

EMERGENCY ACTION PLAN

SURVEILLANCE, WARNING AND EVACUATION PROCEDURES

**HIBERNIA DAM (PA-436F)
DEP NUMBER D15-360**

**LOCATED ACROSS BIRCH RUN
IN WEST CALN TOWNSHIP, CHESTER COUNTY**

LATITUDE 40° 01' 44" LONGITUDE -75° 50' 55"

**SIZE CATEGORY "B"
HAZARD POTENTIAL CATEGORY "1"**

**OPERATED BY: JANET L. BOWERS, EXECUTIVE DIRECTOR
CHESTER COUNTY WATER RESOURCES AUTHORITY
ADDRESS: 601 WESTTOWN ROAD, SUITE 260
WEST CHESTER, PA 19380-0990
TELEPHONE: BUSINESS: (610) 344-5400
CELL: (610) 888-1041
EMERGENCY 24-HR CONTACT: 911
E-MAIL: jbwowers@chesco.org**

**OWNED BY: CHESTER COUNTY WATER RESOURCES AUTHORITY
ADDRESS: 601 WESTTOWN ROAD, SUITE 260
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E-MAIL: jbwowers@chesco.org
WEB PAGE: www.chesco.org/water**

**DATE: AUGUST 2005
REVISED: JULY 2016**

The Hibernia Dam Emergency Action Plan has been prepared by
Gannett Fleming, Inc.
and the Chester County Water Resources Authority.

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PROMULGATION AND CONCURRENCE

We, the undersigned, on date indicated, have reviewed the requested support activity in the Emergency Action Plan for the Hibernia Dam. Our support action will be executed in accordance with existing recommended operating guidelines and existing municipal or county emergency operation plans.

**DAM OWNER AND CHESTER COUNTY DEPARTMENT OF EMERGENCY SERVICES
AND DELAWARE COUNTY EMERGENCY SERVICES DEPARTMENT**

CHESTER COUNTY WATER RESOURCES AUTHORITY
EXECUTIVE DIRECTOR
(DAM OWNER/OPERATOR)

DATE

CHESTER COUNTY DEPT. OF EMERGENCY SERVICES

DATE

DELAWARE COUNTY EMERGENCY SERVICES DEPT.

DATE

PEMA AND DEP APPROVALS

The Pennsylvania Emergency Management Agency has reviewed the Emergency Action Plan for HIBERNIA DAM (D15-360).

Director, PEMA Eastern Area Office

DATE

The Department of Environmental Protection, Division of Dam Safety, has reviewed the Emergency Action Plan for HIBERNIA DAM (D15-360).

Chief, Division of Dam Safety

DATE

I. PURPOSE AND SCOPE

- A. To safeguard the lives as well as to reduce property damage of the citizens living within the dam's potential downstream flood or inundation area.
- B. To provide for effective dam surveillance, prompt notification to local emergency management agencies, citizen warning and evacuation response, when required.
- C. To identify emergency actions to be taken by the Dam Owner/Operator, public officials, emergency personnel, and to outline response actions in the event of a potential or imminent failure of the dam.

II. SITUATION

- A. The dam is a 64.5-foot high, 700-foot long earthen multipurpose dam, maintaining a normal pool (permanent pool) of 1,226 acre-feet (400 million gallons) of water with a maximum pool (top of dam) capacity of 3,300 acre-feet (1,075 million gallons).
- B. The dam is located across Birch Run in West Caln Township, Chester County, 5 miles north of Coatesville and 1 mile west of State Route 82. Refer to the Location Map at **Attachment C**.
- C. The inundation area resulting from a sudden dam failure is essentially trending northwest to southeast through Chester and Delaware Counties adjacent to Birch Run, the West Branch Brandywine Creek and Brandywine Creek through West Brandywine Township, West Caln Township, Valley Township, City of Coatesville, South Coatesville Borough, Modena Borough, East Fallowfield Township, Newlin Township, West Bradford Township, East Bradford Township, Pocopson Township, Pennsbury Township, Birmingham Township and Chadds Ford Township in Pennsylvania; and New Castle County in Delaware. Refer to the Inundation Map at **Attachment A**.
- D. Within the inundation area are approximately 1,600 residents, 600 homes, 45 businesses, 2 schools with a population of about 500. Sections of the City of Coatesville and the Boroughs of South Coatesville and Modena are located in the inundation area. Refer to the Inundation Map at **Attachment A**.
- E. Critical Infrastructure
Within the inundation area there are 6 critical infrastructure facilities, including Superfund Amendment & Reauthorization Act Sites (SARA Sites). Those critical facilities are:
 - 1. ArcelorMittal Emergency Services
 - 2. ArcelorMittal Coatesville
 - 3. ISG Plate LLC (Mittal Steel) (SARA Site)
 - 4. PA American Water Coatesville Wastewater Treatment Plant (SARA Site)
 - 5. Sealed Air Corporation (SARA Site)
 - 6. South Coatesville Sewage Treatment Plant (SARA Site)
 - 7. Lenape Forged Products Corp (SARA Site)

The preceding list of critical infrastructure facilities has been provided by the Chester County Department of Emergency Services in March, May and June 2016.

III. CONCEPT OF OPERATIONS

A. SURVEILLANCE – NORMAL CONDITIONS - (DAM OWNER OR OPERATOR)

1. The Executive Director of Chester County Water Resources Authority (CCWRA), or their designee, will conduct an on-site visual inspection of the dam, the dam's spillway(s), control systems, and the toe area below the dam at a minimum of once every three months. Any abnormal or questionable conditions will be immediately brought to the attention of the owner's engineer and the Division of Dam Safety of DEP.

B. SURVEILLANCE – UNUSUAL EVENT CONDITIONS (DAM WATCH)

1. The Executive Director of Chester County Water Resources Authority (CCWRA), or their designee, will commence surveillance of conditions at the dam site when:
 - a. Severe thunderstorms, heavy rains with local flood warnings, tropical storms and hurricanes, or heavy rains with frozen ground and/or snow cover are occurring, and conditions warrant.
 - b. The National Weather Service issues a flash flood watch or warning and conditions warrant.
 - c. Any abnormal or questionable conditions as identified in Section III.D.1.
2. The Executive Director of CCWRA, or their designee, will commence 24 hour around-the-clock surveillance of conditions at the dam site when:
 - a. The water level in the impoundment area has reached the threshold level of 12.5 feet below the top of the dam (elevation 584.0 feet) and is rising (see ***Attachment G***).
 - b. At lower impoundment elevations if abnormal or questionable conditions warrant.

C. EARLY WARNING NOTIFICATION

1. The Executive Director of Chester County Water Resources Authority (CCWRA), or their designee, is responsible for determining the dam's threat potential. The following conditions constitute a dam early warning notification to the Chester County Communications Center 911 and require 24-hour around-the-clock surveillance.
 - a. The water level in the impoundment area has reached the threshold level of 10.0 feet below the top of the dam (1.0 foot below emergency spillway crest and consistent with elevation 586.5 feet) and is rising, or
 - b. Following the occurrence of an earthquake in the general region of the dam.

2. Early warning notification will be relayed from the Chester County Communications Center 911 to the Chester County Emergency Management Agency, the PEMA State EOC, Hibernia County Park Rangers, and all applicable emergency responders and designated government officials and agencies (including those listed in *Attachment D and Attachment H*).

D. WARNING AND EVACUATION NOTIFICATION

1. The Executive Director of Chester County Water Resources Authority (CCWRA), or their designee, is responsible for determining the dam's threat potential. The following conditions constitute a dam emergency requiring warning and evacuation notification to the Chester County Communications Center 911.
 - a. Warning and Early Evacuation to Three (3) Nearby Residents (*Attachment A and Attachment H*)
 - i. The water level in the impoundment area has reached the threshold level of 1.0 feet below the emergency spillway crest and 10.0 feet below the top of the dam (consistent with elevation 586.5 feet) and is rising, and
 - ii. Imminent risk of dangerous flood waters potentially rising to within the immediate vicinity of the three (3) nearby properties listed in *Attachment H* warrants early evacuation of these residences at this flood level.
 - b. Downstream Warning and Evacuation
 - i. The depth of flow in the emergency spillway has reached a depth of 6.5 feet (and consistent with elevation 594.0 feet), and
 - ii. The water level in the impoundment area has reached the threshold level of 2.5 feet below the top of the dam, is rising and is about to flow over the top of the dam within approximately 1 hour, or
 - iii. Imminent failure of this dam might be indicated by observance of one or more of the following conditions at the dam site:
 - a. The lake level is rising and is at or near the top of the dam and water is flowing, or about to flow, over the top of the dam.
 - b. The principal spillway or emergency spillway is damaged, or clogged with debris or ice, which is resulting in a rapid rise in the lake or pond level.
 - c. The emergency spillway is experiencing heavy flows which are causing severe erosion to the spillway or the dam embankment.
 - d. Any structural movement or failure of the principal spillway structure.
 - e. Any sloughing or sliding of the embankment upstream or downstream slope. Also, earth slides in the emergency spillway channel, either upstream or downstream of the dam's crest, which could impede the flow in the emergency spillway.

