

Railyards (On-site Emissions)

Background

Railyards are used to store, sort, or load and unload railroad cars. Common loads include containers (stacked or on trailers), tankers with chemical or petroleum products, and bulk products such as construction materials or grain. Containers can be transported to and from marine terminals for import and export, or to and from warehouses for storage and sorting before reaching their final destination. Regional rail volumes are projected to more than double between 2012-2040 in response to growing international trade.¹

BNSF Railway Company (BNSF) and Union Pacific (UP) Railroad Company, operate many railyards² throughout California. Two are located within the Wilmington, Carson, West Long Beach community including, BNSF Watson and Union Pacific Dolores/Intermodal Container Transfer Facility (ICTF), next to residential areas (see Figure 5-1 for a map of the railyards in this community). Several other on-dock railyards operate at the ports of Los Angeles and Long Beach at various marine terminals.^{3,4}

Community Air Quality Priority – Emissions from Railyards

Air pollution is generated by equipment and vehicles that are used for railyard operations. These vehicles and equipment move containers and railcars around the railyard to load, unload, and transport goods in and out of the railyard. Emissions can also be generated during maintenance activities (e.g., load testing of locomotives). Examples of equipment that is used for railyard operations include:

- Locomotives (including ‘switchers’ that build and deconstruct trains, often within railyards, and larger ‘line-haul’ locomotives that pull trains hundreds of miles between railyards)
- Drayage trucks (i.e., on-road tractors that pull trailers loaded with containers, often from the ports)
- Cargo handling equipment (e.g., gantry cranes, top picks, and off-road yard trucks)
- Transportation Refrigeration Units (e.g., truck refrigeration units and refrigerated railcars), and
- Miscellaneous (e.g., fuel trucks)

¹ Southern California Association of Governments, 2016 RTP, Goods Movement Appendix

² California Air Resources Board, Railyard Maps, March 2013,

<https://www.arb.ca.gov/railyard/community/map.htm>, Accessed May 1, 2019.

³ Port of Los Angeles railyards are located at Berth 200, Pier 300, Pier 400, TraPac, West Basin Container Terminal, and Everport/Yusen terminals (TICTF). <https://www.portoflosangeles.org/business/supply-chain/rail>

Port of Long Beach railyards are located at Pier A, Pier B, Pier E/Middle Harbor, Pier G, Pier J, and Pier T.

<http://www.polb.com/civica/filebank/blobdload.asp?BlobID=13281>

These railyards are addressed as part of the ports actions.

⁴ Caltrans GIS Data, May 20 2019, <http://www.dot.ca.gov/hq/tsip/gis/datalibrary/>, Accessed June 3, 2019.

The CSC prioritized air pollution from railyards within the community based on concerns about diesel particulate emissions from trains and other diesel equipment at the BNSF Watson and Union Pacific Dolores/ICTF railyards. Potential opportunities to reduce emissions from diesel equipment used at railyards include replacing older equipment with newer less polluting equipment (e.g., replacing diesel-fueled yard trucks with electric yard trucks), and ensuring that the replacement or repower of equipment is based on the cleanest technology available.

