Disaster Sanitation

Lee Orr, Readiness Coordinator, 2020
All Hazards Approach to Planning a Response

Comprehensive preparedness required to manage the needs from all different possible hazards.
Primary role:

➢ To coordinate environmental health response to emergency events

• With and between OEHS divisions (Public Health Sanitation, Environmental Engineering, and Radiation, Toxics and Indoor Air), local environmental health staff, our response partners, etc.

➢ Liaison to State EOC for environmental health issues
➢ Sanitarians and Engineers in WV are NOT first responders

➢ Sanitarians and Engineers should NOT be collecting samples for suspected intentional biological, any chemical, or radiological events

- Rapid Response Teams (RRT)
- DEP Hazardous Materials Teams
- Civil Support Team for WMD
Disaster Response – should you be on site?

Ask yourself:

➢ How do I get in safely?
➢ Am I properly trained?
➢ Am I properly equipped?
➢ How and whom do I call for help?
➢ How can I get out safely?
➢ Will I get supper tonight?
Disaster Response Protocol Manual and Environmental Health Disaster Manual

➢ Manual (small orange book)
➢ CD Rom
➢ Procedures Manual
Disaster Field Manual

STATE DISASTER MANUALS ALREADY COMPLETED FOR CALIFORNIA, IOWA, MASS., W. VIRGINIA, CONNECTICUT, MISSOURI, KANSAS, AND OKLAHOMA

You can also download the Disaster Field Manual electronically from Google Play - ORDER TODAY!

The manual is 4" x 7.75" in size and the covers are constructed of 0.035 gauge polyethylene. The inside text is waterproof and tear-resistant Kmdura paper. The cost of the Disaster Field Manual with the Kmdura paper is $37.50 each; $32.50 each for 10 or more; or $27.50 each for 100 or more ordered. Download the Disaster Manual order form HERE.

Please contact us for a quote for any other state other than California. We currently only stock the California English/Spanish version.

Shipping & Handling Rates:
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First pages in outline format, aligns with the state plan

- Is the “who and what” piece of the planning process
- Environmental Health part of DHHR plan
- DHHR plan in state plan
- Tried to make as insert in local plans too
The remainder of the material after the outline in the manual

➢ Is the “how to” part
➢ Replaces the material currently in use in the procedures manual
➢ Is an “all hazards” response approach for E.H.
Who has Environmental Health Response Responsibilities?

➢ LHD Sanitarians
➢ Readiness Staff
➢ State Sanitarians
  • Central
  • Districts

➢ Engineering Staff
  • Central
  • Districts

➢ RTIA
  • Asbestos
  • Indoor Air
  • ATSDR
  • Radiological
Who else has responsibility?

Who do we interact with?

- Department of Agriculture
  - Food banks, animal disease outbreaks, vector control
- Department of Environmental Protection
  - Chemical spills, sewage, water contamination sources, solid waste
- Office of Lab Services
  - Specimen sample collection and testing (water, food, other)
- Office of Epidemiology
  - Outbreak investigations, vector control
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- Communication
- Food
- Drinking Water
- Sewage
- Solid Waste
- Housing/Recreational Facilities
- Epidemiology
- Mass Fatality Events
First Priorities
- Communication of information
- Ensure safe food supply
- Ensure potable water
- Ensure adequate housing

Second Priorities
- Disposal of household items and food; solid waste
- Vector/Pest Control
- Sewage
- Epi investigation
- Recreation facility
Concept of Operations

Communication

➢ Drinking Water
➢ Food
➢ Sewage
➢ Solid Waste
➢ Emergency Mass Shelters and Housing (includes clean-up)
➢ Epidemiology
➢ Mass Fatality Event
Environmental Health Function in Disaster Response

➢ Responsibilities for various entities
➢ Authorities and References
➢ Emergency Proclamations
➢ Overview
➢ Communication Flow Chart
Disaster Response

Immediate Needs During Event and Immediately Afterward

➢ Those coordinating response:
  • Information/communication

➢ Victims:
  • Information
  • Housing
  • Water
  • Food
To the public

➢ Information on “how/what to do” distributed ASAP
  • Consider distribution of information at gathering points for other services (mental health, food stamps, etc.)
  • Booklet with Environment Health info on many topics
    o What to do with food
    o How to clean up
    o What to dispose of
    o Control mold growth
    o Where to find water sources in the home
    o How to disinfect wells
➢ Open communication is required of both state and local environmental health staff involved in response to an event.

