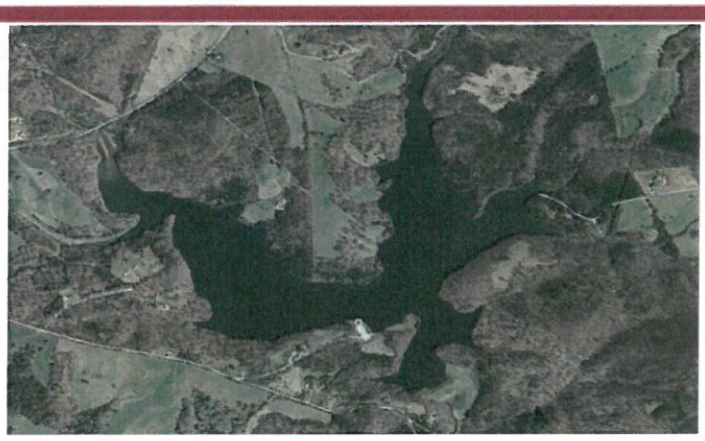
# Timberlake Dam
# Emergency Action Plan (EAP)

*October 27, 2016*

*Campbell County, VA*
*Dam Inventory # VA03102*
*H&P Project Commission # 20120657*



*Submitted to:*
*Timberlake Homeowners Association*
*2209 Timberlake Drive*
*Lynchburg, VA 24502*

*Prepared by:*
*Hurt & Proffitt, Inc.*

*Submitted by:*
*Michael D. Wilson, P.E.*
*Project Manager*

COMMONWEALTH OF VIRGINIA
MICHAEL DALE WILSON
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10/31/16
PROFESSIONAL ENGINEER


HURT & PROFFITT INCORPORATED

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**Appendices**

## Certification by Dam Owner/Operator

I certify that procedures for implementation of this Emergency Action Plan have been coordinated with and a copy given to each local Emergency Services Coordinator serving the areas potentially impacted by the dam. Also, that a copy of this Emergency Action Plan has been filed with the Virginia Department of Emergency Management in Richmond and a copy of the Dam Break Inundation Map has been provided to the local government office with plat and plan approval authority or zoning responsibilities as designated by the locality for each locality in which the dam break inundation zone resides; that this plan shall be adhered to during the life of the project; and that the information contained herein is current and correct to the best of my knowledge.

George Schrader
(Signature of Dam Owner/Operator)

This 2nd day of November, 2016

Printed Name: George Schrader
Timberlake Homeowner's Association President

## Certification by Preparer

I certify that the information provided in this report has been examined by me and found to be true and correct in my professional judgment.

This 31st day of October, 2016

Printed Name: Michael D. Wilson
Title: Project Manager
Address: 2524 Langhorne Road Lynchburg, Va 24501
Phone: 434-847-7796 (office) 434-546-6156 (cell)

# EMERGENCY ACTION PLAN FOR HIGH AND SIGNIFICANT HAZARD IMPOUNDING STRUCTURES

Reference: Impounding Structure Regulations, 4VAC 50-20-10 et seq., including 4VAC 50-20-175, Virginia Soil and Water Conservation Board

## I. BASIC INFORMATION

A. Name of Impounding Structure: Timberlake Dam
Inventory Number: VA03102 Other Name (if any):

B. Hazard Potential Classification, Virginia Dam Safety Regulations:

Low Significant (High) (Circle One)

C. Name of Owner: Timberlake Homeowner's Association
Address: P.O. Box 105072 Lynchburg, VA 24502

D. Name of Dam Operator: George Schrader
Address: 2209 Timberlake Drive Lynchburg, VA 24502
Telephone: (Residential) (434) 401-0577 Cell: (434) 237-6442

Name of Alternate Dam Operator: Ed Whitmore
Telephone: (Residential) (434) 239-6044

E. Name of Rain/Staff Gage Observer: George Schrader
Address: 2209 Timberlake Drive Lynchburg, VA 24502
Telephone: (Residential) (434) 401-0577 Cell: (434) 237-6442

Name of Alternate Rain/Staff Gage Observer: Ed Whitmore
Telephone: (Residential) (434) 239-6044

Name of Alternate Rain/Staff Gage Observer: Denise (DD) Gillette
Telephone: (Residential) (434) 509-7031

F. Name of 24-Hour Dispatch Center:
Campbell County Sheriff's Office, Steve Hutcherson
Telephone: (Business) (434) 434-332-9580 or local emergency # 911

G. Name of Local Government Emergency Services Coordinator:
Campbell County Public Safety Director, Tracy Fairchild
Address: P.O. Box 500 Rustburg, VA 24588
Telephone: (Business) (434) 332-9574

## II. Certifications

We, the undersigned, this date acknowledge the receipt of this plan as the Emergency Operations Plan to protect life and reduce property damage in case of a breach of the Timberlake Dam.