- f. Subsidence, sinkholes or cracks found in any part of the dam's embankment or abutting slopes.
 - g. Any new discharge of water is observed through the dam's embankment or abutting slopes, adjacent to any conduit outlets, or under the dam, which appears as a boil along the downstream toe. Should such a discharge occur and the water is cloudy or muddy in color, then a very serious problem exists.
- 2. Warning and evacuation notification will be relayed from the Chester County Communications Center 911 to the Chester County Emergency Management Agency, the PEMA State EOC and all applicable emergency responders and designated government officials and agencies (including those listed in *Attachment D and Attachment H*).
- 3. Emergency management officials will accomplish the needed actions, which are explained in this EAP, in accordance with their existing recommended operating guidelines and existing municipal or county emergency operation plans.
- 4. Warning and evacuation of the public must commence upon notification by the Executive Director of Chester County Water Resources Authority (CCWRA), or their designee, of a potential or imminent failure of the dam. Emergency responders should initiate action in accordance with the plan outline and any existing internal organizational recommended operating guidelines, and existing municipal or county operation plans.

E. TERMINATION OF SURVEILLANCE AND NOTIFICATIONS

- 1. The Executive Director of Chester County Water Resources Authority (CCWRA), or their designee, may terminate 24-hour surveillance of dam site conditions when:
 - a. All National Weather Service flash flood watches or warnings have expired, **and**
 - b. Heavy rains have ended and the water level in the lake has dropped 13.0 feet below the top of the dam (elevation of 583.5 feet on the staff plate located at Hibernia Dam), and is receding.
 - c. After a personal inspection of the dam site has been conducted by a knowledgeable professional engineer following an earthquake, overtopping of the dam, or an evacuation of the inundation area as a result of this EAP, or other serious problems resulting in a notification of a dam site emergency and the Pennsylvania Department of Environmental Protection concurs with the results of the inspection.
- 2. Upon termination of 24-hour surveillance of dam site conditions, the Executive Director of Chester County Water Resources Authority (CCWRA), or their designee, shall notify the Chester County Communications Center 911.
- 3. Termination of notifications will be relayed from the Chester County Communications Center 911 to the Chester County Emergency Management

Agency, the PEMA State EOC and all applicable emergency responders and designated government officials and agencies.

IV. RESPONSIBILITIES AND DUTIES - EMERGENCY RESPONSE

A. DAM OWNER OR DAM OPERATOR (DAM SITE EMERGENCY)

1. The Executive Director of Chester County Water Resources Authority (CCWRA), or their designee, will provide for 24-hour on-site dam surveillance and monitoring as required in Section III.C.1. and initiate early warning notification to the Chester County Communications Center 911.
2. When the situation meets the criteria under the warning and evacuation notification guidelines, presented in Section III.D.1, indicating a failure of the dam is possible or a significant threat condition is developing, the Executive Director of Chester County Water Resources Authority (CCWRA), or their designee, will initiate warning and evacuation communication to the Chester County Communications Center 911.

B. CHESTER COUNTY COMMUNICATIONS CENTER 911

1. The Chester County Communications Center 911 will notify:
 - a. Chester County Emergency Management Agency
 - b. Delaware County Emergency Services
 - c. PEMA State EOC
 - d. Hibernia County Park Superintendent
 - e. Hibernia County Park Rangers
 - f. West Caln Township Police Department
 - g. Wagontown Fire Company
 - h. Westwood Fire Company Ambulance
 - i. West Brandywine Township Police Department
 - j. Valley Township Police Department
 - k. Westwood Fire Company
 - l. Coatesville City Police Department
 - m. Coatesville City Fire Department
 - n. West End Fire Company of Coatesville
 - o. Washington Hose Fire Company
 - p. Washington Hose Ambulance
 - q. ArcelorMittal Emergency Services
 - r. South Coatesville/Modena Police Department
 - s. Modena Fire Company
 - t. Modena Fire Company Ambulance
 - u. East Fallowfield Township Police Department
 - v. PA State Police – Embreeville
 - w. Po-Mar-Lin Fire Company
 - x. Good Fellowship Ambulance

- y. Longwood Fire Company Ambulance
- z. West Bradford Fire Company
- aa. PA State Police - Avondale
- bb. Longwood Fire Company
- cc. West Chester Borough Police Department
- dd. 1st West Chester Fire Company
- ee. Birmingham Township Police Department

C. CHESTER COUNTY EMERGENCY MANAGEMENT AGENCY

1. The Chester County Emergency Management Agency will contact the following personnel and agencies:
 - a. National Weather Service
 - b. West Caln Township Emergency Management Coordinator
 - c. West Brandywine Township Emergency Management Coordinator
 - d. Valley Township Emergency Management Coordinator
 - e. Coatesville City Emergency Management Coordinator
 - f. South Coatesville Borough Emergency Management Coordinator
 - g. Modena Borough Township Emergency Management Coordinator
 - h. East Fallowfield Township Emergency Management Coordinator
 - i. Newlin Township Emergency Management Coordinator
 - j. West Bradford Township Emergency Management Coordinator
 - k. Pocopson Township Emergency Management Coordinator
 - l. East Bradford Township Emergency Management Coordinator
 - m. Birmingham Township Emergency Management Coordinator
 - n. Pennsbury Township Emergency Management Coordinator
 - o. New Castle County, Delaware, Emergency Management Coordinator
 - p. Media - Warning and/or Evacuation (Activate EAS). Refer to ***Attachment E***
 - q. Chester County Department of Emergency Services Staff, as necessary
 - r. American Red Cross – Southeastern Pennsylvania Chapter (when mass care or family assistance is required). Coordinate sheltering per ESF 6 of County EOP.
 - s. Chester County elected officials
 - t. Coatesville Area School District
 - u. Cottage #5 (Evacuation Site – 1)
 - v. Cottage #3 (Evacuation Site – 2)
 - w. Cottage #1 (Evacuation Site – 3)
 - x. Coatesville Alternate Education (Turning Point Program) (Evacuation Site – 4)
 - y. ArcelorMittal Coatesville (Evacuation Site - 5)
 - z. Harrison House of Coatesville (Evacuation Site – 6)
 - aa. West Chester School District
 - bb. Unionville - Chadds Ford School District

- cc. Chadds Ford Elementary School, Unionville – Chadds Ford School District (Evacuation Site – 7)
 - dd. Brandywine River Museum/ Brandywine Conservancy (Evacuation Site – 8)
 - ee. Pennsylvania Emergency Management Agency
 - ff. PennDOT – Chester County Maintenance Office – District 6-2
 - gg. Amtrak
 - hh. SEPTA
 - ii. Krapf Bus Company
 - jj. All critical infrastructures outlined in Section II if not already notified
2. The Chester County Emergency Management Agency will ascertain and report to PEMA any unmet needs requirements.
 3. The Chester County Emergency Management Agency will initiate Damage Assessment and Recovery procedures as the situation requires.
 4. A telephone roster of municipal emergency management coordinators and other agencies are listed in *Attachment D*.

D. DELAWARE COUNTY DEPARTMENT OF EMERGENCY SERVICES

1. The Delaware County Department of Emergency Services will contact the following personnel and agencies:
 - a. Chadds Ford Township Emergency Management Coordinator
 - b. PA State Police – Media
 - c. Concordville Fire Company
 - d. Concordville Fire Company Ambulance
 - e. PennDOT – Delaware County Maintenance Office – District 6-3
 - f. Delaware County elected officials
2. The Delaware County Department of Emergency Services will ascertain and report to PEMA any unmet needs requirements.
3. The Delaware County Department of Emergency Services will initiate Damage Assessment and Recovery procedures as the situation requires.

E. NEW CASTLE COUNTY, DELAWARE, OFFICE OF EMERGENCY MANAGEMENT/NEW CASTLE COUNTY EMERGENCY OPERATIONS CENTER

1. The New Castle County, Delaware, Office of Emergency Management/New Castle County Emergency Operations Center will contact the following personnel and agencies:
 - a. New Castle County (Delaware) Police Department
 - b. Delaware State Police

- c. Talleyville (Delaware) Fire Department
 - d. Talleyville (Delaware) Fire Company (Ambulance)
 - e. Delaware Department of Transportation
 - f. New Castle County elected officials
2. The New Castle County, Delaware, Office of Emergency Management/New Castle County Emergency Operations Center will coordinate the evacuation (where appropriate).

