From: WendyStock@aol.com
To: p66-railspur-comments@co.slo.ca.us
Cc: Wendystock@aol.com
Date: 11/22/2014 11:18 AM
Subject: No oil trains anywhere especially in the Bay Area!

The plan actually represents a quadruple threat for California:

1. More trains prone to disastrous derailments, loaded with toxic tar sands oil, would travel directly through communities in our state to Santa Maria.
2. Partially refined tar sands crude would travel back north via pipeline to the Phillips 66 Rodeo refinery in the Bay Area, exposing our state to more spill risk.
3. Toxic air pollution from refining toxic tar sands, and transporting it by train. Even Phillips 66 admits toxic air pollution from the trains will be "significant and unavoidable."
4. All the while, helping to unlock the carbon bomb of the Canadian tar sands, increasing the damage done to California by drought and fires fueled by global warming.

Oil train traffic has been substantially increasing over the past few years – to dangerous effect. More oil spilled from train derailments in 2013 than in the past four decades combined. And that is to say nothing of the 2013 disaster in Lac Megantic, Quebec, where an oil train derailed, unleashing a massive explosion leveling the downtown and killing 47 people. STW-01

I do not want the risk of a major derailment on one of the oil-train routes through cities like Sacramento, Oakland, San Jose, Santa Barbara or Los Angeles? It's horrifying.

As the threat of explosive oil trains in our communities grows, and California's climate-change-fueled drought worsens, it should be clearer than ever to officials across California that we simply can not continue to allow unchecked expansion of dangerous fossil fuels and infrastructure.

Responses to Wendy Stock Comments

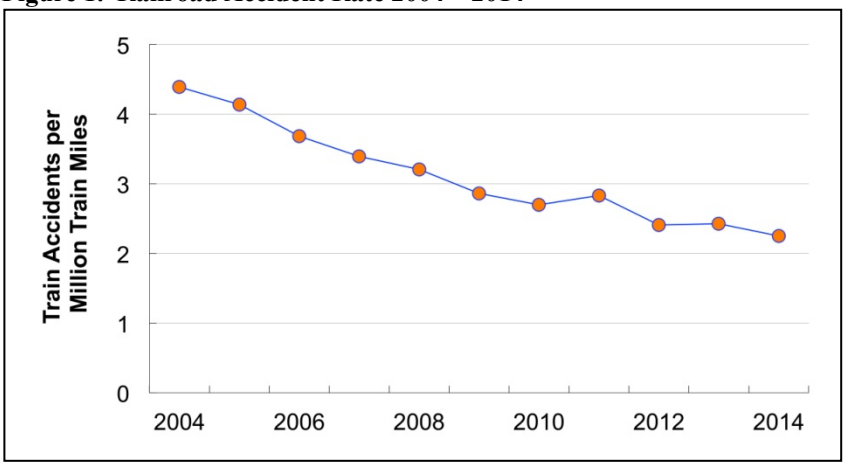
STW-01	The RDEIR provides a comprehensive evaluation of crude oil transportation risk through the preparation of a Quantitative Risk Analysis (QRA). The QRA evaluates mainline rail risk based on nationwide rail accident data, including the root causes of these accidents. The QRA provides the overall assessment of risks associated with the project. The RDEIR also provides separate discussions of specific issues associated with the change in crude slate and impacts associated with the unique qualities of Canadian Tar Sands and other crude oil sources. The RDEIR examined changes in emissions associated with a change of slate, as indicated in Section 4.3.4.2, Air Quality and Greenhouse Gases, which states" For the SMR, key crude slate parameters that could impact air emissions include the percent of BTEX, vacuum resid, sulfur and metals in the crude oil. " The BTEX was analyzed in the health risk assessment to determine the increased health risk. Increased sulfur was assessed as to the increased sulfur truck trips that would be required. None of the other components would alter the emissions at the refinery as the heavy metals would not be emitted into the air from the SMR. Note that as the API gravity would be similar, the emissions of volatile components (ROG) from fugitive emissions would be similar with the change in crude slate. BTEX levels of Canadian tar sands crude oil are similar to other heavy crude oil processed by the SMR and the RDEIR demonstrates that any increases in BTEX would generate a nominal increase in health risk. See Response to CBE-21 and CBE-23. The metals in the tar sands oil would not be volatilized at the SMR or along transportation routes and would therefore not contribute to increases in air-based health risk. The Canadian tar sands are not as "explosive" as Bakken crude oil and present similar risks to the rail transportation of heavy crudes that currently occur within California and through SLOC. The increased levels of nickel, vanadium, lead and copper do not affect air emissions as none of the crude oil is combusted and none of the metals are carried over in the fuel gas. The metals would remain in the coke. Sulfur production would increase producing potentially more sulfur trucks trips, as discussed in the RDEIR (see Section 4.3, Air Quality and Greenhouse Gases and 4.12, Transportation and Circulation). The use of higher sulfur crude oils would increase the amount of sulfur produced at the SMR. This increase in sulfur and the associated truck trips are addressed in the RDEIR in Section 4.3, Air Quality and Greenhouse Gases. Emissions of sulfur dioxide are not anticipated to increase as most of the sulfur in the crude is removed as elemental sulfur and trucked from the site and the SLOCAPCD has limits on the emissions of sulfur dioxide from the refinery processing equipment.

