

Proposed Update to District's Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document

October 9, 2014

San Joaquin Valley APCD

OEHHA

Risk Assessment Guidelines

- State law requires the Office of Environmental Health Hazard Assessment (OEHHA) to develop guidelines for estimating health risk
- District utilizes OEHHA guidelines to calculate health risk:
 - Implementing Air Toxics “Hot Spots Information and Assessment Act (AB2588) as required by state law
 - Permitting new and modified stationary sources and CEQA projects

Revisions to OEHHA Risk Assessment Guidelines

- Children's Environmental Health Protection Act (SB 25, Escutia, 1999)
 - ensure adequately protect children
- Mid-2013, OEHHA released draft changes
 - Enhanced protection for children
 - More than double calculated risk, compared to current methodology

Board Guidance on District's Risk Management Policies

1. Incorporate OEHHA's Risk Assessment Guideline updates designed to provide protection of infants and children
2. Permitting and CEQA
 - Adjust thresholds as necessary to prevent unreasonable restrictions
 - No relaxation of current health protections (no increase in actual air toxics exposure, compared to current policies)

Board Guidance on District's Risk Management Policies (cont'd)

3. Retain the District's current public notification and health risk reduction thresholds used in implementing the Air Toxics "Hot Spots" Information and Assessment Act
4. Incorporate all possible streamlining efforts in incorporating OEHHA updates
5. Develop effective outreach tools and processes to communicate changes to all interested parties

Implementation Process

- Prepared staff report and analysis of proposed changes
- Workshop today
 - Comments due by November 8, 2014
- AB2588: by state law, must implement changes to guidelines upon OEHHA approval
- Permits/CEQA: implement in conjunction with revised thresholds

Proposed Key Changes

- Years of Exposure
- Worker Exposure Duration
- Age Groups
- Age Sensitivity Factors (ASF)
- Breathing Rates
- Uncertainty Factors for Reference Exposure Levels (8-hour values)
- Fraction of Time at Home

Proposed Key Changes_(cont'd)

- Worker Modeled Concentration Adjustment
- Dispersion Model Change (EPA's AERMOD)
- Spatial Averaging
- Poly Aromatic Hydrocarbons (PAH),
Creosotes & Lead

Years of Exposure

- District currently uses a 70-year duration for resident or population based exposure (OEHHA's current guidance)
- OEHHA recommendations:
 - 30-year duration for resident based exposure
 - 70-year duration for population based exposure

Worker Exposure Duration

- District currently uses a 40-year exposure duration (OEHHA's current guidance)
- OEHHA recommends a 25-year exposure duration

Age Groups

Current Method	vs.	Proposed Method
0 – 70 years (Resident)		3 rd Trimester to < 0 year
0 – 9 years (Children)		0 to <2 years
40 years (Worker)		2 to <9 years
		2 to <16 years
		16 to <30 years
		16 to 70 years

Age Sensitivity Factors

Current Method	
Age Group	Age Sensitivity Factor
0 to 70 years (Resident)	1
0 to 9 years (Children)	
40 years (Worker)	

