

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Staff Report

Proposed Rule 3503 - Emissions Inventory and Health Risk Assessment for Railyards

October 2005

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EXECUTIVE SUMMARY

BACKGROUND

PROPOSED RULE 3503 REQUIREMENTS

BACKGROUND

Rail operations, characterized primarily by activities associated with operation of diesel locomotives, are a significant source of diesel particulate matter (PM) emissions and other criteria pollutants such as oxides of nitrogen (NO_x), volatile organic compounds (VOC), carbon monoxide (CO), and oxides of sulfur (SO_x). The 2003 Air Quality Management Plan (AQMP) estimates locomotive particulate matter less than 10 microns (PM₁₀) emissions of 1.01 tons per day and emissions of particulate matter less than 2.5 microns (PM_{2.5}) of 0.93 tons per day¹. Diesel exhaust is a complex mixture of gases and fine particles emitted by diesel-fueled internal combustion engines. Diesel exhaust contains many carcinogenic compounds, including, but not limited to, arsenic, benzene, formaldehyde, 1-3-butadiene, and ethylene dibromide.² In 1998, the California Air Resources Board (CARB) identified diesel exhaust as a Toxic Air Contaminant (TAC) based on its cancer causing potential.

Proposed Rule (PR) 3503 quantifies emissions and identifies health risks associated with rail activities in the South Coast Air Basin (Basin). The purpose of PR 3503 is to inventory criteria pollutant and toxic emissions from railyards, to conduct health risk assessments (HRA) to estimate the cancer risk and chronic and acute hazard indices caused by emissions at railyards, and to notify the public regarding such health risks.

PROPOSED RULE 3503 REQUIREMENTS

PR 3503 is applicable to railyard operations operated by Class I freight railroads and switching and terminal railroads in the District. Passenger railyards operating in the District, such as Amtrak and Metrolink, would be excluded from the requirements of PR 3503 based on a preliminary data analysis indicating that they contribute less than ten percent of NO_x and PM emissions from rail operations. Passenger railyard operations are sufficiently different than freight yards because they are characterized by very little, if any, switching and cargo handling activities, in addition to considerably lower traffic volumes. Due to their lower emissions, passenger railyard operations pose proportionally lower health risks than freight railyards. If warranted, passenger operations may be considered in the future.

PR 3503 would establish the following requirements:

- Emissions Inventory
 - Submit Interim Railyard Emissions Inventory Report on or before (*6 months after date of adoption*)

¹ South Coast Air Quality Management District, 2003. 2003 Air Quality Management Plan: Appendix III – Base and Future Year Emission Inventories.

² California Environmental Protection Agency, Air Resources Board and Office of Environmental Health Hazard Assessment, 1998. Executive Summary for the “Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant.”

- Submit emissions inventory on or before (*12 months after date of adoption*) for all Basin railyards operated by operators subject to PR 3503.
- Railyard-wide emissions inventory to include all criteria pollutants and TACs.
- Update emissions inventories every two years.
- HRA for Toxic Air Contaminants
 - Submit on or before (~~12~~*15 months after date of adoption*) for all Basin railyards operated by operators subject to PR 3503.
 - HRA to be based on railyard-wide TAC emissions inventory.
 - ~~AQMD-District~~ to conduct public meetings prior to approving HRAs and the basis for such decision;
 - HRA updates required if the sum of TACs, weighted by toxicity, is greater than 1.1 times the sum of weighted TACs from the initial emissions inventory or if the impact area changes.
- Public Notification Requirements
 - Public notification is required if a railyard-wide HRA shows that risk exceeds the public notification level (cancer risk is greater than or equal to 10-in-one-million (10×10^{-6}) or the total acute or chronic hazard index is greater than one (1.0) for any target organ system at any receptor location).
 - A minimum of two public notification meetings are required. Public notification meetings shall be at locations proposed by railyard operators and approved by the Executive Officer, based on a determination that the location is reasonably accessible to residents and workers in the impact area.

