From: CAITRIONA JEANNE SMYTH <caitriona_smyth@berkeley.edu>
To: p66-railspur-comments@co.slo.ca.us
Date: 11/23/2014 05:20 PM
Subject: Comment on the Proposed Philips 66 project

Dear Mr. Wilson,

I am writing in opposition of the proposed oil by rail project at the Philips 66 Santa Maria Refinery. As a student at UC Berkeley and resident of Berkeley, California, I am deeply concerned by the proposition of this project--which would put me, my friends, family, and community, at risk.
The transportation of oil by rail is dangerous and irresponsible--it puts at risk millions of Californians residing along the transport line, and within the potential blast zone. SMC-01

The draft Environmental Impact report grossly underestimates the risks posed to communities all across California by using antiquated data on the frequency of crude rail accidents and their magnitude. As I am sure you know, Canada has faced tragedies at the hands of oil transported by rail, including an accident in 2013 that killed 47 people. Forty-seven. I know that you do not wish this to be the future of our communities, so please, don't let it be--keep them safe from this vastly under-regulated method of transporting oil. Furthermore, offer our economy a chance to divest from the fossil fuels that are resulting in the deterioration of the planet's climate, massive amounts of pollution, and degradation of human health. SMC-02

The Philips 66 project would result in volatile toxic chemicals leaking out of tank cars and into the air--poisoning communities along rail routes. In its latest environmental review Phillips 66 admits that its proposed oil train facility will create “significant and unavoidable” levels of air pollution, including toxic sulfur dioxide and cancer-causing chemicals. The report cites increased health risks -- particularly for children and the elderly -- of cancer, heart disease, respiratory disease, and premature death. SMC-03

Thus, I urge the San Luis Obispo County Planning Commission and Board of Supervisors to reject the Phillips 66 proposed rail spur. This project creates significant, unavoidable, and unnecessary risks for our communities and our climate. SMC-04

Sincerely,

Caitriona Smyth

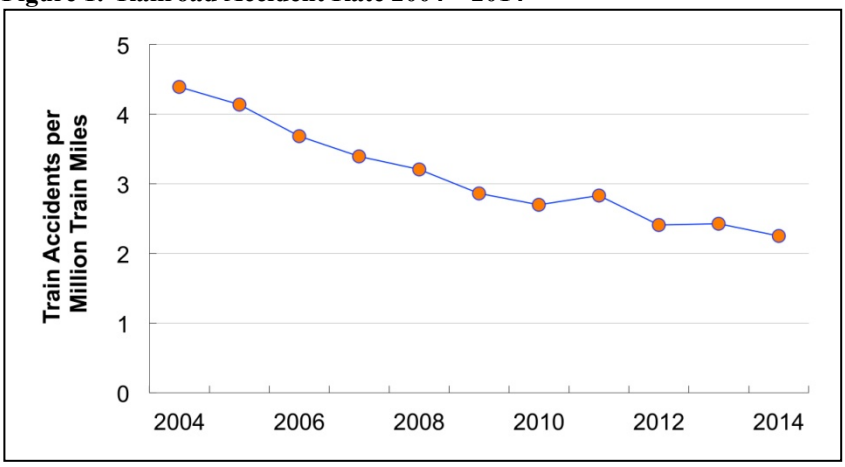
Responses to Catriona Jeanne Smyth Comments

SMC-01	Section 4.3, Air Quality and Greenhouse Gases, addresses the health risk associated with the Rail Spur Project. The RDEIR found that the health risk impacts would be significant and unavoidable (Class I). The comment about increase health hazards from the Rail Spur Project has been included in the FEIR for the decision-makers' consideration as part of the County's deliberations on the proposed project.
SMC-02	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. In the event of a train derailment and accident, only a limited number of rail cars actually derail and spill oil. In no case has a rail accident resulted in all rail cars derailing and failing. The median number of cars derailed per FRA-reportable, freight-train derailment on Class I mainlines was six (Liu et al., 2013). In this analysis, we assumed that all derailed cars were crude oil tank cars. The conditional probability of release (CPR) represents tank car safety performance in accidents and was estimated based on the latest statistics developed by the Railway Supply Institute (RSI) – Association of American Railroads (AAR) Railroad Tank Car Safety Research and Test Project. The RSI-AAR Tank Car Project analysis accounts for tank car safety design features and accident characteristics. The RSI-AAR Project has also calculated a similar statistic, CPR(>100), which is the conditional probability of release of more than 100 gallons from an individual tank car involved in an FRA-reportable accident. Releases smaller than this amount are not believed to pose a substantial threat, so this is the principal metric being used by the rail and tank car industries in their consideration of different tank car safety designs. CPR(>100) is used in the risk analysis described here to be consistent with other documents related to this subject. Please note that trains associated with the Phillips 66 Project would generally have 80 tank cars due based on the space available for the new rail spur. As noted in the RDEIR, the current DOT-111 tank cars have serious safety deficiencies that can lead to an unacceptable spill rate in the event of a train derailment. As a result, the RDEIR specifically included mitigation measure HM-2a, which requires only rail cars designed to Option 1: PHMSA and FRA Designed Tank Car as listed in Table 4.7.6, shall be allowed to unload crude oil at the Santa Maria Refinery. Even with the improved rail cars, the RDEIR found that the risk of a crude oil train accident and spill was considered a Significant and Unavoidable (Class I) impact. The potential consequences of a potential accident also need to be taken into account; specifically the distance from the rail line where adverse impacts would be possible. The worst-case thermal hazard zone associated with the catastrophic tank car failure and fire was approximately 500 meters. Within this distance, there is the possibility that individuals could experience thermal injuries. Beyond 500 meters, potential injuries would not likely occur. Likewise, the potential for fatalities is limited to 300 meters from the rail line. However, the potential impacts of a train derailment, oil spill and potential fires and explosions would be substantial. Therefore, the RDEIR found that the risk of a crude oil train accident and spill was considered a Significant and

	Unavoidable (Class I) impact.
SMC-03	Air emissions from tank car fugitive emissions are nominal, totaling only about 0.02 lbs/round trip within SLO County. Rails cars would not be opened during transit. Emissions associated with unloading of the tank cars, including pumps, pressure relief valves, manifolds, connections, etc, were all included in the EIR and listed in detail in the Air Quality Appendix. Emissions associated with unloading would not occur during transit. The EIR does indicate that emissions of criteria pollutants along the mainline routes would exceed the thresholds in most Districts, thereby being a significant impact. The EIR addresses the potential impacts and recommends mitigation measures for the proposed Project consistent with the requirements of CEQA. Section 4.3 (Air Quality and Greenhouse Gases) addresses GHG emissions, criteria air emissions and health risks. The EIR concludes that emissions of criteria, GHG and toxic pollutants would exceed the SLOCAPCD thresholds and would be a significant impact.
SMC-04	This comment does not identify a specific environmental analysis or CEQA issue relative to the EIR and compliance with CEQA. The commenter's concerns about environmental impacts and climate are included in the FEIR for the decision-makers' consideration as part of the County's deliberations on the proposed project.