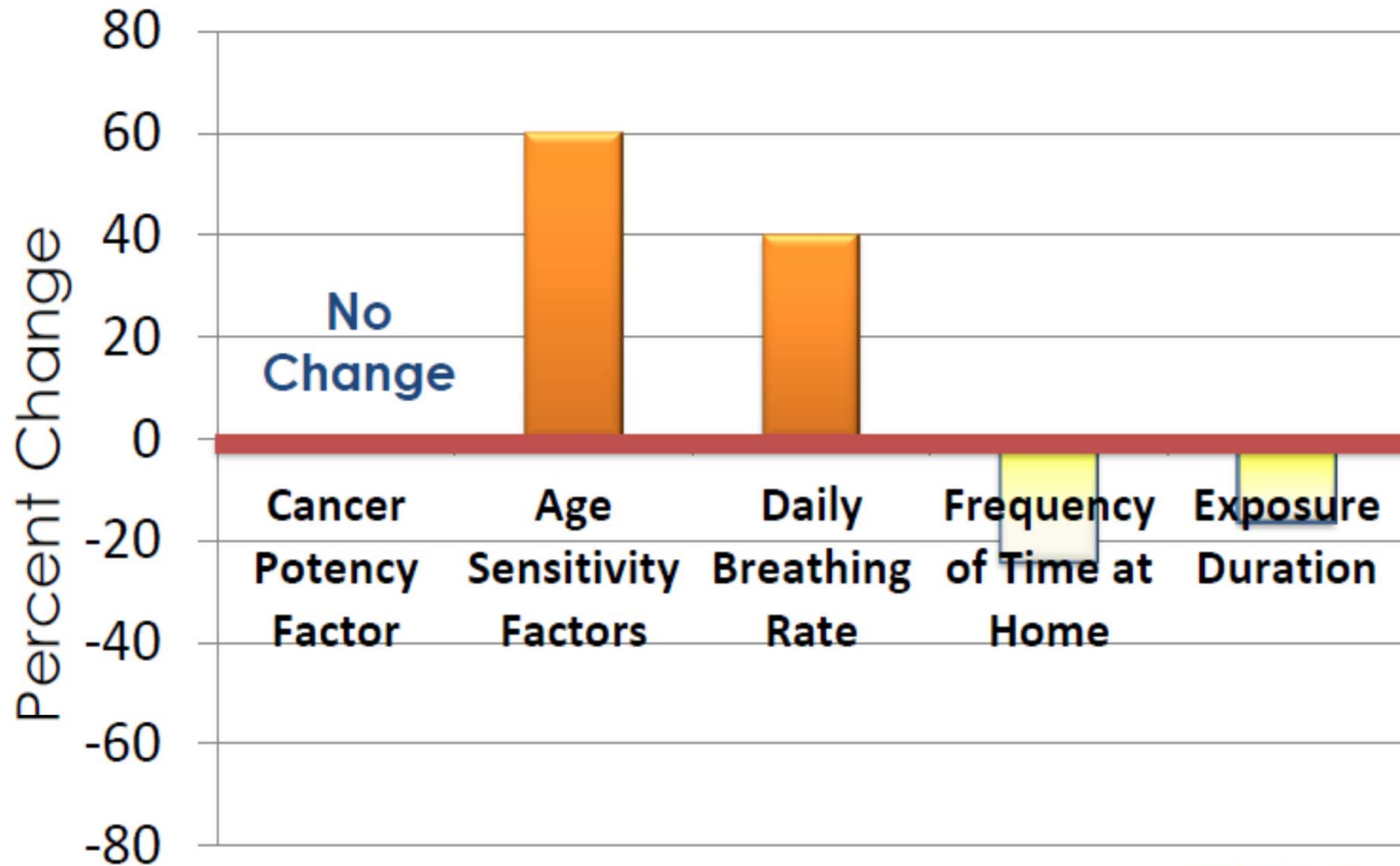
vs.

Proposed Method	
Age Group	Age Sensitivity Factor
3 rd Trimester to < 0 year	10
0 to <2 years	10
2 to <9 years	3
2 to <16 years	3
16 to <30 years	1
16 to 70 years	1

Breathing Rates

- Current Method
 - All ages: 95th percentile breathing rate
 - 393-581 (liters of air)/(kg of body weight) per day
- Proposed Method
 - Children/Adults: 95th percentile breathing rate
 - By age groups
 - Ranging from 240 for adults to 1,200 for infants (liters of air)/(kg of body weight) per day

Summary of Changes



Analysis of Proposed Changes

- Basic Steps
 - Conduct modeling runs for:
 - Selected source types
 - Scenarios
 - Use modeling runs to estimate a potential worst-case risk
 - Compare risk from current method to proposed method (multiple scenarios)

Analysis of Proposed Changes

- Most Common Permitted Source Types
 - Boilers
 - Steam generators
 - Diesel internal combustion engines
 - Gasoline dispensing operations
 - Natural gas internal combustion engines

