

Citizen Concerns for Needed Improvements and Enhancements of Present-day Proposed SCAQMD Rule-2306 Development

Submitted on 16 September 2023 for the 2nd SCAQMD Public Community Workshop of 19-22 September 2023 by Dr. Genghmun Eng (“Citizen”), 5215 Lenore Street, Torrance, CA 90503

Please add the following Public Notes and Comments to the SCAQMD Record on this item, and take these additional factors into consideration in your rule-making in order to be properly protective of the Public Health and Safety.

NOTE 1: The initial 7/30/2021 WorkGroup-1 Rule-2306 SCAQMD Presentation, p.7-of-38, notes plans to “*implement fence-line monitoring around intermodal facilities*”. Monitoring should include Black Carbon, PM-2.5, PM-10, PAH (Polynuclear Aromatic Hydrocarbons), along with other likely important pollutants. Updated plans for monitoring, compounds covered, how it's implemented, how data will be reported and made available, and its timescale needs to be provided to the Community.

NOTE 2: The 8/27/2023 SCAQMD Presentation:

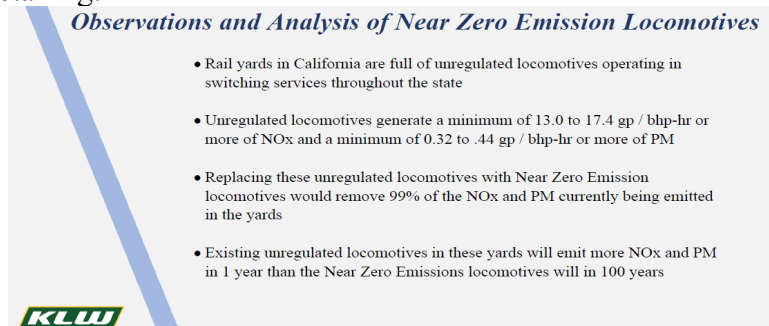
“*Update on Rail Yard Facility Based Mobile Source Measures: Stakeholder Consultation Meeting*”

should be added to the SCAQMD Presentations for Rule-2306 development in the folder:

“*Https://www.AQMD.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-2306*”

The SCAQMD should also add an information document to this folder as to what the results of this “*Consultation*” were, as part of the SCAQMD requirements for public disclosure, so as not to appear as working on a parallel non-public path, subject to non-publicly disclosed influences.

NOTE 3: The 12/8/2021 *Knoxville Locomotive Works (KLW)* Presentation to the SCAQMD notes that most Rail Yard air pollution arises from “unregulated” or “Tier 0” locomotives, with that Tier being the most polluting locomotive category among: “unregulated, Tier 1, Tier 2, Tier 3, Tier 4”, with p.12 of 13 of that presentation detailing:



As a result, Rail Yards covered under Rule-2306 should be required to inventory and publicly report to the SCAQMD on a monthly basis how many locomotives of each Tier have entered the Rail Yard and the total number of locomotive engine “ON” hours that have accumulated for each Tier category for that month, so that the Community has a better metric and better understanding of the amount of pollution, especially PM-10, PM-2.5, and NOx and that Community members are being exposed to.

NOTE 4: A publicly available document on Locomotive Tier Emission Standards:

{<https://dieselnet.com/standards/us/loco.php>; USA Locomotives}

indicates that while the emission standards apply to new and/or remanufactured locomotives for their 'useful life', the suppliers generally warranty their locomotives to perform to these emission standards (“*emission warranty*”) for periods as short as 1/3 of their 'useful life', raising the concern that in use locomotives may be exceeding their emission standards for up to 2/3 of their 'useful life':

“*Locomotive Useful Life*. The emission standards apply to new and/or remanufactured locomotives for their useful life. The useful life, generally specified as MW-hrs and years {*Mega-Watt Hours Energy or Locomotive Years of Service*}, ends when either of the values (MW-hrs or years) is exceeded or the locomotive is remanufactured.

The minimum useful life in terms of MW-hrs is equal to the product of the rated horsepower multiplied by 7.50. The minimum useful life in terms of years is 10 years. For locomotives originally manufactured before January 1, 2000 and not equipped with MW-hr meters, the minimum useful life is equal to 750,000 miles or ten years, whichever is reached first. The minimum emission warranty period is one-third of the useful life (with some exceptions).”