George Schrader — 2 Nov 2016
George Schrader
Timberlake Homeowner Association
Dam Operator/Observer
Date

Tracy Fairchild — 11/07/2016
Tracy Fairchild
Campbell County Public Safety
Date

Steve A. Hutcherson — 11-14-16
Steve A. Hutcherson
Campbell County Sheriff
Date

Ed Whitmore — 11/2/16
Ed Whitmore
Timberlake Homeowner Association
Maintenance Director
Date

## III. EMERGENCY ACTION PLAN OVERVIEW

The Dam Owner, Dam Operator or Designee may use the following Table to weather conditions and operational conditions at the dam to determine the appropriate actions for notifying emergency personnel during potential and actual emergencies.

| | | | |
|---|---|---|---|
| **Step 1: Emergency Condition Detection** | Event Detection: See Section VII | | |
| **Step 2: Emergency Level** | Assess Situation: Determine Emergency Level Using Section VII | | |
| | **Emergency Stage I**<br>Non-Emergency Incident<br>Slowly developing situation<br>See Definition Below | **Emergency Stage II**<br>Potential dam failure situation<br>Quickly developing situation<br>See Definition Below | **Emergency Stage III**<br>Urgent<br>Dam failure is imminent or in progress<br>See Definition Below |
| **Step 3: Notification & Communication** | **Stage I** Notification List See Section IV-A | **Stage II** Notification List See Section IV-B | **Stage III** Notification List See Section IV-C |
| **Step 4: Expected Action** | Inspect Dam Every 6 hrs: Monitor & Listen to Weather Forecasts | Inspect Dam Every 2 hrs, Notify Emergency Responders | Constant inspection of Dam, Continuous contact with Emergency Responders |
| **Step 5: Termination and Follow Up** | Termination of Monitoring Conditions at the Dam and Proceed to evaluate damages and plan for repairs | | |

Surveillance monitoring and observing instrument readings at the dam will be the normal methods of detecting potential emergency situations. For conditions beyond the normal range of operations contact the Campbell County Public Safety Director for assistance with evaluation of the conditions. Each event or situation will fall into one of the following Stages:

## Emergency Definitions

**Stage I** – Non-emergency, failure unlikely, storm development or operational malfunctions are slow in escalation to a potential emergency. This Stage indicates a situation is developing such that the dam is not in danger of failing, but if it continues failure may be possible.

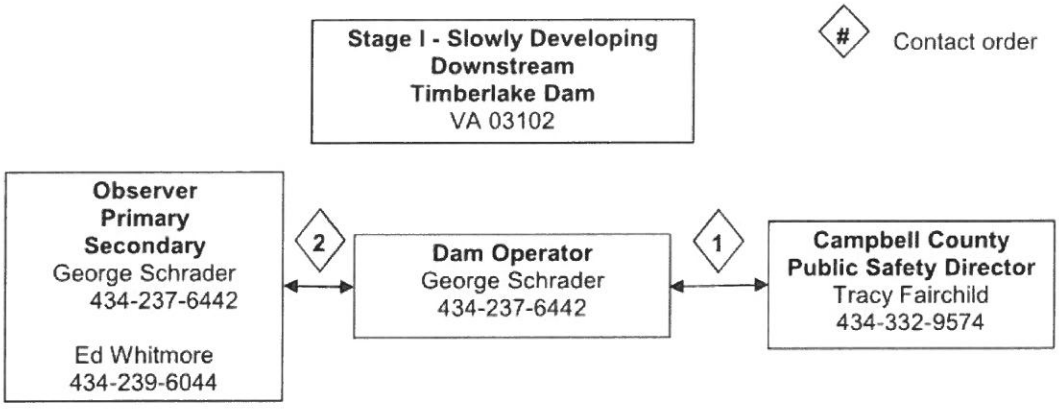
**Stage II** – Potential Failure, storm development or operational malfunction are quickly accelerating that could result in failure of the dam. This Stage indicates that a situation is developing that could result in a dam failure.

**Stage III** – Imminent Failure, storm or operational malfunction has reached a point that the failure of the dam has started or is imminent. This Stage indicates dam failure is expected or occurring and may result in flooding that will threaten life and/or property downstream of the dam.

