COMMENT SET 9: COMMUNITIES FOR A BETTER ENVIRONMENT

COMMUNITIES FOR A BETTER ENVIRONMENT

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VIA EMAIL

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RE: Comments on the Tesoro Avon Marine Oil Terminal Lease Consideration Project

Dear Ms. Mongano:

Communities for a Better Environment ("CBE") and the Center for Biological Diversity ("Center") offer the following comment on the Draft Environmental Impact Report ("DEIR") for the Tesoro Avon Marine Oil Terminal Lease Consideration Project ("Project"). This Project is not a "business as usual" lease renewal. In fact, the Project's true objective is to enable Tesoro to receive increased shipments of lower quality, more volatile and polluting oil feedstock. This would cause far more significant impacts than disclosed in the DEIR. The DEIR obscures this reality, thereby failing as an informational document under the California Environmental Quality Act ("CEQA").

9-1

Generally, an EIR is "the heart of CEQA."[1] "The purpose of an environmental impact report is to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment; to list ways in which the significant effects of such a project might be minimized; and to indicate alternatives to such a project."[2]

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[1] *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal. 3d 376, 392 ("*Laurel Heights I*").
[2] Pub. Res. Code § 21061

I. The DEIR Is Incomplete, Inaccurate, and Inadequate

9-2 The DEIR suffers from several inadequacies predicated on numerous fundamental defects:

1. Failure to Analyze or Disclose a Switch in Crude Quality: the DEIR fails to disclose the specific quality of oil feedstock that the Project would enable Tesoro to process at its nearby Golden Eagle Refinery ("Refinery").

9-3 2. Baseline Manipulation: the DEIR further underestimates significant environmental impacts by misrepresenting baseline determinations, illegally choosing a particular baseline in order to minimize that impact for the purposes of environmental review.

9-4 3. Improper Segmentation: The California State Lands Commission ("CLSC") attempts to treat the marine terminal's environmental impacts separately from the Refinery. In reality, the cumulative impact of the terminal, indeed its sole purpose, is to allow the Refinery to continue to operate for another 30 years. To claim otherwise, and that there are no significant impacts to greenhouse gas emissions, air quality, or other harms, is unavailing.

9-5 4. Inadequate Analysis of Project Alternatives: the no project alternative is illogically deemed *more harmful* for the environment than operating the Refinery and marine terminal for 30 years; that inaccuracy is simply based on specious and speculative conclusions. In addition, the DEIR provides no support for the assertion that a completely new berth is necessary to comply with MOTEMS.

9-6 5. Potential for Catastrophe: Many devastating impacts are "significant and unavoidable," including large-scale spills that could irreparably harm ecosystems. The DEIR does not account for increased risks from heavy vessel traffic or changing climate, sea level, or other developments over the next 30 years.

9-7 Given the DEIR's numerous inadequacies, the CLSC must revise the DEIR and recirculate a more accurate, comprehensive and forthright document for public comment. It is critical that an EIR meaningfully inform the public and its responsible officials of the environmental consequences of their decisions *before* they are made."[3] Only with a genuine, good faith disclosure of a proposed project's components, can a lead Agency analyze the full range of potential impacts of the project, identify, and implement mitigation measures where necessary, prior to project approval.[4]

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[3] *Laurel Heights Improvement Ass'n v. Regents of University of California* (1993) 6 Cal. 4th 1112, 1123; CEQA Guidelines § 15126.2(a) ("[a]n EIR *shall* identify and focus on the significant environmental effects of the proposed project") (emphasis added throughout).

[4] Pub. Res. Code § 21002 (public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects); Guidelines § 15126.4.

1. The DEIR Does Not Describe the Change in Oil Feedstock or Account for Its Environmental Impact

9-8 The DEIR fails to provide any information regarding a switch in oil feedstock that could occur at the Refinery as not only a direct result, but an objective of this Project. Section 3.4.3 of the DEIR mentions "Regional Characteristics of Crude/Product" in the heading, but fails to provide any information about the characteristics or origins of the crude being shipped. The DEIR does not disclose what types of crude will be transported and processed at Tesoro's facilities as a result of the Avon Terminal project, nor does it attempt to analyze what types of crude will be processed and shipped over the course of Tesoro's proposed 30-year lease. The DEIR cannot adequately describe the environmental risks that the Project presents without disclosing the type of crude involved in the project.

9-9 Certain types of crude are more volatile and dangerous than others and can increase the scope and severity of environmental harms. For example, higher volatility increases the probability of explosions and other accidents. Because the chemical composition of the crude is different, spill and accident response may have to be adjusted in order to adequately and safely respond to accidents involving more volatile crude. In addition, refining a lower quality oil feedstock, such as tar sands, also causes increased emissions of pollutants, including toxic air contaminants.[5]

In contrast to the lack of information in the DEIR, Tesoro has made its strategy with its West Coast refineries, including the Refinery in Martinez clear: to enable the company to process lower quality oil feedstocks, including highly volatile crude from the Bakken shale play in North Dakota. The strategy is to obtain "advantaged crude." These are crude oil feedstocks that are difficult to access; they are considered "stranded" in industry terms, and are more economically viable as a result of challenges in access, albeit with different transportation infrastructure and costs. Both tar sands and Bakken are examples of such "competitively priced," cost-advantaged crudes because they are stranded, with no pipeline access and must be delivered, at least initially prior to any refining, by rail. Tesoro has been explicit in setting forth its West Coast strategy to access and transport these crudes, for the Bay Area, by means of rail to Washington and then ship to the Martinez Refinery. At the recent Simmons Energy Conference, Tesoro's presentation included the following slide[6]:

[5] Comments of Julia May on The Proposed Negative Declaration by SCAQMD for the Tesoro Pipeline from its Long Beach Marine Terminal to New Wilmington Refinery Storage Tanks, June 2014 ("May Expert Report," attached as Attachment A.).

[6] Transformation through Distinctive Performance, Simmons Energy Conference, February 2014 (attached as Attachment B) Slide 15.

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The company then notes on a following slide that the cost of rail to the state of Washington, and then by ship to California, is "Competitive with direct rail cost to California" (at Slide 17). Slide 17 also finds that Tesoro's Washington rail to ship project provides "Flexibility to deliver to all West Coast refineries." As a result, it is clear that Tesoro's West Coast plans for bringing advantaged crude to the Bay Area will require the increased volume and throughput enabled by this Project, but obscured by its DEIR.

Industry literature also acknowledges Tesoro's plans to switch its crude quality feedstock at its California refineries:

> "Tesoro's refining capacity is concentrated in California…it has invested in rail facilities to move 50 mb/d of Bakken crude west to its Anacortes, Wash., refinery, which has resulted in improved yield and margins. Finally, we expect the imbalance between light and heavy crude in the Mid-Continent will create an opportunity and economic incentive to rail both types of crude to its three California refineries, increasing their throughput of cost-advantaged crude. In fact, Tesoro already has plans in place to do so."[7]

This Project will enable Tesoro to process "advantaged crudes," which includes both Bakken crude oil and tar sands, at its Refinery. Yet, the DEIR fails to disclose this fundamental Project characteristic and consequently fails to analyze any associated and evidently significant impacts. The failure to disclose the type and chemical composition of the new crude oils and their resultant potential impacts is a "threshold issue" and "fundamental defect" in environmental

[7] *See* May Expert Report at 7-8, citing Morningstar Inc.

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review that violates CEQA.[8] Consequently, it is simply impossible for the DEIR to provide any accurate estimation of impacts.

2. The DEIR's Improper and Underestimated Analyses are Based on the Use of Misrepresentative Baselines

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Baseline determination is critical to an EIR's effectiveness. "[B]aseline determination is the first rather than the last step in the environmental review process."[9] The baseline environmental conditions are those that the proposed project's impacts are measured against. An inaccurate baseline can drastically alter the outcome of environmental review—if baseline emissions are set too low, insignificant impacts become significant, and if baseline emissions are set too high, an EIR can overlook significant impacts on the environment. The latter issue pervades the DEIR.

The CEQA Guidelines provide that the baseline is normally "the physical environmental conditions in the vicinity . . . as they exist at the time the notice of preparation is published."[10] This is not a rigid rule, and an EIR may depart from this norm of baseline analysis when circumstances require.[11] However, the key inquiry in determining the adequacy of a baseline is whether the baseline "inform[s] decision makers and the public of the project's significant environmental impacts, as CEQA mandates."[12] Though the appropriateness of a baseline is necessarily a factual inquiry, the underlying question remains the same: does the EIR "employ a realistic baseline that will give the public and decision makers the most accurate picture practically possible of the project's likely impacts[?]"[13]

The DEIR fails to employ such a "realistic baseline." The DEIR estimates the anticipated Marine Terminal usage, or "vessel calls." It states: the number of lease period annual vessel calls would be less than the baseline, it is likely that emissions would be less during the lease period than the baseline.[14] This is a blatant misrepresentation predicated on an inaccurate baseline.

Section 2.4.10 states that "the average number of vessel calls of 124 serves as the basis for the impact analysis in Section 4.0, Environmental Impact Analysis." To estimate the number of current vessel calls per year, or the baseline for vessel calls, the DEIR uses data from the last ten years, beginning in 2004, ending in 2013, and then averages that total: 124.[15] However, contrary to this statement, Section 4.0 consistently uses 70 to a maximum of 120 vessels as the basis for the impact analysis. The DEIR provides no rationale for its estimate that "the

[8] *See Communities for a Better Environment et al. v. City of Richmond et al.*, 184 Cal. App. 4th 70 (2010).
[9] Save our Peninsula Committee v. Monterey County Board of Supervisors (2001) 87 Cal.App.4th 99, 125.
[10] CEQA Guidelines § 15125(a).
[11] *See, e.g., Communities for a Better Environment v. SCAQMD* (2010) 48 Cal.4th 310, 327–28.
[12] *Id.* at 328.
[13] *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439, 449 (citing *Communities for a Better Environment v. SCAQMD* (2010) 48 Cal.4th 310).
[14] DEIR at 4.4-10.
[15] *Id.* at 2-31.

anticipated maximum annual ship and barge traffic is approximately 70 to 120 vessels,"[16] and no explanation for its use of this range.

Furthermore, the DEIR states that the proposed Berth 1A would be operationally equivalent to Berth 1, and Berth 1 has recently accommodated up to 144 vessels per year.[17] This further indicates that 120 vessels is not a realistic maximum.

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In addition, there is the potential for significantly more vessel calls per week to Berth 1A than the recent average of 2 calls per week. Currently, only 40 to 60 hours of each 168 hour week are being utilized for docking (24% to 36% of docking capacity is utilized each week).[18] At current mooring times, there is the potential for 5 to 8 vessel calls each week.

Finally, the DEIR provides little more than speculative estimates regarding the number of vessel calls that will occur over the 30-year term of the lease. The DEIR states that "the level of shipment activity is not expected to change substantially during the proposed 30-year lease agreement period"[19] without providing any analysis to support this claim. There is no requirement for vessel calls to stay within any limits during the 30-year lease period. Thus, the 120-vessel maximum is supported by nothing more than ill-reasoned speculation and is far from meeting CEQA's substantial evidence standard.

The environmental harm cannot be adequately assessed without an honest estimate of the potential vessel calls. The DEIR mistakenly concludes that the number of vessel calls will remain the same over the course of 30 years compared to past numbers. In reality, however, the Project will likely lead to a significant increase in vessel calls, and in turn, significant environmental consequences that the DEIR fails to address.

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Similarly, the DEIR's analysis of throughput volumes places reliance in baselines that may have little bearing on future throughput volumes. The capacity of the Golden Eagle Refinery (which supplies the terminal with its delivery output) is 166,000 barrels per day of crude oil[20] which equates to a potential capacity of 60,590,000 barrels per year. According to the California Energy Commission, 166,000 barrels per day capacity represents total crude oil capacity, and does not include production of gasoline, distillate production, diesel fuel production, or production of other products, which could add significantly more output volume per year.[21] Moreover, there is no limit in the DEIR as to how much crude may be processed, nor are there limits for throughput over the 30 years of operation that could result under this lease.

In addition, the Tesoro Avon Terminal will have the capability of importing crude for the Refinery, which may lead to an overall increase in throughput. According to Table 5-2, imports have ranged from approximately 241,000 bpy to 1.1 million bpy during 2009-2013, which can equate to a substantial portion of the throughput (2.5 to 10% of the annual throughput). There is

[16] DEIR at 3.4.3.
[17] DEIR at Table 2-4 on 2-31.
[18] DEIR at 2-32.
[19] DEIR at 2-31.
[20] *See* http://tsocorpsite.files.wordpress.com/2014/08/gefact.pdf, also http://energyalmanac.ca.gov/petroleum/refineries.html
[21] *See* http://energyalmanac.ca.gov/petroleum/refineries.html

9-11 con't

no requirement that the terminal cap its importing capacity and thus total throughput volume. In short, the Refinery supplying the marine terminal has the capacity to produce many times more output than the current throughput.

Due to the skewed baseline, the DEIR fails to acknowledge several significant environmental impacts that will result from the Project. These impacts are discussed fully in Section II.

3. Improper Segmentation: The Refinery and Terminal Work in Concert, and the Environmental Impacts Should Be Treated as Such

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The CLSC attempts to treat the marine terminal's environmental impacts separately from the Refinery. In reality, the impact of the terminal, indeed its sole purpose, is to allow Tesoro's refinery to continue to operate for another 30 years. To claim that there are no significant impacts to greenhouse gas emissions, air quality, or other harms is unavailing.

Tesoro owns both the Avon and Amorco Marine Terminals, which allow crude oil to be transported to and from the Refinery. These facilities work in concert to produce air pollutants that will be emitted in highly significant volumes. Nevertheless, the DEIR treats the air emissions from the Avon Marine Terminal as separate and distinct from the emissions from the Refinery and separate marine terminal.

CEQA does not allow such "piecemealing," whereby a project is broken into enough smaller pieces that the environmental impact of any single project may not be significant, but in doing so ignores the whole of the an action that may result in either a direct or reasonably foreseeable indirect physical change in the environment. CEQA's prohibition against improper segmentation ensures that "environmental consideration not become submerged by chopping up a large project into many little ones … which cumulatively may have disastrous consequences."[22]

Here, there is an unquestionable link between approving the 30-year lease for Avon Marine Terminal and allowing the Golden Eagle Refinery to continue emitting large amounts of air pollution over the next 30 years. The DEIR does not account for the entirely foreseeable air emissions from the refinery when evaluating the environmental damage from the Avon Marine Terminal project. Furthermore, there have been recent reports that Tesoro is considering reviving a long-shuttered reformer at this Refinery "to help meet increasing global demand for petrochemicals."[23] The DEIR fails to acknowledge this and other similar projects or developments that could certainly operate in conjunction and cumulatively with this Project to enable the increased refining of a more polluting and dangerous feedstock.

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4. Inadequate Analysis of Project Alternative

[22] *Burbank-Glendale-Pasedena Airport Authority v. Hensler* (2d Dist. 1991) 233 Cal.App.3d 577, 592.
[23] Tesoro Said to Study Restart of Shuttered Reformer for Chemicals, *available at* http://www.businessweek.com/news/2014-11-05/tesoro-said-to-study-restart-of-shuttered-reformer-for-chemicals

9-14

The no project alternative would result in decommissioning and/or removing the Avon Terminal. Such actions would virtually eliminate environmental harm from the Terminal, excluding any harm resulting from the activity directly attributable to decommissioning or removal.

Incredibly, the DEIR asserts that the no project alternative would be *worse* for the environment because, in its absence, a separate terminal expansion or truck transport could have a worse environmental impact. This contradicts established CEQA guidelines, which require agencies to compare project impacts against the existing environment, rather than some hypothetical, impacted future environment that might occur without the project.[24]

The DEIR speculates about the environmental impact of expanding use of other terminals, or using truck transportation to compensate for the reduced use of the Avon Terminal. But these other projects are completely hypothetical and cannot be compared to the project currently before the CSLC. The DEIR ignores the fact that any project proposed to transport crude to and from the refinery will *also* be subject to CEQA and environmental laws. Thus, it is wholly premature and entirely baseless to assert that the no project alternative is worse for the environment.

Simple logic would lead to a different conclusion. The continued operation of a Marine Terminal, whose stated and sole purpose is to allow the continued operation of a refinery for another 30 years will have a *substantial adverse effect* on the environment. In contrast, decommissioning the Avon Marine Terminal would decrease throughput, vessel calls, and ultimately, the environmental harms resulting from Tesoro facilities.

5. Potential for Catastrophic Failure

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The DEIR understates the possibility of high-severity, high-volume accidents in and around the terminal. As stated above, the DEIR does not adequately disclose the Project's switch in crude quality. Also, as noted throughout the May Expert Report, refining a lower quality oil feedstock implicates a greater risk of public safety hazards, not only from spills, but also from catastrophic failure at the refinery due to increased corrosion of refinery components.[25] The United States Chemical Safety Board identified the refining of lower quality oil feedstock as a root cause of the August 2012 fire at the Chevron Richmond Refinery that sent 15,000 residents to local hospitals.[26] As this Project enables such a switch to a lower quality crude oil feedstock, it will therefore increase the risk of incidents of spill, fire or explosion at or around the Refinery. The DEIR fails to acknowledge these increased risks.

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The DEIR also fails to fully assess the increased danger of accidents due to vessel traffic in the Bay Area. Vessel safety is dependent not only on the number of vessels that use the Avon Marine Terminal, but also on the total amount of vessel traffic in nearby waters. As previously stated, while the Avon Terminal will likely see an increase in vessels, the DEIR neglects to

[24] *County of Amador v. El Dorado County Water Agency* (3d Dist. 1999) 76 Cal.App.4th 931, 952.
[25] May Expert Report at 10-17.
[26] *See* Interim Investigation Report, Chevron Richmond Refinery Fire, available at: http://www.csb.gov/assets/1/19/Chevron_Interim_Report_Final_2013-04-17.pdf

9-16 con't

account for increased vessel traffic using all the other terminals in the area. Increases in overall vessel traffic, foreseeably over the next 30 years, will make accidents more frequent. There is inadequate analysis of this increased level of vessel traffic, or its effect on the level of risks posed by the Avon Terminal's operations.

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The DEIR claims that these catastrophes are "significant but unavoidable." That is untrue. The spills and accidents can be reduced by electing the No Project Alternative, which would eliminate vessel calls at the Avon Marine Terminal and therefore avoid any potential catastrophic accidents caused by vessel or marine terminal operation.

II. The DIER Does Not Adequately Describe the Environmental Harms

Air Quality

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As stated above, the air quality impacts should be compared to the No Project Alternative. Instead the DEIR compares air emissions to hypothetical projects that have not been proposed. By doing so, the DEIR improperly ignore the 30 years' worth of air emissions from the Avon Terminal, including particulate matter, volatile organic compounds, and other dangerous pollutants. These will have a significant impact on communities and ecosystems near Tesoro's operations.

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Air emission estimates should also include pollution emitted from the Refinery. These are reasonably foreseeable emissions that are a direct result of the Avon Marine Terminal and thus must be accounted for. Without these figures, the air quality impacts in the DEIR are drastically understated, misleading and inaccurate.

Greenhouse Gas Emissions

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Similarly, the DEIR understates the GHG emissions that will result from this Project. Although the DEIR mentions the report by the Intergovernmental Panel on Climate Change, it does not disclose that authority's recently voiced and serious concerns regarding the "irreversible" effects of climate change.[27] The report concluded that "continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts," calling for the need for dramatic cuts in pollution.[28]

9-21

Nevertheless, the Project would result in a substantial amount of GHG emissions over the course of the 30-year lease. The DEIR's inflated baseline regarding vessel trips and failure to adequately address the whole Project or its cumulative impacts obscures this significant impact. While Tesoro asserts that both the Refinery and terminals are subject to a federal Title V permit, compliance with permitting does not equate to compliance with CEQA: the public must be able to make decisions based on full and complete information about the consequences of emitting such a substantial amount of GHGs.

