2011 Statewide Medical and Health Exercise

Tabletop Exercise and Training in Water Emergencies

Santa Barbara Public Health and EMSA
Presenters

• Santa Barbara Public Health Department, Director
  • Takashi Wada, MD
  • Jan Koegler

• City of Santa Barbara Water
  • Catherine Taylor

• Goleta Valley Water District
  • Tom Bunosky
  • Kevin Harmer

• City of Solvang Water

• California Department of Public Health Drinking Water Field Operations
  • Jeff Densmore

Thanks to Marian Medical Center for hosting this event
Introductions
Agenda

- Exercise Overview
- Water Agency Presentations
- Role of CDPH
- Questions to Agencies and CDPH
- Assessment of Readiness for Water Emergency
- Group Tabletop Questions
- Santa Barbara, Goleta and Solvang Exercise Breakout Groups
- Report Back and Next Steps
"We did not anticipate that airliners would be commandeered and turned into guided missiles; but the fact that we practiced for other kinds of disasters made us far more prepared to handle a catastrophe that nobody envisioned."

-- Rudolph W. Giuliani,
Former New York City Mayor
Lessons from Joplin Tornado

- The national exercise occurred just weeks before and the Hospital credits that exercise for the high survival rate and level of preparedness. All presenters talked about the value of exercises and the limited value of written plans.
- What you practice is what you do.
- Drill until you fail.
- Know you response partners, local, state, and federal.
- Drill with your community partners
- You will need to get portable toilets to the site as soon as possible.
- Sanitary bags were used in bedside commodes and then carried to the portable toilets for disposal. This worked for a while but was replaced with the bucket brigades for toilet flushing.
Exercise Program

Phase I: Multi-Media Training

Purpose
The purpose of this exercise is to provide participants with an opportunity to evaluate current response concepts, plans, and capabilities for a response to a disruption in the public water system. The exercise will focus on the response capabilities to communicate effectively, share information and disseminate intelligence, review risk communication messaging and respond to a medical surge caused by a disruption in the public water system.

Scenario
The scenario for the 2011 Statewide Medical and Health Exercise is a disruption in the public water system. A disruption in the public water system can occur for a variety of reasons: system contamination, natural disasters such as earthquakes or flooding, power failures or a collapse in the delivery system due to aging infrastructure. The impact will be the same: inability to provide basic water to the community and its services. Water loss for medical and health providers is a significant concern and can further inhibit a community’s response to such an event.

Over the years, many communities have been impacted by water disruption. The 1989 Loma Prieta Earthquake left the community, and its firefighting resources, severely impacted with over 70 water main breaks and 50 service line breaks in San Francisco alone. In June of 2009, a water main break left Martin’s Ferry, Ohio without water, requiring the purchase of storage equipment and bottled water to maintain firefighting and hospital operations. In May 2010, a 4 day water outage in Boston greatly impacted the operations at the largest hospital in the city, Massachusetts General. The level of preparedness and a coordinated response by the hospital and health care partners included use of sanitizers for hygiene and housekeeping, bottled water for nutrition and boiling of water to continue infrastructure operations. In November 2010 a well in Barstow, California was contaminated by perchololate, resulting in a community order to drink only bottled water thereby stressing the reserves within the community. In January of 2011, a new chemical using in purification was introduced into the water system in Decatur, AL. The resulting change in the water closed down the treatment plants and cut the water supply to the community. City buildings, restaurants and schools were closed;
Overview of Functional Exercise

November 17

• All-hazards approach to exercise—let’s meet now before an emergency

• Conduct an exercise to test ability of healthcare providers to respond to a “Do Not Use” water emergency

Exercise disaster plans and evaluate ability to have a:

• Coordinated response with Water Districts-Cities-EOC/CDPH/Public Health/Medical Facilities

• Communicate essential information regarding water services to health facilities, providers and the public

• Make strategic decisions regarding your operations—will you be able to provide essential medical care

• Determine available water resources and provide those in a coordinated and strategic manner
Participating Agencies