➢ Staff need to report at least daily. All Environmental Health information must be submitted for EOC briefings before noon. Verbal updates of info greatly appreciated prior to 4 pm (briefing time).
Water

Drinking Water
➢ Public Supplies
➢ Private Supplies
➢ Emergency Supplies
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Drinking Water

Public Supplies

Engineering staff

➢ Assist in conducting damage assessments to public drinking water systems
➢ Provide technical and regulatory guidance on public drinking water treatment systems/supplies
➢ Sample/monitor public drinking water systems
➢ Ensure boil water orders are issued and communicated as needed
➢ Assist in the repair/recovery of affected public drinking water systems
Drinking Water

Private and Emergency Supplies

LHD Sanitarians will

➢ Sample and monitor emergency bulk supplies
➢ Provide educational guidance on disinfection of private supplies
➢ Sample affected private supplies
➢ Ensure compliance with boil water orders at permitted facilities
Water security

- Risk assessments for all water systems have been completed in compliance with EPA requirements
- Still need to think about water security during events
Manual – Chapter 3: Food

➢ Introduction/Objectives
➢ Operational Priorities

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  o 3-C: Food Safety Hazard table
  o 3-D: Food Security Guidelines
  o 3-E: Sanitation at Commercial Food Facilities
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Food

➢ Mass Feeding Sites
➢ Affected Facilities and Supplies
➢ Commercial Manufacturers
➢ Food security
➢ Outbreak investigation – in epidemiology section because it could also be waterborne, or vector borne
Mass Feeding Sites (includes ERV’s). LHD Sanitarians Inspect for:

- hand washing
- dishwashing
- storage of food supplies
- food preparation
- food distribution
- hot/cold food storage
- hold times
- construction issues
Mass Feeding Sites

- Can’t hold to restaurant standards
- 4 vats ... 3 for washing and 1 for hands
- Hot and cold water
- Adequate and proper storage for food and utensils
- Food temperatures – hot and cold
- Watch the processes ... hand washing, dish washing, food prep, garbage handling
ERV – Emergency Response Vehicle

- Provided by Salvation Army or Red Cross
- Takes food into neighborhoods – are important to victims
- Food can be prepared at a commissary or in vehicle
- Check temperatures
- Watch processes
- Adequate food storage can be an issue
Food

- **Affected Facilities and Food supplies – LHD Sanitarians:**
  - Ensure compliance with boil water orders
  - Provide guidance and **oversight** of disposal of affected foods
  - Inspect affected facilities before re-opening
  - Sample/embargo/seize questionable product
  - Provide guidance on clean up and disposal of contaminated equipment
  - Work in concert with Dept. of Ag for disposal of affected food supplies at food pantries/warehouses
  - Inspect facilities that experienced electrical outages (food disposition)
➢ Ensure disposal of contaminated food products
- Restaurants
- Grocery Stores
- Fruit markets
- Dollar General/Kmart
- Gardens (provide info)
➢ Restaurant and Grocery Store

- Proper Cleanup
- Disposal of contaminated equipment that is not cleanable
- Walk-in coolers
- Disposal of food and paper products
- Compliance with boil water orders
Household

- Provide guidance and oversight of disposal of affected food products
- Includes vegetable garden products for exposure to flood water, chemical or radiological fallout
Commercial Manufacturers

State Sanitarians will

➢ Inspect affected commercial manufacturing firms
➢ Sample/embargo/seize suspect affected product
➢ Investigate/inspect affected dairy farms and dairy processing facilities (sometimes in concert with Dept. of Ag)
➢ Initiate trace back investigations when necessary
Food Security

- Received and distributed guidance pamphlets from FDA to permitted facilities, dairy farms and food manufacturers
  - We may have more work here to do but will have to “educate past” the resistance from small facilities
- State Sanitarians received training on conducting risk assessments at food manufacturing firms
- State Sanitarians need to conduct risk assessments at food manufacturing facilities within WV
Concept of Operations

➢ Sewage
  ▪ Solid Waste
  ▪ Emergency Mass Shelters and Housing (includes clean-up)
  ▪ Epidemiology
  ▪ Mass Fatality Event
  ▪ Communication
  ▪ Drinking Water
  ▪ Food
Introduction/Objectives

