



MEMORANDUM

Date: May 3, 2023

To: The Honorable Chair and Members
Pima County Board of Supervisors

From: Jan Leshner *Jan Leshner*
County Administrator

Re: **Additional Information for the Board of Supervisors May 2, 2023 Meeting - Addendum Item No. 5 - Update on Interstate 10 Hazardous Materials Spill Report**

On April 24, 2023 I provided the Board of Supervisors an Executive Summary of the multi-agency After Action Report (AAR) that had been compiled by the Pima County Office of Emergency Management (OEM) in the aftermath of the hazardous materials spill on Interstate 10 that occurred on February 14, 2023. Yesterday, OEM Director Shane Clark, responded to questions during the above referenced Addendum Agenda item. At that time, Supervisor Christy asked that the After Action Report be made public and available to the Board.

As Director Clark explained, the AAR was developed collaboratively with other responding agencies and as such; we wanted to provide them notice of such a public release. Additionally, we wanted to have the document reviewed by the Pima County Attorney's Office. That notification and review process is now completed. Attached please find the unredacted After Action Report in its entirety.

JKL/dym

Attachment

c: Carmine DeBonis, Jr., Deputy County Administrator
Francisco García, MD, MPH, Deputy County Administrator & Chief Medical Officer
Steve Holmes, Deputy County Administrator
Shane Clark, Director, Pima County Office of Emergency Management
Terry Cullen, Director, Health Department

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PIMA COUNTY

EMERGENCY MANAGEMENT

PIMA COUNTY I-10 HAZMAT INCIDENT

FEBRUARY 14-15, 2023

AFTER ACTION REPORT

PREPARED BY PIMA COUNTY OFFICE OF EMERGENCY MANAGEMENT

APRIL 14, 2023

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Executive Summary

Incident Overview

The Nitric Acid spill started on February 14, 2023, on Interstate 10 (I-10) eastbound between Rita and Kolb roads when a commercial truck, operating under the authority of Landstar Inway Inc, hauling a box trailer rolled over into the median. The initial 9-1-1 call was received by City of Tucson Public Safety Communications Public Safety Answering Point (PSAP) and transferred to Arizona Department of Public Safety's PSAP as the Authority Having Jurisdiction (AHJ). Multiple callers reported the accident, and several reports indicated an orange cloud.

First on-scene was a commuting Border Patrol Agent, who took the initial steps to block lanes on I-10. Subsequent units arrived from Arizona Department of Public Safety (DPS) and Tucson Fire Department (TFD), where Unified Command (UC) was established.

The Arizona Department of Public Safety Hazardous Response Unit, Tucson Fire Department, Tucson Police Department (TPD), Pima County Sheriff's Department (PCSD), and the Marana Police Department (MPD) coordinated efforts to mitigate the incident and evacuate a perimeter around the area of the incident.

Interstate 10 was closed in both directions between Rita and Kolb roads at approximately 2:43 p.m. on Tuesday, February 14. Both directions remained closed until approximately 3:15 p.m. on Thursday, February 15.

Unified Command coordinated with Pima County Office of Emergency Management (PCOEM) throughout most of the incident to broadcast shelter-in-place messaging via IPAWS (Integrated Public Alerts and Warnings System) for individuals within the established perimeter coordinates. Pima County Communications Office, Pima County Health Department (PCHD), DPS, and various media outlets and partner agencies disseminated Informational messaging to the public.

Shelter-in-place protective actions were issued throughout the incident response. Utilizing street names to more easily identify the defined area, the shelter-in-place boundaries were east to Houghton Road, west to Kolb Road, north to Valencia Road, and south to Voyager Road. The public received communication of boundaries at 3:53 p.m. on February 14 and were lifted the same evening at 8:03 p.m. Due to inclement weather conditions reacting with the hazardous material, shelter-in-place was again recommended at 3:41 a.m. the second day with final lifting at 5:06 p.m. Pima County departments created avenues for the public to seek information: Pima County Communications Office created the webpage, pima.gov/acidspill, and PCHD managed phone calls on the Disease Control line at 520-724-7797, in addition to calls on the main line, 520-724-7770. Pima County Department of Environmental Quality (PDEQ), Pima County Department of Transportation (PCDOT), and PCOEM also answered calls from the community.

Responders worked continuously throughout the operational period(s) to mitigate the hazard and maintain protective actions. The nitric acid was contained to the median on I-10. A steady flow of earth-moving equipment delivered dirt and covered the contaminated area while crews continued to mitigate the active release.

The Vail School District was affected by the incident. Vail Academy was evacuated shortly after the incident onset due to the school's proximity to the release scene. Traffic congestion associated with the closure of I-10 placed strains on bus routing. Therefore, Vail School District decided to close all schools for the entire district the second day.