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[27] *See eg.* "Effects of Climate Change "Irreversible"' available at http://www.washingtonpost.com/national/health-science/effects-of-climate-change-irreversible-un-panel-warns-in-report/2014/11/01/2d49aeec-6142-11e4-8b9e-2ccdac31a031_story.html?hpid=z1

[28] Report attached as Attachment A.

Water Quality

9-22

The DEIR's assessment of the risks to water resources is wholly inadequate. The area surrounding Avon Terminal includes very sensitive ecosystems as well as the waters connected to San Francisco Bay - an invaluable ecological, economic, and scenic resource. The Project proposal endangers these waters by downplaying the risk of water contamination due to accidents or negligent operations. Crude oil transportation is inherently dangerous, as evidenced by the increasing number of oil-related industrial accidents in the U.S. over the past few years. Neither Tesoro nor the Bay Area is immune to these dangers, and it is misleading to assert that accidents are somehow less likely to occur here.

Our waters deserve and are entitled to real protections. The No Project Alternative is the only alternative that will eliminate the harms from the Avon Terminal.

Biological Resources

The DEIR's assessment of impacts to biological resources fails to adequately disclose, analyze, and mitigate many of the Project's impacts on the San Francisco Bay Estuary ("SFBE") ecosystem and the numerous rare, threatened, and endangered species that occur inside and outside the Project area. The potential for harm is significant since the Project area provides habitat for dozens of special-status species, including 12 special-status plant species (four of which are ESA listed), seven special-status fish (six of which are ESA or CESA listed), 20 special-status terrestrial wildlife species (three of which are ESA listed), and two marine mammals.

Four key shortcomings of the Biological Resources analysis are that (1) the DEIR understates and fails to adequately mitigate the "significant and unavoidable" impacts from oil spills and the introduction of non-native invasive species from ballast water; (2) the DEIR incorrectly classifies some impacts as "less than significant"; (3) the cumulative impacts analysis fails to include current and proposed projects that will increase crude oil shipments in the San Francisco Bay; and (4) the DEIR fails to analyze and disclose the impacts of off-site project activities on biological resources in the SFBE and outer coast.

1. <u>The DEIR Understates and Fails to Adequately Mitigate the "Significant and Unavoidable" Impacts from Oil Spills and Introduction of Non-Native Species.</u>

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The DEIR underestimates the probability of oil spills from the Project by relying on the unfounded maximum of 120 vessel calls to the terminal in the oil spill analyses in Sections 4.1 and 4.2. As described above, the Project requires no limit on the number of vessel calls, and the terminal has the potential for significantly more than 120 vessel calls per year. If more realistic vessel call estimates were used, the probability of an oil spill resulting from the Project would be significantly higher.

9-24

Even based on the flawed estimates in the DEIR, the Project has a substantial probability of causing a major oil spill at the terminal that could have devastating effects on animal and plant species: a 10 percent chance of a 1,000-barrel spill over the life of the lease. Given these risks, the DEIR should require additional mitigation measures to reduce the probability and impacts of a spill on species.

9-25 The DEIR also fails to consider the types of oil that will be processed and shipped over the course of Tesoro's proposed 30-year lease and fails to account for how the types of oil handled affect the likelihood and potential consequences of spills and accidents. As stated in the DEIR, the impacts of spills on species can differ depending on the oil type, and the DEIR should have disclosed, analyzed, and proposed mitigation that addresses the species' impacts of the oil types likely to be processed and shipped at the terminal:

> Impacts from spills would depend on the material and quantity spilled. Light oils, such as fuel oil, are acutely toxic and cause the greatest impacts to species that live in the upper water column, such as juvenile fish. Medium oils, such as most crude oils, do not mix well with water and can cause severe, long-term contamination to intertidal areas and cause oiling of waterfowl and marine mammals. Heavy oils, such as heavy crude and some fuel oils, weather slowly and may cause severe long-term contamination of intertidal areas and sediments. These oils have severe impacts on waterfowl and marine mammals, and their cleanup is usually difficult and long term.[29]

9-26 The DEIR also fails to adequately mitigate the potentially "devastating" and "significant and unavoidable" impacts from the introduction of invasive non-indigenous aquatic species to the SFBE resulting from the release of ballast water from vessels using the Project terminal (Impact BIO-9). Given the devastating potential for non-native species introduction, the DEIR should require additional mitigation measures to reduce the risk and impacts of introductions. For example, the DEIR states that the best practice for ballast water management is retention of all ballast on board, whereas managed ballast water discharge, particularly using the flow-through method, is not as effective in preventing species introductions. The DEIR also notes that

9-27 there is ongoing noncompliance with ballast water management regulations, whereby vessels routinely and illegally dump ballast water into the SFBE. Tesoro should require that vessels using the terminal follow the best-management practice of retaining all ballast on board, and that vessels found in non-compliance with ballast water regulations should no longer be permitted to use the terminal.

2. <u>The DEIR Incorrectly Classifies Some Impacts as "Less than Significant."</u>

9-28 The DEIR improperly classifies the impacts from increased turbidity due to vessel maneuvering and dredging as "less than significant." The DEIR states that an impact is considered to be significant and requires mitigation if it would "re-suspend bottom material, causing turbidity during vessel maneuvering such that suspended sediment concentrations are substantially increased above background levels."[30] Based on this criterion, the re-suspension of sediments by calling vessels (BIO-3) and maintenance dredging (BIO-5) should have been classified as significant and require mitigation. As stated by the DEIR, the maneuvering of deep-draft vessels causes suspended sediment concentrations that are substantially above background levels, including prominent plumes that can persist "at least 50 minutes in open water and tidal-washed channels, and indefinitely in secondary channels that lacked current flow to disperse the

[29] DEIR at 4.2-41.
[30] DEIR at 4.2-33

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plumes."[31] The DEIR also states that maintenance dredging causes "turbidity and SSC can be much greater than ambient conditions in the immediate vicinity of dredging activities" and can have negative impacts on sensitive resources: "Increased turbidity increases light attenuation which can reduce phytoplankton productivity, reduce the feeding of some fish species, and change feeding and migration patterns; increased SSCs can bury the benthic community, reduce the water-filtration rates of filter feeders adjacent to the dredge area, or increase fish gill injury."[32] The DEIR should have proposed mitigation to lessen these impacts on special-status fish and other affected species.

3. The Cumulative Impacts Analysis Fails to Include Current and Proposed Projects that will Increase Crude Oil Shipments in the SFBE.

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In its analysis for CUM-BIO-1, CUM-BIO-2, and CUM-BIO-3, the DEIR did not consider the cumulative impacts of a range projects that have been recently proposed, begun, or completed that will increase crude oil shipments in the SFBE. For example:

- the Chevron Refinery Modernization Project approved earlier this year will substantially increase vessel traffic coming and going from Long Wharf terminal.
- The construction of a marine terminal as part of the WesPac Pittsburg Energy Infrastructure Project will allow WesPac to receive crude oil tankers in the San Francisco Bay.
- Shell's Crude Tank Replacement Project is also projected to increase crude oil tanker trips within the San Francisco Bay.

The DEIR should have conducted an analysis of the impacts of increased shipping, factoring in the cumulative impacts from these and other projects that will increase shipping and the associated risks to species in the SFBE.

4. The DEIR Fails to Analyze and Disclose the Impacts of Off-Site Project Activities on Biological Resources in the SFBE and Outer Coast.

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The relevant area for the purposes of a CEQA analysis is the entire area that the Project may affect, either directly or indirectly.[33] CEQA requires that the DEIR consider the potential impacts of Project activities, regardless of the location of those potential impacts. In this case, the Project will result in the vessel transport of oil and other fuels to and from the terminal to locations around the world. Here, the relevant area that the DEIR must consider stretches far beyond the boundaries of the Project site to the SFBE and outer coast.

9-31

However, the DEIR fails to evaluate the impacts on biological resources in the SFBE and outer coast resulting from vessel traffic, including oil spills, the introduction of non-native species from ballast water, noise pollution, and ship strikes. These off-site, and foreseeable, impacts should have been analyzed and mitigated in the DEIR.

[31] DEIR at 4.2-35
[32] DEIR at 4.2-37
[33] *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal. App. 4th 1184, 1216.

9-32 The DEIR acknowledges that impacts from oil spills in the SFBE and outer coast during continued operations are "significant and unavoidable" (Impact OS-4). Oil spills have a wide array of lethal and sublethal impacts on marine species, including immediate and long-term effects. Petroleum oil is a complex mixture of hundreds of different compounds, mostly hydrocarbons, with different levels of toxicity to wildlife. Polycyclic aromatic hydrocarbons (PAHs) are among the most toxic oil components and have been documented to cause significant impacts on wildlife. Direct impacts to wildlife from exposure to oil include behavioral alteration, suppressed growth, induced or inhibited enzyme systems and other molecular effects, physiological responses, reduced immunity to disease and parasites, histopathological lesions and other cellular effects, tainted flesh, and chronic mortality.[34] Oil can also exert indirect effects on wildlife through reduction of key prey species.[35] As detailed below, the persistence of toxic subsurface oil leading to chronic exposure, even at sublethal levels, can harm wildlife species and ecosystems for decades.[36] The dispersants that will likely be used in response to a spill are also harmful to marine life, including plankton, turtles, fish, corals, and birds.

9-33 Dispersants release toxic break-down products from oil that, alone or in combination with oil droplets and dispersant chemicals, can make dispersed oil more harmful to marine life than untreated oil. Both the short-term and long-term impacts of dispersants on marine life have not been adequately tested. As acknowledged by the EPA, the "long term effects [of dispersants] on aquatic life are unknown."[37]

9-34 The Project's vessel traffic will have other far reaching consequences for marine mammals that the DEIR must also consider. Marine mammals depend on vocalizations for key behavior and communication. In an increasingly noisy acoustic environment these animals may experience stress and reduced communication and success in foraging, interacting, and breeding. A study of humpback whales found that they reduced their vocalizations in the presence of wind and background noise and shifted instead to using surface-generated sounds such as breaching to communicate.[38] While this shift shows behavior modification to address changes in the acoustic environment, it also reduces the information contained with the communication.[39]

Noise in the oceans is increasing significantly. According to a new study, in busy areas of the ocean off the British Columbia coast humpback whales are losing up to 52 percent of their communication space in typical conditions and 94 percent of their communication space under noisy conditions.[40] Also, in the Puget Sound at least 90 percent of the time at least one extremely noisy vessel is traveling through the shipping lanes.[41] Cargo ships were the largest contributor to the vessel noise, followed by tugs and passenger vessels. The researchers found

[34] Holdway, Douglas A., The acute and chronic effects of wastes associated with offshore oil and gas production on temperate and tropical marine ecological processes, 44 Marine Pollution Bulletin 185 (2002).
[35] Peterson, Charles H. *et al.*, Long-Term Ecosystem Response to the Exxon Valdez Oil Spill, 302 Science 2082 (2003).
[36] *Id.*
[37] EPA, http://www.epa.gov/bpspill/dispersants.html
[38] Dunlop, Rebecca A. *et al.*, You attention please: increasing ambient noise levels elicits a change in communication behavior in humpback whales (*Megaptera novaeangliae)*, 277 Proc. R. Soc. B 2521-2529 (2010).
[39] *Id.*
[40] Williams, R. *et al.*, Acoustic quality of critical habitats for three threatened whale populations, Animal Conservation Press (2013).
[41] Bassett, Christopher *et al.*, A vessel noise budget for Admiralty Inlet, Puget Sound, Washington (USA), 132 J. Acoust. Soc. Am. 3706 (2012).

9-34 con't

that noise in the area from these vessels averaged about 120 decibels, and regularly exceed 120 dB, the current acoustic criterion for behavioral harassment of marine mammals for continuous sound types (120 dB re 1 lPa) in the United States.

9-35

Finally, the Project's vessels could kill or injure marine mammals by striking them. For example, ship strike-related mortality is a documented threat to endangered Pacific coast populations of fin, humpback, blue, sperm, and killer whales. Ship strikes are an increasing problem in California.[42] Between 2001 and 2010, nearly 50 large whales off the California coast were documented as having been struck by ships.[43]

III. Conclusion

9-36

This comment represents only some of the concerns of CBE and the Center's members regarding the significant and unmitigated impacts of this Project. The DEIR fails in several other respects, also underestimating impacts due to improper thresholds of significance, deferring mitigation of identified impacts, and omitting analyses of unidentified impacts, including excess particulate matter emissions. Some of the alternatives suggested in the DEIR also lack proper and adequate analyses, and are for the most part also plagued by the same deficiencies outlined in this comment. For these, the above and other reasons, the State Lands Commission must reject this DEIR, revise its flawed analyses and recirculate it for public comment.

Sincerely,

Roger Lin and Yana Garcia
for Communities for a Better Environment

Hollin Kretzmann
for Center for Biological Diversity

[42] Zito, Kelly (2010) Whale deaths blamed on busy ship traffic, krill. *San Francisco Chronicle*, Oct. 10.
[43] National Marine Fisheries Service (2010c.) Southwest Regional Office, California Marine Mammal Stranding Network Database.

COMMENT SET 9: COMMUNITIES FOR A BETTER ENVIRONMENT

The Proposed Negative Declaration by SCAQMD for the Tesoro Pipeline from its Long Beach Marine Terminal to New Wilmington Refinery Storage Tanks is Missing Major Expansion Plan Descriptions and Requires a Full EIR

Comments of Julia E. May,
Senior Scientist, CBE
June 10, 2014

Attachment A

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I. Introduction

This report evaluates the Tesoro Storage Tank Replacement and Modification Project (described hereafter as the "Project") in Wilmington and finds that a Negative Declaration (ND) published by the South Coast Air Quality Management District should not be adopted, because the Project has broad implications for changing operations at the refinery, marine operations, an integration of the Wilmington with the Carson refinery, among other changes. These changes have significant impacts that need to be evaluated through a full Environmental Impact Report (EIR).

II. The Project Description is flawed – the Pipeline & Storage Tank Negative Declaration is contradicted by Tesoro's Published Broader Plans

A. Project description

The ND[1] describes the Project as merely a way to offload products faster, to speed getting ships out of harbor, unrelated to other transportation and refinery operations. For example, it states:

> *Description of Nature, Purpose, and Beneficiaries of Project: The Tesoro Refining & Marketing Company LLC (Tesoro) is proposing a storage tank replacement and modification project at the Los Angeles Refinery – Wilmington Operations* ***to increase the amount of crude oil that can be stored, and to increase the efficiency of the crude oil deliveries from ships.*** . . .

The ND describes very large storage expansion (440,000 bbls per day increase for two tanks, plus increased throughput of 150,000 bbls/month for one tank), and changes in materials stored:

	Current size	Proposed size	Permitted Materials Stored	Proposed Materials Stored
Tank 88035 - Fixed to Internal floating roof	80,000 bbl	300,000 bbl	Petroleum materials including crude oil, hydrocracking unit (HCU) feedstock (a light gas oil), currently primarily stores HCU feedstock (ND p. 1-1)	Light & heavy crude oils of varying vapor pressures up to 11psi, light gas oils (such as HCU feedstock &FCCU Feedstock), & heavy gas oils, but ND also states these will primarily store crude oil
Tank 88036 - Fixed to Internal floating roof	80,000 bbl	300,000 bbl		
Tank 88038 Fixed roof w/vapor recovery, connect to vapor recovery	80,000 bbl	No size change	Petroleum distillate w/true vapor pressure <0.5psi such as crude oil & heavy gas oils, currently primarily stores vacuum gas oil (heavy)	Change types of materials stored to also include light gas oil
Tank 88079 Internal floating roof tank	80,000 bbl	Same size, but increased throughput from 350,000 to 500,000 bbls/month	Petroleum distillate w/true vapor pressure <7.0psi such as crude oil, heavy gas oils, light gas oils, diesel fuel, primarily stores crude oil	No change in types of materials permitted to be stored

[1] Negative Declaration at p. 2-1, and Notice of Intent to Adopt a Draft Negative Declaration, Tesoro Storage Tank Replacement and Modification Project, at 2nd page.

No specific baseline data is provided on the current materials actually stored in the tanks.

The description also proposes greatly increased pipe sizing (from a 12-inch diameter pipe, to a 42-inch pipe) for delivery of crude oil and other materials from the Marine Terminal to these storage tanks. The volume of material that can be delivered through a pipe is dependent on cross-sectional area; the 42-inch pipe would allow a delivery increase of over 12 times the volume currently able to be delivered.[2]

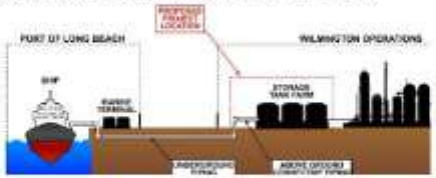
← Over 12 twelve-inch pipes would fit into one 42-inch pipe, so the volume of crude oil & other petroleum liquids that can be offloaded through the new pipe is over 12 times higher than the existing pipe

The description incorrectly concludes there will be no significant impacts, and counter to Tesoro's public statements documented later, there will be no changes in materials delivered:

> *No changes to the type of materials delivered to the Wilmington Operations are proposed. The following environmental topic areas were identified as having the potential to be affected by the proposed project: air quality and greenhouse gas emissions; energy; geology and soils; hazards and hazardous materials; hydrology and water quality; noise; solid and hazardous waste; and transportation and traffic. However, the analysis of these environmental topic areas in the Draft Negative Declaration (ND) concludes that the proposed project would not generate any significant adverse environmental impacts.*

But the changes described above have the potential for major operational debottlenecking and changes in materials (e.g. crude oil) delivered, with associated impacts described below. Furthermore, Tesoro has publicly announced such changes outside of the ND process.

The following graphic of the project was provided in the ND (at p. 1-10):

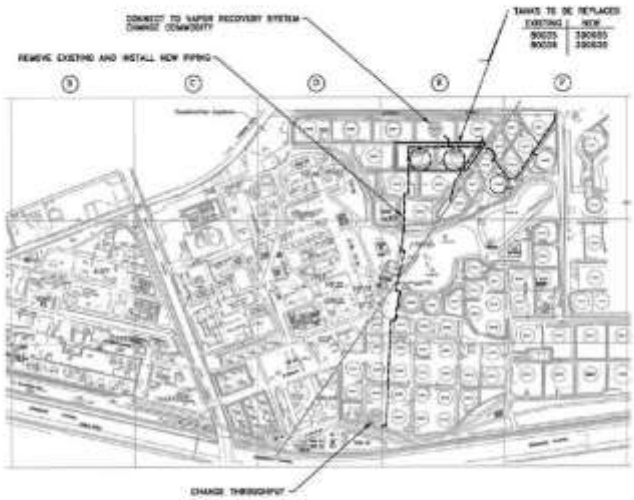


[2] A 12 inch diameter = 6 inch radius, a 42 inch diameter = 21 inch radius. Volume of material delivered depends on the pipe cross-section area. The cross-sections of the two pipes' areas are: For 12 inch pipe the area = Πr^2 = 3.14 x (6*6) sq inches, or 3.14 x 36; For 42 inch pipe the area = 3.14 x (21*21) or 3.14 x 441. Thus the 42 inch pipe cross-section area is larger than the 12 inch pipe by a factor of 441/36, or 12.25.

The difference in the physical locations of the Marine Loading terminal and the refinery shown in the graphic above and the satellite images below illustrates that there will be a large increase in petroleum materials piped in the range of a mile from the terminal to the refinery. This in itself increases the risk of spills, especially during earthquakes. The ND states that there will not be a physical change at the Marine Terminal itself, but it fails to evaluate the major increase in volume of materials that will be present in the pipes at any one moment.