F. LOCAL MUNICIPAL EMERGENCY MANAGEMENT COORDINATORS

1. WEST CALN TOWNSHIP EMERGENCY MANAGEMENT COORDINATOR
 2. WEST BRANDYWINE EMERGENCY MANAGEMENT COORDINATOR
 3. VALLEY TOWNSHIP EMERGENCY MANAGEMENT COORDINATOR
 4. COATESVILLE CITY EMERGENCY MANAGEMENT COORDINATOR
 5. SOUTH COATESVILLE BOROUGH EMERGENCY MANAGEMENT COORDINATOR
 6. MODENA BOROUGH EMERGENCY MANAGEMENT COORDINATOR
 7. EAST FALLOWFIELD TOWNSHIP EMERGENCY MANAGEMENT COORDINATOR
 8. NEWLIN TOWNSHIP EMERGENCY MANAGEMENT COORDINATOR
 9. WEST BRADFORD TOWNSHIP EMERGENCY MANAGEMENT COORDINATOR
 10. POCOPSON TOWNSHIP EMERGENCY MANAGEMENT COORDINATOR
 11. EAST BRADFORD TOWNSHIP EMERGENCY MANAGEMENT COORDINATOR
 12. BIRMINGHAM TOWNSHIP EMERGENCY MANAGEMENT COORDINATOR
 13. PENNSBURY TOWNSHIP EMERGENCY MANAGEMENT COORDINATOR
 14. CHADDS FORD TOWNSHIP EMERGENCY MANAGEMENT COORDINATOR
- a. Advise facilities with special needs individuals as outlined in the Emergency Operations Plan (EOP) and identified by the Hazard Vulnerability Analysis (areas impacted due to a dam failure and indicated on the Inundation Map - *Attachment A*).
 - b. Notify municipal elected officials and municipal services (water, sewer, etc.).
 - c. Keep the County Emergency Management Agency apprised of the situation.
 - d. Coordinate the evacuation (where appropriate).
 - e. Provide damage reporting to the County Emergency Management Agency Coordinator.

G. FIRE DEPARTMENTS

1. WAGONTOWN FIRE COMPANY
2. WESTWOOD FIRE COMPANY
3. COATESVILLE CITY FIRE DEPARTMENT
4. WEST END FIRE COMPANY OF COATESVILLE
5. WASHINGTON HOSE FIRE COMPANY
6. ARCELORMITTAL EMERGENCY SERVICES
7. MODENA FIRE COMPANY

8. PO-MAR-LIN FIRE COMPANY
9. WEST BRADFORD FIRE COMPANY
10. LONGWOOD FIRE COMPANY
11. 1ST WEST CHESTER FIRE COMPANY
12. CONCORDVILLE FIRE COMPANY
13. TALLEYVILLE (DELAWARE) FIRE DEPARTMENT

- a. Provide citizen notification and route alerting to advise residents living within their jurisdiction (See Inundation Map - **Attachment A** and **Attachment H**).
- b. Assist in evacuation.
- c. Assist police and EMS, as requested.
- d. Provide communications support if feasible and requested.

H. POLICE SERVICES

1. HIBERNIA COUNTY PARK RANGERS
2. WEST CALN TOWNSHIP POLICE DEPARTMENT
3. WEST BRANDYWINE TOWNSHIP POLICE DEPARTMENT
4. VALLEY TOWNSHIP POLICE DEPARTMENT
5. COATESVILLE CITY POLICE DEPARTMENT
6. SOUTH COATESVILLE POLICE DEPARTMENT
7. EAST FALLOWFIELD TOWNSHIP POLICE DEPARTMENT
8. PA STATE POLICE – EMBREEVILLE
9. PA STATE POLICE – AVONDALE
10. WEST CHESTER BOROUGH POLICE DEPARTMENT
11. BIRMINGHAM TOWNSHIP POLICE DEPARTMENT
12. PA STATE POLICE – MEDIA
13. NEW CASTLE COUNTY (DELAWARE) POLICE DEPARTMENT
14. DELAWARE STATE POLICE

- a. Dispatch radio vehicle to dam site in order to provide alternate communications link to PSAP/911 – Hibernia County Park Rangers.
- b. Hibernia County Park Rangers will close and secure the entrance gate for Hibernia County Park on Lions Head Road at Wagontown Road.
- b. Assist evacuation traffic flow and establish traffic control points (TCP) at pre-designated locations (See Inundation Map – **Attachment A** and Traffic Control Points – **Attachment B**).
- c. Prevent unauthorized entry and provide security of evacuated areas.
- d. Provide assistance with route alerting, if requested.

I. EMERGENCY MEDICAL SERVICES (EMS)

1. WESTWOOD FIRE COMPANY AMBULANCE
2. BRANDYWINE HOSPITAL MEDIC UNIT
3. WASHINGTON HOSE COMPANY AMBULANCE
4. ARCELORMITTAL EMERGENCY SERVICES
5. MODENA FIRE COMPANY AMBULANCE
6. CHESTER COUNTY HOSPITAL MEDIC UNIT

7. GOOD FELLOWSHIP AMBULANCE
8. LONGWOOD FIRE COMPANY AMBULANCE
9. CONCORDVILLE FIRE COMPANY AMBULANCE
10. TALLEYVILLE FIRE COMPANY (AMBULANCE)

- a. Provide evacuation transportation assistance and coordinate with designated fire services agencies for transportation of persons with disabilities and any special needs.
- b. Assist fire and police departments as requested.
- c. Provide EMS support to any mass care center as requested.

J. AMERICAN RED CROSS

1. SOUTHEASTERN PENNSYLVANIA CHAPTER (If requested by Chester County Department of Emergency Services)
 - a. Identify and activate an appropriate shelter, as necessary.
 - b. Support and maintain operations of the reception center.
 - c. Maintain communications with County Department of Emergency Services Coordinators, local EMA and reception center.

K. PENNSYLVANIA DEPARTMENT OF TRANSPORTATION (PennDOT)

1. PennDOT, CHESTER COUNTY MAINTENANCE OFFICE – District 6-2
2. PennDOT, DELAWARE COUNTY MAINTENANCE OFFICE – District 6-3
 - a. Provide services, signs, barricades and guidance on roads and bridges affecting the evacuation and recovery.

L. DELAWARE DEPARTMENT OF TRANSPORTATION (DELDOT)

1. Provide services, signs, barricades and guidance on roads and bridges affecting the evacuation and recovery.

V. ADMINISTRATION AND LOGISTICS

A. The NOTICE (*Attachment F*) will be posted in the following public places located within the inundation area:

1. West Caln Township Building
2. West Brandywine Township Building
3. Valley Township Building
4. Coatesville City Hall
5. South Coatesville Borough Hall
6. Modena Borough Hall
7. East Fallowfield Township Building
8. Newlin Township Building
9. West Bradford Township Building
10. Pocopson Township Building
11. East Bradford Township Building
12. Birmingham Township Building
13. Pennsbury Township Building
14. Chadds Ford Township Building
15. New Castle County, Delaware, Administration Building
16. US Post Office, Wagontown
17. Coatesville Public Library

B. The NOTICE (*Attachment F*) must state that copies of the Emergency Action Plan for this dam are available for inspection at the following locations:

1. Chester County Water Resources Authority – Dam Owner
601 Westtown Road, Suite 260
West Chester, PA 19380-0990
2. Chester County Department of Emergency Services
601 Westtown Road, Suite 012
West Chester, PA 19380-0990
3. Delaware County Emergency Services
360 North Middletown Road
Lima, PA 19063-5594
4. West Caln Township Office
721 W. Kings Highway
Wagontown, PA 19376
5. West Brandywine Township Office
198 Lafayette Road
Coatesville, PA 19320

6. Valley Township Office
890 West Lincoln Highway
Coatesville, PA 19320
7. Coatesville City Hall
One City Hall Place
Coatesville, PA 19320
8. South Coatesville Borough Office
136 Modena Road
South Coatesville, PA 19320
9. Modena Borough Office
5 Woodland Avenue
Modena, PA 19358
10. East Fallowfield Township Office
2264 Strasburg Road
East Fallowfield, PA 19320
11. Newlin Township Office
1751 Embreeville Road
Coatesville, PA 19320
12. West Bradford Township Office
1385 Campus Drive
Downingtown, PA 19335
13. Pocopson Township Office
740 Denton Hollow Road
West Chester, PA 19382
14. East Bradford Township Office
666 Copeland School Road
West Chester, PA 19380
15. Birmingham Township Office
1040 W. Street Rd. (Rt. 926)
West Chester, PA 19382-8012
16. Pennsbury Township Office
702 Baltimore Pike
Chadds Ford, PA 19317

17. Chadds Ford Township Office
10 Ring Road
Chadds Ford, PA 19317
 18. New Castle County (Delaware) Office of Emergency Management
3601 N. DuPont Highway
New Castle, DE 19720
- C. A new NOTICE will be sent to those locations in paragraph "A" when the EAP is revised.
- D. The Dam Owner is responsible to verify posting of the NOTICE and documenting the status in the annual inspection report.

VI. AUTHORITY AND REFERENCES

A. AUTHORITY

1. The Dam Safety and Encroachments Act (32 P.S. Sections 693.1-693.27), May 16, 1985.
2. The Pennsylvania Code - Title 25, Chapter 105 Dam Safety and Waterways Management, Section 105.63 and 105.134.
3. Emergency Management Services Code, 35 Pa C.S. Section 7101 et seq., as amended.

B. REFERENCES

1. Guidelines for Developing an Emergency Action Plan for Hazard Category 1, &2 Dams. Prepared by the Department of Environmental Protection, Water Management, Bureau of Waterways Engineering, Division of Dam Safety and the Pennsylvania Emergency Management Agency, January 2009.
2. Inspection, Maintenance and Operation of Dams in Pennsylvania. Prepared by the Department of Environmental Protection, Water Management, Bureau of Waterways Engineering, Division of Dam Safety, February 2009.
3. Chester County Emergency Operations Plan.
4. Delaware County Emergency Operations Plan.

