



# Health Risk Assessment Capacity Building Session

# Listening to Language Interpretation

1. In your meeting/webinar controls, click **Interpretation**. (located at bottom of screen)
2. Click the language that you would like to hear. Options for this meeting are English and Spanish.
3. To only hear the interpreted language, click **Mute Original Audio**.

Windows | macOS

1. In your meeting/webinar controls, click **Interpretation**.  

2. Click the language that you would like to hear.  

3. (Optional) To hear the interpreted language only, click **Mute Original Audio**.

# Listening to Language Interpretation

- Please call our Spanish Conference Line if you are unable to access the simultaneous translation.

Spanish Conference Call  
Number:

**(866) 803-2146**

Passcode:

**1083550**

# Before We Get Started

- Please **mute yourself** and make sure your name is showing as your screen name
- To **rename**, click on the top right side of your picture/video
- Use this naming convention, **First Last- Affiliation** (e.g. Jane Doe- CARB)
  - **Community Organization / Agency / Air District / Company / etc.**
- **Need help?** Use the Chat function to request assistance

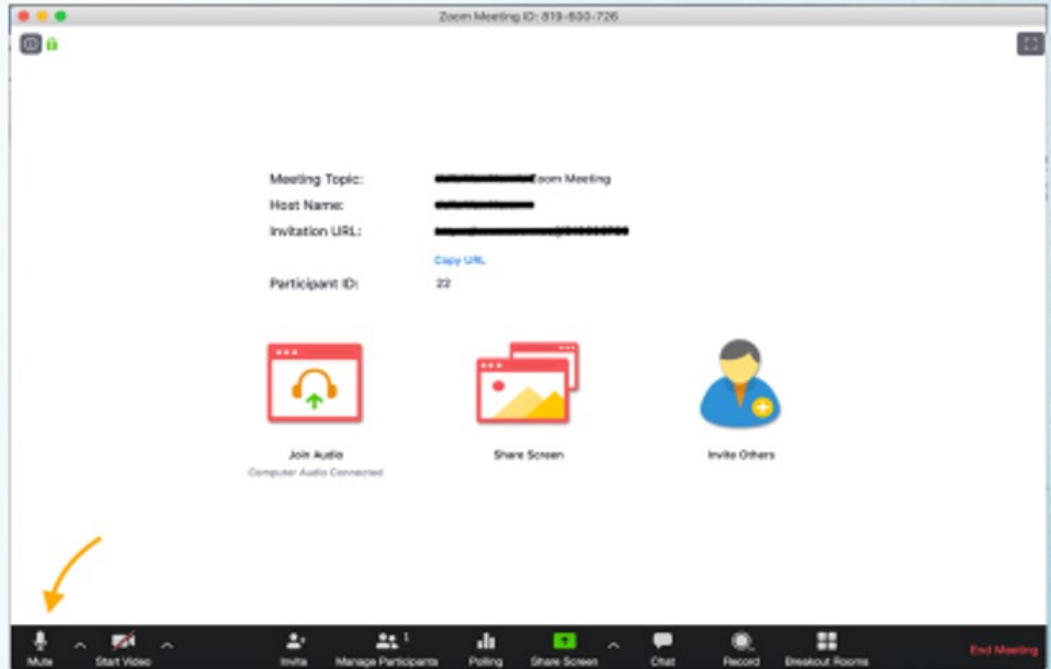


# Zoom Orientation

## Mute/Unmute

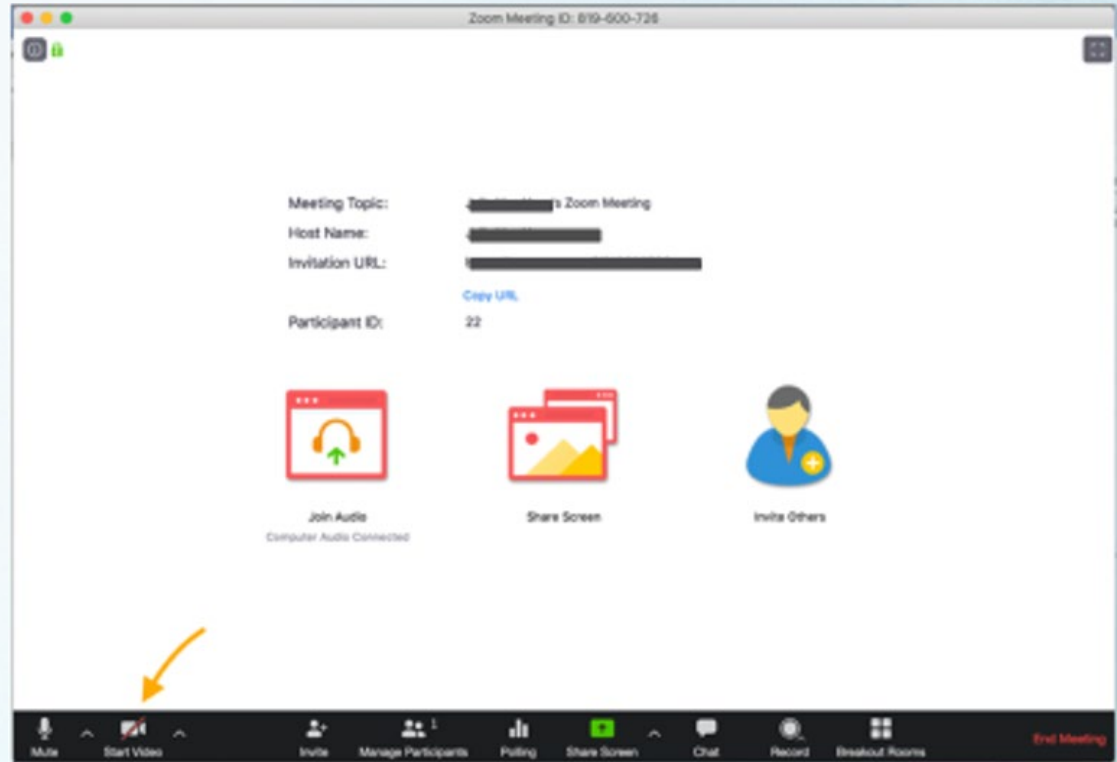
Please remain on mute unless your name has come up in the speaking queue

- Zoom: **Mute/Unmute** button at the bottom left
- Phone: Dial **\*6** to mute/unmute