- Santa Barbara County Public Health Department
- California Department of Public Health
- Lompoc Valley Medical Center
- Marian Medical Center
- Santa Ynez Cottage Hospital
- Goleta Valley Cottage Hospital
- Santa Barbara Cottage Hospital
- California Hospital Association
- Santa Barbara County Fire
- Dialysis Providers
- Sheriff
- AMR
- Santa Barbara County OEM
- Goleta Water District
- City of Santa Maria Water and OES
- City of Santa Barbara Water and OES
- City of Buellton & Solvang
- Santa Barbara Neighborhood Clinics
- Santa Ynez Tribal Health Clinic
- Community Health Clinics of the Central Coast
- American Indian Health Services
- SB PHD Health Care Centers
- Marian Community Clinics
- Direct Relief International
- UCSB
- American Red Cross
- Medical Reserve Corps.
Always looking for Vulnerabilities

- 2009 Pandemic Influenza
- 2010 Improvised Explosive Device
- 2011 Water Emergency
- 2012 Earthquake
2011 Water Emergency

• Disruption in the public water system:
• Can occur for a variety of reasons: system contamination, natural disasters such as earthquakes or flooding, power failures or a collapse in the delivery system due to aging infrastructure.
• The impact will be the same: inability to provide basic water to the community and its services.
• Water loss for medical and health providers is a significant concern and can further inhibit a community's response to such an event
Training and Tabletop Schedule 2011

- 9/15 Marian Medical Center, 9:00 am – 12:00 pm
- 9/21 Santa Barbara Public Health Department Auditorium, 9:00 am – 12:00 pm

- 9/13-11/14 Exercise Planning Teleconferences
- 10/1-11/1
  » Review assessments and revise disaster plans
  » Conduct training in ICS/HICS and your plan
  » Submit objectives and decide what you want to test

- 11/10 Final All-Partner Tabletop Exercise
  Santa Barbara PHD Auditorium 9:00 am-12:00

- 11/17 Statewide Exercise
  8:00 -12:00
  At your agency/facility
Background

Potential causes of water supply disruption

• Earthquakes
• Flooding
• Power Failures
• Infrastructure collapse
• Intentional contamination of wells or ground water
EXAMPLES OF WATER EVENTS

• 1989 Loma Prieta Earthquake left the community, and its firefighting resources, severely impacted with over 70 water main breaks and 50 service line breaks in San Francisco alone.
• 2009, a water main break left Martin's Ferry, Ohio without water, requiring the purchase of storage equipment and bottled water to maintain firefighting and hospital operations.
• 2010, a 4 day water outage in Boston greatly impacted the operations at the largest hospital in the city, Massachusetts General. Hospital and health care partners used sanitizers for hygiene and housekeeping, bottled water for nutrition and boiling of water to continue infrastructure operations.
• 2010 a well in Barstow, California was contaminated by perchlolate, resulting in a community order to drink only bottled water thereby stressing the reserves within the community.
• 2011, a new chemical using in purification was introduced into the water system in Decatur, AL. The resulting change in the water closed down the treatment plants and cut the water supply to the community. City buildings, restaurants and schools were closed; hospitals remained open and became the site of refuge for many.
• 2011, a power outage resulted boil water order for City of San Diego due to loss of pressure associated with pumps.
• “A BOIL-WATER ORDER REMAINS IN EFFECT, POSSIBLY THROUGH EARLY SUNDAY, FOR 10 COMMUNITIES IN THE CITY SAN DIEGO. THE ORDER IS A PRECAUTIONARY MEASURE BECAUSE REDUCED WATER PRESSURE IN THOSE NEIGHBORHOODS WHERE PUMPING PLANTS HAD NO BACKUP SYSTEMS COULD ALLOW CONTAMINATED WATER TO INFILTRATE THE SYSTEM. COUNTY OFFICIALS ISSUED SIMILAR ORDERS FOR RESIDENTS IN PARTS OF DESCANSO, ALPINE, JULIAN, BOULEVARD, LAKESIDE, CAMPO AND PAUMA VALLEY.”

"Reduced water pressure in those areas was caused by the lack of backup generators at eight of the 49 water pump stations around the city," Collins told the paper.
At Sharp Memorial Hospital, one generator quit and the remaining three operated at less than full power for several hours until being fixed. Officials at both hospitals said changes need to be made to avoid a future mishap. Hospital officials said patient care was uninterrupted.

