The Exploding Threat of Crude by Rail

Health and Community impacts

Integrated Energy Policy Report (IEPR) Workshop: Trends in Sources of Crude Oil

Berkeley, CA June 25, 2014

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Natural Resources Defense Council

** Note that most images here are taken from the internet with gratitude.*

Crude By Rail: Just a little rail project, not to worry…

- ***3 or more large projects*. Potential to replace ¼ - ⅓ regional crude supply.**
- Experts conclude that the projects pose **<u>a dual threat</u>** of

1. ***rail safety hazards*** and
2. ***An influx of extreme crude oil:*** Tar sands and fracked Bakken.

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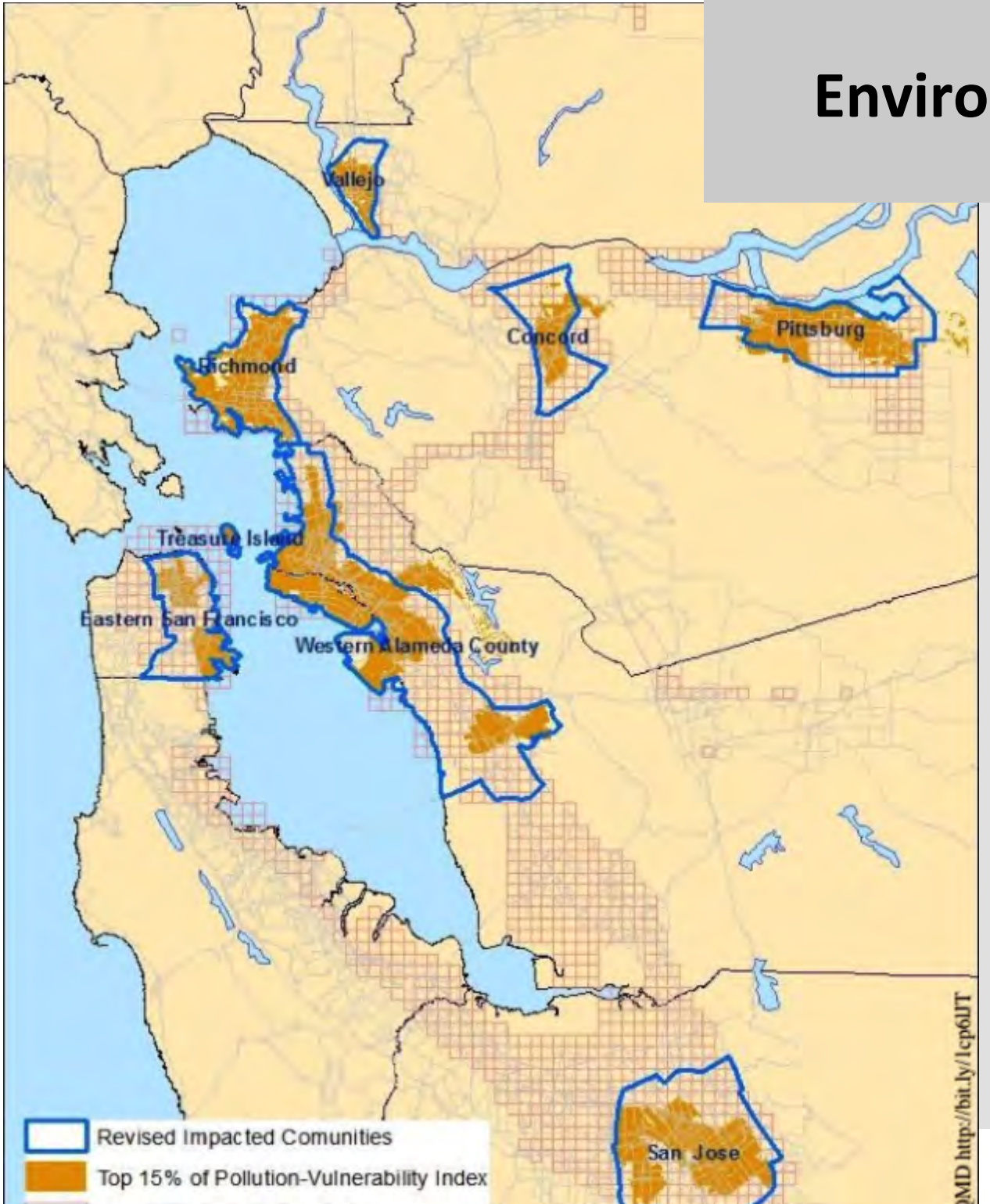
Environmental Justice