# Video

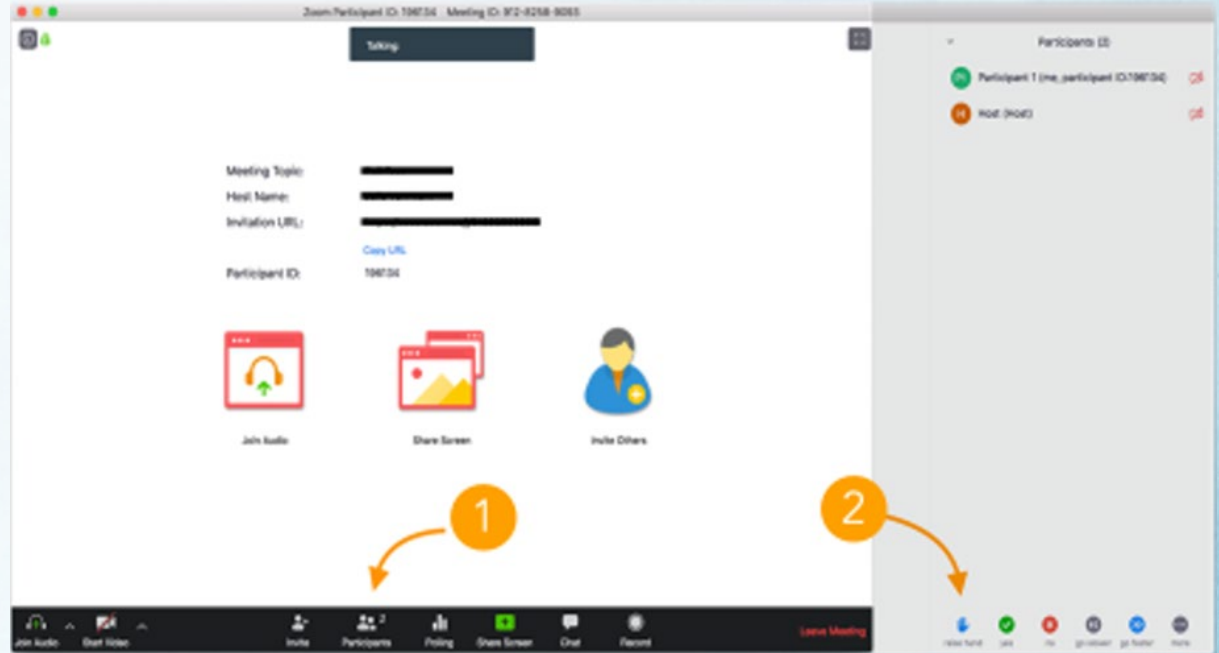
Click the camera icon at the bottom left of your screen to toggle your video on and off.



# Raise Hand

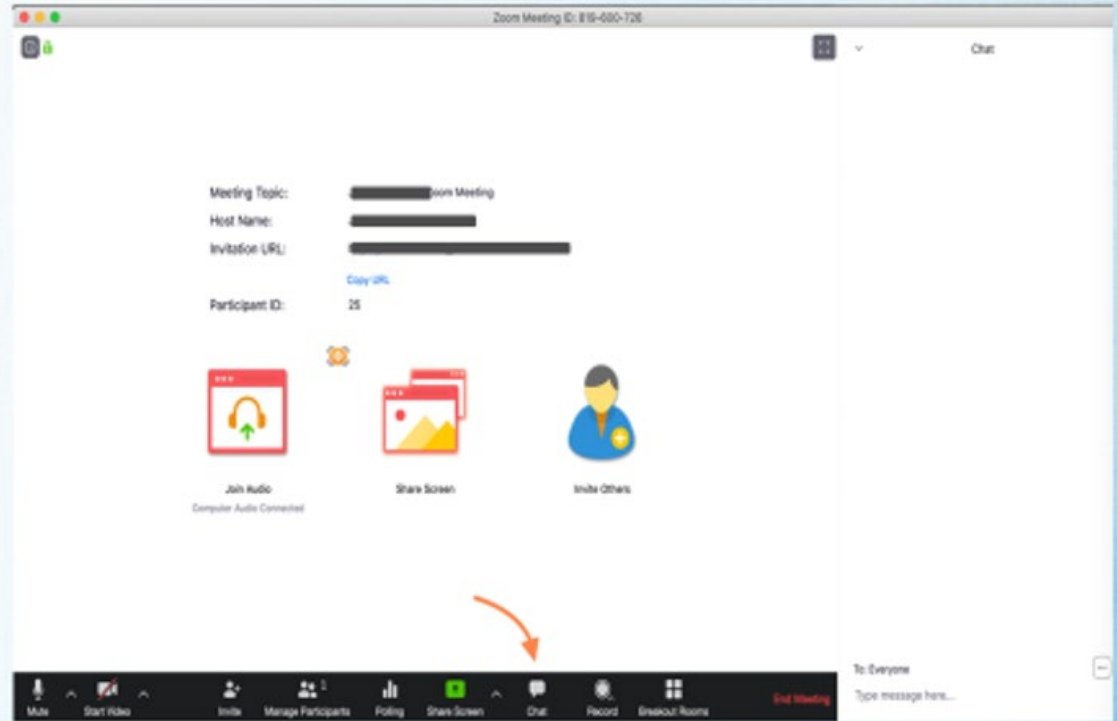
To be added to the speaking queue, please use **Raise Hand**

- Zoom: Click **Participants**, then **Raise Hand**.
- Phone: dial \*9 We'll check in with the phone line periodically.



# Chat

- Click on the **chat** icon near the center bottom of your screen.
- Choose “private” chat to chat with the Host or Co-host
- Private chats are archived.

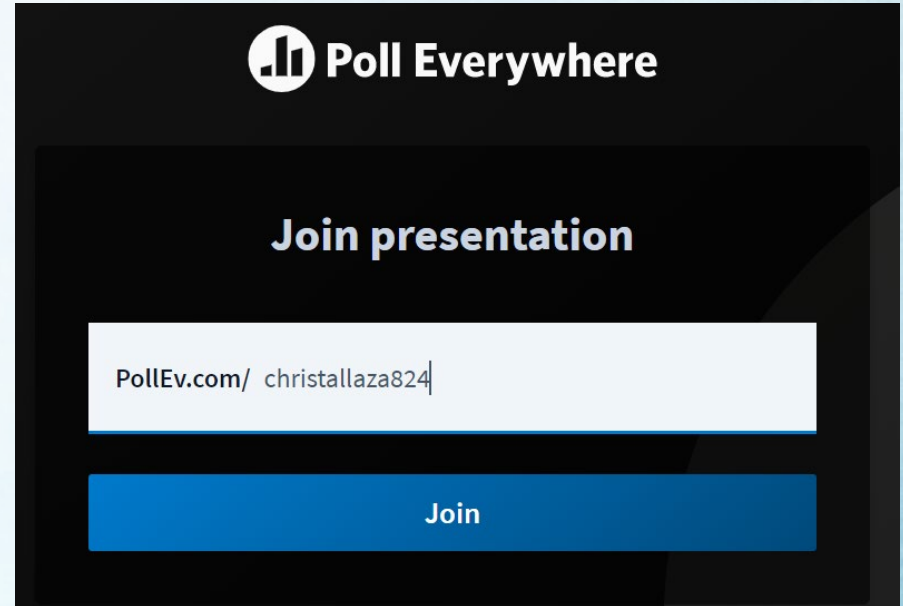




# Poll Everywhere

Go to [PollEv.com/home](https://PollEv.com/home) and enter the username: "CHRISTALLAZA824" and select Join.

Or text "CHRISTALLAZA824" to 22333.



The screenshot shows the Poll Everywhere interface. At the top, there is a logo consisting of a bar chart icon and the text "Poll Everywhere". Below the logo, the text "Join presentation" is displayed. A white input field contains the text "PollEv.com/ christallaza824". Below the input field is a blue button with the text "Join".