The Pier B Tesoro facility (Port of Long Beach, 820 Carrack Ave, Long Beach 90813, Facility ID 172878, Tesoro Logistics Operations LLC) was identified by the SCAQMD by telephone as the marine loading facility involved in the Project, although Tesoro Logistics now owns three marine loading facilities in Los Angeles. Different magnifications are inserted below, including Pier B, and the Wilmington refinery (on the order of a mile away):

The map below, excerpted from the ND (at p. 1-6), depicts the long path of the new pipeline across the refinery to the new refinery tanks. (This map has been rotated 90 degrees to make wording readable.) It also shows that the pipe goes *beyond* the new tanks, to the corner of the Wilmington property.



B. Tesoro has published plans to increase throughput, yields, transport alternative crude types by rail to Washington then by ship to Long Beach, and to integrate the Wilmington refinery with the adjacent Carson refinery

Both industry literature and Tesoro statements reveal that Tesoro has been planning the following:

- Increased throughput at its California refineries (including its Wilmington and Carson complex),
- Increased product yield,
- Integration of the Wilmington and Carson refineries,
- Changes in crude oil type delivery and processed in favor of cheaper crudes ("advantaged" or "discount" crudes which can have negative impacts when transported and refined),

- Use of rail to transport crude to Tesoro's Vancouver Washington shipyard, and then by ship to California refineries (from Bakken oil fields in North Dakota but also potentially from Canadian tar sands fields),
- Use of its facilities by Third parties and for export, and
- Increased coking operations.

The alternative crude would be offloaded from marine vessels, sent through the greatly expanded pipeline described in the ND, and stored in the massively expanded storage tanks proposed. Importantly, the Wilmington and Carson refinery operations share a fenceline.

These publicly acknowledged projects are clearly related to the storage tank expansion, and demonstrate that the proposed Project goes far beyond simple ship offloading efficiency. Even if we had no knowledge of these plans, such storage expansion would have the *potential* to allow expanded activities at the refinery and the Marine Loading dock, and to change operations through integration with Tesoro's Carson refinery. These operations cannot be "piecemealed" from the storage project, and must be evaluated together through a full EIR.

1. Industry literature identified these plans

An example of an industry literature report on Tesoro plans is provided by Morningstar Inc. (a multinational, multi-billion dollar research and investment management firm[3]), which published the following analysis in July of 2013:[4]

> *Tesoro aims to **increase throughput** of domestic crude over the next few years*
>
> *Tesoro has embarked on a multiyear plan to improve its profitability, including increasing spending to support larger income improvement projects. The most significant of those, including capacity expansions and rail facilities, aim to take advantage of domestic crude discounts. . . .*
>
> ***We think, however, the biggest area of opportunity for Tesoro to improve its profitability is by increasing processing of discount crude, particularly in its primary market of California,** where operating conditions remain challenging. The company is highly leveraged to developments within the state and that will only increase with its proposed acquisition of BP's BP **Carson** refinery. Operating in California can be advantageous because West Coast margins typically fetch a premium given the state's relative isolation from outside sources of refined product and specialized gasoline blends. . . .*
>
> ***The increased availability of discount crude bolsters the potential for the Carson acquisition despite the increased exposure to California.** Specifically, Tesoro can **dramatically improve the performance of Carson by optimizing its crude slate with light crude from the Bakken.** Also, on its face the deal looks like a winner for Tesoro given the relatively attractive valuation of the refinery and the collection of associated*

[3] http://corporate.morningstar.com/US/asp/subject.aspx?xmlfile=127.xml
[4] 7/24/2013 http://analysisreport.morningstar.com/stock/archive?t=TSO&region=USA&culture=en-US&productcode=MLE&docId=604033 (emphasis added throughout quotes)

midstream assets that can be dropped down to Tesoro Logistics TLLP. ***Tesoro should gain further advantages from integrating Carson with the Wilmington refinery.*** . . .

The addition of Carson and its integration with Tesoro's Wilmington refinery *should lower costs and better position the company to deal with increasing environmental regulation.* . . . [Emphasis added throughout and below]

Discount crudes generally have negative impacts as described below. For example, Canadian tar sands crude oil is very heavy, with high sulfur, requiring more intensive refining, and Bakken crude oil from the Dakotas has high paraffinic content (wax) and is explosive. These require specialized handling or more intensive refining with environmental and safety impacts (described later). The article also identifies the potential for Tesoro to import either Bakken or Canadian heavy tar sands crude.

> ***Increasing throughput of light and heavy discount crude from the Mid-Continent and Canada via rail will likely benefit Tesoro more, though.*** *To this end, Tesoro recently entered an agreement to develop a 120 mb/d crude by rail and marine facility in Washington.* ***The facility should be operational in 2014 and affords Tesoro the flexibility to send light or heavy crude to its California refineries.*** *Tesoro's California refineries should realize higher margins and improved returns through lower feedstock costs and* ***improved yields*** *while expending little capital.*

(Note that this project was updated and expanded from the 120,000 barrel/day figure to 360,000 barrel/day, to be completed in 2015.[5]) The Morningstar webpage also explained in July of 2013 why oil companies are incentivized to change operations to accommodate such cheap crude oil:

> ***Success in the refining business is primarily a function of the difference in the amount the refiner pays for oil and the amount at which it sells the refined product.*** *As such, the short- and long-term risks are dependent on movements in the prices of crude oil and gasoline or diesel. Supply interruptions or increased demand that drive up oil prices, as well as demand destruction or economic slowdown that depress gas prices, are the primary risks.* ***Additionally, the recent strong operating performance is attributable to wide crude differentials.***

Such crude differentials are available for both Bakken and Canadian tar sands crude. The costs can fluctuate, so many refiners, including Tesoro, are looking at both these sources depending on the most current price fluctuations and logistics. Tesoro has evaluated both Bakken and Canadian crude sources, and both these sources are booming compared to existing Tesoro crude sources, which have been dropping.[6]

[5] Tesoro Savage, Application for Site Certification Agreement (Vancouver Application), Vol. 1, August 29, 2013, http://www.efsec.wa.gov/Tesoro%20Savage/Application/EFSEC%202013-01%20Volume%201/EFSEC%202013-01%20-%20Complete%20EFSEC%20Volume%201.pdf

[6] California's Oil Refiners Double Crude-by-Rail Volumes (1), Lynn Doan May 02, 2014, Bloomberg Business Week, ["*U.S. West Coast refiners including Tesoro Corp. (TSO:US) and Valero Energy Corp. (VLO:US) are developing projects to bring in more oil by rail from reserves across the middle of the U.S. and Canada to displace more expensive supplies. Crude production in PADD 5, which includes California and Alaska, has dropped every year since 2002 while drillers are extracting record volumes from shale in states including North Dakota and Texas.* "] http://www.businessweek.com/news/2014-05-02/california-doubles-oil-by-rail-volumes-as-canadian-imports-grow and
Tesoro Seeks More Canadian Crude Oil for Its West Coast Refineries, February 7, 2013, Wall Street Journal, http://online.wsj.com/article/BT-CO-20130207-710688.html

[7] Tesoro Wilmington Refinery Begins Operating New Vacuum Tower, Aaron Clark and Dan Murtaugh - Nov 26, 2012, http://www.bloomberg.com/news/print/2012-11-26/tesoro-wilmington-refinery-begins-operating-new-vacuum-tower.html

The Morningstar report also identifies other refinery processes such as vacuum distillation, increased coking, increased product export, and increased yields, as related to the Project. For instance, the analysis identifies a recent Wilmington refinery vacuum distillation unit project allowing increased coking. The vacuum distillation tower was also reported in Bloomberg news in late 2012, with further allusions to Tesoro's plans to integrate Wilmington and Carson operations, which could result in shutdown of Tesoro's fluid catalytic cracking unit (FCC) unit. This further stresses the changes to overall refinery balancing and design which can occur as a result of the changes in crude oil which would be brought in as a result of the ND's pipeline and storage Project.[7]

Heavy, bottom of the barrel portions of crude oil are a much higher proportion in heavier crudes, which result in production of petroleum coke in higher quantities, which the storage project would also enable. The evaluation states:

> . . . *To address these challenges, Tesoro is focusing on improving yields and lowering operating costs at its facilities* ***while increasing export volumes*** *to higher value markets.* ***To improve yields, Tesoro replaced a vacuum distillation unit at its Wilmington facility, which should allow it to upgrade petroleum coke to clean products.*** . . .
>
> *In the Pacific Northwest, Tesoro's two refineries, which account for almost 30% of total capacity, are at a disadvantage because of their lack of cokers, resulting in poor yields and large amounts of fuel oil. However, Tesoro's recently completed project to rail upward of 50,000 bpd of discount, light Bakken crude to its Washington refinery, should lead to reduced dependence on waterborne crude and improved margins.*

Increased coking means increased emissions from coking operations. Increased exports have the potential to increase emissions due to refining, storing, and loading products for export. Increased yields of individual product units within the refinery have different characteristics, and must be evaluated specifically, rather than looking at the overall crude oil throughput, since different units have different chemical use and different emissions, which can be impacted even without an increase of crude throughput. All of these are related operations with potentially major impacts not evaluated in the ND.

The Morningstar literature identified the lack of cokers at Tesoro's Pacific Northwest refineries as increasing the need for taking advantage of available coking facilities in California refineries:

> ***Tesoro's refining capacity is concentrated in California.*** . . .
>
> *Second, it has invested in rail facilities to move 50 mb/d of Bakken crude west to its Anacortes, Wash., refinery, which has resulted in improved yield and margins.* ***Finally, we expect the imbalance between light and heavy crude in the Mid-Continent will create an opportunity and***

economic incentive to rail both types of crude to its three California refineries, increasing their throughput of cost-advantaged crude. *In fact, Tesoro already has plans in place to do so. . . .*

2. Tesoro also published these plans

Tesoro has confirmed these industry findings. For example, a February 2014 Tesoro slideshow[8] on Tesoro's "Presentations" webpage states *"Los Angeles acquisition [BP Carson and terminals and coking] transforms our capabilities,"* providing flexibility in yield, access to "advantaged" crude oil, integrated logistics infrastructure, etc. (Slide 7).

Another slide below (12) identifies the "Los Angeles Refinery Integration Project" (integrating Carson and Wilmington refineries) as optimizing processing capability and "product flexibility":

This is followed by a slide describing Tesoro's "Advantaged" feedstock opportunity, ***"Extending the advantaged crude oil to the West Coast,"*** **and changing the Los Angeles operations crude oil feedstock from 15% California Heavy crude to *"Potentially up to 50% California Heavy and Bakken"* crude oil (at Slide 13).**

The slideshow also evaluates the cost of crude by rail directly to West Coast refineries, including Los Angeles, in the following (slide 15), but also states that the cost of rail to the state of Washington, and then by ship to California, is "Competitive with direct rail cost to California" (at Slide 17). Slide 17 also finds that its Washington rail to ship project provides ***"Flexibility to deliver to all West Coast refineries."***

[8] Simmons Energy Conference, *Transformation through Distinctive Performance*, February 27, 2014, http://phx.corporate-ir.net/phoenix.zhtml?c=79122&p=irol-presentations attached

Another key point on Slide 15 as shown below is the massive increase in "West Coast Unloading capacity" from 218 barrels per day (bpd) in 2013, to 395 bpd estimated in 2014, to 910 bpd estimated in 2015. California is the largest share of West Coast Tesoro capacity, and Los Angeles is the largest share of Tesoro California capacity.

Crude oil unloading capacity is the subject of this ND, by unloading crude oil from ship to the expanded pipeline, to the expanded storage tankage. **As a result, it is clear that Tesoro's West Coast plans for bringing Bakken crude into LA will require the increased unloading and storage identified in the Negative Declaration.**

Another very similar version of this slideshow presented a month earlier by Tesoro (January 2014)[9] elucidates further that "Terminaling, Transportation, and Storage" will "Consolidate Tesoro volumes in Southern California distribution system" (and identifies additional impacts in Southern California). Storage capacity is an essential requirement for terminal, transportation, and refining operations. None of the required evaluation of relationships of storage capacity changes to these other processes have been evaluated in the negative declaration, as they should have been.

[9] 2014 Deutsche Bank Energy Conference, January 9, 2014, http://phx.corporate-ir.net/phoenix.zhtml?c=79122&p=irol-presentations (Slide 24), attached

Slide 34 in this second presentation also mentions a plan to decommission the Wilmington refinery's FCC (Fluid Catalytic Cracker) unit. Again, such a change should be identified as part of the whole broad project, either directly, or as part of a cumulative impacts evaluation.

The Slides and previous reports above show that Tesoro has considered different options for transporting crude from North Dakota and Canada to the Los Angeles complex, including rail transport directly to California (despite the ND's dismissal of rail as potentially connected to this Project). Tesoro has lately settled on the rail to Washington and ship to Long Beach option. However, if conditions change (for example, if the Washington hub does not proceed due to public opposition), Tesoro could instead take advantage of the new Tankage's proximity to the nearby railline that traverses both its LA refineries. For example, the new Tesoro pipeline continues past the new storage tanks, and ends next to the railway that transects the refinery, as discussed later.

III. Potential impacts of the Project are large

A. Changes in crude oil feedstock facilitated by the Project have significant impacts

1. Waxy Bakken crude oil requires special handling and creates problems of transfer in both marine vessels and refinery storage tanks and requires chemical dispersants

An article from Hydrocarbon Processing -- *Innovative Solutions for Processing Shale Oils*[10] --

[10] Innovative Solutions for Processing Shale Oils, Hydrocarbon Processing, 7/10/2013, attached http://www.hydrocarbonprocessing.com/Article/3223989/Innovative-solutions-for-processing-shale-oils.html

identifies problems in processing oils such as Bakken shale, due to high variability in crude qualities, waxy buildup (paraffinic content), etc. This article specifically identified transfer to refinery tankage as problematic:

> ***The paraffin content of the shale oils is impacting all transportation systems.*** *Wax deposits have been found to coat the walls of railroad tank cars, barges and trucks. Waxy deposits in pipelines regularly require pigging to maintain full throughput. Bakken shale oil is typically transported in railcar, although pipeline expansion projects are in progress to accommodate the long-term need. These railcars require regular steaming and cleaning for reuse. Similar deposits are being encountered in trucks being used for shale oil transportation.* ***The wax deposits also create problems in transferring the shale oils to refinery tankage. Fig. 4*** *shows samples of deposited wax collected from pigged pipelines*[11] *in shale oil service. [emphasis added]*

The article provided photos (entitled "waxy deposits removed from shale oil buildup") which graphically depict the more obvious problems with Bakken crude:

The article also identified multiple chemical dispersants used to mitigate these problems not only during transportation, but also within refineries where these shale oils are processed.

> *To control deposition and plugging in formations due to paraffins, the dispersants are commonly used. In upstream applications, these paraffin dispersants are applied as part of multifunctional additive packages where asphaltene stability and corrosion control are also addressed simultaneously.*

These chemicals must be identified in a full EIR in order to assess the impacts of their use. The article also found that steam cleaning is used to remove such deposits from railcars. Such activities should be identified and associated impacts evaluated. Impacts within the refinery must also be evaluated for safety risks.

2. Bakken crude oil also causes fouling of preheaters, heat exchangers, and furnaces, refinery corrosion, and can shutdown refinery units

The Hydrocarbon Processing article found that asphaltene destabilization can occur when blending shale oil with heavier crudes. This is precisely the kind of blending that could occur due to the Project, since Tesoro has stated it plans to change the crude slate in California from

[11] A "pig" is launched through a line until it reaches a rece

15% California Heavy crude to *"Potentially up to 50% California Heavy and Bakken"* (see earlier in this comment).

These problems result in fouling of the cold preheat train, fouling of hot preheat exchangers and furnaces, problems in transportation, storage, refinery corrosion, and crude unit shutdowns. These oils are also extracted through fracturing, which have additional and major impacts on water, air, and the global climate. The article finds:

> *The refining of shale oil (also known as tight oil) extracted through fracturing from fields such as Eagle Ford, Utica and* **Bakken** *has become prevalent in many areas of the US. Although these oils are appealing as refinery feedstocks due to their availability and low cost, processing can be more difficult.*
>
> ***The quality of the shale oils is highly variable. These oils can be high in solids with high melting point waxes.*** *The light paraffinic nature of shale oils can lead to asphaltene destabilization when blended with heavier crudes. These compositional factors have resulted in cold preheat train fouling, desalter upsets, and fouling of hot preheat exchangers and furnaces. Problems in transportation and storage, finished-product quality, as well as refinery corrosion, have also been reported. Operational issues have led to cases of reduced throughput and crude unit shutdowns. The problems encountered with shale oil processing and possible prediction and control strategies will be presented.*

[Emphasis added throughout and below]

The article found use of shale oils was particularly problematic when blended with heavy crudes, which is admittedly planned by Tesoro for its California refinery operations. This blending can cause agglomeration of large molecules onto surfaces inside refinery units which can crack and leave coke-like deposits if the surfaces are hot.[12] Coke deposits lead to poor operation and can cause shut down of units before planned maintenance periods. All these problems require special handling and planning at the refinery. In addition, the article found shale oils to be highly variable in certain characteristics including for example, its solids content, and others. The article states:

> 3. **Bakken crude is volatile and explosive and these characteristics were not evaluated in the ND**
>
> *Due to their paraffinic nature, mixing shale oil with asphaltenic oil leads to destabilization of the asphaltene cores. Asphaltenes are polar compounds that influence emulsion stability. Once the asphaltenes destabilize, they can agglomerate, leading to larger macro-molecules. On hot surfaces, agglomerated asphaltenes easily crack or dehydrogenate and gradually form coke-like deposits.*

Unfortunately, Bakken crude oil has been fatally demonstrated as very volatile and explosive, as in the case of the tragic explosions at Lac Megantic in Canada, and in other instances.

[12] Coke is a petroleum product that is mostly the carbon leftover after making gasoline from crude oil. Coke is a fuel, and similar to coal, as an energy source that results in high GHG and criteria pollutant emissions, and significant heavy metal content.

The U.S. Department of Transportation Pipeline and Hazardous Material Safety Administration issued a safety alert regarding the transport of this type of crude oil in January of 2014, finding that **whether it was transported in railcar or other mode of transport, it represents unique hazards of explosion, fire, and corrosivity,** requiring additional testing, handling, and public information for first responders.[13] Entrained gases require additional testing.

> ***The Pipeline and Hazardous Materials Safety Administration (PHMSA) is issuing this safety alert to notify the general public, emergency responders and shippers and carriers that recent derailments and resulting fires indicate that the type of crude oil being transported from the Bakken region may be more flammable than traditional heavy crude oil.***
>
> *Based upon preliminary inspections conducted after recent rail derailments in North Dakota, Alabama and Lac-Megantic, Quebec involving Bakken crude oil, PHMSA is reinforcing the requirement to properly test, characterize, classify, and where appropriate sufficiently describe hazardous materials prior to and during transportation. Proper characterization will identify properties that could affect the integrity of the packaging or present additional hazards, such as corrosivity, sulfur content, and dissolved gas content. These characteristics may also affect classification.*
>
> ***PHMSA stresses to offerors the importance of appropriate classification and packing group (PG) assignment of crude oil shipments, whether the shipment is in a cargo tank, rail tank car or other mode of transportation.*** *Emergency responders should remember that light sweet crude oil, such as that coming from the Bakken region, is typically assigned a packing group I or II. The PGs mean that the material's flashpoint is below 73 degrees Fahrenheit and, for packing group I materials, the boiling point is below 95 degrees Fahrenheit.* ***This means the materials pose significant fire risk if released from the package in an accident.***
>
> *. . . Based on initial field observations, PHMSA expanded the scope of lab testing to include other factors that affect proper characterization and classification such as* **Reid Vapor Pressure, corrosivity, hydrogen sulfide content and composition/concentration of the entrained gases** *in the material. The results of this expanded testing will further inform shippers and carriers about how to ensure that the materials are known and are properly described, classified, and characterized when being shipped. In addition, understanding any unique hazards of the materials will enable offerors, carriers, first responders, as well as PHMSA and FRA to identify any appropriate mitigating measures that need to be taken to ensure the continued safe transportation of these materials.*

This is a major problem with the Project, at the Marine Terminal in Long Beach, in the expanded pipeline to the refinery, in the storage tanks at the refinery, and in the refinery where it will be used. It was a major failure of the ND to ignore these impacts, which even without the other impacts, would require an EIR.