CHAPTER 1: BACKGROUND

INTRODUCTION

DIESEL PARTICULATE MATTER

REGULATORY HISTORY

REGULATORY AUTHORITY

INTRODUCTION

Rail operations, characterized primarily by activities associated with operation of diesel locomotives, are a significant source of diesel particulate matter (PM) emissions and criteria pollutants (NO_x, VOC, CO, and SO_x). The 2003 Air Quality Management Plan (AQMP) estimates locomotive particulate matter less than 10 microns (PM₁₀) emissions of 1.01 tons per day and emissions of particulate matter less than 2.5 microns (PM_{2.5}) of 0.93 tons per day.¹ Diesel exhaust is a complex mixture of gases and fine particles emitted by diesel-fueled internal combustion engines. Diesel exhaust contains many carcinogenic compounds, including, but not limited to, arsenic, benzene, formaldehyde, 1-3-butadiene, and ethylene dibromide.²

Proposed Rule (PR) 3503 quantifies emissions and identifies health risks associated with rail activities in the South Coast Air Basin (Basin). The purpose of PR 3503 is to inventory criteria pollutant and toxic emissions from railyards and to conduct health risk assessments (HRA) to estimate the cancer risk and chronic and acute hazard indices caused by emissions at railyards and to notify the public regarding such health risks. PR 3503 would require a railyard operator to submit a railyard-wide emissions inventory of criteria and air toxic pollutants for all stationary and mobile sources within the railyard. In addition, operators of railyards would be required to submit railyard-wide HRAs, based on the railyard-wide TAC emissions inventories. Under PR 3503, railyards with cancer risks greater than or equal to 10-in-one-million or the total acute or chronic hazard indices is greater than one (1.0) would be required to conduct public notification.

DIESEL PARTICULATE MATTER

Diesel exhaust is listed by the California Air Resources Board (CARB) as a Toxic Air Contaminant (TAC) and has the potential to cause cancer in humans. Long-term exposure to diesel PM poses the highest cancer risk of any toxic air contaminant evaluated by the Office of Environmental Health Hazard Assessment (OEHHA).³ The second Multiple Air Toxics Exposure Study (MATES-II), released in 2000, shows that approximately 70 percent of the cancer risk from air toxics in the Basin is due to diesel PM.⁴ Exposure to diesel exhaust can irritate the eyes, nose, throat and lungs and can cause coughs, headaches, light-headedness, and nausea.³

In addition to cancer risks, exposure to diesel PM has been shown to increase susceptibility to allergens, such as dust and pollen and can aggravate chronic respiratory problems such as

¹ South Coast Air Quality Management District, 2003. 2003 Air Quality Management Plan: Appendix III – Base and Future Year Emission Inventories.

² California Environmental Protection Agency, Air Resources Board and Office of Environmental Health Hazard Assessment, 1998. Executive Summary for the “Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant.”

³ Office of Environmental Health Hazard Assessment and The American Lung Association of California. Health Effects of Diesel Exhaust.

⁴ South Coast Air Quality Management District, 2000. Final Report – Multiple Air Toxics Exposure Study in the South Coast Air Basin – MATES – II.

asthma. Diesel engines are major sources of fine particle pollution and can particularly affect sensitive people, such as the elderly and people with emphysema, asthma, and chronic heart and lung disease. Children, whose lungs and respiratory systems are still developing, are also more susceptible than healthy adults to fine particles. Exposure to fine particles is associated with increased frequency of illness and reduced growth in lung function in children.^{3,4}

Studies on diesel exhaust have focused on non-cancer health effects from short-term and long-term exposure, reproductive and developmental effects, immunological effects, genotoxic effects, and cancer health effects.² Overall, the available literature did not determine whether exposure to diesel exhaust causes reproductive or developmental effects in humans.⁵ In terms of immunological effects, studies show that diesel exhaust exposure increases antibody production and causes localized inflammation of lung and respiratory tract tissues, particularly when exposure accompanies other known respiratory allergens.²

Diesel exhaust particles and diesel exhaust extracts have been determined to be genotoxic and may be involved in initiation of human pulmonary carcinogenesis. In terms of cancer health effects, over 30 epidemiological studies have investigated the potential carcinogenicity of diesel exhaust.² The National Institute of Occupational Health and Safety recommended in 1988 that diesel exhaust be regarded as a potential occupational carcinogen based on animal and human evidence. The Health Effects Institute (1995) and the World Health Organization (1996) also evaluated the carcinogenicity of diesel exhaust and found the epidemiological data to show associations between exposure to diesel exhaust and lung cancer.²

