



December 7, 2021

Susan Nakamura
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South Coast Air Quality Management District
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via email: snakamura@aqmd.gov

Re: SCAQMD Proposed Rule 2306, Indirect Source Rule for New Intermodal Facilities

Dear Ms. Nakamura:

On behalf of the undersigned community, environmental justice, health, and environmental organizations, we respectfully submit this letter regarding the South Coast Air Quality Management District's proposed rule 2306 to regulate emissions from new intermodal railyard facilities. We want to thank staff for the opportunity to submit this comment letter, and for their hard work on this rulemaking so far.

Below are our recommendations for improving this rule to meet the needs of communities that have been deeply negatively impacted by locomotive and railyard pollution over the years.

I. South Coast AQMD must act urgently to adopt a strong railyard ISR rule for new facilities by June 2022, and for existing facilities by October 2022.

Railroad and freight companies have been polluting South Coast communities for decades. People who live and work near railyards, who are often low-income communities and communities of color, have been seeking relief from locomotive and railyard pollution for years. Yet our air quality regulators have made little progress. We are in a dire public health crisis. So, we are pleased that the South Coast is finally addressing this life-threatening issue by working on an Indirect Source Review (ISR) rule for new intermodal railyards.

At the same time, we need the Air District to act urgently to address the dire health consequences communities are already experiencing from existing railyards. We simply cannot wait. Given the timing of the proposed SCIG and Colton railyards, the rule for new railyards

must be finalized by June 2022. Staff also need to prioritize cleaning up pollution from existing railyards—these two issues must be addressed in tandem. The rule cleaning up existing railyards should be adopted by October 2022.

II. Protecting public health must be the central focus of the Railyard ISR rulemaking.

Locomotive and railyard pollution is killing people, shortening our lives, and leading to life-long health problems. Protecting the public health needs to be staff’s biggest priority for this rule, especially because zero-emission technology is widely available for almost all equipment used in railyards. The railroad industry will always protest against being regulated, but we need our air agency to remain strong and to prioritize protecting public health, first and foremost. Because of this, staff should organize a health expert presentation to evaluate the cumulative impacts of pollution from existing and any future railyards, in addition to other sources of pollution in the region. We would also like staff to permanently assign a health expert to this rulemaking.

A. Staff should organize a health expert presentation to highlight and evaluate the public health costs of building any new intermodal facilities.

As our air regulators, the Air District needs to keep front of mind that protecting public health is the central priority of this rulemaking. Our organizations would like staff to prepare a presentation that analyzes the public health costs and concerns from the cumulative effects of railyard and other pollution in the region. There’s no dispute that trucks, trains, and railyard equipment release a barrage of pollution that has serious negative impacts on people who live, learn, play, and work nearby, and leads to high levels of air pollution in and around railyards. Inhaling diesel exhaust and other pollutants day-in and day-out can lead to increased rates of cancer, lung disease, cardiovascular disease, and even premature death. With a well-documented list of adult onset illnesses due to diesel pollution exposure, children’s health is also at stake as childhood asthma rates are higher in communities with concentrated diesel emissions.¹ We are well aware that low-income communities and communities of color often suffer the most from the locomotive industry’s life-threatening pollution because railyards and rail routes are typically located in or near these communities.

As part of this rulemaking, South Coast staff need to analyze the current costs to communities for living or working near a railyard that *already exists*. There are *already* ten huge railyards polluting our communities in the South Coast: BNSF San Bernardino, BNSF Barstow, UP Colton, and UP Mira Loma, BNSF Hobart, BNSF Watson, UP ICTF/Dolores, UP City of Industry, UP Commerce, and UP LATC. The cumulative impacts from these ten existing railyard

¹ Frank Gilliland, et al., “The Effects of Policy-Driven Air Quality Improvements on Children’s Respiratory Health,” (Jan. 27, 2017), <https://www.healtheffects.org/publication/effects-policy-driven-air-quality-improvements-childrens-respiratory-health>.

facilities alone is massive—**over 125 tons per year of diesel exhaust.**² This does not even take into account pollution from the ports, distribution centers, and trucking corridors.