[13] The U.S. Department of Transportation Pipeline and Hazardous Material Safety Administration, January 2, 2014, http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/Publications/Emergency_Responder_Safety_Alert.pdf , attached

4. Bakken crude refining can also increase levels of acutely hazardous and corrosive Hydrogen Sulfide in the refinery

The Hydrocarbon Processing article also identified increased levels of extremely hazardous hydrogen sulfide (H2S) gas as a problem associated with shale oil. Furthermore, when scavenging agents are used to reduce H2S presence, these can cause corrosion and form solid deposits inside processing units. The article states:

> ***Several shale oil production locations have high H_2S loading.*** *To ensure worker safety, scavengers are often used to reduce H2S concentrations. The scavengers are often amine-based products—methyl triazine, for instance—that are converted into mono-ethanolamine (MEA) in the crude distillation unit (CDU). Unfortunately, these amines contribute to corrosion problems in the CDU. Once MEA forms, it rapidly reacts with chlorine to form chloride salts. These salts lose solubility in the hydrocarbon phase and become solids at the processing temperatures of the atmospheric CD towers and form deposits on the trays or overhead system.* ***The deposits are hygroscopic, and, once water is absorbed, the deposits become very corrosive.*** *These physical properties are responsible for the problems that are being experienced by refineries handling shale oils.*

Hydrogen sulfide is deadly, corrosive, causes odor complaints when released, and its increase in the refinery certainly requires specific evaluation that was absent in the ND.

A report by Bakkenshale.com found:[14]

> *Is the Bakken producing higher volumes of H2S? That's the question you have to ask yourself when you see pipelines implementing H2S standards for the first time.*
>
> *On May 8, Enbridge submitted an emergency application to the Federal Energy Regulation Commission (FERC) asking to amend its conditions of carriage to 5 ppm of H2S or less. If accepted, Enbridge would have the right to reject crude with higher levels of H2S. . . .*
>
> ***Enbridge acted after it found concentrations of 1,200 ppm in a crude tank at its Berthold Terminal. 20 ppm is the limit allowed by OHSA and an average of 10 ppm of exposure is all that is allowed over an 8-hour work day.***
>
> *Both Plains Marketing and Murex Petroleum objected to the FERC application, but it looks as if they solved their differences when Enbridge notified FERC it wasn't planning an outright ban on crude with higher H2S concentrations. The two companies weren't against the change, but were afraid they couldn't comply in the time frame planned.*

Thus hazardous and corrosive sulfur compounds can either be part of the crude characteristic, but also can be transported with otherwise low sulfur crude oil. The Chemical Safety Board report also identified that H2S was a particularly aggressive corrosive agent.[15] These issues must be evaluated through a full EIR to prevent severe safety risks associated with crude slate changes.

The problem of sulfur corrosion increasing accident risk was unfortunately born out at Chevron Richmond in California last August, when a major explosion barely avoided killing 19 workers,

[14] May 30, 2013, http://bakkenshale.com/pipeline-midstream-news/bakken-producing-sour-gas-h2s-problem-in-north-dakota/
[15] *Id.* at p. 33

but did send 15,000 neighbors to the hospital, after a huge black plume traveling many miles through the Bay Area resulted from the crude unit explosion, which burned for many hours.

Steelworkers testified at the U.S. Chemical Safety Board hearing on the Chevron explosion that such sulfur corrosion is a statewide problem at California oil refineries.[16] The Chemical Safety Board found the Richmond accident was caused by sulfur corrosion that Chevron had been aware of, and had repeatedly ignored, and the report showed that sulfur content had increased. The photos below show the heavy impact not only in Richmond, but across the San Francisco Bay Area due to this accident.

A discussion of corrosion issues at oil refineries due to increased sulfur content in crude oil, and other important related issues was provided in the attached report of Greg Karras on the Phillips 66 *Rodeo* refinery EIR.[17] Also refer to the previously cited report of Dr. Fox on impacts of use of "advantaged" crude are also in process.

These reports demonstrate in further detail the impacts of corrosion demonstrated by the US Chemical Safety Board, causing the massive explosion in August of 2012 in the Chevron Richmond refinery, pictured below. The U.S. Chemical Safety Board report is also available.[18] The significance of the air pollution impacts caused by the Chevron explosion are self-explanatory, in the photos below of the August 2012 explosion caused by the refinery corrosion.

[16] U.S. Chemical Safety Board transcript of public hearing on Chevron Richmond, CA August 2012 explosion and fire, page 225, http://www.csb.gov/assets/1/19/0503CSB-Meeting.pdf
[17] Expert Report of Greg Karras, CBE, 4 September 2013, Regarding the Phillips 66 Company Propane Recovery Project Draft Environmental Impact Report released in June 2013 by the Contra Costa County Department of Conservation and Development
[18] Interim Investigation Report, Chevron Richmond Refinery Fire, (which as adopted at the July public hearing) available at: http://www.csb.gov/assets/1/19/Chevron_Interim_Report_Final_2013-04-17.pdf

5. **Another "advantaged" crude oil from Canadian Tar Sands that Tesoro plans to import also causes major impacts**

As previously identified, Tesoro plans to bring cost advantaged crude oil to Los Angeles, both light and heavy, including heavy Canadian tar sands crude. Canadian tar sands crude is even cheaper than Bakken, as discussed by Bloomberg about Tesoro's plans to use the cost advantage of Canadian heavy crude in California.

> ***U.S. West Coast refiners including Tesoro Corp. (TSO) and Valero Energy Corp. (VLO) are developing projects to bring in more oil by rail from reserves across the middle of the U.S. and Canada to displace more expensive supplies.*** *Crude production in PADD 5, which includes California and Alaska, has dropped every year since 2002 while drillers are extracting record volumes from shale in states including North Dakota and Texas.*
>
> *The surging flows of domestic oil to California "reflect a continuing improvement in crude-by-rail receiving facilities here," David Hackett, president of Stillwater Associates, an energy consultant, said by phone from Irvine, California.*
>
> ***Lower Costs***
> *Crude from North Dakota and Canada trades at a discount to Alaska North Slope oil, which rose 36 cents to $107.78 a barrel at 9:09 a.m., data compiled by Bloomberg show.* ***Western Canada Select, a heavy, sour blend, gained 36 cents to $82.88.*** *North Dakota's Bakken crude also gained 36 cents to $95.28. It costs $9 to $10.50 a barrel to send North Dakota's Bakken oil by rail to California, according to Tesoro, the West Coast's largest refiner.*

Of course, tar sands crude oil causes major environmental damage during its mining in Canada, as described by the World Resources Institute, which rather mildly states the severe impacts:[19] *"The local and regional environmental impacts of heavy oil and tar sands production can include: significant water consumption, massive earth moving and ecosystem disturbance, increased criteria and other air pollution, and release of heavy metals and toxic materials."*

But the ND must account for the local Los Angeles region, and global impacts. Canadian tar sands are even heavier than most heavy conventional crudes (higher carbon content, requiring additional energy to process and increasing emissions) and have higher sulfur content. Contaminants must be removed during refining, which increases hazardous materials present within the refinery and can lead to dangerous corrosion within refinery operations units. These also increase energy needed for refining, resulting in higher greenhouse gas and smog-precursor emissions. The corrosion hazard is increased due to the higher sulfur content, increasing refinery accident risk identified by the US Chemical Safety Board in the last section.

The ND failed to evaluate the obvious increases in desulfurization processes within the refinery due to higher sulfur content, as well as additional cracking, coking, and additional use of hydrogen, all of which require more energy and increase criteria and toxic pollutant emissions. This is a major and obvious area of impacts that was completely ignored in the ND, especially without any baselines provided.

[19] http://www.wri.org/publication/content/10339

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An Oil & Gas Journal article *Special Report: Refiners processing heavy crudes can experience crude distillation problems* (**Oil and Gas Journal**),[20] also identified the need for additional desalting and temperature controls in order to process unconventional crude oils. This and the other articles identified many problems with processing unconventional crudes, emphasizing that it is not just *volume* of crude throughput that determines environmental impacts, but also the characteristics or *quality* of the crude oils. The Oil and Gas Journal article (*Refiners processing heavy crudes can experience crude distillation problems)* **also identified** a number of differences in the content of unconventional crudes (such as tar sands and others):

> *Heavy crudes have much higher microcarbon residue (MCR), asphaltenes, and metals. As mandated refinery gasoline and diesel pool sulfur specifications take effect, minimizing cat feed hydrotreater (CFHT) feed contaminants becomes more important. In some cases, vanadium to the CFHT feed has increased from less than 1 ppm to 5-10 ppm with heavy Venezuelan crudes.[1]* ***High feed-stream contaminants can reduce run length to less than half the planned turnaround interval.*** *Optimizing the atmospheric column flash-zone and wash section, and the vacuum unit design can reduce CFHT feed vanadium by 30-40%. . . .*
>
> *Heavy crudes have higher viscosities, some have higher salt content, several have high naphthenic acid content, and they are all more difficult to distill than lighter crude blends. Some upgrader crudes also have lower thermal stability than conventional crudes and higher fouling tendencies due to the increased likelihood of asphaltene precipitation. . . .*
>
> *High chlorides to the atmospheric heater generate large quantities of hydrochloric acid (HCl). Severe fouling in the crude column's top, rapid fouling and corrosion in the atmospheric condenser system, and severe overhead line corrosion often reduce crude runs and unit reliability.*

A complete inventory and evaluation of differences in the crude oils to be processed at the refinery due to the Project changes needs to be evaluated for environmental impacts.

Additional emissions during the transport, piping, tank loading, and in refinery operation from volatile diluents used with expanded tar sands crude oils have not been identified, and should be, with emissions quantified. Diluents can include volatile and toxic compounds such as BTEX VOCs (Benzene, Toluene, Ethylbenzene, and Xylene).[21] In addition to the highly reactive ozone-precursor quality of such diluents, they need to be identified and evaluated as toxic air contaminants, due to carcinogenicity and other health impacts, as well as any potentially explosive compounds.

[20] Oil and Gas Journal, Special Report: Refiners processing heavy crudes can experience crude distillation problems, 11/18/2002, available at http://www.ogj.com/articles/print/volume-100/issue-47/special-report/special-report-refiners-processing-heavy-crudes-can-experience-crude-distillation-problems.html , attached

[21] Comments of NRDC on the Notice of Intent to Adopt a Mitigated Negative Declaration for the Valero Crude by Rail Project, July 1, 2013, on impacts of diluents and other important impacts related to the Valero Benicia crude by rail project in common with the Phillips 66 Los Angeles refinery complex, http://switchboard.nrdc.org/blogs/dbailey/NRDC%20comments%20letter%20on%20Notice%20of%20Intent%20to%20Adopt%20a%20Mitigated%20Negative%20Declaration%20for%20the%20Valero%20Crude%20by%20Rail%20Project.pdf

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6. **The Project Description failed to provide baseline data on the current crude oil slate, to compare it to the "advantaged" crudes the Project allows, and to identify the potentially significant impacts of such changes**

The ND did not provide baseline information about the crude oil slate. This is a major omission especially given Tesoro's public acknowledgement of the key nature of its planned switch to cost-advantaged crude oils such as Bakken crude (or Canadian tar sands). The ND assumes that if general *types* of crude oil and products remain the same, then the Project cannot cause changes with significant impacts. But this is demonstrably false – changes in the crude slate can cause major impacts regardless of existing AQMD permit conditions, even if volumes don't change. Tesoro should have provided this baseline information.

Through outside sources we can find some very basic information about the recent crude slate at Tesoro's Wilmington and Carson refineries:

- The Alaska Business Monthly stated that the Carson refinery formerly owned by BP has recently (2012) processed significant levels of Alaska North Slope crude (ANS).[22]

  "According to Chuck Coulson, BP's manager for midstream operations, BP refines "virtually" all of its Alaska crude at its two West Coast refineries: Cherry Point in Puget Sound and Carson refinery in L.A. County. ***BP runs a mix of Alaska North Slope crude and crude from other countries at both facilities.***

- The BP website stated in 2013 that the Carson facility processed **ANS, Middle Eastern, and West African crude**:[23]

  "It processes crude oil from Alaska's North Slope, the Middle East and West Africa."

- Tesoro's SEC report identified in California refineries:[24]

  "Our California refineries run a significant amount of ***South American heavy crude oil ("Oriente"), San Joaquin Valley Heavy ("SJVH") and light crude oil from Iraq ("Basrah"),*** *which continued to be priced at a discount to Brent throughout 2013."*

Tesoro's 2013 SEC report[25] also provides a general picture of Tesoro's crude slate in California from 2011 to 2013 (but not at the individual refineries):

[22] Following North Slope Crude from the Ground to the Gas Station. May 2012 article, http://www.akbizmag.com/Alaska-Business-Monthly/May-2012/Following-North-Slope-Crude-From-the-ground-to-the-gas-station/?tdm
[23] BP Completes Sale of Carson Refinery and Southwest U.S. Retail Assets to Tesoro Release date: 03 June 2013, http://www.bp.com/en/global/corporate/press/press-releases/bp-completes-sale-of-carson-refinery-and-southwest-u-s--retail-a.html
[24] http://biz.yahoo.com/e/140224/tso10-k.html
[25] Tesoro's US Securities and Exchange Commission (SEC), Annual 10-K report, for 2013, at p. 5. http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&ved=[illegible]

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Our refineries process both heavy and light crude oil. *Light crude oil, when refined, produces a greater proportion of higher value transportation fuels such as gasoline, diesel and jet fuel, and as a result is typically more expensive than heavy crude oil. In contrast, heavy crude oil produces more low value byproducts and heavy residual oils. These lower value products can be upgraded to higher value products through additional, more complex and expensive refining processes. Throughput volumes by feedstock type and region are summarized below (in Mbpd):*

	2013		2012		2011	
California	*Volume*	*%*	*Volume*	*%*	*Volume*	*%*
Heavy crude	*178*	*42*	*151*	*62*	*156*	*65*
Light crude	*206*	*49*	*67*	*28*	*60*	*25*
Other feedstocks	*38*	*9*	*24*	*10*	*25*	*10*
Total	*422*	*100*	*242*	*100*	*241*	*100*

Tesoro's chart shows Heavy Crude feedstock lowering from 65 to 42%, with Light Crude increasing from 25 to 49%, and other unidentified feedstocks remaining about the same. It appears that at least half of 2013 did not include the BP purchase, which increased the throughput greatly.

The US EIA (Energy Information Administration) provides data on foreign crude imports, but not on refineries' domestic crude use. The following table provides an example of US EIA Tesoro data for the month of March 2014. The ND should provide current baseline information from 2010 to the present, including both imported and domestic crude slate for each of the Wilmington and Carson refinery portions.

US EIA Data, Tesoro Corp Crude Oil Imports, Port City: Los Angeles, CA, Port Code 2704, Reporting Period March 2014. Downloaded 6/8/2014 by Jmay, CBE, from US EIA Excel file at: http://www.eia.gov/petroleum/imports/companylevel/. Totals and weighted averages are added

CNTRY_E2NAME	QUANTITY (thousands of bpd)	SULFUR	API GRAVITY	PCOMP_SNAM
ANGOLA	230	0.4	25.6	CARSON
ANGOLA	321	0.45	25.6	CARSON
ANGOLA	342	0.42	25.6	CARSON
ANGOLA	502	0.45	25.7	CARSON
COLOMBIA	379	0.7	28.4	CARSON
IRAQ	150	2.59	32	CARSON
IRAQ	257	2	28.9	CARSON
IRAQ	284	1.58	32	CARSON
IRAQ	358	3.13	28.3	CARSON
IRAQ	693	3.06	29.3	CARSON
IRAQ	802	2.61	31.8	CARSON
TOTAL	4326			
CARSON	Weighted Average:	1.82	28.77	
CANADA	245	3.46	24.1	WILMINGTON LOS ANGELES
ECUADOR	396	1.95	19.9	WILMINGTON LOS ANGELES
TOTAL	4326			
WILMINGT	Weighted Average:	2.53	21.51	

The data above shows that out of crude imports, almost 38% of the Wilmington refinery in March was already from Canada, with a very high sulfur content – indicating that Wilmington is already importing substantial Canadian tar sands crude. However, the weighted average sulfur

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content for that month for *imports* of Tesoro was about 2.53% sulfur (for imports only, since the EIA data does not provide domestic crude use information by refinery), much lower than the Canadian crude (shown at 3.46%). Increasing the Canadian source further will increase the average sulfur content.

The Carson portion of the Los Angeles refinery complex on the other hand, had a much lower weighted sulfur average (1.82%), and lighter crude oil (API gravity is a reverse scale, so that higher gravity indicates lighter crude). The former BP Carson refinery is designed for a lighter feedstock compared to the Wilmington refinery. The location of the new storage tanks, with the proposed pipeline expansion through the refinery, and continuing to the corner of the Wilmington operation, could be used to source either the Wilmington OR the Carson operations.

Having a major increase in tankage and connection via rail to Washington and via ship to Long Beach, allows Tesoro to increase either lighter Bakken OR heavy Canadian tar sands, both "advantaged" crude oils, both with serious environmental impacts.

There is an array of public information available about the potential impacts at refineries using different crude oil slates. In one example, the International Council on Clean Transportation's 2013 Report: *Effects of Possible Changes in Crude Oil Slate on the U.S. Refining Sector's CO2 Emissions, Final Report*[26] found not only that refinery CO2 emissions varied considerably depending on the type of crude oil processed, but identified the changes in yields of refinery products. Further, an excerpt from this report shows that Bakken shale oil (generally considered on *average* a light and low sulfur crude oil), can vary in quality, and can be heavy,[27] so it should not be assumed that imported Bakken crude would always be lighter than the current slate.

	2011	Crude Slate							
Inputs & Outputs	Calib	Base	Ext. Heavy	Very Heavy	Heavy	Mid Basin	Import Indep	Light	Very Light
Inputs (K b/d)									
Crude Oil	14,712	14,314	14,385	14,554	14,548	14,327	14,354	14,131	14,057
Cat	204	170	246	170	170	170	170	170	170
NGL, Naphtha & Gas Blends	269	302	302	302	302	302	302	302	302
Heavy Gas Oil & Resid	961	474	474	474	474	474	474	474	474
Purchased Energy									
Electricity (MM Kwhrs)	172	167	190	169	177	170	167	165	164
Natural Gas (K Nmbtu)	612	642	783	715	783	665	664	631	626
Outputs (K b/d)	**15,692**	**15,105**	**15,112**	**15,108**	**15,101**	**15,094**	**15,089**	**15,092**	**15,082**
Light Gases	563	542	550	545	539	531	526	519	519
Aromatics, Naphthas, & Av Gas	259	241	241	241	241	241	241	241	241
Hydrocarbon Gasoline	7,623	6,764	6,764	6,764	6,764	6,764	6,764	6,764	6,764
Jet Fuel	1,493	1,565	1,565	1,565	1,565	1,565	1,565	1,565	1,565
Diesel Fuel	4,471	4,946	4,946	4,946	4,946	4,946	4,946	4,946	4,946
Resid & Asphalt	895	715	715	715	715	715	715	715	715
All Other Liquids	359	332	332	332	332	332	332	332	332
Coke	590	696	1,019	1,105	943	731	692	496	381
Sulfur (K s tons/d)	20	19	23	29	26	20	21	13	12

[26] March 29, 2013, http://www.theicct.org/sites/default/files/publications/ICCT_Refinery_GHG_Study_Proj_Report_Apr2013.pdf

[27] In the Table entitled *Exhibit 3: Composition of Alternative Crude Slates, by Crude Type* (K b/d), showed 720 thousand barrels per day of Bakken crude oil in the Heavy Crude designation column, 37th page

The specific CO2 emissions in this study have been refuted by a peer reviewed CBE study published in Environmental Science and Technology[28] which showed that the greenhouse gas emissions impacts of heavy crude oil are much higher than shown in this oil industry-sponsored study.