## IV. NOTIFICATION FLOW CHARTS

### A. STAGE 1 NOTIFICATION

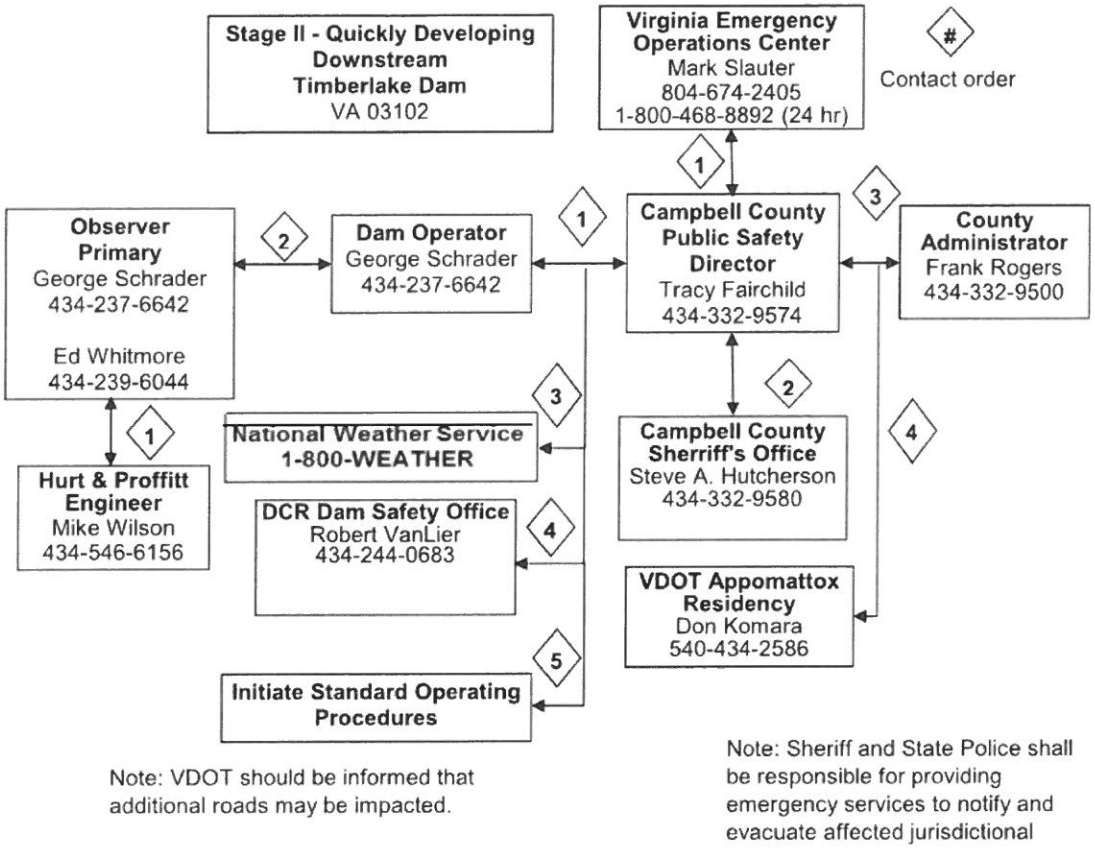
See Section VIIB for Stage activation thresholds and Section VIIC for response during darkness, adverse weather, weekends, and holidays.




Message from dam operator to Campbell County Public Safety Director: *I am at* ***Timberlake Dam*** *evaluating the general conditions at the dam and coordinating with the staff gage observer as recommended in the emergency action plan. If the impending storm occurs, we may move to stage II and perform more frequent evaluations, otherwise we will visit and make observations every six hours.*

## B. STAGE 2 NOTIFICATION

See Section VIIB for Stage activation thresholds and Section VIIC for response during darkness, adverse weather, weekends, and holidays.

