Tar Sands Impacts → Here at home in California refineries

1. **Higher-sulfur crude oil can increase refinery sulfur corrosion beyond already-dangerous levels, causing explosions and fires.** Tar Sands crude has extremely high sulfur content. Sulfur corrosion was the cause of the major 2012 Northern California Chevron Richmond refinery crude unit explosion according to the U.S. Chemical Safety Board (CSB)[1]. It blew a massive toxic plume over the Bay Area, and narrowly missed killing 19 workers.[1]

- ► **The Chemical Safety Board also found the same kind of sulfur corrosion** in the Southern California Chevron El Segundo refinery's piping.
- ► **Steelworkers testified at the CSB hearing that refinery sulfur corrosion is a <u>statewide</u> problem. Steelworkers also found California refineries have been steadily reducing maintenance**,[2] which was a major factor in the Richmond explosion.
- ► **California refinery crude oil sulfur content has been steadily increasing, but would get drastically worse** if refineries are allowed to switch to tar sands crude as proposed.

For example, U.S. Energy Information Administration data showed the Valero Wilmington refinery weighted average crude oil imports had sulfur content of 1.49% in 2011, and 1.83% in 2012.[3] By contrast, Western Canadian Select (WCS) crude[4] and Kearl[5] sulfur content is much higher (about 3.5%) – than the crude Valero said it will be displacing through its crude-by-rail. This means a massive increase in volumes of extremely hazardous sulfur compounds inside the refinery, including deadly hydrogen sulfide.

The U.S. Chemical Safety Board is now calling for new regulations to increase oil refinery safety in California refineries

The U.S. CSB stated in December 16, 2013:[6] **"In Wake of Chevron 2012 Pipe Rupture and Fire in Bay Area CSB Draft Report Proposes Overhaul of Refinery Industry Regulatory System in California and Urges Adoption of the Safety Case Regime to Prevent Major Chemical Accidents"**

> "There are currently no federal or state regulatory requirements to apply these important preventative measures. The investigation team concluded that enhanced regulatory oversight with greater worker involvement and public participation are needed to improve petroleum refinery safety. . . .
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> "The existing California system of regulation can be significantly improved, the report concludes. Since 2010, the CSB has examined the extent to which a safety case regime would improve regulatory compliance and better prevent major accidents, both onshore and offshore."

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[1] http://www.csb.gov/chevron-refinery-fire/
[2] Improving Public and Worker Safety at Oil Refineries, Draft Report of the Interagency Working Group on Refinery Safety, Governor Jerry Brown, July 2013, http://www.calepa.ca.gov/Publications/Reports/2013/Refineries.PDF
[3] http://www.eia.gov/petroleum/imports/companylevel/archive/
[4] http://www.cenovus.com/operations/doing-business-with-us/marketing/western-canadian-select-fact-sheet.html
[5] http://www.exxonmobil.com/crudeoil/download/KearlOilSands_withAssay.pdf, p. 40
[6] http://www.csb.gov/in-wake-of-chevron-2012-pipe-rupture-and-fire-in-bay-area-csb-draft-report-proposes-overhaul-of-refinery-industry-regulatory-system-in-california-and-urges-adoption-of-the-safety-case-regime-to-prevent-major-chemical-accidents/

2. Spills and derailments in the U.S. demonstrate the transportation danger of tar sands and other crude oil by rail - two of many examples:

- "If bitumen [heavy tar sands crude] is spilled into a body of water, it sinks, making cleanups highly difficult, if not impossible. That was clearly demonstrated when an Enbridge Inc. pipeline leaked more than 31,000 barrels of tar sands crude into Michigan's Kalamazoo River in July 2010. Bitumen covered 36 miles of riverbed, triggering a complicated cleanup that has so far cost the company about a billion dollars and is far from complete." http://www.globalresearch.ca/shipping-crude-oil-by-rail-new-front-in-tar-sands-wars/5360776
- Installing new rail transport facilities at oil refineries can also allow other dangerous crude oils to be transported. For example, Bakken crude oil (a light crude from North Dakota) was responsible for the explosion on July 6, 2013 of a train ferrying 73 tanker-cars carrying high-sulfur crude crashed in *Lac Mégantic*, Quebec. The explosion leveled the town, killing dozens and injuring hundreds. Design flaws in railcars was also identified as a cause. http://www.canadianmanufacturing.com/general/lac-megantic-derailed-dot-111-rail-cars-investigated-long-before-disaster-110224

What crude-by-rail and other tar sands projects are being proposed?

Many rail, or combination rail/ship or rail/pipeline projects are being planned for Southern and Northern California and other West Coast areas.

- **Valero announced in March 2013 the intent to bring large volumes of tar sands crude oil into Los Angeles and the Bay Area by rail, instead of waiting for pipelines across Canada to be finished,** and applied for permits to the South Coast Air Quality Management District (SCAQMD) and Bay Area Air Quality Management District (BAAQMD).[7]
- **Phillips 66 is proposing Southern and Northern California rail projects that can bring tar sands crude** into their Wilmington/Carson Southern California refinery complex and their Rodeo Southern California refinery complete.
- **Many other proposed projects include** a major Northern California rail / ship hub in Pittsburg, California, a Bakersfield rail hub that would input tar sands crude to existing California pipeline, rail to ship projects in Portland Oregon, and Vancouver Canada. Any pipe or rail connection to West Coast ports could bring tar sands crude into all California refineries by ship.

3. Many more impacts require a tar sands moratorium & intensive investigation

- **Tar sands crude is also far heavier than the average crude oil, which requires far more energy to refine, resulting in major greenhouse gas increases at oil refineries.** This is in contrast to California power plants / electricity generation, which are required to move to cleaner energy.
- **Burning increased fossil fuels at oil refineries to process heavy tar sands and increasing smog-forming emissions undermines previous progress in reducing local air pollution**
- **Tar sands crude is mixed with toxic solvents including benzene** to allow it to flow through pipelines and to be pumped out of containers (such as rail, ship, or storage tanks), because it is so heavy and thick.[8] These can be emitted to the air.
- **Tar sands crude oil mining causes devastation to indigenous people, land, and waters in Canada**, including mercury contamination of fish used for food, de-watering of rivers, and more).

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[7] Reuters Market News: June 5, 2013 – *"Valero Energy Corp plans to build a rail offloading facility that could take up to **60,000 barrels per day of cheap North American crude** to replace pricey imports at its Los Angeles-area refinery, the company said on Monday. Valero said it had applied for a building permit from the South Coast Air Quality Management District, the pollution regulator for Los Angeles-area refineries. The agency said it would take about 18 months to finish an environmental review, permitting and construction at the 78,000 bpd refinery in Wilmington, California." . . . "Valero spokesman Bill Day said the company wants to increase rail shipments of North American crude to its California refineries, which is cheaper than foreign imports or Alaskan crude. If approved, the facilities would offload **both Canadian heavy and inland U.S. crude**.* http://www.ubs.wallst.com/ubs/mkt_story.asp?docKey=1329-L1N0EF0T3-1&first=0

[8] http://switchboard.nrdc.org/blogs/dbailey/Report%20by%20Dr.%20Phyllis%20Fox.pdf , Dr. P. Fox, at p. 2