Based on health assessments by the California Air Resources Board from 2008, residents living near each of the San Bernardino County railyard facilities experience between 575 to 3,300 in a million increased risk of cancer from railyard pollution alone, excluding any additional cancer risks from regional or other pollution.³ The BNSF Barstow railyard, which is the maintenance yard for BNSF’s California operations, is the single highest emitter of diesel particulate emissions of all 18 railyards in California.⁴ The UP Colton railyard, which is roughly 5 ½ miles in length and 1/3 mile in width, is located just 350 feet from the nearest residential area and just north of a local high school.⁵ Locomotive operations account for 99% of on-site diesel PM emissions at UP Colton, of which 62% are from switcher locomotives.⁶ People who live or work near these facilities are also at increased risk for asthma-related emergency room visits, increased cardiopulmonary mortality, and increased hospitalizations for cardiovascular and respiratory illness.⁷ This is the kind of information that agency staff need to disclose and analyze as part of this rulemaking.

All of these harms do not even take into account pollution from other mobile and stationary sources, let alone emissions from any *new* railyards, like the proposed Southern California International Gateway (SCIG) and Colton railyard projects. In particular, SCIG and Colton are both proposed to be sited in communities of color that already experience a disproportionate pollution burden from other industrial sources. SCIG would be sited next to schools, parks, homes, and a permanent supportive housing facility, endangering the health of thousands of children and residents. It is simply not safe to add another source of diesel pollution in close proximity to residents, especially those who already bear a disproportionate pollution burden.

² MIG, Inc. et al., “Health Communities and Healthy Economies: A Toolkit for Goods Movement,” (March 2009), http://media.metro.net/projects_studies/mcgmap/images/5-guidebook-chapter5_final.pdf, at 5-3.

³ California Air Resources Board, “Health Risk Assessment for the BNSF Railway San Bernardino Railyard,” (June 11, 2008), https://ww2.arb.ca.gov/sites/default/files/classic/railyard/hra/bnsf_sb_final.pdf, at 13.

⁴ Hricko A, Rowland G, Eckel S et al., “Global Trade, Local Impacts: Lessons From California on Health Impacts and Environmental Justice Concerns for Residents Living Near Freight Rail Yards.” (Feb. 10, 2014) Int. J. Environ. Res. Public Health, at 11, <https://www.mdpi.com/1660-4601/11/2/1914>.

⁵ CARB, “Health Risk Assessment for the Union Pacific Railroad Colton Railyard”, (April 18, 2008). https://ww2.arb.ca.gov/sites/default/files/classic/railyard/hra/up_col_hra.pdf, at 6.

⁶ *Id.* at 10, 32.

⁷ CARB, “Health Risk Assessment for the BNSF Railway San Bernardino Railyard,” (June 11, 2008), https://ww2.arb.ca.gov/sites/default/files/classic/railyard/hra/bnsf_sb_final.pdf, at 3.

We are asking the South Coast to analyze the cumulative impacts of the layers of existing pollution from mobile and stationary sources, as well as projected emissions from any *new* railyards, if these are proposed as not fully zero-emission projects. It is absolutely critical that staff provide an honest assessment of the current air quality conditions people are already living with upfront, before suggesting that people can be subjected to additional pollution. A complete and accurate assessment of existing conditions is essential for this rulemaking to protect people's public health.

A. *Staff should permanently assign a health expert to this rulemaking.*

Likewise, we would like to see a health expert permanently assigned to this rulemaking. Considering public health consequences of pollution does not begin and end with a working group presentation (even though that is a good place to start). This health expert is needed to ensure that health impacts are thoughtfully considered and evaluated throughout the whole rulemaking.

III. Communities oppose the proposed Colton and SCIG railyard facilities, but if either facility (or any new facility sited in an environmental justice community) is allowed to be built, it must be 100% zero-emissions.