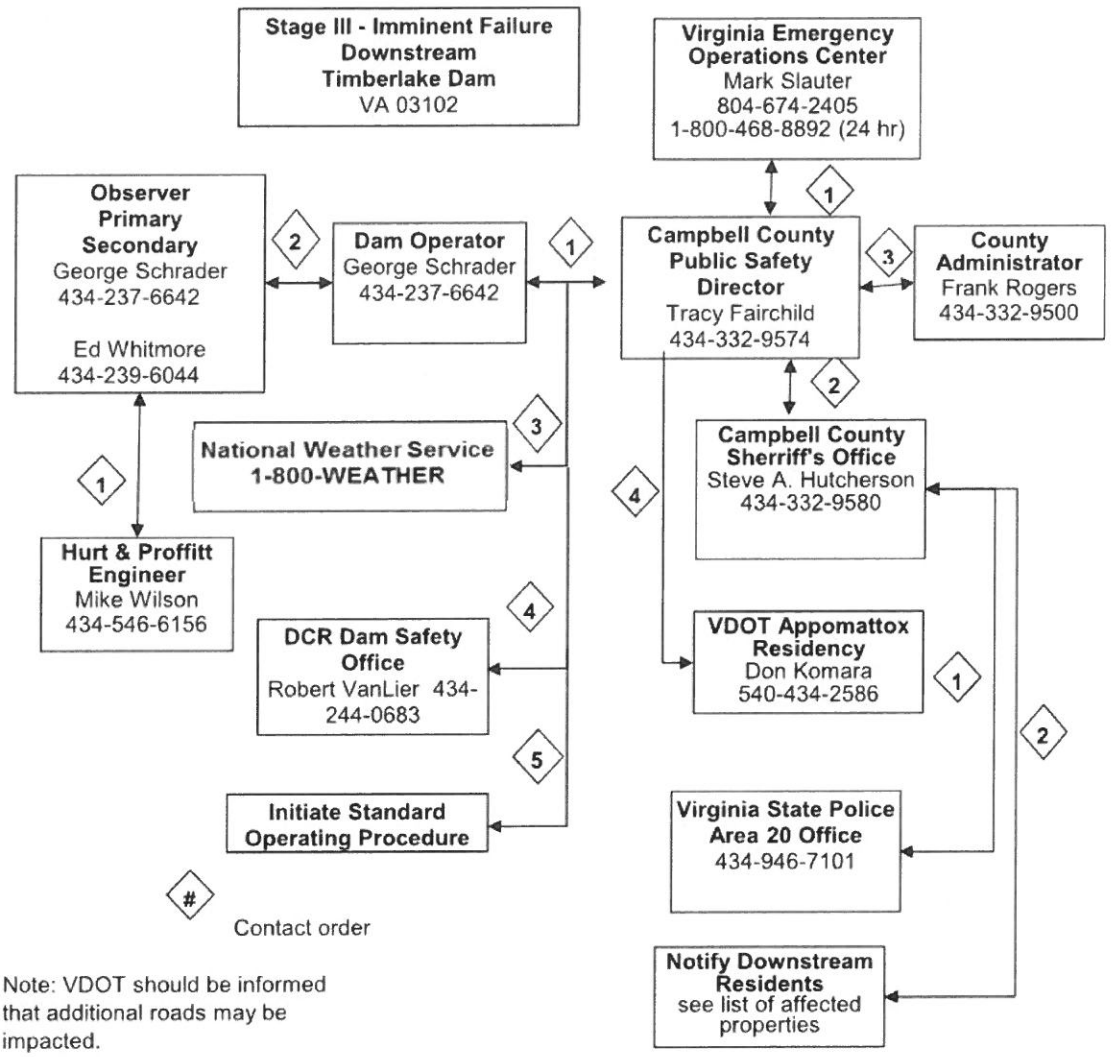



Message from dam operator to Campbell County Public Safety Director: *I am at **Timberlake Dam** (or have been to the dam) and the water level has risen into the emergency spillway to the threshold established in the emergency action plan to move to the Stage 2 Emergency Level. Please prepare your personnel in case an evacuation is necessary and continue to initiate your standard operating procedures (SOP). I will be observing the emergency spillway every 2 hours.*

Note: Standard Operating Procedures shall include notification of the evacuation team, contacting the National Weather Service for rainfall projections and contacting the Virginia Emergency Operations Center. Campbell County Public Safety is the local Emergency Operations Center.

## C. STAGE 3 NOTIFICATION

See Section VIIB for Stage activation thresholds and Section VIIC for response during darkness, adverse weather, weekends, and holidays.




Message from dam operator to Campbell County Public Safety Director (CCPSD): *I am at **Timberlake Dam** and the water level has risen in the emergency spillway to the threshold established in the emergency action plan to move to the Stage 3 Emergency level. Please proceed with the Standard Operating Procedures. I will remain at the dam to monitor continuously until the dam breaks or the water level recedes to safe levels and the CCPSD directs me to terminate my responsibility.*

Note: Campbell County Public Safety is the local Emergency Operations Center.

# Timberlake Dam Emergency Contact List

## *Downstream Structures*

| STRUCTURE NUMBER | SHEET NUMBER | PARCEL NUMBER | OWNER NAME | OWNER ADDRESS | PARCEL ADDRESS | CITY | STATE | ZIP |
|---|---|---|---|---|---|---|---|---|
| 2-7 | IND-MAP_02 | 153 A 60 | Tibbs, Rucker A. | 3981 Blackwater Road | | Forest | VA | 24551 |
| 2-8 | IND-MAP_02 | 20 A 29 | Harris, Roger A. | | 25 Carters Crossing Lane | Forest | VA | 24551 |
| 2-10 | IND-MAP_02 | 20K 11 12 | Coleman, Brian W. | | 41 Carters Crossing Lane | Forest | VA | 24551 |
| 2-11 | IND-MAP_02 | 20K 11 11 | Drumheller, James S. | | 59 Carters Crossing Lane | Forest | VA | 24551 |
| 2-12 | IND-MAP_02 | 20K 11 10 | Smith, Harvey L. Jr | | 73 Carters Crossing Lane | Forest | VA | 24551 |
| 2-13 | IND-MAP_02 | 20K 11 9 | Palmer, Terry L. | | 91 Carters Crossing Lane | Forest | VA | 24551 |
| 2-15 | IND-MAP_02 | 20K 11 8 | Maiewski, Jeffery | | 107 Carters Crossing Lane | Forest | VA | 24551 |
| 2-16 | IND-MAP_02 | 20K 11 6 | Ramos, Joseph | | 130 Carters Crossing Lane | Forest | VA | 24551 |
| 3-1 | IND-MAP_03 | 20K 5 13 | Hancock, David | | 414 Cresthaven Ter | Evington | VA | 24550 |
| 5-1 | IND-MAP_05 | 29 2 1 | Shafer, Paul | | 1269 Buffalo Mill Road | Evington | VA | 24550 |
| 5-4 | IND-MAP_05 | 29 4 2A | Bell, Gary | | 1443 Evington Road | Evington | VA | 24550 |

** Structure 5-1 is listed as 4-1 on Inunundation Map Table; 5-1 is the correct numbering for this dwelling

## V. Statement of Purpose

This Emergency Action Plan (EAP) is an effort to safeguard the lives and reduce damage to the property of the citizens of Campbell County living along Buffalo Creek and downstream, in the unlikely event of failure of the Timberlake Dam or flooding caused by large runoff.

