



EMERGENCY MANAGEMENT AGENCY

"2010 Flood-Fight Presentation"

COUNTY OF ALLEGHENY

DEPARTMENT OF EMERGENCY SERVICES

2010 Flood-Fight Preparedness





Presenters:

Allegheny County Emergency Services

National Weather Service - Pittsburgh

U. S. Army Corps of Engineers - Pittsburgh District



Today's Presentation:

**We will present ACES, USACE and NWS resources
that can be used to fight floods**

- **Before a flood – Preparedness**
- **During a flood – Response**



Data needed for floods:

- **Weather information – rainfall, snow cover & temperature**
- **River levels (stage, gage height)**
- **River streamflow (discharge)**



Data needed for floods:

<http://www.weather.gov/water/textprods/index.php?wfo=pbz>

The screenshot shows the NOAA's National Weather Service Advanced Hydrologic Prediction Service website. The page title is "Advanced Hydrologic Prediction Service" and it is issued by NWS Pittsburgh, PA. The main content area lists various hydrologic products with their last issued dates:

- Flash Flood Warning**: None issued by this office recently.
- Flash Flood Statement**: None issued by this office recently.
- Flood Warning**: None issued by this office recently.
- Flood Statement**: None issued by this office recently.
- Flood Watch**: None issued by this office recently.
- Hydrologic Outlook**: Last Issued: 1113 AM EST FRI FEB 19 2010
- River and Lake Summary**: Last Issued: 1031 AM EST WED MAR 3 2010
- Hydrologic Summary**: Last Issued: 1026 AM EST WED MAR 3 2010
- Hydrologic Statement**: Last Issued: 1106 AM EST WED MAR 3 2010
- Drought Information Statement**: None issued by this office recently.

At the bottom of the page, there is a "Return to Area Map" button and a footer stating: "The National Weather Service prepares its forecasts and other services in collaboration with agencies like the US Geological Survey, US Bureau of Reclamation, US Army Corps of Engineers, Natural Resource Conservation Service, etc."



Data needed for floods:

<http://newweb.erh.noaa.gov/ahps2/index.php?wfo=pbz>

The screenshot displays the NOAA Advanced Hydrologic Prediction Service (AHPS2) interface for the Weather Forecast Office Pittsburgh, PA. The main map shows the Allegheny River basin with numerous gauging stations marked by green circles and squares. A legend on the right side of the map provides a color-coded key for flood stages: Major Flooding (purple), Moderate Flooding (red), Minor Flooding (orange), Near Flood Stage (yellow), and No Flooding (green). The legend also includes symbols for Hydrograph Availability (square) and Probability and Hydrograph Availability (circle). The map is titled "03/03/2010 04:15 PM EST".