# Introductions

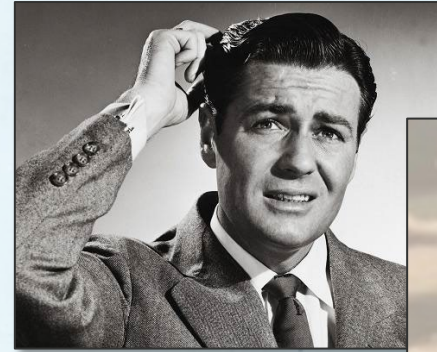
- CARB
  - Matthew O'Donnell – Presenter
  - Christal Love Lazard – Zoom Host
  - Amanda Anderson – Meeting Support
- Office of Environmental Health Hazard Assessment (OEHHA)
  - John Budroe – Chief, Air Toxicology and Risk Assessment Section

# Recognitions

- We would like to thank the following individuals for their feedback and input into the format and content of this meeting. Thank you for sharing your time, perspective and knowledge.
  - Genevieve Amsalem
  - Tim Tyner
  - Taylor Thomas
  - LaDonna Williams
  - Jonathan Pruitt
  - Melissa Vargas
  - Joe Lyou
  - Jane Williams
  - Mark Abramowitz

# Housekeeping and Assumptions

- Assumptions
- Questions
- Agenda and Flow





# Session Objectives

- Provide you with useful information to aid in your advocacy
- A high-level overview of the Health Risk Assessment (HRA) process
- Provide background on Air Districts' responsibilities vs. CARB's responsibilities

# Session Objectives

- How CARB, Local Air Districts, and Other Agencies use HRAs:
  - Assembly Bill (AB) 2588 (Hot Spots)
  - New Source Review
  - The California Environmental Quality Act (CEQA)
  - Rule Development
  - Assess community risks

# Session Objectives

- How HRA's can be used by community members and advocates
- Review an HRA
- First Session – Provide your feedback on future sessions
- Starting with community advocates
- Help us to understand community concerns and tailor and improve sessions

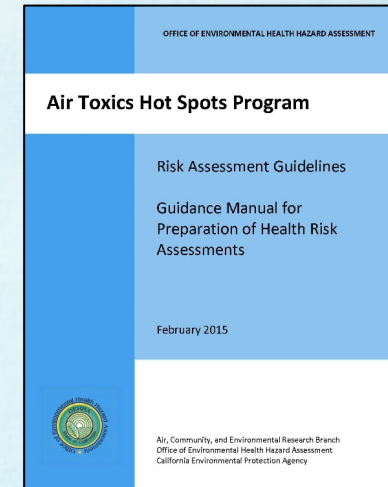
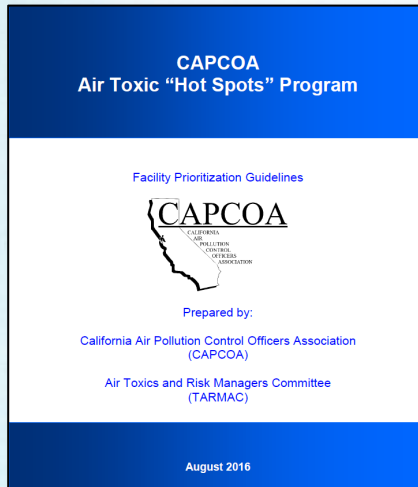
# Health Risk Assessments

- What/When/How of Health Risk Assessment
  - Evaluation done using the OEHHA guidelines
  - Tool to estimate risk from toxic air contaminants
  - Conducted when one or more toxic air contaminant is emitted
  - Provides a score for cancer and non-cancer risk
  - Provides a number that is compared to a standard
  - Only as good as the information used



# Health Risk Assessments

- Steps in the HRA Process
  - Prioritization Score
  - Screening Risk Assessment
  - Refined Health Risk Assessment



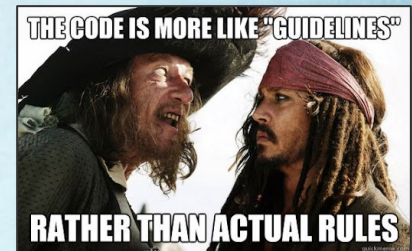
# Prioritization

# Prioritization Score

- §44360 Prioritization and Categorization
  - If categorized as high priority:
    - Facility is required to submit a Health Risk Assessment (HRA) to the district.
    - HRA prepared in accordance with the Risk Assessment Guideline prepared by the Office of Environmental Health Hazard Assessment (OEHHA)

# Prioritization Score

- California Air Pollution Control Officers Association (CAPCOA) - Air Toxics “Hot Spots” Facility Prioritization Guideline
  - Published in August 2016
  - Assist district with prioritization calculations
  - Districts aren’t required to use it
  - Separate scores for cancer, non-cancer chronic and non-cancer acute

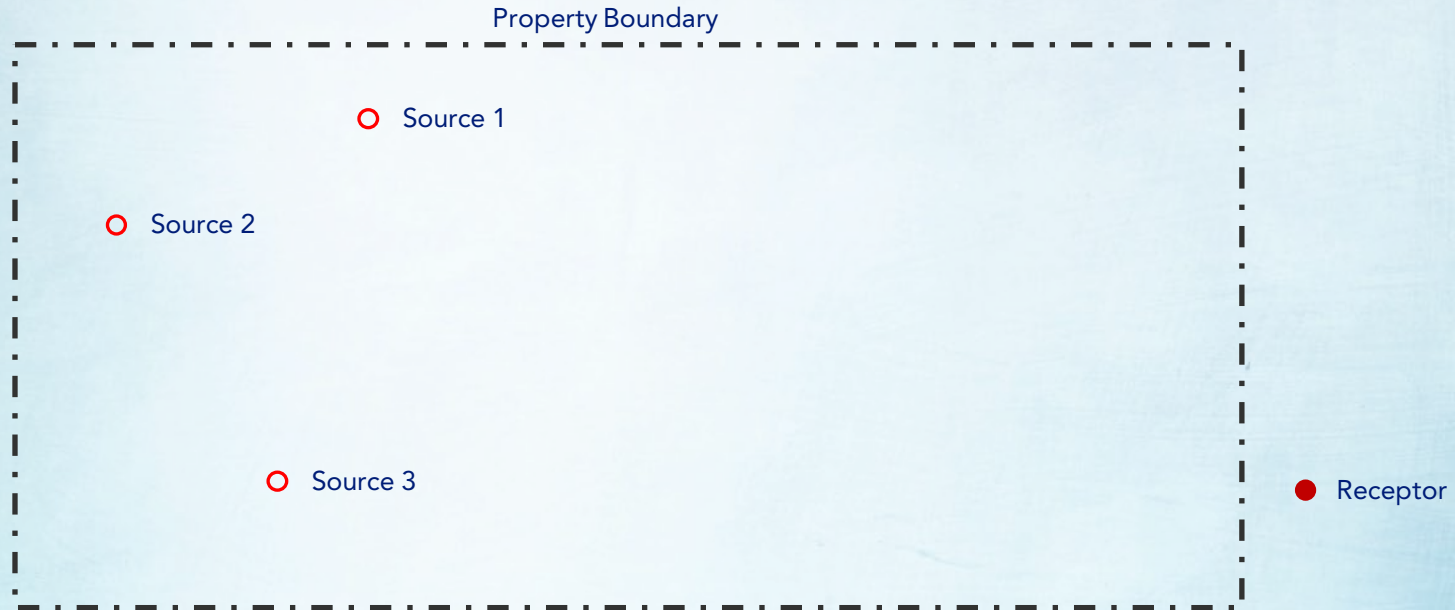




# Prioritization Score

- Calculates a unitless score for the whole facility
  - Each emission source and air toxin is scored separately and then added up
- Based on:
  - Emissions rate
  - Unit risk (cancer)
  - Reference exposure level (non-cancer acute and chronic)
  - Distance to the receptor

# Prioritization Score




# Prioritization Score

- High Priority  
Facility Score  $\geq 10$
- Intermediate Priority  
 $10 > \text{Facility Score} \geq 1$
- Low Priority  
Facility Score  $< 1$

**CAPCOA**  
Air Toxic “Hot Spots” Program

Facility Prioritization Guidelines



Prepared by:  
California Air Pollution Control Officers Association  
(CAPCOA)  
Air Toxics and Risk Managers Committee  
(TARMAC)