Analysis of Proposed Changes

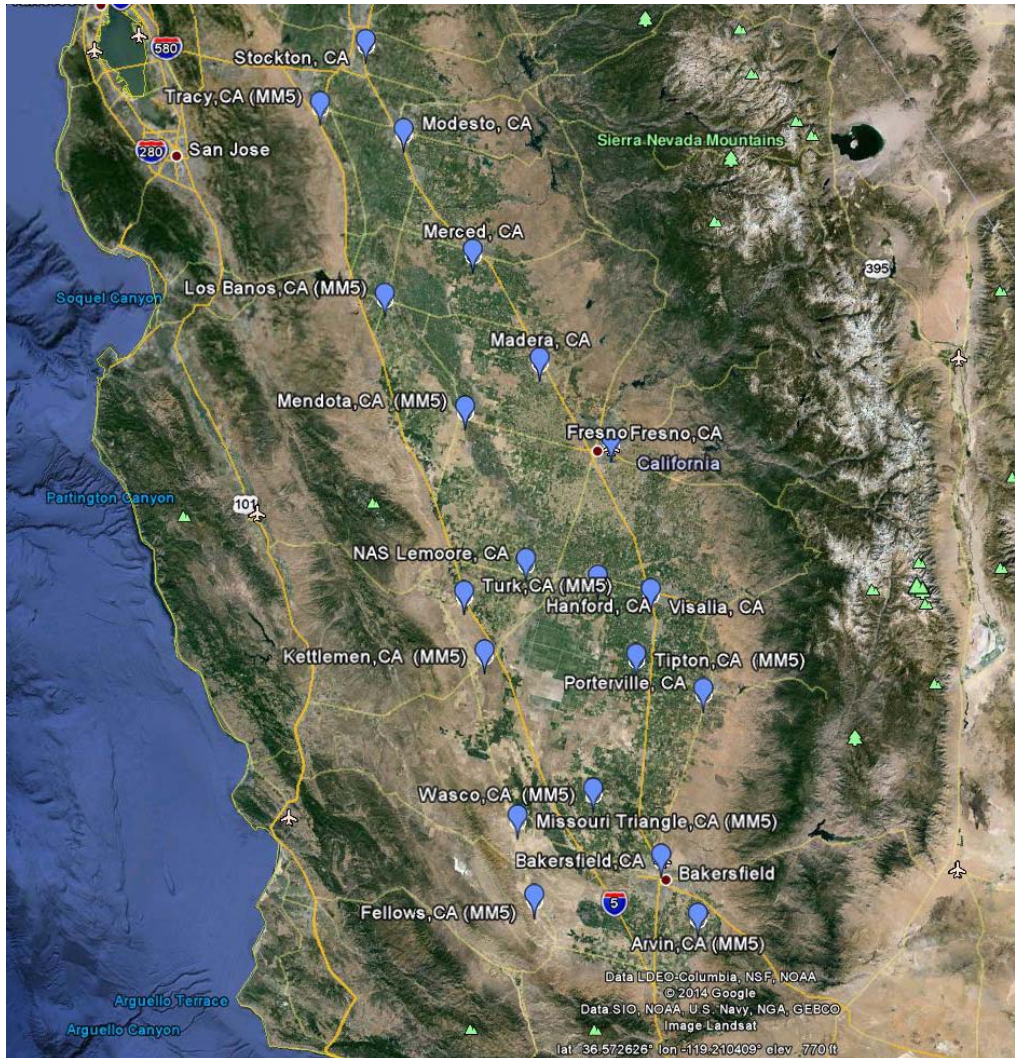
- Current District Risk Calculation Method based on current OEHHA guidelines
 - 70-year exposure duration
 - 95th percentile breathing rate

Analysis of Proposed Changes*

- Scenario 1 (most conservative)
 - 70-year exposure (*District current*)
 - 95th percentile breathing rate all age groups (*District current*)
- Scenario 2
 - 70-year exposure using 95th percentile breathing rate for children and 80th percentile breathing rate for adults (95/80th) percentile breathing rate
- Scenario 3
 - 30-year exposure using 95th percentile breathing rate
- Scenario 4 (least conservative)
 - 30-year exposure using 95/80th percentile breathing rate

