

HEAT EMERGENCY PLAN



Chester County Department of Emergency Services
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Certification of Annual Review

The Chester County Department of Emergency Services has reviewed this Heat Emergency Plan. The Director of Chester County Emergency Services hereby certifies the review.

Date	Signature

Plan Approval

THIS PLAN IS APPROVED AS THE CHESTER COUNTY HEAT EMERGENCY PLAN. THIS PLAN IS DESIGNED TO COMPLY WITH ALL APPLICABLE COMMONWEALTH AND COUNTY REGULATIONS AND PROVIDES THE POLICIES AND PROCEDURES TO BE FOLLOWED IN DEALING WITH HEAT EMERGENCY EVENTS.

THIS PLAN SUPERSEDES ALL PREVIOUS HEAT EMERGENCY PLANS.

SIGNED THIS 2nd DAY OF February, 2010



Edward J. Atkins, Director
Chester County
Department of Emergency Services

TABLE OF CONTENTS

I. Executive Summary.....	1
II. Overview.....	1
III. Planning Considerations.....	4
IV. Applicability and Scope.....	4
V. Authority and References.....	5
VI. Update and Maintenance.....	5
VII. Future Development Actions.....	5
VIII. Training and Exercises.....	6
IX. Concept of Operations.....	6
A. Operational Strategy #1: Pre-Season Preparedness.....	8
B. Operational Strategy #2: Excessive Heat Response.....	9
2.1 Declaration of Heat Emergency.....	9
2.2 Department of Aging Heat Line.....	10
2.3 Ozone Action Alerts Issues by the Air Quality Partnership of the Delaware Valley.....	10

ANNEXES

ANNEX A-Chester County Department of Aging Services Severe Weather Emergency Plan for Seniors.....	13
ANNEX B-National Weather Service Definitions.....	14
ANNEX C-Acronyms.....	15

I. EXECUTIVE SUMMARY

The Chester County Department of Emergency Services (DES) has prepared this Heat Emergency Plan in conjunction with key stakeholders to coordinate the response to extreme heat events.

The Heat Emergency Plan outlines roles and responsibilities, and gives senior-level managers, agency emergency management Liaisons, and private and non-profit partners, guidance in making the many complex decisions that may be necessary during an extreme heat event.

This plan:

- Describes heat emergency conditions that affect delivery of essential services and could potentially threaten lives and damage critical infrastructure and property
- Identifies heat-related actions that will be taken by county, private sector, and non-profit agencies
- Outlines how county, non-profit, and private agencies will coordinate efforts to manage a heat emergency
- Identifies measures to protect those most at risk during heat emergencies, such as the elderly, the homeless, and individuals which spend time outdoors

II. OVERVIEW

The National Weather Service (NWS) notification of an Excessive Heat Warning initiates a series of responses from the County, non-profit, and private agencies within Chester County. Prior to an Excessive Heat Warning, the NWS may issue an Excessive Heat Watch and/or Advisory.

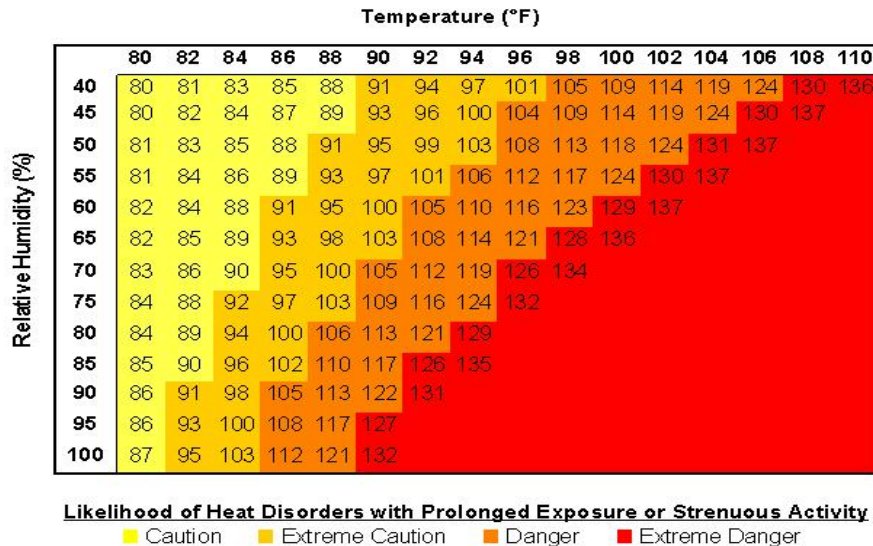
DES monitors the following indicators during an Excessive Heat Warning:

1. **Heat Index:** The Heat Index or the “Apparent Temperature” is a measure of how hot it feels to a human when humidity is combined with air temperature.
2. **Humid Conditions:** This occurs when a dome of high atmospheric pressure establishes itself over the western Atlantic, producing a prolonged period of southeasterly through southwesterly winds. This dome of high pressure tends to trap hazy, moisture-laden air near the ground surface. If the winds remain light, the air becomes stagnant.
3. **Prolonged high average temperatures:** Temperatures that hover 10° F or more above the average high temperature for the region and lasts for more than 3 days.

The longest stretch of hot weather in Chester County occurred during a 16-day period from July 24 to August 8, 1999 when the high temperature peaked at or above 90° F each day in Coatesville. A similar scenario occurred for a 10-day period from August 11 to August 20, 2002. The hottest temperature ever recorded in Chester County was 103° F in West Chester on July 5, 1966.

Chester County’s heat warning system is based on more than two decades of regional mortality and weather data. The summers in Chester County are hot and humid. Heat waves, prolonged episodes of high temperatures, and high levels of humidity, frequently sweep the County, creating potentially dangerous life-threatening conditions for some. When exposed to high temperatures and humidity, people are susceptible to sunburn, heat edema, heat cramps, heat exhaustion and life-threatening conditions. These heat-related illnesses can be avoided by moving to air-conditioned or well-ventilated areas.

National Weather Service Heat Index



Category	Heat Index	Heat Disorders
Extreme Danger	130° F or higher	Heat stroke or sunstroke likely
Danger	105-130° F	Sunstroke, muscle cramps, and/or heat exhaustion likely Heat stroke possible with prolonged exposure and/or physical activity
Extreme Caution	90-105° F	Sunstroke, muscle cramps, and/or heat exhaustion possible with prolonged exposure and/or physical activity
Caution	80-90° F	Fatigue possible with prolonged exposure and/or physical activity

Key Facts and Figures

Chester County Population Data*	
Total Population	486,345
Population 60 and Older	82,923
Number of Total Housing Units	183,693
Number of Occupied Housing Units	175,369
Percent of Individuals Below Poverty Level	3.1%
Percent of Families Below Poverty Level	5.4%

*2009 Planning Commission Data

At-risk Populations

Because many heat-related deaths are preventable, people need to be aware of who is at greatest risk and what actions they can take to prevent a heat-related illness or death. The elderly, the very young and people with mental illnesses and chronic diseases are at highest risk.

Two factors influencing heat-related illnesses:

1. Physical
 - a. Dehydration
 - b. Poor Circulation

2. Environmental
 - a. High temperatures
 - b. Lack of air-conditioning or cooling air source

Personnel Health and Safety

Laborers that engage in strenuous activity outside in the heat for a prolonged time are at risk for developing heat-related illnesses that have the potential to be fatal. Care should be taken to ensure that individuals remain hydrated and go indoors as often as possible to keep cool.

Common Health and Safety Issues during a Heat Emergency

Heat Stroke

Heat stroke occurs when the body is unable to regulate its temperature. If the body's temperature rises rapidly, the sweating mechanism fails and the body is unable to cool down. Body temperature may rise to 106° F or higher within 10-15 minutes, which can cause death or permanent disability if emergency treatment is not provided.

Heat Cramps

Heat cramps are muscle pains or spasms-usually in the abdomen, arms or legs, that may occur in association with strenuous activity. If you have heart problems or are on a low sodium diet, get medical attention for heat cramps.

Sunburn

Sunburns render the skin red, painful and abnormally warm after prolonged sun exposure. Although the discomfort is usually minor and healing occurs in about a week, more severe sunburn may require medical attention.

Dehydration

Dehydration occurs when the level of water in the body has been reduced. Chemical substances in the body such as salt and potassium fall to an irregular level. The main symptoms include dizziness, lethargy and dry mouth. A loss of appetite may also occur.