August 2016

# The Role of OEHHA



# **“Hot Spots” Air Toxics Risk Assessment**

**John Budroe, Ph.D.  
Office of Environmental Health  
Hazard Assessment**

**December 14, 2021**



CalEPA

Office of Environmental Health  
Hazard Assessment

Air Resources Board

CalRecycle

Department of Pesticide  
Regulation

Department of Toxic Substances  
Control

State Water Resources Control  
Board



# Air Toxics Hot Spots Program

- ▶ The Office of Environmental Health Hazard Assessment (OEHHA) is mandated to develop risk assessment guidelines for facility health risk assessments
- ▶ Guidelines are used in evaluating potential health impacts from stationary sources of air pollution to people nearby
- ▶ These risk assessments include estimating cancer risk and noncancer health hazards from exposure to chemicals emitted by facilities
- ▶ OEHHA also reviews facility health risk assessments for the Air Districts



# Technical Support/Guidelines Documents

After consultation with CARB and CAPCOA, public review and peer review by the Scientific Review Panel, OEHHA adopted:

- ▶ 2008: Derivation of Noncancer Reference Exposure Levels Technical Support Document (TSD): noncancer risk assessment methods and chemical health values (Reference Exposure Levels – RELs)
- ▶ 2009: Cancer Potency Factors TSD: cancer risk assessment methods and cancer potency factors
- ▶ 2012: Exposure Assessment and Stochastic Analysis TSD: methods for determining resident/off-site worker exposure

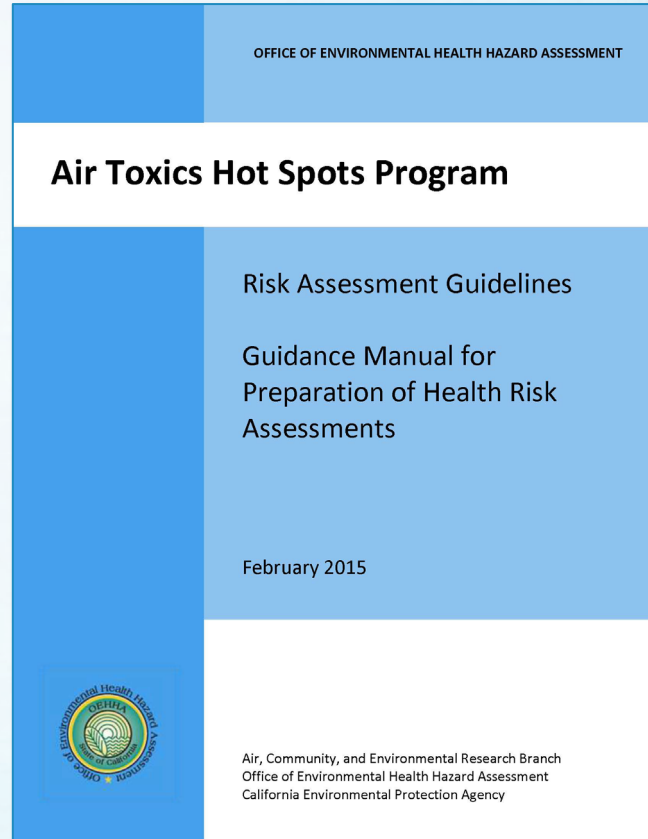


# Risk Assessment Guidance Manual

- 2015: Guidance Manual for the Preparation of Health Risk Assessments. Includes Age Sensitivity Factors (ASFs) – cancer risk adjustments for infants/children
- The Guidance Manual combines the information from the three Technical Support Documents into a user manual for conducting health risk assessments.

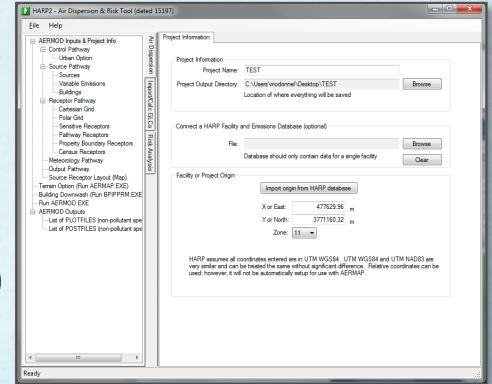
# Refined Health Risk Assessment

# Refined Health Risk Assessment



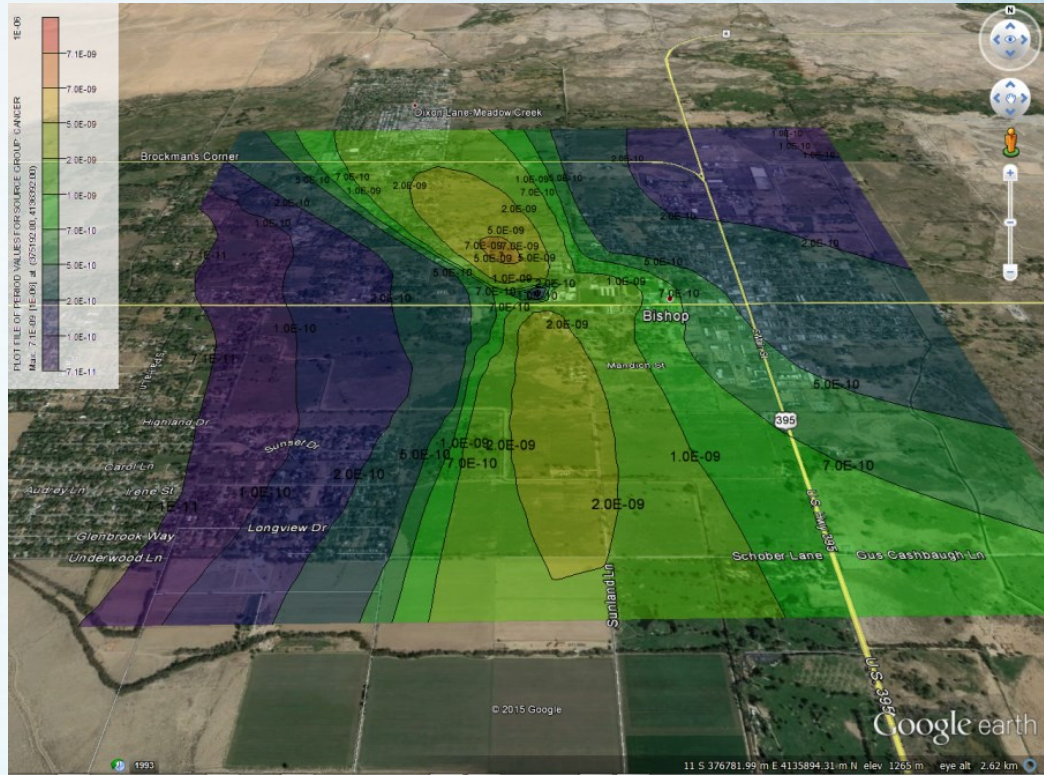
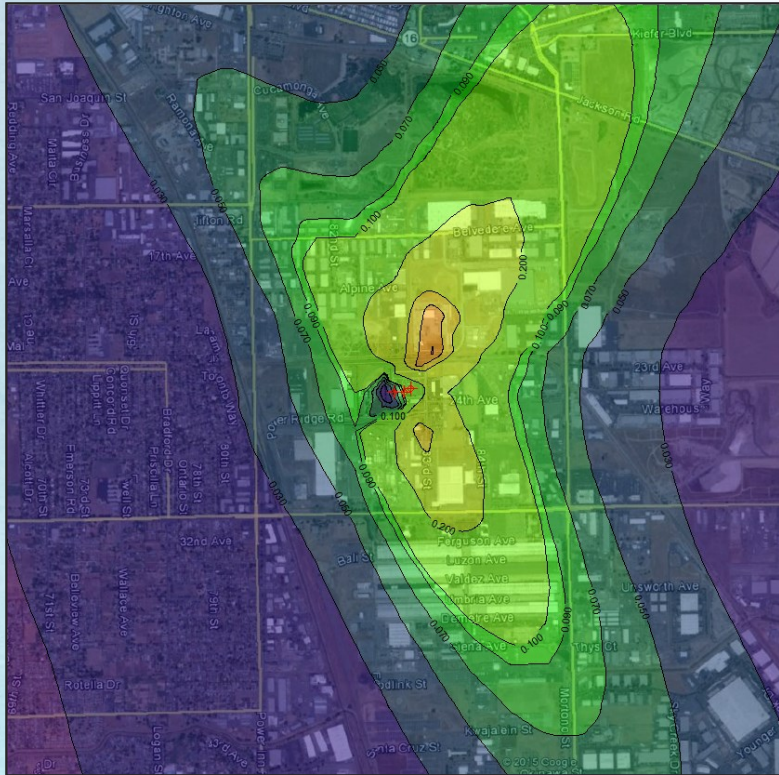
# Refined Health Risk Assessment