The CBE paper documented that the impacts of crude oil density or API gravity (heaviness of crude oil) and sulfur content (which usually accompanies heavy crude) on greenhouse gas emissions strongly predicts high energy use at oil refineries. High energy use means high carbon dioxide emissions from this processing. This high energy intensity drove a 39% increase in greenhouse gas emissions across regions and years at oil refineries.

However, even the industry study showed in the chart above that crude quality impacts the volume of individual products *produced* by the refinery. This is also a common-sense conclusion – it is obvious that lighter crude oils produce higher volumes of gasoline, and that heavier crude oils produce more bottoms and more coking. These changes cause a multitude of environmental impacts that the District is well aware of. But the ND assumes contrary to these fundamental principles, that because throughput is expected not to change, and heat input is expected to be the same at the crude unit at the front end, that no changes will occur downstream in the refinery. This is plainly incorrect and must be re-assessed (in addition to the problem of lack of baselines in the ND).

If light, low sulfur Alaska North Slope (ANS) crude oil, which is continually lowering in production, is displaced with extremely heavy, high sulfur Canadian tar sands crude oil, clearly that would increase sulfur content in the refinery, increase corrosion hazard and potential impacts of H2S gas, and require additional energy to process the heavy crude.

If Bakken crude oil were to replace, for example, ANS at the Tesoro refineries, this may or may not be comparable to ANS crude *in gravity and sulfur content*, (since Bakken is acknowledged as extremely variable). However, even if the Bakken crude were light, its high paraffin content described above, can cause waxy, dangerous buildup in transport, in the refineries, can be accompanied by toxic diluents, and explosion hazards (a la Lac Megantic explosion in Canada).

If Bakken is mixed with heavy crudes, asphaltene destabilization, preheater fouling, desalter upsets, unwanted coking, etc., identified earlier in the Hydrocarbon Processing article, can occur. These impacts can cause dangerous shutdowns and accidents. The specific changes must be identified to provide an accurate Project Description, to enable a full evaluation of potential impacts.

If instead, which may be the most likely case, heavy Canadian Select would replace California heavy crude at the Wilmington facility, then sulfur content and API gravity goes up considerably, causing increased presence of H2S and increased energy use; while the Bakken imports would go to the Carson portion of the refinery complete, which is designed to handle lighter crude, but introducing the documented problems associated with Bakken characteristics that are not present in, for example, Alaskan crude.

Other impacts aside from CO2 emissions and energy use were also described in the International Council's report on impacts of varying crude slates. The table entitled Exhibit 11 inserted on the next page from the International Council report described above, identified varying refinery *product outputs* caused by varying *crude oil slate inputs*. In other words, the amount of gasoline, diesel, jet fuel, coke, sulfur, light gases, naphtha, resid, and aromatics produced at the refinery varied depending on the variation of crude oils into the refinery.

That means that the impacts associated with each of these different operations change with different crude oil inputs, and these impacts must be evaluated for the Tesoro project, after providing the baseline crude slate, and comparing it to the proposed potential changes in crude slate facilitated that the new Project allows. Some refinery processes involve light ends (which may for example have high benzene content, a known carcinogen), others involve heavy refinery components (which may for example be associated with higher particulate matter emissions, which increase death rates in the population). Others have high levels of odorous and hazardous sulfur compounds, or may increase fire or explosion risk. The pieces of the refinery are not interchangeable, and modifications to crude slate have impacts on the individual components of the refinery which should have been identified.

A report by Dr. Phyllis Fox on a crude by rail project to the Valero Benicia California refinery identified many impacts due to switches to "advantaged" crude oils, including increased metals, increased use of toxic BTEX compounds, and many other impacts in transportation and at the refinery due to use of changing crude slates.[29] All the issues identified in this report should be evaluated for the Tesoro ND.

CEQA provides requirements for clear project descriptions and potential impacts. Even if Tesoro has permits that allow variations in crude oil types, if those variations can cause significant impacts, they still must be identified and evaluated under CEQA even if allowed by current limited permit conditions. CEQA provides additional protections not necessarily covered by AQMD permit conditions, and this kind of data must be available and transparent for the public CEQA process to be carried out.

[29] Comments on the Initial Study / Mitigated Negative Declaration, Valero Benicia Crude by Rail, June 1, 2013, Dr. Phyllis Fox, attached, http://www.ci.benicia.ca.us/vertical/sites/%7B3436CBED-6A58-4FEF-BFDF-5F9331215932%7D/uploads/Report_by_Dr._Phyllis_Fox.pdf

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B. Integrating the Wilmington and Carson refinery units and logistics operations is related to the Project, and has the potential to cause major impacts

This map from the Negative Declaration shows the close proximity of the **Tesoro Wilmington and Tesoro Carson refinery operations**, with many residences shown in pink surrounding these facilities (and with labels added for the new Tesoro storage tanks, and the Phillips 66 refinery, next door)

When Tesoro purchased the BP Carson refinery, it planned to take advantage of marine operations to allow changes in crude oil feedstock to feed into the whole refinery complex, and specifically planned to integrate the Carson and Wilmington refineries and the Tesoro and BP "logistics" assets (which provide transportation and storage of feedstocks and products).

Tesoro planned to transfer intermediate feedstock to Carson's cokers and other changes, facilitated by the new storage tank expansions. Tesoro also planned to use BP terminals / "logistics" assets for its own materials, and even to use these terminals to sell excess capacity to

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third parties (not even mentioned in the ND). Tesoro should have identified these operations for the ND evaluation. Tesoro has further stated:[38]

> *Integrating the BP assets, specifically the logistics, is expected to drive significant value throughout the West Coast system.* ***The Carson refinery has the only very large crude carrier, or VLCC, capable to dock on the West Coast. We will be able to leverage the broader crude oil sourcing optionality and reduce long-haul shipping costs throughout the Tesoro West Coast system.***
>
> *VLCC freight economics on a per barrel basis typically reduce long-haul shipping costs by between $1 and $2 per barrel.* ***Having this capability will allow us to source more economic alternatives to Alaska North Slope crude oil, which has been a significant component of that Carson refinery's historical crude oil slate. We also anticipate benefiting from Carson's two additional cokers, allowing us to further optimize intermediate feedstock transfers between our refineries.*** *We expect feedstock optimization synergies to account for 40% to 45% of the fully-realized synergies.*
>
> *The primary focus of product synergies is delivering the combined regional production sales volumes to end users in the most efficient way possible. Today, Tesoro uses third-party logistics assets to distribute a significant amount of our product volume.* ***Post close, we intend to drive much of that volume through BP's logistic asset, which have excess capacity. In fact, under the operation of Tesoro Logistics, we feel we can drive additional third-party volume through the combined, historically proprietary, logistics network.*** *We expect these cost improvements to account for 15% to 20% of the total synergies.*
>
> ***As we look at the potential for operating synergies, we are confident that significant value can be created through the combination and reconfiguration of the Carson and Wilmington refineries.*** *One expected benefit is increased clean product yields and greater flexibility between gasoline and distillate production, with a focus on distillates. We expect a combined shift of about 25% in our capability to supply market demand for diesel. With about 10% coming from optimizing the combined assets and the remaining 15% resulting from capital investment. This will allow Tesoro to meet the growing demand for distillate fuel on the West Coast. In addition to our plan to lower manufacturing costs in California prior to the acquisition, we also plan to lower costs as a result of the combined operations.*

This discussion and others documented earlier in this comment also show that the overall "logistics" capacity must be evaluated in total, since increased storage in one part of the Tesoro properties can further free up capacity in other parts of its local complex, and also facilitate third party activities and the "reconfiguration" of the two refineries described by Tesoro.

The previously cited Tesoro February 2014 report to the SEC also again identified the integration of the refineries, the "Logistics" operations, and marketing operations.

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[38] Thomson Reuters Streetevents Edited Transcript, TSO - Tesoro Corporation to Purchase BP's Fully Integrated Southern, California Refining and Marketing Business - Conference Call, August 13, 2012. http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&ved=0CDEQFjAC&url=http%3A%2F%2Fphx.corporate-ir.net%2FExternal.File%3Fitem%3DUGFyZW50SUQ9NDc4MzEzfENoaWxkSUQ9NTExNDM1fFR5cGU9MQ%3D%3D%26t%3D1&ei=ocCPU4zaH4rOqAb_t4LQDA&usg=AFQjCNH0VQpIMISfBGmaQGNaHN0-GHPVaw&sig2=XfnG0PAvBnf1Wz_ud2miA&bvm=bv.68235269,d.b2k

During 2014, we plan to continue to focus on our strategic priorities described above by:

- *delivering the improved California synergies, resulting from our acquisition and integration of the Southern California refining, marketing and logistics business; . . .*

Tesoro Logistics LP

TLLP was formed to own, operate, develop and acquire logistics assets to ***gather crude oil*** *and* ***distribute, transport and <u>store</u>*** *crude oil and refined products.* [Emphasis added throughout]

These plans, put forth so publicly, repeatedly, and recently, before and after the purchase of the BP properties, should have been disclosed in the ND as part of the Project. The ND is entirely at odds with this public description of Tesoro's own plans. Existing permit conditions listed in the ND are not sufficient to prevent these major refinery changes for which the storage tanks are needed.

The ND identifies the following existing permit conditions and makes very generalized conclusory statements that the Project is not for other purposes, but the ND does not provide the baseline evidence necessary to substantiate these claims, that are so in conflict with the evidence of Tesoro's own statements:

- The existing Tanks 80035 and 80036 are both currently permitted to store petroleum materials including crude oil, hydrocracking unit (HCU) feedstock (a light gas oil . . .
- The two new tanks are proposed to be permitted to store light and heavy crude oils of varying vapor pressures up to 11 pounds per square inch (psi), light gas oils such as HCU feedstock and fluid catalytic cracking unit (FCCU) feedstock, and heavy gas oil
- Tank 80038 is currently permitted to store petroleum distillate products with true vapor pressures less than 0.5 psi such as crude oil and heavy gas oils and is not connected to the vapor recovery system. Tank 80038 currently primarily stores vacuum gas oil, a heavy gas oil. The proposed modifications to Tank 80038 would change the type of commodity to be stored in the tank to also include light gas oil and connect Tank 80038 . . .
- All modifications associated with the proposed project will occur within the confines of the Wilmington Operations . . .
- . . . no modifications will occur at the Carson Operations.
- The proposed project was conceived, and the applications for the proposed project were submitted to the SCAQMD prior to Tesoro's acquisition of the Carson Operations.
- The overall amount of crude oil delivered to the Wilmington Operations will not change from current operations.
- The proposed project will not increase the total amount of crude oil delivered to the Wilmington Operations on an annual basis and will not alter the methods of

crude oil delivery because crude oil will continue to be delivered via ships and pipeline.

- No modifications are proposed to the existing crude oil delivery pipeline from the Marine Terminal. Further, no other pipelines that deliver crude or any other product to the Wilmington Operations will be modified as part of the proposed project.
- Further, Tesoro is not proposing to change the crude oil throughput of the Wilmington Operations or any downstream refining processes because crude oil storage capacity is not a limiting factor for the throughput and production at the Wilmington Operations.
- Refining operations fluctuate and are controlled by many factors, including but not limited to, equipment design parameters, market demand, equipment maintenance schedules, equipment permit limit conditions, and crude oil characteristics (e.g., sulfur content, acidity, specific gravity, etc.).
- . . Tesoro has operated the refining processes at the Wilmington Operations at the maximum capacity in the past and are expected to continue to operate up to or at maximum capacity in the future. Therefore, the baseline crude oil throughput rate and product output of the Wilmington Operations on a daily or an annual basis would not change as a result of implementing the proposed project.
- The refining capacity of the Wilmington Operations is constrained by a number of factors including equipment design parameters, market demand, equipment maintenance schedules, equipment permit limit conditions, and crude oil characteristics (e.g., sulfur content, acidity, specific gravity, etc.).
- The refining capacity is based on the overall design of the refining processes within the Wilmington Operations.
- The heat required to first separate crude oil into various intermediate products, which are later refined further, dictates the amount of crude oil that can be processed overall by the Wilmington Operations.
- Specifically, the Crude Unit, the first step in the refining process, receives the crude oil directly from storage (i.e. from both the existing and proposed storage tanks); has operating limits on the heater, which limits the amount of crude oil that can be processed.
- The Crude Unit operations fluctuate based on conditions of other process units within the Wilmington Operations, market demand, and crude oil characteristics.
- The Crude Unit heater routinely operates at various firing rates and will continue to operate at various firing rates, which is considered to be the baseline at the Wilmington Operations, and the proposed project does not include modifications to the Crude Unit throughput or heater firing rate.

The reasoning that no modifications will occur at the Carson refinery is conclusory, because the Project is currently self-defined as only including the pipe and storage tank increases.

The reasoning that operations "fluctuate" based on "conditions of other process units, market demand, and crude characteristics" is always true of every refinery. This general statement by no means precludes environmental impacts occurring.

No timeline or size of such fluctuations is identified in the ND, so they could be unlimited. Baseline periods and quantification of degree of fluctuations should be identified.

Such fluctuations in crude oil characteristics were identified in the literature previously cited as directly causing environmental impacts.

No baselines were provided for crude oil sulfur, metals, paraffin, or carbon content, or for any crude oil characteristics whatsoever.

Neither does the ND identify whether existing permit conditions for the tanks or other parts of the refinery include any limits on such characteristics.

The ND does not provide any information on the baseline "heat" provided in the crude unit heaters mentioned in the ND.

The ND does not provide any information about when in the past the refinery was operated at "maximum capacity," how maximum capacity is defined, how long ago this occurred, for how long this occurred, and at what percentage of the capacity the refinery is currently running.

Further, the ND does not identify the baseline levels of any other process units within the Wilmington refinery, or within the Carson refinery.

The ND does not identify whether there is existing piping connected to, or close to the Wilmington tanks that could bring materials in the future to the Carson refinery.

The ND does not identify whether the tankage increase in Wilmington could free up other tankage at either refinery, or that could be connected in the near future.

The ND does not identify whether such changes could change the yields of different units within the Carson or the Wilmington refinery.

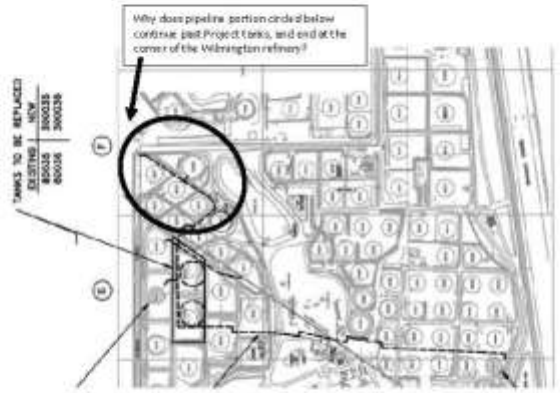
All these and more such details are essential to an evaluation of the Project and its impacts.

C. The new pipeline across the Wilmington refinery to the Project storage tanks continues past the tanks to the corner of the Wilmington property closer to the Carson property, and next to a railway

The ND states that the Project does not involve the Carson refinery, nor any transport by rail, or anything besides the pipeline and the storage tanks. But the new pipeline through the Tesoro facility is routed not only to the new tanks, but *beyond* them, to a corner of the refinery that is

close to the Carson portion of the refinery, and is also next to rail lines that traverse the length of the refinery between the Carson and the Wilmington operations.

I have circled the end of the pipeline route which was identified in the refinery layout map provided by the ND. The ND graphic shows an additional length of pipeline *beyond* the Project tanks, to the corner of the Wilmington refinery property, but provides no explanation about the potential for this extended pipeline to connect with additional refinery and logistics operations (including the Carson refinery, the adjacent rail yard, other storage tanks, and potentially even to trucking assets). There is also an extra leg of pipeline indicated without explanation, between two tanks that were not identified as part of the Project.



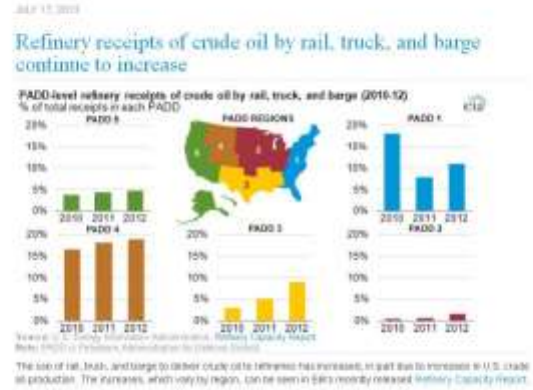
The ND must be recirculated as a full EIR, and the potential for connections to the Carson portion of the refinery must be identified. Existing nearby pipelines and connections, plans made known to the AQMD of such connections, and the general potential for such connections that the Project facilitates must be evaluated.

In addition to the potential that the storage tanks and pipeline are located in close proximity to the Carson refinery, they are also next to a rail line which runs from top to bottom to the left of the diagram above. The US Energy Information Administration website provides the following charts[31] showing the steady increase of alternative forms of crude oil delivery to oil refineries instead of ship (rail, barge, and truck), including in California. The ND states that Tesoro does not currently transport crude by rail to the Wilmington refinery (at 1-1), but that does not

[31] http://www.eia.gov/todayinenergy/detail.cfm?id=12131

preclude the Project from facilitating such a project in the near future, especially given the proximity of the tanks to a rail line. The potential to connect in the future to other local rail should also have been discussed.

Further, Tesoro owns major truck terminal assets. The ND does not provide any information about any applications in process related to truck terminals, baseline activities, potential connections to other transport modes, or the potential for the increase in storage to be connected to Tesoro's terminal. While ship is the more obvious choice at this time, the potential for flexibility of these storage tanks for Tesoro to connect with other transport such as rail and truck should also have been evaluated in the ND.



However, the most crucial omission was the failure to evaluate the Project's role in the integration of the Wilmington and Carson portions of the refinery complex.

D. Volumes and throughput are also publicly planned to increase at the Southern California Marine Terminals according to Tesoro

As described earlier, and also in Tesoro's May 1, 2014 earning call, Philip Anderson, President of Tesoro Logistics LP identified increases in the volumes that its terminals will handle (not just the speed of offloading), increasing throughput capacity[32].

[32] Thomson Reuters Streetevents Edited Transcript, TLLP – Q1 2014 Tesoro Logistics LP Earnings Conference Call, May 1, 2014, pp .6-7.

> *"We have two of our terminals are being expanded to handle additional capacity, and those expansions will come online this summer. And that will allow us to bump up volumes either very late in the second quarter or early in the third quarter." . . .*
>
> *"Our marine facility down there [Long Beach], 121, which is the large neighbor de-berth in Long Beach, stays pretty full. We have our legacy to Long Beach terminal [Marine Terminal] that is adjacent to our newly acquired, what we call, P-2 in Long Beach. And between P-2 and our legacy Long Beach terminal, we probably have an additional 100,000 plus barrels per day of throughput capacity."*

The ND can't legitimately cut the baby in half – the reason for the increase in offloading through a much larger pipeline and into much larger tankage is admittedly a planned throughput increase in Tesoro's marine terminals.

