# Spill Drill Thrill: Prepare Your Facility for a Chemical Emergency!

Jason Wilken, PHD, MPH CDC Career Epidemiology Field Officer California Department of Public Health

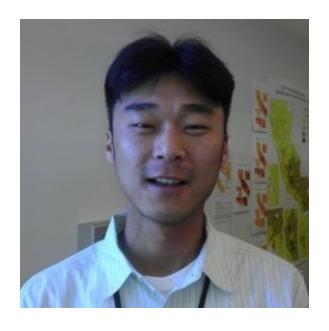
Danny Kwon, MPH, REHS California Department of Public Health



The findings and conclusions in this presentation are those of the author(s) and do not necessarily represent the official position of the United States Public Health Service, the Centers for Disease Control and Prevention, or the California Department of Public Health.



### Presenters



Danny Kwon, MPH, REHS

California Department of Public Health



Jason Wilken, PhD, MPH
CDR, United States Public Health Service,
Centers for Disease Control and Prevention,
& California Department of Public Health



# CDPH Environmental & Occupational Emergency Preparedness Team (EP Team)

Goal: to identify and reduce risks from chemical releases, natural disasters, and other hazards in California and minimize their health impacts on communities, vulnerable populations, workers, and first responders.

- Disaster epidemiology
- Technical assistance
- Surveillance
- Community resilience
- Emergency preparedness and response



https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/Pages/Emergency-Preparedness-Team.aspx



### Outline

- Hazards of chemical releases
- Identifying hazardous facilities
- Preparing for a chemical release
- Responding to a chemical release



# Chemical Emergency Considerations for Healthcare Facilities



This resource can assist healthcare facilities in preparing for a chemical emergency by providing key information and considerations that can be used for planning and response purposes. In addition to this checklist, more detailed plans and resources are available from ASPR TRACIE.

#### Assumptions

Chemical emergencies may be accidental in nature (e.g., industrial, transportation-related) or intentional (e.g., a terror event, chemical release); however, regardless of the origin of the incident, several **General Assumptions** should be considered during a large-scale chemical incident.

- Hospital operations and response efforts will be directly impacted if a facility is in the path of a chemical release, if the facility is affected by an internal release, or if it is receiving patients from a chemical incident. A large-scale incident may require prolonged response times and extensive resource management, further impacting normal operations and care capacities.
- Critical infrastructure, relevant to healthcare organizations (e.g., food, transportation, water, internet, utilities), may be impacted. As a result, hospital services such as laundry, waste collection/disposal, and security may be diminished leading to additional operational challenges.
- Federal, state, and local emergency resources may be needed but mobilization may be delayed due to on scene response and/or contamination. Integrating industry stakeholders and external experts into planning and response activities can support additional response needs
- Victims are likely to leave an affected area and self-refer to hospitals, urgent care centers, outpatient medical offices, and fire/EMS stations. Fear of chemical exposure, or the need to seek refuge may cause a surge of concerned citizens to these same facilities. Similarly, areas outside the impact zone may become impacted by citizens fleeing affected areas to seek care.
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- Staff will, in some instances, need to evaluate a large number of potential chemical exposures and/ or contamination. They may be expected to identify exposure type; evaluate the magnitude/severity; assess contamination and related risks; and triage victims for the appropriate level of decontamination and medical care.
- Staff may also be impacted by exposure, fear of exposure or family obligations (e.g., child/family care if schools are closed, acute care facilities are affected). This will have implications for hospital operations, care capacity, and response efforts.
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#### Select ASPR TRACIE Resources

- Chemical Hazards Topic Collection (TC)
- HCC Specialty Chemical Surge Annex Template
- Chemical Emergency Surge Annex TTX Toolkit
- Select CBRN Resources
- Hospital Surge Capacity TC
- Hospital Patient Decontamination TC
- Pre-Hospital Patient Decontamination TC

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https://files.asprtracie.hhs.gov/documents/chemicalemergency-considerations-for-healthcare-facilities-final.pdf



# Center for Medicare and Medicaid Services (CMS) Emergency Preparedness Rule

Hospitals must "develop a plan based on a risk assessment using an "all hazards" approach, which is an integrated approach focusing on capacities and capabilities critical to preparedness for a full spectrum of emergencies and disasters"

https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertEmergPrep/Downloads/EP-Rule-Table-Provider-Type.pdf



### All-Hazards

- Hospital All Hazards (cdc.gov)
- All-Hazards Preparedness Guide (cdc.gov)







## Bhopal methyl isocyanate disaster, 1984

- Union Carbide India Limited pesticide plant
- Used methyl isocyanate (MIC) as an intermediate in production of carbaryl (Sevin)
- Poor maintenance and malfunctioning safety systems
- 40 tons of MIC gas released into the community at ~12:00 AM









Photo credit: Prakash Hatvalne, AP

## West Virginia aldicarb oxide release, 1985





Photo Credit: New York Times



Emergency Planning and Community Right to Know act (EPCRA), 1986

Local Officials

Local emergency plan

Information about hazardous substances in/near communities

The Public

Industry



### **EPCRA** structure in California

State Emergency
Response
Commission
(SERC)

Local Emergency
Planning
Committee
(LEPC)





### **EPCRA** structure in California

State Emergency
Response
Commission
(SERC)

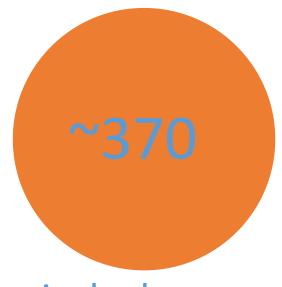
Local Emergency
Planning
Committee
(LEPC)

Certified Unified
Program
Agencies
(CUPA)