The very communities that the Air District identifies as "Impacted" by Air Pollution & Vulnerability would be most impacted by the planned new oil terminals and refinery projects.

CRUDE BY RAIL ACCIDENTS, MARCH 2013-MAY 2014

MARCH 27, 2013
PARKERS PRAIRIE, MN
30,000 GALLONS
OF OIL SPILLED

MAY 21, 2013
JANSEN,
SASKATCHEWAN,
24,000 GALLONS
OF OIL SPILLED

JUNE 27, 2013
CALGARY, ALBERTA, TRAIN
DERAILED ON A BRIDGE OVER
BOW RIVER. EMERGENCY CREWS
PREVENTED A SPILL.

JULY 6, 2013
LAC MÉGANTIC,
QUEBEC,
EXPLOSIONS FROM
DERAILED OIL CARS
KILLED 47 PEOPLE
AND DESTROYED
30 BUILDINGS IN
TOWN CENTER

OCTOBER 19, 2013
GAINFORD,
ALBERTA, FOUR
DERAILED OIL
TANKERS.
EVACUATIONS
WERE REQUIRED
DUE TO
EXPLOSIONS
AND FIRE.

NOVEMBER 8, 2013
PICKENS COUNTY,
ALABAMA, 90-CAR
DERAILMENT; 749,000
GALLONS OF OIL SPILLED,
FIRE BURNED FOR 2 DAYS.

DECEMBER 30, 2013
CASSELTON,
NORTH DAKOTA,
400,000 GALLONS
OF CRUDE SPILLED,
EXPLOSION CAUSED
EVACUATION OF
2,000 PEOPLE

JANUARY 7, 2014
PLASTER ROCK,
NEW BRUNSWICK,
EXPLOSION AND
FIRE CAUSE
150-PERSON
EVACUATION FOR
3 NIGHTS

JANUARY 20, 2014
PHILADELPHIA, PENNSYLVANIA,
6 TRAIN CARS CARRYING
BAKKEN CRUDE DERAILED
OVER SCHUYLKILL RIVER NEAR
UNIVERSITY OF PENNSYLVANIA
AND MAJOR HOSPITALS. NO SPILL.

FEBRUARY 13, 2014
VANDERGRIFT,
PENNSYLVANIA,
4 TANKERS SPILL
NEARLY 3,000
GALLONS OF OIL.