Additional impacts to the public included necessary rerouting of Sun Tran bus routes and modification to service times. In addition, surface street traffic rerouting was required and commuters experienced delays due to the I-10 closure. Emergency Medical Services (EMS) traffic was rerouted away from the area. Impacts were endured by medical facilities in the area requiring many of them to power off their heating, ventilation, and air-conditioning (HVAC) systems, affecting their facility operations. Some facility operations were adjusted, whether still handling walk-in patients or continuing to shelter-in-place. Throughout the incident, medical facilities reached out to partners seeking up-to-date information.

The Arizona Department of Corrections was in the shelter-in-place designated area and also shut down HVAC units when recommended by first responders.

Response operations concluded in the early evening of February 15, 2023. Clean-up is ongoing, conducted via a contracted vendor by the hazardous materials transporter, and being overseen by Arizona Department of Transportation (ADOT).

Agencies/Departments Involved

The cross-jurisdictional response to the hazmat incident brought together 19 agencies from across the spectrum, including federal, state, county, local, and supporting agencies. Through coordination and communication, each agency executed their specific role to further the safety of the responders and the community. See Appendix B, *Agencies/Departments Involved and Acronyms* for a comprehensive listing of agencies.

After-Action Report Development

The primary goal of this After-Action Report (AAR) is to assess the performance of all agencies involved through a constructive analysis of incident operations while identifying areas for improvement and presenting actionable steps to adopt recommendations. Ultimately, the goal is to improve our preparedness for the next emergency through a combination of enhanced prevention and mitigation strategies for the benefit of those we serve.

In collaboration with DPS and TFD, PCOEM facilitated an after-action debrief, held in two sessions on March 15, 2023. First responders attended Session 1 and discussed their operational response. Session 2 expanded to include community stakeholders, support agencies, along with representatives from DPS and TFD. Session 2 participants received an incident overview and platform to discuss how they were impacted. A survey link was made available to all participants and sent to those unable to attend the debrief. The summarization of both the after-action debrief sessions and the survey are captured in the *Summary Analysis*. See Appendix A, *Evaluation Statistics and Written Comments* for survey results.

Core Capabilities

Presidential Policy Directive 8 (PPD-8) describes the Nation’s approach to preparing for the threats and hazards that pose the greatest risk to the United States. The Directive sets forth the National Preparedness Goal of: *“A secure and resilient nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk.”* To achieve this goal, 32 Core Capabilities¹ have been established with associated capability targets to aid the whole community in achieving this goal. These Core Capabilities provide for collective goals across emergency management planning and exercises, and as such, have been incorporated into this report to assist federal, state, county, local, and supporting agencies in aligning their future planning, training, and exercise initiatives. The Core Capabilities included in this report and their associated definitions are included below.

Pima County Office of Emergency Management identified eight unique focus areas to capture and categorize information to the I-10 hazmat incident. Each area correlates to a specific Core Capability (see Table 1), comprised of different aspects of the response, each with a unique narrative and a distinct set of stakeholders, responders, plans, processes, and outcomes. While overlap exists across some Focus Areas, these divisions provide a mechanism to breakdown the overall response into accessible elements and establish a framework for a set of focused and achievable actions. This AAR recommends the City of Tucson, Pima County, and/or their regional partners implement these actions in order to capture strengths and remedy areas of improvement observed during the response to the I-10 Hazmat incident.

¹ A full list of Core Capabilities can be found at: <https://www.fema.gov/core-capabilities>.

Table 1: Core Capability Definitions

Core Capability	Definition
Operational Coordination	Establish and maintain a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and supports the execution of core capabilities.
Situational Assessment	Provide all decision makers with decision-relevant information regarding the nature and extent of the hazard, any cascading effects, and the status of the response.
Operational Communications	Ensure the capacity for timely communications in support of security, situational awareness, and operations by any and all means available, among and between affected communities in the impact area and all response forces.
Critical Transportation	Provide transportation (including infrastructure access and accessible transportation services) for response priority objectives, including the evacuation of people and animals and the delivery of vital response personnel, equipment, and services into the affected areas.
Environmental Response/Health and Safety	Conduct appropriate measures to ensure the protection of the health and safety of the public and workers, as well as the environment, from all hazards in support of responder operations and the affected communities.
Public Health, Healthcare, and Emergency Medical Services	Provide lifesaving medical treatment via Emergency Medical Services and related operations and avoid additional disease and injury by providing targeted public health, medical, and behavioral health support and products to all affected populations.
Public Information and Warning	Deliver coordinated, prompt, reliable, and actionable information to the whole community through the use of clear, consistent, accessible, and culturally and linguistically appropriate methods to effectively relay information regarding any threat or hazard, as well as the actions being taken, and the assistance being made available, as appropriate.
On-Scene Security, Protection, and Law Enforcement	Ensure a safe and secure environment through law enforcement and related security and protection operations for people and communities located within affected areas and also for response personnel engaged in lifesaving and life-sustaining operations.