### EPCRA structure in California





Chemicals that must be reported to CUPA if amount is above threshold



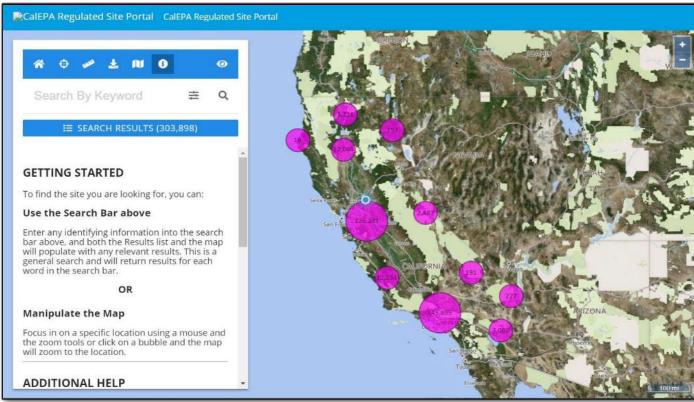
# Facility reporting requirements

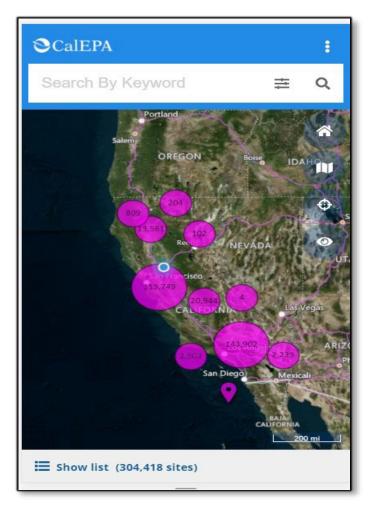
- Identity of chemical and type of hazard (explosive, toxic, asphyxiant, combustible dust, etc.)
- Inventory vs. emergency management (spills) thresholds
- Must report new hazardous substances to CUPA within 60 days
- CUPAs may contact facilities and review for accuracy
- Note: Does not include fertilizers, pesticides, and substances in transportation
- Public access to chemical storage data through CalEPA's Regulated Site Portal



# Local chemical inventory is publicly available!

Regulated Site Portal (RSP)













### **Data Sources**



### Regulated Site Portal

California Environmental Reporting System (CERS)

CalOSHA

California Integrated Water Quality System (CIWQS)

US EPA's Air Emission Inventory System (EIS) California
Department of
Toxic
Substances
Control
EnviroStor

California State Water Resources Control Board GeoTracker Stormwater
Multiple
Application and
Report
Tracking
System
(SMARTS)

Solid Waste Information System (SWIS)

US EPA's Toxics Release Inventory (TRI)



23rd Annual California CUPA Training February-March Conference

### Hazard Awareness with RSP







### 1. Location

2. Data

### 3. Explore

Find your facility's location in the CalEPA Regulated Site Portal (RSP) map

- •Search "Regulated Site Portal" in your browser to find RSP
- CalEPA Regulated Site Portal (link)
- •Click "Did you mean:" to zoom in to your location (zoom to your location button can be inaccurate)
- •Browser may need to be refreshed if search is unresponsive

Export CSV file for the top 2,000 chemicals for the current sites

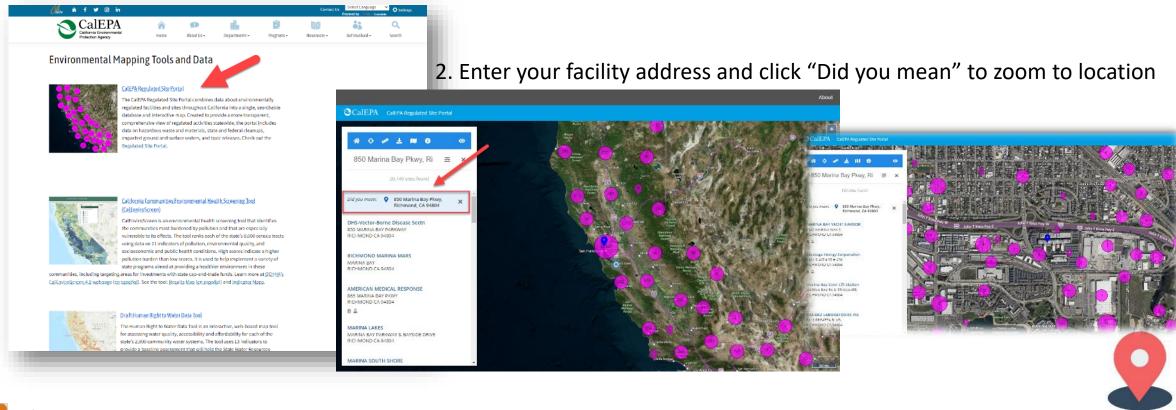
- •Use the line measuring tool to establish radius of search and appropriate level of zoom
- •RSP download tool will only export information on facilities in the map you are viewing

Review relevant data columns to identify facilities with chemical hazards

- •Use the "Filter" tool in MS Excel to examine data categories within
- •Consult with your local CUPA

### Location

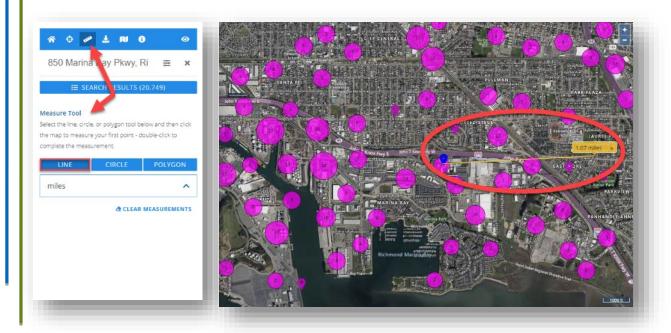
1. Search "Regulated Site Portal" in browser to find link





