Comment

I am writing to demand that the SLO Board of Supervisors reject the Phillips 66 dangerous oil by rail proposal. As a student, I am outraged that SLO County and Phillips 66 would put students across California at risk for the sake of oil company profit. This project creates unacceptable risks for students and our communities.

I am strongly opposed to this project for several reasons:

1. Risk of accidents: Emergency responders in my town just aren't prepared for these heavy, dangerous trains and current safety standards won't protect the public. The draft EIR uses outdated data that drastically underestimates the danger of a derailment or spill. Such a spill could devastate our scarce water resources, sensitive ecosystems, homes and local economies.

2. Air quality impacts: The toxic air emissions that will accompany this project pose an unacceptable risk to public health. In its latest environmental review Phillips 66 admits that its proposed oil train facility will create "significant and unavoidable" levels of air pollution along the rail route, with sulfur dioxide and other toxic chemicals leaked that increase risk of cancer, heart disease, respiratory disease and premature death.

3. Risks to watersheds: The EIR has yet to fully analyze the worst-case scenario of a spill near each of the many watersheds crossed en route to the Santa Maria refinery. A derailment near a river, stream, reservoir or aquifer could contaminate drinking water for millions of Californians, an unacceptable risk in this time of extreme drought.

4. Climate impacts: Phillips 66 must disclose crude-quality information so decision-makers fully understand the climate impacts of the proposed rail project. At every stage of the mining, transportation and refining process, Canadian tar sands are more carbon intensive than any other source of oil -- making this project simply incompatible with California's plans to be a climate leader.

For all these reasons, I urge the San Luis Obispo County Planning Commission and Board of Supervisors to soundly reject the Phillips 66 proposed rail spur.

Response

1. For transportation of crude oil along the mainline tracks, mitigation measures PS-4a though PS-4c) (see Section 4.11, Public Service and Utilities) include 1) Only rail cars designed to Option 1: PHMSA and FRA Designed Tank Car shall be allowed; 2) requires annual funding for first response agencies along the mainline rail routes; 3) require annual emergency responses scenario/field based training; and 4) notification requirements. Impacts to fire protection and emergency response would remain significant and unavoidable (Class I) along the mainline routes. The EIR makes it very clear that first responders along the mainline route are not currently equipped to handle crude oil train incidents. As discussed in impact PS.4 (see Section

4.11, Public Services and Utilities), an analysis by the State Office of Emergency Services (OES) clearly indicates that fire and emergency responders lack resources, training and information in order to adequately respond to a crude oil train incident along the mainline tracks.

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.

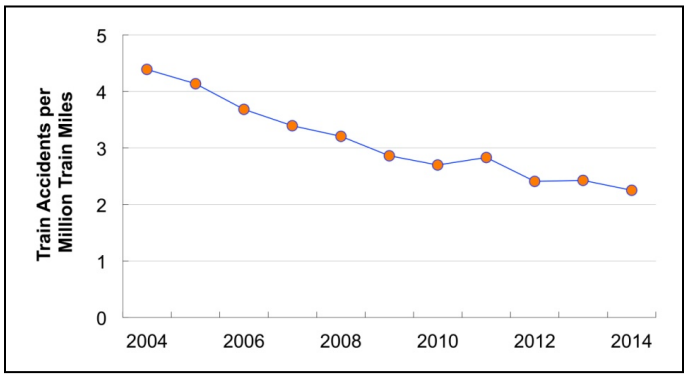
The reason data from 2005-2009 was used is because that dataset contained additional information that allowed for the estimated effect of FRA Track Class, Traffic Density and Method of Operation (Signaled or Unsignaled) on derailment rate. This additional granularity is needed for more precise segment-specific 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 analysis is also in full agreement with this comment regarding the probability of future oil spills that would be associated with increased crude oil rail shipments. The RDEIR

found that the risk of a crude oil train accident and spill was a significant and unavoidable (Class I) impact.

2. The EIR conducted a detailed health risk assessment for the SMR operations as well as for the trains traveling along the mainline rail routes. The EIR concludes that diesel emissions from locomotives could produce significant and unavoidable cancer risks to the community. Note that the emissions and modeling related to health risks did not change for the revised EIR, only the criteria for determining cancer impacts were revised based on revisions that were being finalized by OEHHA (although the most recent OEHHA model was used for the Final EIR. The HARP2 model was released by OEHHA after the RDEIR was released). Chronic and acute impacts did not change, but were updated in the FEIR based upon the new HARP2 model. See Appendix B.2.

3. Potential worst-case water quality impacts related to a rail accident and subsequent oil spill has been addressed in Impact WR.3 (See Section 3.13). Individual waterways that could be affected are shown on Figures 4.13-4 through 4.13-9 and in Tables 4.13-1 and 4.13-2. Water quality impacts were concluded to be significant and unavoidable (Class I).

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.

4. 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 additional GHG emissions associated with mining the tar sands, such as steaming or excavations, 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. or world-wide, as is acknowledged in the Keystone Pipeline EIR " The proposed [Keystone Pipeline] Project is not likely to impact the amount of crude oil produced from the oil sands" (Keystone Final EIS, page ES-15) indicating that the crude oil would be produced and refined even without the new pipeline system or the elimination of California refineries to process the crude oil.

Refineries are equipped to handle a specific type of crude oil, generally a refinery equipped to handle a heavy crude oil could not switch to a lighter crude oil and efficiently and economically conduct refining. Switching amongst heavy crudes would not substantially change the GHG emissions from a refinery. NETL (2009) conducted studies on a range of crude oils for a wheel-to-tank and wheel-to-wheel GHG lifecycle analysis associated with the Keystone Pipeline FEIS. The majority of differences between tar sands and other heavy crude oils was the Raw Material Acquisition (mining and extraction) stage of the lifecycle process, where the raw material acquisition GHG intensity ranged from 14 to 128 kg CO2e per bbl crude oil acquired, with Canadian Tar Sand at the upper end with 111. Conventional Canadian crude produced 36 kg and the US average produced 24 kg. This is in contrast to the refining stage of the lifecycle process which, between heavier crude oils, was similar.