VII. DEFINITIONS

- A. **ABUTMENT** - The part of the valley's hillside against which the dam abuts. Right and left abutments are those on respective sides of the dam as an observer looks downstream.
- B. **AFFECTED COUNTIES/MUNICIPALITIES** – Those jurisdictions within Pennsylvania or adjoining states that, according to the inundation map, may experience flooding as a result of a failure of the dam.

- C. **BOIL** - A disturbance in the surface layer of soil caused by water escaping under pressure from behind a water-retaining structure such as a dam or a levee. The boil may be accompanied by deposition of soil particles (usually sand or silt) in the form of a ring (miniature volcano) around the area where the water escapes.
- D. **BREACH** - An opening or a breakthrough of a dam sometimes caused by rapid erosion of a section of earth embankment by water.
- E. **CONDUIT** - A pipe used to convey water through or around or under a dam.
- F. **CONTROL TOWER** - A structure in the dam or reservoir used to control withdraw of water from the reservoir through pipes or culverts.
- G. **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 for referring to the overflow section and dam proper, respectively.
- H. **CULVERT** - (a) A drain or waterway structure built transversely under a road, railway, or embankment. A culvert usually comprises a pipe or a covered channel of box section. (b) A gallery or waterway constructed through any type of dam, which is normally dry but is used occasionally for discharging water; hence the terms scour culvert, drawoff culvert and spillway culvert.
- I. **DAM** - A barrier built across a watercourse for impounding or diverting the flow of water.
- J. **DAM FAILURE** - The uncontrolled release of a dam's impounded water. It is recognized that there are degrees of failure. Any malfunction or abnormality, outside the design assumptions and parameters, which adversely affect a dam's primary function of impounding water is properly considered a failure. Minor malfunctions or abnormalities can result in a sudden failure of a dam.
- K. **EARTH DAM (EARTHFILL DAM)** - An embankment dam in which more than 50% of the total volume is formed of compacted fine-grained earth.
- L. **EMBANKMENT** - Fill material, usually earth or rock, placed with sloping sides.
- M. **EMERGENCY** - A condition of serious nature which develops unexpectedly and endangers the structural integrity of a dam or endangers downstream property and human life. An emergency requires immediate action.
- N. **EAP** – Emergency Action Plan - A formal document that identifies potential emergency conditions at a dam and specifies preplanned actions to be followed to minimize property damage and loss of life. It contains procedures and information to assist the dam owner in issuing early warning and notification messages to responsible downstream emergency management authorities of the emergency situation. It also contains inundation maps to show the emergency management authorities of the critical areas for action in case of an emergency.

- O. **EOP** – Emergency Operations Plan - “The document ... which describes the hazards, vulnerabilities, emergency management situations and assumptions that affect the municipality, the concept of operations during an emergency, and the various roles and assignments of the elected officials, emergency management coordinator and other emergency response personnel, whether paid or volunteer.” (From PEMA Directive D2007-1). The EOP includes checklists for known critical facilities, special facilities, critical personnel, hearing impaired residents, non-English speaking residents, residents requiring ambulance assistance, etc., as identified by local emergency management officials.
- P. **FACE** - With reference to a structure, the external surface that limits the structure, e.g., the face of a wall or dam.
- Q. **FAILURE** - An incident resulting in the uncontrolled release of water from an operating dam. See “Dam Failure”.
- R. **FOUNDATION OF DAM** - The natural material on which the dam structure is placed.
- S. **GROIN** - That area along the contact (or intersection) of the face of a dam with the abutment.
- T. **HAZARD** - A situation which creates the potential for adverse consequences such as loss of life, property damage, and adverse social and environmental impacts. Impacts may be for a defined area downstream of a dam from flood-waters released through spillways and outlet works of the dam or waters released by partial or complete failure of the dam. This could include an area upstream of the dam from effects of backwater flooding or effects of landslides around the reservoir perimeter.
- U. **INUNDATION AREA** - The downstream area that would be flooded or otherwise affected by the failure of a dam or large flows. This area can be subject to a fast moving flood wave, 20 to 50 MPH is common, with a height of 1 foot to tens of feet.
- V. **INUNDATION MAP** - A map delineating the area that would probably be flooded in the event of a dam failure. This map must be prepared by a registered professional engineer.
- W. **NOTIFICATION** - To promptly inform appropriate individuals or emergency agency about an emergency condition so they can initiate appropriate actions.
- X. **NORMAL WATER LEVEL (NORMAL WATER POOL)** - For reservoir with a fixed overflow spillway crest, it is the lowest level of that crest.
- Y. **OPERATOR** - The person or position in a company or organization, who is responsible for a dam’s operation and surveillance.
- Z. **OUTLET** - A constructed opening through which water can be safely discharged for a particular purpose from a reservoir.
- AA. **OWNER** - Any person, authority or agency that manages a dam or reservoir.
- BB. **PSAP** - Public Safety Answering Point - an agency in the United States, typically county or city controlled, responsible for answering 9-1-1 calls for emergency assistance from police, fire, and ambulance services.
- CC. **SEEPAGE** - The movement of water that might occur through the dam, its foundation or its abutments. Small amounts of clear water seepage is normal. Increase in the amount of water flow or change in color is a concern for a dam’s safety.
- DD. **SLIDE** - The movement of a mass of earth down a slope. In embankments and abutments, this involves the separation of a portion of the slope from the surrounding materials.

- EE. **SPILLWAY** - A structure over or through which 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.
- FF. **SPILLWAY CHANNEL** - A channel conveying water from the spillway crest to the river downstream.
- GG. **TOE OF DAM** - The junction of the downstream face of a dam with the ground surface. Also referred to as downstream toe. For an embankment dam, the junction of the upstream face with ground surface is called the upstream toe.
- HH. **TOP OF DAM** - The elevation of the uppermost surface of a dam, usually a road or walkway, excluding any parapet wall, railings, etc.
- II. **TRAFFIC CONTROL POINT (TCP)** – Manned or unmanned posts established at critical road junctions for the purpose of controlling or limiting traffic. TCPs are used to control evacuation movement and also limit entry into the inundation area when an emergency situation requires it.
- JJ. **VOAD** - Voluntary Organizations Active in Disasters - collaboration of diverse organizations and citizens trained to meet community needs in the wake of a large-scale disaster.

VIII. EXERCISE AND TRAINING

The CCWRA will advise and cooperate with the Chester and Delaware County Department of Emergency Services of any exercises scheduled, and coordinate with the Chester and Delaware County Department of Emergency Services to exercise all or portions of this EAP as part of the county's all-hazard exercise program schedule.

IX. PLAN MAINTENANCE AND DISTRIBUTION

- A. This EAP will be reviewed every five years by the owner or the owner's engineer. During the five year review:
 - 1. The owner or the owner's engineer will conduct an on-site review of the flood (inundation) area for any increase in downstream development and revise the Inundation Map, if needed.
 - 2. The owner's engineer will review and revise surveillance conditions as needed.
 - 3. The owner will coordinate with Chester and Delaware County Department of Emergency Services if population increase or development within the inundation area could affect the emergency response requirements. If so, a new or revised plan must be developed.
 - 4. The owner will meet with and obtain concurrence from the affected county EMC(s).
 - 5. The owner will submit 6 copies at a minimum of the revised plan to DEP for review and approval.
- B. A copy of the approved EAP will be distributed by the Dam Owner to those emergency response agencies listed in Section IV. DEP, Division of Dam Safety will distribute a copy of the approved EAP to PEMA's Area Office, the affected county Emergency

Management Agency(s) and PSAP/911 Center(s), the National Weather Service, and the DEP's Regional Office. Within 60 days, the Dam Owner will submit a letter certifying distribution of the approved EAP and posting of NOTICE(s) to the DEP, Division of Dam Safety.

ATTACHMENTS:

| | |
|---------------------|---|
| ATTACHMENT A | INUNDATION MAP |
| ATTACHMENT B | TRAFFIC CONTROL POINTS |
| ATTACHMENT C | LOCATION MAP |
| ATTACHMENT D | TELEPHONE ROSTER |
| ATTACHMENT E | MEDIA ANNOUNCEMENT |
| ATTACHMENT F | NOTICE |
| ATTACHMENT G | CCWRA HIBERNIA DAM EMERGENCY THREAT LEVEL / ACTION SHEET |
| ATTACHMENT H | WARNING AND EARLY EVACUATION – THREE (3) NEARBY RESIDENCES |