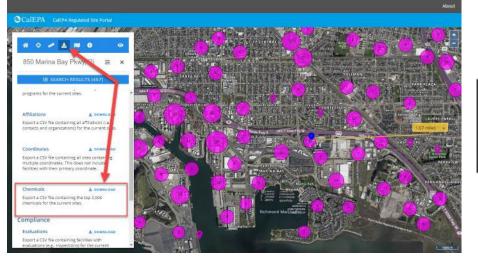
### **Download Chemical Data**

1. Use the RSP "Measure Tool" to establish a 1-mile search radius around your facility



2. Use the "Download data" tool and select "Chemicals" to export chemical storage data on facilities within your viewin map

Note: Limited to the top 2000 chemicals in viewable area

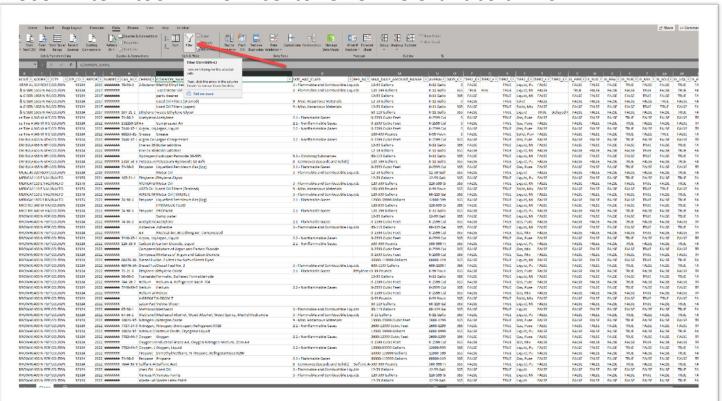






## Explore

1. Use "Filter" tool in MS Excel to review relevant columns



- 2. Important data columns:
- CHEMICAL\_NAME
- EHS NAME
- DOT\_HAZ\_CLASS
- MAX\_DAILY\_AMOUNT\_RANGE
- TIER2\_HAZARD\_LABEL
- TIER2\_HEALTH\_EFFECT\_LABEL
- ADDRESS





# Demonstration

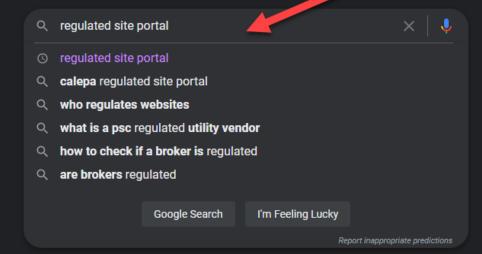
Using Regulated Site Portal







# Google



### Environmental Mapping Tools and Data



### CalEPA Regulated Site Portal

The CalEPA Regulated Site Portal combines data about environmentally regulated facilities and sites throughout California into a single, searchable database and interactive map. Created to provide a more transparent, comprehensive view of regulated activities statewide, the portal includes data on hazardous waste and materials, state and federal cleanups, impacted ground and surface waters, and toxic releases. Check out the Regulated Site Portal.

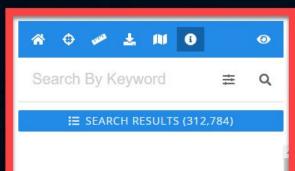


### California Communities Environmental Health Screening Tool (CalEnviroScreen)

CalEnviroScreen is an environmental health screening tool that identifies the communities most burdened by pollution and that are especially vulnerable to its effects. The tool ranks each of the state's 8,000 census tracts using data on 21 indicators of pollution, environmental quality, and socioeconomic and public health conditions. High scores indicate a higher pollution burden than low scores. It is used to help implement a variety of



### **SCalEPA** CalEPA Regulated Site Portal



#### **GETTING STARTED**

To find the site you are looking for, you can:

#### Use the Search Bar above

Enter any identifying information into the search bar above, and both the Results list and the map will populate with any relevant results. This is a general search and will return results for each word in the search bar.

OR

### Manipulate the Map

Focus in on a specific location using a mouse and the zoom tools or click on a bubble and the map will zoom to the location.

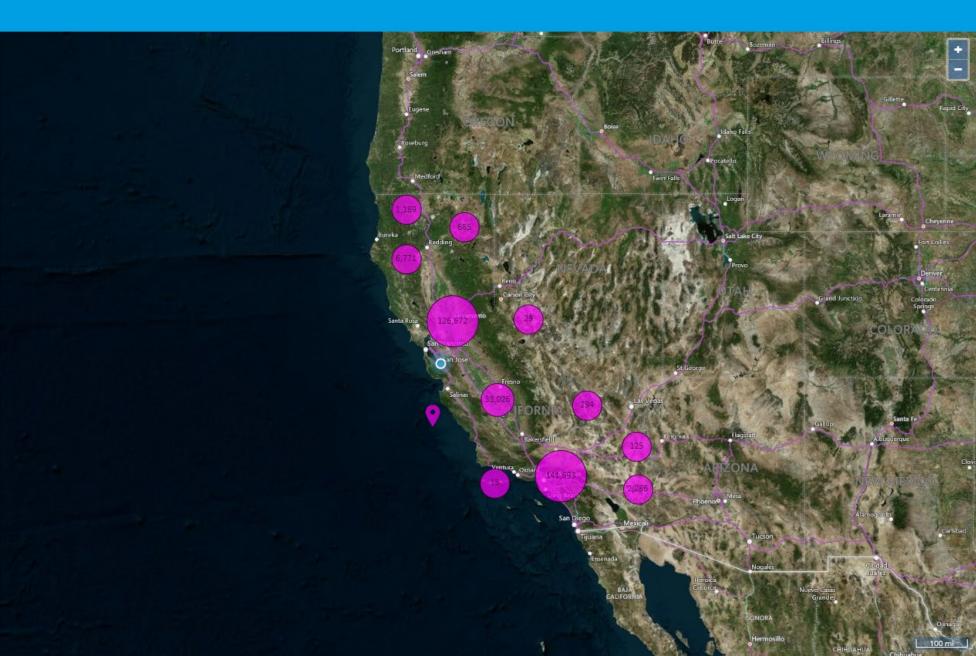
### ADDITIONAL HELP

### Q Simple Search

Enter any text into the keyword search. The results are based on each word. Using quotes does not create a phrase.