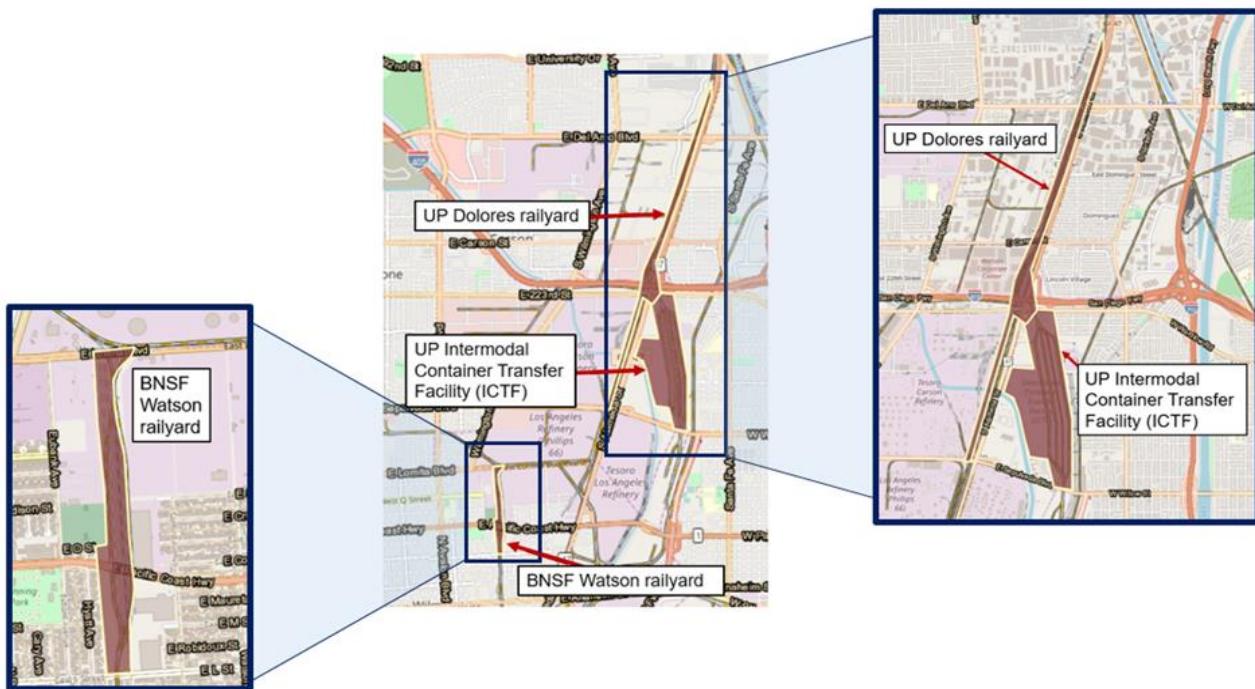


Figure 5-1. Two Railyards within the Wilmington, Carson, West Long Beach Community

Ongoing efforts

A short summary is provided below of the key regulations and programs that are in place or are being developed at the national, state, and local level to address emissions from railyards.

Federal Actions

Railroads are regulated at the federal level primarily by the Federal Railroad Administration and the Surface Transportation Board. These agencies' regulatory authority preempt certain federal, state, and local regulatory authorities. However, EPA has used its authority under the Clean Air Act to require new diesel locomotives to be built to meet the cleanest emission standard (also known as Tier 4)⁵. This requirement also applies to certain locomotives that are remanufactured.⁶

⁵ U.S. EPA, Regulations for Emissions from Locomotives, <https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-locomotives>, Accessed May 1, 2019.

⁶ Remanufacturing can include activities like replacing an old engine in a locomotive with a new engine. The useful life of a locomotive is typically at least ten years.

These regulations also limit idling for both new and remanufactured locomotives⁷ and mandate the use of ultra-low sulfur diesel fuel⁸. These regulations do not require railroads to reduce their usage of older, higher-emitting locomotives. In 2017, CARB also petitioned EPA to develop a new regulation requiring engine manufacturers to meet a cleaner Tier 5 emission standard for new engines. EPA has not yet acted on this petition.

State Actions (CARB)

CARB has two agreements⁹ with BNSF and UP to reduce locomotive emissions in and around railyards. An agreement in 1998 required BNSF and UP to meet a fleet average of Tier 2 locomotives in the South Coast Air Basin every year between 2010 and 2030. Both railroads have met this commitment every year. The second agreement in 2005 focused on railyards and required: implementation of an idling-reduction program, maximizing the use of ultra-low sulfur diesel fuel, preparation of health risk assessments, evaluation of measures to further reduce diesel particulate emissions, and an assessment of remote sensing technology to identify high-emitting locomotives. CARB has discussed the potential for two new regulations that would reduce emissions from locomotives, including regulation to reduce idling activity and a regulation to address non-preempted locomotive use in the state through retrofit, replacement and other actions. Also, CARB staff plans to develop amendments to the Cargo Handling Equipment Regulation, Transportation Refrigeration Unit Regulation, and its Drayage Truck Regulation to begin the transition to zero-emission technology starting in 2026¹⁰.

