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Subject: Phillips 66 Rail Terminal Project

I am a new resident of San Luis Obispo County. We moved to Nipomo because of the Trilogy community here and because of the climate and beautiful landscape that San Luis Obispo County offers. I understand that the Board of Supervisors will be considering a proposal by Phillips 66 Rail Terminal Project designed to increase the transport of crude oil by rail. It seems to me that this represents a new business model for Phillips 66 and is one that would have a significant and potentially dangerous impact to the residents of San Luis Obispo County. I am not confident that the crude could be transported safely given the nature of the terrain and the age of some of the structures. Additionally, if an accident were to occur, even a minor one, it would be difficult to ensure everyone's safety. Rail accidents are not uncommon. In Casselton, North Dakota, 18 tank cars exploded and toxic fumes were released. Approximately 400,000 gallons of crude oil spilled. That's not an insignificant amount. All 2300 residents and those within a 5 mile radius had to be evacuated to an evacuation center where they had to wait until it was considered "safe" to return home. While this may have been a manageable process for a small, rural community like Casselton, it pales in comparison to what would have to happen here in San Luis Obispo County to protect our citizens. Both the Cal Poly campus and downtown San Luis Obispo could conceivably be within a 5 mile evacuation zone. The combination of Cal Poly students and residents of the city of San Luis Obispo alone is approximately 63,000, far beyond the 2300 of Casselton, North Dakota. In many cases, local Offices of Emergency Services are underfunded and would not have the capability to respond adequately to such an accident should one occur here in the County. FRJ-01

Prior to 2009, The Association of American Railroads noted that 99% of all it's rail cars carrying a variety of hazardous materials, including oil, arrived safely without any hazards or toxic spills. However, since 2009, there has been an increase in the way in which oil is transported. Through November 2013, crude oil releases were reported from 137 different rail cars. This tells me that the possibility of a railway accident here in San Luis Obispo County is not an unreasonable assumption. FRJ-02

I am hopeful that you will consider the concerns of numerous citizens and not approve the Phillips 66 Rail Terminal Project. I think it would have an adverse effect on both the citizens of Nipomo as well as San Luis Obispo County.

Thank you.

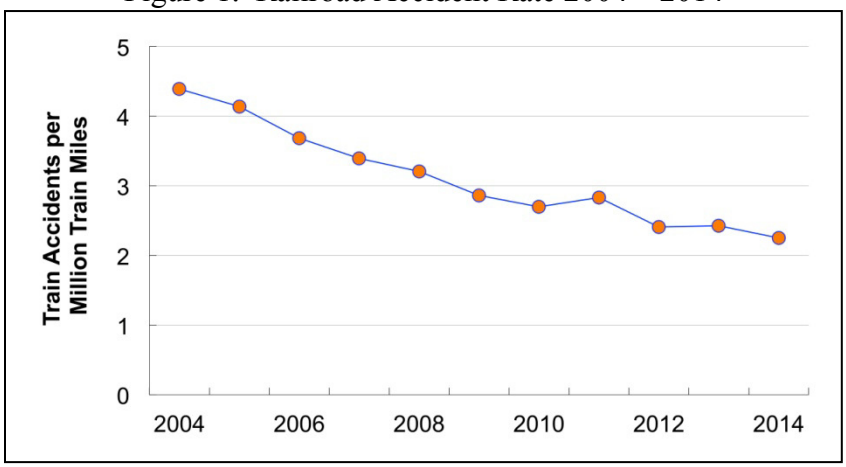
Judy Freeman
Nipomo, CA

FRJ-01	A 5-mile zone is an overestimate of potential hazards for a crude oil train carrying heavy tar sands crude oil. 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.
FRJ-02	The RDEIR only cited specific train incidents that involved crude oil tank cars. 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. As noted in the RDEIR, the potential risk associated with project-related crude oil rail transport is considered Significant and Unmitigable (Class I).