**≢** Filter

Items listed under the Filter tab limit your search results to the selected items. Filtering is applied

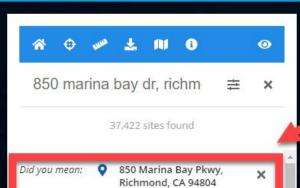


# Demonstration Site

CDPH, Richmond, CA



### SCalEPA CalEPA Regulated Site Portal



### DHS-Vector-Borne Disease Sectn

850 MARINA BAY PARKWAY RICHMOND CA 94804

#### RICHMOND MARINA MARS

MARINA BAY RICHMOND CA 94804

#### MARINA LAKES

MARINA BAY PARKWAY & BAYSIDE DRIVE RICHMOND CA 94804

#### MARINA SOUTH SHORE

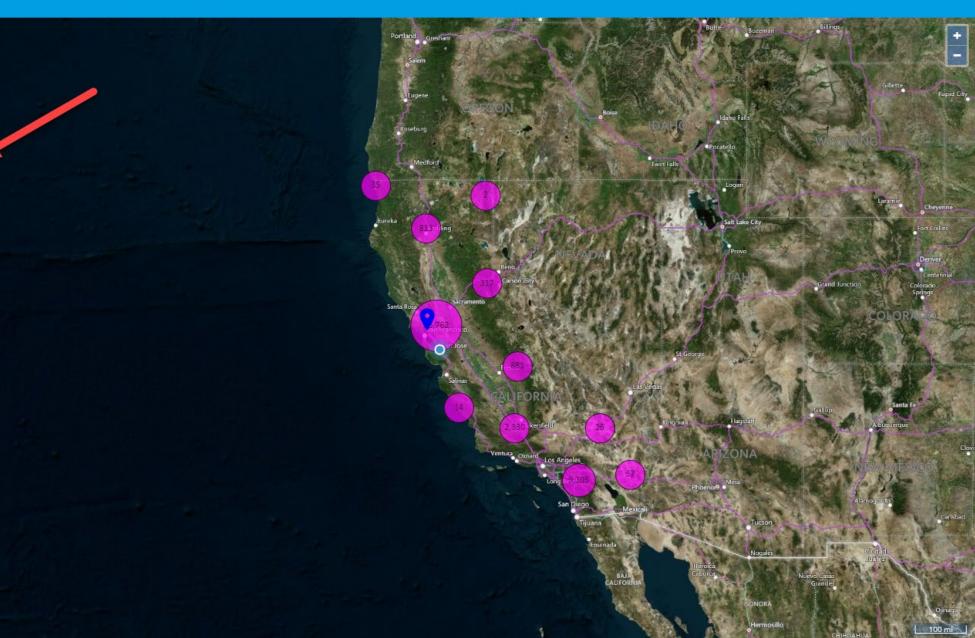
MARINA BAY PARKWAY AND SEAGULL DRIVE RICHMOND CA 94804

#### MARINA BAY REDEVELOPMENT

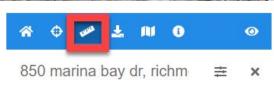
1450 MARINA WAY RICHMOND CA 94804

### Marina Bay Cove Lift Station

MARINA BAY PK & SPINNAKER RICHMOND CA 94804



### **SCalEPA** CalEPA Regulated Site Portal



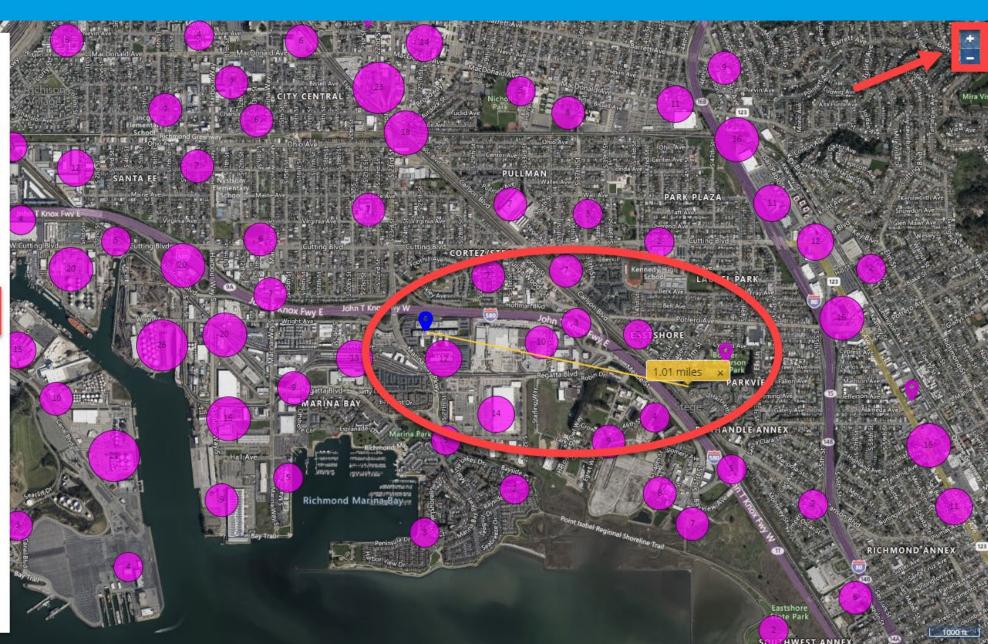
### **≡** SEARCH RESULTS (575)

#### Measure Tool

Select the line, circle, or polygon tool below and then click the map to measure your first point - double-click to complete the measurement.