- Refined HRA
  - Consists of Three Parts
    - Air Dispersion Modeling (AERMOD)
    - Calculating Pollutant Specific Ground Level Concentrations (GLCs)
    - Risk Analysis





# Dispersion Modeling



# Risk Analysis Using HARP2

HARP2 - Air Dispersion & Risk Tool (dated 19121)

File Tools Help

AERMOD Inputs & Project Info

- Control Pathway
  - Urban Option
- Source Pathway
  - Sources
  - Variable Emissions
  - Buildings
- Receptor Pathway
  - Cartesian Grid
  - Polar Grid
  - Sensitive Receptors
  - Pathway Receptors
  - Property Boundary Receptor
  - Census Receptors
- Meteorology Pathway
- Output Pathway
  - Source Receptor Layout (Map)
- Terrain Option (Run AERMAP.EXE)
- Building Downwash (Run BPIPPR)
- Run AERMOD.EXE
- AERMOD Outputs
  - List of PLOTFILES (non-polluta
  - List of POSTFILES (non-polluta

Project Information

Project Information

Project Name: PROJECT WITH FINE GRID

Project Output Directory: E:\01. Training Materials\02. MM203\06. Project Folder\MM

Location of where everything will be saved

Connect a HARP Facility and Emissions Database (optional)

File:

Database should only contain data for a single facility

Facility or Project Origin

X or East: 474920 m

Y or North: 3633472 m

Zone: 11

HARP assumes all coordinates entered are in UTM WGS84. UTM WGS84 and UTM NAD83 are very similar and can be treated the same without significant difference. Relative coordinates can be used; however, it will not be automatically setup for use with AERMAP.

Ready



# HARP2 – Cancer Risk

- OEHHA Cancer Calculation

$$\text{Dose}_{\text{air}} = C_{\text{air}} \times \{\text{BR/BW}\} \times A \times \text{EF} \times 10^{-6}$$

$$\text{RISK}_{\text{inh-res}} = \text{DOSE}_{\text{air}} \times \text{CPF} \times \text{ASF} \times \text{ED/AT} \times \text{FAH}$$

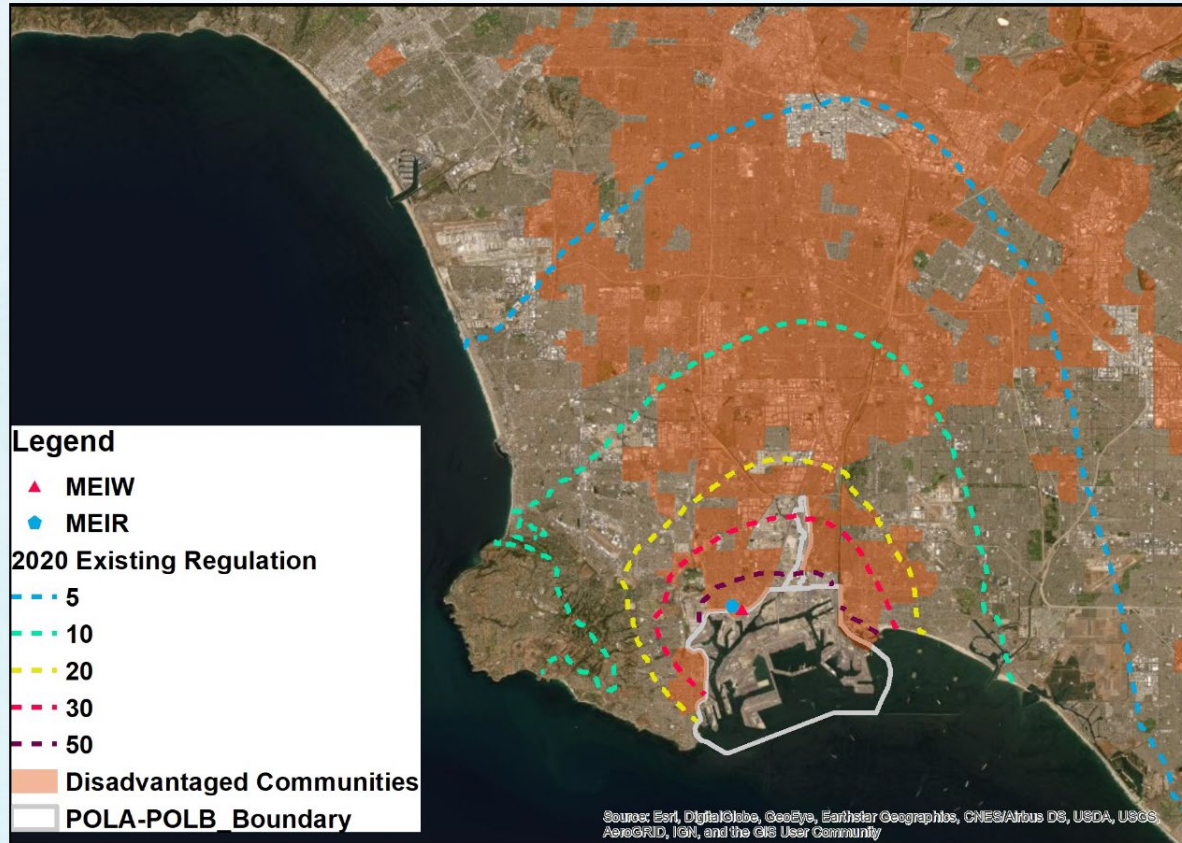
- Probability of developing cancer (all cancers combined)
- Presented as the number of people out of 1 million
- Based on conservative health-protective assumptions
- Inherent uncertainty
- Gives us something to compare to a threshold

# HARP2 – Chronic and Acute Risk

- The Hazard Quotient is calculated for each substance for both Acute and Chronic health effects
- The Hazard Index is the sum of all the hazard quotients for a specific organ group
- Values less than one are not considered to have any adverse health effects
- Values of one or greater may have adverse health effects



# HARP2 – Data Isopleths



# The Role of Air Districts

# Air District Responsibilities

- Stationary Sources of Criteria Pollutants
  - Create rules
  - Issue permits
  - Role in AB 2588 (Hot Spots)
    - Prioritize facilities
    - Review HRAs
    - Collect emission inventory data
  - Review and Comment on CEQA documents



