SAN FRANCISCO
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September 21, 2015

Oakland City Council
Mayor Schaaf
Oakland City Administrator
1 Frank H. Ogawa Plaza
Oakland, CA 94612

RE: Comments regarding water quality impacts associated with coal transportation, handling, and export from the Oakland Bulk and Oversized Terminal (File #14-1215)

I. Introduction

On behalf of San Francisco Baykeeper ("Baykeeper") and our over 3,000 members who use and enjoy the environmental, recreational, and aesthetic qualities of San Francisco Bay and its surrounding tributaries and ecosystems, we respectfully submit these comments regarding the potential public health and safety impacts from the transportation, transloading, handling, and/or export of coal through the City of Oakland. Recent reports indicate that half of the proposed Oakland Bulk and Oversized Terminal ("OBOT") project, equivalent to 9.5 million metric tons, will be dedicated to the transport of coal and other commodities from Utah.[1] This could result in the transport of up to a dozen 50-car trainloads of coal per day along San Francisco Bay and through communities already facing the poorest air quality in the region.[2] Coal transport and export is inconsistent with Oakland's desired use of the former Army Base, incompatible with City Council Resolution No. 85054, and threatens already impaired waterways and creeks that lead to the Bay.

II. Water pollution from transporting, handling, and exporting Utah coal

The transport of coal through the region and along sensitive waterways creates the potential to exacerbate water quality impairments associated with poly-aromatic hydrocarbons (PAHs), dioxins and heavy metals. These contaminants, as well as other industrial contaminants, such as PCBs, are already found in higher concentrations in the vicinity of the former Army Base. Consequentially, the presence of a coal export terminal is likely to result in additional impairment.

It is important to note that this proposed coal terminal lacked an environmental review specific to coal, and despite the proponent's claims and some preliminary drawings recently posted on the company's website, there are no final design plans to analyze for this review. As such, we assume the rail transportation of coal and operations at the terminal will be identical to the most

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[1] Amy O'Donoghue, *Utah invests $53 million in California port for coal, other exports*, Deseret News, April 24, 2015, *available* at http://www.deseretnews.com/article/865627254/Utah-invests-53-million-in-California-port-for-coal-other-exports.html?pg=all

[2] P. Matier and A. Ross, *Opponents of Oakland coal shipping target governor's pal*, San Francisco Chronicle, July 25, 2015, *available* at www.sfchronicle.com/bayarea/article/Opponents-of-Oakland-coal-shipping-target-6405576.php

common methods of coal transport (by uncovered train cars) and similar to other coal export facilities (containing uncovered piles without adequate protections in place to prevent exposure to the elements).

a. Potential pollution pathways to the Bay

Coal is most likely to impact the Bay and surrounding communities through aerial deposition, wastewater disposal, and stormwater runoff, and it could also enter these areas through train derailment.

During transportation through the use of uncovered rail cars, coal dust is primarily deposited through aerial deposition, which is exacerbated by poorly maintained rail tracks, uneven coal beds, and strong winds. When offloaded using "bottom dump" cars, coal material often leaks through the bottom or is released in a plume of dust at the unloading point. According to a Burlington Northern Santa Fe (BNSF) study, uncovered rail cars can lose anywhere from 500 to 2,000 pounds of coal dust.[3] Ultimately, much of the fugitive coal dust that is carried long distances by wind and water will settle in waterways that lead to the Bay. While surfactants or topping agents may be used for coal originating from Montana and Wyoming, no surfactants are required for coal originating in Utah. Even if surfactants are applied to uncovered rail cars, they are not 100% effective in preventing coal dust and can themselves be a source of pollution.[4]

Once the trains reach the coal terminal, methods of unloading the coal can be either manual or automated.[5] Coal is inherently dust producing. For this reason, water is required to control coal dust when handling and unloading/loading coal at the terminal facility.[6] The resulting wastewater highly contaminated with coal particles, unless fully captured, will drain directly into the Bay. Additionally, coal dust, regardless of how it is handled, will inevitably enter the Bay through wind deposition. After the coal is unloaded from the rail cars, it is typically stored in open stockpiles while awaiting loading into ships. The prevailing winds at the Oakland shorelines will blow coal directly into the water when it is stored in open piles along the shoreline. In addition to coal blowing into the water, erosion of the pile and polluted stormwater runoff from the coal pile are two additional ways that coal can enter the Bay. Coal spillage can also occur during the loading onto shipping tankers and barges, which sit directly on the water. And any cargo washing of the rail car, ship loaders, shipping tankers and barges will also result in coal runoff.

