Yolo County IEMC Hazardous Material – Anhydrous Ammonia Tabletop Exercise

Situation Manual

May 17, 2017

This Situation Manual (SitMan) provides exercise participants with all the necessary tools for their roles in the exercise. Some exercise material is intended for the exclusive use of exercise planners, facilitators, and evaluators, but players may view other materials that are necessary to their performance. All exercise participants may view the SitMan.

Rev. April 2013
HSEEP-DD05

EXERCISE OVERVIEW

Exercise Name	Yolo County, IEMC Hazardous Materials – Anhydrous Ammonia
Exercise Dates	May 17, 2017
Scope	This exercise is discussion based, planned for four hours.
Mission Area(s)	Response and Recovery

Exercise Objective	Core Capability
Assist participants' knowledge, skills, and abilities to effectively conduct all-hazards emergency response.	Planning, Public Information and Warning
Allow participating locations to share real-time Earthquake related preparation, response and recovery solutions with all participants.	Operational Coordination
Enable participants to better coordinate response operations with counterparts from Federal agencies, State governments, local governments, private sector organizations, and nongovernmental agencies.	Mass Care Services, Protection and Law Enforcement, Public Health, Healthcare and Emergency Management Services, Situational Assessment and Health and Social Services

Threat or Hazard	Anhydrous Ammonia
Scenario	This TTX was designed around an Anhydrous Ammonia release.
Sponsor	FEMA – Emergency Management Institute (EMI)
Participating Organizations	See IEMC roster of participants.
Point of Contact	Douglas M. Kahn at douglas.kahn@fema.dhs.gov or 301-477-7645 General Inquires: fema-emi-iemb@fema.dhs.gov or call 301-447-1381
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GENERAL INFORMATION

Exercise Objectives and Core Capabilities

The following exercise objectives in Table 1 describe the expected outcomes for the exercise. The objectives are linked to core capabilities, which are distinct critical elements necessary to achieve the specific mission area(s). The objectives and aligned core capabilities are guided by elected and appointed officials and selected by the Exercise Planning Team.

Exercise Objective	Core Capability
Assist participants' knowledge, skills, and abilities to effectively support all-hazards emergency response from an EOC.	Planning, Public Information and Warning,
Allow participating locations to share real-time Hazardous Materials related preparation, response and recovery solutions with all participants.	Operational Coordination,
Enable participants to better coordinate response operations with counterparts from Federal agencies, State governments, local governments, private sector organizations, and nongovernmental agencies.	Mass Care Services, Protection and Law Enforcement, Public Health, Healthcare and Emergency Management Services, Situational Assessment and Health and Social Services

Table 1. Exercise Objectives and Associated Core Capabilities

Participant Roles and Responsibilities

The term *participant* encompasses many groups of people, not just those playing in the exercise. Groups of participants involved in the exercise, and their respective roles and responsibilities, are as follows:

- **Players.** Players are personnel who have an active role in discussing or performing their regular roles and responsibilities during the exercise. Players discuss or initiate actions in response to the simulated emergency.
- **Observers.** Observers do not directly participate in the exercise. However, they may support the development of player responses to the situation during the discussion by asking relevant questions or providing subject matter expertise.
- **Facilitators.** Facilitators provide situation updates and moderate discussions. They also provide additional information or resolve questions as required. Key Exercise Planning Team members also may assist with facilitation as subject matter experts (SMEs) during the exercise.

Exercise Structure

This exercise will be a multimedia, facilitated exercise. Players will participate in the following three modules:

- Module 1: Initial Response
- Module 2: Extended Response

- Module 3: Recovery

Each module begins with a multimedia update that summarizes key events occurring within that time period. After the updates, participants review the situation and engage in functional group discussions of appropriate prevention/protection/mitigation/response/recovery issues.