South Coast AQMD

South Coast AQMD previously adopted rules¹¹ that would have required railroads to reduce idling, conduct recordkeeping, and prepare emissions inventories and health risk assessments for railyards. However, the railroads sued South Coast AQMD, and the courts determined that the rules cannot currently be enforced as they are preempted by federal law. South Coast AQMD is evaluating potential strategies to reduce emissions from railyards, including developing a potential regulation affecting railyards called an Indirect Source Rule (ISR), and/or other potential partnering strategies that could reduce emissions¹². This ISR was initially intended to address regional air pollution, in particular through reducing NOx emissions. The CSC has made it clear that an ISR must also focus on reducing localized impacts from railyards.

⁷ U.S. EPA, Control of Emissions from Idling Locomotives, <https://nepis.epa.gov/Exe/ZyPdf.cgi?Dockey=P100HP4Q.pdf>, Accessed May 1, 2019.

⁸ U.S. EPA, Diesel Fuel Standards and Rulemakings, <https://www.epa.gov/diesel-fuel-standards/diesel-fuel-standards-and-rulemakings#nonroad-diesel>, Accessed May 1, 2019.

⁹ California Air Resources Board, 1998 Tier 2 Fleet Average in the South Coast Air Basin Agreement: <https://www.arb.ca.gov/railyard/1998agree/1998agree.htm>

2005 Statewide Rail Yard Agreement: <https://www.arb.ca.gov/railyard/2005agreement/2005agreement.htm>

¹⁰ California Air Resources Board, <https://www.arb.ca.gov/gmp/sfti/sfti.htm>, Accessed June 5, 2019.

¹¹ Regulation XXXV: <http://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/regulation-xxxv>

¹² South Coast AQMD, Railyards & Intermodal Facilities Working Group, <http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/facility-based-mobile-source-measures/rail-fac-wkng-grp>, Accessed May 1, 2019.

South Coast AQMD also funds projects to help develop technology that can lower emissions from locomotives (e.g., natural gas hybrid, battery electric, and fuel cell). These projects are in the design and demonstration phase and not yet commercially available. Additionally, the South Coast AQMD provides incentives for rail operators that purchase technologies for locomotives¹³ and cargo handling equipment¹⁴ that is cleaner than required.

Identifying Opportunities for Action

The South Coast AQMD continues to seek opportunities to reduce air pollution from railyards. The actions below have been identified by the CSC to reduce emissions from railyards.

Action 1: Reduce Emissions from Railyards

Course of Action(s):

- Continue to pursue strategies to reduce air pollution from railyards through the development of indirect source requirements, including reducing localized emissions and exposures
- Work with CARB on the development of new requirements to reduce air pollution from railyards
- Work with local utilities and state agencies like the California Energy Commission and the Public Utilities Commission to encourage the installation of infrastructure needed to fuel/charge zero emissions vehicles and equipment
- Continue to support CARB's petition¹⁵ to the U.S. EPA for new national locomotive emission standards for near zero and zero-emission locomotives
- Work with railyards in the Wilmington, Carson, and West Long Beach community to replace diesel fueled equipment with cleaner technologies¹⁶
- Use emissions inventory and monitoring information to identify opportunities for emission reductions

Strategies:

¹³ South Coast AQMD, Locomotives, [http://www.aqmd.gov/home/programs/business/carl-moyer-memorial-air-quality-standards-attainment-\(carl-moyer\)-program/locomotives](http://www.aqmd.gov/home/programs/business/carl-moyer-memorial-air-quality-standards-attainment-(carl-moyer)-program/locomotives), Accessed May 31, 2019.

¹⁴ South Coast AQMD, Off-Road Compression-Ignition Equipment – Cargo Handling Equipment (CHE), [http://www.aqmd.gov/home/programs/business/carl-moyer-memorial-air-quality-standards-attainment-\(carl-moyer\)-program/che-off-road-compression-ignition-equipment](http://www.aqmd.gov/home/programs/business/carl-moyer-memorial-air-quality-standards-attainment-(carl-moyer)-program/che-off-road-compression-ignition-equipment), Accessed May 31, 2019.

¹⁵ California Air Resources Board, CARB Locomotive Petition to U.S. EPA, April 2017, <https://ww2.arb.ca.gov/resources/documents/carb-petitions-us-epa-strengthen-locomotive-emission-standards>, Accessed June 5, 2019.