Heat Rash

Heat rash is a skin irritation caused by excessive sweating during hot, humid weather. It can occur at any age but is most common in young children.

III. PLANNING CONSIDERATIONS

1. The NWS strives to issue Excessive Heat Warnings and Advisories with a lead-time of 24 hours, Excessive Heat Watches with a lead-time of 48 hours, and Excessive Heat Outlooks with a lead-time of 72 hours. The following heat index values serve as a guideline for issuing watches, warnings and advisories: up through June 15th, HI of 96° F or higher, June 16th through June 30th, HI of 98° F or higher, after June 30th, HI of 100° F or higher.
2. Chester County's heat warning system is coordinated by DES.
3. There are established protocols within County departments in conjunction with alerts given by the National Weather Service and communication with DES.
4. Agencies may implement heat-related operations that do not require the issuance of an Excessive Heat Warning by the NWS.
5. DES can support additional operations if requested. Examples of this would include convening interagency meetings, activating the County's Emergency Operations Center (EOC), and/or coordinating requests for outside resources.
6. The DES will assist in coordination during a heat emergency as requested.
7. It is unlikely the EOC would be activated as a result of an Excessive Heat Warning or the declaration of a heat emergency.

IV. APPLICABILITY AND SCOPE

This plan is designed to effectively minimize loss of life and property and down times while providing the highest level of service possible until normal operations fully resume.

This document applies to a full range of circumstances, from a localized event to a long-enduring regional emergency that may impact multiple operating facilities. The plan is designed to complement the Chester County Emergency Operations Plan.

V. AUTHORITIES AND REFERENCES

Authorities

The Heat Emergency Plan complies with the following federal and state regulations and Executive Order(s):

- Executive Order 2006-1, January 10, 2006
- Robert T. Stafford Disaster Relief and Emergency Relief Act, PL 93-288, as amended Code of Federal Regulations, Title 44 Code of Federal Regulations
- Title 41, Part 101-20.103-4 Code of Federal Regulations, Title 36, Part 1236 Federal Preparedness Circular 65 National Response Plan

References

- National Weather Service
www.weather.gov
- Air Quality Partnership of Delaware Valley
www.dvrpc.org/AQPartnership/index.htm

Relevant Departmental/Agency Plans

- Chester County Emergency Operations Plan

VI. UPDATE AND MAINTENANCE

The Chester County Heat Emergency Plan will be reviewed each May. DES will be the lead agency for reviewing and updating the plan and will coordinate with other response partners as necessary.

In addition, the plan will be updated when a heat emergency occurs that significantly affects the County. The update will be completed within 30 days following the date of an emergency.

VII. FUTURE DEVELOPMENT ACTIONS

At the completion of the summer season, if plan is activated, response agencies will collectively develop an After Action Report (AAR) that outlines the activities that occurred. Within the AAR, steps needed to improve operations will be identified. The complete AAR and action items for each agency will be distributed to all participants.

VIII. TRAINING AND EXERCISES

Training

Heat emergency training will be conducted as necessary with a major emphasis placed on the operational strategies defined in the plan.

Exercises

DES will develop appropriate Homeland Security Exercise Evaluation Program (HSEEP) compliant exercises to this plan, or components of it, as deemed necessary.

IX. CONCEPT OF OPERATIONS

NWS notification of an Excessive Heat Warning initiates a series of responses from county, non-profit, and private agencies that serve the citizens of Chester County. DES coordinates activities during a declaration of a heat warning.

Agency Roles and Responsibilities

The agencies identified below have primary responsibility in planning for, activating, and maintaining the operational strategies of this plan. Additional response partners will be called upon as necessary.