# Air District Responsibilities

- Creating Rules
  - New Source Review
  - Prohibitory Rules

**REGULATION XIII  
NEW SOURCE REVIEW**

**TABLE OF CONTENTS**

RULE 1300	STATE AMBIENT AIR QUALITY STANDARDS <i>(Rescinded 6/28/90)</i>
RULE 1301	GENERAL <i>(Amended 12/7/95)</i>
RULE 1302	DEFINITIONS <i>(Amended 11/04/16)</i>
RULE 1303	REQUIREMENTS <i>(Amended 12/06/02)</i>
RULE 1304	EXEMPTIONS <i>(Amended 6/14/96)</i>
RULE 1304.1	ELECTRICAL GENERATING FACILITY FEE FOR USE OF OFFSET EXEMPTION <i>(Adopted 9/06/13)</i>
RULE 1305	SPECIAL PERMIT PROVISIONS <i>(Rescinded 6/28/90)</i>
RULE 1306	EMISSION CALCULATIONS <i>(Amended 12/06/02)</i>
RULE 1307	EMISSION OFFSETS <i>(Rescinded 6/28/90)</i>
RULE 1308	ELIGIBILITY OF EMISSION OFFSETS AND BANKABLE EMISSION REDUCTIONS <i>(Rescinded 6/28/90)</i>
RULE 1309	EMISSION REDUCTION CREDITS AND SHORT TERM CREDITS <i>(Amended 7/05/13)</i>
RULE 1309.1	PRIORITY RESERVE <i>(Amended 1/08/10)</i>
RULE 1309.2	OFFSET BUDGET <i>(Rescinded 2/05/10)</i>
RULE 1310	ANALYSIS AND REPORTING <i>(Amended 12/07/95)</i>
RULE 1311	POWER PLANTS <i>(Rescinded 6/28/90)</i>
RULE 1312	RESERVED <i>(Rescinded 6/28/90)</i>
RULE 1313	PERMITS TO OPERATE <i>(Amended 12/07/95)</i>
RULE 1315	FEDERAL NEW SOURCE REVIEW TRACKING SYSTEM <i>(Adopted 4/20/11)</i>


**REGULATION IV - PROHIBITIONS**

Rule Number & Description	Adopted / Last Amended
<a href="#">Rule 4001</a> NEW SOURCE PERFORMANCE STANDARDS	April 14, 1999
<a href="#">Rule 4002</a> NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS	May 20, 2004
<a href="#">Rule 4101</a> VISIBLE EMISSIONS	February 17, 2005
<a href="#">Rule 4102</a> NUISANCE	December 17, 1992
<a href="#">Rule 4103</a> OPEN BURNING	April 15, 2010
<a href="#">Rule 4104</a> REDUCTION OF ANIMAL MATTER	December 17, 1992
<a href="#">Rule 4105</a> COMMERCIAL OFFSITE MULTIUSER HAZARDOUS WASTE AND NONHAZARDOUS WASTE DISPOSAL FACILITIES	December 17, 1992
<a href="#">Rule 4106</a> PRESCRIBED BURNING AND HAZARD REDUCTION BURNING	June 21, 2001
<a href="#">Rule 4201</a> PARTICULATE MATTER CONCENTRATION	December 17, 1992
<a href="#">Rule 4202</a> PARTICULATE MATTER - EMISSION RATE	December 17, 1992
<a href="#">Rule 4203</a> PARTICULATE MATTER EMISSIONS FROM INCINERATION OF COMBUSTIBLE REFUSE	December 17, 1992
<a href="#">Rule 4204</a> COTTON GINS	February 17, 2005
<a href="#">Rule 4301</a> FUEL BURNING EQUIPMENT	December 17, 1992
<a href="#">Rule 4302</a> INCINERATOR BURNING	December 16, 1993
<a href="#">Rule 4303</a> ORCHARD HEATERS	December 16, 1993
<a href="#">Rule 4304</a> EQUIPMENT TUNING PROCEDURE FOR BOILERS, STEAM GENERATORS, AND PROCESS HEATERS	October 19, 1995
<a href="#">Rule 4305</a> BOILERS, STEAM GENERATORS, AND PROCESS HEATERS - PHASE 2	August 21, 2003
<a href="#">Rule 4306</a> BOILERS, STEAM GENERATORS, AND PROCESS HEATERS - PHASE 3	December 17, 2020
<a href="#">Rule 4307</a> BOILERS, STEAM GENERATORS, AND PROCESS HEATERS - 2.0 MMBTU/HR TO 5.0 MMBTU/HR ( <a href="#">RULE 4307 CERTIFIED UNITS</a> )	April 21, 2016
<a href="#">Rule 4308</a> BOILERS, STEAM GENERATORS, AND PROCESS HEATERS - 0.075 MMBTU/HR TO LESS THAN 2.0 MMBTU/HR ( <a href="#">CERTIFIED WATER HEATERS</a> )	November 14, 2013
<a href="#">Rule 4309</a> DRYERS, DEHYDRATORS, AND OVENS	December 15, 2005
<a href="#">Rule 4311</a> FLARES	December 17, 2020
<a href="#">Rule 4313</a> LIME KILNS	March 27, 2003




# Air District Responsibilities

- Issuing Permits
  - Authority to Construct
  - Permit to Operate



**San Joaquin Valley**  
AIR POLLUTION CONTROL DISTRICT



**HEALTHY AIR LIVING™**

### AUTHORITY TO CONSTRUCT

**PERMIT NO:** 6-7063-19-0      **ISSUANCE DATE:** 04/27/2012

**LEGAL OWNER OR OPERATOR:** CALIFORNIA DAIRIES, INC  
2000 NORTH PLAZA DRIVE  
VISALIA, CA 93291


**MAILING ADDRESS:** 2000 NORTH PLAZA DRIVE  
VISALIA, CA 93291

**LOCATION:** 2000 NORTH PLAZA DRIVE  
VISALIA, CA 93291

**EQUIPMENT DESCRIPTION:**  
5.7 MW NATURAL GAS-FIRED SOLAR TAURUS 60S TURBINE POWERING AN ELECTRICAL GENERATOR WITH AN UNFIRED HEAT RECOVERY STEAM GENERATOR WITH SELECTIVE CATALYTIC REDUCTION AND AN OXIDATION CATALYST

#### CONDITIONS

- No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
- Heat recovery steam generator design shall provide space for additional catalysts if additional catalyst are necessary to achieve NOx emission limits. [District Rule 2201]
- Maximum heat input rating of Solar Taurus 60S gas-fired turbine engine shall not exceed 64.47 MMBtu/hr. [District Rule 2201]
- Gas turbine engine lube oil vents, generator lube oil vents, and lube oil accumulator vents shall be equipped with mist eliminators. Lube oil vents shall not exhibit visible emissions of 5% opacity or greater except for up to three minutes in any hour. [District Rule 2201]
- Gas-fired turbine engine shall be equipped with selective catalytic reduction (SCR) NOx control system utilizing ammonia as reducing agent. [District Rule 2201]
- Gas turbine shall be fired exclusively on PUC-regulated natural gas with a sulfur content not exceeding 1.0 gr S/100 scf. [District Rule 2201]
- Gas turbine shall be equipped with continuously recording fuel gas flow meter. [District Rule 2201]



**Santa Barbara County**  
Air Pollution Control District

**Permit to Operate 13360**  
Page 1 of 7

**Equipment Owner/Operator:** John's Chevron / John's Chevron

**Equipment Location:** located at: 3595 Sagunto Street in Santa Ynez, CA

**Equipment Description:** FID No. 01999      Balance EVR

**TANK LOCATION:** Underground

TANK NO.	FUEL	CAPACITY (gal)
1	Gasoline	10,000
2	Gasoline	10,000
3	Gasoline	10,000

