribe procedures to be followed in the event of an emergency associated with Floodwater Retarding and Water Supply structure X-X-H which is caused by an unusually large flood or earthquake, a structural malfunction of the gates on the principal spillway, malicious human activity such as sabotage, vandalism or terrorism, or failure of the dam.

This Emergency Action Plan (EAP) defines responsibilities and procedures to:

- Identify unusual and unlikely conditions that may endanger the dam.
- Initiate remedial actions to prevent a dam failure or minimize the downstream impacts of a dam failure.
- Initiate emergency actions to warn downstream residents of impending or actual failure of the dam.

III. PROJECT DESCRIPTION

(City) Flood Prevention Structure (name of dam) ID# xxxxxx
Stream: Unnamed Perennial Stream
Location: Lat. -xx Degrees xx' xx"N Longitude xx degrees xx' xx"W, (Name) County, (State)
Dam Owner/Operator: City of (Name)
Type of Dam: Compacted Earth fill — 52,252 cu. Yards. Fill
Year Constructed: 19xx
Dam Height: xx.x feet
Dam Length: xxxx feet
Drainage Area: xxx acres
Hazard Classification: High Hazard
Principal Spillway: 30" Diameter Concrete Pressure Pipe with Impact Basin
Principal Spillway Capacity: 104 cfs
Auxiliary Spillway Type: 100' wide vegetated channel
Auxiliary Spillway Capacity: 312 cfs
Maximum Storage Volume: xxx acre-feet
Elevations (Mean Sea Level)

Principal Spillway Crest:	xxx.2
Auxiliary Spillway Crest:	xxx.5
Top of Dam:	xxx.1
Impact Basin:	xxx.4

Description of Impacted Property:
(City) Housing Authority Office, (Name) Clinic, (Name) Motors, (City) Parks Department and several residences. (See Structure Location map enclosed)

IV. EMERGENCY DETECTION, EVALUATION & CLASSIFICATION

Daily surveillance and instrumentation readings at the site will be the normal methods of detecting potential emergency situations. For conditions beyond the normal range of operations contact the Dam Safety Office (DSO) and NRCS for assistance with evaluation of the conditions. Each event or situation will be placed in one of the following classifications:

- **Non-failure Concern** - This classification indicates a situation is developing, however the dam is not in danger of failing, but flooding is expected downstream from the dam. Downstream residents need to be notified if flooding increases and life and property are threatened.
- **Potential Failure** - This classification indicates that a situation is developing that could cause the dam to fail. Residents in affected areas shall be alerted that an unsafe situation is developing. A reasonable amount of time is available for analysis before deciding on evacuation of residents.
- **Imminent Failure** - This classification indicates dam failure is occurring that may result in flooding that will threaten life and property. When the sponsor/land user determines that there is no longer time available to implement corrective measures to prevent failure, an order for evacuation of residents in potential inundation areas shall be issued.

Listed below are some of the events that can lead to the failure of the dam and a brief outline of steps to take to address the situation. See Section VI. "Preparedness" for a summary of actions to be considered for various situations.

FLOODING:

The auxiliary spillway is designed to safely convey the expected runoff from a 100-year frequency storm (7.3 inches in 24 hours). However, if during a major flood event, the reservoir level rises to within 1 foot of the top of dam (elevation xxx.1), the following actions will be taken:

- Conduct periodic (at least daily) inspections of the dam to check for and record the following:
    - reservoir elevation;
    - rate the reservoir is rising;
    - weather conditions - past, present, predicted;
    - discharge conditions of creeks and rivers downstream;
    - downstream toe and abutments for any new seepage or abnormal (muddy flow) toe drain leakage;
    - increased seepage rate as reservoir level rises;
    - cracks, slumping, sloughing, sliding, or other distress signals near the dam abutment or crest.

- If the reservoir elevation continues to rise but does not approach the top of dam elevation, implement the **NOTIFICATION FLOWCHART FOR NONFAILURE CONCERNS.**
- If any of the above conditions occurs, implement the **NOTIFICATION FLOWCHART FOR POTENTIAL OR IMMINIENT FAILURE.**

EROSION, SLUMPING/SLOUGHING, OR CRACKING OF THE DAM OR ABUTMENT:

Determine the location, size of the affected area(s) (height, width, and depth) severity, estimated seepage discharge, clear or cloudy seepage, and the reservoir and tail water elevations. If the integrity of the dam appears to be threatened, immediately implement the **NOTIFICATION FLOWCHART FOR POTENTIAL OR IMMINIENT FAILURE.**

NEW SPRINGS, SEEPS, BOGS, SANDBOILS, INCREASED LEAKAGE, OR SINKHOLES:

If there is a rapid increase in previously existing seep areas, an increase in toe drain flow, or if new springs, seeps, or bogs appear, determine the location, size of the affected area, estimated discharge, nature of the discharge (clear or cloudy), and reservoir and tail water elevations (a map of the area may be helpful to illustrate where the problem is located). If the integrity of the dam appears to be threatened, immediately implement the **NOTIFICATION FLOWCHART FOR POTENTIAL OR IMMINIENT FAILURE.**

ABNORMAL INSTRUMENTATION READINGS:

After taking instrumentation readings, compare the current readings to previous readings at the same reservoir level. If the readings appear abnormal, determine reservoir and tail water elevations, and contact the NRCS District Conservationist or the State Dam Safety Officer.

MALICIOUS HUMAN ACTIONS (SABOTAGE, VANDALISM, OR TERRORISM)

If malicious activity on or around the dam has been identified, immediately make an assessment of the existing conditions and determine the potential of the dam failing. If the integrity of the dam appears to be threatened, immediately implement the **NOTIFICATION FLOWCHART FOR POTENTIAL OR IMMINIENT FAILURE.**

END OF EMERGENCY SITUATION AND FOLLOW-UP ACTIONS

Once conditions indicate that there is no longer an emergency at the dam site, (Name) will contact the County Emergency Management Agency which will then terminate the emergency situation.

V. DIRECTORY OF ADDITIONAL PERSONNEL WITH DAM SAFETY EXPERTISE

In addition to personnel shown elsewhere in this plan, the following list identifies other individuals with expertise in dam safety, design and construction who may be consulted about taking specific actions at the dam when there is an emergency situation:

Name	Telephone	Responsibility
(Name)	*(xxx)-xxx-xxxx ext. xxx*	*Project Engineer, NRCS*
(Name)	*(xxx)-xxx-xxxx ext. xxx*	*Area Engineer, NRCS*
(Name)	*(xxx)-xxx-xxxx ext. xxxx*	*State Engineer, NRCS*
(Name)	*(xxx)-xxx-xxxx ext. xxx*	*District Conservationist, NRCS*
	(xxx)-xxx-xxxx ext. xxx	*RC&D Coordinator*

VI. PREPAREDNESS

Preparedness actions are taken to prevent a dam failure incident or to help reduce the effects of a dam failure and facilitate response to emergencies. The following actions describe some of the steps that could be taken at the dam to prevent or delay failure after an emergency is first discovered. **These actions should only be performed under the direction of the Dam Safety Office, or other qualified professional engineers.**

ACTIONS TO BE TAKEN IN THE EVENT OF:

Overtopping by Flood Waters:

a) Provide erosion-resistant protection to the downstream slope by placing plastic sheets or other materials over eroding areas.
b) Divert floodwaters around the reservoir basin, if possible.

A Slide on the Upstream or Downstream Slope of the Embankment:

a) Lower the water level in the reservoir at a rate, and to an elevation, that is considered safe given the slide condition. If the outlet is damaged or blocked, pumping, siphoning, or a controlled breach may be required.
b) Stabilize slides on the downstream slope by weighting the toe area below the slide with additional soil, rock, or gravel.

Erosional Seepage or Leakage (Piping) through the Embankment, Foundation, or Abutments:

a) Plug the flow with whatever material is available (hay bales, bentonite, or plastic sheeting, if the entrance to the leak is in the reservoir).
b) Lower the water level in the reservoir until the flow decreases to a non-erosive velocity or until it stops.
c) Place an inverted filter (a protective sand and gravel filter) over the exit area to hold materials in place.
d) Continue lowering the water level until a safe elevation is reached; continue operating at a reduced level until repairs are made.

A Failure of an Appurtenant Structure such as an Inlet/Outlet of Spillway:

a) Implement temporary measures to protect the damaged structure, such as closing the inlet or providing temporary protection for a damaged spillway.
b) Employ experienced, professional divers, if necessary, to assess the problem and possibly implement repair.
c) Lower the water level in the reservoir to a safe elevation. If the inlet is inoperable, pumping, siphoning, or a controlled breach may be required.

A Mass Movement of the Dam on its Foundation (Spreading or Mass Sliding Failure):

a) Immediately lower the water level until excessive movement stops.
b) Continue lowering the water level until a safe level is reached; continue operation at a reduced level until repairs are made.

Auxiliary Spillway Erosion Threatening Reservoir Evacuation:

a) Provide temporary protection at the point of erosion by placing sandbags, riprap materials, or plastic sheets weighted with sandbags.
b) Consider pumps and siphons to help reduce the water level in the reservoir.
c) When inflow subsides, lower the water level in the reservoir to a safe level; continue operating at a lower water level in order to minimize spillway flow.