Operational Priorities

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Sewage

Engineering staff will:

➢ Upon request, assist DEP in conducting damage assessments to waste water treatment infrastructure when available

LHD Sanitarians will:

➢ Inspect/monitor portable, public toilets
➢ Provide guidance, inspect repairs to affected septic systems
➢ Provide public education for exposure to sewage contaminated water
➢ Communicate what is known to be up-stream from line breaks
➢ Provide guidance on alternative treatment structure construction
State sanitarians will
Conduct inspections when sewage line breaks impact permitted infectious medical waste producers. Liquid medical waste (bloody fluids such as blood and urine etc) are often disposed of via the sewer treatment systems
If long time until repairs made to systems (both private and public) then may need to post waterways/creeks re: possible contamination

May need to assist in locating port-a-johns

Need to inspect port-a-johns for cleanliness, pumping, supplies

Understand that long standing problems will not be fixed quickly thru the tragedy
Sewage

Rules sometimes bent or interim guidelines created to get people into some form of housing. Examples:

➢ Sites with unapproved on-site sewage systems may be re-inhabited, but have 18 months to install/correct sewage system.

➢ Mobile homes will not be located on 100 year flood plain.

➢ Group housing sites must have compliant water and sewage systems.
Concept of Operations

Solid Waste
- Emergency Mass Shelters and Housing (includes clean-up)
- Epidemiology
- Mass Fatality Event
- Communication
- Drinking Water
- Food
- Sewage
➢ Introduction/Objectives
➢ Demolition Wastes

Is collected at the street – Guard will not remove it from the premises for victims
Solid Waste

- Disposal of Contaminated material
- Infectious Medical Wastes
Solid Waste

➢ Disposal of Contaminated material
  ▪ Readiness Staff will work with BPH and DEP to ensure that restrictions at disposal sites are lifted re: weights, materials accepted etc.

➢ Infectious Medical Wastes
  ▪ State Sanitarians will:
    o Inspect affected facilities that produce infectious medical wastes
  ▪ Inspect mass treatment sites and morgues for proper collection and disposal of infectious waste materials
LHD sanitarians

- Provide guidance on the disposal or clean up of contaminated articles
- Alert local OES to looting problems
- Work in concert with DEP on inspecting/monitoring waste disposal sites and locations to minimize public health impacts (including vectors, wells etc).
- Ensure that affected food products (includes liquor etc) are destroyed (either de-natured or observe covering at landfill)
Concept of Operations

➢ Emergency Mass Shelters and Housing (includes clean-up)
  ▪ Epidemiology
  ▪ Mass Fatality Event
  ▪ Communication
  ▪ Drinking Water
  ▪ Food
  ▪ Sewage
  ▪ Solid Waste
Emergency Mass Shelters and Housing

- Emergency Mass Shelters
- Housing
  - Temporary Housing
  - Cleanup/disinfection of contaminated materials
- Affected permitted facilities
- Playgrounds/parks/athletic facilities
- Demolition and asbestos abatement
Emergency Mass Shelters

➢ Shelter set up by Red Cross or by local organizations
   ▪ Was the shelter site in the community hit?
   ▪ Victims should have a choice of location if possible

➢ Are there special needs folks on site? Are their needs met (i.e. Restroom facilities etc.)
LHD Sanitarians inspect Emergency Mass Shelters for:

- Potable water source
- Sewage disposal, sufficient #
- Food preparation on site?
- Infectious waste produced on site?
- Bathing facilities available? (for long term sites)
Emergency Mass Shelters

General Sanitation, vector control and safety

- Overcrowding
- Ventilation
- Adequate lighting
- Solid waste containment and disposal
- Hand washing facilities
- Presence of vectors
- Heat source, venting
  - Carbon monoxide
Emergency Mass Shelters and Housing

Temporary Housing

➢ LHD Sanitarians will inspect for
  ▪ Suitable location for temporary housing “parks”
  ▪ Suitable water and sewage facilities for temporary housing “parks”
  ▪ Overcrowding of facilities
Temporary and Permanent Housing

Consider alternatives in extreme need

➢ Campgrounds
➢ Tent cities
➢ Camper parks – for longer term
➢ Ensure water and sewer needs are met at all sites
➢ Ensure that boil water orders are complied with
Housing:

➢ LHD Sanitarians will provide guidance and education material to the public on clean-up, disinfection and disposal of contaminated materials

➢ LHD Sanitarians will provide guidance and educational materials on personal protection during clean-up
Affected Permitted Facilities

- LHD Sanitarians will inspect and provide guidance on clean-up to affected permitted facilities (campgrounds, hotel/motel, B&B etc)
- Engineering staff will inspect public water supplies at affected facilities.
Housing Condemnation and Demolition

- Condemnation is done by State Fire Marshall’s office with structural engineers
- Immediate demolition required for buildings deemed in danger of imminent collapse
- Other structures that are to be demolished must abide by the asbestos abatement regulations
Asbestos compliance staff will provide guidance and conduct inspections into the demolition of damaged housing units for asbestos abatement needs.
Epidemiology

- Mass Fatality Event
- Communication
- Food
- Drinking Water
- Sewage
- Solid Waste
- Emergency Mass Shelters and Housing (includes clean-up)
Epidemiology

➢ Epidemiologic investigation
  ▪ Epi info collection
  ▪ Environmental investigation

➢ Vector/Pest Control

➢ Risk exposure/assessment
  ▪ Chemical
  ▪ Radiological

➢ Indoor Air Quality
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7-R: Radiological Incidents
7-S: Radiological Agent Hazards and Precautions
Epidemiologic Investigation

- Epi info collection
  - Record Keeping
  - Victim interviews

- Environmental Investigation
  - LHD Sanitarians will conduct environmental epidemiologic investigation
  - Institute embargo/seizure/sample of suspect products
  - State Sanitarians will assist in conducting and will coordinate all trace back investigations
Vector Control

LHD Sanitarians will provide guidance and monitor the affected area for numbers and signs of pests of public health importance following an event.
Epidemiology

Risk Exposure/Assessment

➢ Radiological Event by Rad. Health staff:
  ▪ Respond to incidents of radioactive material at waste disposal sites and other locations as possible
  ▪ Provide guidance on disposal of radioactive waste material
  ▪ Provide guidance and oversight of distribution of mass medications in the event of radioactive incident
  ▪ Provide educational information to the public on risk and exposure assessments to radiological situations

➢ Radiological Event by LHD staff
  ▪ Collect and manage epi info to track victims of radiologic event with support from state staff
Epidemiology

Risk Exposure/Assessment

➢ Chemical Event by ATSDR staff
  ▪ Assist LHD in providing guidance to prevent ongoing and future exposures and resultant health affects from hazardous substance releases
  ▪ Determines human health affects associated with exposures to hazardous substances
  ▪ Review and analyze chemical testing results to assess potential human exposure pathways and effects

➢ Chemical Event by LHD staff
  ▪ Collect and manage epi info to track victims of chemical event with support from state staff
Epidemiology

Indoor Air Quality

➢ RTIA staff will

▪ Develop and provide to LHD’s for distribution to the public, educational material and guidance documents on the control of mold growth following flooding type events
▪ Inspect public schools for mold growth prior to re-occupation
▪ Inspect public buildings for mold growth upon re-occupation and upon receiving written request from local officials
➢ Introduction/Objectives
➢ Operational Priorities
  ▪ Appendix
    o 8-A: Clean up of Playing Areas
Recreation

➢ Affected permitted facilities (i.e., organized camps, campgrounds, etc)
➢ Playgrounds/parks/athletic facilities
Recreational Facilities

Playgrounds/parks/athletic facilities

- LHD Sanitarians will
  - Provide guidance on appropriate clean-up and disinfection of play areas and surfaces
  - Inspect permitted facilities
- Engineering Staff will
  - Inspect affected public water supplies
Manual – Chapter 9: Medical Wastes

➢ Discussion
➢ Collection/Transport
➢ Storage
➢ Treatment
➢ Disposal
➢ Operational Priorities
➢ Introduction/Objectives
Chapter 9 Appendices

- Medical Waste Checklist
- Medical Waste Pre-disaster Checklist
State Sanitarians will:

- Inspect affected facilities that produce infectious medical wastes
- Inspect mass treatment sites and morgues for proper collection and disposal of infectious waste materials
Concept of Operations