Impounded water upstream of a dam when released uncontrollably may threaten lives in the flow path downstream or cause damage to homes, roads, bridges and any other infrastructure(s) in its way. This uncontrolled release occurs when the dam or a part of the dam breaks and stored water is released.

## VI. Project Description

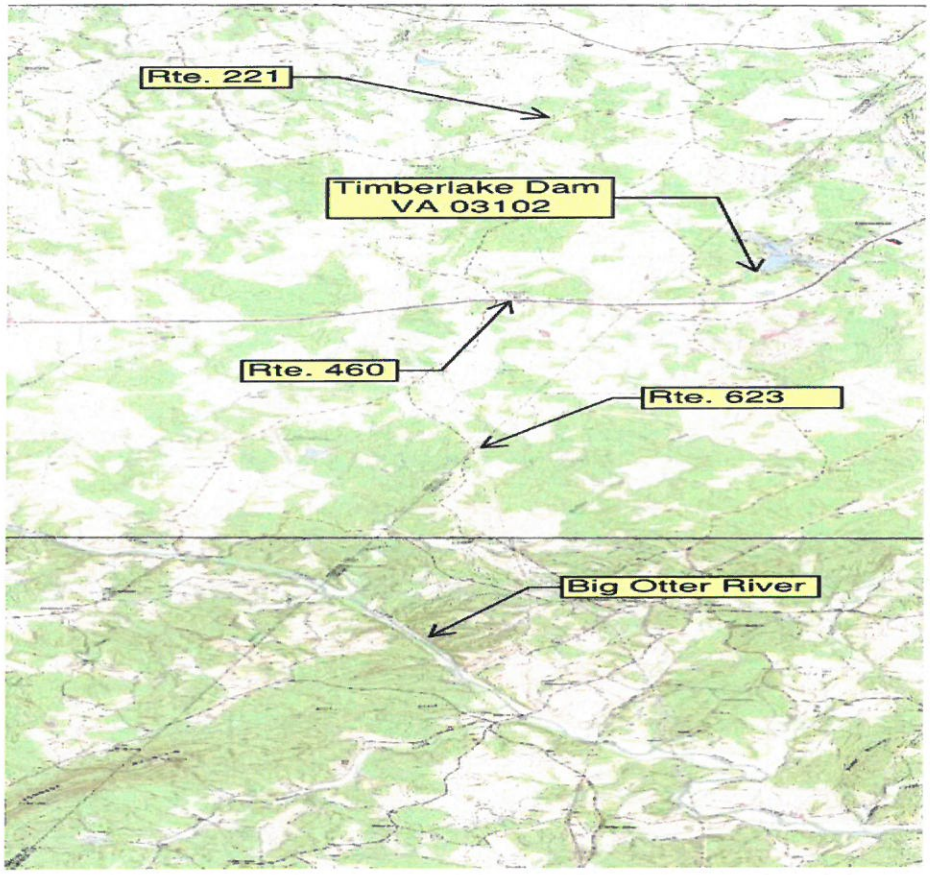
The impounding structure, known as Timberlake Dam or Inventory Number VA03102, is operated by the Timberlake Homeowners Association in Campbell County. The site is located at the end of Timberlake Drive, Lynchburg, Virginia 24502. The dam is classified as a High Hazard Dam as determined by the Hazard Classifications performed by Hurt and Proffitt. It creates a 57 acre impoundment used for recreation. The drainage area is approximately 3,174.4 acres or 4.96 square miles. The reservoir flood capacity storage is 1,449 acre-feet at the emergency spillway crest, elevation 813.6'.

Downstream of the dam, Buffalo Creek flows through commercial and residential areas.

The main components of the dam are:

- Homogenous earth embankment and abutments, approximately 376 feet long with a crest elevations of 819.3'.
- 4.3H:1V upstream embankment slope, a 20.2 foot wide crest, and 4H:1V downstream embankment slope.
- Concrete overflow chute emergency spillway, 195 feet wide with a crest elevation of 813.6'.
- Ductile Iron pipe and outlet, 24 inch diameter pipe with an outlet invert of 790.6'.
- Riprap lined outfall protection to a natural stream.

In 1996, Hurt and Proffitt prepared reconstruction drawings after the dam experienced an overtopping failure.




## VII. Emergency Detection, Evaluation, and Classification

### A. Levels of Emergency

**a.** **STAGE I** (Slowly Developing Situation) indicates a flood watch, or heavy continuous rain or excessive flow of water from ice or snow melt. Dam should be inspected every 6 hours and weather forecasts should be monitored for changing conditions.

**b.** **STAGE II** (Quickly Developing Situation) condition indicates that a potentially serious condition is developing and failure could occur if the condition does not improve. Upon initiation of a **STAGE II** condition the Operator is to activate the notification flowchart alerting them to the situation. Then begin 2 hour monitoring conditions and take preventative actions as necessary.