ATTACHMENT A

INUNDATION MAP

Insert Inundation Maps 1 of 5 to 5 of 5 here

ATTACHMENT B - TRAFFIC CONTROL POINTS (TCP)

| TCP | LOCATION | MUNICIPALITY | POLICE | FIRE | EMS |
|--------|---|---------------------|-----------------------------------|---------------------------|---------------------------------|
| WBT-1 | Lafayette Road west of West Branch Brandywine Creek | West Brandywine Twp | West Brandywine Police Department | Wagontown Fire Department | Westwood Fire Company Ambulance |
| WBT-2 | Lafayette Road at Hibernia Road | West Brandywine Twp | West Brandywine Police Department | Wagontown Fire Department | Westwood Fire Company Ambulance |
| WCT-1 | Reid Road west of West Branch Brandywine Creek | West Caln Township | West Caln Police Department | Wagontown Fire Department | Westwood Fire Company Ambulance |
| WBT-3 | Reid Road at Hibernia Road | West Brandywine Twp | West Brandywine Police Department | Wagontown Fire Department | Westwood Fire Company Ambulance |
| WCT-2 | Cedar Knoll Road at Park Road | West Caln Township | Hibernia County Park Rangers | Wagontown Fire Department | Westwood Fire Company Ambulance |
| WCT-2A | Lions Head Drive at Old Dam Road | West Caln Township | Hibernia County Park Rangers | Wagontown Fire Department | Westwood Fire Company Ambulance |
| WBT-4 | Cedar Knoll Road at Hibernia Road | West Brandywine Twp | West Brandywine Police Department | Wagontown Fire Department | Westwood Fire Company Ambulance |
| WCT-3A | Wagontown Road east of Mallard Drive southeast of Chambers Lake | West Caln Township | West Caln Police Department | Wagontown Fire Department | Westwood Fire Company Ambulance |
| WCT-3 | Lions Head Drive at Wagontown Road | West Caln Township | Hibernia County Park Rangers | Wagontown Fire Department | Westwood Fire Company Ambulance |
| WCT-4 | Sugarman Road west of Camp Stewart Road | West Caln Township | West Caln Police Department | Wagontown Fire Department | Westwood Fire Company Ambulance |
| WBT-5 | Hibernia Road at Wagontown Road | West Brandywine Twp | West Brandywine Police Department | Wagontown Fire Department | Westwood Fire Company Ambulance |
| WCT-5 | Hatfield Road at Camp Stewart Road | West Caln Township | West Caln Police Department | Wagontown Fire Department | Westwood Fire Company Ambulance |
| WCT-6 | Wagontown Road at West Kings Highway (Rt. 340) | West Caln Township | West Caln Police Department | Wagontown Fire Department | Westwood Fire Company Ambulance |
| WBT-6 | Pratts Dam Road at Landover Road | West Brandywine Twp | West Brandywine Police Department | Wagontown Fire Department | Westwood Fire Company Ambulance |
| WCT-7 | West Kings Highway (Rt. 340) at Evergreen Drive | West Caln Township | West Caln Police Department | Wagontown Fire Department | Westwood Fire Company Ambulance |
| VT-1 | East Kings Highway (Rt. 340) east of Manor Road (Rt. 82) | Valley Twp | Valley Township Police Department | Wagontown Fire Department | Westwood Fire Company Ambulance |

ATTACHMENT B - TRAFFIC CONTROL POINTS (TCP)

| TCP | LOCATION | MUNICIPALITY | POLICE | FIRE | EMS |
|-------|---|------------------|-------------------------------------|----------------------------------|-----------------------------------|
| CT-1 | Route 30 By-Pass at Reeceville Road | Caln Twp | Caln Township Police Department | Thorndale Fire Company | Washington Hose Company Ambulance |
| CT-2 | Route 30 Bypass at exit ramp to Fisherville Road | Clan Twp | Caln Township Police Department | Thorndale Fire Company | Washington Hose Company Ambulance |
| VT-4 | Wagontown Road north of Irish Lane | Valley Twp | Valley Township Police Department | Westwood Fire Company | Westwood Fire Company |
| VT-4A | Entrance ramp to Route 30 Bypass at Airport Road | Valley Twp | Valley Township Police Department | Westwood Fire Company | Westwood Fire Company |
| VT-5 | Wagontown Road at Irish Lane | Valley Twp | Valley Township Police Department | Westwood Fire Company | Westwood Fire Company |
| VT-5A | Glencrest Road and Brick Street | Valley Twp | Valley Township Police Department | Westwood Fire Company | Westwood Fire Company |
| VT-6 | Butterworth Road at Manor Road (Rt. 82) | Valley Twp | Valley Township Police Department | Wagontown Fire Department | Washington Hose Company Ambulance |
| ST-1 | Route 30 By-Pass at intersection with Lincoln Highway (Business Rt. 30) | Sadsbury Twp | Sadsbury Township Police Department | Sadsburyville Fire Company | Keystone Valley Ambulance |
| CC-1 | Manor Road at Wagontown Road | Coatesville City | Coatesville City Police Department | Coatesville City Fire Department | Washington Hose Company Ambulance |
| CC-1A | West Lincoln Highway (Business Rt. 30) at South Church Street | Coatesville City | Coatesville City Police Department | Coatesville City Fire Department | Washington Hose Company Ambulance |
| CC-2 | North First Avenue (Rt. 82) at E. Chestnut Street | Coatesville City | Coatesville City Police Department | Coatesville City Fire Department | Washington Hose Company Ambulance |
| CC-3 | East Lincoln Highway (Business Rt. 30) at North Second Avenue | Coatesville City | Coatesville City Police Department | Coatesville City Fire Department | Washington Hose Company Ambulance |
| CC-4 | Harmony Street at South 3rd Avenue | Coatesville City | Coatesville City Police Department | Coatesville City Fire Department | Washington Hose Company Ambulance |
| CC-5 | Harmony Street at South 4 th Avenue | Coatesville City | Coatesville City Police Department | Coatesville City Fire Department | Washington Hose Company Ambulance |
| CC-6 | Harmony Street at South 5 th Avenue | Coatesville City | Coatesville City Police Department | Coatesville City Fire Department | Washington Hose Company Ambulance |
| CC-7 | Harmony Street at South 6th Avenue | Coatesville City | Coatesville City Police Department | Coatesville City Fire Department | Washington Hose Company Ambulance |
| CC-8 | Olive Street at South 6th Avenue | Coatesville City | Coatesville City Police Department | Coatesville City Fire Department | Washington Hose Company Ambulance |

ATTACHMENT B - TRAFFIC CONTROL POINTS (TCP)

| TCP | LOCATION | MUNICIPALITY | POLICE | FIRE | EMS |
|-------|--|---------------------------|---|----------------------------------|-----------------------------------|
| CC-9 | Walnut Street at Modena Alley | Coatesville City | Coatesville City Police Department | Coatesville City Fire Department | Washington Hose Company Ambulance |
| CC-10 | Walnut Street at South 5th Avenue | Coatesville City | Coatesville City Police Department | Coatesville City Fire Department | Washington Hose Company Ambulance |
| CC-11 | Walnut Street at South 4th Avenue | Coatesville City | Coatesville City Police Department | Coatesville City Fire Department | Washington Hose Company Ambulance |
| CC-12 | South First Avenue at Oak Street | Coatesville City | Coatesville City Police Department | Coatesville City Fire Department | Washington Hose Company Ambulance |
| CC-13 | Valley Road at Strode Avenue | Coatesville City | Coatesville City Police Department | Coatesville City Fire Department | Washington Hose Company Ambulance |
| VT-7 | Finishing Drive west of Strode Avenue | Valley Twp | Valley Township Police Department | Westwood Fire Company | Westwood Fire Company Ambulance |
| EFT-1 | Doe Run Road (Rt. 82) at Newlinville Road | East Fallowfield Twp | East Fallowfield Police Department | Modena Fire Company | Modena Fire Company Ambulance |
| SCB-1 | South First Avenue at Private Drive | South Coatesville Borough | South Coatesville Borough Police Department | Modena Fire Company | Modena Fire Company Ambulance |
| SCB-2 | Newlinville Road at South First Avenue | South Coatesville Borough | South Coatesville Borough Police Department | Modena Fire Company | Modena Fire Company Ambulance |
| MB-1 | Baker Street at North Brandywine Avenue | Modena Borough | South Coatesville Borough Police Department | Modena Fire Company | Modena Fire Company Ambulance |
| MB-2 | Woodland Avenue at Mary Street | Modena Borough | South Coatesville Borough Police Department | Modena Fire Company | Modena Fire Company Ambulance |
| MB-3 | Union Street at Modena Road | Modena Borough | South Coatesville Borough Police Department | Modena Fire Company | Modena Fire Company Ambulance |
| MB-4 | Hephzibah Hill Road south of South Brandywine Avenue | Modena Borough | South Coatesville Borough Police Department | Modena Fire Company | Modena Fire Company Ambulance |
| EFT-2 | Misty Patch Road west of S. Caln Road | East Fallowfield Twp | East Fallowfield Police Department | Modena Fire Company | Modena Fire Company Ambulance |