Summary Analysis

Asking the questions of “what went well” and “what could have gone better” helps to focus efforts on continuous improvement for all agencies and departments involved. The following 2 sub-sections highlight Strengths and Opportunities for Improvement. Each sub-section is further categorized into focus areas which correlate to a specific Core Capability.

STRENGTHS

Operational Coordination

A multitude of agencies from various disciplines worked well throughout the incident. From the initial response and coordination between Law Enforcement and Fire/Hazmat, to public/private sector, Private Business and Critical Infrastructure, and support coordination with National Weather Service, Arizona Poison Control Center, and Pima County Health Department the focus remained consistent with mitigating the scene and preserving life safety.

Swift action by the commuting Border Patrol agent was taken to close westbound I-10. Full closure of I-10 was ordered within approximately 15 minutes of the initial call by DPS.

Situational Assessment

Within 15 minutes of the initial 9-1-1 call, the hazardous substance was identified as nitric acid. After being contacted by TFD, the National Weather Service (NWS) rapidly provided plume modeling to support responders on-scene. Based on plume modeling, first responders established the initial evacuation zone of 500 feet for the scene. When deciding shelter-in-place perimeters, Unified Command (DPS and TFD) increased the perimeter to the size publicly broadcasted out of an abundance of caution.

WebEOC is a crisis information management system, accessible via the internet, available to responders across the state to establish a platform to share significant incident updates and may also be utilized for the coordination of resources. Using the system, the PIMA County - HAZMAT Incident I-10 was created on February 14th and updated throughout the duration of the incident.

Across the board, notifications occurred at all levels of government to include the City of Tucson elected officials, Pima County Administration, and the Arizona Department of Emergency and Military Affairs (DEMA). Email correspondence from the DPS Public Information Officer was sent to a large distribution list throughout the incident. Email and phone updates were provided by PCOEM to County Administration. Additionally, a cooperater call was held at 0900 on February 15 to allow Incident Commanders an opportunity to provide an update of the incident for supporting and coordinating partners.

Operational Communications

Tucson Fire Department notified PCOEM of the developing incident very early in the response. Two more phone calls of the same nature by different TFD staff occurred within minutes of each other. WebEOC was found to be a valuable source for information sharing among users. Agency cooperation and leveraging established relationships helped to achieve the common goal.

Critical Transportation

Three transportation departments took action to create traffic plans for their respective jurisdictions. Pima County Department of Transportation (PCDOT) provides access to TransView, a publicly available map application that identifies road closures and road work which can be utilized by travelers to alter and adapt their personal routing. The City of Tucson, as well as the ADOT, also maintain platforms available to the public commuters.

Environmental Response/ Health and Safety

The hazmat spill was a difficult incident complicated by inclement weather that reacted with the spill. Despite the complexity, responder safety was priority, and thankfully no one was hurt. Tucson Fire Department HAZMAT Response Team deployed technicians trained in chemical detection to the Rita Ranch subdivision and surrounding area to determine the extent of chemical dispersion. The chemical was not detected beyond the immediate incident scene. Tucson Fire Department, via the Pima County Regional HAZMAT agreement had additional HAZMAT teams available and ready to assist if needed. Prompt coordination resulted in the hazardous materials transporter identifying a cleanup contractor.

Lessons learned from the response related to best practices were shared with the Southern Arizona Regional HAZMAT Team as a training opportunity.

Public Health, Healthcare, and Emergency Medical Services

For the incident, no known injuries or direct effects to the public or responders were reported. The commercial driver operator was the only fatality associated with this incident. Notification procedures exist for hazmat exposed patients requiring transport via EMS for medical care to receiving hospitals. Due to no needed medical transport, no notification occurred to the hospital network.

The Pima County Health Department worked with the Arizona Poison Control Center in response to the number of inquiries received by the public seeking guidance or concerns of exposure. An algorithm was developed by the PCHD and was posted to a public facing website created in coordination with the Pima County Communications Department.

Public Information and Warning

A lead PIO was assigned to the incident by DPS as the lead agency. Arizona Department of Public Safety maintained a public facing website [Collision and Hazardous Materials Spill on Interstate 10 in Tucson |](#)

[Arizona Department of Public Safety \(azdps.gov\)](http://azdps.gov) listing chronological incident updates and also providing the email of PIO_Unit@azpds.gov for additional communication.