LINE	CIRCLE	POLYGON
miles		^

**₾ CLEAR MEASUREMENTS** 



#### **⊘**CalEPA CalEPA Regulated Site Portal



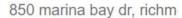


















Export a CSV file containing information for the current sites.

#### Site Regulated Programs

L DOWNLOAD

Export a CSV file containing all site regulated programs for the current sites.

#### Affiliations

₹ DOWNLOAD

Export a CSV file containing all affiliations (i.e., contacts and organizations) for the current sites.

#### Coordinates

₹ DOWNLOAD

Export a CSV file containing all sites containing multiple coordinates. This does not include facilities with their primary coordinate.

#### Chemicals

₫ DOWNLOAD

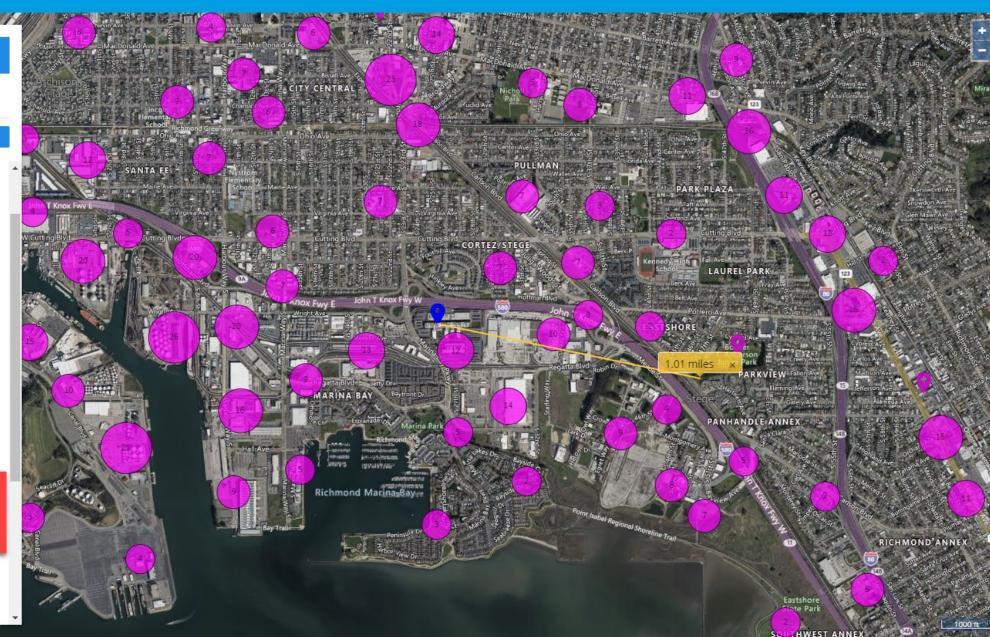
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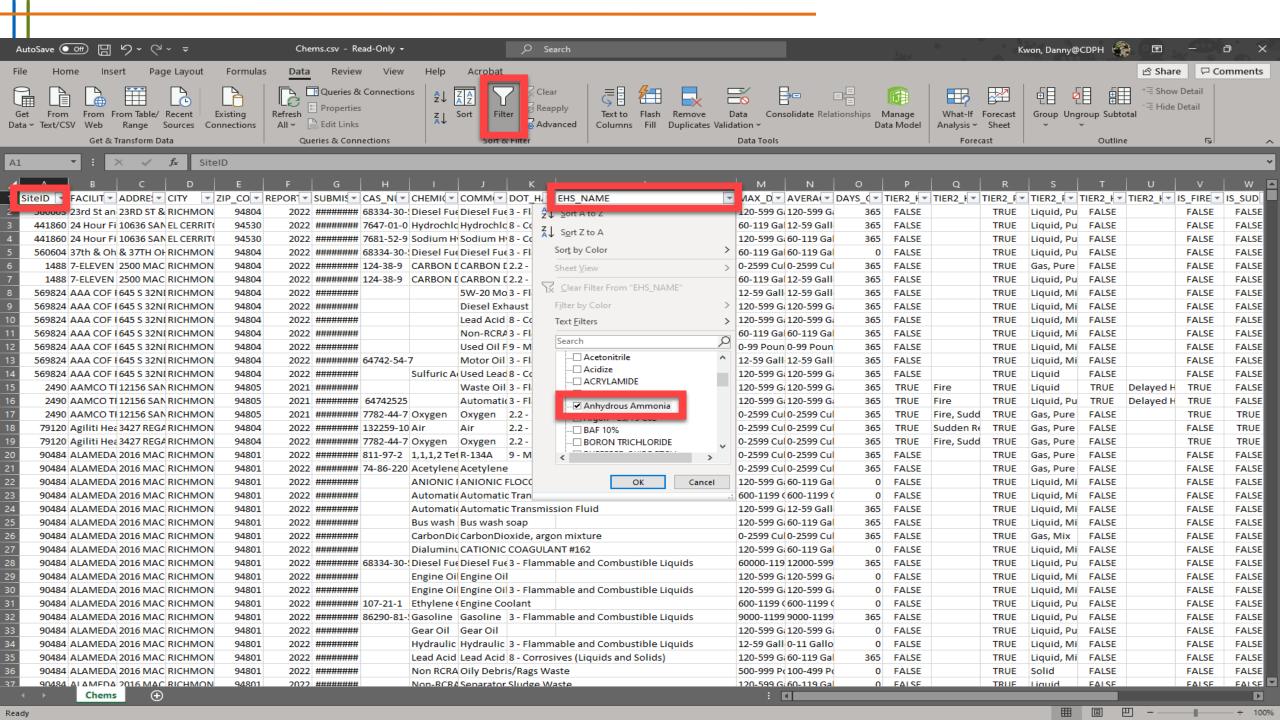
### Compliance