*All scenarios include Age Sensitivity Factor (ASF) for all age groups

Meteorological Stations in SJV



Actual worst-case meteorological conditions are utilized in dispersion modeling

20 Met Sites in SJV
- 10 NOAA
- 10 MM5

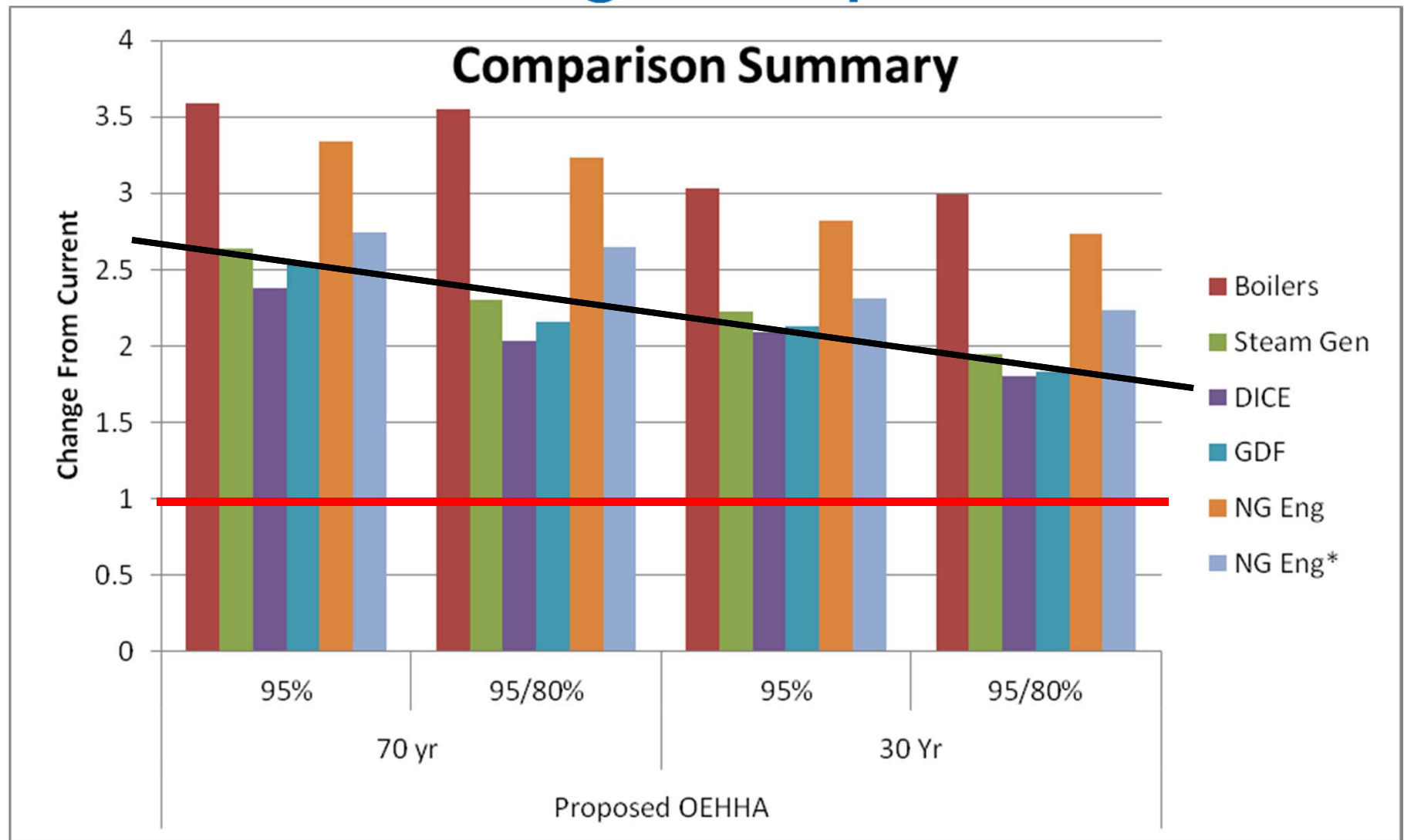
Modeling Analysis

- Modeling Inputs
 - 160 complex modeling runs conducted
 - 3760 individual sources
 - 2 weeks continuous modeling server use
 - 10,000 meters out from each source to identify maximum impact
 - Rural & Rural Building Downwash
 - Urban & Urban Building Downwash
 - Detailed inputs for each source modeled are included in the staff report

Risk Comparison

Source Types	District Current Method	Proposed OEHHA			
	70yr	70yr		30yr	
	95%	95%	95/80%	95%	95/80%
Boilers	1	3.59	3.55	3.03	2.99
Steam Generator	1	2.64	2.3	2.22	1.95
Diesel ICE	1	2.38	2.03	2.09	1.8
GDF (Gas Station)	1	2.53	2.16	2.13	1.83
Nat. Gas Engine	1	3.34	3.23	2.82	2.73