	As the SMR already processes heavy crude oils, and the tar sands crude oils would have a similar proportion of heavier materials, the production of coke is not expected to change with the project. Additional information on the make up the projected crudes compared with the current crude slate at the SMR is provided in Chapter 2.0, Project Description. The historical accidental data used in the RDEIR is not limited to trains shipping crude oil in recent years, but the long term historical train accident data for all freight. The use of data from all freight train movements nationwide provides a very robust database for estimating rail accidents and derailments. Average U.S. train derailment rates over the 5-year period 2005 – 2009 have previously been estimated using data from the U.S. Department of Transportation, Federal Railroad Administration (FRA) Rail Equipment Accident (REA) database combined with traffic data from the rail industry (Liu et al, 2014). This dataset was used to develop detailed derailment rates as a function of three factors: FRA Track Class, traffic volume (which appears to be correlated with additional maintenance above basic federal requirements) and Method of Operation (i.e., signaled or non-signaled trackage). All three of these factors have a significant effect on freight train derailment rate. These factors were used to calculate segment-specific derailment rates thereby enabling a fine grained calculation of derailment probability for any particular route. As discussed below, the overall accident rate has declined since this data was recorded and analyzed, thereby resulting in an overestimate of the present-day risk, and future risk. For example the average accident rate for the five-year period 2010-2014 was 27% lower than the average for the five-year period from 2005-2009, and the preliminary estimate of the accident rate for 2014 was 35% lower than the five-year period from 2010-2014. The reason data from 2005-2009 was used is because that dataset contained additional information that allowed for the estimated effect of FRA Track Class, Traffic Density and Method of Operation (Signaled or Unsignaled) on derailment rate. This additional granularity is needed for more precise segment-specific accident rate used in the analysis. The derailment rates calculated were based on 1,420 Class 1 railroad mainline derailments. Inclusion of a few more crude oil train derailments in recent years would have virtually no effect on the estimated rates. The suggestion that because these recent accidents were not included in our dataset somehow invalidates the results reflects a lack of understanding of the analytical technique and how it was used. The data needed for this analysis are less complete than for overall accident rate but all other things being equal, there is no reason to believe that crude oil trains derail at a rate different than other freight trains. Using what data are available and making certain assumptions, the EIR consultant conducted an analysis in 2014 and observed no significant difference in the derailment rate for crude oil trains then for other freight

trains.

The railroad accident rate has been steadily trending downward for over a decade. The accident rates in the past few years were the lowest since the FRA started recording the data in the mid-1970s. In the period from 2004 to 2014 the rate declined by 49% (almost half) (see Figure 1 below). Most derailments receive little or no attention from the public or media. Railroads are required by regulation to report all accidents that exceed a certain monetary threshold in damage to track, signals and rolling stock (currently $9,600). Proper estimation of train accident rates involves analysis of all accidents, divided by the total amount of traffic. The reason that some perceive an increase in the railroad petroleum crude oil accident rate is because of the more than 50-fold increase in this traffic since 2009. Estimates are that 233,698 tank cars of crude oil were moved by rail in 2012. This increased to over 435,000 tank cars moved by rail in 2013 (the full year of data is not yet available for 2014). With this increase in crude by rail traffic, the derailment and spill probability data would suggest that multiple crude by rail accidents would happen each year.

Figure 1. Railroad Accident Rate 2004 – 2014



Data Source: US DOT Federal Railroad Administration
http://safetydata.fra.dot.gov/officeofsafety/publicsite/summary.aspx
(Data for 2014 include January through November)

Using the accident and spill probability data from the RDEIR the DEIR would have estimated that between 2012 and 2013 there would have been two to five derailments that had spills of 100 gallons or more in the U.S. Based upon the United States Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) incident data base, there were three crude oil train derailments with spills of 100 gallons or more.

This does not contain the accident and spills that have occurred in Canada over this period since the accident and spill probability data is for mainline rails within the United States only.

The methodology for estimating crude oil unit train accidents and spill

	probabilities is also consistent with the methodology outlined by the American Institute of Chemical Engineers, Center for Chemical Process Safety (AIChE CCPS) document *Guidelines for Chemical Transportation Risk Analysis* (CCPS, 1995), which is the definitive reference on the methodology for estimating hazardous materials transportation risk. The RDEIR states that GHG emissions associated with crude oil transportation by rail would produce significant and unavoidable impacts. Emissions can be offset through the use of emissions offsets, as are available from a number of different sources for GHG. However, as indicated in Section 4.3, Air Quality and Greenhouse Gases, of the RDEIR, it is uncertain if Air Districts could require GHG offsets due to Federal preemption and the impacts associated with the GHG emissions would remain significant and unavoidable. The refining of the different crude slate associated with this project would not produce different GHG emissions at the SMR than the normal range of crude oils refined at the SMR. GHG emissions are attributable to removal of the heavier ends, such as at the SMR, and associated with the cracking and formulation of lighter ends, such as gasoline, at the Rodeo Refinery. These activities would be within the range of normal activities at each refinery. The main difference in GHG emissions occurs at the extraction point, where extracting the tar sands generally produces substantially higher GHG per bbl of crude oil than conventional methods, depending on the level of associated gas and the use of that gas. Some fields in California for example, extract the crude oil and just burn the associated gas in flares, which actually can produce a higher GHG intensity than even Canadian Tar Sands crude oils. The additional GHG emissions associated with mining the tar sands would occur no matter the destination of the crude oil, whether the crude oil is destined for the SMR, or other locations within the U.S. Current CARB requirements (LCFS) already require refineries to disclose the carbon intensities of the crude oil they refine.