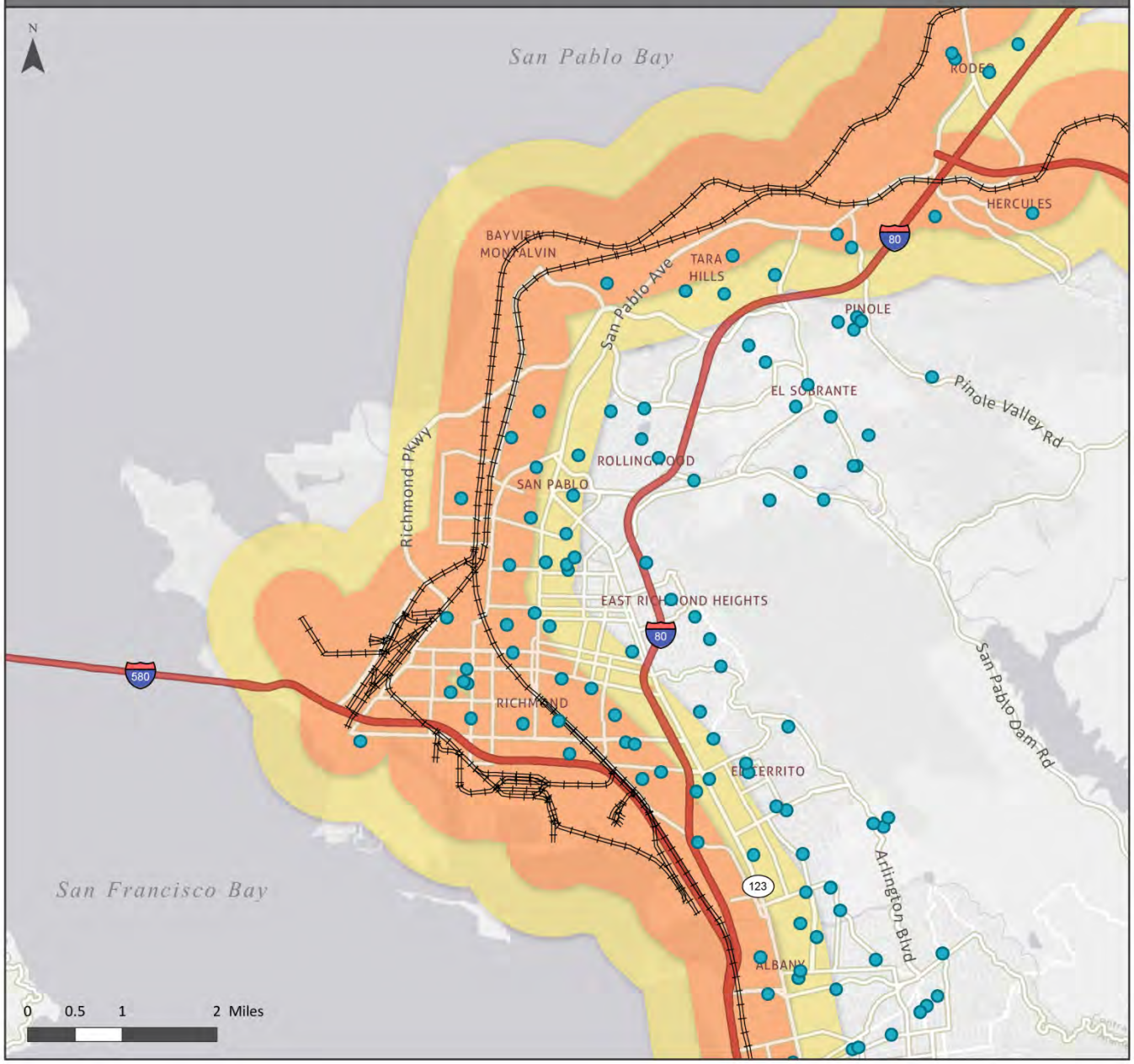
APRIL 30, 2014
LYNCHBURG, VIRGINIA, 17-CAR
DERAILMENT, +29,000 GALLONS OF
OIL SPILLED INTO THE JAMES RIVER,
THREATENING THE RICHMOND,
VIRGINIA WATER SUPPLY.[4]

MAY 9, 2014
LASALLE,
COLORADO, 6-CAR
DERAILMENT, 6,500
GALLONS OF OIL
SPILLED.[5]

Population and Schools at Risk from Proposed Crude by Rail Projects

	Population at Risk from Crude by Rail Routes		Area Schools at Risk from Crude by Rail Routes	
City	Within ½ mile	Within 1 mile	Within ½ mile	Within 1 mile
Sacramento	136,000	256,000	>100	>175
Bakersfield	76,000	167,000	>50	>75
Richmond	55,000	76,000	>35	>60
Davis	26,000	45,000	7	9
Pittsburg	25,000	40,000	12	19
Martinez	13,000	24,000	5	11
Benicia	4,500	12,000	3	4
	And many other communities			
Total	2,000,000	3,800,000		