Exercise Guidelines

- This exercise will be held in an open, low-stress, no-fault environment. Varying viewpoints, even disagreements, are expected.
- Respond to the scenario using your knowledge of current plans and capabilities (i.e., you may use only existing assets) and insights derived from your training.
- Decisions are not precedent setting and may not reflect your organization's final position on a given issue. This exercise is an opportunity to discuss and present multiple options and possible solutions.
- Issue identification is not as valuable as suggestions and recommended actions that could improve prevention/protection/mitigation/response/recovery efforts. Problem-solving efforts should be the focus.

Exercise Assumptions and Artificialities

In any exercise, assumptions and artificialities may be necessary to complete play in the time allotted and/or account for logistical limitations. Exercise participants should accept that assumptions and artificialities are inherent in any exercise, and should not allow these considerations to negatively affect their participation. During this exercise, the following apply:

- The exercise is conducted in a no-fault learning environment wherein capabilities, plans, systems, and processes will be evaluated.
- The exercise scenario is plausible, and events occur as they are presented.
- All players receive information at the same time.

Exercise Evaluation

Players will be asked to complete participant feedback forms. These documents, coupled with facilitator observations and notes, will be used to evaluate the exercise.

MODULE 1: Initial Response

Date: Monday, May 22
Time: 0115 hrs
Location: Yolo County, CA

The Calgene (Monsanto) plant in Davis is a multinational agrochemical and agricultural biotechnology corporation manufacturing and supply company that employs 300 people.

Approximately one month ago, it experienced severe thunderstorms, including lightning and high winds. Plant employees arrived one morning to discover high winds from the storm had damaged the roof of the manufacturing plant. Later that week, the roof was fixed.

Monday, May 22 – 0325 hrs
The Davis fire department arrives on the scene, sets up incident command, and immediately requests support from other fire units in surrounding jurisdictions, and the police.

Fire department preplans of the facility indicate that Anhydrous Ammonia is stored at the facility Placard 1005, ERG Guide 125. Firefighters put on self-contained breathing apparatus (SCBA) masks as they see a plume moving slowly away from the factory along the ground.

The Incident Commander requests two additional alarms and a HazMat Team response activation. The IC also has dispatch notify local law enforcement that a hazmat spill has occurred. Additionally, the first responders to the scene begin complaining of respiratory irritation and small skin burns on their hands. Immediate decontamination and medical attention is needed.

The IC has advised per the 2016 Emergency Response Guide to start an initial evacuation of a half mile around the plant and downwind of 1.3 miles with the possibility of having to evacuate the area up to 2 miles. Due to the time of day, most will shelter in place.

Key Issues

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- Responders notice a cloud but do not know the contents of the plant, preplans show Anhydrous Ammonia stored in the facility.
- First responders have arrived and require hazardous material and mutual aid assistance.

Questions

Based on the information provided, participate in the discussion concerning the issues raised in Module 1. Identify any critical issues, decisions, requirements, or questions that should be addressed at this time.

The following questions are provided as suggested subjects that you may wish to address as the discussion progresses. These questions are not meant to constitute a definitive list of concerns to be addressed, nor is there a requirement to address every question.

1. What preparedness actions have you been taking to prepare for hazardous materials incidents?

2. Will the area surrounding the chemical plant need to be evacuated? Who would make these decisions and what resources would be required?

3. How will responders identify the substance released?

4. Are the community and county resources sufficient to respond to the disaster?

5. What data points are you planning to monitor for Situational Awareness (SA) and how will you share your SA to develop a Common Operating Picture (COP)?

6. What is your public information strategy at this point and what methods/means are you using to provide credible and accurate information?

7. Should the City EOC open for this level of event? Should the Operational Area EOC open?

MODULE 2: Extended Response

Date: Monday, May 22
Time: 0400 hrs
Location: Yolo County, CA

Monday, May 22 – 0400 hrs
Several firefighters and police officers are having coughing fits and are clearly suffering from distress. Those arriving to the scene first were exposed to concentrations of toxic gas between 350-750 ppm and begin to vomit and convulse. One firefighter loses consciousness and later dies. Emergency Medical Service (EMS) technicians quickly take three firefighters and two police officers to Sutter Davis Hospital, where they are treated for severe exposure to Anhydrous Ammonia gas. Incident Command is struggling to locate the manager of the chemical plant to find out the exact contents and volume of chemicals in the plant.