The Pima County Office of Emergency Management, as the alerting authority for IPAWS (Integrated Public Alerts and Warnings System), was requested by TFD to issue Shelter-In-Place Alerts. A total of five alerts were issued as conditions changed in the field and were requested by UC. The message informed not only those in the immediate area of recommended actions, but also informed the public within Pima County of the incident, to shelter-in-place, and to avoid the area.

The mass notification tool was instrumental for prompt notification to the public and provided PCOEM and UC notification options ranging from alerting the entire region to a specific geographic location.

Due to the proximity of University of Arizona (UA) Tech Park, Vail Academy, a recreational vehicle storage area, and a single residence on the south side of I-10, law enforcement officers were physically sent to these locations to assist with evacuations.

Members of the public were resourceful and contacted multiple County departments they presumed were directly involved with response or had regulatory oversight. Pima County Office of Emergency Management fielded calls from restaurants, medical providers, residents, individuals residing out-of-state, schools, teachers, and concerned parents. Concerns ranged from identifying the legitimacy of the message and inquiring about possible evacuations, to shelter-in-place questions and when heating, ventilation and air conditioning units could be powered back on. Pima County Health Department received a total of 46 phone calls, most of which were medical in nature. Individuals contacted PDEQ by phone and email concerned about the air quality. Pima County Department of Transportation also received community inquiries.

On-Scene Security, Protection, and Law Enforcement

The incident scene was secured to a radius of 500 feet. Due to the size and scope of the incident scene, UC determined that a hard perimeter security beyond the incident scene was not necessary. In addition, staffing requirements of over 400 officers that would have been needed for the entire shelter-in-place perimeter boundary was not attainable.

OPPORTUNITIES FOR IMPROVEMENT

Operational Coordination

Upon activation of the 9-1-1 system, units responded as requested, including mutual aid requests. The location provided unique jurisdictional authorities, as I-10 is within State authority, traversing multiple local jurisdictions. With the Incident Command Post (ICP) not being clearly identified or known to all response partners, a gap was created in communication and assignment of support roles. Multiple partners reported having trouble locating the DPS incident commander when arriving on-scene. Approximately 30 minutes after the initial 9-1-1 call, unified command was established between DPS and TFD. It is recommended that an ICP be established and communicated over appropriate channels and updated as it changes.

It is not uncommon for significant incidents to cross jurisdictional boundaries and affect the surrounding community. For situational awareness and posturing of support that may be needed by the IC/UC, local partners can help fill the gap when requested. As a local partner, TFD did contact PCOEM, though initial notification was not made by DPS to PCOEM regarding the hazmat incident. A recommendation was made for DPS to notify local county office of emergency management of incidents that impact the local community. Since the incident, DPS has gone to great lengths to establish relationships and broaden their understanding of the support role PCOEM can provide.

Situational Assessment

Timely incident and situational information expedite decision making. Across the board, notifications occurred through respective jurisdictional procedures to City of Tucson elected officials, Pima County Administration, and the Arizona Department of Emergency and Military Affairs (DEMA) Southern Arizona Coordinator. Though updates were given either by phone or email, regular Situation Reports were not provided during the incident. To assist with providing a consistent common operating picture for all, development of incident situation reports is recommended.

Operational Communications

Pima County Wireless Integration Network (PCWIN) enables interoperable communication within Pima County among public safety and public service organizations. Local partners could easily communicate via radio with each other. For other partners not utilizing PCWIN, radio operability was hindered. Though access to the PCWIN Network was available to DPS, it was not utilized because 1) not all DPS radios have appropriate code plugs (files that contain the programming information for the radios), and 2) local responders and PSAP operators lacked awareness of the ability to integrate DPS as a non-subscribing agency. Training across the spectrum on the PCWIN system, equipment, and communications would be beneficial and recommended.

Arizona Interagency Radio System (AIRS) was identified early in the incident as the interoperable communication platform and was initiated by DPS PSAP. Unfortunately, the channel selected was not performing at 100 percent, hindering the ability of responders to relay communications in field and was abandoned early on as a viable solution.

Communication is imperative for partners to gain situational awareness and stand by if support is needed. Once communication was established, supporting agencies responded quickly within their Emergency Support Function (ESF) areas. Some support agencies were not notified immediately of the incident. Pima County Department of Transportation received limited information, and PCHD was not notified until the following day. For situational awareness and posturing of support, it is recommended that PCOEM initiates an ESF Coordination Call upon notification of a significant incident to inform support agencies.

