National Nurses United

The National Voice for Direct-Care RNs

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Murry Wilson
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Dear Mr. Wilson,

The California Nurses Association (CNA) represents thousands of bedside and public health Registered Nurses (RNs) who live and work across the state of California and the U.S. CNA members work at the bedside in impacted communities, treating patients who daily suffer the devastating health consequences of polluted air, water, and environments. As advocates for patient health, RNs have serious concerns about the health and safety implications of the proposed oil by rail project at the Phillips 66 Santa Maria Refinery. This project presents significant and unacceptable risks to the health and safety of our communities throughout California and beyond. CNA-01

Immediate Health Impacts

The toxic air emissions that would result from this project pose an unacceptable risk to public health. The proposed Phillips 66 oil train offloading facility in Santa Maria would bring an oil train a day through California carrying highly toxic and explosive crude. The toxic air emissions that will result would greatly impact our communities. Volatile toxic chemicals leak out of tank cars into the air directly impacting 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 of cancer, heart disease, respiratory disease, and premature death. CNA-02

Our most vulnerable populations are particularly at risk. Children and infants are at greater risk due to their still-developing lungs and respiratory systems. The elderly and people with preexisting respiratory and cardiovascular diseases, diabetes, and cancer all face greater risks than the general public. Low-income and working families, because they are more likely to live near the tracks, also suffer more. When coupled with the fact that these families also are less likely to have adequate healthcare coverage, this creates a real crisis of health in our communities.

In addition to the toxic emissions that would be a direct result of the increased crude-by-rail traffic, the planning department must examine the Santa Maria and Rodeo proposals as a single project. It is clear that Phillips 66 intends to bring toxic Canadian tar sands to California. The proposed oil train terminal in Santa Maria is linked by pipeline to the Phillips 66 refinery in Rodeo, CA. Phillips 66 is proposing to modify these facilities to allow it to refine the most toxic crude oil on Earth: Canadian tar sands. Transporting and refining tar sands will create more toxic air and water pollution for families along the rail line and near the Santa Maria refinery. CNA-03 CNA-04

In the case of tar sands transport, a diluting agent is typically mixed with the semisolid bitumen from the tar sands to allow the bitumen to be moved into and out of railcars and through pipelines.[1] Most diluting agents include natural gas liquid condensate containing volatile hydrocarbons such as benzene, toluene, ethyl benzene, and xylene.[2] The transport of diluted bitumen can involve a multistage transferring process where there is an increased likelihood of toxic vapor release, putting workers at particular risk.[3]

When it comes to tar sands refining, not only does the bitumen portion of the diluted mixture contain 102 times more copper, 11 times more nickel, and 5 times more lead than conventional crude oils, but the added diluting agent contains high concentrations of hazardous pollutants such as benzene.[4] [5] All of these chemicals may be released as air pollutants during the refining process and the presence of highly volatile diluting agents makes it likely that more carcinogenic pollutants will be released into the air.[6] These pollutants have been tied to increased cancer risks, increased respiratory issues including asthma, cardiovascular illness, developmental delays, and other negative health effects.[7] Diluted bitumen from the tar sands also has notably high levels of certain sulfur compounds called mercaptans, which have been linked to central nervous system problems and can irritate the eyes, skin, and upper respiratory system.[8] CNA-04

RNs have the highest proportion of direct interaction with patients of any health-care providers. Because RNs see first-hand on a daily basis the devastating effects of environmental pollution on health, RNs understand the serious health implications that this project will have for patients and communities throughout California.