Tesoro will be enabled to offload over 12 times as fast from its marine loading operations to the new and expanded onshore storage tanks through the Project's expanded 42-inch pipeline. Not only will this enable increased *speed* of offloading, it will free up the terminals to allow scheduling of additional ships to port for offloading at these large storage tanks.

As previously discussed, the US Department of Transportation found that all modes of transportation for Bakken crude need to assess the safety hazards it poses. Further, the AQMD must also evaluate the hazards involved with the transport by ship of heavy tar sands crude, and the diluents that come along with it.

E. The Project has the potential to increase coking

As identified above, there is a major potential to increase the proportion of heavy crude oil from Canada, which would increase coking. The AQMD performed source tests at South Coast refineries and found the following emissions (in lbs per coking cycle).[33] Coking cycles at least once a day. While the AQMD adopted a regulation to reduce these emissions, final deadlines of the regulation are in 2019, so increased coking in the meantime will mean increased impacts from VOCs, particulate matter, sulfur compounds, and the greenhouse gas methane from these operations, which were not evaluated in the EIR. First the ND needs to provide information about the crude slate baseline and coking baseline so that the degree of increased coking can be identified.

[33] Proposed Rule 1114 Working Group Meeting, September 27, 2012, Petroleum Refinery Coking Operations (staff presentation, Slide 4)

AQMD Source Test Results

Company	Test Initial Drum Vent Pressure (psig)	-- lbs/cycle --				
		VOC	PM	Condensable PM/VOC	Sulfur Compounds	Methane
BP[1]	8.89	4.44	3.77	8.66	8.16	165.47
Chevron	0.4	11.16	1.25	12.52	N/A	80.96
Conoco[2]	N/A	N/A	N/A	N/A	N/A	N/A
ExxonMobil[2]	11	1.89	0.34	0.64	N/A	12.72
Tesoro	7	5.3	0.56	1.46	N/A	34
Valero	3.0	4.29	0.28	0.48	0.48	1.66

1. Used three very short, no pressure was obtained
2. Results inconclusive, test was not short due to safety concerns

F. The increased Storage Tanks themselves have significant impacts, for example, due to the increased tank and pipeline size causing increased risk from fires and earthquakes

The Project treated earthquakes and fires as separate issues. This provides an unrealistic probability that oil and gas fires would occur. The Project instead should be considered to cause a significant increase in the probability of oil and gas fires due to the imminent earthquake hazard. Oil and gas fires are very difficult to extinguish, and could easily spread. Such fires can emit large clouds of hazardous black smoke over the region.

Obviously, the risk of explosion and fire due to Bakken crude oil represents much increased risk, as previously discussed. However, just the increased size of the tankage increases the volume of material vastly, which of course increases the impacts when a fire or explosion occurs, regardless of the type of crude oil present.

A major earthquake is not just a theoretical possibility. The risk of a major earthquake in the region is imminent and severe. A September 2005 Los Angeles Times article,[34] *Katrina's Aftermath, California Earthquake Could Be the Next Katrina*, reported:

> "A state study published last year on hazard reduction paints a sobering picture of California's earthquake danger. About 62% of the population lives in a zone of high earthquake danger, including 100% of the population of Ventura County, **99% of Los Angeles County** and 92% of Riverside County. . . .
>
> **"Researchers at the Southern California Earthquake Center said there is an 80% to 90% chance that a temblor of 7.0 or greater magnitude will strike Southern California before 2024."**

[34] September 10, 2005, Los Angeles Times, KATRINA'S AFTERMATH; California Earthquake Could Be the Next Katrina, by Jia-Rui Chong and Hector Becerra, Times Staff Writers, http://www.latimes.com/news/local/la-earthquake08sep08,1,2126004.story?coll=la-util-news-local

The Southern California Earthquake Center (at the University of Southern California)[35] (SCEC) earlier found:[36]

> *"The last official estimate of earthquake potential in southern California was the 1988 report of the Working Group on California Earthquake Probabilities. The report estimated the probabilities of large "characteristic" earthquakes on major faults, like the San Andreas and San Jacinto faults. The report concluded that there is a 60% chance of at least one large earthquake (M => 7) on the San Andreas fault before the year 2018.*
>
> ***The report concluded that the probability is even higher, 80-90%, when other faults are included.***"

Such an earthquake could occur today. Severe ground shaking will occur during the inevitable major earthquake in Los Angeles area. Los Angeles' soil types cause increased ground shaking:[37]

The Uniform Building Code does not prevent significant and even severe earthquake damage In an Environmental Impact Report performed for Industrial Service Oil Company, Inc. (ISOCI) of Los Angeles, the potential for damage to structures (including oil treatment and storage structures) was identified, despite the fact that the facility stated it would comply with the Uniform Building Code:[38]

> ***Based on the historical record, it is highly probable that the Los Angeles region will be affected by future earthquakes.*** *Research shows that damaging earthquakes will be likely to occur on or near recognized faults showing evidence of recent geologic activity.*
>
> *The impacts of an earthquake on the site are considered to be greater than the current conditions since additional structures will be constructed including new treatment and storage facilities.* ***Impacts of an earthquake could include tank and other structural failure.***
>
> *Additional structures at the site must be designed to comply with the Uniform Building Code . . . The goal of the code is to provide structures that will:*
>
> *(1) Resist minor earthquakes without damage;*
>
> *(2) resist moderate earthquakes without structural but with some non-structural damage; and*

[35] SCEC (at the University of Southern California) gathers and combines new information about earthquakes in Southern California, is supported by the National Science Foundation and the U.S. Geological Survey, and coordinates efforts of over 50 institutions

[36] *Seismic Hazards in Southern California: Probable Earthquakes, 1994-2024.* Presentation and Panel Discussion Held at the OES Conference, "Northridge Earthquake--One Year Later," January 20, 1995, Southern California Earthquake Center, http://www.scec.org/news/newsletter/issue1.1.pdf

[37] *"Another project in progress will update this map by showing a higher level of shaking for soft-soil sites. This will lead to a higher rate of damaging shaking because the more common smaller earthquakes will produce greater shaking in soft soil. The result will be to increase slightly the rates for the sedimentary basins such as the Los Angeles basin and the San Gabriel, Ventura and San Bernardino Valleys."* Seismic Hazards Map for Southern California, Southern California Earthquake Data Center, http://www.data.scec.org/general/Phase1.html

[38] Draft Environmental Impact Report for the Industrial Services Oil Company, Inc. (ISOCI) Hazardous Waste Facility Application, November 2005, page 3-58

> *(3) resist major earthquakes without collapse but with some structural and non-structural damage. . . .*

Thus, the ISOCI EIR found that an earthquake in the region could cause tank and other structural failure, and also found that the Uniform Building code does not preclude all damage from earthquakes. It found that the Code is only meant to cause *resistance* to earthquake damage and collapse. These same risks exist at the proposed Oxy site.

A discussion of remaining risks which exist after compliance with the Uniform Building Code was provided in a publication by Dr. Robert J. Kuntz, President of the California Engineering Foundation, and Daniel L. Tanner, the California Engineering Foundation's Economic Consultant. This document found:[39]

> **The California Building Code offers only minimal protection from seismic damage,** i.e., a structure should not be damaged in a minor earthquake, damaged beyond repair in a moderate earthquake, nor collapse in a major earthquake. However new technologies, such as seismic isolation, can mitigate both structural and building contents damage and are becoming available to government and industry. There is a need for design professionals, building officials, planners, and building owners to become aware of these new technologies, the criteria for their use, and how to incorporate them into practice.
>
> **The Uniform Building Code provides minimal seismic protection determined acceptable by local governments, but Code specifications do not prevent structural damage nor ensure the use of a building after an earthquake.**
>
> Such limited protection is not consistent with the needs of commerce or emergency facilities, which must remain operational after an earthquake, nor does it protect the contents of a building. Two earthquakes which struck near the Lawrence Livermore National Laboratory in California, within two days of each other in January of 1980, caused a total of $10 million in damage. Nearly half of the damage was to laboratory equipment, testing systems, and other building contents.

As an illustration of the potential damage that can occur in an industrial area during a major earthquake, the 1999 earthquake in Turkey was evaluated by the Pacific Earthquake Engineering Research Center. An excerpt of a report on this study is provided below. The report found *"The earthquake struck the industrial heartland of Turkey."* It found that complete structural failures due to earthquake were few in number, but severe damage short of complete structural failure did occur. One example was the failure of floating roofs in crude oil tanks.

Such fracturing and crumpling of support structures and other earthquake damage to industrial equipment not only cause leaks and spills, but could easily cause fires. Even in residences, fires during earthquakes are a known common hazard due to leaking natural gas, broken structures and electrical systems, ignition sources, etc. When damage occurs during major earthquakes to heavy industrial facilities that store, transfer, and process combustible materials, there is even more potential for dangerous fires. The Turkish example included a fire during the 1999

[39] Disaster Recovery Journal, 1999, http://www.drj.com/drworld/content/w2_066.htm

earthquake when a refinery cooling tower failed, and also when eight naphtha- storing fuel tanks burned.

A publication funded by the Earthquake Engineering Research Institute and the Washington Emergency Management Division (2005)[40] found severe damage due to earthquakes, including long term environmental impacts of hazardous material releases. The Report found:

> Fire following the earthquake caused severe damage to the Tüpras refinery. Other observed structural failures in the refinery were to a 115-m-tall smokestack, floating roofs in crude oil tanks, and piles supporting a jetty. Substations and one power generation facility suffered damage ranging from overturned transformers to fractured porcelain switches."

Another publication described the Kocaeli fire, the tank structural damage, fire and collapse, and oil spilled into the sea, and major equipment including a large boiler knocked off its foundation:[41]

Fig. 5. Fire damage to naphtha tanks at Tüpras refinery\.

In addition to the risk of fires associated with earthquakes well known to California regulators (as well as those documented after the Turkish earthquake), a publication of the University of Patras, Greece -- *Safeguarding Hydrocarbons Inside Local Earthquake Defense Systems*[42] --

[40] *Scenario for a Magnitude 6.7 Earthquake on the Seattle Fault, A Project Funded by the Earthquake Engineering Research Institute and the Washington Emergency Management Division, February 2005, Excerpts from a publication of the same title to be released March 2005* , page 20, http://seattlescenario.eeri.org/documents/EQ%202-28%20booklet.pdf

[41] *PEER Center News*, Vol. 2 No. 4 October 1999, http://peer.berkeley.edu/news/1999october/turkey.html , excerpt. *PEER Center News* is a quarterly publication of Pacific Earthquake Engineering Research Center, highlighting research and information of interest to earthquake engineering researchers and professionals. http://peer.berkeley.edu/news/1999october/turkey.html

[42] *Safeguarding Hydrocarbons Inside Local Earthquake Defense Systems*, Project participants: UPS: Seismology Centre, University of Patras, Greece, UEA: School of Environmental Sciences, University of East Anglia, Norwich, England, DEPA: The Public Gas Company of Greece, GSCP: The General Secretariat of Civil Protection, AGISCO, Aspirail & Associates, and ECS: Euroconsultants,

found major fire risks from earthquakes associated with burning hydrocarbons to be a general problem around the world:

> "***Hydrocarbons, particularly gas, also create a much increased risk of fire as a major secondary consequence following earthquake damage.*** *There is a growing danger that major Greek cities may experience fire damage after a strong earthquake, enhanced by the increased supply of gas into urban areas. Fires following the earthquake at Kobe in Japan 1995 and Turkey 1999 (Fig.1,2) provided a salutary example of impact even in a well-regulated, modern and earthquake conscious country. Longer memories recall the conflagration in Tokyo that followed the 1923 Kwanto earthquake."*

The new tanks could be used for Bakken or Canadian Tar Sands crude oil according to Tesoro's plans. Bakken crude oil has been shown to be explosive (as in the tragic Lac Megantic rail explosion). It is indisputable that fires and explosions, especially due to earthquake must be evaluated in a new ND related to Tesoro's and Tesoro Logistic's plans to bring Bakken crude oil into its facilities and crude oil tanks.

http://seismo.geology.upatras.gr/shield/SHIELDS2003.htm

But even with heavy Canadian Tar Sands crude that Tesoro may switch to, an earthquake or other impact could cause a major oil fire. (And that is without considered the addition of volatile diluents added to tar sands crude, which should have been considered.)

An example of severe fires at a facility processing heavier grades of oil includes the Third Coast Industries fire in Houston Texas. The U.S. Chemical Safety and Hazard Investigation Board came to the conclusion that higher flash point ("non-ignitable") materials such as heavy oils can represent major fire hazards.[43] This agency concluded after evaluation of the huge 2002 automotive fluid blending plant fire in Texas, that oils with flash points greater than 200°F classified as "Combustible IIIB" (including motor oils) should be treated with more care regarding fire safety. The Texas fire under investigation could not be put out, and completely destroyed the facility.

In the Texas case, the Chemical Safety Board found that while most of the material onsite at this facility had higher flash points (meaning they we heavier, less volatile materials), the presence of small amounts of some liquids which were more easily combustible with lower flashpoints, could have caused the fire to start, and then combusted the bulk of the higher flashpoint materials. The Chemical Safety Board found that such higher flash point oils burn "fiercely" once a fire is started.

The Board concluded that fire codes and workplace safety regulations should apply more controls to combustible liquid storage and handling. In the aftermath of the Third Coset fire, the Board communicated its concerns in correspondence to the U.S. Occupational Safety and Health Administration (OSHA). The Chemical Safety Board also found:

> ... the facility was not designed to contain the contaminated runoff that could result from fighting the fire with water. Fire officials therefore decided they had no choice but to let the plant burn, and they focused on protecting nearby homes from destruction.

A 2005 oil depot fire in the Hertfordshire in the United Kingdom also illustrates how severe offsite impacts from smoky oil fires can be. The inefficient burning of petroleum products at this site caused huge smoking plumes similar to smoking which could occur at the Warren facility if a fire were to break out, due to earthquake or other reasons.[44]

The Hertfordshire Oil Terminal fire showed that such fires cause huge smoky plumes due to poor combustion of hydrocarbon materials. Smoke from an oil fire and/or hazardous materials burning could cause major emissions of particulate matter, PAHs (Polycyclic Aromatic Hydrocarbons), sulfur oxides, heavy metals including lead, mercury, and chromium, chlorinated compounds including deadly dioxins, and many other hazardous compounds.

Smoky fires and gas plumes from such an event could reach nearby residential areas and impact workers offsite and onsite, and could billow for miles. Even a moderate fire could heavily impact

[43] *Third Coast Industries Fire*, Brazoria County, Texas May 3, 2002, U.S. Chemical Safety and Hazard Investigation Board, CSB Investigation Digest, http://www.csb.gov/third-coast-industries-petroleum-products-blending-fire

[44] http://en.wikipedia.org/wiki/2005_Hertfordshire_Oil_Storage_Terminal_fire#Causes

neighbors and schoolchildren, especially people with respiratory problems, asthma, or heart conditions, but could also significantly impact healthy adults. The impact would depend on fire size, availability of the fire department (which may not be the case in an earthquake), and how long it takes to put out the fire. In the event of an earthquake, the public has been repeatedly informed that emergency services may not be available for some time, due to obstructions on roadways, and broken water supplies.

The potential of such hazards due to a major earthquake must be evaluated in an EIR.

G. The approximate mile-long expanded pipeline from the Marine Terminal to the Wilmington refinery tanks increases earthquake risks

The ND fails to evaluate the increased volume of crude oil present in the pipeline at any one time, and the increased risk of spill this would cause, especially due to earthquakes. It relies on a stated assumption that annual transport would stay the same (which is also contradicted by Tesoro's published plans, and not inherently true unless specific new conditions are set).

See the discussion above about risks of fires and explosions related to Bakken and Canadian Tar Sands Crude oil in the new expanded storage tanks. The same concern applies due to the large amount of petroleum material that would be added to the approximately mile-long pipeline from the marine terminal to the tanks. Compliance with building codes is meant to reduce risks, but is not considered to eliminate earthquake risk. The ND was wrong in its failure to consider the combination of fire and explosion from earthquakes, which would obviously be increased due to the higher volumes of materials that would be present. The smoky black plumes caused by oil fires contain particulate matter, PAHs (Polycyclic Aromatic Hydrocarbons) and many other harmful compounds that should have been evaluated in the ND with regards to oil fire risk that will certainly be significantly elevated due to the Project increases.

H. Other Potential Project Impacts

Evaluation of the following should be added, especially given the changes in crude slate planned by Tesoro:

- Tank cleaning and degassing: Storage tanks must be periodically cleaned. Emissions from tank cleaning operations for preparation for the modifications of the existing tanks, and later tank cleaning during ongoing operation of both existing and new tanks, was not identified and assessed. Because refinery crude oil storage tanks are very large, and over time crude storage results in accumulation of heavy sludge (called tank "bottoms"), this must periodically be cleaned and removed. SCAQMD Rule 1149 (Storage Tank and Pipeline Cleaning and Degassing) controls but does not eliminate these emissions from the extremely large volumes of hydrocarbon product in these tanks.[45] Tank cleaning and degassing protocols and frequency should be identified and emissions calculated.

[45] Final Environmental Assessment: Proposed Amended Rule 1149 – Storage Tank and Pipeline Cleaning and Degassing, April 2008, SCAQMD http://www.aqmd.gov/ceqa/documents/2008/aqmd/finalEA/PR1149.pdf

In addition, the Hydrocarbon Processing article (Innovative Solutions) identified storage tank waxy buildup and sludge as a specific problem with shale oil storage, with a solution to use chemicals to break up the waxes. The impacts, effects on tank operation and cleaning, and impacts of solutions such as chemicals used to break up waxes, should also be evaluated in an EIR process.[6] Furthermore, impacts related to tar sands storage and tank cleaning, including heavy tank bottoms, and use of diluents must be addressed.

- Pipeline cleaning and degassing: Pipelines are also periodically cleaned and degassed, and in this case, emissions would likely occur not only during future pipeline operation and maintenance activities, but also during the construction connection process with the new tanks. Again, Rule 1149 applies, but does not eliminate all emissions. Further, shorter runs of pipe are exempt, as described in the SCAQMD staff report, and so would not be controlled.[7] Identification of the pipeline lengths, connectors, construction activities, operation, and maintenance activities, including cleaning and degassing, and fugitive emissions from connectors should be specifically described and emissions quantified.
- Flaring of tank and pipeline gases: If flares are used to control degassing emissions for tanks and pipelines, the gas volumes, flare hydrocarbon destruction efficiency, and remaining VOC emissions from flaring should be identified (as well as NOx, SOx, particulate matter, and other emissions).
- Unplanned process shutdowns: Because unconventional crude oils can reduce run-times to half that of planned turnarounds (planned maintenance schedules) as identified in the earlier-cited Oil & Gas Journal article, this means additional air emissions. Unplanned refinery shutdowns increases startup / shutdown and maintenance emissions include increased flaring emissions, potential pressure relief device venting to atmosphere, and also increase the risk of fires and explosions with many associated emissions (not only VOCs, but particulate matter, hydrogen sulfide, all the criteria pollutants, toxics including PAHs (polycyclic aromatic hydrocarbons), and many more). They also increase safety risks for workers and neighbors)

[6] "Due to the variation in solids loading and their paraffinic nature, processing shale oils in refinery operations offers several challenges. Problems can be found from the tank farms to the desalter, preheat exchangers and furnaces, and increased corrosion in the CDU. In the refinery tank farm, entrained solids can agglomerate and rapidly settle, adding to the sludge layer in the tank bottoms. Waxes crystalize and settle or coat the tank walls, thus reducing storage capacity. Waxes will stabilize emulsions and suspend solids in the storage tanks, leading to slugs of sludge entering the CDU. Waxes will also coat the transfer piping, resulting in increased pressure drop and hydraulic restrictions."
Alg. 1-13

IV. **Conclusion – Potential Impacts are large, have not been mitigated, no alternatives or Cumulative Impacts were analyzed, and an EIR must be developed**

My conclusion is that there is an abundance of evidence on the deficiencies in the Project Description and the missing significant environmental impacts due to the full actual Project. Accordingly, AQMD is required to prepare a full EIR. Because the ND incorrectly portrayed this Project as relatively a minor change, numerous impacts are either understated or missing. Mitigation, Cumulative Impacts and Project Alternatives to avoid these significant impacts were not evaluated.