Agency	Roles and Responsibilities
Department of Mental Health and Mental Retardation (MH/MR)	<ul style="list-style-type: none"> • Assist with preparing public service announcements and circulating tips for staying cool
Department of Emergency Services (DES)	<ul style="list-style-type: none"> • Coordinate countywide response • Facilitate communication between participating agencies • Provide situation reports to the County Commissioners and emergency management liaisons • Monitor weather in coordination with NWS • Declare and alert agencies of formal declaration of an excessive heat warning • Assist with the dissemination of public service announcements
Department of Community Development (DCD)	<ul style="list-style-type: none"> • Prepare shelters for a temporary increase of displaced individuals • Assist with the dissemination of public service announcements • In coordination with MH/MR, maintain list of facilities that can provide temporary shelter to homeless individuals • Provide transportation to temporary shelter facilities

Agency	Roles and Responsibilities
<p>Department of Aging Services (DAS)</p>	<ul style="list-style-type: none"> • Activate <i>Heat Line</i> upon declaration of a heat emergency • Contact “At-Risk” seniors • Contact senior centers/community centers to act as cooling centers
<p>Department of Health (DH)</p>	<ul style="list-style-type: none"> • Monitor weather in coordination with DES • Assist with the dissemination of public service announcements • Provide DES data updates to media on heat related fatalities • Offer public health tips through media interviews and the Internet
<p>Chester County Water Resource Authority (CCWRA)</p>	<ul style="list-style-type: none"> • Monitor and provide information on county-wide water resources/drought conditions • Assist DES in coordination of heat emergency response and drought monitoring/response activities
<p>National Weather Service (NWS)</p>	<ul style="list-style-type: none"> • Issue weather watch and warning products related to heat • Notify DES Director that a heat warning will be issued

Operational Strategy 1: Pre-Season Preparedness

This strategy outlines the activities carried out to prepare agencies to respond to heat emergencies in Chester County and specifically includes:

- Preparation and distribution of public education materials
- Dissemination of heat advisories to partner agencies
- Convening seasonal interagency meeting as necessary to review heat responses
- Preparing stockpiles of essential supplies

Operational Strategy 2: Excessive Heat Response

This strategy details response plans of Chester County non-profit and private agencies that include:

- Processes for declaring a heat emergency in coordination with NWS
- Activation and management of the Chester County Department of Aging Services’ *Heat Line*
- Summary of Ozone Action Alerts issued by the Air Quality Partnership of the Delaware Valley

A. OPERATIONAL STRATEGY #1: PRE-SEASON PREPAREDNESS

Participating Agencies

- Department of Health (DH)
- Department of Aging Services (DAS)
- Department of Emergency Services (DES)
- Department of Community Development (DCD)
- Department of Mental Health/Mental Retardation (MH/MR)
- Chester County Water Resource Authority (CCWRA)
- National Weather Service (NWS)

Purpose

This strategy outlines the activities carried out to prepare agencies to respond to heat emergencies in Chester County.

Overview

- Prior to the summer season, the DES will conduct a meeting with representatives from the DES, DAS, DCD, DH, MH/MR, NWS, and utilities to discuss their agency's heat emergency responsibilities.
- DAS will supply fans and water to residents 60 and older, residents with a disability or illness which increases their risk or families with children under age 2 living in their home and conduct a meeting with staff supervisors to review and update heat emergency staff contact information, contact procedures and personnel assignments.
- DES will prepare, and distribute, public education materials about hot weather precautions.
- MH/MR will distribute heat advisory information to contract providers to take precautions related to severe hot weather paying particular attention to cooling efforts and attending to persons taking medications.

Pre-Season Preparedness	
Agency	Responsibilities
All Participating Agencies	<ul style="list-style-type: none"> • Review internal agency summer operations plan and communicate with personnel regarding conditions and potential operations • Review agency notification tables • Participate in the DES Excessive Heat Meeting • Participate in the NWS Excessive Heat Briefing coordinated by DES • Prepare and distribute public education materials about hot weather precautions

B. OPERATIONAL STRATEGY #2: EXCESSIVE HEAT RESPONSE

This strategy outlines the countywide response to excessive heat. The main components of this strategy include: 1. Declaration of a Heat Emergency, 2. Chester County Department of Aging’s *Heat Line*, and 3. Ozone Action Alerts issued by the Air Quality Partnership of the Delaware Valley.

2.1 Declaration of Heat Emergency

Participating Agencies

- Department of Aging Services (DAS)
- Department of Emergency Services (DES)
- National Weather Service (NWS)
- Delaware Valley Regional Planning Commission (DVRPC)

Purpose

This section highlights the roles of DES in declaring a heat emergency.