Critical Transportation

Three transportation departments: ADOT, PCDOT, and Tucson Department of Transportation (TDOT), were assembling traffic plans for their respective jurisdictions to keep vehicle flow in motion with the closure of I-10. Though plans were created, the individual departments did not share information with each other. In turn, this created community stress as there was no unified detour product. Compounding the communication woes, ADOT's website directed questions to PCDOT; unfortunately, PCDOT was

unable to field questions due to lack of information sharing. Growth in networking and information sharing among the transportation departments is recommended.

Environmental Response/ Health and Safety

Tucson Fire Department monitored the mitigation of the hazmat spill area while standing by as frontline support if mitigation activities went awry. Also, trained TFD hazmat technicians were deployed into the surrounding community to conduct chemical detection activities. Pima County Department of Environmental Quality (PDEQ) did not participate in environmental response activities during the incident, as they did not have equipment to support nor subject matter expertise. The lack of clarity of PDEQ roles in a response may have frustrated other agencies. Understanding and defining those roles is recommended.

Properly worn PPE (personal protective equipment) aids in the protection of responders and those at the scene. There were observations from video in open platforms revealing what appeared to be individuals within proximity of the spill not wearing PPE. Recommendation is to continue responder awareness, identifying funding if needed to supply responders with appropriate PPE and provide expanded opportunities for training and exercise.

Public Health, Healthcare, and Emergency Medical Services

For the incident, no known injuries or direct effects to the public or responders were reported. Protocols are in place to care for patients with hazmat exposure and to message the community regarding public health information. Having timely information assists partners to prepare when action is warranted. Lack of messaging to hospitals, healthcare facilities, and public health partners regarding the incident and its extent resulted in a cascade of phone calls to DPS, TFD, PCOEM, PCHD, and Arizona Poison and Drug Information Center wanting incident details. With a limited understanding of the number of potential patients, if any, hospitals were asking for advice on what to do should exposed individuals self-report to the emergency room. Pima County Health Department was not notified until the second day of the incident, resulting in lost time for effective public health messaging. It is recommended that IC/UC initiate ESF-8: Public Health and Medical Services through PCOEM to coordinate those efforts.

Public Information and Warning

During the hazmat incident, PIOs from across the agencies worked to keep the community informed of the situation. As the incident dictates, PIOs from different agencies combine efforts by activating a Joint Information System (JIS) to create unified messaging. Communication was hampered as interaction between the lead PIO and PIOs from other agencies was very limited. When incoming media requests came to Pima County Communications Department and PDEQ, media outlets were referred to the public facing DPS incident website. Discrepancies occurred in shelter-in-place perimeter maps that were published. A lack of information made it difficult for City of Tucson Communications to answer chemical information inquiries and general questions from the public.

Lessons learned brought to light the need for activating a JIS, which alleviates discrepancies in messaging and provides clear information to media and public outlets. To assist in information flow prior to JIS activation, PCOEM is researching a model where deployable support personnel, to include PIOs, can assist PCOEM with gathering call intake data, providing scripts for call takers, and analyzing information to be

used to better inform the JIS and the public. Public Information Officer training further enhances messaging capabilities during an incident and is recommended.

On-Scene Security, Protection, and Law Enforcement

Located near the incident, Vail Academy transferred students and staff away from the vicinity. Although proactive, Vail Academy unilaterally evacuated without notifying law enforcement; neither DPS nor TPD was informed. Working in partnership with supporting agencies bolsters response efforts, situational awareness, and can help decrease any potential communication breakdown.

Conclusion

The Nitric Acid spill brought together agencies from across jurisdictions, partnering in response to incident priorities: life safety, incident stabilization, and property conservation. The response was technical in nature, with adverse weather conditions adding further complexity. Notwithstanding the intricacies, no known injuries or direct effects to the public or responders were reported.

No incident response is ever perfect. Lessons are learned and reinforced. Agencies and departments appropriately review and revise their internal policies and procedures, leading to more comprehensive preparedness for the next emergency. It is already being witnessed that lessons learned are being shared among partners, collaboration and coordination enhances community preparedness. Relationships and networking are being reinforced.

Utilizing a Whole Community approach, the mission of the Pima County Office of Emergency Management is to provide emergency management capabilities to the citizens of Pima County. To support this mission, PCOEM will continue to plan, train, exercise, and promote the National Response Framework and best practices while striving for continuous process improvement.

APPENDIX A – Debrief Participant Feedback

Evaluation Statistics and Written Comments

For the debrief held, 96 individual invitations were sent to first responders and supporting agencies, with a total of 66 individuals attending the debrief. Participants were provided Participant Feedback Forms which were made available digitally at each workstation and sent electronically to those who were unable to attend the debrief. A total of 26 evaluation forms were received.

Responses to the questions were orthographically edited. However, the messaging was not affected.

Summary of Representation

A variety of stakeholders provided input. For context, a breakdown of the 26 unique organizations has been represented below:

1. Federal = 2
2. State = 5
3. Local = 6
4. Fire = 1
5. Law enforcement = 6
6. Hazmat = 2
7. Other = 4
 - o Communications
 - o Hospital
 - o Private Sector
 - o Poison Control/Office of the Medical Director

Questions:

1. Identify the top 3 strengths discovered during the incident:
 - Agency cooperation/teamwork/Incident commander
 - Fantastic Incident response. Fantastic cooperation between the agencies
 - Good rapid response from DPS
 - Agencies working well for the common goal
 - Hazmat operations in the hot/warm zone was coordinated well between DPS, ADOT, and TFD. Communication between TFD and DPS HAZMAT worked well. We had plenty of personnel to complete hazmat operations without compromising safety standards
 - Cooperation, information sharing and knowledge
 - PCWIN abilities among local agencies. Cooperation between first responders. Amount of resources available in Pima County for incidents like this

- DPS managed the scene adequately
- Interagency cooperation was very good
- Unified Command, inner HAZMAT, outer perimeter unified teams, did a great job of working together and briefing on-scene personnel. Hazmat coordination between HAZMAT Teams and clean-up vendor. Decision-making in evacuations, shelter-in-place recommendations
- Immediate Response, Mitigation, Safety
- First response, HAZMAT Team, medical and safety at the incident
- Everbridge when used correctly is an invaluable tool
- Dispatchers helping with phone calls and making notifications and working together as a team when it's really busy in the operations center. Good coordination with command staff and dispatchers. Unified command and command staff working together to keep the public safe
- Incident command was able to contain the incident as best as they were able to without any more injuries or fatalities. Able to get that text message out to the public, so that they could at least be aware of what was happening. Strength between the multi-law enforcement agencies
- Tactical response was strong. Leveraging relationships to reach the goal. Positive outcome
- Prior to this event the communication and professional relationships that were already established. Operational response on the scene.
- Public safety was addressed. Hazmat effort was addressed. Efforts were addressed as best as possible
- Effective incident response. Only 1 death/injury. Discovered things I did not know (roles of agencies)
- Early notification of first responders, after-action reviews and improvements, information flow between state and county. From an NWS perspective, I am thankful that we were notified so early in the incident. Hazmat is still something new that folks are learning about what we (NWS) can provide and how we can assist. I am thankful that we had those relationships ahead of time which led to an early call and the ability to provide weather info and plume modeling early on
- DPS developed a web page that was used to get updates and was shared with AzCHER members. Initial notification of shelter in place alert was received and AzCHER was able to connect with member healthcare facilities in the area. Public health and AzCHER were able to align Health Alert Network (HAN) messaging
- Partnership with the state, poison control, OEM, AzCHER and other partners. Departmental preparedness and understanding/coordination of response. High quality materials were created to support healthcare partners and the community

- We found the Common Operating Picture (WebEOC) to be very effective for real time information sharing. This was a sustain from my perspective so keep using this for information sharing. There were several questions we were able to get answers through situation updates without adding to the surge of phone calls
- Quick emergency response by AZDPS. Excellent communication from Pima County OEM. Traffic control during evacuation
- Inter-agency cooperation. Thanks for getting Poison Control Center (PCC) involved early

2. Identify top 3 areas for improvement discovered during this incident:

- Interoperability on radios being able to communicate with the other agencies involved. Community messages going out regarding the incident. Identifying the incident command post
- Communication to the public. Communication between different agencies
- There was no clear direction for supporting agencies. There was no incident command identified until very late. There was no specific point of contact to obtain directions/check in. Unified command to be activated as soon as mutual aid is requested
- Communications issues, PIO roles
- Unified Command seemed to break down at the end of day one. It was confusing to know who (agency) was responsible for public notifications. JIC was needed
- Communication, communication, communication
- The importance and impact of unified command, including setting it up as soon as possible. Better public communication and more frequently and clear communication. Better radio compatibility with DPS and PCWIN
- Marana Police Department sent 8 officers to the scene and could not locate the incident command post. We did not have clear direction on what support was needed. Clear communication on assignments should be given at the beginning from the start. EOC should have been activated to assist with communications and direction
- Unified message was needed at times. Overall communications. Utilize Poison Control to route questions
- Coordination of resources during clean-up, balance between drivers of dirt haulers, hazmat techs to dump dirt, vendor staffing qualified to operate equipment and enough equipment to move dirt. Joint Information Center or Lead PIO. In my opinion, the lead should be a representative of the jurisdiction that is the greatest stakeholder in evacuated areas/JIC. ESF roll calls and situation reports at regular intervals to be shared with all stakeholders
- Communication, incident command outreach, communication