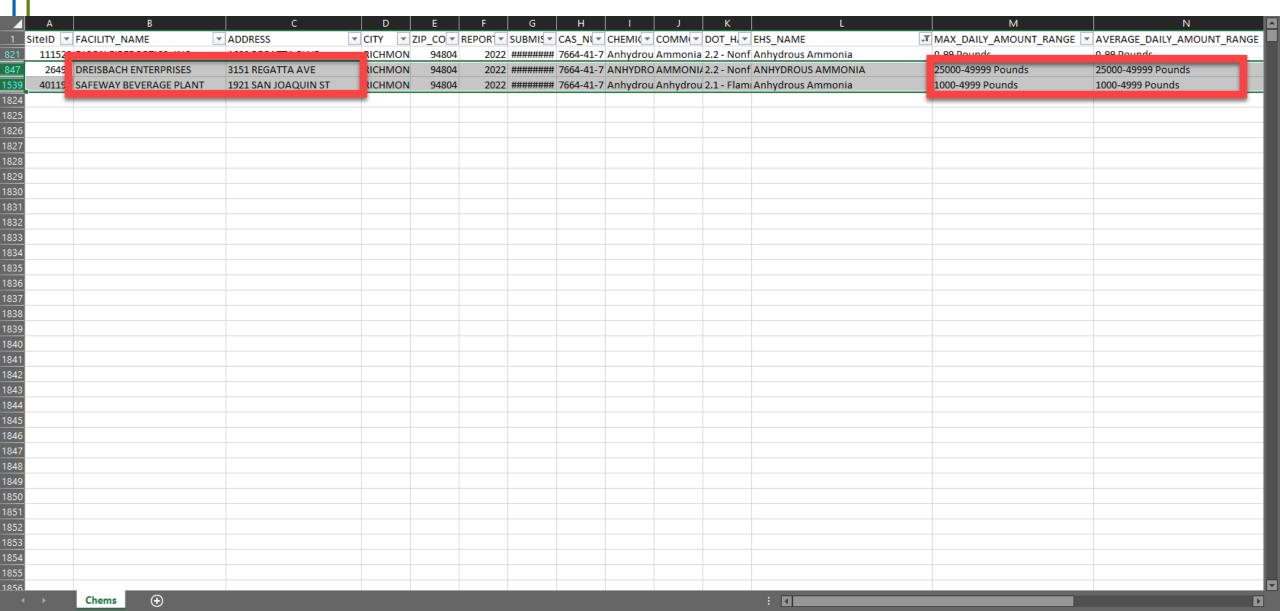
Evaluations

L DOWNLOAD

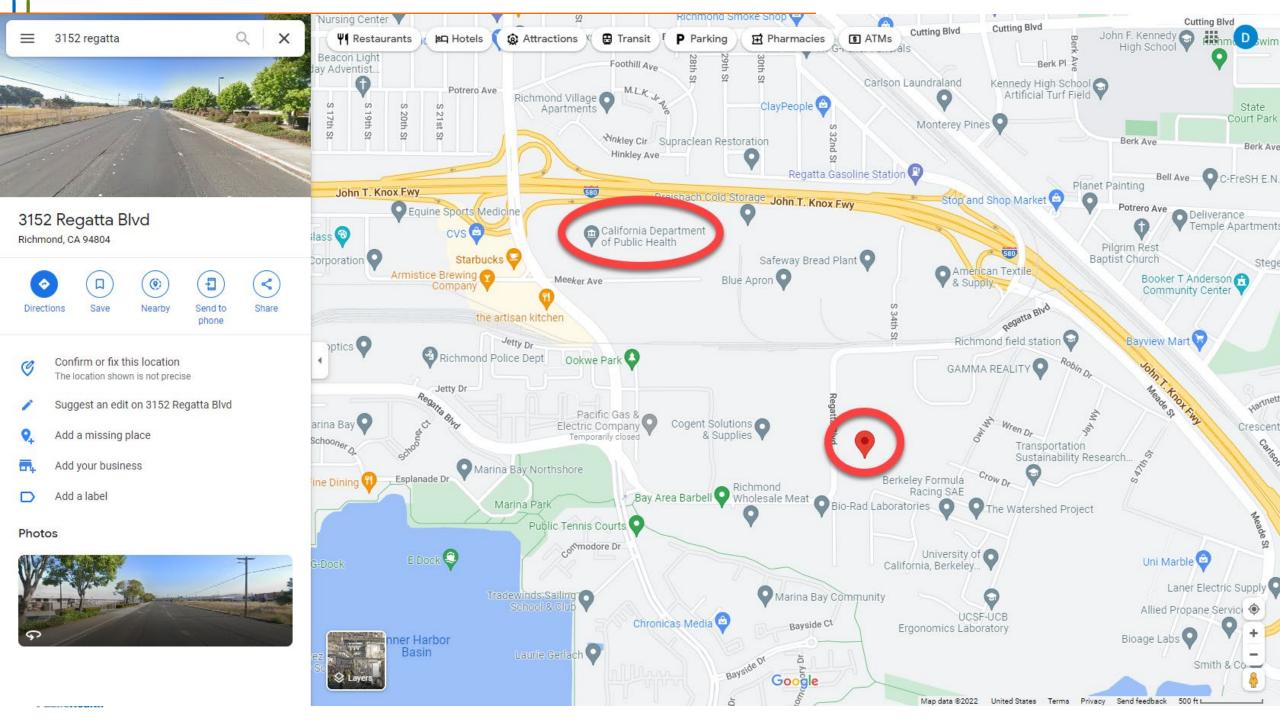
Export a CSV file containing facilities with