DISPENSER MFR.	MODEL	SERIES	SERIAL NO	# OF DISPENSERS	NOZZLES PER DISPENSER
Dresser Wayne	Ovation	B23/4	tbd	2	2

TANK PRESSURE MANAGEMENT SYSTEM	
Healy Clean Air Separator	Model 9961

Total Number of Phase II Gasoline Nozzles: 4

Phase I Vapor Recovery Executive Order No.: VR-102-E

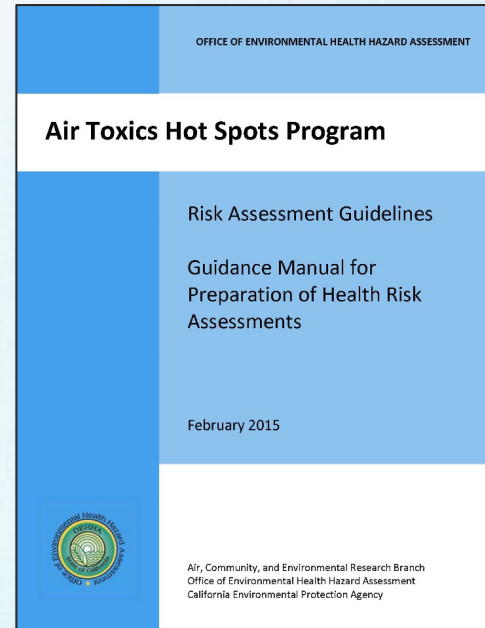
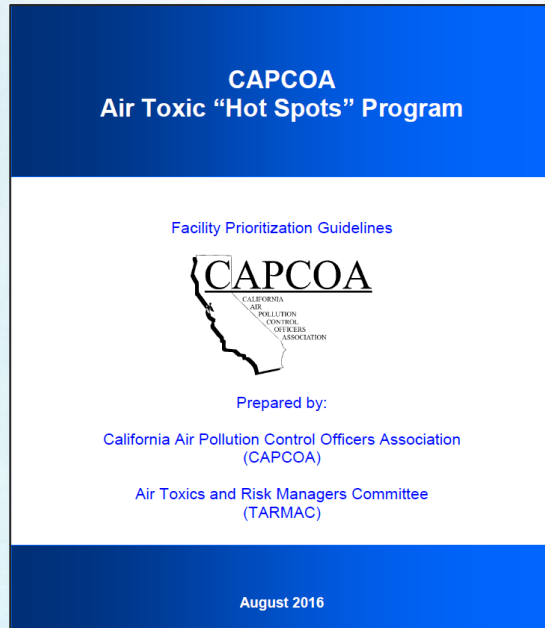
Phase II Vapor Recovery Executive Order No.: VR-209-A

**Applicable Prohibitory Rules:** Rule 303 (Nuisance); Rule 316 (Storage and Transfer of Gasoline).

**Applicable Conditions:**

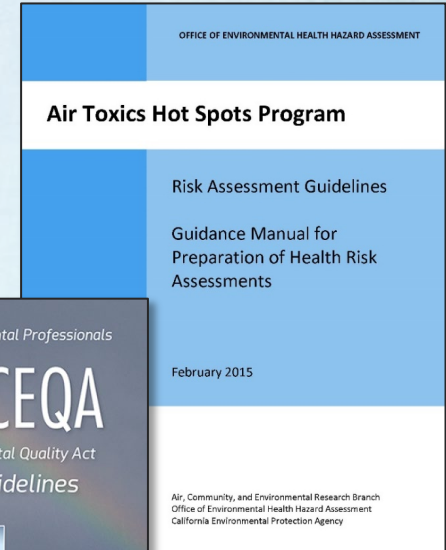
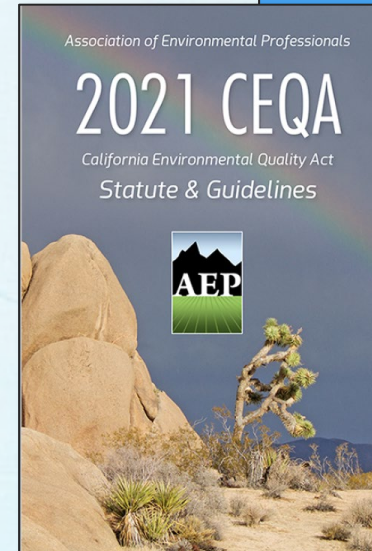
# Air District Responsibilities

- AB 2588 (Hot Spots)
  - Prioritize facilities
  - Review Health Risk Assessments



# Air District Responsibilities

- CEQA
  - Review and Comment on:
    - Air Quality Impact Analysis
    - Health Risk Assessment
    - Mitigation Measures



# The Role of CARB

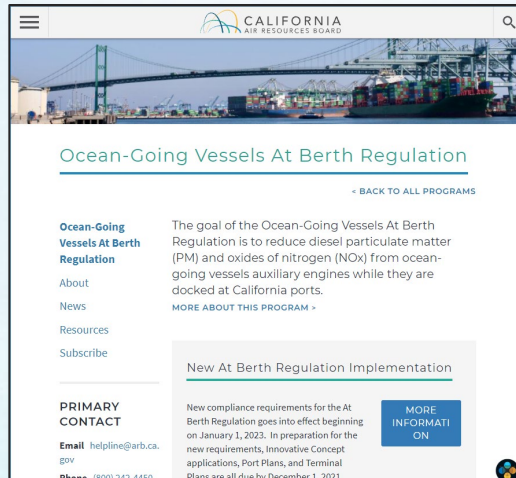


# CARB's Responsibilities

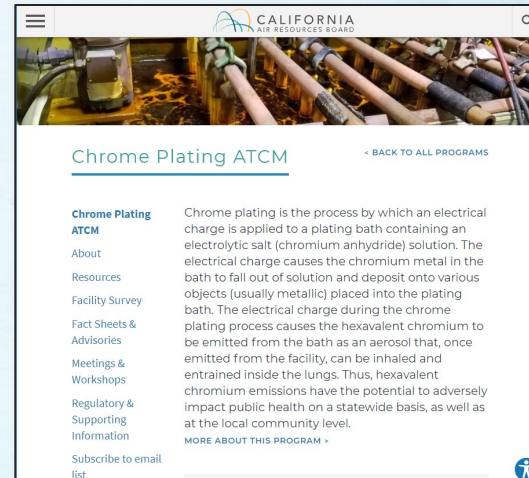
- Sources not regulated by districts
  - Mobile Sources
  - Portable Sources
  - Consumer Products
- Create Rules
- Role in AB 2588
  - Review HRAs
  - Collect emission inventory data
- Review and comment on CEQA

# CARB's Responsibilities

- Mobile Sources & Toxic Air Contaminants
  - Creating Rules
    - Emission standards for mobile sources
    - Airborne Toxic Control Measures for both mobile and stationary sources