Excessive Settlement of the Embankment:

a) Lower the water level by releasing it through the outlet or by pumping, or siphoning.
b) If necessary, restore freeboard, preferably by placing sandbags.
c) Lower water level in the reservoir to a safe level; continue operating at a reduced level until repairs can be made.

Malicious Human Activity (Sabotage, Vandalism, or Terrorism)

a) If malicious human activity that could endanger public safety is suspected, contact law enforcement to help evaluate the situation.
b) If the principal spillway has been damaged or plugged, implement temporary measures to protect the damaged structure. Employ experienced, professional divers, if necessary, to assess the problem and possibly implement repair.
c) If the embankment or auxiliary spillway has been damaged or partially removed, provide temporary protection in the damaged area by placing sandbags, riprap materials, or plastic sheets weighted with sandbags. Use pumps and siphons to help reduce the water level in the reservoir.
d) If the water supply has been contaminated, immediately close all inlets to the water supply system and notify appropriate authorities.

SUPPLIES AND RESOURCES

In an emergency situation, equipment, supplies and other resources might be needed on short notice, such as sandbags, riprap, fill materials, and heavy equipment. The table below lists resources that may be helpful and indicates contacts to access them.

Item	Contact	Phone #
Earthmoving Equipment	(City) Street Department	(xxx) xxx-xxxx
Riprap	Street dept.	
Sand and Gravel	Street dept.	
Sandbags	Street dept.	
Pumps	(City) Municipal Utilities	(xxx) xxx-xxxx
Pipe	Street dept & MU	(xxx) xxx-xxxx
Laborers	Street dept & MU	
Lighting Equipment	Street dept & MU	
SECONDARY		
Equipment	(Name) Hauling and Construction	(xxx)-xxx-xxxx
Lighting and pumps	(Name) Rentals	(xxx) xxx-xxx

VII. BREACII INUNDATION MAP

Homes could be affected by a major flood caused by a sudden breach of the (City) flood protection structure. These homes are marked on the attached inundation map. Floodwaters would reach the first home immediately after the dam failure.

(See Inundation Map)

The EAP includes a four-page inundation map, each page detailing a segment of the area below the dam that is at risk. One of these maps has been reproduced at http://www.damsafetyaction.org/about-eaps/mapping_samples.php.

VIII. Plan Maintenance

This plan shall be reviewed and updated annually by the dam owner and local emergency management agency personnel. All signatory parties to this plan should be encouraged to attend to assure all names and contact information is current. Revisions shall be promptly provided to all parties.

IX. Training

All people involved in the EAP shall be trained to ensure that they are thoroughly familiar with the elements of the plan, availability of equipment, and their responsibilities and duties in the plan. Personnel shall be trained in problem detection and evaluation, and appropriate corrective measures. This training is essential for proper evaluation of developing situations at all levels of responsibility. NRCS will assist with the training if requested. A tabletop exercise shall be conducted at least once every 5 years. The tabletop exercise involves a meeting of the dam owner and State and local emergency management officials in a conference room environment. The exercise begins with a description of a simulated event and proceeds with discussions by the participants to evaluate the EAP and response procedures, and to resolve concerns regarding coordination and responsibilities.

X. Distribution

Copies of this Emergency Action Plan have been provided to all individuals or groups who are signatory parties to the plan. Large-scale maps are on file with the local emergency management agency for evacuation purposes.

XL APPROVAL OF THE PLAN

We, the undersigned individuals, as authorized by the laws and regulations of the State of (State Name), hereby adopt this Emergency Action Plan and agree to execute it.

(Signature Deleted)	May 7, 2008
(Name) RC&D Council	Date
(Signature Deleted)	May 7, 2008
(Name) County Soil & Water District	Date
(Signature Deleted)	May 6, 2008
(Name) County NRCS Representative	Date
(Signature Deleted)	May 6, 2008
(Name) Emergency Management Director Fire Chief, City of (Name)	Date
(Signature Deleted)	April 30, 2008
Chief, (City) Police Dept.	Date
(Signature Deleted)	April 30, 2008
Mayor, City of (Name)	Date
(Signature Deleted)	May 7, 2008
Sheriff, (Name) County	Date
(Signature Deleted)	April 28, 2008
City Administrator, (City)	Date

XII. REVIEW AND UPDATE OF THE PLAN

This plan will be reviewed and updated annually and tabletop exercises will be conducted at least once every five years. Document these reviews below:

Date of review: _____ Participants:

Date of review: _____ Participants:

Date of review: _____ Participants:

Date of tabletop exercise: _____ Participants: