



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

Regulation 11, Rule 18: Reduction of Risk from Air Toxic Emissions at Existing Facilities

**Jack P. Broadbent
Executive Officer/APCO**

**Board of Directors Meeting
November 15, 2017**





Regulation 11, Rule 18: Reduction of Risk from Air Toxic Emissions at Existing Facilities

- One of the most important steps to alleviate stationary source impacts on adjacent communities.
- Lengthy development process.
- Balanced approach.
- Stringent health protective standards.
- Implementation flexibility to address affected facility concerns.
- Transparent implementation for public, including Board review.
- Important step toward implementing AB 617.



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AGENDA: 12

Board of Directors Meeting
November 15, 2017

Regulation 11, Rule 18 Reduction of Risk from Air Toxic Emissions at Existing Facilities

Greg Nudd
Acting Rules and Strategic Policy Officer

Overview

- Background
- Outreach
- Toxic Air Contaminants overview
- Rule 11-18 requirements and implementation
- Key Points
- Recommendations

Background

- 2010: Clean Air Act includes plan to update “Toxics Hot Spots” program.
- 2015: Office of Environmental Health Hazard Assessment (OEHHA) updates the statewide guidance on Health Risk Assessments.
- 2016: Air District updates Rule 2-5 to strengthen permit reviews on new/modified sources of toxic air contaminants.
- 2016-2017: Outreach to impacted stakeholders, presentations to the Board and Stationary Source Committee.
- 2017: Board of Directors considers new Rule 11-18 for existing sources of toxic air contaminants.

Stakeholder Outreach

Date	Description
Sept 2016	Initial industry stakeholder meeting
Oct 2016	Letter sent to over 1,000 facilities that may be impacted by Rule 11-18
Nov 2016	Public workshops in Richmond, San Francisco, Martinez, Oakland, San Jose, and Fremont
Feb 2016	Foundries and forges workgroup meeting Presentation to West Contra Costa Council of Industries
March 2017	Bay Area Clean Water Agencies (BACWA) workgroup Meeting Open houses in Cupertino, Benicia, Hayward, and Richmond
Apr 2017	Meeting with California Council for Environmental and Economic Balance (CCEEB) including all five refineries
May 2017	Hospitals workgroup meeting
June 2017	BACWA workgroup meeting Foundries and forges workgroup meeting

Stakeholder Outreach – cont.

Date	Description
Aug 2017	BACWA workgroup meeting Foundries and forges workgroup meeting CCEEB and refiners meeting Hospitals workgroup meeting
Sep 2017	CCEEB and refiners meeting Presentation to Industrial Association of Contra Costa County
Oct 2017	CCEEB and refiners meeting Call with Hospital Association Emails sent to permitted facilities impacted by Rule 11-18 Webinar on Rule 11-18
Nov 2017	CCEEB and refiners meeting Meeting with unions and refiners Letters sent to permitted facilities impacted by Rule 11-18

Board Presentations on Rule 11-18

Date	Description
Oct. 19, 2016	Board of Directors Presentation
Nov. 16, 2016	Board of Directors Presentation
Dec. 7, 2016	Board of Directors Presentation
Apr. 17, 2017	Stationary Source Committee Presentation
Sep. 18, 2017	Stationary Source Committee Presentation
Sep. 20, 2017	Board of Directors Presentation
Nov. 15, 2017	Hearing to consider adoption

Comment Letters/Emails

Suggest Changes	Support
Air Liquide	200 citizens of Cupertino Area
Bay Area Clean Water Association	Bay Area for a Clean Environment
California Council for Environmental and Economic Balance	California Air Resources Board
California Metals Coalition	California Independent Oil Marketers
CALTRANS (EIR details only)	City of Los Altos
Chevron	City of Los Altos Hills
East Bay Leadership Council	City of Mountain View
Hospital Council of Northern and Central California	Coalition for Clean Air
Lockheed Martin Space Systems Company	San Francisco Bay Conservation and Development Commission
Metal Finishing Association of Northern California	South Coast Air Quality Management District
Silicon Valley Leadership Group	United States Representative Ro Khanna
Tesoro	NRDC
US Pipe and Foundry	City of Woodside
Western States Petroleum Association	Town of Portola Valley

Responses to Comments

- Rule Changes
 - More time to complete risk reduction plans
 - Clarified that all TBARCT determinations will consider cost, non-air quality environmental impacts and energy requirements
 - Aligned definitions of Toxic Air Contaminant with Rule 2-5
 - Clarified definition of Toxic Risk Facility
 - Provided clearer process for facility review of District-conducted HRAs
 - Allowed for additional time to complete risk reduction plan if needed to ensure required safety reviews
- Process Changes
 - Smaller sources (non-Title V) may conduct their own HRAs under technical oversight from Air District staff
 - Air District will establish multi-stakeholder Rule 11-18 implementation workgroup with affected industry and affected communities
 - Air District will establish Technical Dispute Resolution Committee to address technical issues regarding HRAs and Risk Reduction Plans

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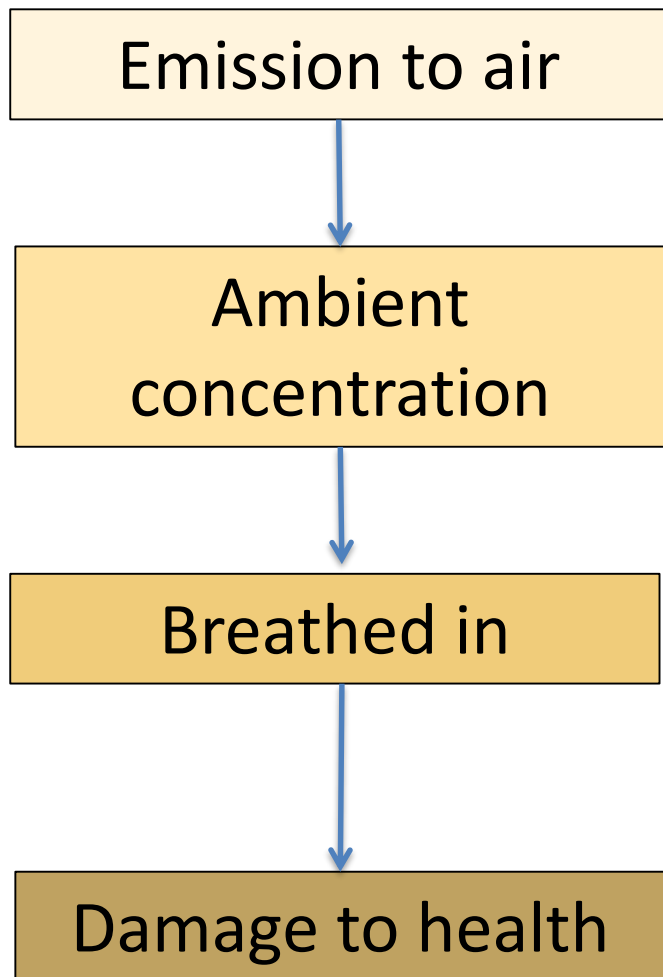
What are Toxic Air Contaminants?

- Compounds defined as toxic air contaminants (TACs) in the California Health and Safety Code
- More than 200 compounds
- Hazards to human health
 - Cancer
 - Non-cancer, chronic health impacts
 - Acute health impacts

Example TACs and Health Impacts

	Toxic Air Contaminant	Cancer	Chronic	Acute
	Diesel Exhaust	<ul style="list-style-type: none"> Lung 	<ul style="list-style-type: none"> Respiratory system 	
Organic Compounds	Benzene	<ul style="list-style-type: none"> Leukemia Myeloma Lymphoma 	<ul style="list-style-type: none"> Blood cells 	<ul style="list-style-type: none"> Development Immune system Blood cells
	1,3-Butadiene	<ul style="list-style-type: none"> Leukemia Lymphoma Other types 	<ul style="list-style-type: none"> Reproductive system 	<ul style="list-style-type: none"> Low birth weight
Metals	Chromium (VI)	<ul style="list-style-type: none"> Lung 	<ul style="list-style-type: none"> Respiratory system 	
	Mercury		<ul style="list-style-type: none"> Development Nervous system Kidney 	<ul style="list-style-type: none"> Development Nervous system Kidney

Exposure and Toxicity Determine Health Impacts



Exposure



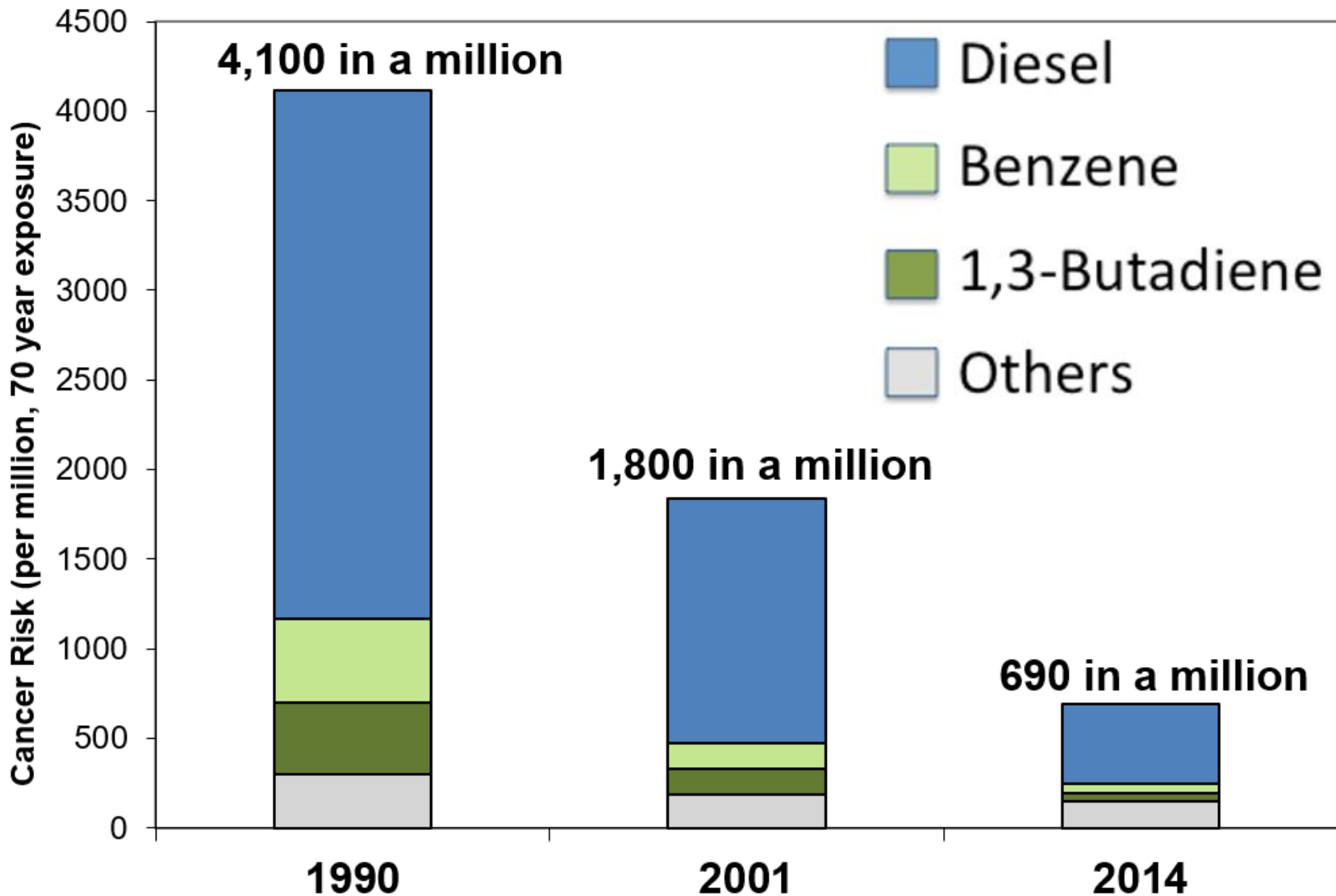
Toxicity

Office of Environmental Health Hazard Assessment (OEHHA) develops guidelines

How Do We Measure Impacts?

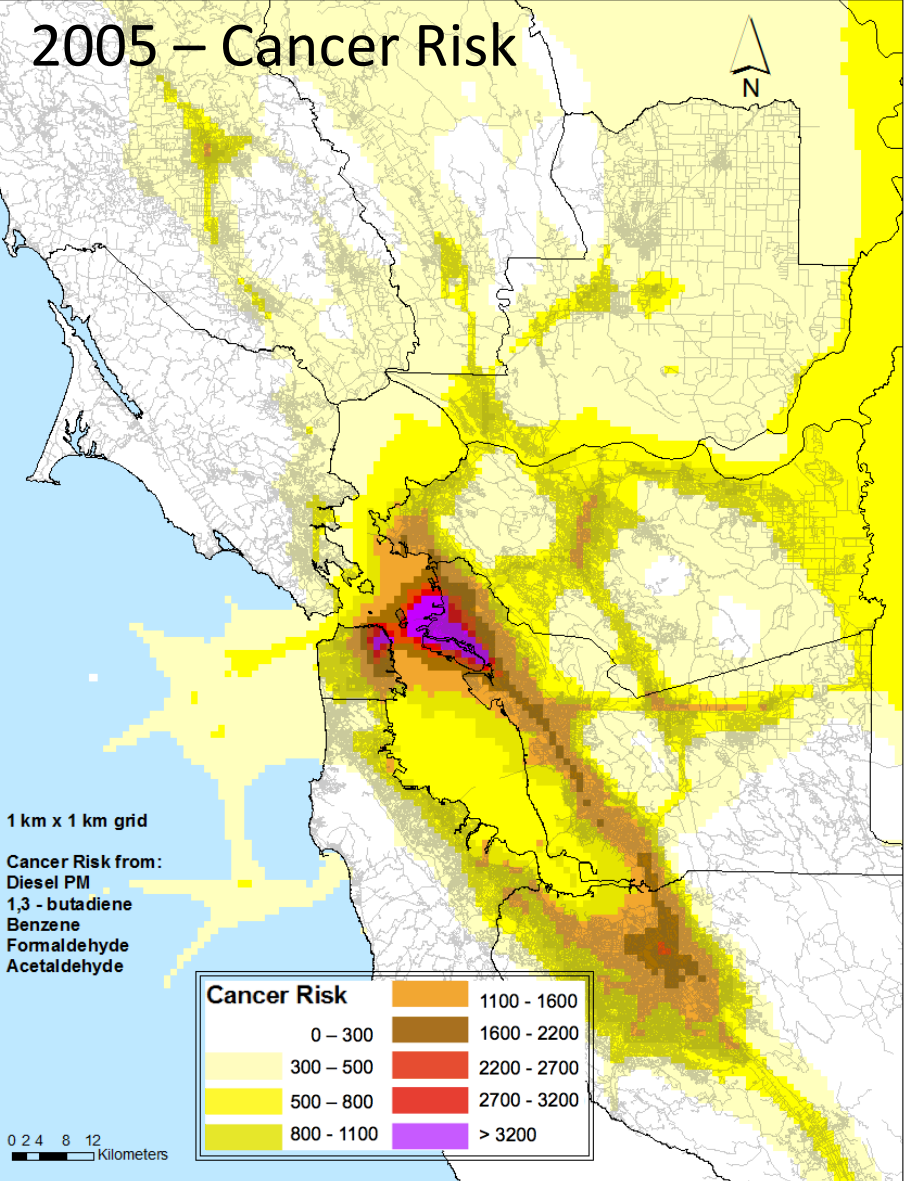
- **Cancer Burden** – The theoretical probability of contracting cancer when continually exposed for a lifetime (30 years) to a given concentration of a substance. Presented as the number of chances in a million of contracting cancer.
- **Acute Hazard Index** - The potential non-cancer health impacts resulting from a one-hour exposure to toxic substances.
- **Chronic Hazard Index** - The potential non-cancer health impacts resulting from exposure to toxic substances usually lasting from one year to a lifetime.

Bay Area Lifetime Cancer Risk from TAC Exposure

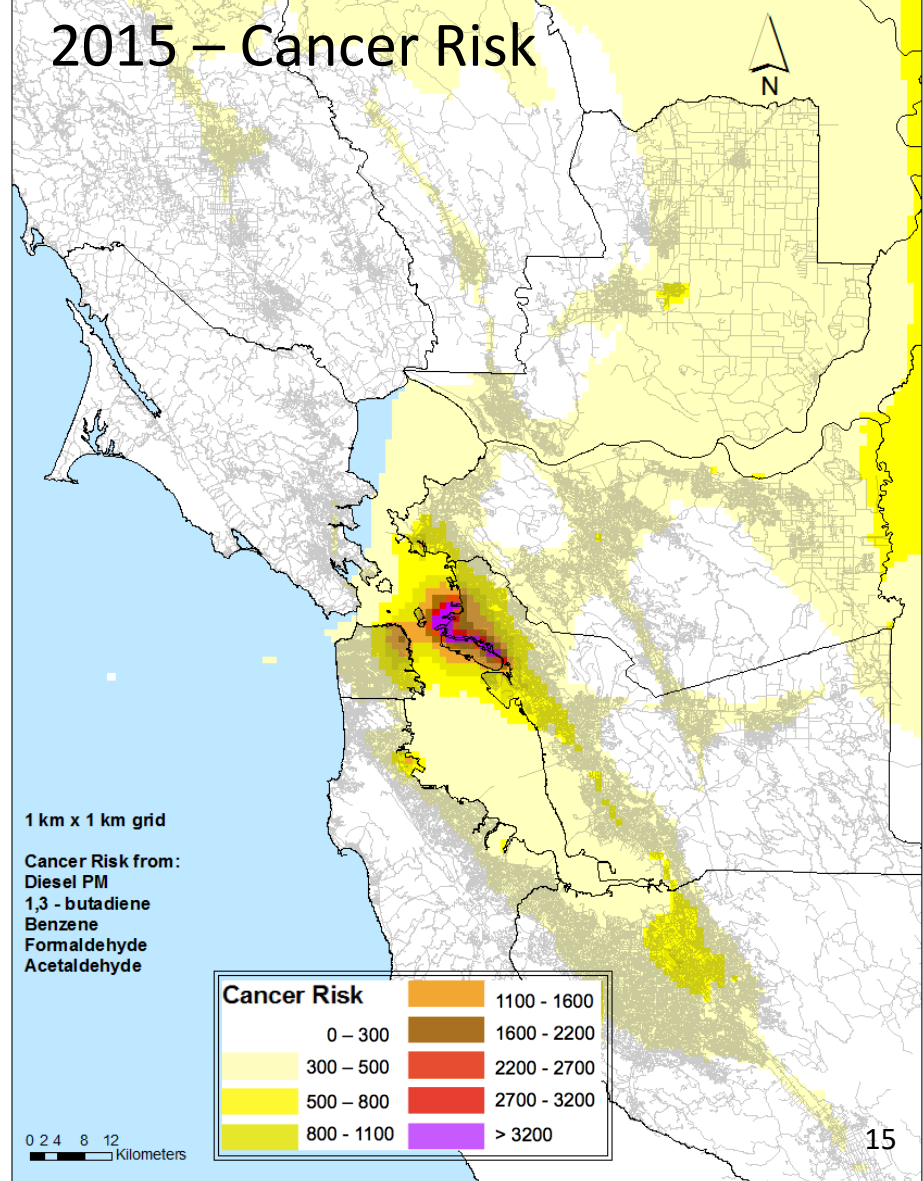


Overall Air Pollution Down, but High Risks in Some Communities Remain

2005 – Cancer Risk



2015 – Cancer Risk

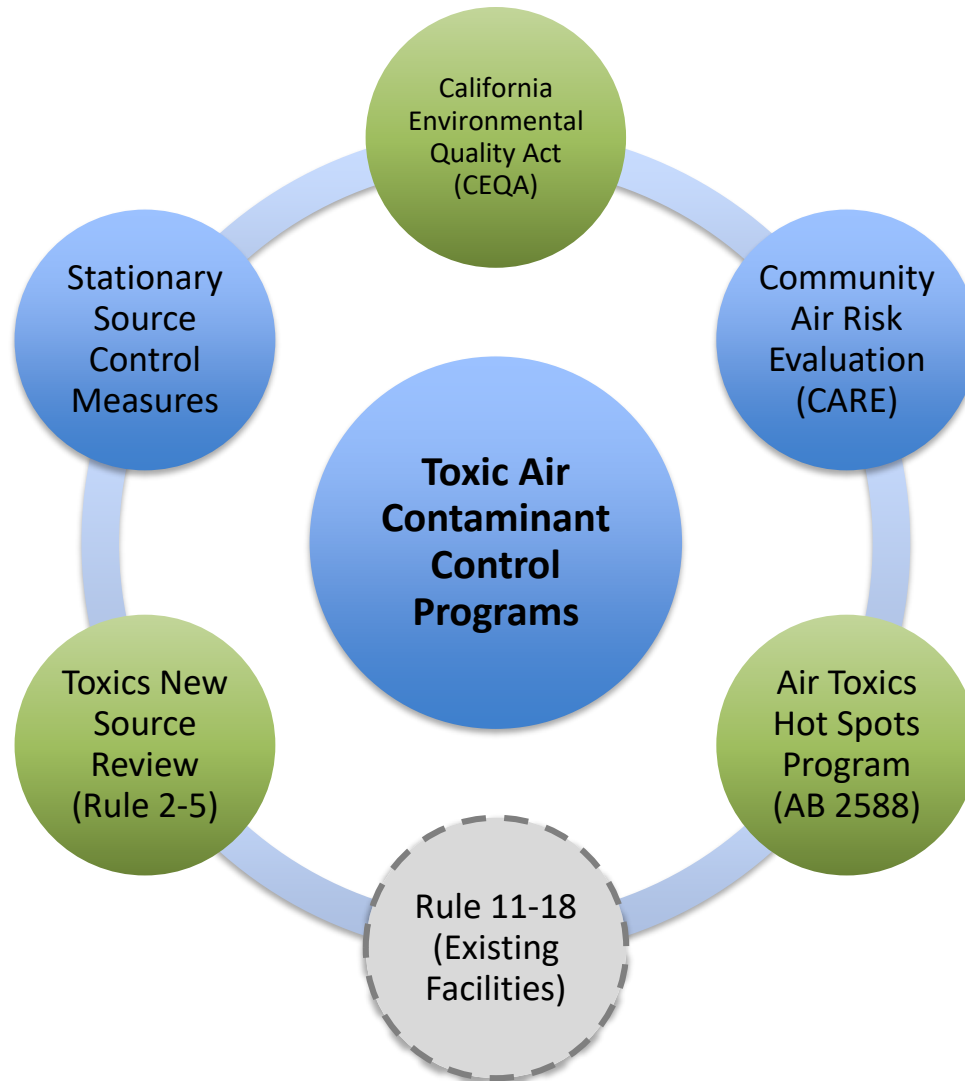


Regulatory Authority

- Bay Area Air District
 - Primary regulatory authority over stationary sources
- State Air Resources Board
 - Intrastate mobile sources—cars, trucks, cargo handling equipment
- U.S. EPA
 - Interstate mobile sources—trains, aircraft & ocean going vessels



TAC Impact Mitigation Programs



Overview

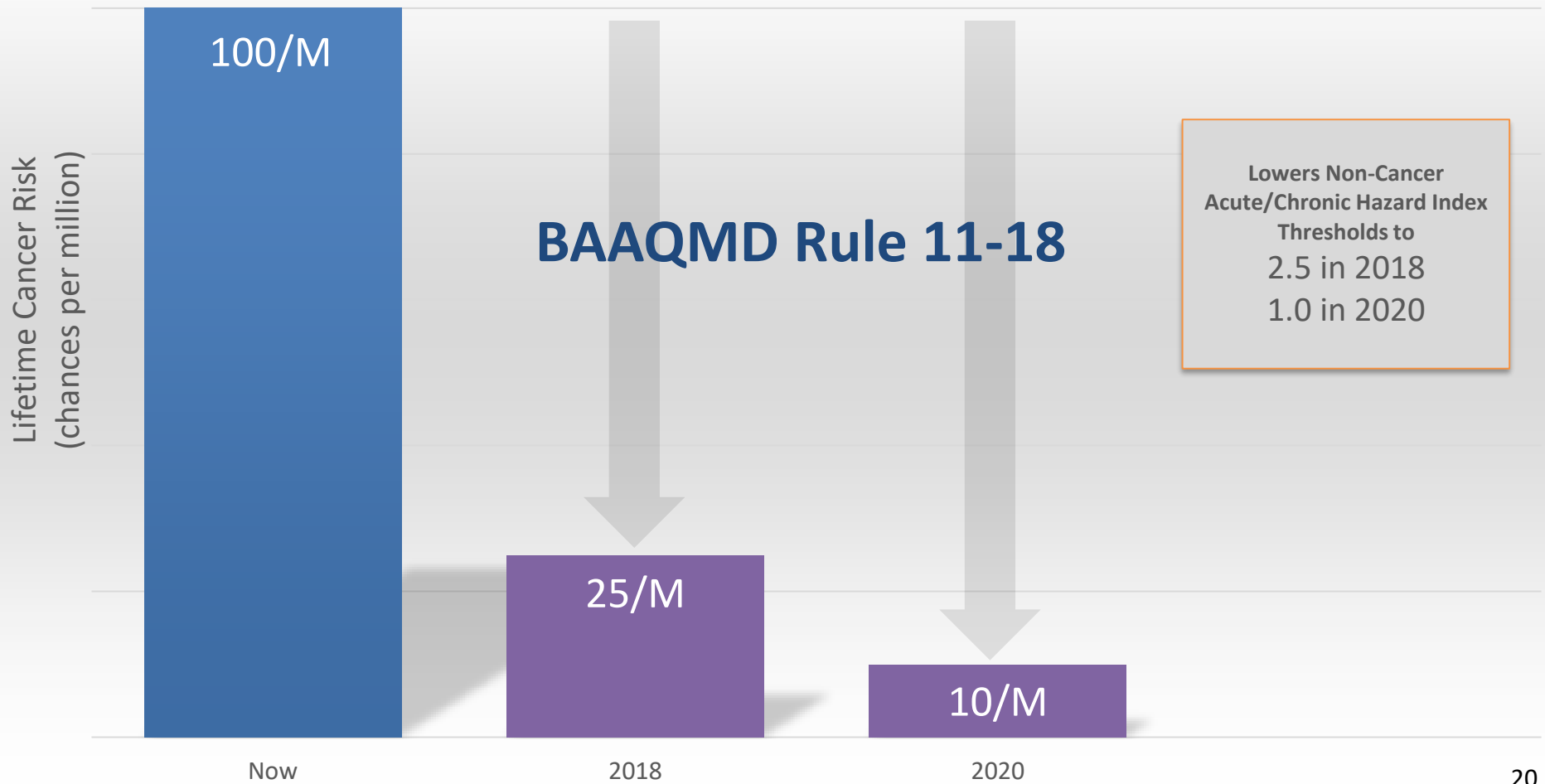
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Rule 11-18 – Key Policy Components

- Reduces toxic risk in overburdened communities
- Important step in AB 617 implementation
- Reduces toxic risk to the lowest levels
- Facility selects compliance path



Risk Action Thresholds



Rule 11-18: Requirements

- Facilities above risk action level must
 - Develop a risk reduction plan for Air District approval
 - Execute plan according to plan schedule
- Potential Risk Reduction Measures
 - Reduction of emissions, including installation of Best Available Retrofit Control Technologies for Toxics (TBARCT)
 - Modification of operating hours and activity levels
 - Modification of emissions stacks
- Exemptions
 - Retail gas stations
 - Sites that have **only** emergency backup generators and have risk screening level < 250

Potential Risk Reduction Measures

Install Control
Technology

Operating Time
Restrictions

Limit
Throughput

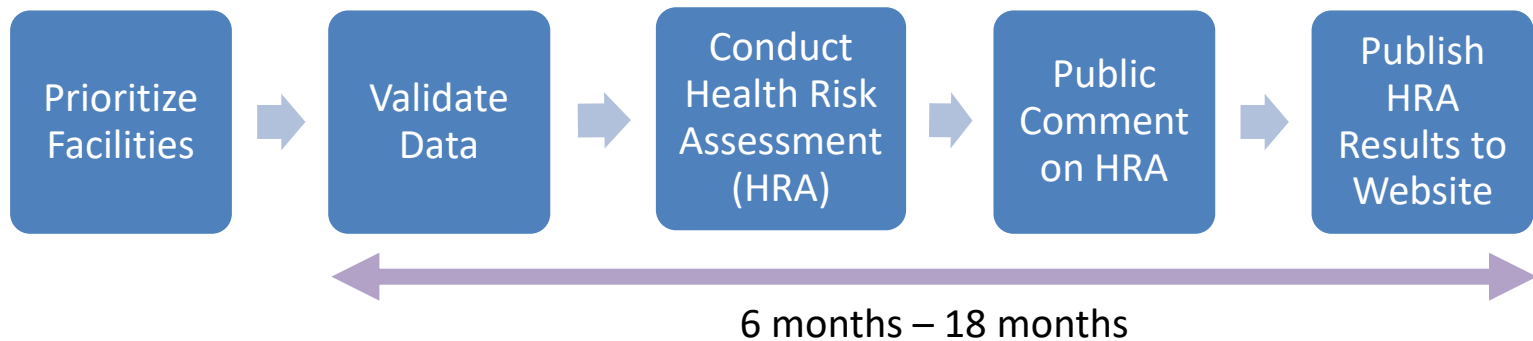
Use Alternate
Fuels/Materials

Increase Stack
Height

Change Stack
Orientation

Relocate Source

Implementation: Overview



2018 - 2019	Complete HRAs for high priority facilities
2019 – 2021	Complete remaining HRAs

Implementation: Facility Risk Reduction



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Rule 11-18: Key Points

1. Health Protective Standards
2. Flexible Methods of Compliance
3. Implementation Approach



1. Health Protective Standards

Why 10/Million?

- Most health protective
- Technically achievable
- Addresses smaller sources which can be cumulatively significant in CARE areas
- Benefits at least **10 times** more people
 - ~50 facilities reviewed at 25/M, ~400 facilities reviewed at 10/M
 - Preliminary HRA for one refinery shows **thousands** of people benefit from 10/M, but only **hundreds** benefit from 25/M

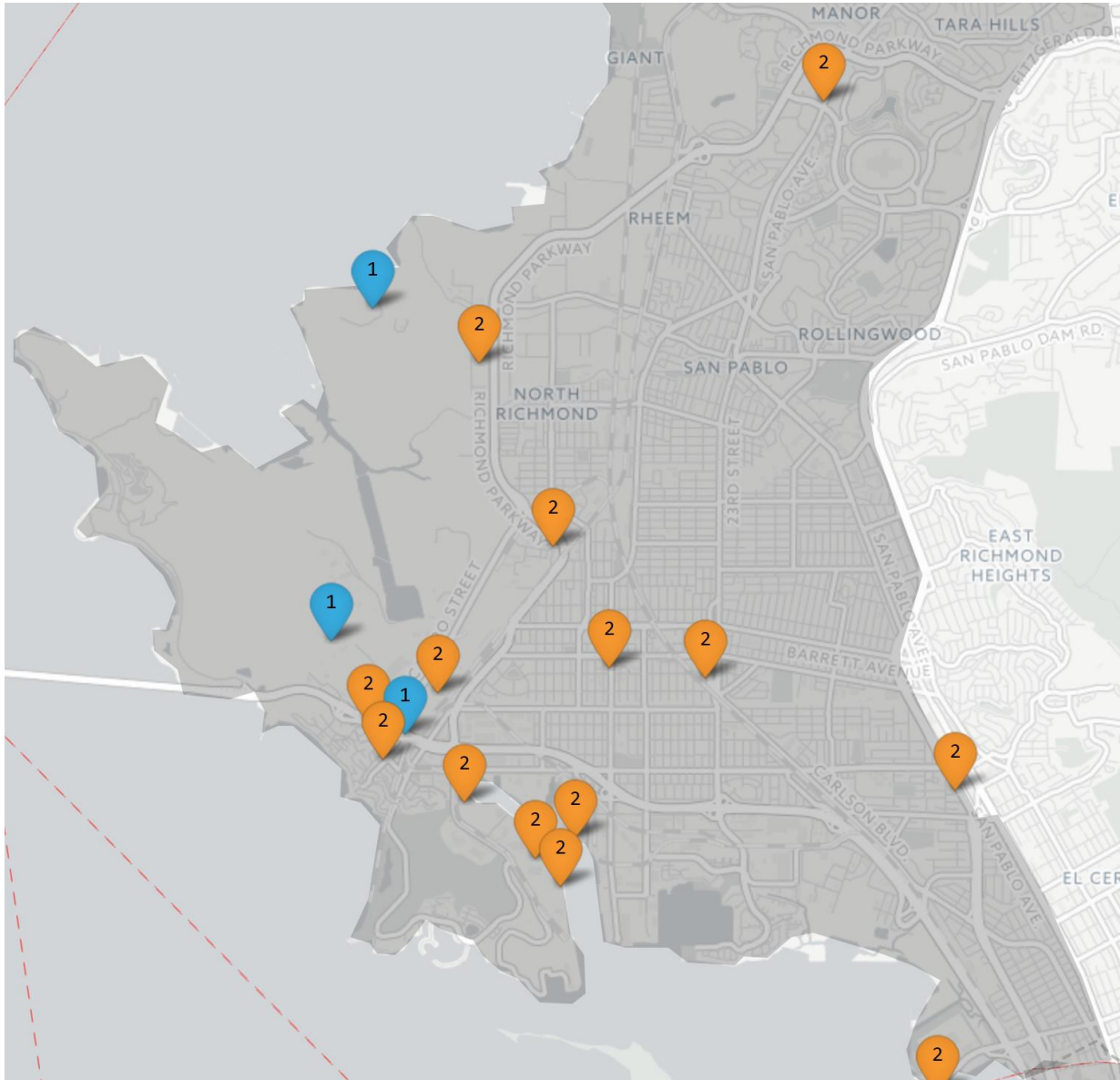
1. Health Protective Standards

10/Million is feasible for nearly all facilities

Facility Type	Estimated Risk
Refineries	13 - 56
Cement Manufacturing	9 - 40
Crematoria	10 - 14
Landfills	11 - 23
Foundries/Metal Melting	17 - 40
Sewage Treatment Facilities	9 - 40

If 10/M is not feasible, facilities must install TBARCT

Case Study: Richmond CARE Area - 25/M vs 10/M



At 10/M, all of the facilities on the map would be impacted by Rule 11-18 (orange and blue pins).

At 25/M, only the blue pins would be impacted

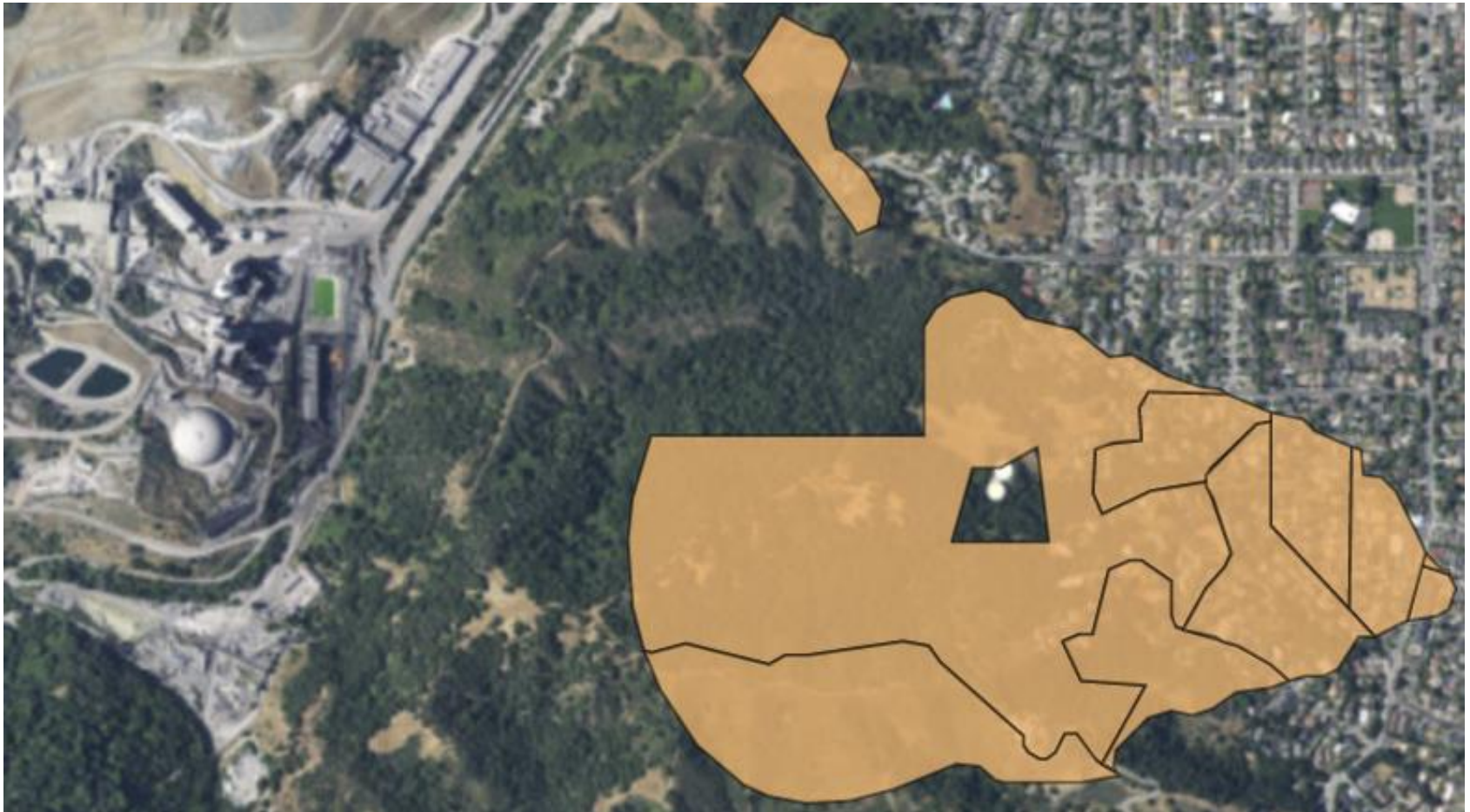
Case Study: Oil Refinery 25/M vs 10/M

- Preliminary HRA
- 10/M – about 8,500 people benefit (orange and blue)
- 25/M – about 600 people benefit (blue only)
- Green icons indicate day care centers



Case Study: Cement Kiln – 25/M vs 10/M

- Preliminary HRA
- 10/M – about 1,500 people benefit (orange shaded area)
- 25/M – No changes at facility



2. Flexible Methods of Compliance

- Facilities can choose lowest-cost approach to get below 10/M
 - Change processes
 - Move, raise emission stacks
 - Reduce engine testing hours
- Facilities can receive more time to install controls
- TBARCT option if not feasible to get below 10/M
 - Cost considered in all TBARCT determinations
- Major sources addressed first

3. Implementation Approach

- Technical Dispute Resolution Committee
 - Provide pathway to appeal technical disputes regarding emissions inventory, HRAs, and Risk Reduction Plans
- Rule 11-18 Implementation Workgroup
 - Includes affected communities
 - Includes affected industry
 - Ensures transparency
- Board oversight
 - First status report in 18 months
 - Staff report on results of HRAs and Risk Reduction Plans
- Smaller facilities can conduct their own HRAs
 - Air District approved contractors
 - Standard methodologies

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CEQA Analysis

- **20% of sources will likely have to install controls**
- **Wet scrubbers at refineries are possible, but unlikely**
- **If installed, wet scrubbers at refineries drive impacts**

Air Quality	ROG, NOX, PM potentially significant during installation of controls.
Greenhouse Gas	Expected to be significant due to operation of wet gas scrubbers and electrostatic precipitators. Offset under Cap-and-Trade
Hazards and Hazardous Materials	Hazard risks from some controls (baghouses, electrostatic precipitators) could be significant, but can be mitigated
Hydrology and Water Quality	Water demand potentially significant, if wet scrubbers are installed.

Recommendations

**Approve Regulation 11, Rule 18:
Reduction of Risk from Air Toxic
Emissions at Existing Facilities**

Certify Environmental Impact Report