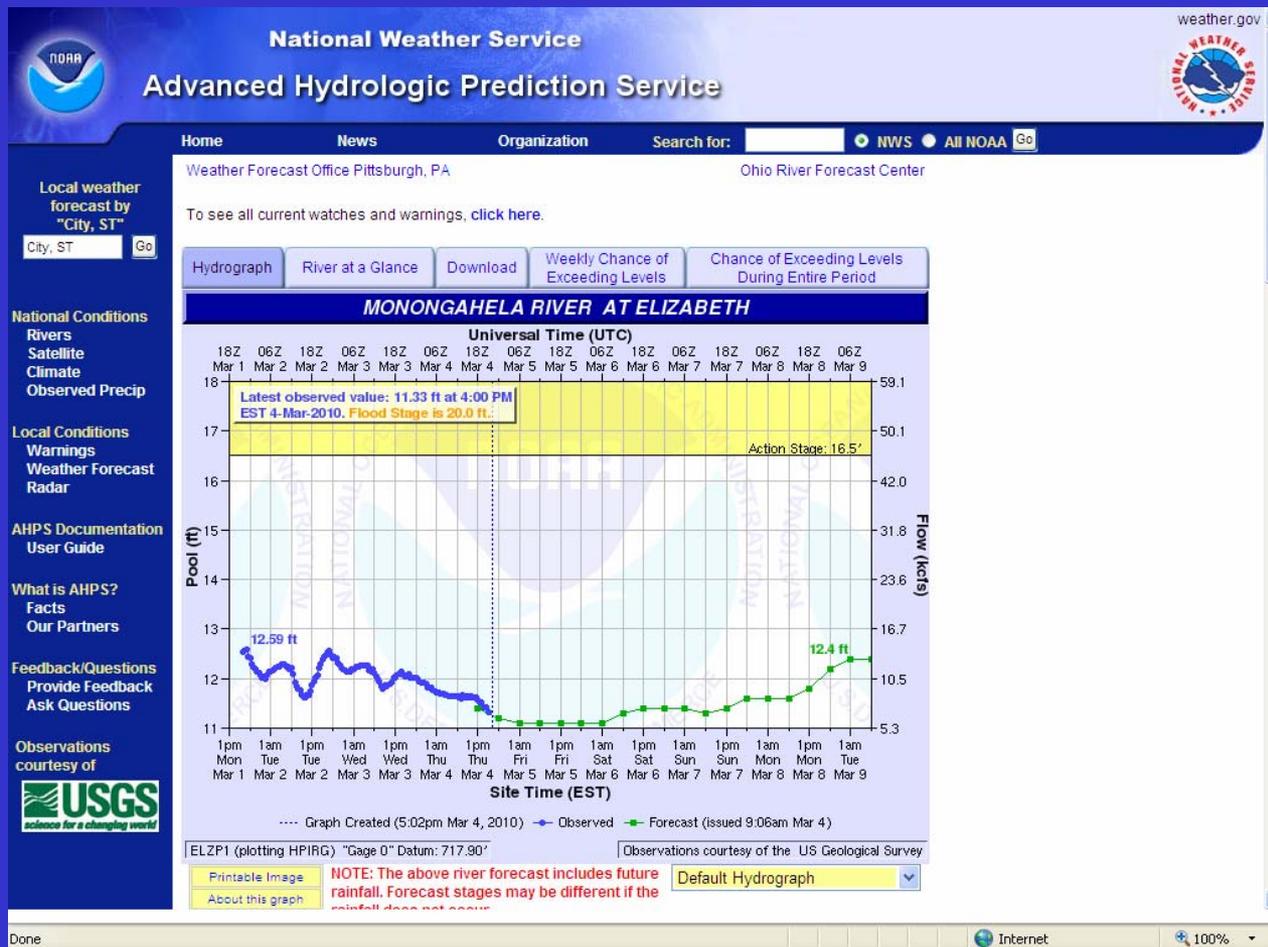
Navigation and utility tools are visible on the left and right sides of the interface. The left sidebar includes links for "Adjacent Areas:", "National Conditions" (Rivers, Satellite, Climate, Observed Precip), "Local Conditions" (Warnings, Weather Forecast Radar), "AHPS Documentation" (User Guide), "What is AHPS?" (Facts, Our Partners), and "Feedback/Questions" (Provide Feedback, Ask Questions). The right sidebar contains a "Print / Save Map" button and a "Map Legend" section.

At the bottom of the browser window, the address bar shows "Internet" and the zoom level is set to "100%".



Data needed for floods:

<http://newweb.erh.noaa.gov/ahps2/index.php?wfo=pbz>





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Flood Categories (in feet)

Major Flood Stage:	26
Moderate Flood Stage:	23
Flood Stage:	20
Action Stage:	16.5

Historical Crests

- (1) 32.50 ft on 03/18/1936
- (2) 31.60 ft on 11/06/1985
- (3) 30.30 ft on 01/20/1996
- (4) 29.00 ft on 06/24/1972
- (5) 28.50 ft on 10/16/1954
- (6) 28.30 ft on 03/07/1967
- (7) 27.60 ft on 02/19/2000
- (8) 26.77 ft on 04/16/2007
- (9) 26.50 ft on 03/06/1963
- (10) 25.60 ft on 05/25/1968

Low Water Records

- (1) 0.0 ft on 01/01/1980

Monongahela River at Elizabeth L/D 3, PA

Flood Impacts

- 32.0 ELIZABETH IMMEDIATELY DOWNSTREAM OF LOCK 3 FLOODS.
- 30.5 WATER STREET...FIRST STREET AND SECOND STREET IN WEST ELIZABETH FLOOD. FLOOD WATERS ARE 4 TO 5 FEET DEEP IN HOMES ALONG WATER STREET.
- 27.0 SERIOUS DAMAGE TO HOMES AND INDUSTRIES IN WEST ELIZABETH. MANY ROADS FLOOD.
- 25.6 WATER REACHES THE FIRST FLOOR OF NUMEROUS HOMES FROM THE INTERSECTION OF FIRST AND BORDER STREETS NORTH TO THE INTERSECTION OF MILL AND FIRST STREETS IN WEST ELIZABETH.
- 23.0 INDUSTRIAL CHEMICAL CORPORATION PLANT FLOODS.
- 22.0 IN WEST ELIZABETH BASEMENTS OF NUMEROUS HOMES IN THE BLOCK BOUNDED BY FIRST AND WATER STREETS BEGIN TO FLOOD.
- 20.0 SMALL COMMUNITIES AROUND LOCK 3 AREA BEGIN MINOR FLOODING.
- 18.1 Lock walls overtopped.
- 17.5 Navigation suspended, lock out of service.