Safety

The draft EIR's analysis of potential accidents and spills is flawed because it only evaluates rail accident rates from 2003 to 2012 and spill release rates between 2005 and 2009, and omits important data about crude rail accident frequency and magnitude in 2013 and 2014. This is troubling because more crude spilled from trains in 2013 than spilled during the past four decades. The EIR must look at recent data, including accident data from Canada which has also experienced increased crude by rail incidents. This data reflects the increased quantities of dangerous crude being transported in old and unsafe tank cars and will provide a more accurate assessment of accident risk and magnitude along the rail lines that would serve this project. CNA-05

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[1] Diane Bailey, "Tar Sands Crude Oil: Health Effects of a Dirty and Destructive Fuel" (February 2014), http://www.nrdc.org/energy/tar-sands-health-effects.asp.
[2] See Attachment 1 for health impacts.
[3] Bailey, 2014.
[4] Bailey, 2014.
[5] See Attachment 1 for health impacts.
[6] Phyllis Fox, "Comments on Initial Study/Mitigated Negative Declaration (IS/MND) for the Valero Crude by Rail Project" 25 (July 1, 2013), www.ci.benicia.ca.us/vertical/sites%7B3436CBED-6A58-4FEF-BFDF-5F9331215932%7D/up-loads/Report_by_Dr._Phyllis_Fox.pdf.
[7] Diane Bailey, "Gasping for Air: Toxic Pollutants Continue to Make Millions Sick and Shorten Lives" 1, 3 NRDC Health Facts (July 2011), www.nrdc.org/health/files/airpollutionhealthimpacts pdf.
[8] Bailey, 2014.

Furthermore, the diluted bitumen transported from Canada that arrives in U.S. refineries is more corrosive than conventional crude oils and may lead to increased risk of refinery accidents.[9] In fact, low-quality crudes, like tar sands, were found by the U.S. Chemical Safety Board to be a contributing factor in a major accident at the Chevron refinery in Richmond, California, in August 2012, which sent approximately 15,000 residents to area hospitals and endangered the lives of 19 workers.10 Registered Nurses with California Nurses Association treated affected residents of that refinery accident at nearby, overwhelmed hospitals and saw first-hand the devastating health consequences low-quality crude operations.

Moreover, the EIR's worst case scenario spill analysis estimates a spill of approximately 180,000 gallons, that's approximately six tank cars of crude. Most crude trains are comprised of 100 or more tank cars. As such, a worst case scenario spill would be on the order of millions of gallons of crude. Such a spill could devastate scarce water resources, property and local economies, and would pose a significant threat to public health and safety. This project cannot be approved without analyzing and mitigating its full and true impacts. CNA-05

The EIR must fully analyze the potential worst-case scenario of a spill near each of the many watersheds crossed en route to the Santa Maria refinery. The proposed rail route brings oil trains through the San Francisco Bay-Delta watershed and along California's treasured central coast. Each oil train carries more than three million gallons of explosive, toxic crude oil. A derailment near a river, stream, reservoir, or above a groundwater aquifer could contaminate drinking water for millions of Californians. During a time of extreme drought, SLO must not approve this project and create contamination risk for the rest of our state.

Climate Change

Climate change affects all of the social and environmental determinants of health, including clean air, safe drinking water, sufficient food, and secure shelter. Reducing emissions of greenhouse gases through can result in improved health, not only through immediate reduced air pollution, but also in addressing the long-lasting and potentially irreversible effects of climate change.

Phillips 66 must disclose crude quality information in order for decision makers to 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. At a time where it is critical for the health of our communities both locally and globally to reduce carbon emissions, this project threatens to bring tar sands to California and undermine the state's efforts to be a global leader addressing climate disruption. CNA-06

For registered nurses the climate crisis is a clear and present public-health emergency as well as a creeping bomb for our planet – and nurses understand the link between extreme forms of energy extraction, refining, transportation and consumption and the horrific impacts on human health.

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[9] Bailey, 2014.
[10] Bailey, 2014.

Conclusion

RNs provide expert care at the bedside and in the communities of the vulnerable and ill on a daily basis. Whether caring for a child struggling with asthma or a worker battling occupational cancer, RNs treat patients with compassion and are acutely aware of the environmental contributors to health. As advocates, nurses are called to take action to prevent harm and relieve suffering. RNs have serious concerns about the health impacts of the proposed Phillips 66 project.