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[3] BSNF Railway Company, 2011, *available* at http://www.coaltrainfacts.org/docs/BNSF-Coal-Dust-FAQs1.pdf
[4] Ashley Ahearn, *What Coal-train dust means for human health,* Oregon Public Broadcasting, March 10, 2013, *available* at http://www.opb.org/news/article/coal-dust-a-closer-look/
[5] M.J Ahrens and D.J. Morrisey, *Biological Effects of Unburnt Coal in the Marine Environment*, Oceanography and Marine Biology, 2005
[6] George D. Emmitt, *Minimizing groundwater consumption for required fugitive dust control programs,* http://www.powerpastcoal.org/wp-content/uploads/2011/08/MINIMIZING-GROUNDWATER-CONSUMPTION-FOR-REQUIRED-FUGITIVE-DUST-CONTROL-PROGRAMS.pdf

Exporting coal via rail also increases the chances of a train derailment in addition to a tanker or barge spill in the Bay.[7] By way of just a few examples, in December 2012, a tanker that was carrying 180,000 tons of coal crashed into the Westshore Terminal in Vancouver. In July 2012, three coal trains derailed on July 2, 3, and 4, in Pasco, Washington, Pendleton, Texas, and Chicago Illinois, respectively. The Pasco train derailment dumped over 6 million pounds of coal into the iconic Columbia River Gorge, and was caused in part due to an accumulation of coal on the tracks that interfered with the stability and integrity of the track structure.[8]

b. Environmental consequences of coal in marine and non-marine environments

Inherently, coal contains numerous pollutants that are toxic at low concentrations such as mercury, lead, arsenic, uranium, thorium, and polycyclic aromatic hydrocarbons (PAHs). Caution should be exercised when pollutants with that combination of toxins threaten to enter the environment in large quantities. The studies that have been conducted in the past few decades of unburnt coal in waterways demonstrate overall negative impacts on water quality and aquatic ecosystems. Based on the studies that have been conducted, it can be inferred that the consequences will be similar in the Bay and along the Oakland shoreline.

One of the main concerns is the sheer quantity of coal that could be deposited in the Bay. Over a 22-year period, scientists examined coal accumulation around the Westshore Terminal in Vancouver. They observed coal concentrations of over 10% at a distance of 350 meters from the terminal and 2% concentrations as far as 1,750 meters away.[9] This steady accumulation of coal dust on aquatic sediments poses harm to the flora and fauna living on the bottom of the sea floor, potentially reducing the diversity and number of species in the aquatic ecosystem. Additionally, increased concentrations of suspended particulate coal in water behaves similarly to other suspended or deposited sediments by blocking light, which can negatively interfere with fish habitat.[10] Coal particulates can also find their way into the breathing apparatus of aquatic species, affecting their ability to survive. The suspended coal sediments can also reduce water clarity, which negatively impacts predator fish species from finding food.[11]

In addition to the physical consequences in aquatic environments, unburnt coal also has chemical consequences on fish species. Studies in the past have shown that exposure to coal particles and dust can result in reduced growth rates in trout and reduced spawning success of

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[7] Laura Nelson, *Derailed coal train fuels critics of increased Northwest shipping,* Los Angeles Times, July 3 2012, *available* at http://articles.latimes.com/2012/jul/03/nation/la-na-nn-coal-dust-train-derail-20120703

[8] G. Hamilton and T. Crawford, *Ship crashes into dock at Westshore Terminals, spilling coal into water*, The Vancouver Sun, December 9, 2012, *available* at http://www.vancouversun.com/news/Ship+crashes+into+dock+Westshore+Terminals+spilling+coal+into+water+with+video/7667184/story.html

[9] R. Johnson, and R.M. Bustin, *Coal dust dispersal around a marine coal terminal (1977-1999), British Columbia: The fate of coal dust in the marine environment,* International Journal of Geology, 2006