Police begin evacuating residents from the surrounding area, and conducting door-to-door notifications.

Monday, May 22 – 0435 hrs
As more police officers arrive on-scene, a large perimeter of isolation is established. Downwind to the northeast, police begin to evacuate all residences and businesses near the plant, but are asking for guidance on the size of the area to be evacuated.

Monday, May 22 – 0538 hrs
Local and national media representatives arrive on the scene. TV camera crews have gathered at the edge of the isolation zone and are broadcasting live feeds. Media representatives are requesting information from responders and plant workers. Two media helicopters are circling the plant, and broadcasting live aerial footage. Some of the footage shows the gas cloud slowly moving around the perimeter of the building along the ground toward the northeast.

Monday, May 22 – 0555 hrs
While evacuation efforts continue, the gas plume enters a populated part of Davis northeast of the plant, engulfing entire city blocks as it moves northeast at 10-15 mph. With concentrations still well above 150 ppm, the toxic plume presents a major danger to those who have not evacuated. Police and firefighters rush to get the remaining people out of harm's way, but many elderly people are unable to move quickly enough to stay ahead of the plume. Traffic is congested and many people leave their vehicles in the street to flee on foot, creating more congestion on the roads. Persons unable to evacuate quickly become too disoriented to self-evacuate; medical transports are necessary but any responders entering the area would be putting themselves in great danger as well, even with PPE.

It is estimated that nearly 200 people are suffering symptoms of severe Anhydrous Ammonia exposure and require immediate removal from this high concentration area.

Monday, May 22 – 0600 hrs
First responders inside the Hot Zone do their best to assist in evacuating residents to safety.

Monday, May 22 – 0610 hrs
The Yolo EMS Agency (YEMSA), having notified area hospitals of the crisis and to expect a drastic influx of Anhydrous Ammonia and exposure victims, is currently coordinating the transport of victims to area medical facilities.

Monday, May 22 – 0635 hrs
State and Federal authorities have arrived onsite at the request of the State governor. State and Federal authorities are inquiring about what assistance they will be asked to provide.

Key Issues

- First responders are taken to the local hospital with symptoms of chemical exposure.
- Isolation perimeters and evacuation zones are established.
- Assistance is requested from neighboring communities and the State.
- Toxic gases enter populated areas and responders struggle to assist residents with the evacuation.
- Assistance from the Hazardous Materials Team and neighboring jurisdictions speeds up response efforts.
- Chemical release identified as Anhydrous Ammonia.

Questions

Based on the information provided, participate in the discussion concerning the issues raised in Module 2. Identify any critical issues, decisions, requirements, or questions that should be addressed at this time.

The following questions are provided as suggested subjects that you may wish to address as the discussion progresses. These questions are not meant to constitute a definitive list of concerns to be addressed, nor is there a requirement to address every question.

1. What is the field's response priorities? What are the EOC's support priorities? How will resources be prioritized between rescue of citizens and controlling the hazardous materials spill?

2. What information should be communicated to the public at this point? How can residents be encouraged to evacuate without causing panic or impeding response efforts?

3. What are the potential short and long-term environmental impacts of the incident?

4. How would an EOC gain SA and share information to achieve a COP?

5. What health risks do responders face at this point?

6. How long will residents be forced to remain out of their homes? Who makes this determination?

MODULE 3: Recovery

Date: Monday, May 22
Time: 0800 hrs
Location: Yolo County, CA

Winds grow stronger as the afternoon approaches, the toxic cloud that has settled in a low-lying area. Testing indicates concentrations of Anhydrous Ammonia gas have dropped to less than 10% of what they were at dawn, but officials warn that the area is still too dangerous for residents to return.

Questions abound, however, regarding the appropriate next steps at the plant. The plant manager, who was finally located. The area is crowded with reporters and cameras looking to get quotes from city officials, water experts and environmental experts.