Generators also failed at two hospitals, including the lone generator at Scripps Mercy Hospital in Chula Vista. The unit was replaced within two hours, while seven high-risk patients were moved to other hospitals. Flashlights were used to illuminate some areas of the hospital.
ABOUT 1.9 MILLION GALLONS OF SEWAGE SPILLED INTO THE LOS PEÑASQUITOS LAGOON AFTER A PUMP STATION THAT DOESN’T HAVE AN ON-SITE EMERGENCY GENERATOR STOPPED WORKING. THAT PROMPTED OFFICIALS TO CLOSE ALL BEACHES NORTH OF SCRIPPS PIER THROUGH DEL MAR, SOLANA BEACH AND INTO THE CARDIFF AREA OF ENCINITAS AT LEAST UNTIL SATURDAY.
Tabletop Objectives

• To understand how our community is provided with safe water
• How and when water service could be disrupted and its affects on medical services
• Do Not Use vs Do Not Drink water orders
• Identify issues at your facility that could result from a Do Not Use water order
• Identify how patients can continue to receive care
Exercise Scenario

- “Do Not Use” Scenario
  - Do not touch, Do not flush

- Met with 5 water districts

- Resulted in 4 scenarios

- Consider hospital surge
Draft Water Scenarios
To BE DISCUSSED In your breakout group

• Santa Maria:
  – TBD possibly: tampering with hydrant

• Lompoc:
  – Night technician overwhelmed by assailant. Sodium hydroxide dumped into system

• Solvang:
  – Gasoline tanker truck off road into river contaminating river wells

• Goleta/Santa Barbara:
  – Hospital building contractor hooks up to hydrant without a backflow valve resulting in unknown contaminant being pumped into the system. **Do not use** until get a high enough chlorine residual
City of Santa Barbara
Water System Overview – Medical Exercise

Catherine Taylor, Water System Manager
September 21, 2011
System Overview

- Water Supply
- System Layout
- Emergency Response
Water Supply

- Lake Cachuma ~ 65%
- Gibraltar Reservoir ~ 25%
- Groundwater Wells ~ 10%
William B. Cater Water Treatment Plant

- Constructed in 1964
- Conventional Treatment
- Capacity of 37 MGD
- Staff of 17
- Provides Regional Treatment
City of Santa Barbara • Public Works Department

City of Santa Barbara Water Service Area and Pressure Zones

- Cater Treatment Plant
- Lauro Reservoir
- Mission Canyon Heights
- Northridge
- Upper Tunnel Road
- Mission Canyon Heights
- El Cielito/Tunnel
- Conejo
- Sheffield Reservoir
- Montecito/Cold Springs
- Escondido/La Coronilla
- Hope
- Skofield
- Bothin
- Cottage Hospital

Reservoirs
Pump Stations
Emergency Response

- Multiple water supply sources
  - Lake Cachuma & Gibraltar Reservoir
  - Ortega Groundwater Treatment Plant
- Emergency generators at pump stations
- Telemetry calls out staff for abnormal system conditions
- Regular contact with CDPH
- Telephone notification system
Goleta Water District

Tom Bunosky

Operations Manager
District Overview

- Started in 1944
- Provides Water to 85,000 people
- Consists of Three Separate Water Systems
- Supplies 4 Billion Gallons of Water Annually
- Governed by 5 Member Elected Board
Water Supply Sources

- **Conservation**
  - Stretch supply
  - Comparatively cost-effective

![Map of California water supply sources](image)
Water Supply Sources

- Lake Cachuma: 9,322 AF (57%)
- State Water: 3,800 AF (23%)
- Recycled Water: 1,000 AF (6%)
- Groundwater: 2,350 AF (14%)
Water Uses

- Urban: 68%
- Agriculture: 21%
- Landscape Irrigation: 11%

Approximately 14,000 AFY
Distribution System

- 270 Miles of Pipes
- 1,400 Fire Hydrants
- 6,000 Pipe Isolation Valves
- 16,600 Customer Service Connections
- 8 Storage Tanks Hold 20 Million Gallons at Capacity
- Potable Plant Capacity = 24 MGD
Thank You