Crude Oil Train Derailment Risk Zones in Richmond, CA



Richmond Population at Risk*

0.5 mile	54,943
1.0 mile	75,905

*The number of residents of the City of Richmond living within these impact zones

Legend

- Schools (K - 12)
- Active rail lines
- 0.5 mile US DOT Evacuation Zone for Crude Oil Train Derailments
- 1.0 mile US DOT Potential Impact Zone in case of Crude Oil Train Fire

Sources:

Population (2010): Estimates based on US Census 2010 Block Centroid Populations. Estimates were calculated within buffers located within US Census "Place" boundary (not shown).

Schools: http://portal.gis.ca.gov/geoportal/catalog/main/home.page

NTAD Rail Lines: 2013 National Transportation Atlas Database http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_atlas_database/2013/polyline.html

Rail Line Buffers: Zones indicating risks around rail lines in the event of crude oil tanker car derailments, based on the US Department of Transportation Emergency Response Guidebook used throughout North America. This guidebook recommends a standard evacuation zone of 800 meters (0.5 miles) for accidents involving railcars filled with flammable liquids and gases and an isolation zone of 1600 meters (1 mile) in all directions around any railcar filled with those materials if they are on fire. http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/Hazmat/ERG2012.pdf

WesPac Proposal in Pittsburg & Schools

1. Saint Peter Martyr
2. Marina Vista Elementary
3. Parkside Elementary
4. Willow Cove Elementary
5. Rancho Medanos Junior High
6. Los Medanos Elementary
7. Pittsburg High
8. Early Childhood Education
9. Martin Luther King Jr, Junior High
10. Stoneman Elementary
11. Black Diamond High
12. Hillview Junior High
13. Highlands Elementary

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Residential Proximity Puts Our Children at Risk

- Dozens of homes, schools, playgrounds, churches and parks are within a stones through of these projects.

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What are the implications of Extreme Crudes like Tar Sands Dilbit?

- Increases in Air Pollution: Toxics like Benzene, Lead & Heavy Metals, and Smog and Soot
- More Noxious Odors
- Increased Toxic Coke Production
- Higher Risk of Accidents
- Spills That Can Damage the Environment

A handful of Canadian oil sands. **Source: Suncor / Inside climate news – A Primer on dilbit**
http://insideclimatenews.org/news/20120626/dilbit-primer-diluted-bitumen-conventional-oil-tar-sands-Alberta-Kalamazoo-Keystone-XL-Enbridge?page=3

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INCREASED AIR POLLUTION: THE DILBIT PROBLEM

- Called a Barbell crude, the light end including toxics like benzene quickly evaporates.
- That leaves the heavy end, loaded with toxic metals like lead.

Mayflower, Arkansas

More Noxious Odors

- Dirty crudes have high levels of sulfur compounds with intense odors, like mercaptans.
- Mercaptans not only have an unpleasant odor, they are toxic.
- Mercaptans are also extremely flammable.

Bitumen from Christina Lake, Canada

Source: http://blogs.calgaryherald.com/2012/02/15/cenovus-rolls-out-christina-dilbit-blend-product/