- Communication, on scene personnel communicating with off scene groups, realization of when to open JIC
- Communications with agencies outside the government and first responder systems - private schools, businesses, people recreating outside (parks, bike trails, etc)
- Use a separate frequency if staffing permits. Communication with other agencies and partners. Keeping the public more informed in real time
- Communication to the public. Communication between county and the public. Information flow from the PIO
- Communication! Jurisdictional questions, turf battles. Community notifications
- Informational sharing and communication to keep key stakeholders up to date to make real time decisions for their respected areas
- Improve communication with all agencies
- Use of a Joint Information System
- More effective public communication. More defined roles in the response. Transportation information to the public
- Secondary notifications, JIC activation, EOC activation
- Lack of communication provided to the local healthcare community--extremely important to notify hospitals immediately of hazmat exposure so they can have the appropriate time to get their HERTs on standby. Did not include public health early (AzCHER's ESF-8 lead). AzCHER has access to WebEOC but did not see any updates for the hazmat I-10 spill
- Activation of PCHD should happen through administrator on call, not through department director. Preparation should've happened prior to activation, or earlier activation. Internal departmental response communication and clarification of roles and expectations
- Refining the need for having a JIC formed was highlighted in discussion
- Communication between AZDPS & Pima County OEM
- Joint information center could have helped

3. What additional community partners should be included in future planning efforts to assist the agency/department/facility in responding to this type of event?

- As we learned today the EOC. PIO on scene to coordinate a unified message to send out along with chain of command notifications.
- Radio / operational communications / dispatch / radio technology people
- Dispatchers
- ADEQ, railroad company
- Pima County Dept. Health, Arizona Dept Enviromental Quality

- Federal partners should have been involved, EPA
- Even though I represented PSCD as TFD a member of PSCD Operations could provide more detailed information about PSCD that I just do not know
- LEPC reps. Tucson Streets or DOT, Pima County DOT, PCSO, PIO's from all jurisdictions
- Medical, based off of the debrief discussion
- Tucson Water as there may be concerns with water contamination
- Major employers
- PIO's, county and state agencies
- ADOT incident supervisors would have been helpful
- JIC
- All local transportation agencies and emergency services agencies
- Poison control. ADEQ
- At this level, the IMAAC which is a federal partner could have been beneficial to activate to support the incident
- Local public health, Arizona Health Care Association
- Poison control
- Poison Control Center (PCC)

4. Based on the Planning, Organization, Equipment, Training, and Exercise (POETE) model, what additional needs have been identified as a result of participating in this incident and/or needed to respond to this type of event?

Table 2: POETE defined

POETE Areas	
Planning	Development of policies, plans, procedures, mutual aid agreements, strategies, and other publications; also involves the collection and analysis of intelligence and information.
Organization	Individual teams, an overall organizational structure, and leadership at each level in the structure
Equipment	Equipment, supplies, and systems that comply with relevant standards

Training	Content and methods of delivery that comply with relevant training standards
Exercise	Exercises and actual incidents that provide an opportunity to demonstrate, evaluate, and improve the ability of core capabilities to preform assigned mission and tasks to standards

Planning

- All to be on the same page. Unified command to be activated as soon as mutual aid is requested
- Partnering
- Knowing who to contact with various agencies and how to communicate with them
- Marana PD was not given a course of action. We responded and self-dispatched to traffic control points
- Responder education on process to improve communications
- Checklist with best-practice protocols
- Planning was handled well
- Over communicating with ADOT/county through PIOs
- Be able to give the information to the public
- Preplanning for communication and the creating of the JIC for incidents that have a major impact on communities and residents for the distribution of information
- Lay out roles of the different agencies (who will do what when?)
- How will the information be effectively and quickly disseminated to the public
- Notification of secondary responding partners. Internally, NWS should be communicating for frequently with those on scene when weather is a concern
- AzCHER will work on drafting a Chemical Surge Annex to the Response Plan and ensure public health (ESF-8) is part of the planning
- Perform internal departmental AAR and incorporate improvement plan into future responses
- Plan for PCC [Arizona Poison and Drug Information Center] involvement. We got calls almost immediately