Monday, May 22 – 0830 hrs
Community officials and chemical plant management begin to plan next steps on decontamination of the surrounding environment exposed to liquid and gas chemicals and debris removal and disposal.

Crews are told water runoff may be causing the odor that residents are complaining of. Local health departments has confirmed that there is localized contamination within the storm water tunnels. They have pledged to continue to monitor and test the water in the area.

Monday, May 22 – 0935 hrs
Responders have taken photoionization detector (PID) readings that indicate the high concentration area of Davis now contains less than 0.5 ppm of Anhydrous Ammonia gas. Community leaders tells residents that residents may be allowed back into the area.

Tuesday, May 23 – 1000 hrs
Hazardous Materials and other crews begin working to clean-up the damaged plant. Their first step is to remove any remaining chemicals from the few intact containers still inside the factory and neutralize and collect liquid chemicals that have gathered on the floor of the plant.

Local and national print and electronic media picked up the story the previous afternoon and have run updates consistently throughout the evening and night. Newspapers and morning shows have praised the first responders for their efforts, but blame is being cast squarely on local and state officials, as well as the plant itself, for their "inability to enforce chemical facility building standards".

As health, officials have asked citizens to return to their homes, many are unsure whether they will be safe. Readings in the low-lying area of Davis indicate there is no elevated presence of Anhydrous Ammonia gas in the area, but many parents are still hesitant to bring their families back into the neighborhood only a day after the incident.

Saturday, May 27 – 1600 hrs
Hazardous Materials teams finish with the cleanup of spilled chemicals at the site as demolition and construction crews standby.

Wednesday, May 31 – 0800
The district attorney is considering whether to file charges of criminal negligence against Monsanto management.

Key Issues

- Anhydrous Ammonia concentration levels return to normal in most of the community.
- Plant manager demands restitution and access to the site.
- Clean up begins at the chemical plant site.
- Residents are urged to return to their homes.
- Legal battle over responsibility begins.

Questions

Based on the information provided, participate in the discussion concerning the issues raised in Module 3. Identify any critical issues, decisions, requirements, or questions that should be addressed at this time.

The following questions are provided as suggested subjects that you may wish to address as the discussion progresses. These questions are not meant to constitute a definitive list of concerns to be addressed, nor is there a requirement to address every question.

1. How will your organizational structure change during the recovery phase?

2. Does the community have any obligation to assist the chemical company in cleaning up the site and repairing damage to the plant?

3. What decontamination procedures exist for first responders and their equipment?

4. How will the fears of residents returning to their homes be managed? For how long will the community watch for lingering effects of chemical exposure?

5. Will long-term environmental remediation be required?

APPENDIX A: EXERCISE SCHEDULE

Time	Activity
May 16, 2017	
13:00	Welcome and Opening Remarks
13:15	Module 1: Briefing, Caucus Discussion, and Brief-Back
14:15	Module 2: Briefing, Caucus Discussion, and Brief-Back
15:15	Module 3: Briefing, Caucus Discussion, and Brief-Back
16:00	Hot Wash
16:30	Closing Comments

APPENDIX B: EXERCISE PARTICIPANTS

Participating Organizations
Cities
Davis
West Sacramento
Winters
Woodland
County
Yolo
Tribal Nation
Yocha Dehe Wintun Nation
Special Districts
Yolo County Housing
Other
CalOES
FEMA

APPENDIX C: ACRONYMS

Acronym	Term
COP	Common Operating Picture
DHS	U.S. Department of Homeland Security
EOC	Emergency Operations Center
EMI	Emergency Management Institute
EOC	Emergency Operations Center
FEMA	Federal Emergency Management Agency
FOUO	For Official Use Only
HSEEP	Homeland Security Exercise and Evaluation Program
PID	Photoionization Detector
POC	Point of Contact
PPE	Personal Protective Equipment
PPM	Parts Per Million
SA	Situational Awareness
SCBA	Self-Contained Breathing Apparatus
SITMAN	Situation Manual
VTC	Video teleconference
TTX	Tabletop Exercise