ATTACHMENT B - TRAFFIC CONTROL POINTS (TCP)

| TCP | LOCATION | MUNICIPALITY | POLICE | FIRE | EMS |
|--------|--|----------------------|---|----------------------------|---------------------------------|
| EFT-2A | South Caln Road east of Misty Patch Road | East Fallowfield Twp | East Fallowfield Police Department | Modena Fire Company | Modena Fire Company Ambulance |
| EFT-3 | Mortonville Road at Sawmill Road | East Fallowfield Twp | East Fallowfield Police Department | Modena Fire Company | Modena Fire Company Ambulance |
| EFT-4 | Strasburg Road at Brandywine Creek Road | East Fallowfield Twp | East Fallowfield Police Department | Modena Fire Company | Modena Fire Company Ambulance |
| EFT-5 | Strasburg Road at Laurel Road | East Fallowfield Twp | East Fallowfield Police Department | Modena Fire Company | Modena Fire Company Ambulance |
| NT-1 | Hilltop View Road at Brandywine Creek Road | Newlin Twp | Pennsylvania State Police (Embreeville) | Modena Fire Company | Modena Fire Company Ambulance |
| NT-2 | Wheatland Drive at Laurel Road | Newlin Twp | Pennsylvania State Police (Embreeville) | Modena Fire Company | Modena Fire Company Ambulance |
| NT-3 | Laurel Road at Ridings Way | Newlin Twp | Pennsylvania State Police (Embreeville) | Modena Fire Company | Modena Fire Company Ambulance |
| NT-4 | Green Valley Road at Brandywine Creek Road | Newlin Twp | Pennsylvania State Police (Embreeville) | Po-Mar-Lin Fire Company | Modena Fire Company Ambulance |
| NT-5 | Youngs Road at Laurel Road | Newlin Twp | Pennsylvania State Police (Embreeville) | Modena Fire Company | Modena Fire Company Ambulance |
| NT-6 | Powell Road at Brandywine Creek Road | Newlin Twp | Pennsylvania State Police (Embreeville) | Po-Mar-Lin Fire Company | Longwood Fire Company Ambulance |
| NT-7 | Cannery Road at Embreeville Road (Rt. 162) | Newlin Twp | Pennsylvania State Police (Embreeville) | Po-Mar-Lin Fire Company | Longwood Fire Company Ambulance |
| NT-8 | Embreeville Road (Rt. 162) north of Embreeville Bridge | Newlin Twp | Pennsylvania State Police (Embreeville) | West Bradford Fire Company | Good Fellowship Ambulance |
| NT-9 | Embreeville Road (Rt. 162) at Harveys Bridge Road | Newlin Twp | Pennsylvania State Police (Embreeville) | West Bradford Fire Company | Good Fellowship Ambulance |
| NT-10 | Stargazer Road at Embreeville Road (Rt. 162) | Newlin Twp | Pennsylvania State Police (Embreeville) | West Bradford Fire Company | Good Fellowship Ambulance |
| NT-11 | Ryan Blvd at Embreeville Road | Newlin Twp | Pennsylvania State Police (Embreeville) | West Bradford Fire Company | Good Fellowship Ambulance |
| WBfd-1 | Telegraph Road at Groundhog College Road | West Bradford Twp | Pennsylvania State Police (Embreeville) | West Bradford Fire Company | Good Fellowship Ambulance |
| NT-12 | Warpath Road at Brandywine Drive | Newlin Twp | Pennsylvania State Police (Embreeville) | West Bradford Fire Company | Good Fellowship Ambulance |
| NT-13 | Oak School Road at East Glenhall Road | Newlin Twp | Pennsylvania State | Po-Mar-Lin Fire | Longwood Fire |

ATTACHMENT B - TRAFFIC CONTROL POINTS (TCP)

| TCP | LOCATION | MUNICIPALITY | POLICE | FIRE | EMS |
|---------|---|-------------------|---|--|---------------------------------|
| | | | Police (Embreeville) | Company | Company Ambulance |
| WBfd-2 | Broad Run Road at Northbrook Road | West Bradford Twp | Pennsylvania State Police (Embreeville) | West Bradford Fire Company | Good Fellowship Ambulance |
| PT-1 | Northbrook Road at Bragg Hill Road | Pocopson Twp | Pennsylvania State Police (Avondale) | Po-Mar-Lin Fire Company | Longwood Fire Company Ambulance |
| WBfd-3 | Camp Linden Road at North Wawaset Road | West Bradford Twp | Pennsylvania State Police (Embreeville) | West Bradford Fire Company | Good Fellowship Ambulance |
| PT-2 | Unionville Wawaset Road (Rt. 842) at Davidson Road | Pocopson Twp | Pennsylvania State Police (Avondale) | Po-Mar-Lin Fire Company | Longwood Fire Company Ambulance |
| PT-3 | Carolannes Way at North Wawaset Road | Pocopson Twp | Pennsylvania State Police (Avondale) | West Bradford Fire Company | Good Fellowship Ambulance |
| PT-4 | Bridge Road (Rt. 842) at North Wawaset Road | Pocopson Twp | Pennsylvania State Police (Avondale) | West Bradford Fire Company | Good Fellowship Ambulance |
| PT-5 | South Wawaset Road south of Unionville Wawaset Road | Pocopson Twp | Pennsylvania State Police (Avondale) | Po-Mar-Lin Fire Company | Longwood Fire Company Ambulance |
| EBfdT-1 | Allerton Road at S. Bridge Road | East Bradford Twp | West Chester Borough Police Department | West Bradford Fire Company | Good Fellowship Ambulance |
| EBfdT-2 | Allerton Road at Lucky Hill Road | East Bradford Twp | West Chester Borough Police Department | West Bradford Fire Company | Good Fellowship Ambulance |
| EBfdT-3 | N. Creek Road at W. Miner Street | East Bradford Twp | West Chester Borough Police Department | 1 ST West Chester Fire Department | Good Fellowship Ambulance |
| EBfdT-4 | Withers Way at S. Creek Road | East Bradford Twp | West Chester Borough Police Department | 1 ST West Chester Fire Department | Good Fellowship Ambulance |
| EBfdT-5 | Saint Finegan Drive at S. Creek Road | East Bradford Twp | West Chester Borough Police Department | 1 ST West Chester Fire Department | Good Fellowship Ambulance |
| EBfdT-6 | Lenape Road (Rt. 52) at South Creek Road | East Bradford Twp | West Chester Borough Police Department | 1 ST West Chester Fire Department | Good Fellowship Ambulance |
| PT-6 | Lenape Road (Rt. 52) at Pocopson Road | Pocopson Twp | Pennsylvania State Police (Avondale) | Longwood Fire Company | Longwood Fire Company Ambulance |
| BT-1 | Country Club Road at Creek Road (Rt. 100) | Birmingham Twp | Birmingham Twp Police Department | 1 ST West Chester Fire Department | Good Fellowship Ambulance |
| PT-7 | Street Road (Rt. 926) at Pocopson Road | Pennsbury Twp | Pennsylvania State Police (Avondale) | Longwood Fire Company | Longwood Fire Company Ambulance |
| BT-2 | West Street Road (Rt. 926) at Creek Road (Rt. 100) | Birmingham Twp | Birmingham Twp Police Department | 1 ST West Chester Fire Department | Good Fellowship Ambulance |

ATTACHMENT B - TRAFFIC CONTROL POINTS (TCP)

| TCP | LOCATION | MUNICIPALITY | POLICE | FIRE | EMS |
|-------|--|-----------------------------|--------------------------------------|-----------------------------|-------------------------------------|
| BT-3 | Meetinghouse Road at Creek Road (Rt. 100) | Birmingham Twp | Birmingham Twp Police Department | Concordville Fire Company | Concordville Fire Company Ambulance |
| PyT-1 | Pocopson Road at Brintons Bridge Road | Pennsbury Twp | Pennsylvania State Police (Avondale) | Longwood Fire Company | Longwood Fire Company Ambulance |
| BT-4 | Continental Line Lane east of Creek Road (Rt. 100) | Birmingham Twp | Birmingham Twp Police Department | Concordville Fire Company | Concordville Fire Company Ambulance |
| BT-5 | Wylie Road at Creek Road (Rt. 100) | Birmingham Twp | Birmingham Twp Police Department | Concordville Fire Company | Concordville Fire Company Ambulance |
| BT-6 | Brintons Bridge Road at Creek Road (Rt. 100) | Birmingham Twp | Birmingham Twp Police Department | Concordville Fire Company | Concordville Fire Company Ambulance |
| PyT-2 | Brintons Bridge Road at Chaddwyck Lane | Pennsbury Twp | Pennsylvania State Police (Avondale) | Longwood Fire Company | Longwood Fire Company Ambulance |
| BT-7 | Master Way at Creek Road (Rt. 100) | Birmingham Twp | Birmingham Twp Police Department | Concordville Fire Company | Concordville Fire Company Ambulance |
| PyT-3 | Baltimore Pike (Rt 1) at Fairville Road | Pennsbury Twp | Pennsylvania State Police (Avondale) | Longwood Fire Company | Longwood Fire Company Ambulance |
| CFT-1 | Baltimore Pike (Rt. 1) at Creek Road (Rt. 100) | Chadds Ford Twp | Pennsylvania State Police (Media) | Concordville Fire Company | Concordville Fire Company Ambulance |
| CFT-2 | South Creek Road (Rt. 100) at Murphy Road | Chadds Ford Twp | Pennsylvania State Police (Media) | Concordville Fire Company | Concordville Fire Company Ambulance |
| CFT-3 | South Creek Road (Rt. 100) at Bullock Road | Chadds Ford Twp | Pennsylvania State Police (Media) | Concordville Fire Company | Concordville Fire Company Ambulance |
| CFT-4 | Rocky Hill Road (Rt. 100) at Creek Road (Rt. 100) | Chadds Ford Twp | Pennsylvania State Police (Media) | Concordville Fire Company | Concordville Fire Company Ambulance |
| PyT-4 | South Creek Road at Cossart Road | Pennsbury Twp | Pennsylvania State Police (Avondale) | Longwood Fire Company | Longwood Fire Company Ambulance |
| CFT-5 | Smith Bridge Road at Ridge Road | Chadds Ford Twp | Pennsylvania State Police (Media) | Concordville Fire Company | Concordville Fire Company Ambulance |
| NCC-1 | Smith Bridge Road west of Brandywine Creek | New Castle County, Delaware | New Castle County Police Department | Concordville Fire Company | Concordville Fire Company Ambulance |
| NCC-2 | Beaver Dam Road east of Creek Road | New Castle County, Delaware | New Castle County Police Department | Talleyville Fire Department | Talleyville Fire Department |
| NCC-3 | Ramsey Road at Thompson Bridge Road | New Castle County, Delaware | New Castle County Police Department | Talleyville Fire Department | Talleyville Fire Department |