For all the aforementioned reasons, nurses 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 patients, our communities, and our climate. CNA-07

Sincerely,

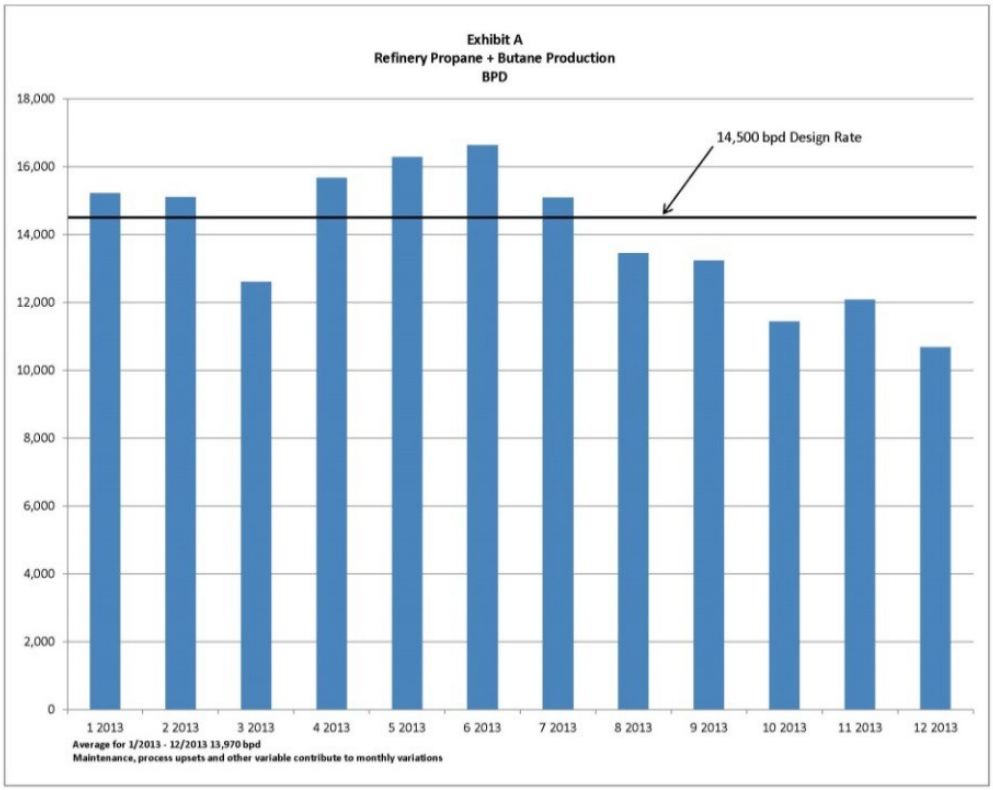
Deborah Burger

Toxin	Carcinogen	Health Effects	Sources for Health Effects	Source Viewed Date
Benzene	1	Acute (short-term) inhalation exposure of humans to benzene may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic (long-term) inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and aplastic anemia, in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidence of leukemia (cancer of the tissues that form white blood cells) have been observed in humans occupationally exposed to benzene. EPA has classified benzene as known human carcinogen for all routes of exposure.	http://www.epa.gov/ttn/atw/hlthef/benzene.html	Viewed on 4/7/14
Copper		High levels of copper can be harmful. Breathing high levels of copper can cause irritation of your nose and throat. Ingesting high levels of copper can cause nausea, vomiting, and diarrhea. Very-high doses of copper can cause damage to your liver and kidneys, and can even cause death.	http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=205&tid=37	Viewed on 4/7/14
Ethylene	1	Inhalation of air containing high levels of ethylene may lead to effects including headache, drowsiness, dizziness, nausea, weakness and unconsciousness. Studies have shown that ethylene is metabolised to ethylene oxide, which has more adverse effects on human health. The International Agency for Research on Cancer has designated ethylene oxide as a carcinogen.	http://apps.sepa.org.uk/spripa/Pages/SubstanceInformation.aspx?pid=54	Viewed on 11/17/14
Ethylbenzene		Acute (short-term) exposure to ethylbenzene in humans results in respiratory effects, such as throat irritation and chest constriction, irritation of the eyes, and neurological effects such as dizziness. Chronic (long-term) exposure to ethylbenzene by inhalation in humans has shown conflicting results regarding its effects on the blood. Animal studies have reported effects on the blood, liver, and kidneys from chronic inhalation exposure to ethylbenzene. Limited information is available on the carcinogenic effects of ethylbenzene in humans. In a study by the National Toxicology Program (NTP), exposure to ethylbenzene by inhalation resulted in an increased incidence of kidney and testicular tumors in rats, and lung and liver tumors in mice. EPA has classified ethylbenzene as a Group D, not classifiable as to human carcinogenicity.	http://www.epa.gov/ttn/atw/hlthef/ethylben.html	Viewed on 4/7/14
Lead Compounds	1	Long-term exposure of adults can result in decreased performance in some tests that measure functions of the nervous system. It may also cause weakness in fingers, wrists, or ankles. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people and can cause anemia. Exposure to high lead levels can severely damage the brain and kidneys in adults or children and ultimately cause death. In pregnant women, high levels of exposure to lead may cause miscarriage. Highlevel exposure in men can damage the organs responsible for sperm production. EPA has determined that lead is a probable human carcinogen.	http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=93&tid=22	Viewed on 4/7/14
Nickel	1	Nickel dermatitis, consisting of itching of the fingers, hands, and forearms, is the most common effect in humans from chronic (long-term) skin contact with nickel. Respiratory effects have also been reported in humans from inhalation exposure to nickel. Human and animal studies have reported an increased risk of lung and nasal cancers from exposure to nickel refinery dusts and nickel subsulfide. Animal studies of soluble nickel compounds (i.e., nickel carbonyl) have reported lung tumors. EPA has classified nickel refinery dust and nickel subsulfide as Group A, human carcinogens, and nickel carbonyl as a Group B2, probable human carcinogen.	http://www.epa.gov/ttn/atw/hlthef/nickel.html	Viewed on 4/7/14