NOTE 5: Due to consideration of **Note 4**, the SCAQMD should require and implement air pollution monitoring **inside** intermodal facilities for Black Carbon, PM-2.5, PM-10, PAH (Polynuclear Aromatic Hydrocarbons), along with other likely important pollutants. Plans for this monitoring, compounds covered, implementation, its data reporting and timescale, and how the data will be made available to the Public, needs to be provided to the Community. This data will also allow improperly maintained gross polluter locomotives to be identified and marked for repair or be prohibited from returning. This locomotive identification and interdiction at the Rail Yard entrance would also provide a new method to “*reduce the significant localized PM emissions*” in the Rail Yard, which also is an implicit Rule-2306 goal (p.13-of-38, 7/30/2021 WorkGroup-1 Proposed Rule-2306 SCAQMD Presentation).

NOTE 6: Justification for fenceline monitoring is to protect people who are innocents that are exposed to air pollution from the Corporate Entity inside the fenceline boundary that is creating the air pollution source. This exposure is often quantified by determining what location would be associated with a MER ('Maximum Exposed Resident'), and using that exposure as a worst-case. That MER can also be a business owner who remains at their store location for much of the day.

Property inside the fenceline boundary that can also affect Corporate Entity workers, and Corporate Entity Subcontractor workers, which is normally under the regulatory domain of OSHA. Going up the chain-of-command, a Subcontractor worker has a first-line supervisor, with their superior as a second-line higher up, all the way to the Subcontractor head. The Subcontractor may defer to the Corporate Entity at some level, in which case the chain-of-command then goes all the way up to the Corporate Entity head. Contract Law is what binds the individual worker to this chain-of-command. This chain-of-command is especially important in determining who is responsible and what steps need to be taken when anomalies occur at a Corporate Entity facility.

However, these proposed New Intermodal Facilities Rule-2306 facilities are planned to be operationally run by both BASF Railroad ('BASF') and Union Pacific (UP) Railroad, creating two parallel chains-of-command each individual worker. For toxic air pollution exposure, it means that every BASF employee can be considered as an innocent MER external bystander with respect to toxic pollutants from UP Locomotives idling in the Rail Yard, and every UP employee can be considered as an innocent MER external bystander with respect to toxic pollutants from BASF Locomotives idling in the Rail Yard.

This BASF-UP linkage together on nearly equal footing is evident in these two documents:

“*Railroad Technology*” by *BNSF Railway and Union Pacific*, September 20, 2021;

“*Update on Rail Yard Facility Based Mobile Source Measures: Stakeholder Consultation Meeting*” 8/17/2023 SCAQMD Presentation (18 pages),

where the final p.18-of-18 of that 8/17/2023 SCAQMD Presentation ends as follows:

QUESTIONS TO CONSIDER

- Are there specific elements you think are important to include in an MOU?
 - Examples: specific enforceability terms, data reporting and transparency, etc.

- Because it is an agreement, a MOU has opportunities to include actions that are not possible in a regulation. Are there specific actions you think South Coast AQMD, BNSF, and UP could agree to that should be included?

In addition, Rail Yards many other personnel from other organizations, who help maintain the flow of train crews, especially when they 'time-out' at their shift-end, which is tightly controlled, requiring ferrying of new crews to go out of the Rail Yard to take over control over those trains, and to ferry

'timed-out' crews from outside the Rail Yard, back into the Rail Yard. As a result of these mandated train crew shift starts and ends, many ferrying personnel and many train crew members can spend many consecutive hours within the Rail Yard, creating an ongoing potentially toxic air pollution exposure. These people also are innocent MER external bystanders with respect to toxic pollutants that are emitted from **all** Locomotives idling in the Rail Yard.

The above considerations form multiple further reasons why the locomotives entering Intermodal Facilities need to be identified and categorized with respect to their Tier (**Note 3**) and age (**Notes 4**), and why air pollution monitoring **inside** intermodal facilities is needed (**Note 5**), with appropriate metrics.

NOTE 7: The 7/30/2021 WorkGroup-1 Rule-2306 SCAQMD Presentation, p.13-of-38, notes that the SCIG ("*Southern California International Gateway*") revised Draft EIR had "*only mitigation for PM is street sweeping, which is not sufficient to reduce the significant localized PM emissions*", with the CIF ("*Colton Intermodal Facility*") Draft EIR not yet done. The SCAQMD admission that "*significant localized PM emissions*" are expected, highlights the need for Rule-2306 to require and implement air pollution monitoring **inside** intermodal facilities, in addition to Rule-2306 develop additional methods to "*reduce the significant localized PM emissions*".