In 1998, CARB identified diesel exhaust as a TAC based on available information on diesel exhaust-induced noncancer and cancer health effects.^{3, 5} As part of the TAC identification process, CARB concluded that based on information available on diesel exhaust-induced non-cancer and cancer health effects, diesel exhaust meets the legal definition of a TAC which is an air pollutant “which may cause or contribute to an increase in mortality and serious illness, or which may pose a present or potential hazard to human health” (Health and Safety Code Section 39655).² In addition, in 2001, pursuant to the requirements of Senate Bill 25 (Stats. 1999, ch. 731), OEHHA identified diesel PM as one of the TACs that may cause children or infants to be more susceptible to illness. Senate Bill 25 also requires CARB to adopt control measures, as appropriate, to reduce the public’s exposure to these special TACs (Health and Safety Code section 39669.5).

REGULATORY HISTORY

Federal Standards for Locomotive Engines

In April 1998, the U.S. EPA promulgated a rulemaking, entitled, “Emission Standards for Locomotives and Locomotive Engines.” This rulemaking establishes emission standards and associated regulatory requirements for the control of emissions from locomotives and locomotive engines as required by the Clean Air Act section 213(a)(5). The primary focus of the emission standards, which became effective in 2000, is NOx. In addition, standards for hydrocarbons

⁵ Office of Environmental Health Hazard Assessment, 2000. Health Effects of Diesel Exhaust Fact Sheet, August 2000.

(HC), carbon monoxide (CO), particulate matter (PM) and smoke were also promulgated. The rulemaking established a 3-tiered emissions limit matrix based on the year of locomotive manufacture: Tier 0 (manufactured from 1973 through 2001), Tier 1 (manufactured from 2002 through 2004), and Tier 2 (manufactured in 2005 and later). Within each tier are separate emission limits for a line-haul duty cycle and a switch duty cycle. With some exceptions, locomotives are required to meet both the line-haul and switch duty cycle emission limits. A summary of the U.S. EPA limits is shown in Table 1-1.

**Table 1-1
Summary of U.S. EPA Locomotive Emission Standards**

U.S. EPA Tier	Line Haul Duty Cycle (g/bhp-hr)				Switch Duty Cycle (g/bhp-hr)			
	HC	CO	NO _x	PM	HC	CO	NO _x	PM
0	1.00	5.0	9.5	0.60	2.10	8.0	14.0	0.72
1	0.55	2.2	7.4	0.45	1.20	2.5	11.0	0.54
2	0.30	1.5	5.5	0.20	0.60	2.4	8.1	0.24

The rulemaking also includes a variety of provisions, including certification test procedures and assembly line and in-use compliance testing requirements, to implement the emission standards and to ensure rule compliance. The rule also includes an emissions averaging, banking, and trading program to provide flexibility. Clean Air Act section 209(e) preempts state and local governments from adopting “emissions standards or other requirements” relating to the control of emissions from new locomotives and new locomotive engines.⁶ PR 3503 takes this preemption into account.

Ultra-Low-Sulfur Diesel Fuel for Locomotives

In November 2004, CARB approved amendments extending California standards for motor vehicle diesel fuel to diesel fuel used in intrastate locomotives. Under this rulemaking, effective January 1, 2007, intrastate diesel locomotives will be required to use ultra-low sulfur diesel fuel which meets the 15 parts per million by weight (ppmw) sulfur requirement currently in place for motor vehicles. Current U.S. EPA requirements, finalized in June 2004, specify that 15 ppmw fuel be used in locomotives in 2012. However, because the aromatic content in U.S. EPA’s fuel specification (35 percent by volume) is higher than in CARB’s specification (10 percent by volume), CARB staff has estimated that the use of CARB diesel will provide NO_x and PM emissions benefits of 6 and 14 percent, respectively, compared with U.S. EPA fuel. CARB’s rulemaking requires the use of low-sulfur diesel fuel six years earlier than is required federally.⁷

⁶ United States Environmental Protection Agency, 1998. 40 CFR Parts 85, 89 and 92: Emission Standards for Locomotives and Locomotive Engines; Final Rule.

⁷ California Environmental Protection Agency, Air Resources Board, 2004. Staff Report: Initial Statement of Reasons – Public Hearing to Consider Proposed Regulatory Amendments Extending the California Standards for Motor Vehicle Diesel Fuel to Diesel Fuel Used in Harborcraft and Intrastate Locomotives.