Overview

- The Department of Emergency Service’s Director is contacted by the NWS and notified that an Excessive Heat Warning will be issued.
- The Department of Emergency Service’s Director prepares a declaration for a countywide heat emergency. Upon declaration of a heat emergency, DES will coordinate with partnering County, private and non-profit agencies to inform them to activate their heat response plans.
- DES will terminate the countywide heat emergency declaration when information is received from the NWS that indicates the hazard has subsided. DES will notify the agencies of the termination.

Declaration of Heat Emergency	
Agency	Responsibilities
Department of Emergency Services (DES)	<ul style="list-style-type: none"> • The Department of Emergency Service’s Director is contacted by the NWS and notified that an Excessive Heat Warning will be issued • The Department of Emergency Service’s Director prepares a declaration for a countywide heat emergency • Upon declaration of a heat emergency, DES will coordinate with partnering County, private and non-profit agencies to inform them to activate their heat response plans • DES will terminate the countywide heat emergency declaration when information is received from the NWS that indicates the hazard has subsided. DES will notify the agencies of the termination

2.2 Department of Aging Heat Line

Participating Agencies

- Department of Aging Services (DAS)

Purpose

This strategy describes the operation of Department of Aging Services' *Heat Line* (610) 344-4141 to assist older citizens during a countywide heat emergency.

Overview

- DAS activates their *Heat Line* upon a heat emergency declaration.
- DAS will offer Care Calls to those residents age 60 and over who live alone without any informal supports. Residents should call (610) 344-6009 to register.

Heat Line	
Agency	Responsibilities
Department of Aging Services (DAS)	<ul style="list-style-type: none"> ▪ Activates the <i>Heat Line</i> ▪ The <i>Heat Line</i> will provide information related to self-care during heat emergencies and will refer callers to additional resources ▪ Refers calls to 911 ▪ DAS will notify and share information on <i>Heat Line</i> with other departments

2.3 Ozone Action Alerts Issued by the Air Quality Partnership of the Delaware Valley

Participating Agencies

- Delaware Valley Regional Planning Commission (DVRPC)

Purpose

This strategy summarizes the process for issuing Ozone Action Alerts by the Air Quality Partnership of the Delaware Valley and how the Air Quality Index is determined and disseminated daily.

Overview

- The Air Quality Partnership notifies the public when the forecast identifies a high ground level ozone and fine particulate matter in the air.
- The Air Quality Partnership identifies methods to protect the public from adverse air quality conditions.
- The Air Quality Partnership (AQP) is a public / private coalition dedicated to improving air quality in the Delaware Valley through air quality initiatives and advisories. The Partnership implements the Air Quality Action program to notify the public when air quality is forecast to be unhealthy and to encourage the public to

take action to reduce air pollution, especially on Air Quality Action days. The AQP is administered by the Delaware Valley Regional Planning Commission.

Air Quality Index

The Air Quality Index (AQI) is an index for reporting daily air quality. It tells you how clean or polluted your air is, and what associated health effects might be a concern for you. The AQI focuses on health effects you may experience within a few hours or days after breathing polluted air. Environmental Protection Agency (EPA) calculates the AQI for criteria air pollutants regulated by the Clean Air Act: ground-level ozone, particle pollution (also known as particulate matter), carbon monoxide, sulfur dioxide, and nitrogen dioxide. For each of these pollutants, EPA has established national ambient air quality standards to protect public health.

Air quality is measured by monitors that record the concentrations of the major pollutants each day at more than a thousand locations across the country. These raw measurements are then converted into AQI values using standard formulas developed by the EPA. An AQI value is calculated for each pollutant in an area (ground-level ozone, particle pollution, carbon monoxide, sulfur dioxide, and nitrogen dioxide). The highest AQI value for the individual pollutants is the AQI value for that day. For example, if on July 12 a certain area had AQI values of 90 for ozone and 88 for sulfur dioxide, the AQI value would be 90 for the pollutant ozone on that day.

The Air Quality Index is divided into six categories:

Air Quality Index			
Category	Air Quality Index Values	Levels of Health Concern	Colors
Category	“When the AQI is in this range...”	“Air Quality conditions are...”	“As symbolized by this color....”
1	0 to 50	Good	Green
2	51 to 100	Moderate	Yellow
3	101 to 150	Unhealthy for Sensitive Groups	Orange
4	151 to 200	Unhealthy	Red
5	201 to 300	Very Unhealthy	Purple
6	301 to 500	Hazardous	Maroon

Each category corresponds to a different level of health concern. The six levels of health concern and what they mean are:

- **"Good"** The AQI value for your community is between 0 and 50. Air quality is considered satisfactory, and air pollution poses little or no risk.
- **"Moderate"** The AQI for your community is between 51 and 100. Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people. For example, people who are unusually sensitive to ozone may experience respiratory symptoms.