NOTE 8: The 4/12/2022 WorkGroup-4 Rule-2306 SCAQMD Presentation, p.4-of-37, discusses Health Hazards associated with air pollution, emphasizing the criteria pollutants of: Ozone, PM, NO_x, SO_x, and Carbon Monoxide. On p.7-of-37, it notes Ozone is created in the atmosphere by NO_x interacting with VOC (Volatile Organic Compounds). It also claims Ozone is "*not emitted directly*", which may no longer be true. On p.30-of-37, the "*Air Quality Components of Proposed Rail Yard Projects*" notes that:

SCIG: (a) Street Sweeping for fugitive dust; (b) Electric Gantry Cranes; LNG-fueled Yard Trucks.

CIF: (a) Electric Gantry Cranes; (b) Electric Straddle Carriers; (c) Electric Yard Trucks.

While Electric Heavy Machinery is an improvement over fossil fuel machinery, as the "Facts about Ozone" (https://www.xerox.com/downloads/usa/en/e/ehs_FactsaboutOzone.pdf) notes:

"Xerographic copying and printing equipment may generate ozone when high-voltage charging devices produce an electrostatic discharge during a copy run. In standby mode no ozone is produced."

Along with deliberately produced electrostatic discharges, non-sealed high-voltage switching systems can also produce ozone in their 'break-before-make' switching circuits. Unintentional high-voltage arc breakdowns can also occur, producing ozone. Electric Company High-Voltage Power Transmission Lines (HVPTL) are a common example. Damp, wet, or foggy weather exacerbates unwanted high-voltage breakdowns to ground, which creates a characteristic audible HVPTL 'buzz', plus ozone. New Electrical Heavy Machinery containing high power, high voltage switching circuits should have continuous ozone monitors, with real-time wireless data transmission, as part of Rule-2306.

NOTE 9: The 4/12/2022 WorkGroup-4 Rule-2306 SCAQMD Presentation, p.31-of-37, discloses a Union Pacific commitment to purchase 20 Wabtec battery-electric locomotive at about \$10M each. out of 8,205 total today, which is an Environmental commitment of $20/8205 = 0.24\%$ commitment, and 99.36% "Business as Usual". The New York Metropolitan Transit Authority is buying 25 Wabtec locomotives for \$233M, to be delivered over 5 years. Union Pacific, with 610.5 million shares outstanding, \$131.5 Billion USD capitalization, a recent yearly dividend of \$5.20/share, this commitment works out is a \$0.06 per share per year for a similar 5-year delivery schedule; about 1.15% impact for Environmentalism, with 98.85% "Business as Usual". Sounds like slow progress.

NOTE 10: The 4/12/2022 WorkGroup-4 Rule-2306 SCAQMD Presentation, p.4-of-37, discloses "*Examples of Indirect Source Rule (ISR) Concepts Potentially Applicable for New Rail Yards*", including SCAQMD imposing Facility Caps of less than "*XX pounds per day per facility*", which also needs and requires implementing air pollution monitoring **inside** intermodal facilities, while allowing and enabling development of new methods to "*reduce the significant localized PM emissions*", as in **NOTE 7**.

NOTE 11: The 4/13/2023 SCAQMD Workshop #1 SCAQMD Presentation of, titled “*Indirect Source Rules (ISR) for Rail Yards and Commercial Marine Ports*” again emphasizes that “*additional controls are needed including Facility-Based Measures called ISR’s*” (p. 9-of-37). PR 2306 is that ISR; which will include: (1) Facility Caps for “*Annual Facility-Wide Emissions Limit*” (PR2306-A); where the “*Emission limit would decline over time*” (PR2306-B); along with (2) Requirements for installation of “*Zero-Emissions Infrastructure*” (PR2306-C). Further Facility-Based Measures for Rail Yard air pollution monitoring and control also need to be part of Rule-2306 to, including:

- (3) Facility Caps of less than “*XX pounds per day per facility*” emissions (PR2306-D);
- (4) Requiring Intermodal Facilities to “*implement fence-line monitoring around intermodal facilities*” to develop data that enables better protection of the Community Public Health and Safety within the SCAQMD purview (PR2306-E);
 - (4a) Including air pollution monitoring at railroad locomotive entry points to identify improperly maintained gross polluter locomotives for interdiction and repair (PR2306-F),
 - (4b) Prevent noncompliant locomotives from returning until they are brought into compliance, to “*reduce the significant localized PM emissions*” in the Rail Yard (PR2306-G);
- (5) Requiring and implementing air pollution monitoring **inside** intermodal facilities (PR2306-H):
 - (5a) To better protect intermodal facility workers when multiple independent corporate entities are involved in a facility, as each worker from one corporate entity becomes an MER for pollution due to activities of the other corporate entities (PR2306-I);
 - (5b) To develop accurate data for amounts of air pollution being generated to evaluate compliance with daily and annual Facility air pollution caps (PR2306-J);
 - (5c) To develop additional data that enables better protection of the Community Public Health and Safety within the SCAQMD purview (PR2306-K);
- (6) Implementing Ozone monitors on all Electrical Heavy Machinery containing high power, high voltage switching circuits, with real-time wireless data transmission (PR2306-L).

