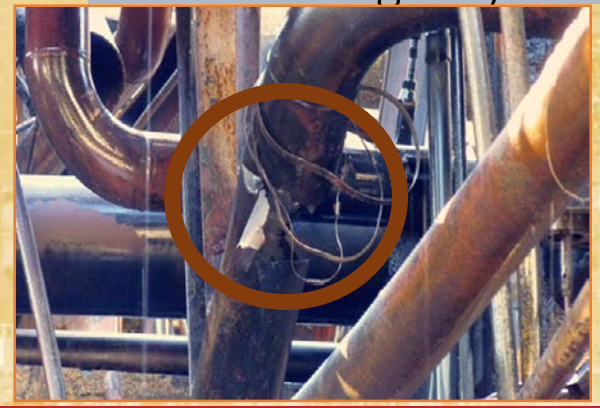
California Interagency Refinery Task Force (IRTF)

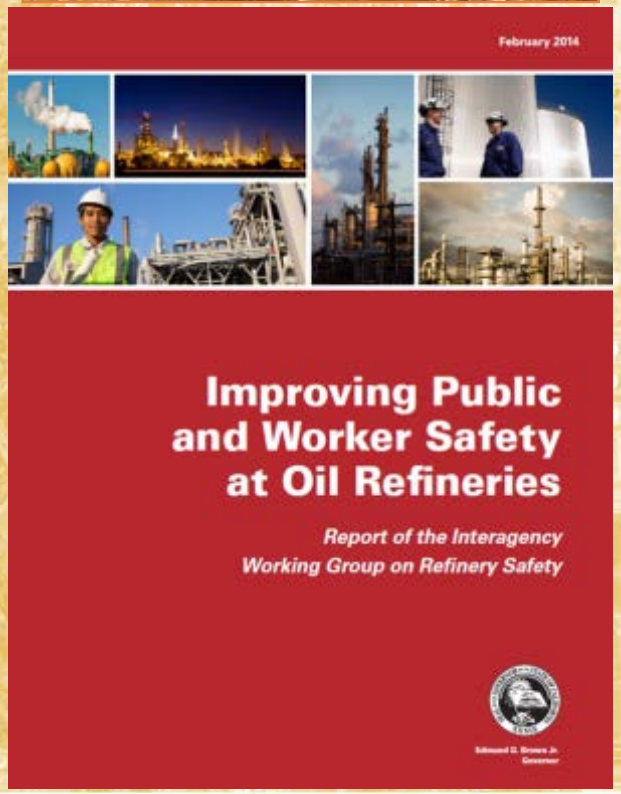
Refinery Safety Forum

Torrance, California

April 23, 2018

Interagency Refinery Task Force Background





California Environmental Protection Agency
- California Air Resources Board
- Department of Toxic Substances Control
- State Water Resources Control Board

Department of Industrial Relations (CalOSHA)
Governor's Office of Emergency Services
California Department of Public Health
California Emergency Medical Services Authority
Office of the State Fire Marshal
U.S. Environmental Protection Agency Region 9
Certified Unified Program Agencies with refineries
- Contra Costa County Environmental Health
- El Segundo Fire
- Kern County Environmental Health
- Los Angeles County Fire (Torrance Fire)
- City of Los Angeles Fire
- San Luis Obispo County Environmental Health
- Solano County Environmental Health

Local Air Pollution Control Districts with refineries
- Bay Area Air Quality Management District
- San Joaquin Valley Air Pollution Control District
- San Luis Obispo County Air Pollution Control District
- South Coast Air Quality Management District

California Interagency Refinery Task Force

- 16 refineries, 14.5 billion gallons/yr
- 2012 Fire at Chevron Richmond
- 2015 explosion at ExxonMobil Torrance

Governor designates California Environmental Protection Agency (CalEPA) to lead Interagency Refinery Task Force

Emergency Preparedness and Response

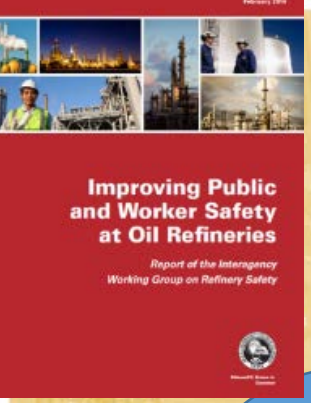
Community Outreach

Safety and Prevention

Implementation Training, Inspection, and Enforcement Coordination

Air Monitoring

<u>Desired outcomes:</u>
Refinery safety
Accident prevention
Hazard reduction



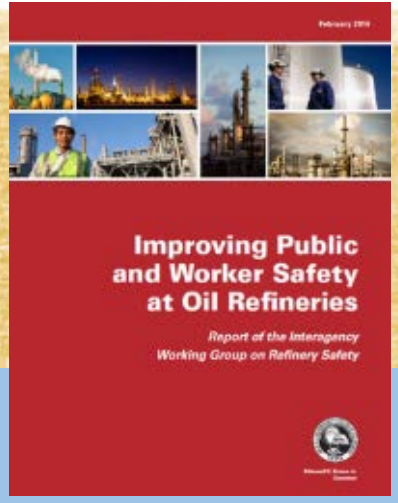
…refineries are highly complex environments …. California refineries are aging; they are processing higher sulfur crude which increases corrosion; maintenance is often deferred; contractor training may not always be adequate; and regulatory agencies often do not have ready access to information they may need to assess safety. Ultimately, the goal is to incorporate principles of inherent safety more fully into the operations of California refineries; …this is an ongoing process."

Community Outreach and Involvement

To date over 15 Safety Forums/Days/Summits on various topics and at various venues

Intended to:

- Demystify the issues
- Depoliticize the discussion
- Provide and exchange information
- Break down the institutional and organizational barriers
- Encourage meaningful dialogue



Intended Outcomes:

- Improving refinery safety is a goal strongly shared by government, industry, workers, and communities.
- Refineries should have a culture that fosters inherent safety, including stronger accident prevention and hazard reduction measures.
- Government agencies can improve interagency coordination, emergency response procedures, and communication and outreach to the public.
- The Interagency Refinery Task Force will guide California efforts to help achieve the highest possible level of safety and prevention in the California refinery sector."

Refinery Emergency Air Monitoring Assessment Project

CALIFORNIA
AIR RESOURCES BOARD

Monitoring and Laboratory Division
Office of Emergency Response

Torrance
April 23, 2018

Refinery Project Plan

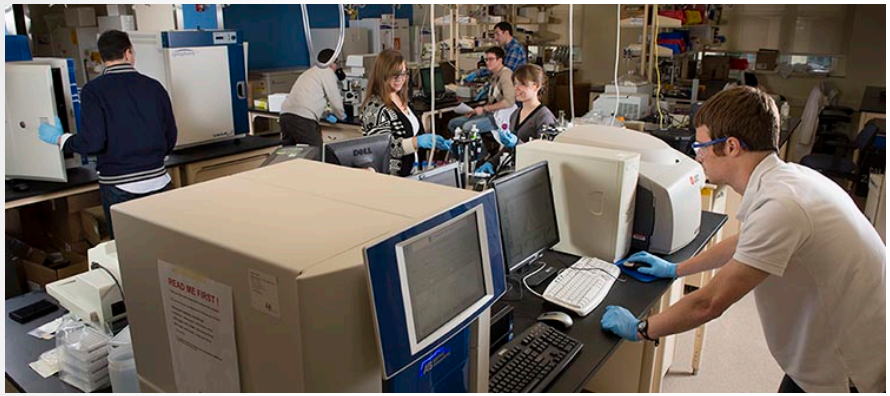
Richmond 2012

Torrance 2015

Develop Project Plan - July 2013

- Objective 1: Inventory existing assets and resources - May 2015
- Objective 2: Evaluate capabilities and propose enhancements - Public Final Draft September 2017
- Objective 3: Develop statewide guidance to implement recommendations/best practices
- Objective 4: Improve ongoing training, coordination, and preparedness

Findings



Data Availability:

- Existing monitoring
- Deployed monitoring
- Modeling

Coordination and Communication

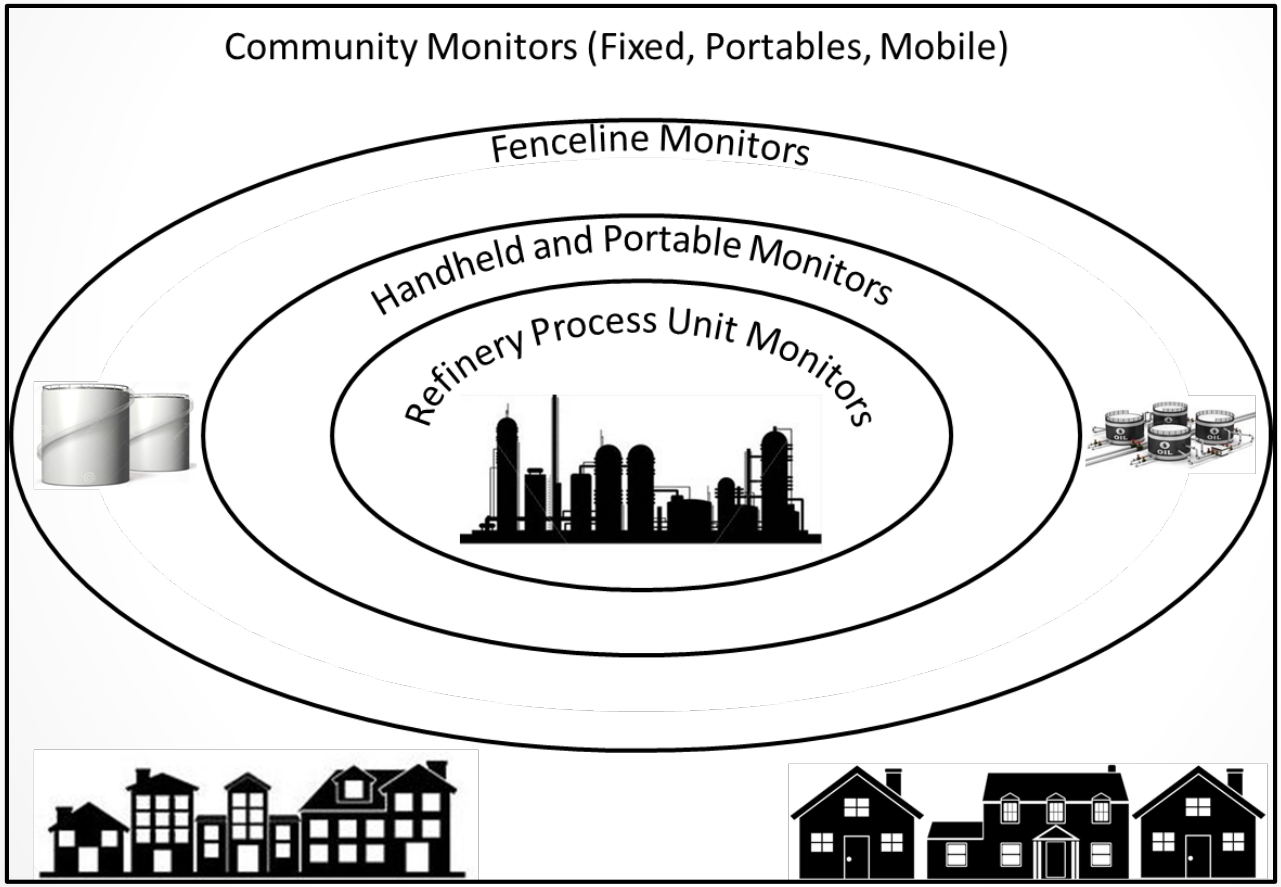
Overview of Recommendations

- Require multi-layered air monitoring around refineries
- Sponsor technical symposia to identify best practices and advancements in industrial modeling
- Coordinate better local emergency preparedness, response, and messaging
- Improve State and local coordination group via Refinery Monitoring Working Group (RMWG) – statewide guidance.

Routine and Emergency Air Monitoring

- Air monitoring systems designed for emergencies can provide information on routine operations
- Additional benefits include:
  - Information on air quality around industrial facilities
  - Status of routine industrial operations

Layered Air Monitoring Strategy



Building Air Monitoring Layers

Personal and Handheld Monitors

Process Unit Monitors

Building Air Monitoring Layers

Personal and Handheld Monitors

Process Unit Monitors

Fenceline Monitors

Building Air Monitoring Layers

Air Monitoring Stations

Personal and Handheld Monitors

Process Unit Monitors

Community Monitors

Fenceline Monitors

Building Air Monitoring Layers

Air Monitoring Stations

Personal and Handheld Monitors

Hazmat Vehicles and Mobile Labs

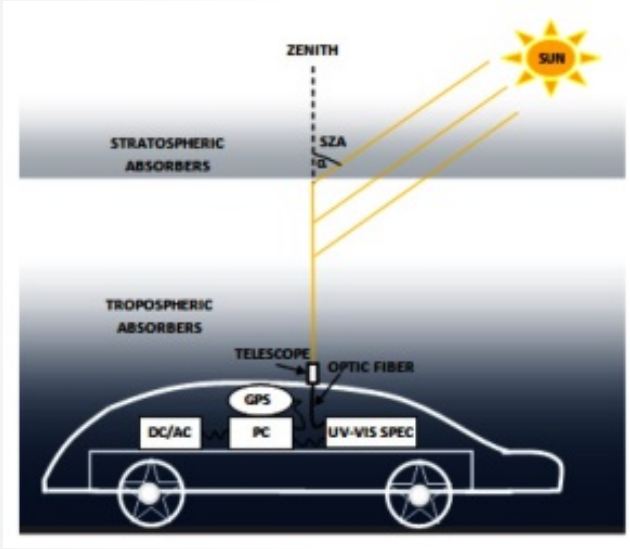
Process Unit Monitors

Community Monitors

Fenceline Monitors

Technology Evaluations

Spectral Flux



South Coast Air Quality Management District's Air Quality Sensor Performance Evaluation Center

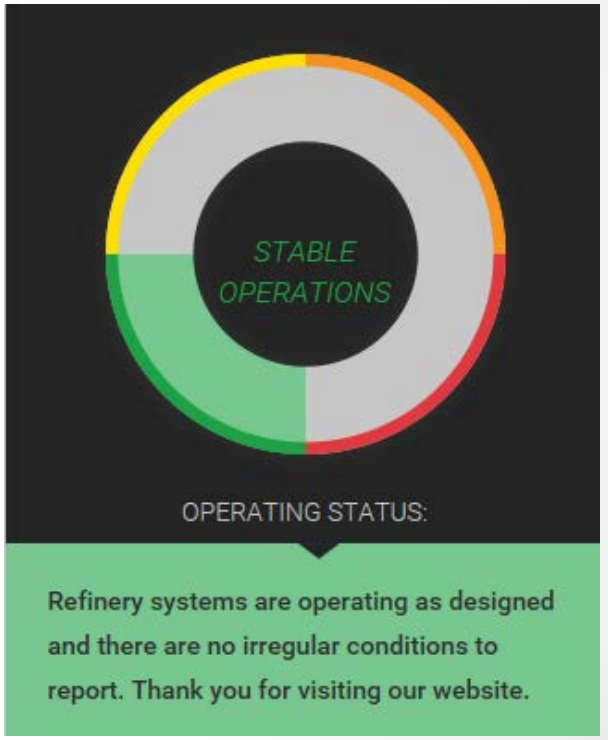
Modeling

- Emergency preparedness
- Model evaluation
  - New technology
  - Application

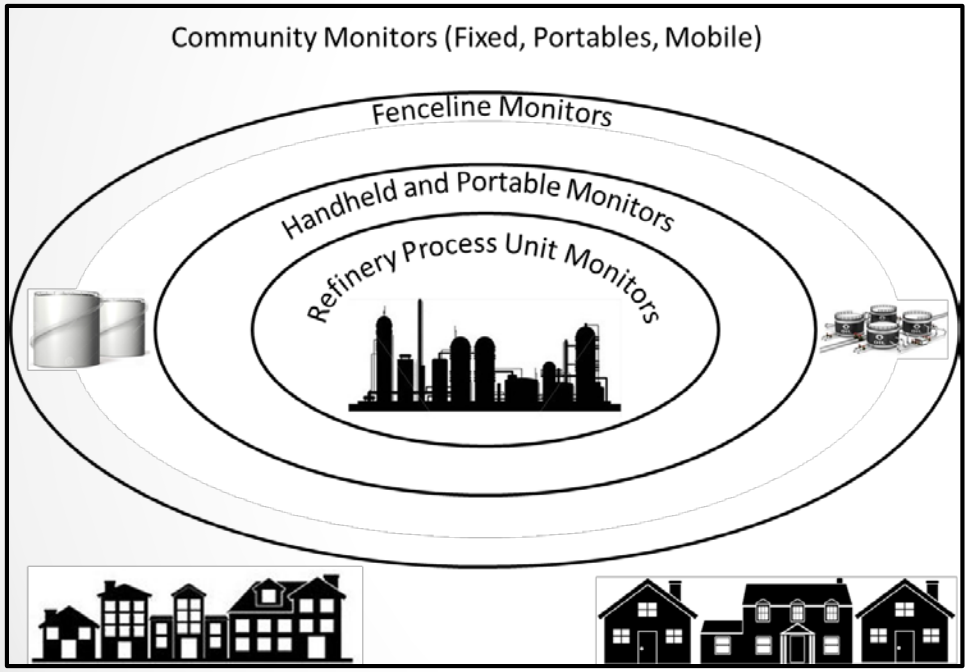
Coordination and Communication

Prevention and Preparedness

Communications



Next Steps



- Outreach activities
- Feedback on report
- Finalize report
- Form RMWG
- District rules and State regulations

Further Information

- CARB refinery related air monitoring website: **www.arb.ca.gov/fuels/carefinery/crseam/crseam.htm**
- Or web search: **CARB Refinery**

Russ Bennett

California Air Resources Board:
Office of Emergency Response

(916) 324-1149

Russ.Bennett@arb.ca.gov

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT: REFINERY RELATED AIR MONITORING EFFORTS

IRTF Safety Forum

April 23, 2018

Dr. Jason C. Low

Assistant Deputy Executive Officer

Monitoring and Analysis Division

OVERVIEW

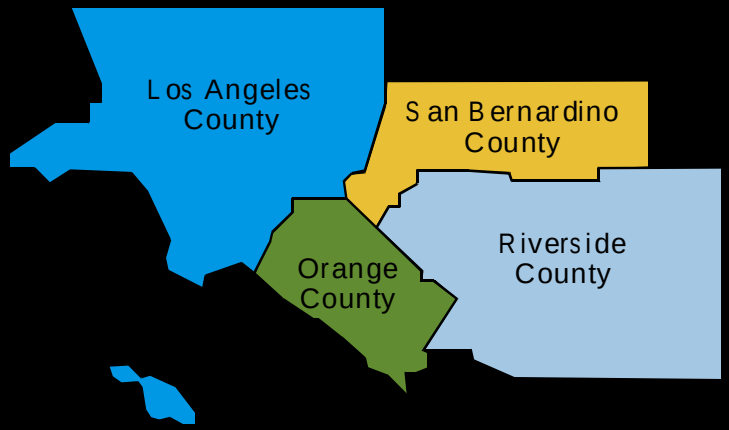
- South Coast Air Quality Management District (SCAQMD) Background
- Incident Response Program
- Current Air Monitoring Programs
  - Air Monitoring Network
  - AQ-SPEC Program
  - MATES V
- Upcoming Programs to Integrate Air Monitoring Strategies
  - AB 617
  - Rule 1180 Community Monitoring
  - Supplemental Environmental Project and Rule 1410 Update

WHO IS THE SCAQMD?

Regional Government Agency Responsible for Protecting Our Residents from the Health Effects of Air Pollution

What we do

- Develop **Air Quality Management Plan**
- Adopt air quality **rules and regulations**
- Issue **permits**
- Conduct **periodic inspections and respond** to air quality complaints
- Develop and deploy **clean technology**
- Conduct **air monitoring**
- **Engage** with all stakeholders
- **Public outreach and education**



South Coast AQMD

SCAQMD Incident Response Program

- **Responds to emergencies such as fires, explosions, toxic spills, and toxic gas releases at industrial/commercial facilities and other sources**

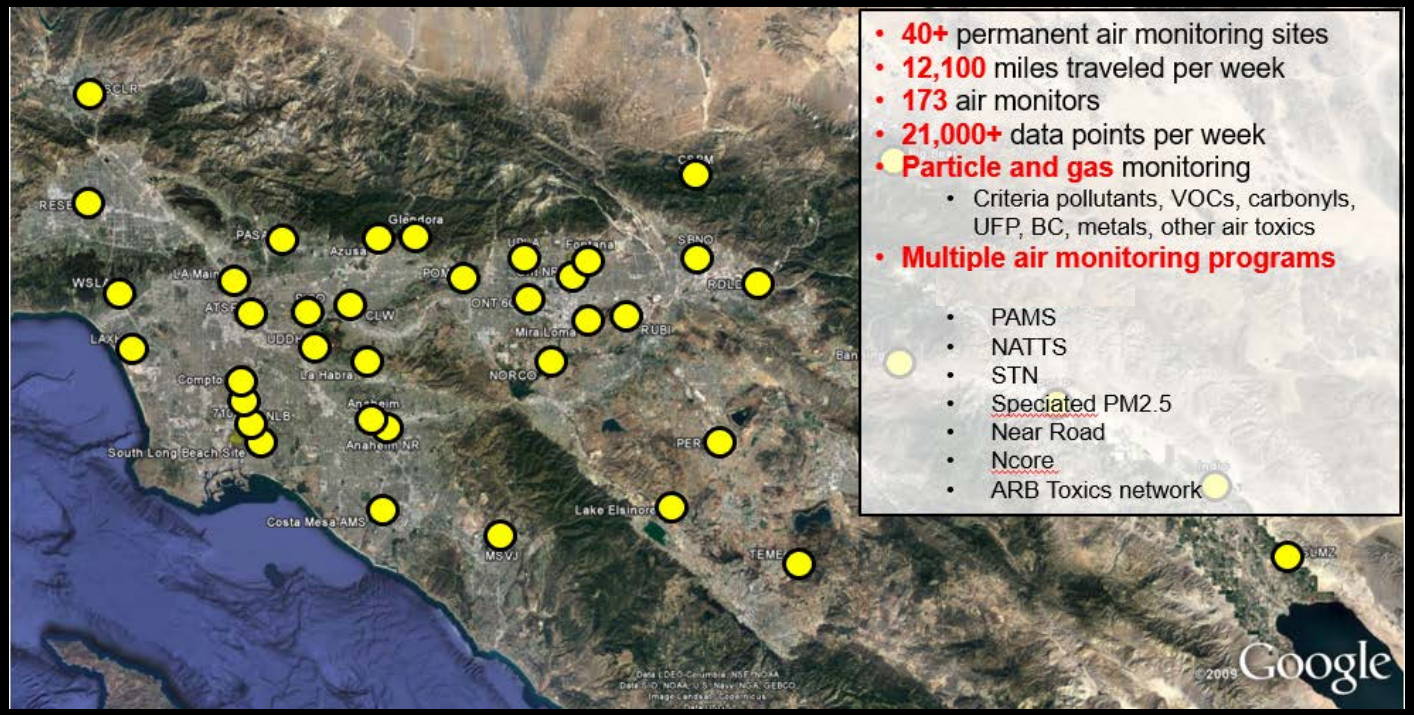
- **Activation:**
  - Notifications from Cal Emergency Management Agency, Cal EPA and Local Emergency Response Agencies, Local Fire Departments, CHP, wildfire events

  - **1.800.CUT.SMOG / www.aqmd.gov**

SCAQMD Incident Response Program

- **Provides specialized technical support within the Incident Command System**
  - **Air quality sampling and analysis**
    - ✓ On-site near real-time measurements
    - ✓ On-site sample collection for laboratory analysis
    - ✓ Capability for longer term monitoring
  - **Facility inspection**
  - **Meteorological data, dispersion modeling, and forecasting**

SCAQMD AIR MONITORING NETWORK



AQ-SPEC

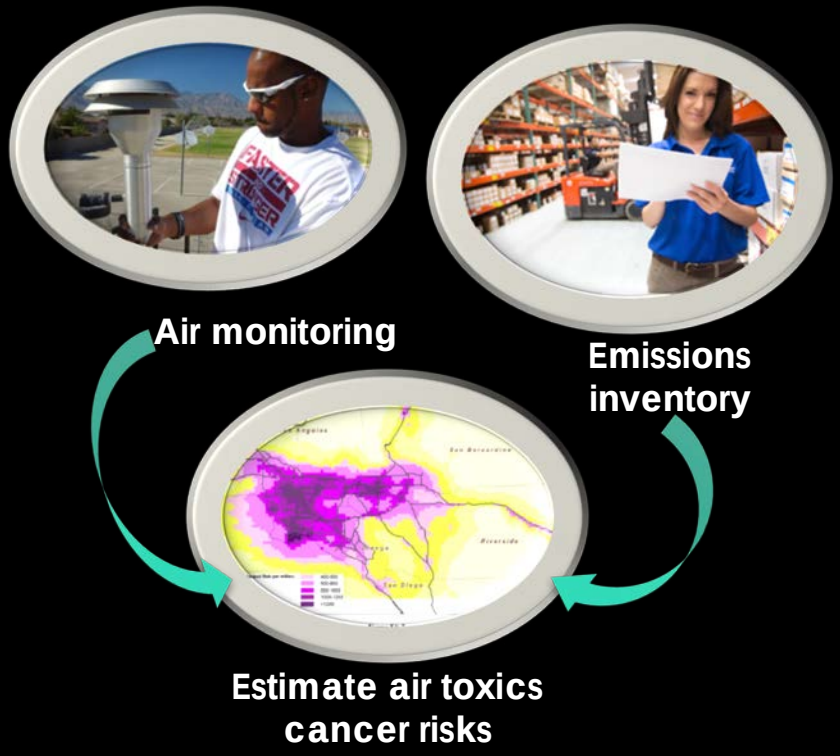
Air Quality Sensor Performance Evaluation Center

- Most comprehensive sensor evaluation program in the Nation
- Recognition for:
  - Community education
  - Air toxics monitoring
  - Validation of satellite air quality data
- Pilot sensor network projects
- Next steps:
  - Statewide sensor network development
  - Sensor certification program

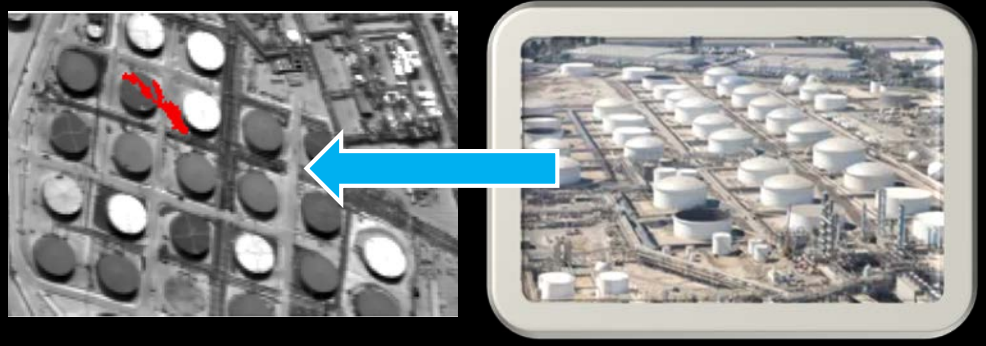
MATES V PROGRAM OVERVIEW

PURPOSE: To evaluate regional air toxics health risks in the South Coast Air Basin

- Carcinogenic risk from exposure to air toxics
- Cumulative impacts approach
- Advanced monitoring component in areas near refineries



FLIGHT-BASED AIR TOXICS MEASUREMENT
AEROSPACE CORPORATION



- Survey large areas, including refinery areas
- Detect plumes & emissions
- Guide ground-based efforts

MOBILE AIR TOXICS LABORATORY
FLUXSENSE, INC.

- Survey major refineries and other petroleum facilities

- Fenceline and community mobile monitoring
- Identify sources and community levels

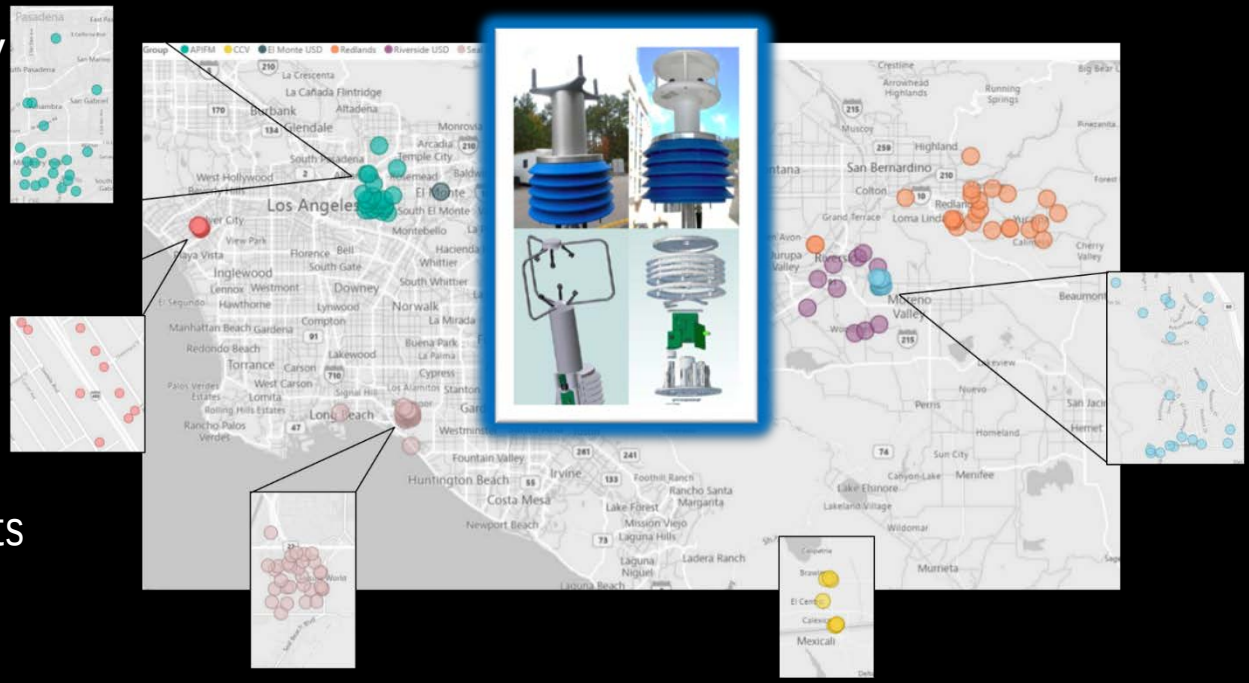
OPTICAL TENT (FACILITY-BASED AIR TOXICS MONITORING)

UCLA

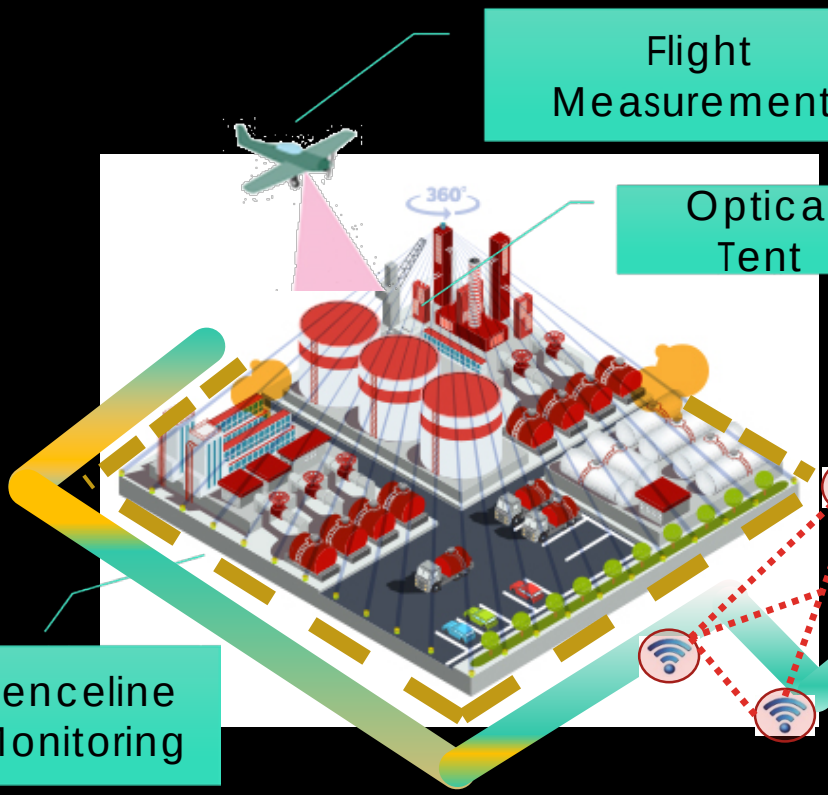
- Continuous facility monitoring
- Real-time leak detection
- Quantify long-term emissions

SENSOR NETWORKS & COMMUNITY ENGAGEMENT
QSENSE AND SCAQMD

- Detailed local data
  - PM: 2 communities
  - VOCs: 1 near-refinery community
- Community engagement
  - Air quality & sensor training
  - Needs assessment
  - Inform air quality improvement projects



COMPLEMENTARY APPROACHES TO REFINERY MONITORING



Flight Measurements

Optical Tent

Air Monitoring Station

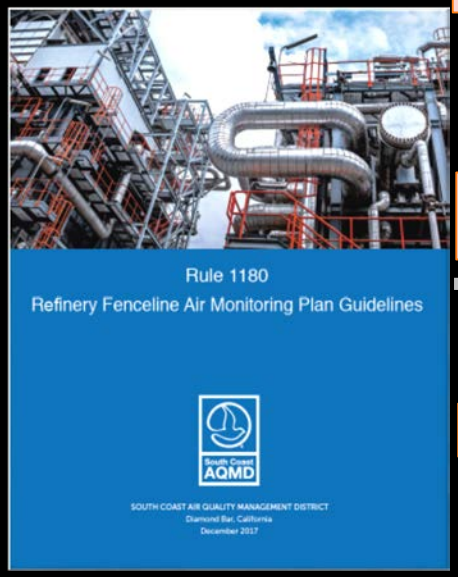
Community Monitoring/ Sensor Networks

Mobile Monitoring

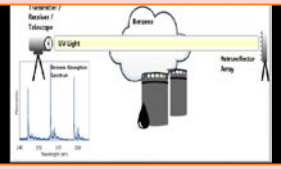
Fenceline Monitoring

SCAQMD RULE 1180

- Fenceline air monitoring system required to be installed
- SCAQMD will deploy community monitoring



Fenceline Coverage



Equipment & Quality Assurance

Notification System

AB 617 Goals

Develop **Local Partnerships**
Clean Technology Investments
Air **Monitoring**
Community Centered
Cleaner Air
Easier **Access to Information**
Enhanced **Transparency**

2018 | 2019 | 2020 | 2021

District Initiatives

MATES V

AB 617

Rule 1180
AB 1647

SUPPLEMENTAL ENVIRONMENTAL PROJECT

- Torrance refinery explosion February 2015 & restart in May 2016
- Settlement funds received totaling $2,771,250 to be used in or to benefit the City of Torrance
- Community air monitoring and alerting system to be implemented

PROPOSED RULE 1410 – HYDROGEN FLUORIDE STORAGE AND USE AT PETROLEUM REFINERIES

- Initial rule concepts include different tiers of mitigation and phase-out of MHF technology
- Stakeholder input through working group and Refinery Committee meetings having presentations provided by manufacturers of emerging technologies, affected refineries, community groups, CalOSHA, and the California Energy Commission
- The third Refinery Committee Meeting scheduled for **Saturday, April 28, 2018 at 9:00** a.m. at:

Torrance City Council Chambers
3031 Torrance Blvd
Torrance, CA 90503

Questions?

Analysis of Refinery Chemical Emissions and Health Effects

Karen Riveles, PhD MPH

Office of Environmental Health Hazard Assessment (OEHHA)

California Environmental Protection Agency (CalEPA)

Karen.Riveles@oehha.ca.gov

OEHHA's Mission

- To protect and enhance public health and the environment by scientific evaluation of risks posted by hazardous substances

In an Emergency OEHHA assists

- Emergency responders and managers
- Local, State, and Federal air, environmental, and public health officials
- To assess health effects and characterizing risk to public health and the environment from toxic releases in the environment

Outline

- Timeline
- Background: Why did we create this report?
- What does this report do?
- What is the source of the information?
- Overview of information in report
- Regulatory health values
- Common process units and emission points at California refineries
- Routine and nonroutine emissions data
- Toxicity-weighted emissions
- Selecting candidate chemicals to recommend for air monitoring
- Key findings and conclusions

Timeline

Aug 2012
- Chevron refinery fire in Richmond
- Concerns about refinery safety and emergency response in California

July 2013
- Governor Brown's report on "Improving Public and Worker Safety at Oil Refineries" recommends formation of Interagency Refinery Task Force (IRTF)

Aug 2013
- CalEPA forms IRTF in response to Governor's directive
- Develop findings, recommendations, proposed implementation measures

Dec 2014-June 2015
- Public meetings: California Safety Forums

May 2015
- ARB and CAPCOA report on "Refinery Emergency Air Monitoring Assessment: Delineation of Existing Capabilities"

June 2015
- OEHHA charged with assessing health effects, regulatory health values of CA refinery chemicals

Background

- **Interagency Refinery Task Force (IRTF)**
  - Tasked to improve public and worker safety around California refineries and strengthen emergency preparedness

- **Air Resources Board (ARB)** and **California Air Pollution Control Officers Association (CAPCOA) Air Monitoring Committee**
  - Tasked with writing a report to assess existing emergency air monitoring capabilities and potential improvements to California's current air monitoring system for refineries

- **Office of Environmental Health Hazard Assessment (OEHHA)**
  - California Environmental Protection Agency (CalEPA) tasks OEHHA with writing a report to summarize health effects of refinery chemicals

What does this report do?

- Provides a compendium of information on chemicals emitted from refineries in California
  - Regulatory health values and health effects
  - Common process units and emission points
  - Routine emissions in daily operations
  - Accidental emissions
  - Other non-routine emissions
  - Information on emissions levels and toxicity
  - Selects potential candidates for air monitoring

- This report does not:
  - Actually measure exposure or risk in communities

- OEHHA's report is a companion report to California Air Resources Board (CARB) report on air monitoring strategies

- The OEHHA report contains useful information for considering:
  - Which chemicals to monitor near facilities
    - Community air monitoring efforts
    - Fence-line air monitoring at refineries
    - Emergency response and preparedness

.

- Knowing what is being emitted from refineries can help determine which chemicals should be monitored, as a way of reducing exposure.

VOCs
Ammonia
PM10
NOx
Xylenes
Benzene
PM2.5
Sulfur Dioxide
Formaldehyde
Hydrogen Sulfide
Toluene
PAHs
Metals
Carbon Monoxide

What is the source of the information?

OEHHA used publicly available information to compile the list of chemicals and their emissions.

- **California Air Resources Board's (CARB)**
  - California Emissions Inventory Development and Reporting System (**CEIDARS**) Facility Search Tool
  - **Routine emissions** from all refineries in California
    - **First Query: 2009-2012**
    - **Second Query: 2014**
- **US EPA**
  - Routine and non-routine emissions from all California refineries
    - Data for 2010
- **Additional sources**
  - Literature searches, internet databases, government reports, peer-reviewed journal articles, and incident databases.

Overview of Information in the Report

- List of chemicals emitted from California refineries
- Health guidance values
  - OEHHA Reference Exposure Level (REL)
  - U.S. EPA Reference Concentration (RfC)
  - Cancer Slope Factors, Unit Risk Values, Prop 65
- Emergency exposure levels
  - U.S. EPA Acute Exposure Guideline Level (AEGL-1, 2)
  - NIOSH Immediately Dangerous to Life and Health (IDLH)
  - Lower Explosive Limits (LEL)

Overview continued

- Chemical health effects
  - Acute, chronic
- California refinery incident history
- California refinery process units and emission points
- Routine and nonroutine chemical emissions by California refineries
- Data analysis compares multiple variables to develop list of chemicals recommended for air monitoring

Regulatory Health Values and Refinery Chemicals in California

- 107 chemicals have at least one health guidance value from OEHHA or US EPA.
- 94 chemicals have at least one emergency exposure value to evaluate the harm of large unanticipated releases.
- 33 chemicals do not have any health guidance value. These chemicals are generally released in much lower quantities than those with guidance values.

Health Effects

- Information and acute and chronic health effects for a select group of refinery chemicals
- Summary table of health effects in report
- Longer health summaries in appendix

Common Process Units and Emission Points Self-Reported by CA Refineries (2010)[1]

Release Type		
Fugitive	**Point**	**Fugitive and Point**
Hydrogen plant	Boiler	Alkylation unit
Product loading	Flare	Cogeneration unit
Wastewater treatment	Heater	Coker
	Hydrotreater	Cooling tower
	Thermal oxidizer	Crude unit
	Vent	Fluid catalytic cracking unit
		Hydrocracker
		Incinerator
		Stack
		Storage tank

[1] The process units listed above represent those most commonly found in OEHHA's research of California refineries based on U.S. EPA (2012a, 2012b) data for 2010. Note that the processes listed above do not reflect all refinery processes at California refineries.

Selecting Candidate Chemicals to Recommend for Air Monitoring

- Based on:
  - Highest routine and nonroutine emissions
  - Low Reference concentrations
    - RELs & RfCs
    - Carcinogencity
  - Low emergency exposure values
    - AEGLs (1,2)
  - In the most processes
  - Involved in reported refinery incidents
  - Toxicity-weighted emissions

Toxicity-Weighted Totals for Chemicals Released From California Refineries (2014)

Chemical	Total lbs. released[1]	Toxicity weights[2]	Toxicity-weighted lbs. released[3]
Formaldehyde	91681.92638	46000	4217368613
Nickel	1337.784985	930000	1244140036
Arsenic	64.78463609	17000000	1101338814
Cadmium	155.0871108	6400000	992557509.1
Benzene	20313.40527	28000	568775347.6
PAHs, total w/o individ components	711.0177817	710000	504822625
Chromium (hexavalent & compounds)	9.908684445	43000000	426073431.1
Benzo[a]pyrene	500.3090086	710000	355219396.1
Phenanthrene	279.8511702	710000	198694330.8
Beryllium	12.42167051	8600000	106826366.4
Ammonia	2517005.139	35	88095179.87
1,3-Butadiene	740.0423961	110000	81404663.57
Naphthalene	6313.022494	12000	75756269.93
Hydrogen Sulfide	12321.35516	1800	22178439.29
Acetaldehyde	1392.032749	7900	10997058.72
Manganese	474.3317752	12000	5691981.302
Diethanolamine	1777.82487	1200	2133389.844

1 Total amount of chemical released across California refineries

2 Proportional numerical weight given to each chemical based on chronic adverse health outcomes

3 Total chemical release multiplied by the toxicity weight

https://www.epa.gov/rsei/rsei-toxicity-weights

Source: CARB's CEIDARS database for 2014

Candidates for air monitoring based on both emissions and toxicity considerations

Acetaldehyde	Manganese
Ammonia	Naphthalene
Benzene	Nickel
1,3-butadiene	Nitrogen oxides
Cadmium	PAHs
Diethanolamine	PM (10 and 2.5)
Formaldehyde	Sulfur dioxide
Hydrogen fluoride	Sulfuric acid
Hydrogen sulfide	Toluene

Conclusions

- The report identifies 188 chemicals emitted from California refineries, although there are large variations in the frequency, amounts and toxicity of the emitted chemicals.
- There is generally good information for understanding the toxicity of the identified emitted chemicals
- All of the chemicals with routine emissions greater than 10,000 pounds per year statewide (14 chemicals) have an OEHHA Reference Exposure Level (REL)*
- OEHHA did not attempt to determine whether or how often these exposure levels may have been exceeded in areas near refineries.

*OEHHA does not have a REL for particulate matter (PM) or for categories of chemicals (VOCs, PAHs, etc)

Conclusions cont.

- With respect to **accidental releases**, OEHHA has identified several emitted chemicals of particular concern: **benzene, formaldehyde, hydrogen sulfide, PM, sulfur dioxide, sulfuric acid, and toluene**.
  - These chemicals have several health guidance values and emergency exposure levels, with low acute RELs indicative of relatively high acute toxicity.
  - Several of these chemicals are also involved in multiple refinery processes, increasing the chance that exposure could occur because of an accident or process upset.
  - These chemicals are also of interest for potential air monitoring because they all have high routine emissions (greater than 10,000 lbs/year).

Conclusions cont.

- California criteria air pollutants with high routine and non-routine emissions are: **sulfur dioxide, nitrogen oxides, and particulate matter (PM)**.

- **Hydrogen fluoride** is a highly toxic chemical of serious concern; it is used at two refineries in California.

- The total amount released of hexavalent chromium, arsenic, and beryllium from all California refineries are all less than 100 pounds annually, making it likely very difficult to detect these in air.

Conclusions cont.

- The release of these chemicals from refineries does not necessarily mean that local communities face a significant health risk or substantial exposures, but it does **increase the likelihood of exposure** for nearby communities.
- Air monitoring of these chemicals may **inform decisions** that could reduce exposure.
- The top candidates for air monitoring are not ranked or prioritized further. An important consideration for air monitoring is that emissions of individual chemicals will vary among refineries.

THANK YOU!

Karen.Riveles@oehha.ca.gov

Report on OEHHA's webpage:
https://oehha.ca.gov/air/analysis-refinery-chemical-emissions-and-health-effects

CARB report:
https://www.arb.ca.gov/fuels/carefinery/crseam/crseam.htm

Interagency Refinery Task Force:
https://calepa.ca.gov/refinery/

Hydrogen Sulfide

Physical/Chemical Properties: Colorless gas with a pungent rotten egg odor. Corrosive and highly flammable.

Acute Health Effects: headache; nausea; irritation of the skin, eyes, mucus membranes, and respiratory tract; conjunctivitis with ocular pain, lacrimation, and photophobia; death from respiratory arrest

Chronic Health Effects: nasal inflammation (mice); low blood pressure, headache, nausea, loss of appetite, weight loss, ataxia, eye membrane inflammation, chronic cough

Hydrogen fluoride
— Acute 240 µg/m3 — Respiratory system; eyes
— Chronic 14 µg/m3
Inhalation: Bone and teeth, respiratory system;
Oral: Bone and teeth

x. Hydrogen Fluoride

Hydrogen fluoride is a colorless fuming liquid or gas with a strong, pungent odor. Dissolution in water forms corrosive hydrofluoric acid, a systemic poison. Although it will not burn under typical fire conditions, this acid emits highly irritating and poisonous vapors that are corrosive to metals and body tissues when heated. Because it is corrosive to metals, hydrogen fluoride may yield hydrogen and may thus indirectly create a fire hazard. Hydrogen fluoride in air is normally found in the water vapor and particulate phases. The general population may be exposed to hydrogen fluoride in the ambient environment from industrial process emissions and coal combustion. In refineries, this chemical is used as a catalyst during alkylation or cracking and has been detected in refinery emissions and around crude units and cokers.

Short-term inhalation of hydrogen fluoride can lead to severe respiratory damage (irritation and fluid accumulation in the lung), lacrimation (tearing), sore throat, cough, chest tightness, and wheezing. Due to the ability of the fluoride ion to penetrate tissues, some health effects may be delayed for one to two days after exposure. Breathing high levels of the gas or in combination with dermal exposure may be fatal due to pulmonary edema (fluid accumulation in the lung) and bronchial pneumonia. People with cardiopulmonary disease may be particularly vulnerable to lower airway irritation at high concentrations. The most sensitive endpoint for short-term inhalation exposure to hydrogen fluoride is eye, nose, and throat irritation, which was observed in an inhalation study of healthy, male volunteers after one hour of exposure to concentrations of 0.20.6 mg/m3. After time and dose adjustments and consideration of uncertainties, OEHHA established an acute REL of 240 µg/m3 to protect individuals from these effects.

Long-term exposure to low levels of hydrogen fluoride has been linked to congestion and irritation of the nose, throat, and bronchi. Liver and kidney damage has also been noted. Exposure to higher levels has been associated with increased bone density (skeletal fluorosis). This was observed in a study on fertilizer plant workers chronically exposed to an average of 0.14 mg/m3 hydrogen fluoride. In this study, OEHHA determined the point of departure for increased bone density to be 1.13 mg/m3, which served as the basis of the chronic REL of 14 µg/m3. Because fluorides may contaminate food and drinking water, OEHHA has also developed a chronic oral REL for hydrogen fluoride, based on the dental fluorosis observed in the inhabitants of several US cities exposed via drinking water. A point of departure of 0.82 mg/m3 at which the incidence of moderate to severe dental fluorosis was considered to be rare among the population was used to calculate the chronic oral REL of 40 µg/kg-day. Dental fluorosis has additionally been noted in children after maternal exposure to high levels during pregnancy.

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY REGULATED SITE PORTAL

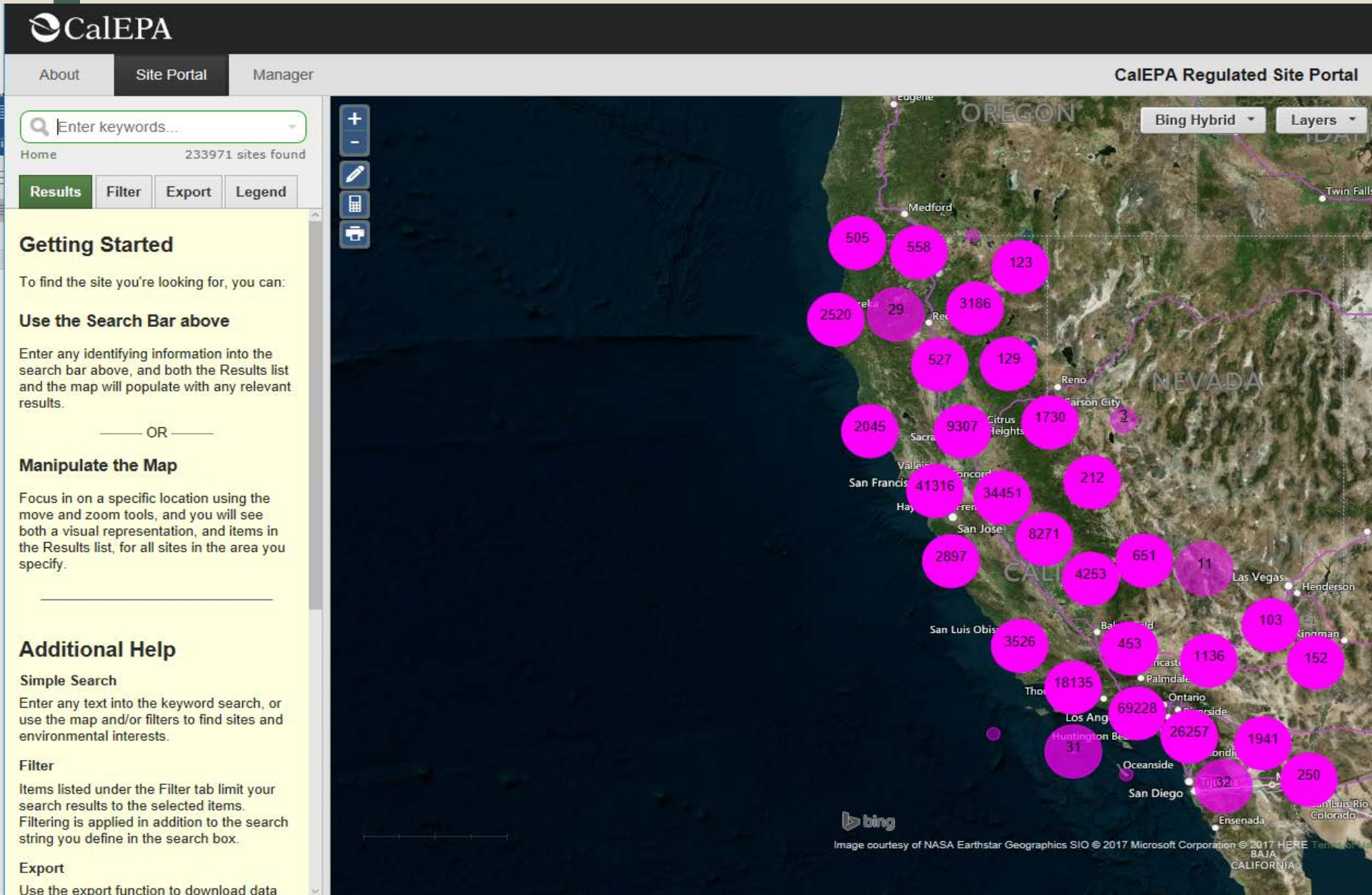
Thanks to: Jim Bohon, Project Sponsor
Retired Assistant Secretary

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

- Combines data about environmentally regulated sites and facilities in California into a single, searchable database and interactive map

- Combines a variety of state and federal databases across the spectrum of environmental programs for any given location in California.
  - *Including hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials.*

Map Based Viewer



About Tab

CalEPA

About | Site Portal | Manager

CalEPA Regulated Site Portal

Background

The CalEPA Regulated Site Portal is a website that combines data about environmentally regulated sites and facilities in California into a single, searchable database and interactive map. The portal was created to provide a more holistic view of regulated activities statewide. By combining data from a variety of state and federal databases, the portal provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials. (More)

Data Sources

The portal combines information from the databases listed below. Additional data sources may be added in the future.

CERS - The California Environmental Reporting System was developed by CalEPA to support the reporting of information by regulated businesses and Certified Unified Program Agencies (CUPAs) pertaining to hazardous materials and hazardous waste throughout the state.
EnviroStor - This system is used by the Department of Toxic Substances Control to track permitting, enforcement and cleanup activities at hazardous waste facilities and sites with known or suspected contamination.
GeoTracker - Developed for the State Water Resources Control Board, this database contains information about impacted groundwater sites within the state, such as leaking underground storage tanks, cleanup sites, and permitted facilities such as landfills and operating underground storage tanks facilities.
CIWQS - The California Integrated Water Quality System (CIWQS) was developed by the State Water Board to manage permitting, compliance and enforcement activities related to sites which discharge to surface water (or otherwise affect surface water quality) throughout the state.
TRI - The Toxics Release Inventory (TRI) is a federal database that contains detailed information on nearly 650 chemicals and chemical categories that over 1,600 industrial and other facilities in the state manage through disposal or other releases, recycling, energy recovery, or treatment. The data are collected from these facilities by the U.S. Environmental Protection Agency

Report an Issue or Error

CalEPA and its agencies work together to ensure the information on this website is accurate and up to date. If you believe that you have identified an error or if data appears to be missing, please let us know by following the steps below. We are grateful for your feedback. If you would like a response, please be sure to include your name and phone number or email address.

1. Go to the facility where you first identified the problem.

2. Look at the detail under Regulatory Programs to identify the Source System.

3. Find that Source System contact information below.

4. If you are communicating by email, please include the facility name, a screen shot, or any other information that you believe will help research the problem.

California Environmental Reporting System:
cers@calepa.ca.gov
California Integrated Water Quality System:
1-866-79-CIWQS or ciwqs@waterboards.ca.gov
EnviroStor Cleanup:
1-877-7TOXICS (1-877-786-9427) or envirostor@dtsc.ca.gov
EnviroStor Hazardous Waste:
1-877-7TOXICS (1-877-786-9427) or envirostor@dtsc.ca.gov
GeoTracker:
1-866-480-1028 or geotracker@waterboards.ca.gov
Toxic Release Inventory:
http://www.epa.gov/toxics-release-inventory-tri-program

Frequently Asked Questions

Warehouse Statistics

Show Statistics For: Number of updated sites (30 days)

Aboveground Petroleum Storage	1626
Agriculture Discharge	68
Animal Wastewater Discharge	101
Chemical Storage Facilities	14157
Cleanup Program Site	159
Corrective Action	22
Forestry & Silviculture	135
Hazardous Chemical Management	373
Hazardous Waste	42
Hazardous Waste Generator	9883
Hazardous Waste Onsite Treatment	225
Household Hazardous Waste Collection	44
Land Disposal	49
Land Disposal Site	25
Leaking Underground Storage Tank Cleanup Site	303
Military Cleanup Site	193
Military Privatized Site	3
Military Underground Storage Tank Site	71
NPDES Wastewater and Stormwater	96
RCRA LQ HW Generator	690
School Cleanup	1
School Investigation	7
Sewager Spills	4
State Response	26
Tanks & Ground Water Clean Up	2
Toxic Release Inventory	53
Underground Storage Tank	2454
Unregulated	28
Waste Discharge Requirements	75
Wetlands - Fill and Dredge Material	137

Data Sources

CERS: The California Environmental Reporting System was developed by CalEPA to support the reporting of information by regulated businesses and Certified Unified Program Agencies (CUPAs) pertaining to hazardous materials and hazardous waste throughout the state.

EnviroStor: Developed for DTSC by EcoInteractive, this database contains information pertaining to state and federally listed cleanup sites, along with hazardous waste permitted and corrective action facilities.

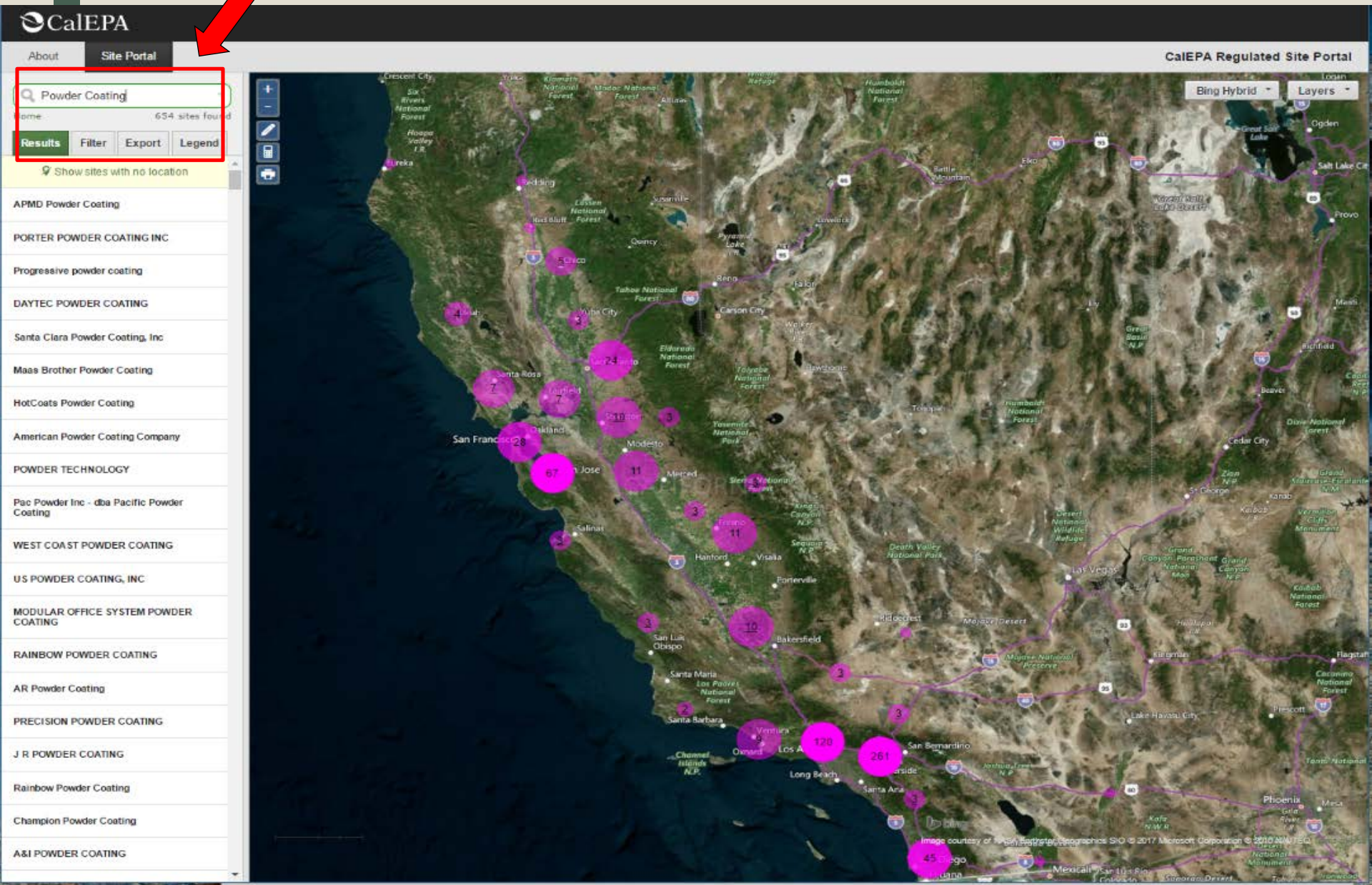
GeoTracker: Developed for the Water Board by EcoInteractive, this database contains information pertaining to impacted groundwater sites within the state, such as leaking underground storage tanks, cleanup sites, and permitted facilities such as landfills and operating underground storage tanks facilities.

Data Sources

CIWQS: California Integrated Water Quality System was developed by the Water Board to manage permitting, compliance and enforcement activities related to sites which discharge to surface water (or otherwise affect surface water quality) throughout the state.

TRI: The Toxics Release Inventory is a federal database that contains detailed information on nearly 650 chemicals and chemical categories that over 1,600 industrial and other facilities in the state manage through disposal or other releases, recycling, energy recovery, or treatment. The data are collected from these facilities by US EPA. The collected data is exchanged to CalEPA and updated automatically through the CalEPA exchange node.

General Searching



Facility Profile

CalEPA

About | Site Portal

CalEPA Regulated Site Portal

chevron richmond

Home 22 sites found

Results | Filter | Export | Legend

Map Location

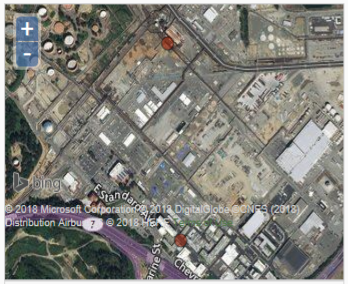
Chevron Richmond Refinery, CA

Show sites with no location

- Chevron Richmond Technology Center, Bldg #35
- CHEVRON RICHMOND REFINERY - Land Disposal Areas
- CHEVRON RICHMOND REFINERY
- CHEVRON RICHMOND TECHNOLOGY CENTER
- Chevron Richmond Refinery - RCRA/LNDISP/TANKS/TPCA/SLIC/Long Wharf Dredging
- CHEVRON PRODUCTS CO RICHMOND REFINERY
- CHEVRON RESEARCH & TECH COMPANY
- Chevron Pipeline Company - Richmond Pump Station
- CHEVRON GLOBAL LUBRICANTS/RICHMOND PLANT
- Richmond-SR Bridge Retrofit
- Chevron Products Company - Richmond Terminal
- CHEVRON USA INC RICHMOND REFINERY
- POINT RICHMOND GAS HOLDER (FORMER)

CHEVRON RICHMOND REFINERY 841 CHEVRON WAY, RICHMOND, CA 94802

Profile | Map | Compliance (65) | Chemical Storage (951)



Alternate IDs

Dun & Bradstreet Number: 009114919
Facility Identifier: 07-000-770837
Regional Water Board Case Number: 07S0151
Facilities Explorer ID: 104873
EPA Identifier: CAD009114919

Industry Codes

SIC: 2911 - Petroleum refining
NAICS: 32411 - Petroleum Refineries

Geopolitical Data

County: Contra Costa County
CalEnviroscreen 2.0 Percentile Range: 61-65%

Regulatory Programs

Chemical Storage Facilities

Environmental Interest Start Date: 7/10/2013
Last Inspected: 1/24/2018

Source System: California Environmental Reporting System
Source System ID: 10010575

- Underground Storage Tank
- Hazardous Waste Onsite Treatment
- Aboveground Petroleum Storage
- Hazardous Chemical Management
- Cleanup Program Site
- Hazardous Waste Generator
- RCRA LQ HW Generator

Affiliates

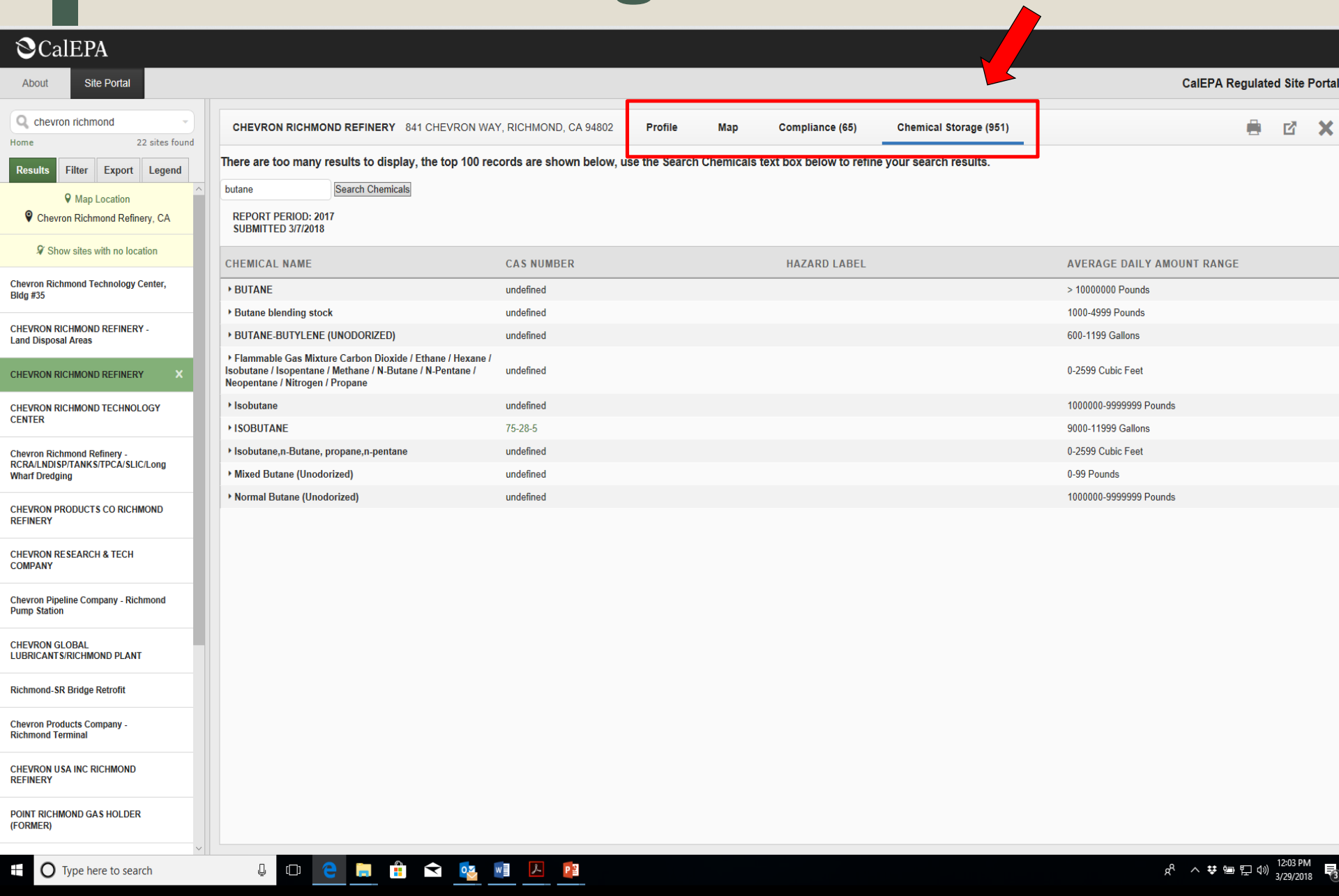
Filter By: All Regulatory Programs

Regional Board Caseworker: ALAN FRIEDMAN - SAN FRANCISCO BAY RWQCB (REGION 2) — Contact Details

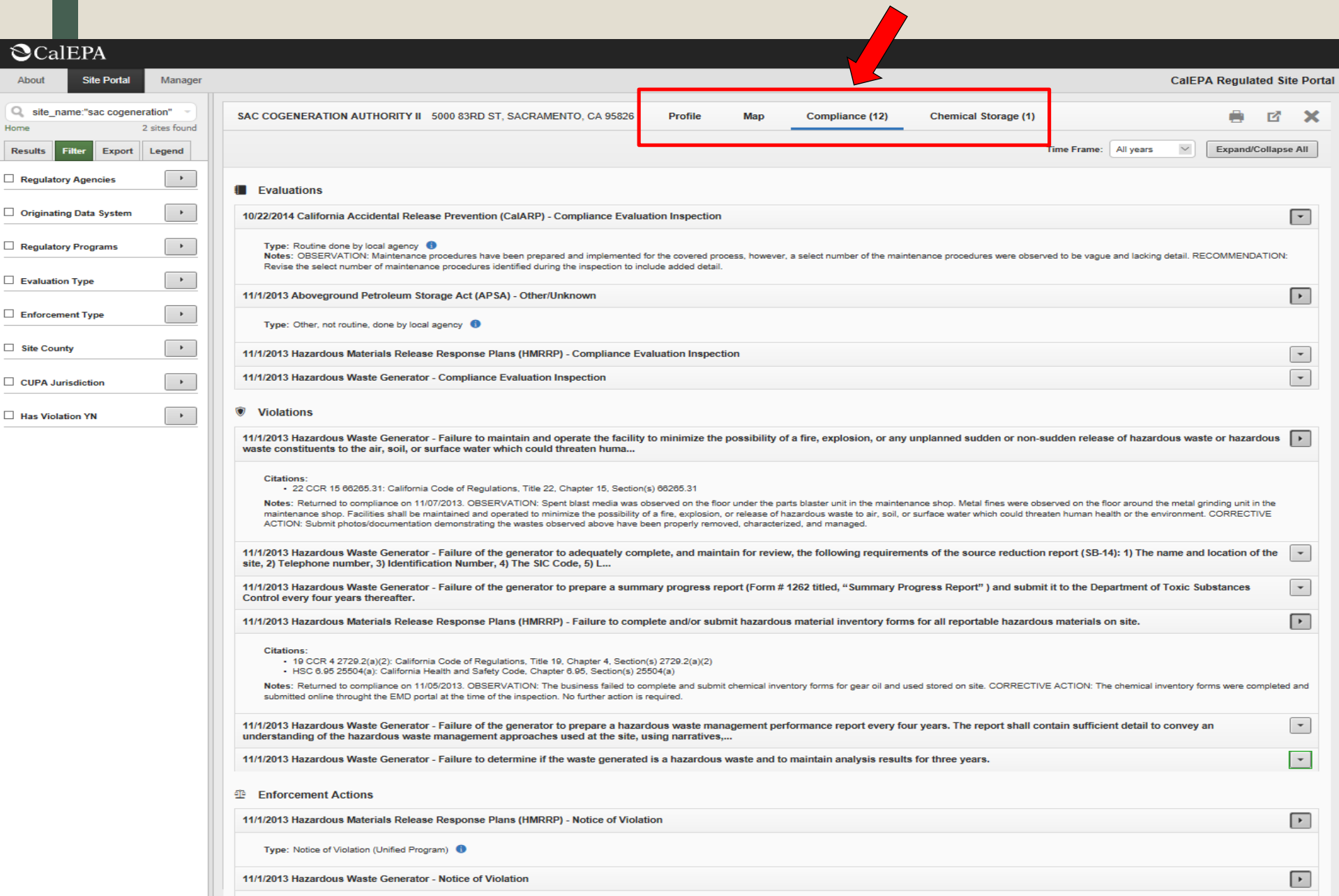
Operator: CHEVRON PRODUCTS CO — Contact Details

Type here to search 11:30 AM 3/29/2018

Chemical Storage

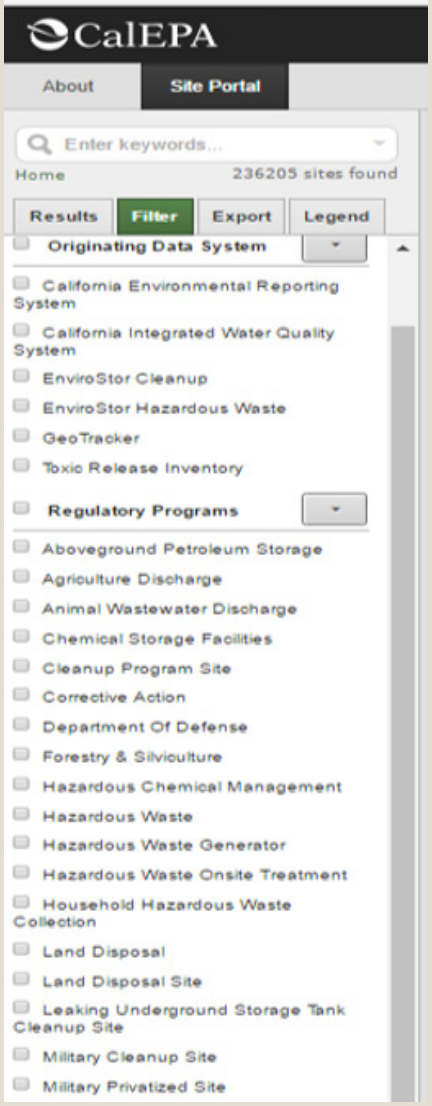


Compliance History

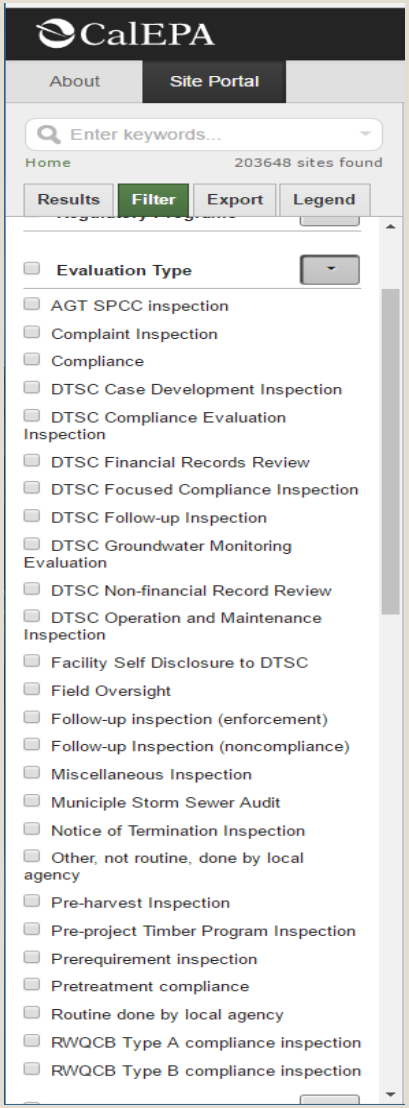


Filtering Display

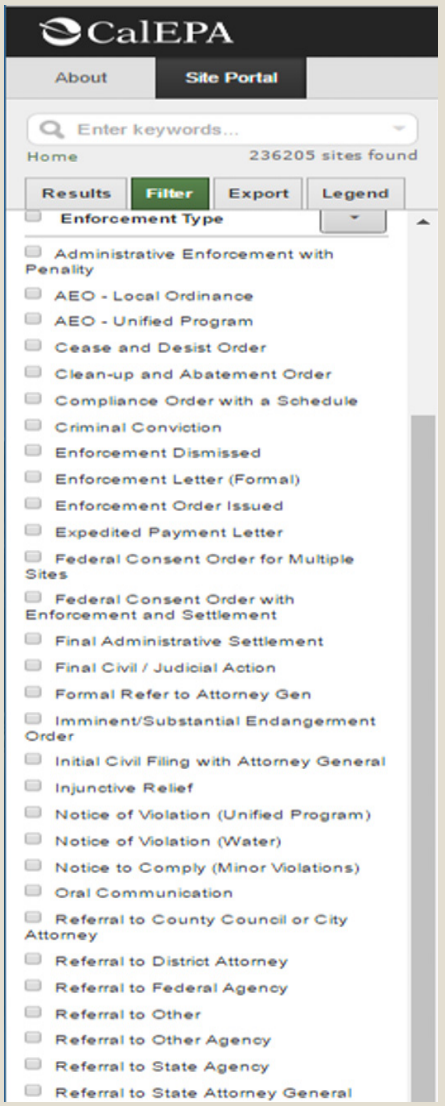
- Regulatory Programs



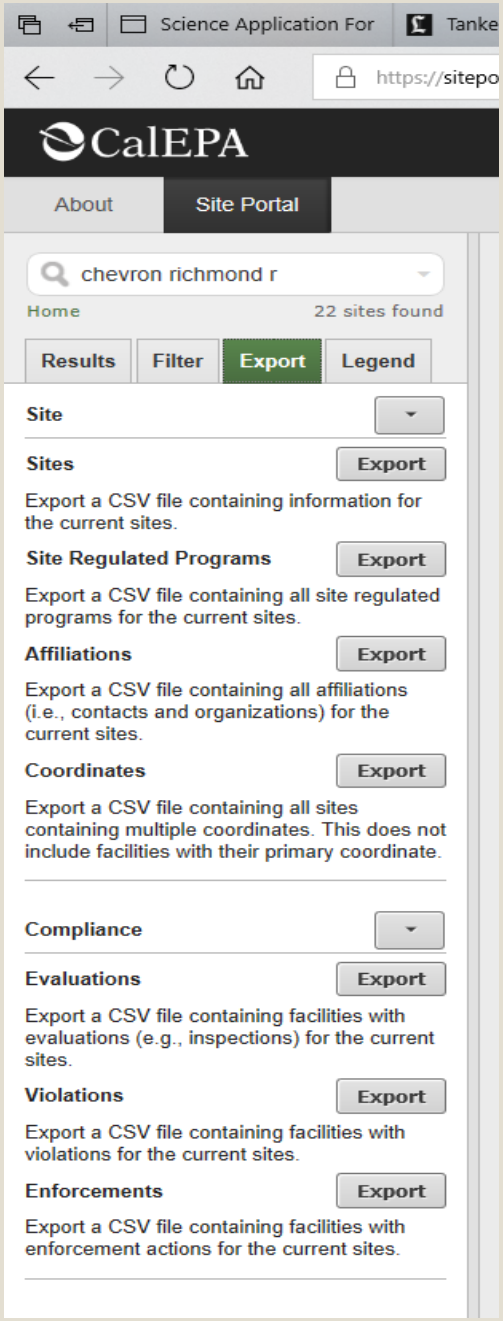
- Evaluation Type



- Enforcement Type



Export


Science Application For
Tanke
https://sitepo
CalEPA
About
Site Portal
chevron richmond r
Home
22 sites found
Results
Filter
Export
Legend
Site
Sites
Export
Export a CSV file containing information for the current sites.
Site Regulated Programs
Export
Export a CSV file containing all site regulated programs for the current sites.
Affiliations
Export
Export a CSV file containing all affiliations (i.e., contacts and organizations) for the current sites.
Coordinates
Export
Export a CSV file containing all sites containing multiple coordinates. This does not include facilities with their primary coordinate.
Compliance
Evaluations
Export
Export a CSV file containing facilities with evaluations (e.g., inspections) for the current sites.
Violations
Export
Export a CSV file containing facilities with violations for the current sites.
Enforcements
Export
Export a CSV file containing facilities with enforcement actions for the current sites.

Multiple Regulatory Programs

CalEPA

About | Site Portal | Manager

CalEPA Regulated Site Portal

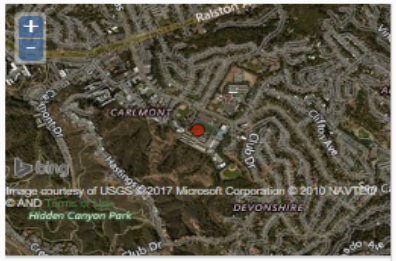
site_name:"carlmont"

Home 2 sites found

Results | Filter | Export | Legend

- Regulatory Agencies
- Originating Data System
- Regulatory Programs
- Evaluation Type
- Enforcement Type
- Site County
- CUPA Jurisdiction
- Has Violation YN

CARLMONT HIGH SCHOOL 1400 ALAMEDA DE LAS PULGAS, BELMONT, CA 94002 | Profile | Map | Compliance (5) | Chemical Storage (5)



Alternate IDs

APN: 045-071-020
APN: 045071020
Facilities Explorer ID: 179873
Regional Water Board Case Number: 41-0112
Local Agency Case Number: 770020
EPA Identifier: CAD981984927
Facility Identifier: FA0055774

Industry Codes

NAICS: 611110 - Elementary and Secondary Schools

Geopolitical Data

County: San Mateo County
CalEnviroscreen 2.0 Percentile Range: 11-15%

Regulatory Programs

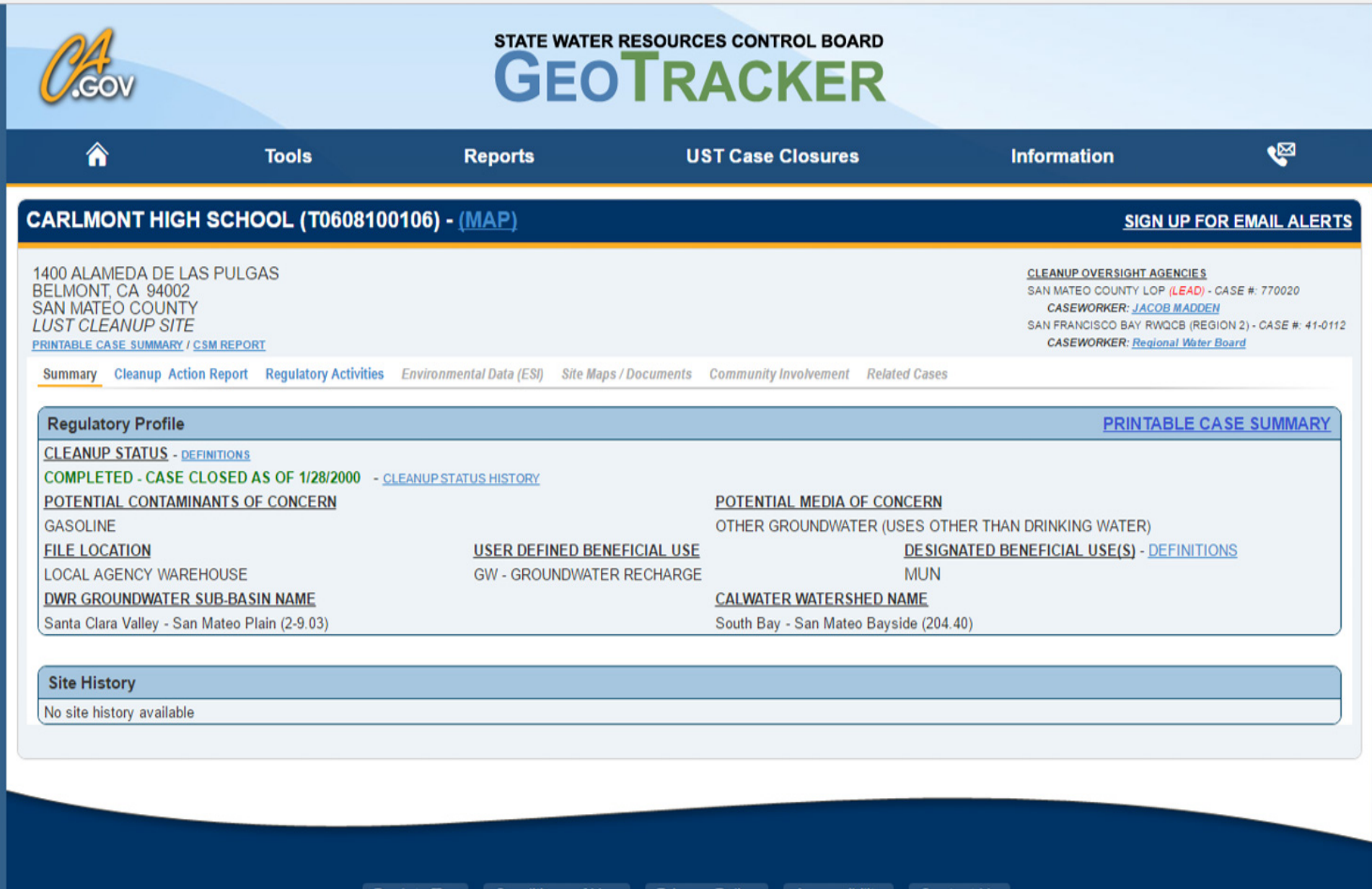
- Leaking Underground Storage Tank Cleanup Site
- School Investigation
- Hazardous Waste Generator
- Chemical Storage Facilities

Affiliates

Filter By: All Regulatory Programs

Parent Corporation: CARLMONT HIGH SCHOOL	Contact Details
Lead Project Manager: HAROLD (BUD) DUKE	Contact Details
Local Agency Caseworker: JACOB MADDEN - SAN MATEO COUNTY LOP	Contact Details
Document Preparer, Environmental Contact, Identification Signer, Primary Emergency Contact: Jerome Harris	Contact Details
Supervisor: JUAN KOPONEN	Contact Details
Facility Mailing Address: Mailing Address	Contact Details
Regional Board Caseworker: Regional Water Board - SAN FRANCISCO BAY RWQCB (REGION 2)	Contact Details

Live Link to Source System



Live Link to Source System

DEPARTMENT OF TOXIC SUBSTANCES CONTROL
CA.GOV ENVIROSTOR

Skip to: Content | Footer

Envirostor Home | Tools | Reports | Community Involvement | Information | DTSC Home | How to Use EnviroStor

CARLMONT HIGH SCHOOL MUSIC BUILDING (60001056)

SIGN UP FOR EMAIL ALERTS

1400 ALAMEDA DE LAS PULGAS
BELMONT, CA 94002
SAN MATEO COUNTY
SITE TYPE: SCHOOL

PROJECT MANAGER: HAROLD (BUD) DUKE
SUPERVISOR: JUAN KOPONEN
OFFICE: NORTHERN CALIFORNIA SCHOOLS & SANTA SUSANA
SCHOOL DISTRICT: SEQUOIA UNION HIGH SCHOOL DISTRICT

Summary | Activities | Map | Related Sites

Site Information

CLEANUP STATUS
INACTIVE - ACTION REQUIRED AS OF 10/6/2010

SITE TYPE: SCHOOL
NATIONAL PRIORITIES LIST: NO
ACRES: 1.74 ACRES
APN: 045-071-020, 045071020
CLEANUP OVERSIGHT AGENCIES:
DTSC - SITE CLEANUP PROGRAM - LEAD

SCHOOL DISTRICT: SEQUOIA UNION HIGH SCHOOL DISTRICT
ENVIROSTOR ID: 60001056
SITE CODE: 204230
SPECIAL PROGRAM:
FUNDING: SCHOOL DISTRICT
ASSEMBLY DISTRICT: 22
SENATE DISTRICT: 13

Regulatory Profile

PAST USE(S) THAT CAUSED CONTAMINATION
SCHOOL - HIGH SCHOOL

POTENTIAL CONTAMINANTS OF CONCERN
CHLORDANE
DDT
UNDER INVESTIGATION
NATURALLY OCCURRING ASBESTOS (NOA)

POTENTIAL MEDIA AFFECTED
UNDER INVESTIGATION

Site History

The district is planning to construct a new music and art building at the location of the current music building, which is scheduled for demolition. The new building will be an approximate 7,600 square foot three story building. It will be located on the west side of the newly constructed performing arts building.

During the review of the Phase I, the District contacted DTSC with plans to demolish the building, prior to the completion of the Phase I review by DTSC. The DTSC Project Manager advised the consultant on sampling requirements before and after building demolishions. The District elected to conduct limited sampling under a Phase I Addendum, prior to DTSC's review of the Phase I.

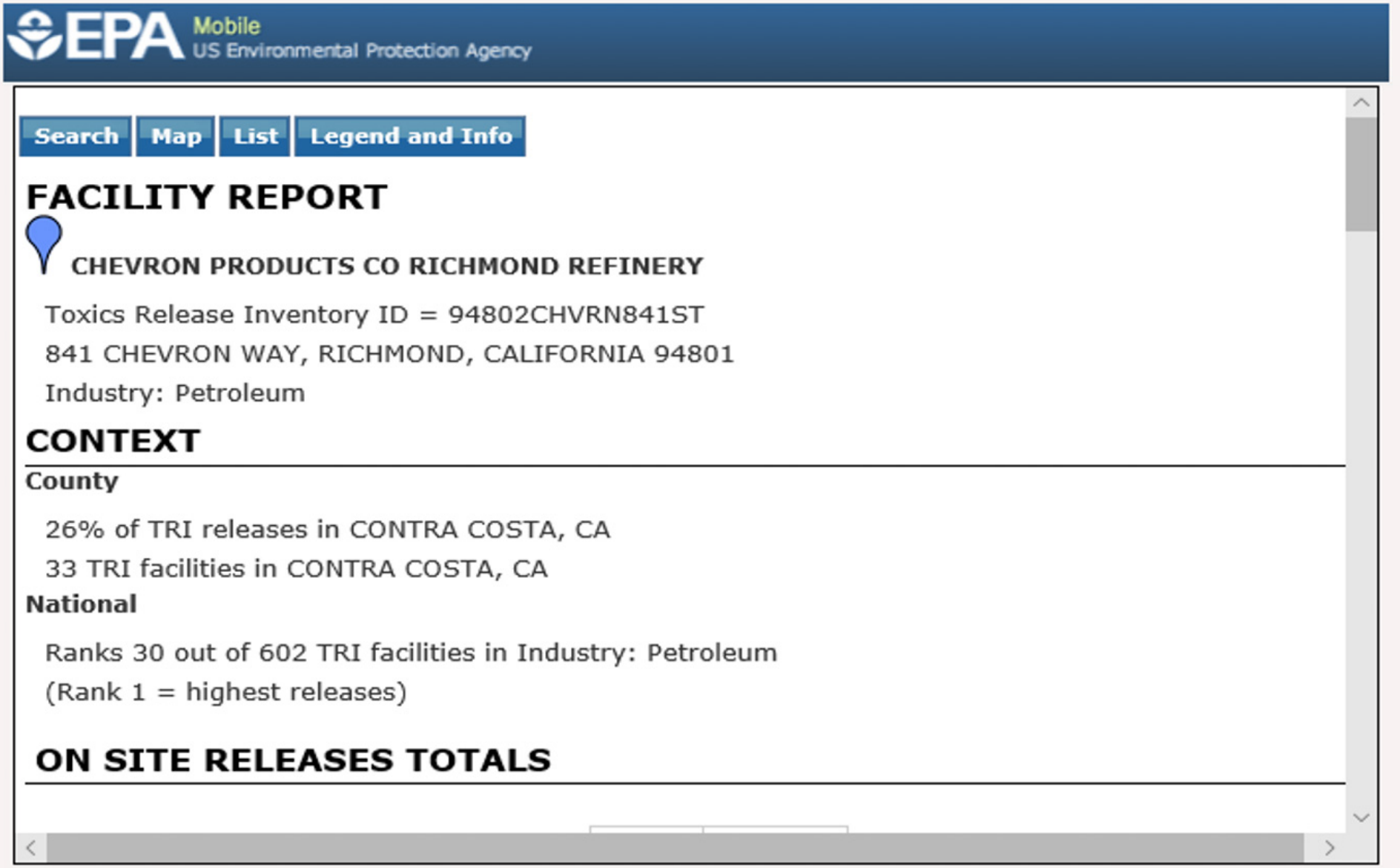
Following receipt of the Phase I Addendum Data, DTSC contacted the District to notify them that, although the Phase I addendum addressed concerns for OCPs and lead around the building, a PEA would be required for potential Naturally Occurring Asbestos. On April 7, 2009, the District elected to withdraw from the DTSC process, forego the PEA for NOA, and drop the project.

In September of 2009, the District decided to re-open the project, and entered into an EOA with DTSC on September 16, 2009. DTSC agreed to use geotech boring samples along with one additional location for NOA analysis.

On March 3, 2010, the District requested DTSC to drop the site as it decided not to pursue State funds for the project. Consequently, DTSC issued a Inactive Status letter on March 4, 2010, and closed the project as Inactive - Action Required.

A CRU was mailed on 9/29/10

Live Link to Source System



Information Security Issues

Worked With:

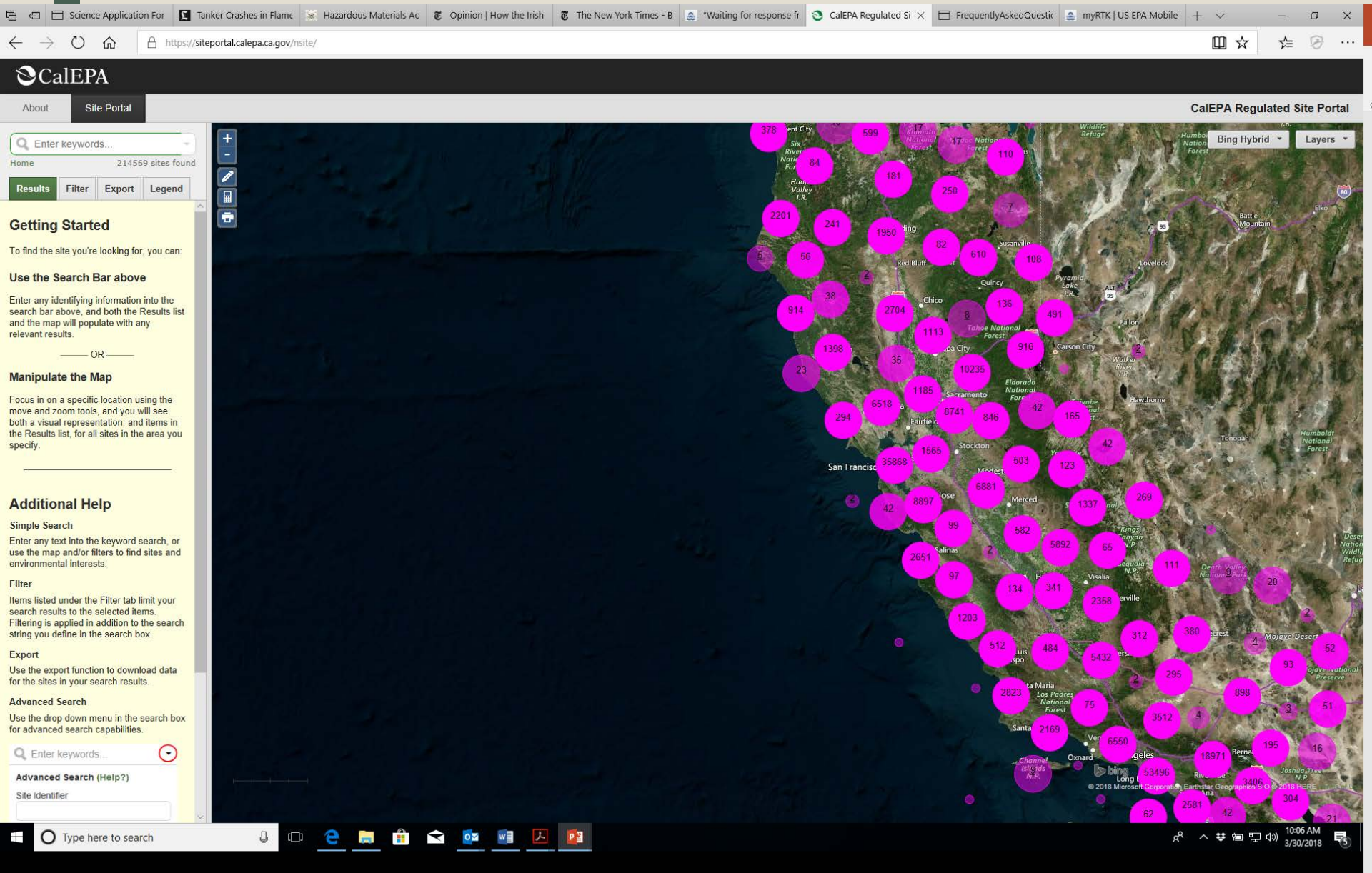
- Department of Homeland Security
  - *Critical Infrastructure Directorate*
  - *Chemical Facility Anti-Terrorism Standards (CFATS)*
- CalOES Infrastructure Protection
- Chemical Industry Council of California
- Dow Chemical
- AT&T
- CCEEB
- California Cable & Telecommunications Association
- Metropolitan Water District of Southern California

Live Demo

https://siteportal.calepa.ca.gov

For Example…

Start Here


Science Application For
Tanker Crashes in Flame
Hazardous Materials Ac
Opinion | How the Irish
The New York Times - B
"Waiting for response fr
CalEPA Regulated Si
FrequentlyAskedQuestic
myRTK | US EPA Mobile
https://siteportal.calepa.ca.gov/nsite/
CalEPA
About
Site Portal
CalEPA Regulated Site Portal
Enter keywords...
Home
214569 sites found
Results
Filter
Export
Legend
Getting Started
To find the site you're 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.
OR
Manipulate the Map
Focus in on a specific location using the move and zoom tools, and you will see both a visual representation, and items in the Results list, for all sites in the area you specify.
Additional Help
Simple Search
Enter any text into the keyword search, or use the map and/or filters to find sites and environmental interests.
Filter
Items listed under the Filter tab limit your search results to the selected items. Filtering is applied in addition to the search string you define in the search box.
Export
Use the export function to download data for the sites in your search results.
Advanced Search
Use the drop down menu in the search box for advanced search capabilities.
Enter keywords...
Advanced Search (Help?)
Site Identifier
Bing Hybrid
Layers
Type here to search
10:06 AM
3/30/2018

Find the Right Location

About | Site Portal

CalEPA Regulated Site Portal

Torrance Refinery

Home 1268 sites found

Results | Filter | Export | Legend

Map Location

Torrance, CA

Show sites with no location

- ExxonMobil Corporation, Torrance Refinery
- Torrance Refinery Company LLC
- FORMER MOBIL TORRANCE REFINERY
- Torrance Refinery
- TEXACO REFINERY & MK
- TEXACO REFINERY & MKTG/BAKERSFIELD REF
- Torrance City CS
- Ultramar Inc, Wilmington Refinery
- PHILLIPS 66 LOS ANGELES REFINERY WILMINGTON PLANT
- Torrance Pipeline Company LLC - Torrance Meters
- ALON PETROLEUM BAKERSFIELD REFINERY AREA 3
- GOLDEN WEST REFINERY
- VALERO REFINING CO-CALI FORNIA BENICIA REFINERY
- PHILLIPS 66 CO-SANTA MARIA REFINERY
- REFINERIES SERVICE/BAKERSFIELD

TORRANCE REFINERY 3700 W 190TH ST # 1, TORRANCE, CA 90504 | Profile | Map | Compliance (29) | Chemical Storage (837)

Alternate IDs

Dun & Bradstreet Number: 080210798
Facilities Explorer ID: 404158
EPA Identifier: CAD008354052
Facility Identifier: LACoFA0034377

Industry Codes

SIC: 2911 - Petroleum refining
NAICS: 324110 - Petroleum Refineries

Geopolitical Data

County: Los Angeles County

Regulatory Programs

- Chemical Storage Facilities
- Hazardous Waste Onsite Treatment
- Aboveground Petroleum Storage
- Hazardous Chemical Management
- Hazardous Waste Generator
- RCRA LQ HW Generator

Affiliates

Filter By: All Regulatory Programs

Secondary Emergency Contact: ALEX HOLT — Contact Details

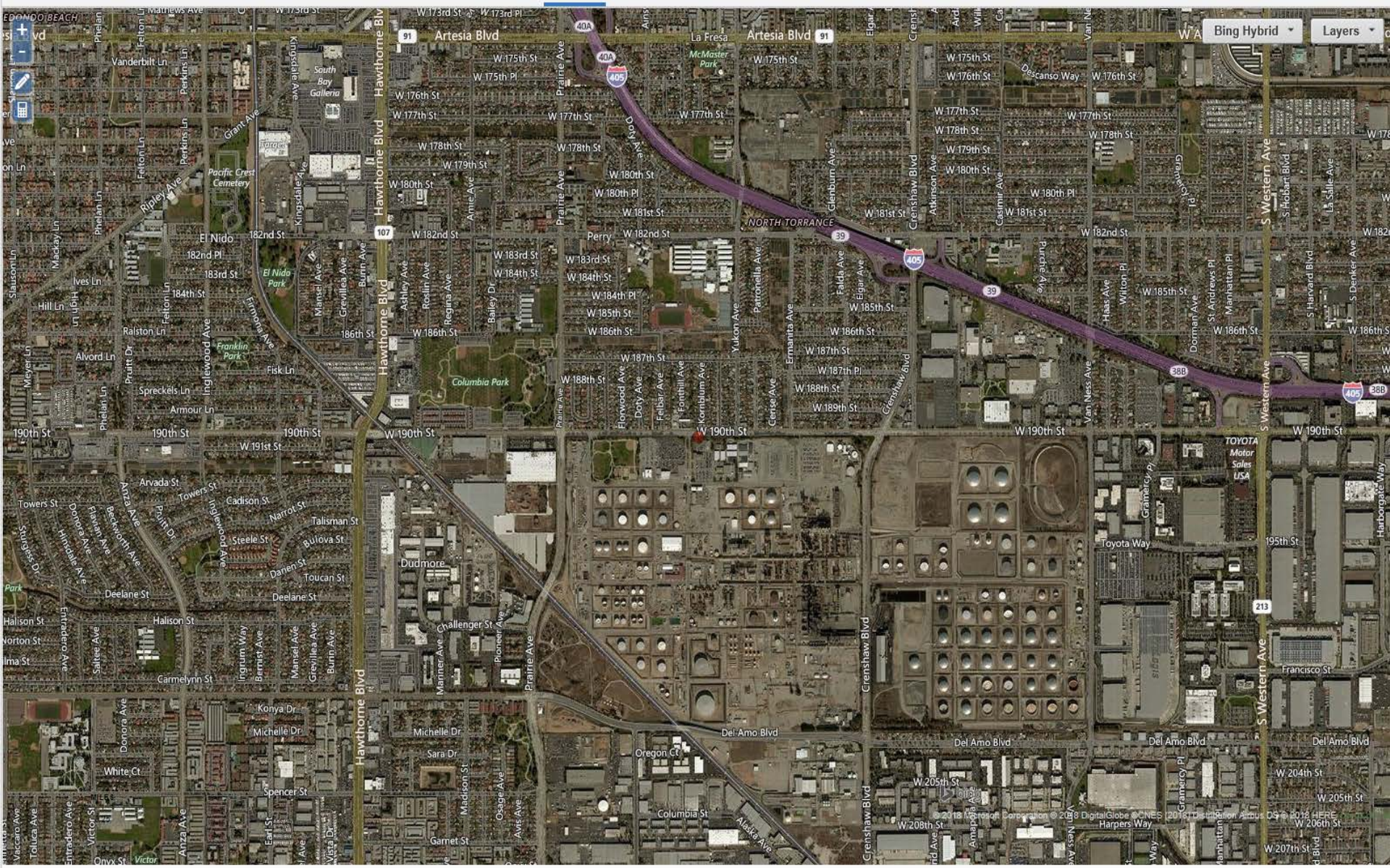
Onsite Treatment Unit Owner Operator: C. Brian Ablett — Contact Details