COMMENT SET 9: COMMUNITIES FOR A BETTER ENVIRONMENT

Attachment B

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TESORO
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February 27, 2014


Forward Looking Statements
TESORO


Tesoro
Key Metrics 2010 2013
Enterprise Value ($ billions) 3.5 10.5
Market Cap ($ billions) 2.0 7.7
Refining Capacity (MBD) 665 850
Refining Complexity 9.8 11.5
Branded Retail Stations 880 2,264
Marketing Integration (%) 53 87
Employees 5,300 7,000
Retail Sales (2013 MBD) 87 266
TESORO
Kenai, AK
72 MBD
Anacortes, WA
120 MBD
Mandan, ND
71 MBD
Martinez, CA
166 MBD
Salt Lake City, UT
58 MBD
Los Angeles, CA
363 MBD
San Antonio
Headquarters
TESORO LOGISTICS
ARCO
Exxon
Mobil


Tesoro Logistics LP
Key Metrics
Enterprise Value ($ billions) 4.0
Market Cap ($ billions) 2.9
Crude Oil and Refined Product Pipelines 1,570 miles
High Plains Pipeline Throughput 90+ MBD
High Plains Trucking Volume 45 MBD
Marketing Terminal Capacity 636 MBD
Marine Terminal Capacity 795 MBD
Rail Terminal Capacity 50 MBD
Dedicated Storage Capacity 7,700 MBBLS
TESORO
Kenai
Anacortes
Mandan
Martinez
Salt Lake City
Los Angeles
TESORO LOGISTICS
TLLP growing rapidly into a premier Western US logistics provider

Market Outlook - Overview

TESORO

Key Drivers	Tesoro's View
Global Economic Outlook	Moderate growth
U.S. Economic Outlook	2 – 2.5% GDP growth
Global Refining Capacity	Capacity exceeds demand
U.S. Refining Utilization	High due to low feedstock and natural gas prices
U.S. Crude Oil Supply	Strong growth in North American crude oil production
World Product Demand Growth	Gasoline ~1%; diesel ~2% per year
U.S. Product Demand Growth	Gasoline flat; diesel ~1% per year
U.S. Product Exports	Strong and growing supported by U.S. competitive position
Renewable Fuel Growth	Delays in development of advanced fuels
Regulatory Environment	Challenges and uncertainty

PADD V Fundamentals

TESORO

- Gasoline demand expected to grow 0 to 0.5% annually through 2016
- Diesel demand expected to grow 1.0% annually
- Net clean product exports expected to remain 100-150 MBD
- California unemployment 8.7%, down from over 10% last year
- Tesoro's gasoline refining production is highly integrated with marketing

West Coast economy improved and demand stabilizing

Keys to Distinction on the West Coast

TESORO

- Operating cost advantage
- Flexible yield structure
- Access to cost-advantaged crude oil
- Integrated logistics infrastructure
- Secure and ratable refinery off-take
- Cost-advantaged regulatory compliance

Los Angeles acquisition transforms our capabilities

Strategic Priorities

TESORO

- Operational efficiency and effectiveness
  - Safety and reliability
  - Cost leadership
  - System improvements
- Commercial excellence
- Financial discipline
- Value-driven growth
- High performing culture

Enduring commitment to execution

Execution of Strategic Priorities

TESORO

Distinctive Performance: 2014 and 2015

- Deliver California synergies
- Enhance gross margin
- Improve the base
- Grow logistics
- Maintain financial discipline

Targeting $370 to $430 million of EBITDA improvements in 2014

Distinctive Performance Objectives

TESORO

- Distinctive Performance Objectives

$ million	2014	2015
Deliver California Synergies	160 – 180	260 – 300
Enhance gross margin	140 – 160	250 – 290
Improve the base	70 – 90	80 – 120
Annual EBITDA Improvement[1]	**370 – 430**	**590 – 710**

- Grow logistics
  - Grow EBITDA by $200 million by 2015
  - Deliver incremental Tesoro shareholder value of $1 billion
- Maintain financial discipline
  - Maintain balance sheet strength, drive toward investment grade
  - Invest free cash flow in high-return capital projects
  - Return excess cash to shareholders

1) Improvements over 2013 results.

California Synergy EBITDA

TESORO

- Feedstock Advantage
- Logistics Optimization
- Production Optimization
- Operating Cost Improvements

Synergy value and pace of capture significantly improved

California Synergy Capital Expenditures

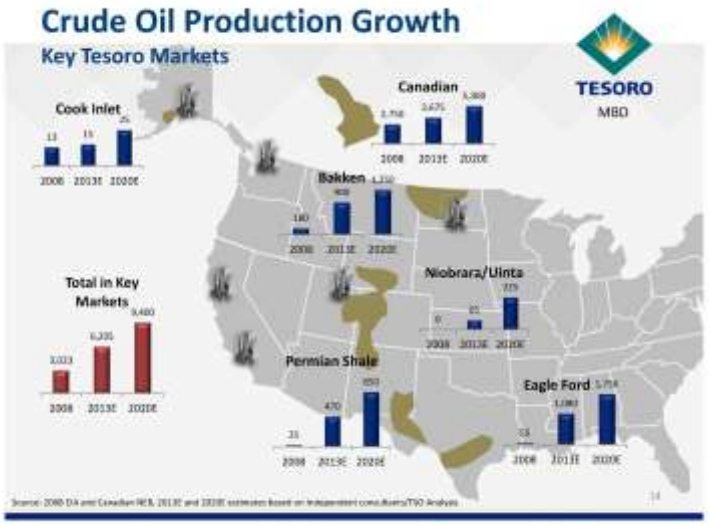
TESORO

- **Los Angeles Refinery Integration Project**
  - Optimizes processing capability
  - Provides 30-40 MBD product flexibility
  - Reduces CO2 emission 500,000 tons per year
- **Logistics Projects**
  - Link logistics assets
  - Reduce third party fees
  - Provides feedstock and product optionality
- **Processing Projects**
  - Strengthen conversion capability
  - Provides feedstock flexibility
  - Improves product yields

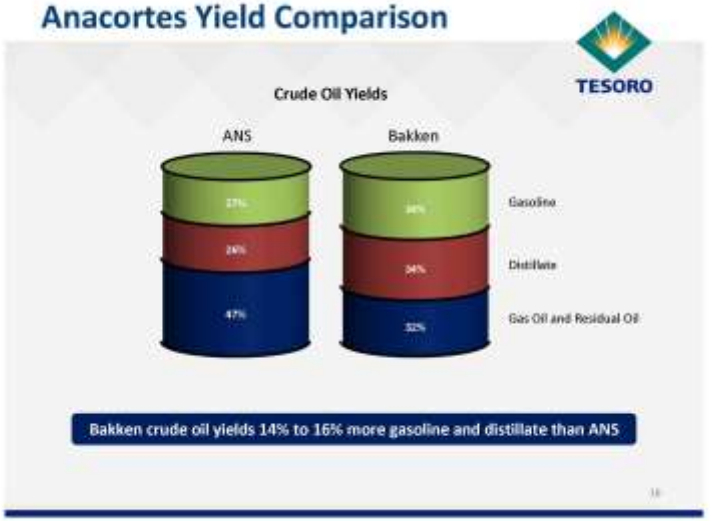
Disciplined delivery of high return capital investments

Note: Net synergy capital of ~$375 MM (including savings beyond 2017, which are reflected in 2017E), capital plan net of capital avoidance, 2017 emissions estimate is subject to final project scope and detailed engineering.


Tesoro's Advantaged Feedstock Opportunity
TESORO
Opportunities by Refinery
• Kenai
– Currently up to 25% Cook Inlet
– Potentially up to 67% Cook Inlet and Bakken
• Martinez
– Currently up to 45% California Heavy and Bakken
– Potentially up to 67% California Heavy and Bakken
• Los Angeles
– Currently up to 15% California Heavy
– Potentially up to 50% California Heavy and Bakken
Potential impact on ANS crude oil
• Competitive pricing
• Relative refining value
72 MBD
120 MBD
70% advantaged
71 MBD
100% advantaged
166 MBD
58 MBD
100% advantaged
363 MBD
Extending the advantaged crude oil to West Coast


Crude Oil Production Growth
Key Tesoro Markets
TESORO
MBD
Cook Inlet
Canadian
Bakken
Total in Key Markets
Niobrara/Uinta
Permian Shale
Eagle Ford


Rail Costs to Clear Bakken
TESORO
$6-7/bbl
$5.50-6.50/bbl
$9-10/bbl
$9.50-10.50/bbl
$9-10/bbl
Bakken Crude Oil Supply and Logistics
MBD
2013
2014E
2015E
Crude Oil Production¹
865
1,000
1,200
Pipeline Export Capacity
635
685
685
Rail Export Capacity
865
1,015
1,015
West Coast Unloading Capacity
218
395
910
East Coast Unloading Capacity
700
780
780
West and East Coasts clearing destinations for Bakken crude oil


Anacortes Yield Comparison
TESORO
Crude Oil Yields
ANS
Bakken
27%
26%
47%
34%
34%
32%
Gasoline
Distillate
Gas Oil and Residual Oil
Bakken crude oil yields 14% to 16% more gasoline and distillate than ANS

Port of Vancouver

TESORO

- Up to 300 MBD Rail-to-Marine Terminal
  - Joint venture with Savage Companies
- Port of Vancouver advantages
  - Flexibility to deliver to all West Coast refineries
  - Competitive with direct rail cost to California
  - Existing rail and marine infrastructure
- Port of Vancouver granted lease 3Q13

	Completed Facility
Capacity	Up to 300 MBD
Estimated Completion	4Q14 – 4Q15
Tesoro Initial Committed Capacity	60 MBD

A premier advantaged crude oil facility for the West Coast

West Coast Refining System Opportunity

TESORO

Tesoro Consolidated West Coast Index

Tesoro Crude Oil Throughput

Advantage crude oil strategy enhances realized margins

1) WTI crude oil includes all grades of N. American crude oil other than those stated in other categories

Marketing Brands

TESORO

- Deploy a premium and value branding strategy within each region
- New brands allow for site optimization and conversion
- Leverage Shell®, Exxon® and Mobil® premium brand value to improve marketing channels
- Leverage ARCO®, Tesoro and USA value brand proposition to drive high utilization

Emphasis on growing ARCO®, Shell®, Exxon® and Mobil® outlets

Solomon Based Cost Reductions

TESORO

Total Operating Expense Gap (Non-energy)[1]

$/bbl	2010	2011	2012
California	1.70	1.10	0.85
Pacific Northwest	NA	0.05	0.30
Mid-Continent	0.30	0.15	1.10
Weighted Average	**1.15**	**0.55**	**0.75**

- Captured cost improvements in California, opportunities remain
- Mid-Continent performance reflects increased spending to strengthen long-term reliability
- Maintenance, personnel efficiency and improved reliability driving per barrel operating cost improvement

Targeting first tercile cost position in California

1) Solomon Refinery Supply Corridor (RSC) 1st tercile, Pacific Northwest adjusted in 2010 and 2011 to exclude the impact of the Anacortes incident.

TLLP Strategic Drivers

TESORO

Focus on Stable, Fee-Based Business	• Fee-based committed businesses • Maintain stable cash flow
Optimize Existing Asset Base	• Increase third-party volumes • Consolidate Tesoro business into TLLP terminals
Pursue Organic Expansion Opportunities	• Execute growth projects • Leverage low cost of capital
Grow Through Strategic Acquisitions	• Pursue acquisitions that fit Western-US footprint • Strategic partner in Tesoro's growth plan

Increase EBITDA and cash distributions through fee-based logistics business model

TLLP Value Proposition to Tesoro

TESORO

$ millions

Implied value per Tesoro share	$5.50	$10.47	$17.20

TLLP's growth drives significant Tesoro shareholder value creation

1) TSO Market Cap as of 1/28/14, LP value based on market price, GP value based on 10X distributions
2) Estimates based on TLLP first call consensus EBITDA figures as of 12/31/15
3) Adjusted EBITDA, excludes predecessor results

Financial Priorities

TESORO

- Maintain a minimum cash balance of $600 to $800 million
- Target TSO debt to capitalization[1] below 30%
- Target TLLP debt at 3x to 4x EBITDA
- Invest in growth opportunities to drive further value creation
- Return excess cash to shareholders
- Drive towards investment-grade credit rating

1) Excluding TLLP debt and equity

Appropriate Leverage for Growth

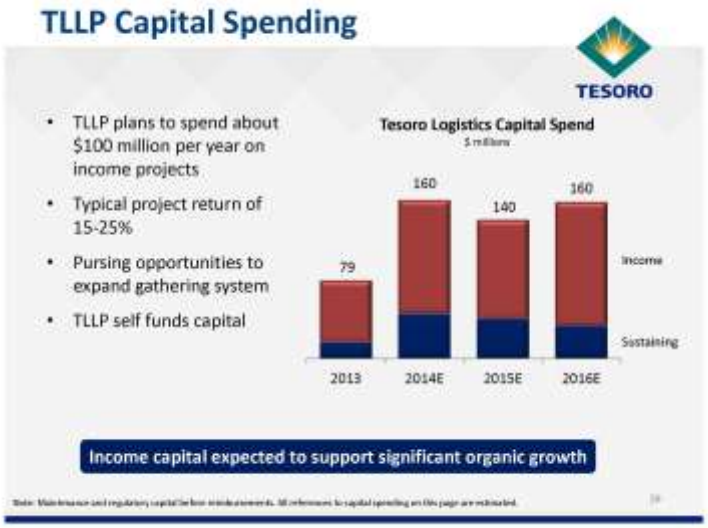
TESORO

$ millions	TSO[1]	TLLP[1]	Consolidated
Total Debt	1,665	1,164	2,829
Total Equity	4,302	1,183[3]	5,485
Debt to Total Capitalization	28%	50%	34%
Total Debt to EBITDA[2]	0.8x	4.1x	1.4x

Tesoro leverage in target range less than 8 months after Los Angeles acquisition

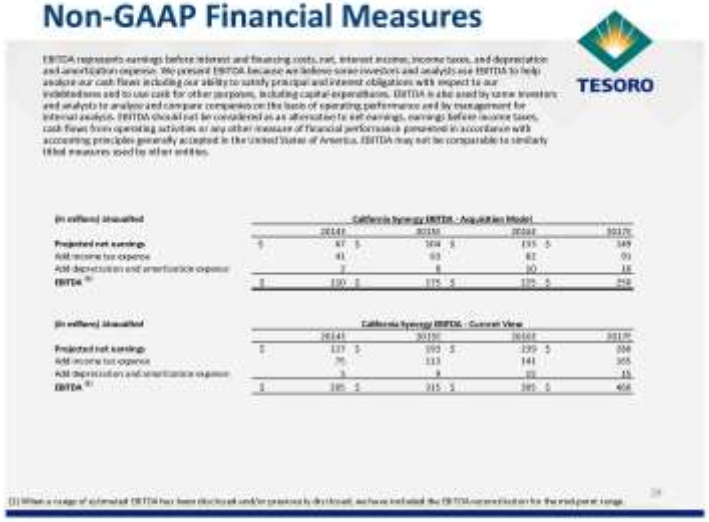
1) As of December 31, 2013
2) EBITDA forecast based on latest 2014 consensus analyst research estimates of $2.3 billion for TSO and $287 million for TLLP
3) Represents non-controlling interest as of December 31, 2013

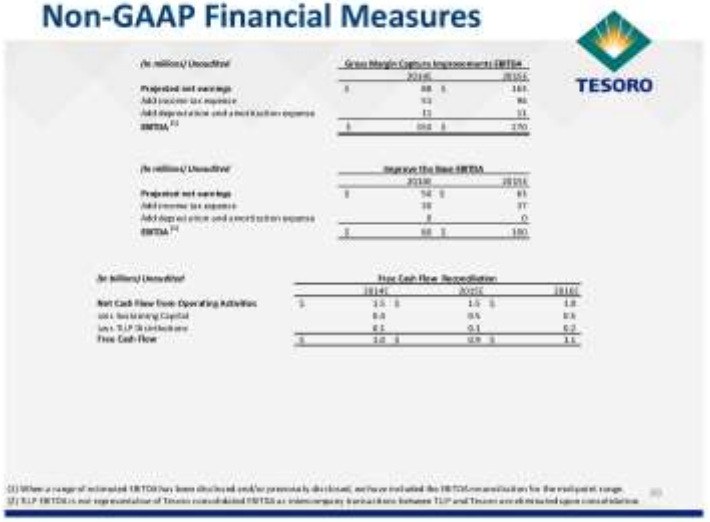

Summary Capital Spending
TESORO
Tesoro Capital Spending[1]
$ in millions
479
670
790
770
2013
2014E
2015E
2016E
Income
Synergy
Regulatory
Maintenance
Summary Capital Expenditures
$ millions | 2013 | 2014E | 2015E | 2016E
Maintenance | 182 | 220 | 245 | 255
Regulatory | 81 | 190 | 245 | 200
Synergy[2] | 0 | 65 | 180 | 160
Income | 216 | 195 | 120 | 155
Total | 479 | 670 | 790 | 770
Capital spending plans well supported by strong and growing EBITDA

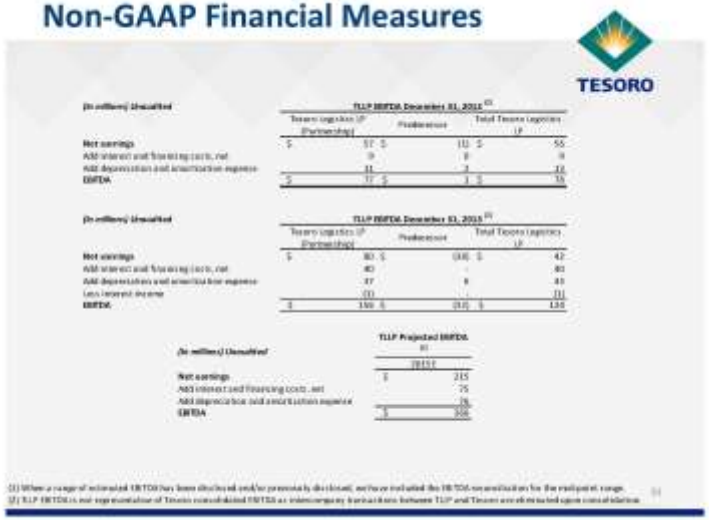

TLLP Capital Spending
TESORO
• TLLP plans to spend about $100 million per year on income projects
• Typical project return of 15-25%
• Pursing opportunities to expand gathering system
• TLLP self funds capital
Tesoro Logistics Capital Spend
$ millions
79
160
140
160
2013
2014E
2015E
2016E
Income
Sustaining
Income capital expected to support significant organic growth


Delivering Free Cash Flow
TESORO
• Expect to generate approximately $3.0 billion in free cash flow over next three years
• Before potential $1.5 billion of further logistics asset sales to TLLP
• Plan to spend less than a third on high-return income capital projects
• Tesoro well positioned for further growth and returning cash to shareholders
Free Cash Flow[1]
$ in billions
1.0
0.9
1.1
2014E
2015E
2016E
Strong financial position and significant free cash flow in 2014 and beyond


Delivering Shareholder Value
TESORO
California Synergies
Maintain Financial Discipline
Enhance Gross Margin
Transformation through Distinctive Performance
Grow Logistics
Improve the Base


Non-GAAP Financial Measures
TESORO


Non-GAAP Financial Measures
TESORO


Non-GAAP Financial Measures
TESORO

RESPONSES TO COMMENT SET 9: COMMUNITIES FOR A BETTER ENVIRONMENT

9-1 See Master Response MR-4.