NOTE 12: Multiple human health risks have been associated with PM-2.5 exposure:

- (a) Potent carcinogen, especially in diesel exhaust (WorkGroup-1, p.26-of-38)
- (b) Asthma creator and/or enhancer (WorkGroup-4, p.6-of-37),
- (c) Accelerates risk of Cardiac Events (WorkGroup-4, p.6-of-37),
- (d) Increased risk of dementia.

The above (d) PM-2.5 health hazard has only recently being identified, as in the recent news article:

<https://www.yahoo.com/news/research-uncovers-stunning-factor-behind-113000993.html>

Research uncovers stunning factor behind nearly 200,000 cases of dementia each year: 'Toxins for the brain'
by Erin Feiger, Updated Thu, September 14, 2023 at 7:50 AM PDT

Thus, PM-2.5 monitoring **inside** intermodal facilities may be the most important and impactful contaminant control for air pollution emitted from these Rail Yards. It needs the best and highest amount of SCAQMD monitoring and regulation to protect the Public Health and Safety (PR2306-M).

END OF NOTES

START OF PROPOSED MODIFICATIONS TO

SCAQMD INITIAL DRAFT (AS OF 9/15/2023) FOR PROPOSED RULE 2306 (PR-2306)

PROPOSED MODIFICATIONS TO 9/15/2023 INITIAL DRAFT FOR PR-2306

M-01: OLD TEXT: (d) Requirements: (1) The operator of a new intermodal rail yard shall comply with the Facility Wide Emissions Limit calculated in subparagraph (d)(1)(A) and demonstrate compliance annually with methods specified in subparagraph (d)(1)(B).

M-01: NEW TEXT: (d) Requirements: (1) The operator of a new intermodal rail yard shall comply with the Facility Wide Emissions Limit calculated in subparagraph (d)(1)(A) and demonstrate compliance **annually and monthly, as compliance periods**, with methods specified in subparagraph (d)(1)(B). **Annual decreases of at least 5% per year for the annual allowed Facility Wide Emissions Limit shall automatically be required by this Rule 2306, unless waived for a particular year by the SCAQMD Board, as a method to reduce the significant localized PM and other air pollution emissions associated with Rail Yards.**

M-02: OLD TEXT: (d)(1)(A)(Equation 1) ... Where, for a given compliance year (y) ...

M-02: NEW TEXT: (d)(1)(A)(Equation 1) ... Where, for a given compliance **period** (y) ...

M-03: OLD TEXT: (e) Plans for New Intermodal Rail Yard: (2) Owner Infrastructure Plan. (B) Description zero emission infrastructure development projects including: (i) List of individual infrastructure development components;

M-03: NEW TEXT: Under (e)(2)(B)(i), these (e)(2)(B)(i)(I-IV) subsections should be added:

(e)(2)(B)(i)(I) Intermodal Rail Yard Fenceline Monitoring and Interior Monitoring and Reporting of Rail Yard Air Pollutants, including NO_x, PM-2.5, and Black Carbon, shall be implemented as part of zero emission infrastructure development.

(e)(2)(B)(i)(II) Rail Yard Monitoring and Reporting of Yard Air Pollutants, including NO_x, PM-2.5, and Black Carbon, shall be implemented at Locomotive Entry Points, as part of zero emission infrastructure development.

(e)(2)(B)(i)(III) Data and Reporting from (e)(2)(B)(i)(I) and (e)(2)(B)(i)(II) shall be used to identify any gross polluter locomotives for repair and/or quarantine from future entry, when emissions above their nominal Locomotive Tier level are detected, as part of zero emission infrastructure development.

(e)(2)(B)(i)(IV) Ozone monitors shall be placed on all Electrical Heavy Machinery near any high power, high voltage switching circuits, with real-time wireless data transmission to the Rail Yard Control Facilities, as part of zero emission infrastructure development.

END OF PROPOSED MODIFICATIONS TO PR-2306