ATTACHMENT B - TRAFFIC CONTROL POINTS (TCP)

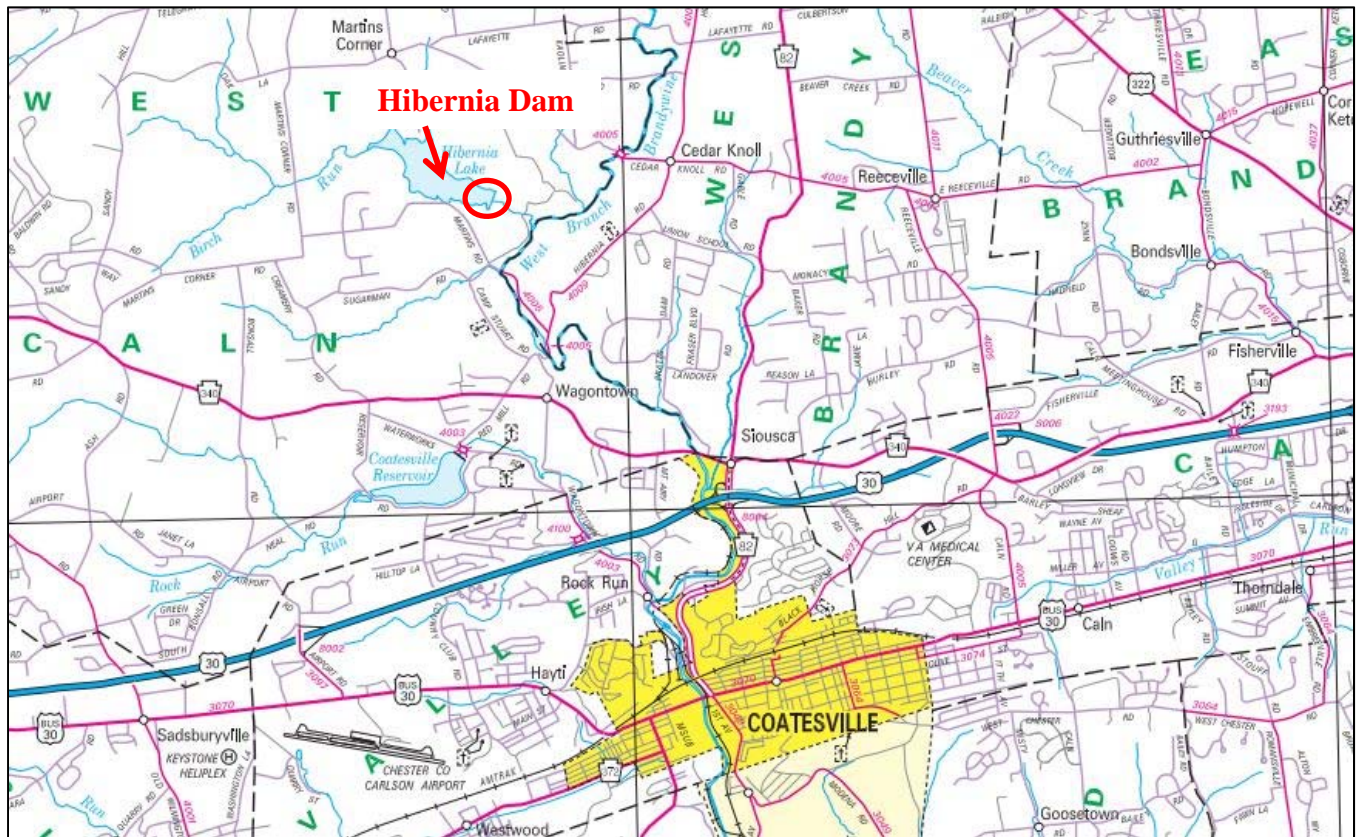
| TCP | LOCATION | MUNICIPALITY | POLICE | FIRE | EMS |
|-------|---|-----------------------------|-------------------------------------|-----------------------------|-----------------------------|
| NCC-4 | Thompson Bridge Road east of Brandywine Creek | New Castle County, Delaware | New Castle County Police Department | Talleyville Fire Department | Talleyville Fire Department |
| NCC-5 | Thompson Bridge Road west of Brandywine Creek | New Castle County, Delaware | New Castle County Police Department | Talleyville Fire Department | Talleyville Fire Department |
| NCC-6 | Adams Dam Road at Rockland Road | New Castle County, Delaware | New Castle County Police Department | Talleyville Fire Department | Talleyville Fire Department |
| NCC-7 | Creek Road at Rockland Road | New Castle County, Delaware | New Castle County Police Department | Talleyville Fire Department | Talleyville Fire Department |

This EAP was prepared in conjunction with Rock Run Dam EAP (also in the West Branch Brandywine Creek) and some control points notably VT-2 through VT-4, are only used in the Rock Run EAP.

ATTACHMENT C – LOCATION MAP

Hibernia Dam

West Caln Township, Chester County, PA



2014

GENERAL HIGHWAY MAP

CHESTER COUNTY PENNSYLVANIA

PREPARED BY THE
PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
BUREAU OF PLANNING AND RESEARCH
GEOGRAPHIC INFORMATION DIVISION
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

Scale 1:65,000
0 0.5 1 2 3 Miles
0 0.5 1 2 3 4 5 Kilometers



HIBERNIA DAM DIRECTIONS FROM BUSINESS US ROUTE 30 IN COATESVILLE:

- #1 – North on SR 82 (Manor Road) for approx. 2.25 miles to Route 340 (Kings Highway);
- #2 – West (left) on Route 340 Cedar Knoll Road for approx. 2.4 miles to Creamery Road;
- #3 – North (right) on Creamery Road for approx. 1.1 miles to Martins Corner Road
- #4 – East (right) on Martins Corner Road to Wagontown Road;
- #5 – East (right) on Wagontown Road for approx. 1.0 miles to parking lot entrance on left, then 200 feet to dam access road on right.
- #6 – East (right) onto gravel dam access road for approx. 0.25 miles to gate at dam.

ATTACHMENT D – TELEPHONE ROSTER

Dam Owner and County Emergency Services

| Agency | Phone Number | 24-Hour Phone Number |
|--|--------------|----------------------------|
| Chester County Water Resources Authority Executive Director | 610-344-5400 | 911 610-888-1041 (Cell) |
| Chester County Communications Center | 911 | 911 |
| Chester County Department of Emergency Services | 610-344-5000 | 610-344-5000 |
| Delaware County Emergency Services Dept. | 610-565-8700 | 610-565-8700 |

Municipal Emergency Management Coordinators

| Agency | Phone Number | 24-Hour Phone Number |
|--|----------------------------|----------------------|
| West Caln Twp EMC | 610-384-5643 Township # | ** |
| West Brandywine Twp EMC | 610-380-8200 Township # | ** |
| Valley Twp EMC | 610-384-5751 Township # | ** |
| Coatesville City EMC | 610-384-0300 City # | ** |
| South Coatesville Borough EMC | 610-384-1700 Borough # | ** |
| Modena Borough EMC | 610-384-6777 Borough # | ** |
| East Fallowfield Twp EMC | 610-384-7144 Township # | ** |
| Newlin Twp EMC | 610-436-1141 Township # | ** |
| West Bradford Twp EMC | 610-269-4174 Township # | ** |
| Pocopson Twp EMC | 610-793-2151 Township # | ** |
| East Bradford Twp EMC | 610-436-5108 Township # | ** |
| Birmingham Twp EMC | 610-793-2600 Township # | ** |
| Pennsbury Twp EMC | 610-388-7323 Township # | ** |
| Chadds Ford Twp EMC | 610-388-6368 Township # | ** |
| New Castle County LEPC Office of Emergency Management | (302) 395-2700 Office # | ** |

** Notification is by Chester County 9-1-1, pager, radio or hotline.

ATTACHMENT D – TELEPHONE ROSTER

Other Agencies to be Notified

| Agency | Phone Number | 24-Hour Phone Number |
|--|------------------------------|------------------------------|
| PADEP Southeast Regional Office, Norristown | 484-250-5900 (24-Hour) | 484-250-5900 (24-Hour) |
| PADEP Dam Safety, Harrisburg | 717-787-8568 | 717-787-4343 800-541-2050 |
| PA Emergency Management Agency | 717-651-2001 800-424-7362 | 717-651-2001 800-424-7362 |
| American Red Cross, Southeastern Pennsylvania Chapter | 215-299-4000 (24-Hour) | 215-299-4000 (24-Hour) |

ATTACHMENT E

MEDIA ANNOUNCEMENT

EARLY WARNING MESSAGE:

The Chester County Department of Emergency Services advises that due to conditions at Hibernia Dam in West Caln Township, the public should avoid the area downstream of the dam adjacent to Birch Run and West Branch Brandywine Creek and Brandywine Creek through West Caln Township, West Brandywine Township, Valley Township, City of Coatesville, South Coatesville Borough, Modena Borough, East Fallowfield Township, Newlin Township, West Bradford Township, East Bradford Township, Pocopson Township, Pennsbury Township, Birmingham Township and Chadds Ford Township in Pennsylvania; and New Castle County in Delaware. Stay tuned for further information.