Toluene		The central nervous system (CNS) is the primary target organ for toluene toxicity in both humans and animals for acute (short-term) and chronic (long-term) exposures. CNS dysfunction and narcosis have been frequently observed in humans acutely exposed to elevated airborne levels of toluene; symptoms include fatigue, sleepiness, headaches, and nausea. CNS depression has been reported to occur in chronic abusers exposed to high levels of toluene. Chronic inhalation exposure of humans to toluene also causes irritation of the upper respiratory tract and eyes, sore throat, dizziness, and headache. Human studies have reported developmental effects, such as CNS dysfunction, attention deficits, and minor craniofacial and limb anomalies, in the children of pregnant women exposed to high levels of toluene or mixed solvents by inhalation. EPA has concluded that that there is inadequate information to assess the carcinogenic potential of toluene.	http://www.epa.gov/ttn/atw/hlthef/toluene.html	Viewed on 4/7/14
Xylene		Acute (short-term) inhalation exposure to mixed xylenes in humans results in irritation of the eyes, nose, and throat, gastrointestinal effects, eye irritation, and neurological effects. Chronic (long-term) inhalation exposure of humans to mixed xylenes results primarily in central nervous system (CNS) effects, such as headache, dizziness, fatigue, tremors, and incoordination; respiratory, cardiovascular, and kidney effects have also been reported. EPA has classified mixed xylenes as a Group D, not classifiable as to human carcinogenicity.	http://www.epa.gov/ttn/atw/hlthef/xylenes.html	Viewed on 4/7/14