We oppose any new railyard projects in our backyards. Our communities cannot afford any more toxic pollution. But if any new railyard projects do move forward at some point in the future, the only acceptable way for them to operate is fully zero-emissions. We are unwilling to accept that our communities must be 'sacrifice zones' for a billion-dollar industry. The Air District should not accept this either—especially since almost all trucks, trains, and railyard equipment have widely available zero-emission technologies.

This rulemaking is a once in a lifetime opportunity to take on the railroad industry in Southern California. It is a chance to create a new framework for how the freight industry operates, and to model our zero-emissions future. We continue to hear from staff that zero-emission locomotives do not exist, or are not yet feasible. This isn't true. As explained below, zero-emission technologies are available today, and are used around the globe.

A. *Zero-emission switcher and line-haul locomotives are already available.*

The billion-dollar railroad industry will claim that zero-emission trains are not feasible or not available, but that is simply not true. Zero-emission locomotive technology is already technically feasible today for both switcher and line-haul duty cycles. In fact, this technology is not even new—about one-quarter of the world's rail lines are electrified.⁸ Electrified rail can actually offer cost savings compared to traditional diesel locomotives because the cost of

⁸ Brian Yanity, The Need for Freight Rail Electrification in Southern California (May 2018) at 16, <http://calelectricrail.org/wp-content/uploads/2018/05/BYanity-SoCal-freight-rail-electrification-13May2018.pdf>.

electricity as a fuel source is significantly cheaper than diesel, so there is no reason why this rulemaking should not be fully zero-emissions.⁹

a. *Overhead Catenary Line Trains*

Zero-emission electric locomotives powered by overhead catenary are well-established, and they can already be cost-effective compared to diesel locomotives. This explains why many of the world's largest freight rail systems are fully electrified. Almost every industrialized country, including almost all of Europe and Japan, has an extensive network of electrified freight rail.¹⁰ Ethiopia and Switzerland, both very mountainous countries, have freight rail systems that are 99-100 percent electrified.¹¹ Likewise, 70 percent of railroads in South Korea and Japan are electric.¹² Moreover, several countries have embarked on significant overhauls of their diesel-powered rail lines to transition them to electric operation. China rapidly increased the percentage of its electrified rail from 5 percent in 1975 to over 60 percent as of 2015, and climbing.¹³ Russia electrified its Trans-Siberian Railway, the world's longest continuous rail line measuring 6,000 miles long.¹⁴ Last year, India began operation of the world's first overhead catenary line that accommodates double-stacked intermodal trains.¹⁵ The United Kingdom's rail system is currently 42 percent electrified, and it recently announced that diesel-only trains will be phased out by 2040.¹⁶

b. *Battery-Electric Trains*

Moreover, there are already battery-electric switcher and line-haul models ready for order and commercialization today. Progress Rail's EMD Joule Switcher has up to 3,000 horsepower, and a run time of up to 24 hours, depending on charging and utilization.¹⁷ Like any other battery-

⁹ Popovich, N.D., Rajagopal, D., Tasar, E. *et al.* Economic, environmental and grid-resilience benefits of converting diesel trains to battery-electric. *Nat Energy* 6, 1017–1025 (2021). <https://doi.org/10.1038/s41560-021-00915-5>.

¹⁰ *Id.* at 15.

¹¹ *Id.* at 16.

¹² *Id.*

¹³ *Id.* at 15; The World Bank, *Railway Reform: Toolkit for Improving Rail Sector Performance*, at 398 (Dec. 27, 2017),

https://ppiaf.org/sites/ppiaf.org/files/documents/toolkits/railways_toolkit/PDFs/RR%20Toolkit%20EN%20New%202017%2012%2027%20CASE4%20CHINA.pdf.

¹⁴ Brian Yanity, *The Need for Freight Rail Electrification in Southern California* (May 2018) at 15, <http://calelectricrail.org/wp-content/uploads/2018/05/BYanity-SoCal-freight-rail-electrification-13May2018.pdf>.