Tom Bunosky
Operations Manager

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(805) 879 - 4630
City of Solvang
Water Division
Kevin Harmer
SOLVANG WATER SYSTEM
California Department of Public Health
Drinking Water Field Operations Branch
Carpinteria

Jeff Densmore
Engineer
Department of Public Health
Drinking Water Program
Responsibilities

• Permits for Potable Water Projects (Sources, Treatment, Storage etc.)
• Recycled Water Projects
• Sanitary Surveys
• PWS/Customer Consultations
• Enforcements
• Funding
Five regions

Twenty two districts

District 6 – Santa Barbara District
- San Luis Obispo
- Santa Barbara
- Ventura
Types of Public Water Systems

COMMUNITY WATER SYSTEMS
• regularly serves at least 25 yearlong residents

NON-COMMUNITY WATER SYSTEMS

• Nontransient (e.g. schools, businesses)
  – A non-community water system which regularly serves at least 25 of the same persons over 6 months per year.

• Transient (e.g. rest stops, campgrounds)
  – a non-community water system that does not regularly serve at least 25 of the same persons over 6 months per year.
Regulatory Responsibility in California

- EPA has delegated primacy to enforce the Safe Drinking Water Act to CDPH.
- CDPH has delegated primacy to 34 of the 58 counties (known as LPA counties) for small water systems.
  - Community water systems less than 200 service connections.
  - Small non-community water systems (transient and non-transient).
CDPH Roles and Responsibilities During Emergencies

Ensure public health is protected!

- Coordinate with other agencies
  - County Environmental Health
- Water system threat/damage assessments
- Coordinate public notification
  - Boil Water Order/Advisory
  - Do Not Drink
  - Do Not Use
- Reporting, recordkeeping
Emergency/Disaster Response
Follow-up

- Sampling
- Ensuring systems follow proper public notification protocol
- Inspections
- Preparation for subsequential events
- Reporting (JEOC, Division/Gov’s Office)
  - May continue long after incident!
Public Notification

• Tier 1:
  – Acute health risk. Notification required within 24 hours of identification of event

• Tier 2:
  – Chronic health risk. Notification required within 30 days of identification of event

• Tier 3
  – Monitoring and reporting violation. Notification required within 1 year of identification of event
When is an Unsafe Water Alert Issued

- Existing or potential risk of contamination of a water supply that poses an immediate threat to public health.
  - Boil Water Order
    - The water supply has a microbiological contaminant, which can be rendered safe by boiling or disinfection
  - Do Not Drink Order
    - The water supply has an acute contaminant that cannot be rendered safe by boiling or disinfection
  - Do Not Use Order
    - Unknown contaminant or when exposure can impact public health
How to Lift an Order

• Boil Water Order (BWO)
  – Problem has been corrected
  – Two sample sets at least 24 hours apart
    • Analysis takes at least 18 hours
    • Approximately 42 hours after order is issued, the results of second set of samples are known
    • Primacy agency may allow the order to be lifted after one set of samples.
  – Only the primacy agency can lift the BWO
## Sampling Timeline

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Type of Notice</th>
<th>Minimum Turnaround Time for Sample</th>
<th>Number of Samples Sets Needed to Lift Order</th>
<th>Time btw samples</th>
<th>Minimum Total Time For Water System (B), (C), (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coliform Bacteria</td>
<td>Boil Water</td>
<td>18 hrs.</td>
<td>2 consecutive</td>
<td>24</td>
<td>42 hrs.</td>
</tr>
<tr>
<td>Chemical</td>
<td>Do Not Use</td>
<td>72 hours (if EWQSK Kit)</td>
<td>--</td>
<td>--</td>
<td>(A)</td>
</tr>
<tr>
<td>Chemical</td>
<td>Do Not Drink</td>
<td>24 hours (if local lab)</td>
<td>2 consecutive</td>
<td>24</td>
<td>48 hours</td>
</tr>
</tbody>
</table>

A. Once chemical is identified (72 hrs.), follow-up sampling will be required. For two additional sample sets, minimum time may be 96 hrs. (72+ 96 ~ one week).
B. Add hours it will take to flush entire hospital system to the minimum time.
C. Maximum time calculation not possible. For example, minimum of 42 hours after the last positive coliform sample.
D. Requirements could vary depending on emergency.
How to Lift and Order