REPEAT PERIODICALLY

WARNING AND EVACUATION MESSAGE:

The Chester County Department of Emergency Services is advising all residents living downstream of Hibernia Dam in West Caln Township to evacuate the area immediately. Evacuate the area adjacent to Birch Run, the West Branch Brandywine Creek and Brandywine Creek through West Caln Township, West Brandywine Township, Valley Township, City of Coatesville, South Coatesville Borough, Modena Borough, East Fallowfield Township, Newlin Township, West Bradford Township, East Bradford Township, Pocopson Township, Pennsbury Township, Birmingham Township and Chadds Ford Township in Pennsylvania; and New Castle County in Delaware. If you require shelter during this emergency you should report to (location of reception/mass care center to be determined by county EMC, American Red Cross or other VOAD at time of emergency) .

REPEAT PERIODICALLY

INCIDENT RESOLVED - SAFE TO RETURN:

The Chester County Department of Emergency Services is advising residents of the area downstream of Hibernia Dam in West Caln Township that the problem at the dam has been resolved and that residents may return to their homes. This may apply to residents adjacent to Birch Run, West Branch Brandywine Creek and Brandywine Creek through West Caln Township, West Brandywine Township, Valley Township, City of Coatesville, South Coatesville Borough, Modena Borough, East Fallowfield Township, Newlin Township, West Bradford Township, East Bradford Township, Pocopson Township, Pennsbury Township, Birmingham Township and Chadds Ford Township in Pennsylvania; and New Castle County in Delaware.

REPEAT PERIODICALLY

NOTE: The above messages should be modified as necessary to fit the situation.

ATTACHMENT F

POSTING NOTICE

NOTICE

HIBERNIA DAM HAS BEEN CLASSIFIED BY THE
PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION,
DIVISION OF DAM SAFETY,
AS A HIGH HAZARD DAM. THIS IS A DAM SO LOCATED AS TO
ENDANGER POPULATED AREAS DOWNSTREAM BY ITS FAILURE.

An Emergency Action Plan has been developed for **Hibernia Dam**. A copy of this plan, including an inundation map noting areas in West Caln Township, West Brandywine Township, Valley Township, the City of Coatesville, South Coatesville Borough, Modena Borough, East Fallowfield Township, Newlin Township, West Bradford Township, Pocopson Township, East Bradford Township, Birmingham Township, Pennsbury Township, and Chadds Ford Township in Pennsylvania, and New Castle County in Delaware, subject to flooding in the event of failure, is available for public inspection at the following locations:

| | |
|--|--|
| Chester County Water Resources Authority | 601 Westtown Rd, Suite 260, West Chester, PA 19382 |
| Chester County Dept. of Emergency Services | 601 Westtown Rd, Suite 012, West Chester, PA 19382 |
| Delaware County Dept. of Emergency Services | 360 N. Middletown Road, Lima, PA 19063 |
| West Caln Township Office | 721 W. Kings Highway, Wagontown, PA 19376 |
| West Brandywine Township Office | 198 Lafayette Road, Coatesville, PA 19320 |
| Valley Township Office | 890 West Lincoln Highway, Coatesville, PA 19320 |
| Coatesville City Hall | 1 City Hall Place, Coatesville, PA 19320 |
| South Coatesville Borough Office | 136 Modena Road, South Coatesville, PA 19320 |
| Modena Borough Office | 5 Woodland Avenue, Modena, PA 19358 |
| East Fallowfield Township Office | 2264 Strasburg Road, East Fallowfield, PA 19320 |
| Newlin Township Office | 1751 Embreeville Road, Coatesville, PA 19320 |
| West Bradford Township Office | 1385 Campus Drive, Downingtown, PA 19335 |
| Pocopson Township Office | 740 Denton Hollow Road, West Chester, PA 19382 |
| East Bradford Township Office | 666 Copeland School Road, West Chester, PA 19380 |
| Birmingham Township Office | 1040 W. Street Rd (Rt. 926), West Chester, PA 19382-8012 |
| Pennsbury Township Office | 702 Baltimore Pike, Chadds Ford, PA 19317 |
| Chadds Ford Township Office | 10 Ring Road, Chadds Ford, PA 19317 |
| New Castle County Office of Emergency Preparedness | 3601 N. Dupont Highway, New Castle, DE 19720 |



Chester County Water Resources Authority

CHESTER COUNTY ~ PENNSYLVANIA

610-344-5400

www.chesco.org/water

This NOTICE is posted per Pennsylvania Department of Environmental Protection's
Chapter 105 (PA Code of Regulation) Dam Safety and Water Management §105.134(c).

ATTACHMENT G

CCWRA HIBERNIA DAM EMERGENCY THREAT LEVEL/ ACTION SHEET

ATTACHMENT G - CCWRA HIBERNIA DAM EMERGENCY THREAT LEVEL/ACTION SHEET

| Physical Feature | Flood Water Elevation | Dam Emergency Threat Level | Action by CCWRA | Flood Storage (Mgals) | Approximate Percent of Flood Storage (relative to Emergency Spillway) |
|--|-----------------------|----------------------------|--|-----------------------|---|
| Top of Dam | 596.5' | | | 684 | 266% |
| 2.5 feet below Top of Dam | 594.0' | Level 1 | CALL 911 AND PADEP AND NOTIFY TO BEGIN EVACUATION PER Section III.D of the EAP and that overtopping of the dam is likely and/or failure of the dam is possible or imminent. | 554 | 216% |
| Top of Rail on Riser | 588.0' | | | 277 | 108% |
| Crest of Emergency Spillway | 587.5' | | CALL 911 AND ADVISE THAT WATER HAS BEGUN TO FLOW THROUGH THE EMERGENCY SPILLWAY | 257 | 100% |
| 1 foot below Crest of Emergency Spillway | 586.5' | Level 2 | CALL 911 & PADEP AND NOTIFY EARLY WARNING NOTIFICATION PER SECTION III.C. AND EARLY EVACUATION OF THREE (3) NEARBY RESIDENCES PER SECTION III.D of the EAP; alert that water may crest the emergency spillway - downstream flooding may occur. | 217 | 84% |
| Maximum observed flood level (5/1/14) | 585.55' | | | 180 | 70% |
| Top of Riser platform | 584.5' | | | 141 | 55% |
| | 584.0' | Level 3 | BEGIN continuous 24-hour monitoring of dam PER SECTION III.B. of the EAP. | 125 | 49% |
| | 583.5' | | END 24-hour monitoring of the dam (post-event). (CALL 911 IF EAP WAS ACTIVATED - notify incident resolved.) | 108 | 42% |
| | 582.0' | Level 4 | BEGIN periodic monitoring of dam. | 59 | 23% |
| | 581.0' | | END periodic monitoring of the dam (post-event). | 29 | 11% |
| Normal Pool | 580.0' | | | 0 | 0% |
| Invert of Reservoir Drain/Inlet | 533.1' | | | | |
| | | Level 5 | Precipitation/runoff accumulation and/or predictions warrant PREPARATION for initiating periodic inspections. | | |

Dam Emergency Threat Level has been developed by CCWRA to assist field staff in the implementation of the Hibernia Dam EAP. Actions consistent with **Level 1**, the most critical threat level, would include full implementation of the EAP, i.e. initiation of evacuation, setting up Traffic Control Points (TCPs), etc. **Level 1** would occur when water is at or very near the top the dam and could potentially to flow over the top of the dam within approximately 1 hour, or if any other condition in Section III.D.1.c. (page 3) were to occur. Actions consistent with **Level 2**, would include implementation of Early Warning Notification of EAP to inform emergency responders of expected flooding. **Level 2** would occur when water is very near the crest of emergency grass lined spillway, or occurrence of an earthquake in the general region of the dam.

ATTACHMENT H - WARNING AND EARLY EVACUATION - THREE (3) NEARBY RESIDENCES

Three (3) Nearby Residences at Hibernia Dam – Notification is to occur in the order listed:

1. 5 Lions Head Road, Coatesville, PA 19320 – Cottage 5 (Evacuation Site - 1)
2. 3 Lions Head Road, Coatesville, PA 19320 – Cottage 3 (Evacuation Site - 2)
3. 1 Lions Head Road, Coatesville, PA 19320 – Cottage 1 (Evacuation Site - 3)

Locations of these three Evacuation Sites (ES) are shown on Sheet 1 of the Inundation Map - *Attachment A*.