¹⁵ Oliver Cuenca, *Indian Railways Launches Electric Double-Stack Container Operation* (June 16, 2020), <https://www.railjournal.com/freight/indian-railways-launches-electric-double-stack-container-operation/>.

¹⁶ FutureRail, *The UK's Diesel Phase-Out and Rail Innovation* (May 2018),

https://rail.nridigital.com/future_rail_may18/the_uk_s_diesel_phase-out_and_rail_innovation.

¹⁷ Progress Rail, *EMD Joule Battery Locomotive*,

<https://www.progressrail.com/en/Segments/RollingStock/Locomotives/FreightLocomotives/EMDJoule.html>.

electric transportation, the switcher's battery recovers energy through dynamic braking, which allows the battery to restore its energy reserves en route.¹⁸ Similarly, Wabtec Corporation completed tests in April of this year of its battery-powered line-haul locomotive, FLXdrive.¹⁹ BNSF tested the battery-powered heavy line-haul locomotive in Southern California on a 350-mile track between Barstow and Stockton, California.²⁰ The electric, battery-powered locomotive was operated between two Tier 4 diesel locomotives as part of a hybrid consist.²¹ Wabtec plans to commercialize this battery-powered locomotive for hybrid operation, and this research will also undoubtedly support the further development of fully zero-emission line-haul locomotives.²² Moreover, a new study by Lawrence Berkeley shows that battery prices are dropping, and that transitioning from diesel to battery electric trains is economically feasible when environmental costs are factored in or if rail companies can access charging infrastructure and wholesale electricity prices.

c. Fuel Cell Locomotives

Likewise, fuel cell locomotives could also potentially play a role in the transition to zero-emission line-hauls given the need for fast refueling times and high energy density needed to power these trains.²³ This should be further studied and considered to ensure hydrogen production does not create additional adverse consequences for local communities. There are several retrofits and demonstration projects of hydrogen fuel cell-powered locomotives that could support the transition to a zero-emission freight rail system. Ballard will deliver six hydrogen fuel cell-powered line-haul locomotives to Canada Pacific in 2021.²⁴ The fuel cells will work with battery technology to power the locomotive's electric traction motors.²⁵ By 2024, the San Bernardino County Transportation Agency will debut the first battery and hydrogen-

¹⁸ *Id.*

¹⁹ Joanna Marsh, BNSF, Wabtec Put Battery-electric Locomotive to the Test, (Jan. 5, 2021), <https://www.freightwaves.com/news/bnsf-wabtec-put-battery-electric-locomotive-to-the-test>.

²⁰ Bill Stephens, Wabtec's FLXdrive battery-electric locomotive begins revenue tests on BNSF, (Jan. 4, 2021), <https://www.trains.com/trn/news-reviews/news-wire/wabtecs-flxdrive-battery-electric-locomotive-begins-revenue-tests-on-bnsf/>.

²¹ Joanna Marsh, BNSF, Wabtec Put Battery-electric Locomotive to the Test, (Jan. 5, 2021), <https://www.freightwaves.com/news/bnsf-wabtec-put-battery-electric-locomotive-to-the-test>.

²² Rafael Santana, "The Business Case for Climate Solutions – House Committee on Transportation and Infrastructure," (March 17, 2021), <https://transportation.house.gov/imo/media/doc/Santana%20Testimony.pdf>.

²³ Deutsche Bahn, Overview of Zero-Emission Motive Power Options, (Oct. 29, 2020), <https://ww2.arb.ca.gov/sites/default/files/2020-10/Day%201%20Ext%201%20DB%20ENG%2020201021.pdf>.

²⁴ Canada Pacific, CP to Employ Ballard Fuel Cells in Hydrogen Locomotive Project (March 9, 2021), <https://www.cpr.ca/en/media/cp-to-employ-ballard-fuel-cells-in-hydrogen-locomotive-project>.