- **Unsafe Water Alert/Do Not Drink Order**
  - Problem has been corrected
  - Results of the water quality testing are complete and satisfactory
- **Emergency Water Quality Sampling Kit (EWQSK)**
  - DWP takes to site, alerts Richmond Lab
  - Gives to HazMat team.
  - After sampling and decon by HazMat, DWP packages and hands to law enforcement for transport to Richmond.
  - Results could take 1-3 days. Transport time, work load, etc. should also be considered.
Lifting the Order (cont’d)

- The primacy agency (CDPH-DWP or LPA) reviews the samples and the actions the water system has taken to correct the problem. If the agency is satisfied, they lift the order through communication with the water system and local health agency.
Questions for Water Providers or CDPH?
Assess your facility’s readiness for a water emergency?

Use the Self Assessment Forms:

- Do you know how much water needed for 24-96 hours?
- Do you have water available for 24-96 hours?
- Contingency plan for toilets/sewage, chillers, boilers, laundry/linens
- Do you know how to obtain info on cause and length of water outage?
Your role in the exercise:

• PHD will open its Department Operation Center
• Want to follow communication path re water orders
• PHD will ask clinics, SNF, LTC providers to complete a status form and discuss their water plan with staff
• Facilities send water resource requests to cities?
• Coordinate with County EOC for Logistics support
• Send health resource requests to PHD DOC
• Collect and report on status of all health facilities
• Send health alerts to all providers
• Provide guidance to the public on “bucket toilets”
• Provide guidance and status of Do Not Use Orders
How to create an emergency toilet

What are emergency toilets?

In extreme emergencies, sewage systems may not be functioning. During these times it may be necessary to create a temporary, emergency toilet for safely collecting and handling human waste until normal sewage systems can be restored.

When creating an emergency toilet, it is always important to:

- Locate the toilet away from food preparation or eating areas.
- Locate latrines and portable toilets at least 100 feet away from surface water bodies such as lakes, rivers, streams, and at least 100 feet downhill or away from any drinking water source (well or spring), home, apartment, or campsite.
- Provide a place next to the emergency toilet to wash hands that offers soap, running water, and paper towels.
- Keep doors and covers closed when the toilet is not in use to keep out insects and animals and to prevent injury.
- Always supervise small children when they are using the emergency toilet.

What are portable toilets?

Portable toilets (sani-cans, port-a-lots, and so on) are self contained structures brought to a site to provide sanitary facilities. They are often used at many events where large numbers of people congregate. At present, there are no specific health regulations on the use of portable toilets; however the following are presented as guidelines for their use.

- Portable toilets must be regularly pumped out by a licensed contractor to avoid health hazards.
- Pumping contractors are licensed by the Environmental Health Division of Public Health - Seattle & King County.

What is a latrine?

A latrine is hole that is dug in the ground to collect human waste. They are usually built with a seat and cover.

- Latrines are not appropriate in urban locations.
- The hole for a latrine must be at least 3 feet deep. Keep the bottom of the hole at least 1 foot above hard pan or the water table. Sites which can not be dug deep enough and still provide a 1 foot separation to a water table or hard pan are not appropriate sites for a latrine.
- After each use, throw dirt, lime, mulch, or ash in the latrine to minimize odors and to keep flies, mosquitoes, and rodents away.
- Cover the latrine between use with plywood, or another material.
• Resources:
  • Port a Poty
  • Kitty Litter
  • Garbage Bags
• Who will collect the waste?
Group Tabletop Questions

• Open Discussion:
• No Wrong Questions!
• Check out what you assume will happen.
Question #1, #2 …

• How will a water event be discovered?

• Who will be notified first? How?
Question #3

• Who has the responsibility to let the public know? How?

• What if the power is out?
Communicating Do Not Use Order

- City EOC
- County EOC
- EMS
- Public Health Department

- Public: reverse 911, police/sheriff with loudspeaker
- Media: radio/TV/Facebook, Twitter
- Reddinet/radios to Hospitals
- CAHAN to healthcare partners
- Health alerts to all providers
- Radio stations
- Telephone calls and hotline
BOIL WATER ORDER

BOIL YOUR WATER BEFORE USING
Failure to follow this advisory could result in stomach or intestinal illness.