Agreements with Class I Railroads

1998 CARB Memorandum of Understanding. California's 1994 State Implementation Plan (SIP) control measure M14 assumes that cleaner federally-complying locomotives will be operated in California and the Basin. As a result of measure M14, CARB staff developed a memorandum of understanding (MOU) with The Burlington Northern and Santa Fe Railway Company (BNSF) and Union Pacific Railroad Company (UP) that was signed in July 1998 (1998 CARB MOU). The 1998 CARB MOU includes provisions for early introduction of clean locomotives, with requirements for a NOx fleet average in the Basin equivalent to U.S. EPA's Tier 2 locomotive standard by 2010.⁸

2005 CARB Statewide Agreement. In June 2005, CARB staff developed a statewide agreement with BNSF and UP to establish a PM emissions reduction program at California railyards. Under this agreement, the railroads would reduce locomotive idling by installing idling-reduction devices on their intrastate locomotive fleets. In addition, the railroads agreed to develop inventories of diesel emissions with CARB, in turn, conducting HRAs for most railyards statewide.⁹ PR 3503 is necessary because it specifies a shorter timeframe than the 2005 CARB statewide agreement for submitting railyard emission inventories, as well as a more specific framework for submittal, review, and approval of HRAs. In addition, in contrast with the 2005 CARB statewide agreement, PR 3503 specifies health risk thresholds and requires the District to hold public meetings prior to finalization of HRAs. More stringent provisions are required in the South Coast than are contained in CARB's state-wide MOU because of the high ~~level~~levels of criteria and toxic pollutants, especially particulate matter in the South Coast. CARB has scheduled ~~an~~ September 22/October 27, 2005 public hearing to consider the 2005 statewide agreement, at which time the agreement may be modified or rescinded.

AB 2588 Air Toxics “Hot Spots” Program

In 1987, the California legislature adopted the Air Toxics “Hot Spots” Information and Assessment Act (or AB 2588). AB 2588 requires facilities to submit an air-toxics-inventory report from which priority scores are calculated. Facilities with ~~a~~ priority scores exceeding specific thresholds must provide HRAs. If the risk reported in the HRA exceeds specific thresholds, then the facility is required to provide public notice to the affected community. In 1992, the California legislature added a risk reduction component, the Facility Air Toxic Contaminant Risk Audit and Reduction Plan (or SB 1731), which required the District to specify a significant risk level, above which risk reduction would be required. The District began to implement the AB 2588 program beginning in 1988.¹⁰ In adopting AB 2588, the California legislature acknowledged increasing public concern with air toxics and also indicated that public notification is an important and legitimate goal of government.

⁸ Memorandum of Mutual Understandings and Agreements, South Coast Locomotive Fleet Average Emissions Program, 1998.

⁹ ARB/Railroad Statewide Agreement, Particulate Emissions Reduction Program at California Railyards, 2005.

¹⁰ South Coast Air Quality Management District, 2005. Annual Report on AB 2588 Air Toxics “Hot Spots” Program, March 2005.

REGULATORY AUTHORITY

The District's Authority to Adopt Rules Applicable to Emissions from Railroads and Locomotives, and Railyards

The authority to regulate air pollution in California is divided between the CARB and the local and regional air pollution control districts. Under state law “local and regional authorities¹¹ have the primary responsibility for control of air pollution from all sources, other than emissions from motor vehicles. The control of emissions from motor vehicles, except as otherwise provided in this division, shall be the responsibility of the State board.” (Health & Safety Code §40000-). Locomotives are not motor vehicles. The law defines “motor vehicle” as “a vehicle that is self-propelled.” (Veh. Code §415(a)). A “vehicle” is “a device by which any person or property may be propelled, moved, or drawn upon a highway, excepting a device moved exclusively by human power or used exclusively upon stationary rails or tracks.” (Veh. Code §670). Because they do not operate on the highway and because they operate on stationary tracks, locomotives are not “vehicles.” Since they are not motor vehicles, they are under the jurisdiction of the districts. (Health & Safety Code §40000-). CARB was also granted authority to regulate locomotives by Health & Safety Code §43013(b), as amended in 1988. However, even after the enactment of this statute, the districts retain concurrent authority to regulate nonvehicular sources, including locomotives. (Manaster & Selmi, *California Environmental Law and Land Use Practice*, §41.06 (2)-).