²⁵ *Id.*

powered passenger train in the country.²⁶ Moreover, Sierra Northern Railway will replace its Tier 0 switcher with a hydrogen fuel cell-powered switcher to operate on a 75-mile line through Mendocino, Tuolumne, and Stanislaus counties in California.²⁷

One important point is that South Coast AQMD should ensure that the hydrogen used to power fuel cell locomotives is actually zero-emissions, and does not impose localized health burdens on communities. The oil and gas industry has worked tirelessly to mislead policymakers and the public about the role of hydrogen in a fossil fuel-free future, but today 99 percent of hydrogen produced in the United States is made from fossil fuels. Green hydrogen, or electrolytic hydrogen—which is formed through a process of separating hydrogen from the water molecule using 100 percent renewable electricity—is the only method of hydrogen production today that does not emit greenhouse gases or other pollution, and should be the only form of hydrogen permitted under this rulemaking.

d. *Hybrid Trains*

Finally, battery-powered trains are already being blended as hybrid systems with overhead catenary power or hydrogen fuel cells to perform as fully zero-emission locomotives. Batteries used in conjunction with locomotives that have overhead line power can allow for continued zero-emission operation where some locations like tunnels might make it challenging to erect power lines. Hybrid systems can also yield energy savings and improve overall operations, since batteries can store braking energy for later use and reduce the strain on overhead lines during peak power periods, while power lines allow the train to travel long distances without recharging.²⁸ Several hybrid locomotives are already in development. For example, Bombardier plans to convert five diesel-hybrid trains to zero-emissions by 2023 through a combination of overhead catenary and battery power.²⁹ Likewise, BNSF piloted Wabtec’s FLXdrive, a hybrid battery-electric diesel line-haul locomotive, earlier this year.³⁰

It is clear from this very extensive list of multiple kinds of zero-emission trains that zero-emission rail technology is available and more is under development today. So South Coast can and should develop a rule that permits only zero-emission locomotives be used at any proposed future railyards.

²⁶ San Bernardino County Transportation Agency, Zero-Emission Rail Technology, (Feb. 2021), <https://www.gosbcta.com/wp-content/uploads/2019/09/ZEMU-technology-fact-sheet-021921.pdf>.

²⁷ Marybeth Luczak, SERA to Build Hydrogen-Powered Switcher (March 18, 2021), <https://www.railwayage.com/mechanical/locomotives/sera-to-build-hydrogen-powered-switcher/>.

²⁸ Carrie Hampel, Bombardier Converts Five Trains to Zero-Emission (Feb. 8, 2021), <https://www.electrive.com/2021/02/08/bombardier-converts-five-trains-to-zero-emission/>.

²⁹ *Id.*

³⁰ Wabtec Corp., “Roy Hill Sets new Course with Purchase of FLXdrive Battery Locomotive,” (Sept. 13, 2021), <https://www.wabteccorp.com/newsroom/press-releases/roy-hill-sets-new-course-with-purchase-of-flxdrive-battery-locomotive>.

IV. Any future railyards must be required to develop an integrated charging system to support zero-emission electric trucks, trains, and cargo handling equipment.

This rulemaking needs to ensure not only that no new polluting equipment is put in our communities, but it must also require the railroads and freight industry to invest in the necessary foundation for a future where we can all breathe clean air. Building out a robust charging network capable of charging zero-emission electric trucks, trains, and cargo-handling equipment will be a critical piece for the success of our clean air future.

So, we ask that the Air District require any and all future railyards in the South Coast to incorporate an integrated charging system capable of charging all operations at the proposed railyard, all employee and contractor vehicles, and additional zero-emission electric trucks traveling through the region. This forward-looking planning is critical for ensuring we clean the air in the South Coast.

V. This rulemaking should incorporate robust community engagement.

Staff should incorporate various opportunities for community engagement throughout the rulemaking process, including public hearings, outreach efforts, and community listening sessions. It is also important that staff begin this robust community engagement as early as possible, so that the public and local communities have as much opportunity as possible to influence the development of the rule.

Sincerely,

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