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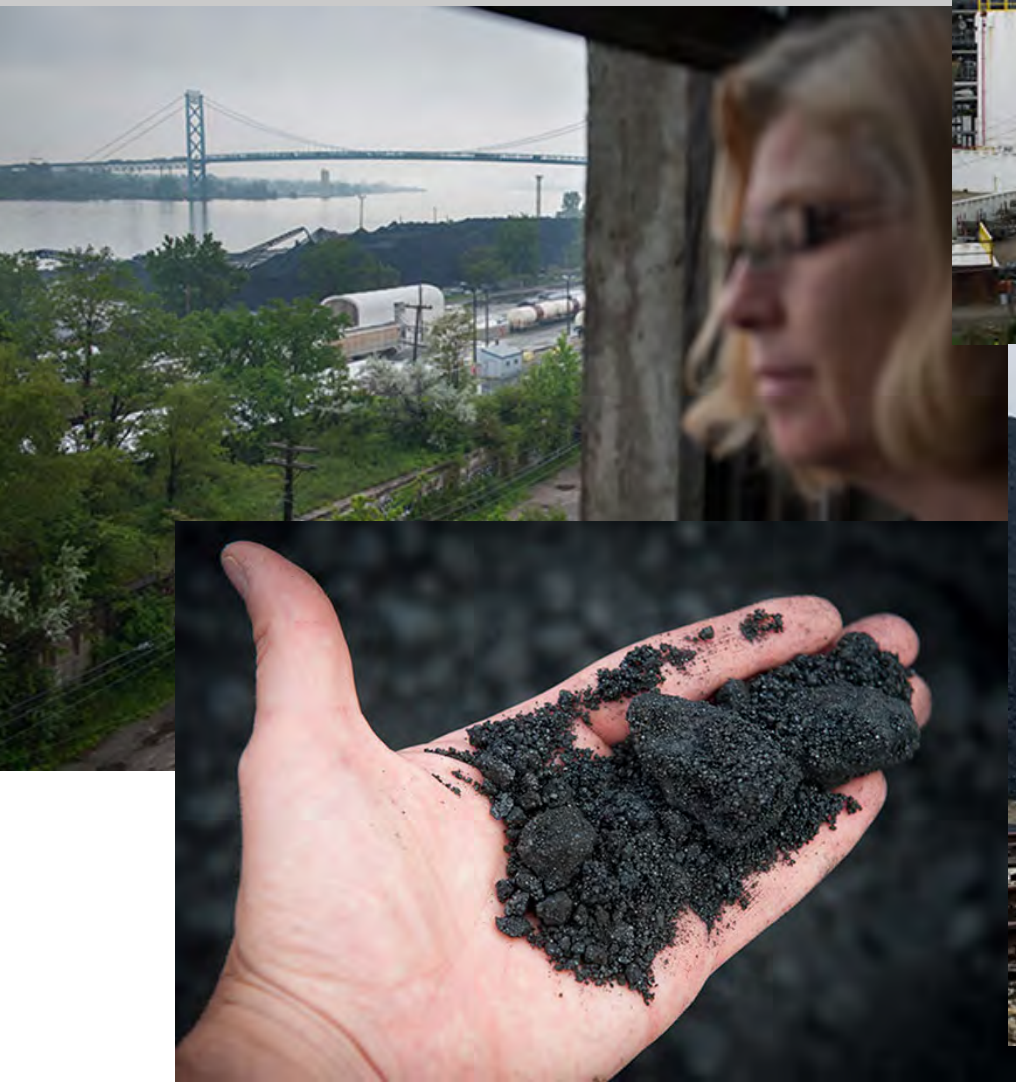
More Pet Coke



Marathon Refinery and Coke Piles in Detroit, James Fassinger guardian.co.uk, 7 June 2013

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This is Not What We Want in California

Lac Megantic, Quebec, July 2013

Alberta, Canada, October 2013

Chevron, Richmond, August 2012

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We Need State Regulators to Protect the Public

Mayflower, Arkansas

- ***Put all new oil infrastructure projects on hold <u>until</u>***
  - ***A thorough study of impacts is done AND***
  - ***Public safety can be guaranteed.***
- ***Investigate the potential for increases in dirtier, lower quality crude oil AND the consequences.***
- ***Disclose information to the public.***

Priorities: Community Health

As we work to transition away from dirty and dangerous fossil fuels to a clean energy economy, we cannot allow sacrifice zones around oil terminals, rail lines or refineries in California.

We must require the remaining fossil fuels in use to be transported as safely as possible and extracted & refined in the least damaging way.

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Any Questions?

Mayflower, Arkansas, April 2013