[10] M.J Ahrens and D.J. Morrisey, 2005

[11] D.H. Wilber and D.G. Clarke, *Biological effects of suspended sediments: a review of suspended sediment impacts on fish and shellfish with relation to dredging activities in estuaries*, North American Journal of Fisheries Management, 2001

fathead minnows.[12] Further, exposure to coal has been found to interfere with the mortality of Steelhead and Cutthroat trout.[13] Other consequences include the alteration of viral cellular metabolic processes in juvenile Chinook salmon.[14] More worrisome is the fact that in the Bay, Steelhead trout are a threatened species and Chinook salmon are an endangered species. Additionally, it been found that the topping agents or surfactants sometimes used to "reduce" coal dust loss on trains, could actually boost the ability of coal pollutants to enter the environment.[15]

Oxidizing coal particles also reduce dissolved oxygen levels, which create adverse living conditions for bottom dwelling species.[16] These negative conditions can have reverberating impacts up the food chain. And in freshwater ecosystems, mineral salts in coal oxidize when exposed to water, which can increase the salinity of the water.[17] Furthermore, acidic runoff from coal piles is a common problem at these types of terminals, and with high sulfur coal, the runoff in freshwater streams can reduce the diversity of aquatic species.[18]

c. Firsthand experience with negative water quality impacts of coal

Baykeeper has firsthand experience with the negative impacts of coal and petroleum coke products on the Bay based on our recent legal action to enforce the Clean Water Act against the only other Bay facility exporting such materials, the Levin Richmond Terminal. *See San Francisco Baykeeper v. Levin Enterprises, Inc.*, Case No. 12-04338-EDL (N.D. Cal.). In that case, Baykeeper retained a national expert, Dr. William J. Rogers, who documented high concentrations of heavy metals (including lead, chromium, mercury, selenium, and arsenic), PAHs, and PCBs, in samples collected near the Levin facility that were well above state water quality standards and criteria for the protection of aquatic life.[19] Dr. Rogers found that such pollutants posed a direct risk to benthic marine life, as well as a risk birds and mammals that forage in the area due to the bioaccumulation of these pollutants in shellfish and finfish.[20]

In sum, coal in aquatic environments negatively impacts the water quality, aquatic species, and the entire ecosystem in potentially irreversible ways. Allowing coal to pass through Oakland foreshadows a similar grim future for the Bay.

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[12] D.W. Herbert and S.M. Richards, *The growth and survival of fish in some suspension of solids of industrial origin,* Air Water Pollution, 1963

[13] C.F. Pautzke, *Studies on the effect of coal washings on Steelhead and Cutthroat Trout*, Transactions of the American Fisheries Society, 1938

[14] P.M. Campbell and R.H. Devlin, *Increased CYP1A1 and ribosomal protein L5 gene expression in a teleost: the response of juvenile Chinook salmon to coal dust exposure*, Aquatic Toxicology, 1997

[15] Ashley Ahearn, 2013

[16] R. Johnson and R.M. Bustin, 2006

[17] M.J Ahrens and D.J. Morrisey, 2005

[18] M.C. Swift, *Effects of coal pile runoff on stream quality and macroinvertebrate communities,* Journal of American Water Resources Association, 1985

[19] Expert Report of Dr. William J. Rogers Regarding *San Francisco Baykeeper v. Levin Enterprises, Inc.* in the U.S. District Court, Northern District of California, Case number 3:12-cv-04388-EDL (September 2013).

[20] *Id.*

III. Conclusion

Coal should not be part of the Oakland Army Base project if the City of Oakland believes in 1) protecting the health and safety of the San Francisco Bay and all its surrounding waterways, 2) keeping healthy the people who reside near the railways and shoreline, and 3) exemplifying the City of Oakland's and California's commitment to be coal-free.

To date, there is insufficient information or facility design planning to evaluate the exact ways that petroleum coke and coal can enter the water from the proposed terminal. The problems may only be exacerbated by the fact that there are no enforceable conditions to require any sort of pollution mitigation. If this project is to move forward, there must be a thorough and comprehensive environmental review of the terminal in order to comprehensively analyze the risks of unburned coal in marine and non-marine environments and waterways, specifically in the Bay, and to effectively address and reduce the risks of any such water quality and public health impacts.

Thank you for considering this important environmental issue with all the seriousness it warrants. Please do not hesitate to contact us with any questions you may have about this project and the health of the Bay.

Sincerely,

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