### Data Resources for Planning for Chemical Hazards

# Screen (USEPA)

### **Environmental Justice California EPA Regulated Site Portal**

### **California State** Geoportal

https://www.epa.gov/ejscreen

https://siteportal.calepa.ca.gov/nsite/

https://gis.data.ca.gov/

Mapping and screening tool by the USEPA that provides EPA with a nationally consistent dataset of environmental and demographic indicators.

Mapping tool that combines information about environmentally regulated facilities and sites statewide from multiple state and federal data sources.

Public website that provides user-friendly geographical information from a multitude of state entities. Search "chemical hazards" or "regulated site portal" for a list of maps that show facilities with chemicals that can pose a risk.



### **EPCRA** trainings



- EPCRA (Non-Section 313) Online Training for States, Tribes, LEPCs, Local Planners and Responders
  - <a href="https://www.epa.gov/epcra/epcra-non-section-313-online-training-states-tribes-lepcs-local-planners-and-responders">https://www.epa.gov/epcra/epcra-non-section-313-online-training-states-tribes-lepcs-local-planners-and-responders</a>



### Rail Cars and Rail Yards





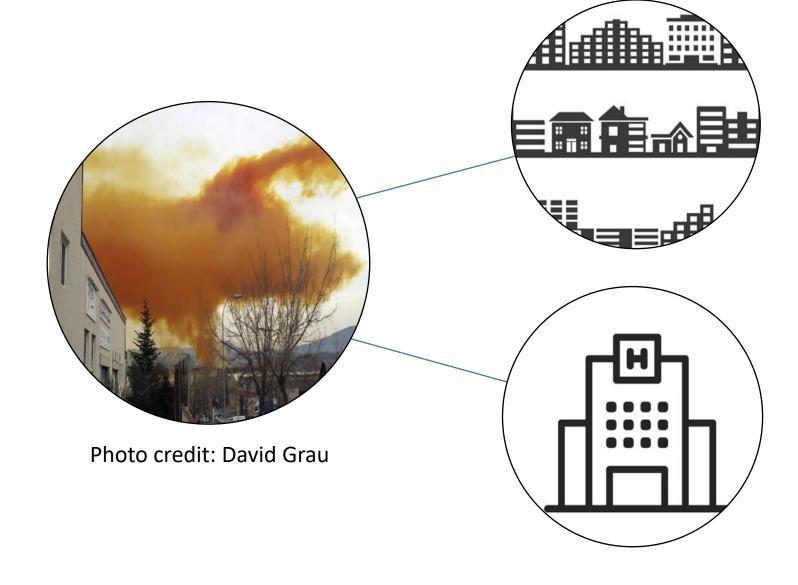
 Hazardous chemicals present at rail yards are subject to EPCRA Sections 311 and 312







# Community and facility impacts





# ASPR-TRACIE CHEMICAL PREPAREDNESS GUIDE

### ls:

- Considerations for facilities to prepare for and respond to a chemical emergency
- Practices and preparedness activities that may help minimize disruptions

### Is not:

- Specific to your facility
- Chemical-by-chemical response guide
- Comprehensive of every scenario



#### Chemical Emergency Considerations for Healthcare Facilities



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https://files.asprtracie.hhs.gov/documents/chemicalemergency-considerations-for-healthcare-facilities-final.pdf



### **ASSUMPTIONS**

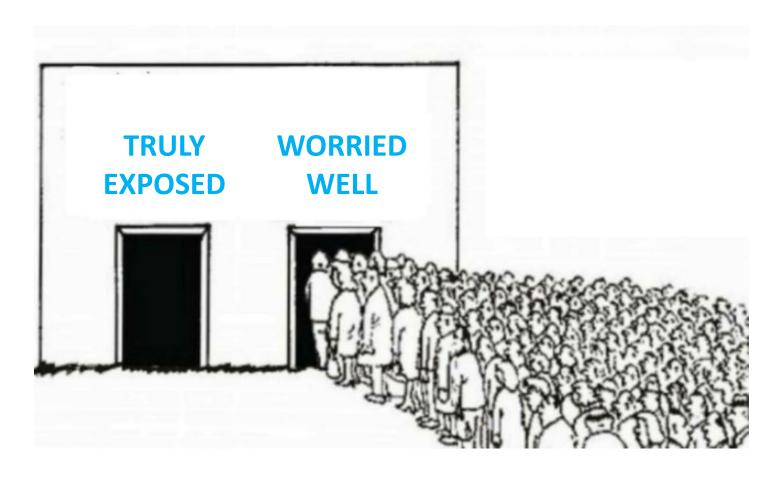


### Facility impact

- If the facility is in the path of a release or if the release is within the facility:
  - Operations may be impacted
  - Critical infrastructure may be disrupted
  - Emergency resources may be delayed