- **"Unhealthy for Sensitive Groups"** When AQI values are between 101 and 150, members of sensitive groups may experience health effects. This means they are likely to be affected at lower levels than the general public. For example, people with lung disease are at greater risk from exposure to ozone, while people with either lung disease or heart disease are at greater risk from exposure to particle pollution. The general public is not likely to be affected when the AQI is in this range.
- **"Unhealthy"** Everyone may begin to experience health effects when AQI values are between 151 and 200. Members of sensitive groups may experience more serious health effects.
- **"Very Unhealthy"** AQI values between 201 and 300 trigger a health alert, meaning everyone may experience more serious health effects.
- **"Hazardous"** AQI values over 300 trigger health warnings of emergency conditions. The entire population is more likely to be affected.

ANNEX A - CHESTER COUNTY DEPARTMENT OF AGING SERVICES SEVERE WEATHER EMERGENCY PLAN FOR SENIORS

Revised: July 2009

Extreme Heat Emergency Procedures:

1. Activate weather related emergency phone line: 610-344-4141
2. Aging staff contact at risk seniors who are known to the department
3. Prepare public service announcements; coordinate with DES and Commissioners' Office
4. Notify senior centers of emergency and need to have extended hours
5. Notify other community agencies for availability as cooling centers, such as the CYWA in Coatesville and the Brandywine YMCA
6. Make available and/or distribute fans and water to residents 60 and older, residents with a disability or illness which increases their risk or families with a child under age 2 living in their home
 - Seniors can register for the Care Call program
7. Recruit volunteer drivers to transport seniors to and from cooling centers
8. Notify providers a heat emergency exists in order to activate their emergency plans

On-going Planning:

Continue to raise awareness of the risk to vulnerable residents of Chester County due to extreme heat. Encourage communities to check on their vulnerable family, friends and neighbors during extreme heat.

ANNEX B - NATIONAL WEATHER SERVICE DEFINITIONS

Excessive Heat

Excessive heat occurs from a combination of high temperatures (significantly above normal) and high humidity. At certain levels, the human body cannot maintain proper internal temperatures and may experience heat stroke. The "Heat Index" is a measure of the effect of the combined elements on the body.

Excessive Heat Warning

Issued within 24 hours of the onset of the following general guidelines when expected to persist for more than one day: Heat index of 96° F or higher through June 15th; heat index of 98° F or higher from June 16th through June 30th; heat index of 100° F or higher after June 30th.

Excessive Heat Watch

Issued by the National Weather Service when excessive heat warning criteria are expected to be met in the 24 to 48 hour time frame.

Heat Advisory

Issued within 24 hours of the onset of the following general guidelines when expected to persist for one day or less: heat index of 96° F or higher through June 15th; heat index of 98° F or higher from June 16th through June 30th; heat index of 100° F or higher after June 30th. Please note that the NWS utilizes procedures developed by the University of Delaware to augment these general guidelines to including other factors such as number of heat waves thus far in the season, air mass type, and amount of clouds.

Heat Index

The Heat Index (HI), or the "Apparent Temperature", quantifies how the humidity of the air affects human comfort and the stress that the combination of heat and humidity puts on the human body. The HI is intended to provide a sense of what the air temperature "feels like" when humidity is taken into account.

Heat Wave

A period of at least three days when the temperature reaches 90° F or higher.

ANNEX C – ACRONYMS

AAR	After Actions Review or After Action Report
AQI	Air Quality Index
AQP	Air Quality Partnership
CCWRA	Chester County Water Resource Authority
DAS	Department of Aging Services
DH	Department of Health
DCD	Department of Community Development
DES	Department of Emergency Services
DVRPC	Delaware Valley Regional Planning Commission
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
HSEEP	Homeland Security Exercise Evaluation Program
MH/MR	Department of Mental Health/Mental Retardation
NWS	National Weather Service