CNA-01	The EIR presents the health implications of the Proposed Project in Section 4.3 (Air Quality and Greenhouse Gases), as part of the CEQA requirement for full disclosure. Impacts are determined to be significant and unavoidable for some health related areas, specifically criteria pollutant emissions and toxic emissions.
CNA-02	The EIR presents the health implications of the Proposed Project in Section 4.3 (Air Quality and Greenhouse Gases). Emissions from leaking components is not a major source of pollution at the SMR or along the mainline routes, as discussed in Response to CBE-122.
CNA-03	Operations at the Rodeo Refinery are not anticipated to change with the processing of Rail Spur Project crude oil. The refinery currently handles heavy crude oil and the characteristics of the Rail Spur Project crude oil are similar to current heavy crude oils. Section 4.3, Table 4.3.13 summaries the different characteristics of the crude oils. BTEX levels may increase (although some tar sands crude oils have lower percentages of BTEX than the heavy crudes currently being processed. The SMR refinery ships naphtha and gas oils via pipeline to the Rodeo Refinery. Both of these are semi-refined products. The composition of these two products is not expected to change with the Rail Spur Project. As discussed in the Project Description (Chapter 2.0) the SMR currently processes a range of crude oils from different sources, and the crudes vary from time to time. In addition, the refinery often blends crudes from multiple sources prior to processing. A comparison of crude oils and their characteristics demonstrates that the crudes likely to be received by unit train would be comparable to those currently or recently processed at the SMR. The SMR is not requesting any changes or modifications to its crude unit or other processing units that would allow it to process any crude types that it can't be process currently. The only proposed change to the Rodeo Refinery is the Propane Recovery Project. The Rodeo Refinery (SFR) produces gases as a byproduct of the refining process, and these gases are used as fuel in various refinery processes (referred to as "refinery fuel gas" or "RFG"). Currently, the propane and part of the butane generated at the SFR is used as RFG. Instead of using the propane and butane as fuel at the SFR, the Propane Recovery Project will allow Phillips 66 to recover, store, and ship propane and additional butane via rail to outside customers. Therefore, the primary project objective is to recover liquid petroleum gases ("LPGs" *i.e.*, propane and butane) that already exist in the RFG. The Propane Recovery Project will not cause or require an increase in the amount of recoverable LPG present in the RFG; it will simply allow recovery of the LPGs that already are present in the RFG. The Propane Recovery Project is designed to remove up to 14,500 barrels of LPGs per day. Data regarding actual LPG content of the RFG is consistent

	with the design basis for the project. The figure below shows that, for the twelve month period from January through December 2013, the average LPGs in the Rodeo RFG was 13,970 barrels per day. The equipment design is a limiting factor on the amount of propane and butane that can be captured and stored, regardless of how much propane and butane can be produced by the SFR in the future or what type of crude oil is processed. Phillips 66 specified this design basis in the application to the Bay Area Air Quality Management District for an authority to construct the Propane Recovery Project, and it has been translated into an enforceable condition included in the draft permit prepared by the air district. Therefore, the amount of propane and butane to be extracted once the Propane Recovery Project is operational will be constrained by the physical design of the equipment and the permit limits. Most of the LPG produced at the SFR does not arrive as propane and butane in crude oil or in the semi-refined products received from the Santa Maria Refinery (SMR). Rather, the vast majority of LPG produced at the SFR is created through the refining process itself. As explained above, the design capacity of the Rodeo Propane Recovery Project was sized to recover LPGs that are currently being produced and burned as part of the refinery fuel gas at the SFR. No changes in the crude delivery system, type of crude or operations at the SMR are needed in order to fully utilize the propane recovery unit in Rodeo.



The commenter's have overlooked the fact that the refining process at the SFR itself accounts for 90% of the propane and butane currently produced and proposed to be recovered by the Rodeo Propane Recovery Project. As described at pages 3-8 to 3-9 of the Recirculated Draft Environmental Impact Report for the Propane Recovery Project, the refining process incorporates four primary functions: separation, conversion, purification and blending. Crude oil and other incoming feed streams contain mixtures of various hydrocarbon compounds that can be separated using distillation and fractionation in the first step of the refining process. At the SFR, a small amount of butane and propane is separated from the crude oil in these first stage processes. However, butane and propane are also created from other hydrocarbon compounds during the conversion phase of the refining process. Overall approximately ten percent of the LPG (combined butane and propane) arrives as identifiable fractions of the crude oil, and the balance of approximately ninety percent is created in the refining processes (cracking units).

Since LPG in the crude oil accounts for only a very small fraction (approximately ten percent) of the total LPG produced at the SFR, a change in crude oil LPG content in Santa Maria or in Rodeo would have very little effect on the volume of LPG available for recovery at Rodeo.