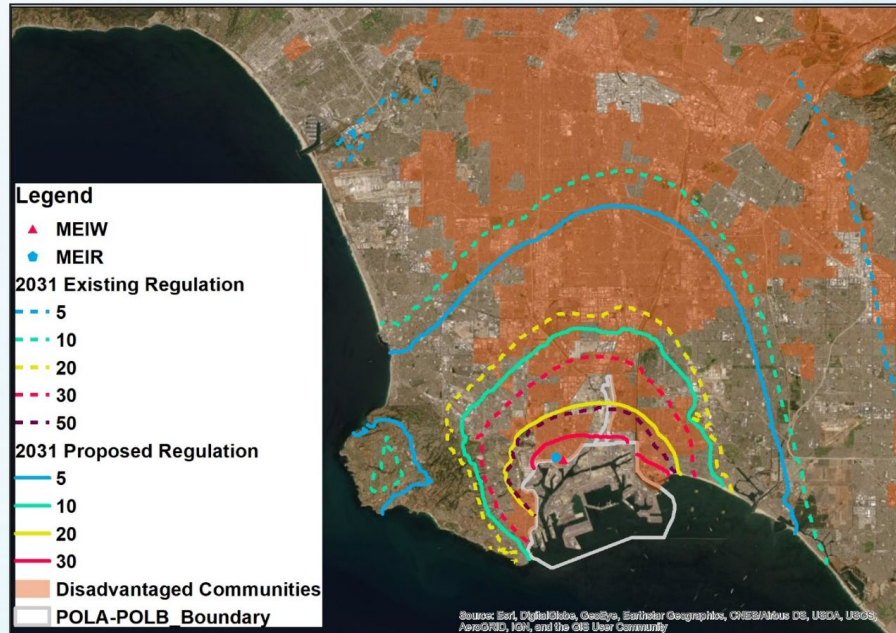
The screenshot shows the CARB website page for "Ocean-Going Vessels At Berth Regulation". The header includes the CARB logo and navigation icons. The main heading is "Ocean-Going Vessels At Berth Regulation" with a "BACK TO ALL PROGRAMS" link. The page content includes a sidebar with "About", "News", "Resources", and "Subscribe" links. The main text states: "The goal of the Ocean-Going Vessels At Berth Regulation is to reduce diesel particulate matter (PM) and oxides of nitrogen (NOx) from ocean-going vessels auxiliary engines while they are docked at California ports." Below this is a "New At Berth Regulation Implementation" section with a "MORE INFORMATION" button. The footer contains "PRIMARY CONTACT" information: "Email: helpline@arb.ca.gov", "Phone: (800) 743-4160", and "More information on new requirements, Innovative Concept applications, Port Plans, and Terminal Plans are all due by December 1, 2021."



The screenshot shows the CARB website page for "Chrome Plating ATCM". The header includes the CARB logo and navigation icons. The main heading is "Chrome Plating ATCM" with a "BACK TO ALL PROGRAMS" link. The page content includes a sidebar with "About", "Resources", "Facility Survey", "Fact Sheets & Advisories", "Meetings & Workshops", "Regulatory & Supporting Information", and "Subscribe to email list" links. The main text states: "Chrome plating is the process by which an electrical charge is applied to a plating bath containing an electrolytic salt (chromium anhydride) solution. The electrical charge causes the chromium metal in the bath to fall out of solution and deposit onto various objects (usually metallic) placed into the plating bath. The electrical charge during the chrome plating process causes the hexavalent chromium to be emitted from the bath as an aerosol that, once emitted from the facility, can be inhaled and entrained inside the lungs. Thus, hexavalent chromium emissions have the potential to adversely impact public health on a statewide basis, as well as at the local community level." Below this is a "MORE ABOUT THIS PROGRAM" link. The footer contains a "Subscribe to email list" link.

# CARB's Responsibilities

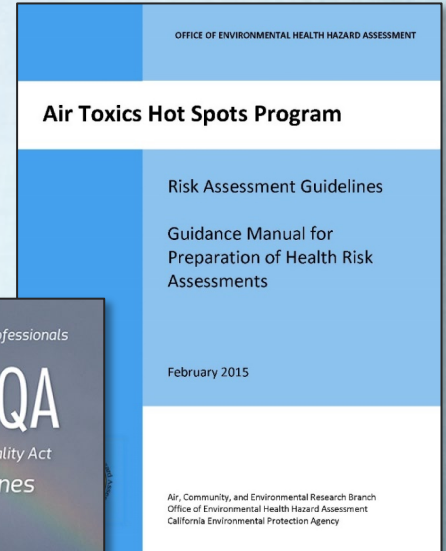
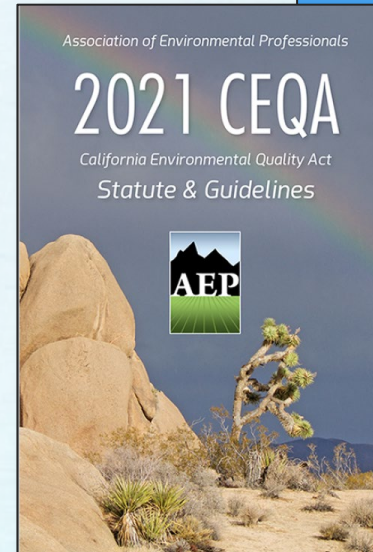
- Creating Rules
  - Calculate cancer risks both under current conditions and the proposed rule.





# CARB's Responsibilities

- CEQA
  - Review and Comment on:
    - Air Quality Impact Analysis
    - Health Risk Assessment
    - Mitigation Measures





# AB 617

- Cumulative Impacts Analysis
  - Multiple sources of air pollution
  - CARB working to develop policies and procedures
  - Will include CAPCOA in development process
  - Will work directly with the public throughout the process
  - Will ensure that public concerns and aspirations are reflected

# Suggestions for Advocates

# Community Advocates

- CEQA
  - Check to see if there are hazardous chemicals coming from the facility? (Consolidated Table)
  - Check to see if an HRA was included?
  - Determine if all sources are accounted for?
  - Check to see if the inputs and assumptions used for the HRA are consistent with those used for the AQIA?
  - Check to see if the risk values are close to the district significance thresholds?

# Community Advocates

- CARB Regulations and ATCMs
  - Provide input during regulation development regarding HRA inputs and model designs
  - Share and explain HRA results with community members
  - Comment on CARB regulations in public meetings
  - Advocate for and support valuation of health effects

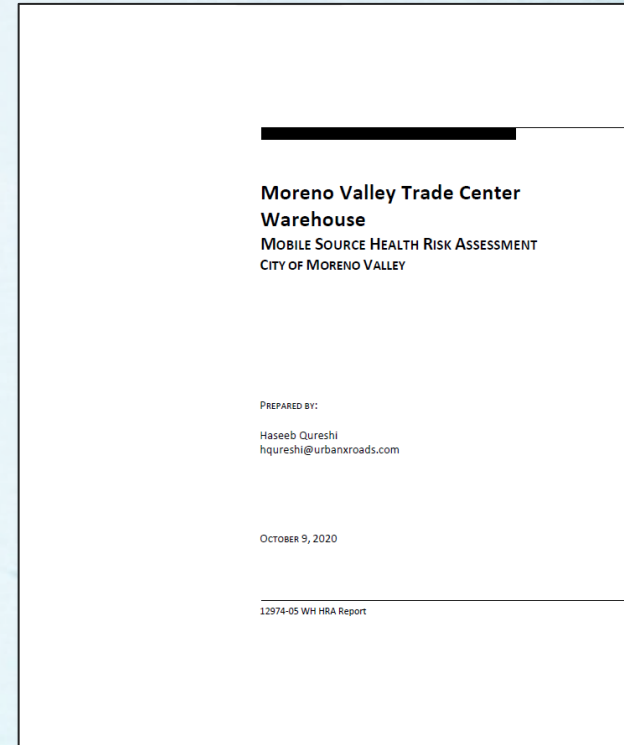


# Community Advocates

- AB 617
  - Continue to advocate for cumulative impacts HRAs.
  - Participate in public meetings during development of policies.
  - Provide examples of real-world situations with multiple sources.

# Community Advocates

- Review HRA
  - Real world example
  - CEQA HRA



# Thank You for Participating

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- CARB Environmental Justice Blog

- <https://carbej.blogspot.com/>