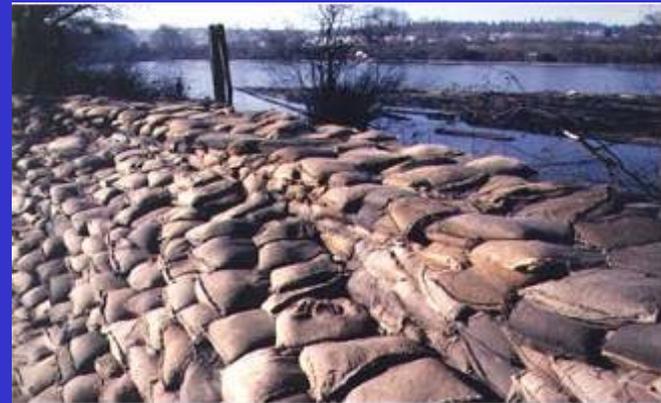
Ways to Flood Fight:

- Sandbags
- Baskets
- Geotechnical Grids
- Impervious Fabrics
- Water Filled Bladders
- Water Weighted Floaters
- Jersey Barriers
- Earth Moving Equipment
- Pumps



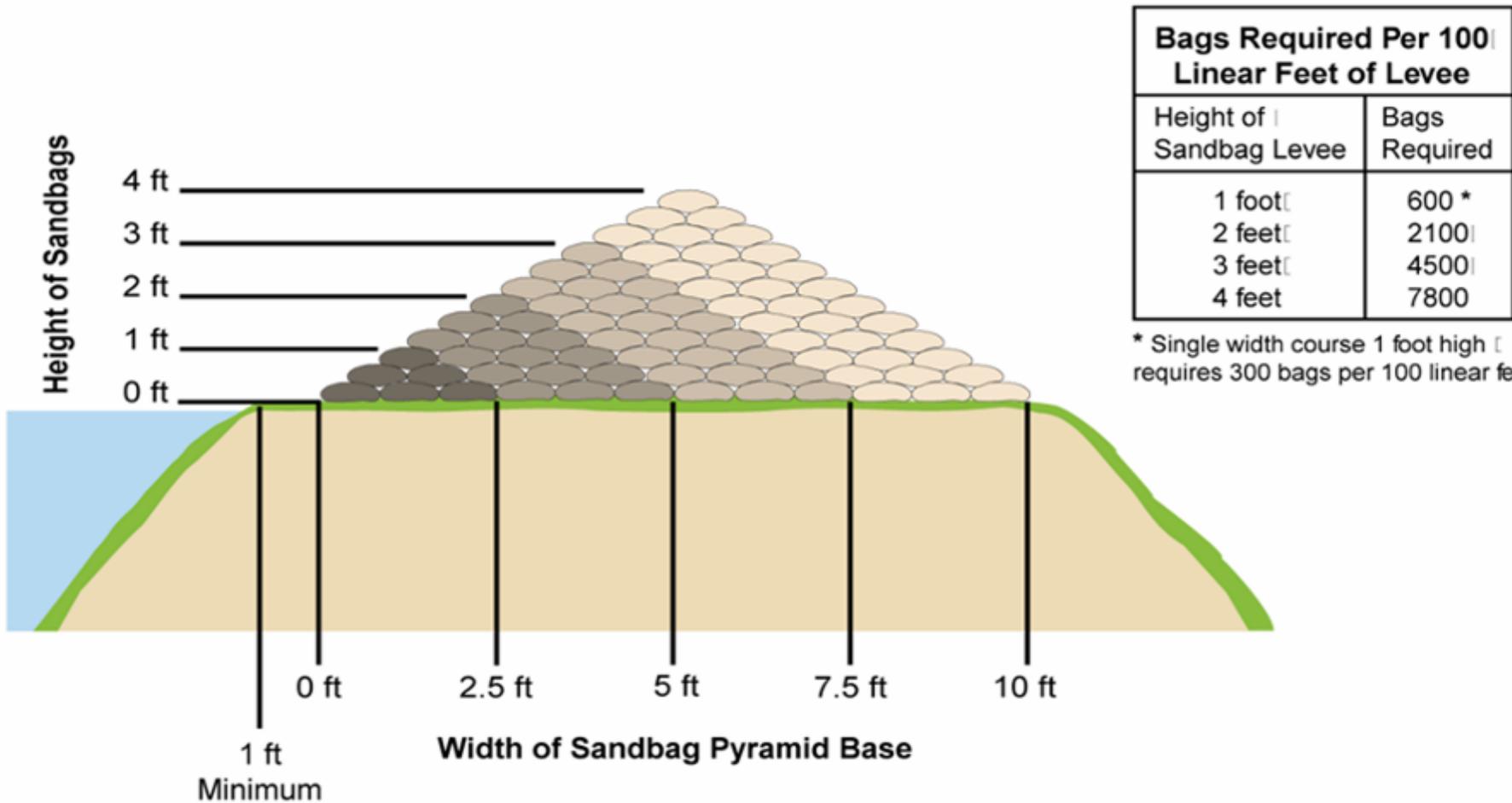
Sandbagging:

- Sandbagging is the flood fight method all other systems measure themselves against.
- Sandbags are made of burlap, polypropylene, cotton and other fabrics
- Standard size is 14"X24"
- They are filled one-half to two-thirds full untied with flap folded under
- Tied bags are used to hold plastic sheeting or other items in place
- Results / Issues:
 - Labor intensive to construct, thus slow unless a large number of well organized people are used
 - Removal can be quick if done by equipment, but synthetic bags must be separated from sand before both can be disposed
 - Low seepage
 - 10 ft. wide foot print (4' high structure)
 - Very stable, even on soft soils
 - Not reusable unless hand emptied, cleaned, dried and bundled





Typical Pyramid Sandbag Placement:





Basic Sandbag Filling Station:





Basic Multi-Station Sandbag Filling Station:



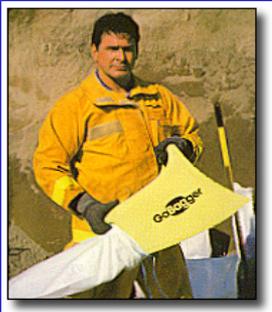


Basic Multi-Station Sandbag Filling Station:





Commercial Sand Bag Fill Tools:





HESCO Bastion Concertainer®:





HESCO Bastion Concertainer®:

- Concertainer units have a Galvanneal coated steel mesh framework
- Lined with non-woven polypropylene material
- Integrated cells to provide internal structural integrity.
- The vertical joints are made from helical coils, to form 360 degree hinges.
- Units fold flat when empty, to carry on a standard pallet or skid.
- Units can be quickly installed, since they are fully assembled during manufacturing.
- They can be filled with locally available material, using standard backhoe loaders or similar equipment.
- Results / Issues:
 - Easy & quick to construct and remove
 - High seepage
 - 4 ft wide foot print (4' high structure)
 - Stable, except on soft soils
 - 95% reusable





Jersey Barriers

- Rapidly deployed and removed
- Sandbags and plastic required to form an impervious barrier at joints and bottom
- 3-4' wide foot print with seepage barrier (2.5' high barrier)
- Requires firm and even foundation for maximum stability
- 100% reusable





Honda Trash Pumps

- **WT30X – 3 inch pump**
- **319 GPM**
- **Self Priming – 90 seconds at 14.8 feet**
- **Uses 10W-30 motor oil**
- **1.4 gallon fuel tank**
- **Will run approximately 1.6 hours, depending on load**
- **Hose Kit includes:**
 - 1 – 20' green suction hose
 - 1 – 50' blue discharge hose
 - 1 – 3/8" hole round steel strainer





Honda Trash Pumps

- WT40X – 4 inch pump
- 433 GPM
- Self Priming – 150 seconds at 14.8 feet
- Uses 10W-30 motor oil
- 1.6 gallon fuel tank
- Will run approximately 1.6 hours, depending on load
- Hose Kit includes:
 - 1 – 20' green suction hose
 - 1 – 50' blue discharge hose
 - 1 – 3/8" hole round steel strainer





Godwin CD150M Dri-Prime® Pump

- Close coupled centrifugal pump with vacuum priming compressor mounted to a diesel engine.
- Total of 6 (3 per side) 11' Hard Suction Lines (6" Hose with 8" Fittings)
- Will handle raw sewage, slurries and liquids with solids up to 3" in diameter.
- Maximum flow of 1700 GPM





Potable Water Buffalo Trailers

- PWBTs 1, 2, 3 & 4
- 325 gallon capacity plastic (poly) tank - non-baffled
- Top Fill
- 4 – Garden hose type valves/discharges
- Trailer mounted
- 3500 GVWR w/electric trailer brakes
- 7-blade RV type plug





Non-Potable Water Buffalos

- **6 – 1300 gallon poly tank**
- **1 – 1500 gallon poly tank**
- **Top fill**
- **Each buffalo is supplied with a discharge manifold**
- **Needs cribbing or pallets to raise off ground. Need approximately 2 feet of lift.**