District staff believes that much of the non-locomotive equipment operated by railroads at their yards is also non-vehicular in nature. Accordingly, it also would be subject to the jurisdiction of the air districts, including ~~AQMD~~ the District.

The districts also have general authority under state law to regulate “indirect sources,” which are sources that attract mobile sources¹². This includes the authority to regulate railyards where trucks are used to deliver or distribute freight, locomotives are used to carry freight, and non-road equipment is used to handle freight. Pursuant to Health & Safety Code §40716(a)(1), a district may adopt and implement regulations to “reduce or mitigate emissions from indirect and areawide sources of air pollution.” Therefore, under state law the district may regulate railyards to reduce or mitigate emissions resulting from the mobile sources associated with or attracted to the railyards.

State law generally grants districts the authority to “adopt rules and regulations and do such acts as may be necessary or proper to execute the powers and duties granted to, and imposed upon, the district by this division and other statutory provisions.” (Health & Safety Code §40702-). This statute grants broad authority to districts to adopt rules and regulations for sources within

¹¹ The term “local or regional authority” means the governing body of any city, county or district. Health & Safety Code §39037. “District” means an air pollution control district or air quality management district created or continued in existence pursuant to provisions of Part 3 (commencing with Section 40000). Health & Safety Code §39025.

¹² State law does not contain a definition for indirect source, but the federal Clean Air Act provides that the term “indirect source” means “a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution.” 42 U.S.C. §7410(a)(5)(C).

their jurisdiction. This statute also includes a limited exemption with respect to locomotives. It provides:

No order, rule, or regulation of any district shall, however, specify the design of equipment, type of construction, or particular method to be used in reducing the release of air contaminants from railroad locomotives. (Health & Safety Code §40702.)

The provision makes clear that the legislature believed that districts had the authority to regulate locomotives by means other than specifying equipment design, construction, or other particular methods. (See *Manaster & Selmi, supra*, §41.06(2) n. 11: this section impliedly recognizes district authority to regulate locomotive emissions.) PR 3503 does not specify any requirement respecting the design of equipment or type of construction of locomotives. Nor does it specify the particular method to be used. The reference to “particular method to be used” should be construed as referring to methods that are similar to those methods specifically enumerated in the statute, i.e. methods affecting the design or construction of locomotives. The Civil Code, §3534, states that “particular expressions qualify those which are general.” The California Supreme Court has held that a general term is “restricted to those things that are similar to those which are enumerated specifically.” (*Harris v. Capital Growth Investors XIV* (1991) 52 Cal. 3rd. 1142, 1160 n. 7, see also *Friends of Davis v. City of Davis* (2000) 83 Cal. App. 4th 1004, 1013 (same).) PR 3503 does not specify construction, design, or control equipment and thus does not specify a particular “method” to be used because it does not involve any change in railyard operations. Thus, it is not precluded by Health & Safety Code §40702. Furthermore, even if the term “method” could be construed to refer to techniques that do not affect design or construction of locomotives, the rule does not specify a “particular method to be used.” PR 3503 does not require any emission reductions from locomotives, so Health & Safety Code §40702 does not apply in this case.

PR 3503 is basically an information gathering rule requiring preparation of emissions inventories, HRAs and possibly public notice. In addition to being within the district’s general authorities discussed above, PR 3503 is specifically authorized by Health & Safety Code §41511, which provides:

For the purpose of carrying out the duties imposed upon the state board or any district, the state board or the district, as the case may be, may adopt rules and regulations to require the owner or the operator of any air pollution emission source to take such action as the state board or the district may determine to be reasonable for the determination of the amount of such emission from such source.

PR 3503 requires the gathering of information from which emissions and risk may be calculated. The districts may adopt such rules to collect information about emissions that may affect public health. In the case of PR 3503, railyard operators are required to gather information about emissions and to calculate the risk posed to the surrounding community. Therefore, this rule falls within the authority granted by Health & Safety Code §41511 as well as the general authority to

regulate non-vehicular sources. One of the duties imposed upon the districts is the duty to enforce Health & Safety Code §41700. That section provides:

Except as otherwise provided in section 41705,¹³ no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Accordingly, the district may regulate locomotives and railyards to prevent public nuisance (potential health impacts from TACs or annoyance to neighbors) as well as to reduce the emissions of criteria air pollutants in order to achieve and maintain state and federal ambient air quality standards. The California Supreme Court has upheld the districts' authority to regulate air toxic emissions from sources within their jurisdiction. (*Western Oil & Gas Assoc. v. Monterey Bay Unified Air Pollution Control Dist.* (1989) 49 Cal. 3rd 408). PR 3503 requires quantification of risk from railyards, which will allow determination of whether public health is impacted by railyards.