Modeling Comparison



HEALTHY AIR LIVING™

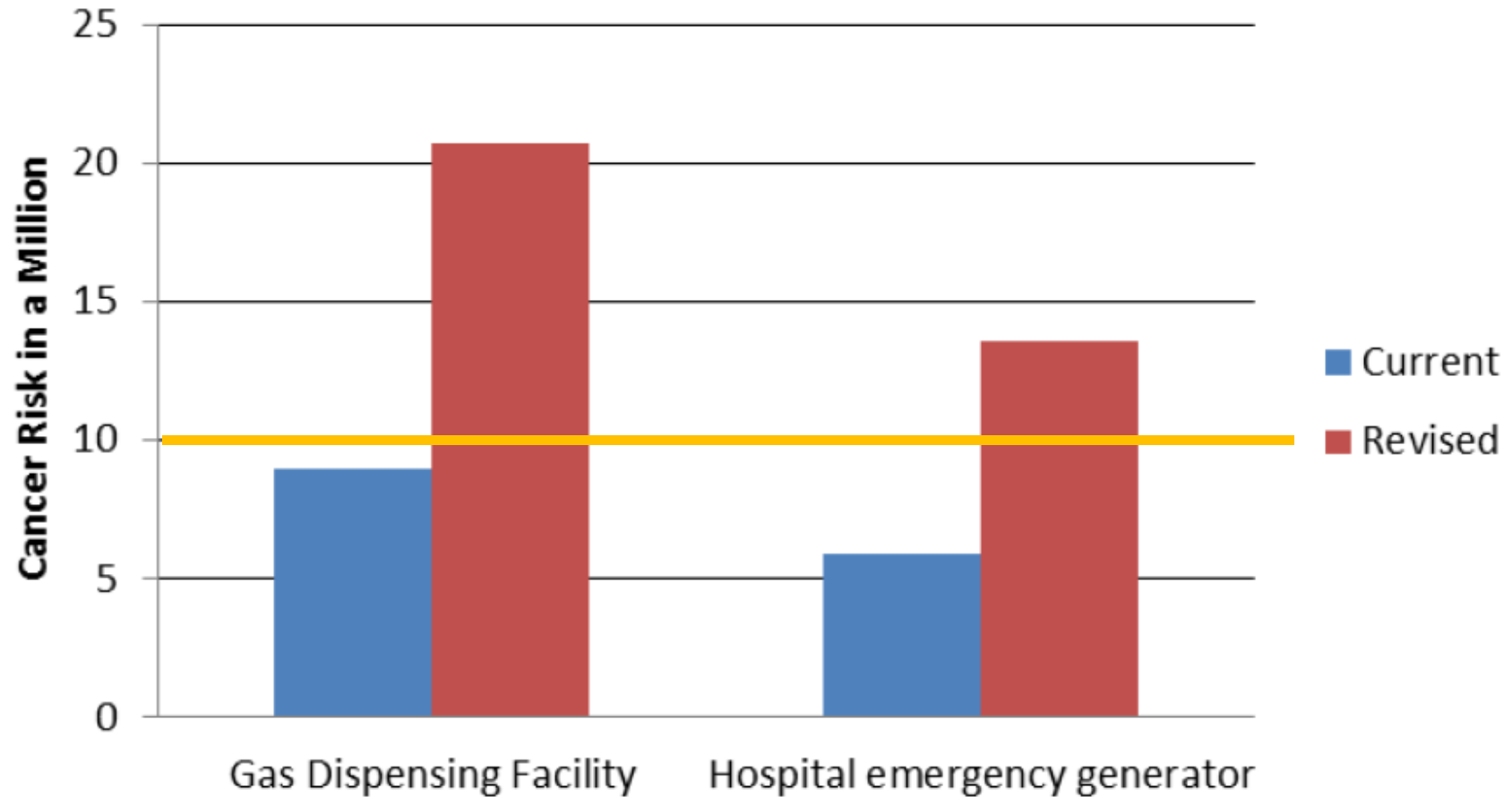
Live a Healthy Air Life!