Portable Light Trailers

- Light Trailer 1 & 2
- Mfg: Amida
- 8kw diesel generator
- 4 – 1500 watt lights (metal halide or mercury vapor)
- single phase
- 15 gallon fuel tank
- Trailer mounted
- 4-flat trailer plug (no brakes)
- 2" ball receiver
- Hand crank winch (to raise/lower tower and lights)
- 3 – leveling jacks (2 front / 1 rear)





Portable Light Trailers

- Light Trailer 3
- Mfg: Allmand
- 8kw diesel generator
- single phase
- 4 – 1250 watt metal halide lights
- 30 gallon fuel tank
- Trailer mounted
- 4-flat trailer plug (no brakes)
- 2" ball receiver
- Hand crank winch (to raise/lower tower and lights)
- 3 – leveling jacks





Portable Light Trailers

- Light Trailer 4
- Mfg: Allmand
- 20kw diesel generator
- single phase and 3 phase available
- 4 – 1250 watt metal halide lights
- 50 gallon fuel tank
- 2 – trailer mounted electric cord reels (100' of cord) w/power boxes
- Trailer mounted
- 4 – flat trailer plug (no brakes)
- 2" ball receiver
- Electric Winch (to raise/lower tower and lights)
- 3 – leveling jacks





Mobile Command Posts





Sandbagging Tools - Web Sites

- <http://www.freedomssafetyproducts.com/>
- http://bagladyinc.net/Flood_Fighter.html
- <http://www.gobagger.com/>

- <http://www.bucketbagger.com/>
- http://bagladyinc.net/Sanding_Truck_Attachment.html

- http://bagladyinc.net/Megga_Bagger.html
- <http://www.thesandbagger.com/>



Flood Fight Technology - Web Sites

- <http://hesco-bastion.com/>
- <http://www.geocellsystems.com/index.htm>

- <http://www.portadam.com/index.html>
- <http://www.aquafence.com/index.html>
- <http://www.aquadam.com/index.htm>
- <http://www.floodwalls.com/FloodWalls/index.htm>
- <http://www.hydroresponse.com/wipp.htm>

- http://www.hydroresponse.com/flood_barrier.htm
- <http://www.hydroresponse.com/watergate.htm>
- <http://www.hydroresponse.com/floodgate.htm>



Before, During, & After a Flood - Web Sites

- **Flood Outlook:**
<http://www.hpc.ncep.noaa.gov/nationalfloodoutlook/>
- **Rainfall:**
<http://www.hpc.ncep.noaa.gov/qpf/qpf2.shtml>
<http://www.crh.noaa.gov/ind/precip.php>
- **Snow Cover:**
<http://www.nohrsc.noaa.gov/>
- **WaterWatch:**
<http://water.usgs.gov/waterwatch/>
- **AHPS: Advanced Hydrologic Prediction Service:**
<http://newweb.erh.noaa.gov/ahps2/index.php?wfo=pbz>



Allegheny County Flood Preparedness Website:

<http://www.alleghenycounty.us/emerserv/floodprep.aspx>

A screenshot of the Allegheny County Emergency Management Flood Preparedness website. The page features a blue header with the Allegheny County logo and the text "ALLEGHENY COUNTY PENNSYLVANIA" and "A GREAT PLACE TO LIVE, WORK & PLAY & HOME OF AMERICA'S MOST LIVABLE CITY". Below the header is a navigation menu with links for "About", "Calendar", "News", "Departments", "Publications", "Forms", "What's New?", and "Search Site". The main content area is titled "Emergency Management Flood Preparedness HELPING PEOPLE ... HELP PEOPLE" and "Flood Preparedness & Response Information". It includes sections for "Emergency Management Information Session (March 5, 2010) Presentations:", "Documents for Municipalities:", "Informational Bulletins for Residents:", and "Websites:". The left sidebar contains a list of "Emergency Services" and "Emergency Mgmt." topics, including "Topics", "Functions", "Flood Preparedness", "Flood Recovery", "Organization Chart", "PennFIRS Reporting", "Emergency Preparedness Be Prepared", "PA Emergency Preparedness Guide", "What Can You Do?", "Preparedness Links", "LEPC/CCC", "Local Emergency Management Coordinators", "Emergency Planning & Community Right to Know", "Hazmat Teams", "Hazmat Units Response Map", "History of the LEPC", "Local Emergency Planning Committee (LEPC) / Citizens Corps Council (CCC)", "Members, Alternate", and "Members, Current". The footer shows "Done" and "Local intranet" with a 100% zoom level.



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QUESTIONS ? ? ?



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