¹⁶ A variety of technology assessments have been conducted to assist in this effort. Examples include:
<https://ww2.arb.ca.gov/resources/documents/technology-and-fuels-assessments>
<http://www.cleanairactionplan.org/documents/draft-2018-feasibility-assessment-for-cargo-handling-equipment.pdf/>

<ul style="list-style-type: none"> • Rules and Regulations • Incentives • Collaboration • Monitoring 								
Goals:								
<ul style="list-style-type: none"> • Provide bi-annual updates on new requirements being developed by CARB and South Coast AQMD to the CSC • Prioritize reducing air pollution from railyards located in environmental justice communities, such as, Wilmington, Carson and West Long Beach • Replace diesel equipment at railyards through incentive funding programs 								
Estimated Timeline:								
<ul style="list-style-type: none"> • In 2020, South Coast AQMD to consider new ISR on railyards • Between 2020 and 2022, CARB to consider new regulations for locomotives • By 2020, CARB to consider amending its regulation for zero emissions refrigeration units (TRUs) • By 2022, CARB to consider amending its regulations for zero emission drayage trucks and cargo handling equipment 								
Implementing Agency, Organization, Business or Other Entity:								
<table border="1"> <thead> <tr> <th>Name:</th> <th>Responsibilities:</th> </tr> </thead> <tbody> <tr> <td>South Coast AQMD</td> <td> <ul style="list-style-type: none"> • Continue to pursue indirect source requirements for railyards, and improve community access to rule development process by holding a working group meeting in this community • Provide the CSC with updates on the development of indirect source requirements for railyards • Allocate incentive funding to replace on-site diesel equipment with zero-emission technologies </td> </tr> <tr> <td>CSC</td> <td>Participate in the CARB and South Coast AQMD rulemaking process (e.g., attending working group meetings, providing comments on draft rule materials, etc.) for regulations affecting railyards</td> </tr> <tr> <td>CARB</td> <td> <ul style="list-style-type: none"> • Pursue regulations to achieve additional emission reductions at railyards • Prioritize enforcement and seek new financial incentives for railyards </td> </tr> </tbody> </table>	Name:	Responsibilities:	South Coast AQMD	<ul style="list-style-type: none"> • Continue to pursue indirect source requirements for railyards, and improve community access to rule development process by holding a working group meeting in this community • Provide the CSC with updates on the development of indirect source requirements for railyards • Allocate incentive funding to replace on-site diesel equipment with zero-emission technologies 	CSC	Participate in the CARB and South Coast AQMD rulemaking process (e.g., attending working group meetings, providing comments on draft rule materials, etc.) for regulations affecting railyards	CARB	<ul style="list-style-type: none"> • Pursue regulations to achieve additional emission reductions at railyards • Prioritize enforcement and seek new financial incentives for railyards
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References:								
<ul style="list-style-type: none"> • For more information on Facility Based Mobile Source Measures for Railyards: http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/facility-based-mobile-source-measures/rail-fac-wkng-grp⁹ 								

- For more information on the Carl Moyer Program:
<http://www.aqmd.gov/home/programs/business/business-detail?title=heavy-duty-engines&parent=vehicle-engine-upgrades>¹⁷
- For more information on CARB's proposed regulations to reduce emissions from locomotives: <https://ww2.arb.ca.gov/resources/documents/evaluation-and-potential-development-regulations-reduce-emissions-locomotives>¹⁸
- Additional information on CARB's actions to minimize community health impacts from freight and estimated timelines is available at :
<https://www.arb.ca.gov/board/books/2019/032119/19-3-2pres.pdf>

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¹⁷ South Coast AQMD, Carl Moyer Program (Heavy-Duty Engines),
<http://www.aqmd.gov/home/programs/business/business-detail?title=heavy-duty-engines&parent=vehicle-engine-upgrades>¹⁰, Accessed May 31, 2019.

¹⁸ California Air Resources Board, Evaluation and Potential Development of Regulations to Reduce Emissions from Locomotives, <https://ww2.arb.ca.gov/resources/documents/evaluation-and-potential-development-regulations-reduce-emissions-locomotives>, Accessed May 30, 2019.