**c.** **STAGE III** (Imminent Failure Situation) condition indicates that a failure is imminent or has already occurred. During these conditions the full EAP should be initiated including evacuations and road closures, as well as continuous observation.

Use the following table to identify proper emergency levels:

| Event | Situation | Emergency Level |
|---|---|---|
| Emergency Spillway Flow | Spillway flowing with active gully erosion | 2 |
| | Spillway flowing with advancing head cut that is threatening the control section | 3 |
| Embankment Overtopping | Any overtopping flow or within 2 feet of the top of the dam, water level rising | 3 |
| Seepage | New seepage areas on or near the dam | 1 |
| | New seepage areas with cloudy discharge or increasing flow rate | 3 |
| | Rapid flow rate increase with cloudy discharge from existing seepage area(s) | 3 |
| Sinkholes | Observation of new sinkhole on embankment | 1 |
| | Rapidly enlarging sinkhole | 3 |
| Embankment Cracking | New cracks in the embankment greater than 1/4 inch wide without seepage | 1 |
| | Cracks in embankment with seepage | 1 |
| | Cracks in embankment with rapidly increasing seepage | 3 |
| Embankment Movement | Visual movement of the embankment slope | 1 |
| | Sudden or rapidly progressing slides of the slopes | 3 |
| Vortex in Pond | Whirl pool with discharge downstream | 3 |
| Earthquake | Measurable earthquake felt or reported on or within 50 miles of the dam | 1 |
| | Earthquake resulting in visible damage to the dam | 1 |
| | Earthquake resulting in potential uncontrolled release of water from the dam | 3 |
| Security Threat, Sabotage & Vandalism | Verified bomb threat that, if carried out, could result in damage to the dam | 1 |
| | Detonated bomb that has resulted in damage to the dam or it appurtenances | 1 |
| | Damage to the dam or appurtenances with no impacts to the functioning of the dam | 1 |
| | Damage to the dam or appurtenances that has resulted in seepage flow | 1 |
| | Damage to the dam or appurtenances that has resulted in a potential uncontrolled water release | 3 |

## B. Emergency Level due to Risk of Overtopping

During a full 12 hour Probable Maximum Flood storm, this dam will overtop; the modeled maximum water surface elevation during such a storm event would be **820.9'** (1.6 feet above the dam crest). Rainfall and monitoring condition for each emergency stage are listed below:

**STAGE I EMERGENCY**
During a **Stage I** Condition, the Staff Gauge Observer should make observations at a rate of **one every 6 hours**.

**STAGE II EMERGENCY**
If the Emergency Spillway is flowing with **6"** of water, a **STAGE II** Condition should be immediately initiated and one spillway **observation every 2 hours**.

The modeled rainfall necessary to cause a **Stage II Emergency Condition** is:

3.3 inches per 6 hours
3.7 inches per 12 hours
4.6 inches per 24 hours

**STAGE III EMERGENCY**
If the Emergency Spillway is flowing with **4'** of water, a **STAGE III** condition should immediately be initiated and **continuous monitoring/observations** performed.

The modeled rainfall necessary to cause a **Stage III Emergency Condition** is:

12.3 inches per 6 hours
15.2 inches per 12 hours
19.2 inches per 24 hours

Since state roads are located downstream of this dam, this EAP and coordination with the ESC and the local transportation office responsible for the road/bridge(s) should determine flood levels in which the roads will be closed to all traffic.

The resident Virginia Department of Transportation (VDOT) administrator is responsible for opening and closing roads/bridges that are subject to flooding. The VDOT administrator and affected roads are listed below.

VDOT Administrator: Don Komara
Telephone: (Business) (800) 367-7623 (540) 434-2586

Route # 623, 0.55 Miles Downstream of Dam
Route # 460, 1.10 Miles Downstream of Dam
Route # 858, 1.17 Miles Downstream of Dam
Route # 623, 4.79 Miles Downstream of Dam

Route # 623, 5.49 Miles Downstream of Dam
Route # 811, 9.95 Miles Downstream of Dam
Route # 24, 11.38 Miles Downstream of Dam

### C. Emergency Level due to Risk of Piping Failure

Piping failures occur when seepage through a dam erodes enough of the embankment to cause a rapid draining of the dam. This is not dependant on the water level and can occur very rapidly.

If any of the following conditions occur, a **Stage II** Condition should be immediately initiated:

- Slumping or sloughing of the embankment
- Excessive erosion on the embankment
- Excessive seepage or cloudy seepage through the embankment
- Settlement or cracking in the embankment
- Piping or boils in the embankment

Conditions at the dam should be monitored and if deterioration of the embankment continues a **Stage III** condition should be initiated.

## VIII. General Responsibilities Under the EAP

### A. Dam Owner Responsibilities

The Timberlake Homeowners Association maintains the dam and George Schrader is the dam operator. The dam operator is part of the Timberlake Homeowner Association and observes the dam yearly during inspections and routine maintenance. The operator is also on call during high water conditions. See the notification flowchart in Section II for emergency phone numbers.