Due to the recent water outage, the Santa Barbara County Environmental Health Services in conjunction with the Water System is advising all residents to use boiled tap water or bottled water for drinking and cooking purposes as a safety precaution.

DO NOT DRINK THE WATER WITHOUT BOILING IT FIRST. Bring all water to a boil, let it boil for one (1) minute, and let it cool before using, or use bottled water. Boiled or bottled water should be used for drinking and food preparation until further notice.

We will inform you when tests show no bacteria and you no longer need to boil your water. We anticipate resolving the problem within 24-48 hours.

For more information call: at (805) of the MWCo or the local Health Department at 805-681-4900.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.
Santa Barbara County
PUBLIC HEALTH DEPARTMENT

WATER UNSAFE
DO NOT DRINK

• Do Not Drink Your Tap Water..... Use Only Bottled Water for All Drinking, Brushing Teeth, Washing Dishes and Food Preparation.
• For More Information, Contact the Santa Barbara County Public Health Department, Environmental Health Services Division at 805-681-4900
Group Question #4 and #5

• How will your facility/organization be informed?
  – Santa Maria
  – Lompoc

• Who will you need to communicate with?
Question #6

- What resources would be needed by your facility to continue to provide services? EMS/Hospitals/Outpatient/SNF’s/Fire

- Who has those resources?
- Are these limited in your community?
- Who has a list of resources?
- What if MOU’s are with multiple facilities?
Question #7

• Can your facility hook up to an outside water supply?
• What if the water in the pipes is contaminated?
• Where will the water come from?
• Who has priority?
Water Haulers

- 6 in our county
- 2 in King City
Question #8, #9, #10

- What other agencies be affected by a lack of water?
- How would that affect your facility and its resources?
- What are key issues for fire departments in a “Do Not Use” order?
Break Out Groups: Lompoc and Santa Maria

- Appoint a scribe and a reporter
- Review scenario for your jurisdiction
- Must result in a Do Not Use order
- Clarify and revise scenario as necessary
- How would you receive updated information about the status of water in your area?
- How long could you be without water before you evacuate or transfer care of patients?
- How would waste be handled from temporary toilets or port-a-potty?
Break Out Groups: Goleta/SB/Solvang

- Identify alternate sources of water in your area
- Is someone responsible for providing tanked or bottled water to facilities? Residents?
- What kind of requests for assistance will you have?
- How do facilities make requests for water? To whom?
Facility Specific

• Identify three major issues for each facility type and potential solutions (actions needing to be taken, resources needed to continue essential service)
Report Back

• Finalize Scenarios
• Items for follow-up
• Resources needed
• Exercise will use this info
• Action Items

THANK YOU!!!
Conclusion of Discussion-Based Tabletop
Communicating Do Not Use

- Hospitals/SNF
- Clinics and healthcare organizations
- Long term care facilities

- Staff/Patients internal messaging
- Contacting their patients via email, phone or other method
- PHD/Senior Services to call LTC facilities
Functional Exercise Objectives
November 17

- Test communication of essential information between
  - Water Districts-Cities/CDPH/Public Health/Medical Providers
  - Water Districts-Cities/County Emergency Operations Center
- Test ability of medical providers to implement disaster plans for water emergencies
- Test ability to provide water
- Test ability to communicate with patients
- Test ability to surge or decision to evacuate critical patients
- See flyer for additional objectives
Questions for Discussion

1. Do you know who supplies your water?

2. Has your organization evaluated and planned for its need for potable water for 24, 48, 72 and 96 hours?

3. Does your organization have a cache of potable water to support services to staff, clients, patients and visitors?

4. Do you have multiple sources to access additional water, including vendor agreements, access to local businesses and distributors or retail outlets, etc.?
Module 4: Ongoing Operations

Questions for Discussion

1. Does your organization have a plan to alter services if there is a disruption in the water supply? What types of services can be altered or postponed within your organization?

2. Are there partner organizations that can assist in providing services that you must alter or suspend due to a water disruption? Do you have memoranda of understanding signed with these partner organizations?