Mass Fatality Event

- Communication
- Food
- Drinking Water
- Sewage
- Solid Waste
- Emergency Mass Shelters and Housing (includes clean-up)
- Epidemiology
LHD Sanitarian, ATSDR staff and Rad. Health staff may need to provide guidance to Medical Examiners office on sanitation, radiological, chemical or biological issues related to locating temporary morgue sites and the handling or disposition of human remains.
Mass Fatality Event

➢ Security
➢ Past/Future use
➢ Clean-ability
➢ Adequate size to include storage
➢ Vector control
➢ Water/waste water
➢ Hand washing/restrooms
➢ Adequate ventilation

➢ Solid waste collection
➢ Infectious Medical Waste Collection
➢ Cleaning and Sanitation
➢ Length of time to be occupied
Floating caskets are **NOT** responsibility of LHD, but of local medical examiner
Environmental Health Disaster Manual (EHDM-1)

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Environmental Health Procedures
http://www.wvdhhr.org/phs/manual/

- DW-27 Requirements for Potable Water Haulers
- DW-46 Guidelines for Disinfecting Private Water Supplies
- E-1 Disaster Sanitation
- E-1-A Disaster Guidelines for Sanitarians
- E-1-B Flood Information Packet Cover Sheet
- SG-80 Guidelines for Disinfecting Private Water Supplies
- SG-81 Guidelines for Disinfecting Small Quantities of Water
- SG-82 Residential Food Safety Guidelines
- SG-83 Commercial Food Safety Guidelines
- SG-84 Home Clean-up Guidelines
- SG-81PR Press Release: Health Officials Say Water Supplies Affected by Floods Need Disinfecting
- SG-84PR1 Press Release: Health Officials Offer Advice for Safe Flood Clean-Up
- SG-84F1 Flyer: Health Care Precautions Important During Flood

Additional Press Releases/Public Advisories
- Public Health Advisory: Cleanup of Outdoor Areas Following Flooding
- Press Release – Storm Food Safety
- Public Health Notice for Permitted Beaches
- Public Health Advisory for Downstream Access Points
- Recreational Water Advisory
Blank Forms

➢ ICS
  ▪ ICS Forms

➢ OEHS forms
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  ▪ Foodborne Outbreak Sample Collection Report Form
  ▪ Confidential Reportable Disease Case Report
  ▪ Arboviral Encephalitis Investigation Form A
  ▪ Bioterrorism Agent (BT) Case Exposure Investigation Form (3A)
  ▪ Bioterrorism Agent (BT) Case Travel/Activity Worksheet (3B)
  ▪ Bioterrorism Agent (BT) Case Transportation Worksheet (3C)
  ▪ Environmental Investigation Assessment Form
  ▪ SF-40 Report on Destruction of Foodstuffs or Material(S)
  ▪ Supplemental Enteric Disease Case Follow-up Form
  ▪ Initial Individual Data Collection Form for Chemical Exposure
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  ▪ Leadership Assignments
Guidance Documents

➢ CBRN Fact Sheets
  ▪ Chemical (see tab for list)
  ▪ Biological
  ▪ Radiological and Nuclear

➢ WVDHHR Rabies Control Guide

➢ Recommendations on Making Emergency Shelters More Accessible (ADA)

➢ EPA Wildfire Smoke Fact Sheet

➢ CHEMTREC contact #
Rabies Control Guide: New Replacement for the DC-4 in the Procedures Manual as of October 1, 2004

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Preparation for Shelters

Planning for your Pet

Health Care Precautions in an Emergency

Food

- Preparing an Emergency Stockpile
- Storage Tips
Public Info Booklet Continued: A Health Guide for the Public in Disaster Planning and Recovery

Food continued

- What to do With Your Food When the Electricity Goes Off
- How to Cook if the Power Goes Out
- Nutrition Tips
- Shelf Life of Foods for Storage
- Short Term Food Supplies
- Long Term Food Supplies
- Food Contamination
Water

- The Absolute Necessity
- How to Store Emergency Water Supplies
- Hidden Water Sources in your Home
- Emergency Outdoor Water Sources
- 3 Easy Ways to Purify Water
- More Rigorous Purification Methods
- Disinfecting a Private Water Supply Affected by Flooding
Clean-up After Flooding
Flood Water and Tetanus
Flood Water and Mold Growth
Chemical Events
Radiological Events
Blank Pages to Record Personal Info
Questions? Or Need Help?

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