9-2 See Master Response MR-4.

9-3 See Master Responses MR-1 and MR-2.

9-4 See Master Response MR-3.

9-5 See Master Response MR-5.

9-6 Section 4.1 of the Environmental Impact Report (EIR) calculates the probability of an in-motion tank vessel spill based on statistical data modified to be appropriate for the San Francisco Bay Area (Bay Area), and thus, considers the anticipated vessel traffic levels in the Bay Area. Numerous vessel traffic safety measures are in place to manage vessel traffic in the bay, including the Vessel Traffic Service, Regulated Navigation Areas, pilot requirements, and tug escort requirements. In addition, the Harbor Safety Committee continuously monitors vessel traffic in the bay and recommends additional safety measures, when deemed necessary. Thus, the California State Lands Commission (CSLC) believes that with these measures in place and considered in the EIR, the analysis adequately addresses the potential risk from potential future levels of vessel traffic in the bay.

The potential impacts from climate change and sea-level increases are addressed in Section 4.5, Greenhouse Gas Emissions and Climate Change, of the EIR. Based on available data, the EIR estimates that a sea-level rise of 0.2 foot (2.4 inches) can be expected over the 30-year lease period. Such a sea-level rise should have no impact on the Tesoro Refining and Marketing Company, LLC (Tesoro) Avon Marine Oil Terminal (Avon Terminal). The potential impact of sea-level rise on marine oil terminals has been addressed through a revision to the Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS [Cal. Code Regs., tit. 24, § 3103 F.5.3.4]) that requires all marine oil terminals to consider the effects of predicted sea-level rise over the life of a marine oil terminal. Per MOTEMS, the effects of sea-level rise would be incorporated into the Project's design, and therefore, a less-than-significant impact is expected.

9-7 Communities for a Better Environment's (CBE) general summary of concerns is acknowledged. The CSLC interprets this comment as a summary of specific concerns expressed by CBE within its comment letter. See specific responses

to comments that address these concerns.

9-8 See Master Response MR-4.

9-9 See Master Response MR-4. The Golden Eagle Refinery in Martinez does accept a wide variety of quality and types of crude oils. As stated in Master Response MR-4, except for a minimal amount of decant oil imported at the Avon Terminal, all crude oil imports occur at Tesoro's Amorco Terminal, which also services the Golden Eagle Refinery. The Benicia-Martinez Bridge presents a logistical obstacle to importing crude oil to the Avon Terminal, because the larger-sized vessels needed to import crude in an economically viable fashion are too large to travel under the bridge to reach the Avon Terminal. Therefore, Tesoro has no plans to receive such oils at the Avon Terminal. As stated in the EIR and Master Response MR-4, the Project will not facilitate an increase in the ability of the Avon Terminal to import heavy crude oils.

9-10 See Master Response MR-1.

9-11 See Master Responses MR-1 and MR-4.

9-12 See Master Response MR-3.

9-13 See Master Response MR-4.

9-14 See Master Response MR-5.

9-15 See response to comment #9-6 and Master Response MR-4.

9-16 See Master Response MR-1.

9-17 The EIR identifies significance criteria for each environmental issue area; these criteria serve as benchmarks for determining if a component action would result in a significant adverse environmental impact when evaluated against the baseline of the proposed Project. If the impact remains at or exceeds the significance criteria thresholds, it is deemed to be "Significant." Impacts classified as "Significant and Unavoidable" are those impacts that are determined to be significant even after mitigation is implemented.

Section 3.0, Alternatives and Cumulative Projects, of the EIR describes alternatives to the Project, including the No Project alternative. The discussion of each issue area in Section 4.0 includes the impact analysis for each alternative scenario. A summary of the collective impacts of each alternative in comparison with the impacts of the Project is included within the Executive

Summary.

Under the No Project alternative, Tesoro's lease for the Avon Terminal would not be renewed and the Avon Terminal would be decommissioned, with its components abandoned in place, removed, or a combination thereof. Decommissioning of the Avon Terminal would be preceded by preparation of an abandonment and restoration plan.

As discussed in Section 4.1.4.2, Alternative 1: No Project, of the EIR, with no lease renewal for the Avon Terminal, there would be no potential for related spills, fires, or explosions (at the Avon Terminal), or from vessel transit associated with the Avon Terminal. However, it is reasonable to assume that the potential for spills, fires, or explosions would be transferred to the Amorco Terminal or other local marine oil terminals, with the level of tank vessel traffic in the bay remaining about the same. In such a case, petroleum products would have to be transported to the Golden Eagle Refinery by rail, trucks, and/or pipelines.

9-18 See Master Response MR-5.

9-19 See Master Response MR-3.

9-20 The EIR currently references specific content from the 2014 Intergovernmental Panel on Climate Change (IPCC) Report. Supplemental text and text changes have been added to Section 4.5.1.1, GHGs and Global Climate Change, as follows:

> In addition, the Intergovernmental Panel on Climate Change (IPCC), in its Fifth Assessment Report by Working Group II, Climate Change 2014: Synthesis Report (IPCC 2014; released November 5, 2014), stated in part:
>
> > *Continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems. Limiting climate change would require substantial and sustained reductions in greenhouse gas emissions which, together with adaptation, can limit climate change risks.*
>
> ~~In additiont~~The ~~Intergovernmental Panel on Climate Change (~~IPCC~~), in the section of its Fifth Assessment Report by Working Group II, "~~Climate Change 2014: Impacts, Adaptation, and Vulnerability~~" report (IPCC 2014; released March 31, 2014)~~,~~ section specific to North America (Chapter 26), stated in part:

9-21 See Master Responses MR-1 and MR-3.

9-22 The EIR evaluates the Project's potential impact on water quality from major oil spills in Section 4.1, Operational Safety/Risk of Accidents, Impacts Operational Safety (OS)-1 and OS-4, and Section 4.3, Water Quality, Impacts Water Quality (WQ)-9 and WQ-10, and finds some of the potential impacts to be significant and unavoidable. As discussed in Section 4.1, the probabilities of releases used to evaluate the risk of oil spills from the Avon Terminal are very conservative because the spill data applied in the evaluation include all marine oil terminals, many of which are not, or were not, designed and operated in accordance with the safeguards that the Avon Terminal would have in compliance with MOTEMS. Even strict adherence to regulations, safety protocols, and spill response measures cannot guarantee that contaminants would never be released. The probability of a serious spill would be minimized to the extent feasible with implementation of Mitigation Measures (MMs) OS-1a, Remote Release Systems, OS-1b, Tension Monitoring Systems, and OS-1c, Allision Avoidance Systems, but the risk cannot be eliminated.

The No Project alternative eliminates operational impacts associated with the Avon Terminal, thereby preventing the impacts of oil spills from the Avon Terminal. However, implementation of this alternative, as indicated in EIR Section 5.4, Environmentally Superior Alternative, would shift similar levels of potential impacts to other Bay Area marine oil terminals to make up the differential for product transport throughout the Bay Area. The transfer to other marine oil terminals would potentially tax the capacity of these terminals, thereby increasing vessel congestion and collisions. This alternative could also shift Tesoro's sources for export of product to rail, pipeline, or other land-based transportation methods, resulting in potentially significant land-based impacts related to operational safety/risk of accidents, water quality, land use/recreation, and visual resources due to the risk of spills, fires, or explosions. In addition, construction of new rail lines and/or pipelines would potentially impact water quality, biological resources, cultural resources, land-based transportation, and noise.

9-23 See Master Responses MR-1 and MR-2.

9-24 The commenter states that the EIR should require additional mitigation to reduce the probability and impacts of a potentially significant oil spill on species. The EIR has formulated 10 mitigation measures related to oil spill prevention or response, including performance standards that would reduce the risk of spills and improve cleanup efforts in the event of a spill. These mitigation measures set forth clear and detailed requirements for vessel safety

(MMs OS-1a, Remote Release Systems; OS-1b, Tension Monitoring Systems; and OS-1c, Allision Avoidance Systems), fire protection assessment (MM OS-3, Fire Protection Assessment), safety training for personnel (MM OS-4a, USCG Ports and Waterways Safety Assessment [PAWSA] Workshops), spill response (MM OS-4b, Spill Response to Vessel Spills), spill prevention (MM OS-7, Pipeline Purging and Removal Plan), and protection of special-status species and habitat (MMs Biology [BIO]-8a, Bird Rescue Personnel and Rehabilitators; BIO-8b, Cleanup of Oil from Biological Area; and BIO-8c, Natural Resource Damage Assessment [NRDA] Team). The timing and implementation of these measures are detailed in EIR Section 8.0, Mitigation and Monitoring Plan.

In addition, Tesoro would be required to comply with federal and State regulations and guidelines for oil spill response plans, including spill prevention, response planning, and response capability (see EIR Section 1.4.2, Responsible and Coordinating Agencies/Permitting).

The comment does not identify additional MMs for CSLC staff consideration; thus, no further response is required.

9-25 See Master Response MR-4.

9-26 CSLC staff understands this comment to be a preamble to comment #9-27.

9-27 The commenter proposes mitigation that, if implemented, would compel Tesoro to require that vessels using the Avon Terminal retain all ballast water on board, and refuse permission to use the Avon Terminal to vessels found in non-compliance with ballast water regulations. As specified in the EIR under Impact BIO-9 in Section 4.2, Biological Resources, Tesoro has no control over, ownership of, or authority to direct vessels that would dock at the Avon Terminal. It is the responsibility of the vessel owner/operator, not Tesoro, to ensure compliance with all applicable ballast water regulations.

The CSLC also does not impose regulations requiring that vessels using marine oil terminals retain all ballast water on board, nor that they be refused permission to use marine oil terminals if found in non-compliance with ballast water regulations. This response investigates the authority of the CSLC to require vessels using the terminal to retain all ballast water on board and be refused permission to use the Avon Terminal if found in non-compliance with ballast water regulations.

The CSLC is directed through section 71201.7 of the Public Resources Code, to adopt regulations necessary to implement the Marine Invasive Species Act of 2003 (MISA). State regulations are adopted pursuant to the Administrative

Procedure Act (APA) of the California Government Code section 11340 et seq.

APA section 11340.1, subdivision (a) states that "… It is the intent of the Legislature that agencies shall actively seek to reduce the unnecessary regulatory burden on private individuals and entities by substituting performance standards for prescriptive standards wherever performance standards can be reasonably expected to be as effective and less burdensome, and that this substitution shall be considered during the course of the agency rulemaking process…"

"Prescriptive standard" is defined as a regulation that specifies the sole means of compliance with a performance standard by specific actions, measurements, or other quantifiable means (Gov. Code § 11342.590). "Performance standard" is defined as a regulation that describes an objective with the criteria stated for achieving the objective (Gov. Code § 11342.570).

The EIR provides a discussion of the regulations adopted by the CSLC in Section 2.4.1, Ballast Water, State Requirements. The CSLC has adopted performance standards for ballast water treatment (see Table 4.2-3: Ballast Water Treatment Performance Standards, in the EIR). As stated in the EIR, a "… final discharge standard of zero detectable living organisms for all organism size classes in ballast water discharge shall be implemented on January 1, 2020, for all vessel size classes." This performance standard meets the intent of the Legislature, as described in APA section 11340.1, subdivision (a). The proposed mitigation, however, would require the CSLC to implement a prescriptive standard requiring all vessels using the Avon Terminal to retain all ballast water on board as the sole measure of compliance with the performance standard.

Chapter 5 of MISA provides civil and criminal penalties and liability for failure to comply with MISA. Penalties include fines of up to $27,500 per violation per day, and imprisonment for up to 1 year in county jail. MISA does not authorize the CSLC to refuse permission to use the Avon Terminal to vessels found in non-compliance with ballast water regulations.

The proposed mitigation would require the CSLC to adopt new rules concerning performance standards and penalties for non-compliance with MISA. However, the California Environmental Quality Act (CEQA) is not the appropriate forum to issue new regulations. Thus, CSLC staff finds the proposed mitigation infeasible.

9-28 Vessel maneuvering at the Avon Terminal is not likely to substantially increase suspended sediment concentrations above background levels. As discussed in

Impact BIO-3 in EIR Section 4.2, Biological Resources, strong tidal currents at the Avon Terminal are expected to quickly disperse sediment plumes during the approximately 6 hours per week that vessels maneuver into or out of the berth. As discussed in Impact BIO-5, the high background turbidity at the site of the Avon Terminal is expected to mask effects from the temporary suspension of sediments caused by dredging. Therefore, the EIR correctly classifies these impacts as having a less-than-significant effect on the environment.

The commenter states that the EIR should include mitigation to lessen impacts from sediment resuspension on special-status fish and other species. However, as noted in Impact BIO-3, the Avon Terminal is located near the range of the San Francisco Bay Estuary's (SFBE) maximum turbidity zone, and therefore, the local biotic community is unlikely to be affected by temporary, intermittent increases in suspended sediment concentrations.

9-29 A description of projects considered in the cumulative impacts analysis is provided in EIR Section 3.4.2, Description of Cumulative Impacts. Projects in the vicinity of the Avon Terminal that were considered include the Chevron Long Wharf and WesPac Energy-Pittsburg Terminal, also known as the WesPac Pittsburg Energy Infrastructure Project. A description of the Shell Crude Tank Replacement Project has been incorporated into the list of cumulative projects and relevant cumulative discussions. Supplemental text has been added to Section 3.4.2, Description of Cumulative Projects, as follows:

> **Shell Crude Tank Replacement.** Shell's Martinez Refinery is located approximately 25 miles northeast of San Francisco, adjacent to the city of Martinez. The primary processing area of the Shell Martinez Refinery is between Pacheco Boulevard and Marina Vista, and the wastewater treatment plant and wharf operations are between Marina Vista and the Carquinez Strait. Approximately 20 percent of the refinery is located within the corporate limits of the city of Martinez and the remainder is in an unincorporated area of Contra Costa County; however, all of the Project components would be constructed within the unincorporated area of the county.
>
> In 2011, Contra Costa County, as the CEQA lead agency, certified a Final EIR (SCH No. 2010022034) and approved the replacement of crude oil storage tanks, increases to crude oil shipments received at Shell Martinez Refinery's marine oil terminal, and implementation of criteria pollutant and greenhouse gas emission reduction components proposed as measures to reduce Project emissions to or below applicable CEQA thresholds.

9-30 The purpose of an EIR is "to identify the significant effects on the environment of a project" (Pub. Resources Code, § 21002.1, subd. (a); State CEQA Guidelines, § 15003, subd. (c); and Pub. Resources Code, §21061 [an environmental impact report provides information "about the effect which a proposed project is likely to have on the environment"]). According to State CEQA Guidelines section 15360, "Environment" means the physical conditions existing within the area "which will be affected by a proposed project." The area involved "shall be the area in which significant effects would occur either directly or indirectly as a result of the project." A "significant effect on the environment" means a "substantial, or potentially substantial, adverse change" (Pub. Resources Code, §21068). The transport of crude oil by marine vessel is driven by the sources of crude supplies and is not a result of the Project itself. The Project would not cause a significant shift or increase in transport of crude oil by marine vessel from the oil's point of origin or to the oil's final destination. Rather, the Project provides safer and updated infrastructure to accommodate existing exporting practices. Changes in the sources of crude oil or changes in the eventual destination of exported product are driven by other market factors. It was determined by the CSLC that potential impacts on areas outside of the Project boundaries would be speculative, and are not reasonably foreseeable.

9-31 Reasonably foreseeable environmental impacts on biological resources within the Bay Area associated with transport by marine vessels are analyzed in Section 4.2, Biological Resources, of the EIR. As stated in response to comment #9-30, the Project would not cause a significant shift or increase in transport of crude oil by marine vessel from the oil's point of origin or to the oil's final destination. Rather, the project provides safer and updated infrastructure to accommodate existing exporting practices. Potential impacts on areas outside of the Project boundaries would be speculative, and are not reasonably foreseeable.

In addition, supplemental text has been added to Impact BIO-8 in Section 4.2.4, Impact Analysis and Mitigation, as follows:

> <u>As described in Impact OS-4 in Section 4.1, Operational Safety/Risk of Accidents, vessels en route to the Avon Terminal could potentially result in an accidental spill at any location along their transit route; thus, vulnerable resources along the outer coast and in any area of the SFBE eastward to the Antioch area could potentially be impacted by a spill</u>.

Supplemental text has been added to Impact BIO-9 in Section 4.2.4, Impact Analysis and Mitigation, as follows:

> Estuaries and sheltered coastal areas that are historic centers of anthropogenic disturbance from shipping, industrial development, and urbanization are among the most invaded aquatic habitats and the most likely to be invaded in the future (Ray 2005).

9-32 Comment acknowledged.

9-33 Comment acknowledged.

9-34 The studies referenced in comment #9-34 have been included in the discussion for Impact BIO-6 in Section 4.2, Biological Resources, as follows:

> Noise levels near busy shipping channels may reduce communication space for whales (Williams et al. 2013). Whales may shift to using surface-generated sounds, such as breaching, to communicate with a concomitant reduction in information content (Dunlop et al. 2010).
>
> The Fisheries Hydroacoustic Working Group (FHWG 2008) and NMFS (2013) have established thresholds for disturbance to behavior for fish and pinnipeds. Sound pressure levels above 150 dB_{RMS} at 1 µPa can alter fish behavior, causing a startle response of avoidance of an area. For pinnipeds, the underwater disturbance level from continuous low-level sound is 120 dB_{RMS} at 1 µPa. The 120 dB_{RMS} at 1 µPa threshold may regularly be met in busy shipping channels (Bassett et al. 2012). Although vessels traveling to and from the Avon Terminal are expected to cause behavior disturbance to fish and marine mammals, the behavioral disturbance to fish and marine mammals caused by shipping noise is not expected to be significant, due to the low number of weekly vessel calls and the limited transit time.

Impact BIO-6 describes effects of vessel noise on marine organisms. However, the number of weekly vessel calls to the Avon Terminal is low, with resultant limited potential for adverse impacts to marine mammals.

9-35 Supplemental text has been added to Impact BIO-16 of Section 4.2, Biological Resources, as follows:

> The noise from MOTEMS renovation, including pile driving and Avon Terminal deconstruction, has the potential to temporarily impact marine mammals in the water and at haul-out sites; in addition, increased vessel movements resulting from renovation may interfere with marine mammal movement and could potentially cause collisions.

All vessels visiting the Avon Terminal transit shipping channels established by the United States Coast Guard (USCG). Vessels transiting shipping channels may collide with marine mammals, particularly large whale species such as humpback, grey, blue, and fin, which migrate along the coast. Under the Ports and Waterways Safety Act, the USCG is responsible for establishing and modifying shipping lanes. The USCG works with National Oceanic and Atmospheric Administration (NOAA) Fisheries and NOAA Sanctuaries to effect changes in shipping lanes that should help reduce the risk of ships striking large whales. As a result of this collaboration, the USCG shifted San Francisco Bay Area shipping routes westward off the coast to reduce the risk of marine mammal collisions for whales that migrate nearshore (NOAA 2013). Because the number of vessels visiting the Avon Terminal is not expected to change with approval of the Project, the Project's overall contribution to risk for vessel collisions with marine mammals from continued operations of the Avon Terminal would not change from baseline conditions; therefore, this would be a less-than-significant impact.

9-36 General concerns surrounding potentially significant impacts and associated MMs, thresholds of significance, mitigation deferral, and the analyses of unidentified impacts are acknowledged. CSLC staff interprets this comment as a summary of specific concerns expressed by CBE within its comment letter. See specific responses to comments that address these concerns. General concerns surrounding the adequacy of the alternative analyses are acknowledged.