### Population impact





### Staff impact

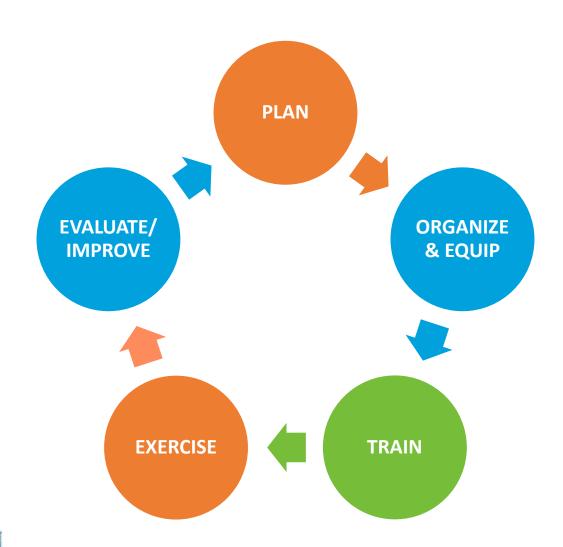
- May be exposed or fear exposure
- Family obligations impacted by chemical release
- New roles:
  - Evaluating potential exposures and contamination
  - Triaging victims for appropriate decontamination and care
- Physical stress (e.g., PPE and dehydration) and psychological stress



## PREPARE



### Emergency preparedness cycle & HICS





https://emsa.ca.gov/disaster-medicalservices-division-hospital-incidentcommand-system-resources



# Know community's chemical risks and vulnerabilities

- Hazard Vulnerability Analysis
- Identify facilities that use/store hazardous chemicals
- Consider patient needs for decontamination, care, sheltering/evacuation
- Establish HAZMAT alert process



Photo credit: South San
Joaquin County Fire Authority



### Understand impacts on operations



Access control & security



**Supplies** 



Air handling



Power



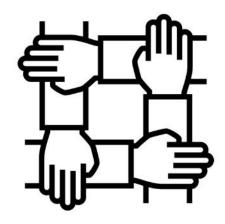
Ambulance and staff diversion



Print materials and SME contacts



# Detail regional resources and the roles and responsibilities of key agencies/partners



- HCC
- EMS
- Health Care Coalition
- Local Health/ Environmental Health

- EmergencyManagement
- Fire
- Law
- HAZMAT
- LEPC





### Train leadership and staff



Shelter-in-place/evacuation triggers and procedures



**Exercises** 



PPE

Photo credit: California Hospital Association





### Identify decontamination staff & logistical needs



Patient decontamination space



Throughput-based contamination



**CHEMPACK** planning

Photo credit: SSGT Wes Parrell

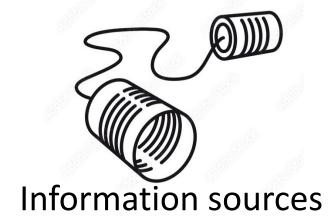
Photo credit: Paola Suro, WXIA



### Response management



Secondary and virtual command center





Shelter-in-place/evacuation triggers and procedures



24/7 emergency line: 404-498-0120



**Contact lists** 



### Fatality management



Contaminated decedents



Disaster mortuary services (e.g., NDMS DMORTs)



### Staffing



Roles and responsibilities



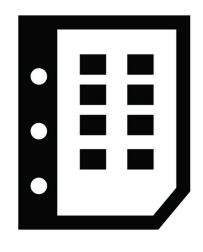
Prioritize safety in comms plan



Staff shift, rotation, and backup plans



### Supplies and resources



Share inventory lists with partners



CHEMPACK resources



Plan for storing contaminated waste and items



### Patient care



Educate staff on toxidromes and chemical exposure protocols



Photo credit: Air National Guard Senior Master Sgt. John Rohrer





Laboratory Response Network for Chemical Threats (LRN-C)



Family reunification plan

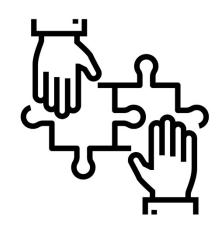
### Communication



Staff communications



Incident/substance-specific communications



Partner engagement



**Public Information Officer** 

### RECOMMENDATIONS

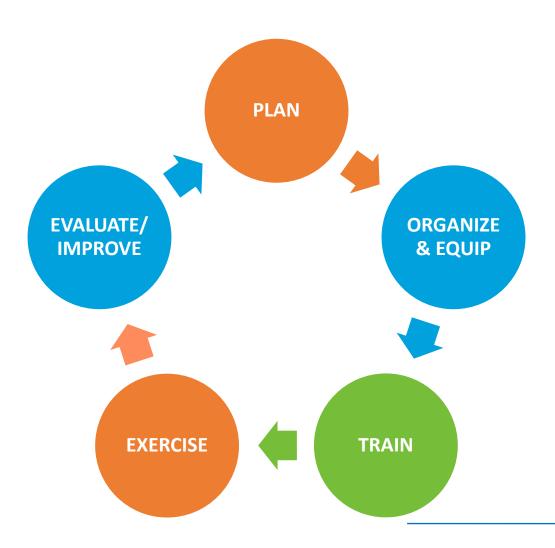


### Recommendations

- Establish relationships, make plans, and conduct exercises with your partners (HAZMAT, emergency management, fire, EMS, law)
- Join your LEPC. Meet, train, and plan with your CUPA
- Prepare for impacts to your staff, your facility, and your community
- Know your staffing, supply, and space resources



### Emergency preparedness cycle and your HCC





### Acknowledgments

- ASPR TRACIE
- Contributors to "Chemical Emergency Considerations for Healthcare Facilities"
  - Eric Alberts, CEM, CHEP, CHPP
  - Kevin Chao, PhD
  - Susan Cibulsky, PhD
  - Craig DeAtley, PA-C
  - John Hick, MD
  - Mark Jarrett, MD





### Questions?



### Thank you

Jason Wilken, PHD, MPH CDC Career Epidemiology Field Officer California Department of Public Health Jason.Wilken@cdph.ca.gov

Danny Kwon, MPH, REHS California Department of Public Health <a href="mailto:danny.kwon@cdph.ca.gov">danny.kwon@cdph.ca.gov</a>