Organization

- ADOT HAZMAT Response Unit
- Figuring out each agency's role

- MPD did not know who the lead agency was, DPS or TFD
- Awareness is very important for me
- Designated person(s) for facilitating, coordinating calls and intervals for situational awareness reports, especially when an incident covers multiple operational periods
- Communication throughout the community
- Interoperability between agencies in an area where there are various jurisdictions are involved
- Need a JIC when there is a hazmat incident that is airborne, or water borne and not immediately contained
- Unified command needs to distribute info quickly and accurately
- Traffic control, was a big issue that day
- Communication and jurisdictional questions between layers of government
- I did not receive the follow-up messages that were going out to emergency responders
- Additional training for NWS meteorologists on hazmat support
- AzCHER connects with public health PIO who should be part of the JIC. Include AzCHER in a healthcare liaison role with ESF-8
- PCHD needs to improve leadership's understanding of the activation during emergencies and following the processes in place. Improve internal communication
- I'd like to see PCC [Arizona Poison and Drug Information Center] worked in as part of a research on the org chart for hazmat response

Equipment

- Command post (functioning)
- We needed more trucks for dirt transportation during day one. The city provided 2 trucks and ADOT provided 2 trucks
- Identify equipment needed and where those resources are
- Hazmat teams, poison control on scene quicker
- Communications equipment
- PDEQ does not have air quality testing equipment that can be used in incidents like this. TFD and ADEQ do
- Purchase missing equipment
- We (PCHD) have a call center that could have been activated to help field some of the phone calls from the public. It wasn't activated, but it is ready to do so if needed in the future
- Communication equipment for PCC [Arizona Poison and Drug Information Center]

Training

- Radio usage regarding how to get to specific frequencies for interoperability
- Scenario training regarding hazmat or a train derailment
- Exercises based on actual events
- Interagency tabletop exercises dealing with multi-jurisdictional events
- Train together with every agency involved
- Big plus
- More major accident response and communication training with surrounding agencies
- Interagency trainings and contact sharing so each agency/departments knows who to contact
- Train, baby, train
- Think about how these incidents affects the community
- Exercise this
- Knowing the roles so that the appropriate people can be contacted depending on the questions we get
- Additional training for NWS meteorologists on hazmat support and IMAAC activation
- Additional decon training with HERTs is needed in the Tucson area--AzCHER can conduct with local hospitals
- WebEOC training, which is planned with the state for next week
- WebEOC training for PCC [Arizona Poison and Drug Information Center] staff

Exercises

- Just to make sure everyone is on the same page as far as interoperability on communicating
- Yes
- Same as "training" above
- We need exercises around similar incidents
- Tabletop exercises with surrounding agencies for similar incidents
- Create an exercise similar to this to bring everyone together
- Yes
- Demonstrate how multiple involved jurisdictions worked together and take lead in a unified command model that includes both Hazmat and additional logistical considerations
- Isn't this training
- Scenarios with multiple agencies involved

- PIO exercise about coordinating information through a Joint Information Center. What is the trigger to open a JIC? Where would it be or would it be virtual
- Scenario planning
- Participate in hazmat exercises to build those relationships with local first responders before an event occurs so that it is known how and what services the NWS can provide in this type of incident
- AzCHER will be hosting a chemical surge TTX in March 2024--we plan to exercise a hazmat scenario
- We need to do some internal departmental TTX, but also working with OEM on drills as well would likely be helpful
- Poison Control Center (PCC) involvement in exercise

APPENDIX B- Agencies/Departments Involved and Acronyms

Agency/Department Involved	
AzCHER	Arizona Coalition for Healthcare Emergency Response
DEMA	Arizona Department of Emergency and Military Affairs
DPS	Arizona Department of Public Safety
	Arizona Department of Public Safety Answering Point
ADOT	Arizona Department of Transportation
AIRS	Arizona Interagency Radio System
	Arizona Poison and Drug Information Center
	City of Tucson Public Safety Answering Point
	Marana Police Department Public Safety Answering Point
MPD	Marana Police Department
NWS	National Weather Service
PCCOMM	Pima County Communications Office
PCHD	Pima County Health Department
PCOEM	Pima County Office of Emergency Management
PCSD	Pima County Sheriff's Department
PSAP	Pima County Sheriff's Department Public Safety Answering Point
TFD	Tucson Fire Department
TPD	Tucson Police Department
CBP	United States Customs and Border Protection

Acronyms	
ARC	American Red Cross
AHJ	Authority Having Jurisdiction
EMS	Emergency Medical Services
ESF	Emergency Support Function
EPA	Environmental Protection Agency
HERT	Hospital Emergency Response Team
IC	Incident Commander
ICP	Incident Command Post
IMAAC	Interagency Modeling and Atmospheric Assessment Center
JIS	Joint Information System
LEPC	Local Emergency Planning Committee
PCC	Pima Community College
PDEQ	Pima County Department of Environmental Quality
PCDOT	Pima County Department of Transportation
PCWIN	Pima County Wireless Integration Network
PIO	Public Information Officer
TDOT	Tucson Department of Transportation
TTX	Tabletop Exercise
UC	Unified Command