If an observer notices the water elevation reaching the crest of the spillway or the potential failure of the dam, he/she should call the dam operator, George Schrader. The operator will then be in charge of monitoring the situation, implementing the EAP and informing the Campbell County Public Safety Director.

The observer/operator shall first notify the Campbell County Public Safety Director, and then proceed to contact the appropriate personnel listed in the Notification Flowchart. The observer/operator shall coordinate all emergency procedures associated with the dam. He/she shall also update the emergency center if the situation changes.

The address and telephone number for the dam operator and Timberlake Homeowner Association is:

2209 Timberlake Drive
Lynchburg, VA 24502
434-401-0577

## B. Responsibility for Notification

***See Section II for Stages I, II and III Notification Charts**

In an emergency situation, the dam operator will call the Campbell County Director of Public Safety, the National Weather Service, and Department of Conservation and Recreation (DCR) Dam Safety Office. The observer/operator shall also be the point of contact for coordinating all media information about the situation. The operator shall ensure that DCR Dam Safety Office and VDOT are kept updated as the situation changes.

The local authorities will be responsible for initial emergency road closing, but VDOT will have to inspect the road once the emergency has ended to determine if the road was impacted and if it was impacted VDOT will be responsible for the permanent closure while the road is being repaired. When contacting VDOT, the operator shall inform them that additional roads may be impacted by the dam failure or high water. These include Turkey Foot Road (Route 623), Lynchburg Salem Turnpike (Route 460), Alum Spring Road (Route 858), Town Fork Road (Route 623), New London Road (Route 709), Buffalo Mill Road (Route 684), Evington Road (Route 811), Wyatts Way (Route 24), and homes/businesses in the affected area.

- ✓ Telephone/Reverse 911 automated warning systems
- ✓ Police/fire/sheriff radio dispatch vehicles with loudspeakers, bullhorns, etc.
- ✓ Personal runners from door-to-door alerting residents
- ✓ Radio/television broadcasts for area involved

## C. Responsibility for Evacuation

Per the hazard classification report, there are residential houses in the inundated areas at this time. If a dam failure is imminent, the downstream residents should be advised to immediately move to higher ground to protect their families.

Any additional notifications or evacuations should be determined by the Campbell County Emergency Center, Campbell County's Sherriff's Office, and the State Police. The dam owner shall not assume, or usurp, the responsibility of the government authorities for evacuation of people.

The Sheriff's Office shall implement an evacuation upon receiving the order from the Public Safety Director, or Public Safety Director's designated representative.

Upon activation of the Emergency Siren, the Sheriff's Office shall give the order for all personnel to begin with evacuation procedures.

The following outline further explains the Evacuation procedure:

1. Monitoring the situation and, if time permits, review of evacuation plans.

2. Begin Stage I, II, and III

3. Evacuating the inundation areas, if conditions warrant.

4. Expanding Direction and Control as well as beginning Emergency Public Information and operating shelters.

5. Provide Situation Reports to the State Emergency Operations Center (804-674-2400 or 800-468-8892)

**D. Responsibility for Duration, Security, Termination, and Follow-up**

Only authorized personnel shall be allowed on the dam site. These personnel include the operator, and local authorities who have been cleared by the operator. Due to the nature of the facility, all personnel shall be cleared by the operator prior to accessing the site. All access gates to the dam shall be closed and locked.

The following DCR guideline should be followed:

1. Once the Stage III condition has been met the staff gauge observer will continue to provide the Campbell County Public Safety Director (CCPSD) with information concerning water level rise, erosion in the emergency spillway and/or dam overtopping. It is particularly important for the CCPSD to know when the breach is occurring to evacuate their rescue personnel. The staff gauge observer will remain at the dam until the dam breaks and is released from duty by the CCPSD.

2. Regional flooding may occur prior to an incident at this dam and could continue for long periods of time. The staff gauge observer needs to have plans for staying or returning to the dam as conditions worsen. The termination responsibility should be handled by the CCPSD.

The dam operator shall be on-site to monitor the developing conditions per Section VII-B Emergency Level due to Risk of Overtopping but shall in no way place themselves in harm's way during observations. The operator shall provide necessary updates to the Campbell County Public Safety Director, VDOT, and NWS from the time the emergency starts to when it has been terminated.

The dam operator shall be responsible for determining when the emergency is over. The state and local emergency management officials are responsible for termination of disaster response activities.

The dam owner will be responsible for setting up a meeting with all participants (DCR, Campbell County, VDOT, etc.) to go over the event and determine what changes need to be made to the Emergency Action Plan. The results of the evaluation should be documented in a written report.

### E. EAP Coordinator Responsibility

George Schrader with Timberlake Homeowner Association is the EAP Coordinator and has overall responsibility for implementing the EAP, including training the key participants and periodic reviewing, test, and updating of the EAP.