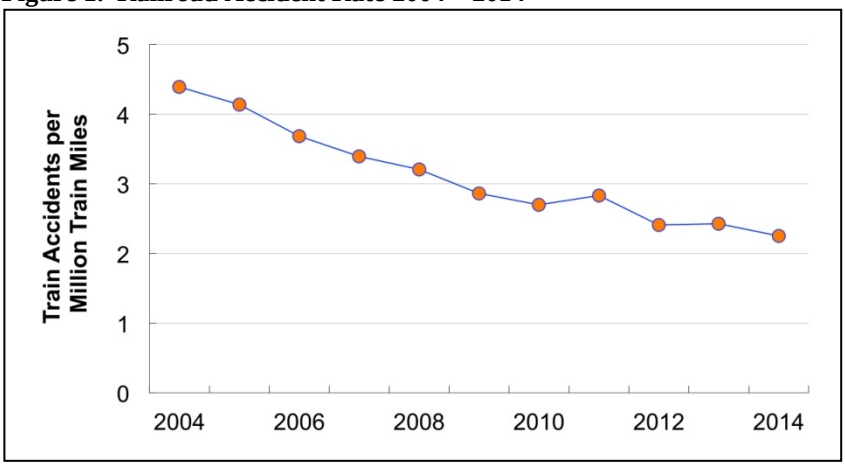
As discussed in the Recirculated Draft Environmental Impact Report for

	the Propane Recovery Project Section 3.4.2.1, and shown in Figure 3-7, the proposed Project's design basis was derived from data taken at the Refinery in August, 2011. In the same section, the RDEIR for the Propane Recovery Project also provides an update to substantiate this 2011 design basis with the most recent full year (2013) of RFG data from the Refinery in Figure 3-8. This figure shows that for 2013 an average of 13,970 barrels per day (BPD) of propane and butane were available and that monthly this quantity of propane and butane varies. Note that between the 2011 design basis and the 2013 data, no change to crude feedstock, such as those of concern to commenter's, had been made. These data provide the substantial evidence to support the "independent utility" of this Project and further support that the EIR has not inappropriately piecemealed or segmented this Project.
CNA-04	BTEX levels of Canadian tar sands crude oil are similar to other heavy crude oil processed by the SMR and the EIR demonstrates that any increases in BTEX would generate a nominal increase in health risk. The potential increase in BTEX has been addressed in the EIR. See Impacts AQ.2 and AQ.4 in Section 4.3, Air Quality and Greenhouse Gas Emissions. However, during the Enbridge Spill, 1,086 air samples of benzene levels, for example, were measured and 21 of the samples showed air concentrations above the EPA action levels (http://www.epa.gov/enbridgespill/data/dataair.html) of 6 ppb, indicating that some volatiles were present in the spilled materials although not very much. Sampling conducted by the Michigan Department Of Natural Resources And Environment Environmental Laboratory on the crude oil in the Enbridge pipeline (which was dilbit from Canada, same as would be expected for the proposed project) indicated that benzene could be as high as 1,100 ppm in the crude, Xylene as high as 1,200 ppm and Toluene as high as 1,900 ppm (measured as mg/kg) (http://www.epa.gov/enbridgespill/data/index.html#aqdata). The results indicated a BTEX concentration of about 0.50%, or, as per Table 4.3.13 in the EIR, within or below the range of crude oils currently processed by the SMR. The Keystone Pipeline FEIS (2013) also examined a wide range of crude oils and demonstrated that the " BTEX content of the dilbits [from Canada] is much lower than that of many lighter crude oils" The EIR analyzed a BTEX concentration of 1.25% to be conservative which indicated nominal increases in health risk. BTEX levels of the proposed project crude do not present a "far greater" amount of BTEX from fugitive components. In addition, fugitive emissions from components are estimated based on industry-wide average emission rates developed by the EPA and include a wide range of crude oil types, volatilities, BTEX fractions and compositions. The EIR demonstrated that changes to health risk due to a potential increase in BTEX to 1.25% are nominal and do not require further analysis. See Appendix B.2. 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.
CNA-05	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.
CNA-06	Tar sands oil has a higher GHG intensity associated with the mining and extraction of the crude oil, but these emissions would occur regardless of the status of this project. 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.
CNA-07	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 health, community and climate are included in the FEIR for the decision-makers' consideration as part of the County's deliberations on the proposed project.