Document Preparer, Onsite Treatment Unit Owner Operator: Diane Lynch — Contact Details

Onsite Treatment Unit Owner Operator: E Pablo Borgnino — Contact Details

Identification Signer, Primary Emergency Contact: JOE ALVAREZ — Contact Details

Visualize



Bing Hybrid
Layers
Artesia Blvd
Hawthorne Blvd
Prairie Ave
Crenshaw Blvd
S Western Ave
Del Amo Blvd
NORTH TORRANCE
Perry
El Nido
Dudmore
Columbia Park
McMaster Park
Franklin Park
El Nido Park
Pacific Crest Cemetery
South Bay Galleria
TOYOTA Motor Sales USA
Toyota Way
Harpers Way
W 190th St
W 182nd St
W 205th St
W 208th St
W 206th St
W 207th St
W 204th St
W 195th St

What Do You Want To Know?

CalEPA Regulated Site Portal

TORRANCE REFINERY 3700 W 190TH ST # 1, TORRANCE, CA 90504 **Profile** **Map** **Compliance (29)** **Chemical Storage (837)**

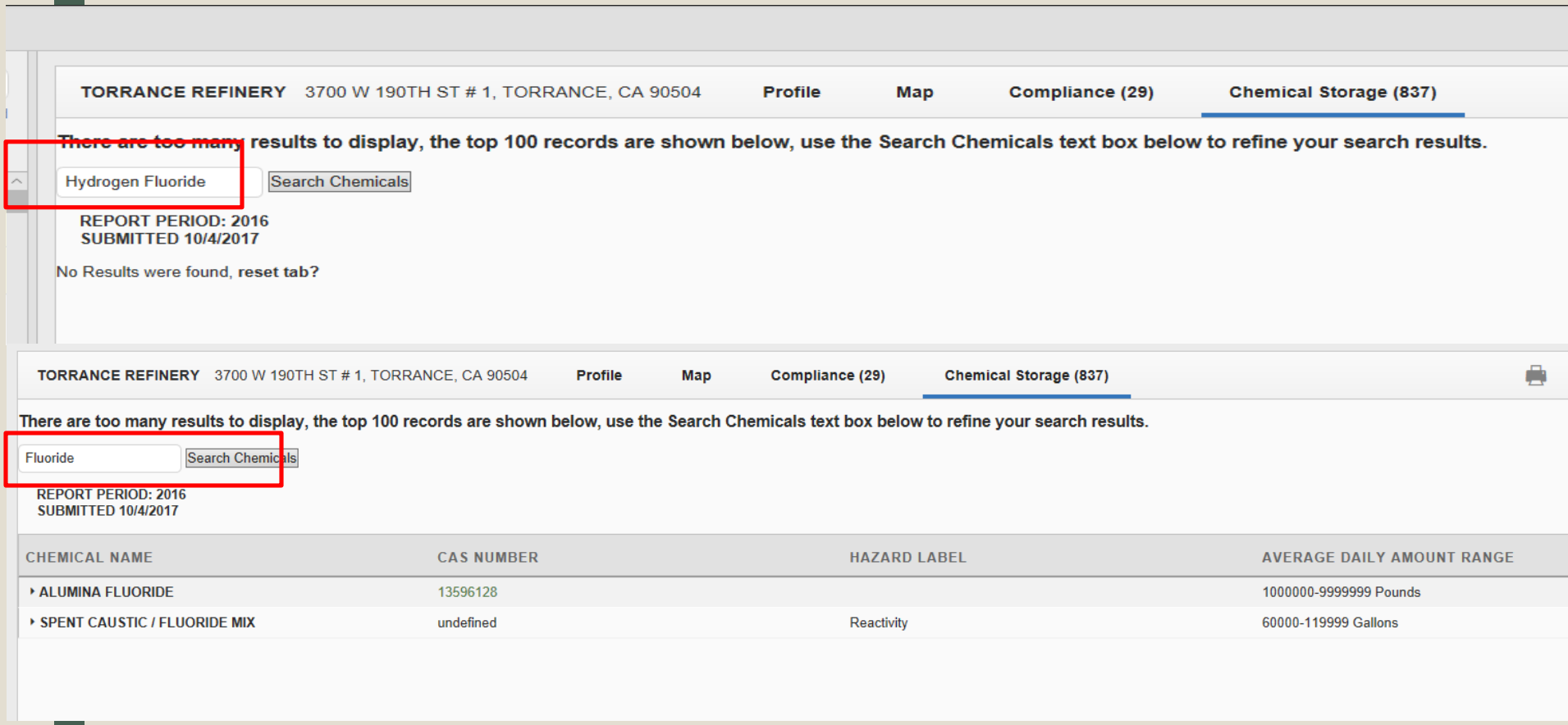
There are too many results to display, the top 100 records are shown below, use the Search Chemicals text box below to refine your search results.

Search Chemicals

REPORT PERIOD: 2016
SUBMITTED 10/4/2017

CHEMICAL NAME	CAS NUMBER	HAZARD LABEL	AVERAGE DAILY AMOUNT RANGE
80/20 OCTANE/HEPTANE			0-11 Gallons
ACID SOLUBLE OIL AND RESIDUAL HF (UN-NEUTRALIZED ASO)		Fire	500-999 Pounds
AER-O-LITE 3% COLD FIRE FIGHTING FOAM (AFFF)			6000-8999 Gallons
ALKYLATION ACID REGENERATOR OVERHEAD		Fire	1000-4999 Pounds
ALKYLATION UNIT HYDROCARBON RECYCLE MIXTURE		Fire	500000-999999 Pounds
ALKYLATION UNIT MAIN ACID RECYCLE MIXTURE		Fire, Sudden Release of Pressure, Reactivity	100000-499999 Pounds
ALL PURPOSE CLEANER			12-59 Gallons
AMMONIUM CITRATE DIBASIC 40% AQUEOUS SOLUTION			12000-59999 Gallons
AMMONIUM CITRATE DIBASIC 40% AQUEOUS SOLUTION			12000-59999 Gallons
BLEND ENVIREX SOLUTION ENVIREX NUTRIENT BLEND #4			600-1199 Gallons
BUFFER SOLUTION PH 7.00			600-1199 Gallons
CAT HYDRAULIC OIL SAE 10W			12-59 Gallons
CATALYST, H2 REFORMER			1200-2999 Gallons
CD-200 DEGREASER			12-59 Gallons
CHEMSTAR CONCENTRATE R (FL11537)			12-59 Gallons
COKE FROM COKER			120-599 Gallons
COMPRESSED GAS - NITROGEN, HYDROGEN SULFIDE		Fire, Sudden Release of Pressure	0-2599 Cubic Feet
COOLING TOWER WATER (NON-CHROMATE)			120000-1199999 Gallons
COOLING TOWER WATER (NON-CHROMATE)			>1200000 Gallons
CP 6000-220			120-599 Gallons
CP 6000-220 SILICONE OIL (1002093)			0-11 Gallons
DELVAC 1230			120-599 Gallons
DELVAC 1230 (1176467)			0-11 Gallons
DELVAC MOTOR OIL			12-59 Gallons

Is This What You Are Seeking?



Or This?

CalEPA Reg

TORRANCE REFINERY 3700 W 190TH ST # 1, TORRANCE, CA 90504 **Profile** **Map** **Compliance (29)** **Chemical Storage (837)**

There are too many results to display, the top 100 records are shown below, use the Search Chemicals text box below to refine your search results.

hydrofluoric Search Chemicals

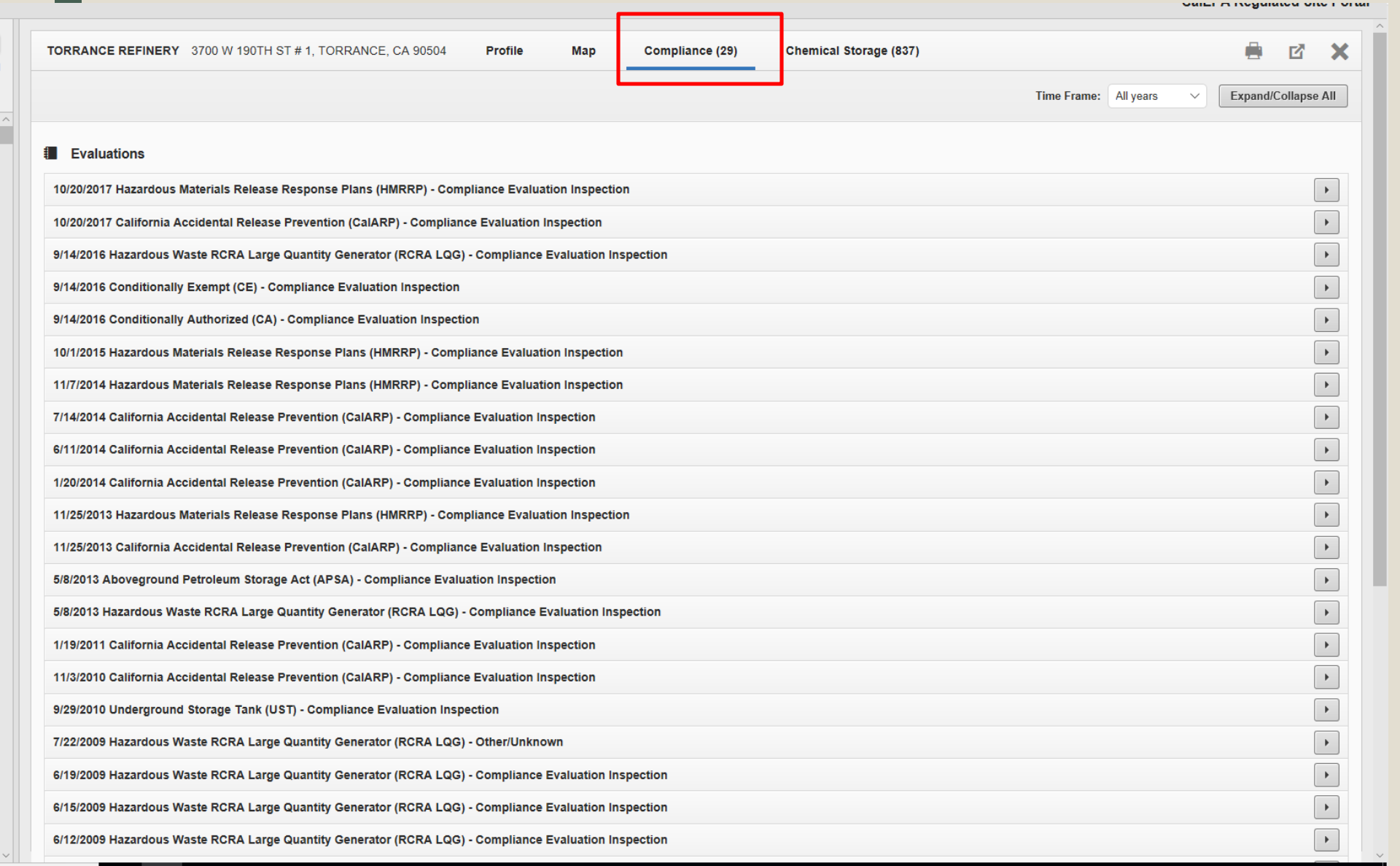
REPORT PERIOD: 2016
SUBMITTED 10/4/2017

CHEMICAL NAME	CAS NUMBER	HAZARD LABEL	AVERAGE DAILY AMOUNT RANGE
▾FRESH MODIFIED HYDROFLUORIC ACID (FRESH ACID STORAGE DRUM)	undefined	Fire, Reactivity	75000-99999 Pounds

Common Name	FRESH MODIFIED HYDROFLUORIC ACID (FRESH ACID STORAGE DRUM)
Hazard Type(s)	Fire, Reactivity
Avg Daily Amount / Unit	75000-99999Pounds
Days Onsite	undefined
Physical State(s)	Liquid, Mix
Health Effect(s)	Delayed Health, Acute Health

Chemical Mixes	
Component	HYDROFLUORIC ACID
CAS Number	7664393
Percentage by Weight	85.00
Is EHS	
Component	SULFOLANE
CAS Number	126330
Percentage by Weight	15.00
Is EHS	

How About Inspections?



Look for Enhancements in 2018/2019

- New Data Sources
  - *Storm Water Multiple Application and Report Tracking System (SMARTS) database*
  - *Solid Waste Information System (SWIS)*
  - *Facility Registry Services (via US EPA FRS Inbound)*
  - *CalOSHA inspection, violation and enforcement information*

Look for Enhancements in 2018/2019

- Improved Search Capabilities
  - *Regulated Site Portal optimized for display on mobile devices*
  - *RESTFul API services for sharing Regulated Site Portal data with interested State, Federal and public entities*
  - *GIS Layers, Geospatial Services, Web Map Service (WMS) & Web Feature Service (WFS) for GIS professionals and enthusiasts*

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

Thank You –

Paul Penn

Emergency Management and Refinery Safety Program Manager

California Environmental Protection Agency

Paul.Penn@calepa.ca.gov

916-718-0751 (c)

916-327-9558 (o)