The EAP Coordinator's Duties include the following:

- Training the key EAP participants to handle an emergency situation at the Timberlake Dam.
- Annually reviewing the EAP with the key EAP participants for any required changes to personnel or contact information and distributing copies of the revised plan.
- Testing the EAP.
- Submitting EAP revisions to the DCR Dam Safety Office

The key EAP participants are the following:

- George Schrader, Dam Operator/Observer
- Ed Whitmore, Maintenance Director
- Frank Rogers, Campbell County Administrator
- Tracy Fairchild, Campbell County Public Safety
- Steve A. Hutcherson, Campbell County Sheriff

The telephone numbers for the key participants are listed on the notification flowchart in Section II. The procedures for carrying out the phases of the EAP are described in the previous section.

## IX. Preparedness

Levels of Emergency
The three levels of emergency are a Stage I, II or III Condition:

- A Slowly Developing Situation (Stage I) indicates a flood watch or heavy continuous rain or excessive flow of water from ice or melt.

- A Quickly Developing Situation (Stage II) indicates that a potentially serious condition is developing and failure could occur if the condition does not improve. This means the emergency spillway is flowing with 6" of water. During an Stage II Condition downstream residents and the County's emergency communication office should be kept informed about the situation.
- An Imminent Failure Situation (Stage III) indicates that failure is imminent or has already occurred. The emergency spillway is flowing with 4' of water. During Stage III Conditions the full EAP should be initiated.

**A. Prevention of emergency conditions from developing, if possible during a Stage II Condition Emergency.**

If there are signs of outside conditions developing that could cause a dam failure, such as a warning of upcoming large storm events (ie. hurricanes), an upstream dam failure is eminent, or signs of non-storm related dam failure the dam operator should contact the Campbell County Public Safety Director and explain the situation and the potential for dam failure.

The following actions should also be taken by the dam operator to minimize the potential of dam failure:

- Removing debris from around the primary outlet structure.
- Opening the low level inlet to allow the water elevation to lower.
- Placing sandbags on the crest of the embankment.
- Bring in equipment needed to illuminate the spillway operating deck, or distress areas of the dams during adverse weather or periods of darkness.

Because of uncertainties about the effectiveness, these preventive actions should be carried out simultaneously with appropriate notification.

**B. Surveillance**

The operator and staff should monitor the status of weather fronts through the National Weather Service (NWS). The NWS maintains a hurricane center that reports on hurricanes, tropical storms & tropical depressions as they travel and affect coastal and inland areas. The web site address is:
http://www.nhc.noaa.gov/

The expected response time to the dam from the staff gauge observer's home should be less than one (1) hour from the time they receive the information that a flood watch has been declared. The staff gauge observer should never put themselves in harm's way. In the event a hurricane or tropical depression occurs with high winds the staff gauge observer shall use extreme caution monitoring conditions.

Preplanned access routes should be utilized given that small streams crossing under state roads may flood preventing safe access. The gauge observers and district staff should never attempt to cross a road that has flood water crossing it at a depth greater than one (1) foot unless the vehicle is specially designed for that purpose.

The dam operator is responsible for monitoring the water elevation. A staff gauge is installed along the edge of the dam at the spillway. When the emergency spillway is flowing with 6" of water, the dam operator should initiate the EAP under an **Stage II Condition**. If the emergency spillway is flowing with 4' of water, the condition should be upgraded to a **Stage III Condition**.

Currently there is no remote surveillance at the site.

### C. Response during periods of darkness, adverse weather, weekends, and holidays

The staff gauge should be easily read from the location chosen by the staff gauge observer with a flashlight after dark. For periods of darkness or adverse weather, the operator shall have emergency equipment brought in to illuminate the spillway, operating deck, or distress areas of the dams as soon as activation of the spillway or potential dam failure is determined. These lights shall be installed with access to backup generators, if needed.

During weekends or holidays, there shall be an acceptable replacement designated to act as the dam operator and EAP Coordinator. This individual shall be trained in all the same procedure as the dam operator and EAP Coordinator.

### D. Access to the site

The dam site is accessed from Timberlake Drive. The access drive to the dam is a paved single lane road at the end of Timberlake Drive (Route 624). The dam can also be accessed via a single lane road extending from South Timberlake Drive (Route 715). Due to potential hazards with the access route, it is recommended that the dam be accessed and observed from "high ground." No vehicles are allowed on top of the dam during **Stage II** or **Stage III** conditions.

### E. Alternative Systems of Communication

Communications during a major rainfall event may be problematic. Telephone land lines may be used as the first means of communication. Cellular telephones can be used to supplement the land lines. Unfortunately, telephone lines like electrical lines are subject to being broken by falling trees so radio communication during these events is normally required.

## X. Inundation Maps

The inundation maps on the following sheets were developed as part of the Incremental Damage Assessment for Campbell County Timberlake Dam prepared July 31, 2013 by Hurt & Proffitt.

In 2016, DCR released new PMP values for the 6, 12, and 24-hour storms. Since the new precipitation values are less than the previous values, the inundation mapping currently on file represents a worst case scenario. The DCR Certification Form is attached.