Impact to Calculated Risk

- Most Conservative Scenario
 - 70-year exposure, 95th percentile breathing rate for all age groups (current District method)
 - Increase calculated risk between 2.38 and 3.59 times current District method
- Least Conservative Scenario
 - 30-year exposure, 95/80th percentile breathing rate
 - Increase calculated risk between 1.8 and 3.0 times current District method

Impact to Sources

Permits denied if ≥ 10 in a million



HEALTHY AIR LIVING™

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Various Risk Comparisons

<u>Occurrence</u>	<u>Lifetime Risk</u>
Contracting cancer (all sources):	250,000 in a million
Dying of cancer:	140,000 in a million
Dying in a car accident:	12,000 in a million
Dying from a fall:	4600 in a million
Dying from excessive heat:	73 in a million
Dying from lightning strike:	13 in a million
District permit denial level:	10 in a million

District's AB2588

Air Toxics “Hot Spots” Program

- Governing Board
 - Implement OEHHA changes to enhance public information about air toxics
 - Keep current thresholds
- Results of Board direction
 - Years of exposure: 70 years
 - Worker exposure: 40 years
 - Breathing rate: 95th percentile
 - Child protective measures (Age group, Age Sensitivity Factors)

District's AB2588 Air Toxics “Hot Spots” Program

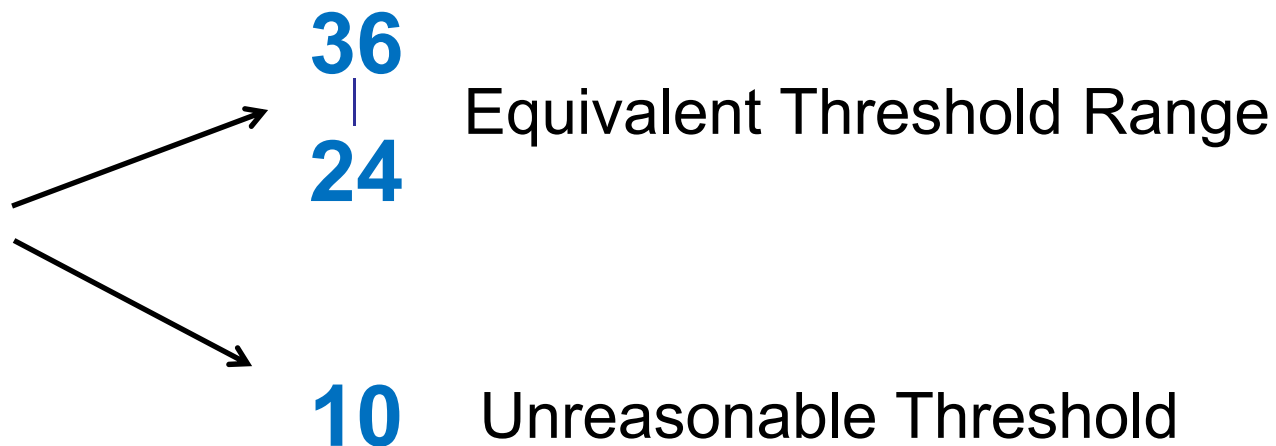
- Facility cancer risk thresholds
 - 10 in a million: notify impacted neighbors
 - 100 in a million: risk reduction audit and plan
- Impact
 - More facilities subject to public notification
 - Process of emissions inventory plan & report and health risk assessment submittal and approval will take 1 to 2 years
 - No facilities will trigger risk reduction requirements

Permitting and CEQA

- Governing Board
 - No relaxation of current health protections
 - Threshold preventing unreasonable restrictions
- Propose most conservative parameters
 - Years of exposure: 70 years
 - Worker exposure: 40 years
 - Breathing rate: 95th percentile
 - Child protective measures (Age group, Age Sensitivity Factors)

Permitting and CEQA

- Current cancer risk thresholds
 - Permitting and CEQA : 10 in a million
- Revise cancer risk threshold



Seeking Comments

- Staff recommends maintaining current modeling parameters to implement Board guidance: no relaxation of current health protections
- Requires adjustment of permitting/CEQA thresholds to avoid unreasonable restrictions
- Seeking comment on:
 - Use of current modeling parameters
 - Methods of establishing new thresholds, and proposed values of new thresholds

Questions/Comments

- Webcast participants can email written questions/comments during the workshop session to WebCast@valleyair.org
- Email: chay.thao@valleyair.org
- Mail: Chay Thao
1990 E Gettysburg Ave
Fresno, CA 93726
- **Deadline: November 8, 2014**

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