The district may also regulate to require railyards and railroads to gather information regarding their emissions of both criteria and toxic pollutants. (Health & Safety Code §§41511, 41700). There is evidence that railyards may emit significant quantities of TACs (especially diesel PM) as well as evidence that locomotives engage in substantial amounts of idling. According to the CARB's "Roseville Railyard Study" (October 14, 2004), locomotive idling accounted for 10.2-10.4 tons per year of diesel particulate at the Roseville yard (Table IV.3, p.34), amounting to about 45% of the total diesel PM emissions from the railroad operations. (p.14). Areas adjacent to the railyard experienced a maximum off-site cancer risk of 900 to 1,000 in a million from the yard alone, in addition to background concentrations. (p.54). Risk levels between 100 and 500 in a million occurred over about 700 to 1600 acres in which 14,000 to 26,000 people live, and risk levels between 10 and 100 in a million occurred over a 46,000 to 56,000 acre area in which about 140,000 to 155,000 people live. (p. 63). About 40 acres experience a cancer risk level between 500 and 1000 in a million. (p. H-6). Besides diesel PM, locomotives are significant sources of NOx, a precursor of PM_{2.5}, PM₁₀, and ozone. Since several railroads are located in urban areas, ~~AQMD~~ the District has a strong interest in identifying emissions and health risks imposed by railyards.

Preemption of District Authority to Adopt Rules Applicable to Emissions from Railroads, Locomotives and Railyards.

~~The railroads may contend that PR 3503 may be prohibited by principles of federal preemption.~~ AQMD the District believes that PR 3503 requirements for emissions inventories and HRAs may go forward because there are no applications which appear to be federally ~~exempted~~ preempted, as there are no requirements that interfere with rail operations.

¹³ Section 41705, relating to agricultural operations and compost-handling operations, is not relevant to the present context.

~~There are several potential theories of federal preemption. One theory is based upon t~~The federal Clean Air Act, ~~which~~ provides that no state or political subdivision may adopt or attempt to enforce “any standard or other requirement relating to the control of emissions” from new locomotives or new engines used in locomotives. (42 U.S.C. § 7543(e)(1)(B)). EPA has promulgated regulations setting forth what it believes is the scope of preemption under this section. EPA stated: “Any state control that would affect how a manufacturer designs or produces new (including remanufactured) locomotives or locomotive engines is preempted....” (63 Fed. Reg. 18978, 18994.) EPA’s regulation states that among the types of state or local rules that are preempted are “emission standards, mandatory fleet average standards, certification requirements, aftermarket equipment requirements, and nonfederal in-use testing requirements.” (40 CFR §85.1603(c)(2).) The EPA regulation provides that such rules are preempted whether they apply to new or other locomotives or engines. (*Id.*) PR 3503 is not preempted by the Clean Air Act because it does not regulate how the manufacturer designs or produces a locomotive or engine. Certainly PR 3503 does not affect the design or production of locomotives. Therefore, it is not preempted by the federal Clean Air Act.

~~PR 3503 does not attempt to regulate railroad activities in a manner interferes with rail operations and, as a result, avoids preemption by the ICCTA or any other federal statute. Another potential preemptive statute is the Interstate Commerce Commission Termination Act. Title 49 U.S.C. §10501(b), a part of the ICCTA, provides that the jurisdiction of the federal Surface Transportation Board (STB) is exclusive over “transportation by rail carriers, and the remedies provided in this part with respect to rates, classifications, rules (including car service, interchange, and other operating rules) practices, routes, services and facilities of such carriers....” Section 10501(b) further provides that the remedies provided under the ICCTA are exclusive and preempt the remedies provided under federal or state law. While it has been held that the scope of preemption under this statute is “broad” (*City of Auburn v. U.S. Government*, 154 F. 3rd 1025, 1030 (9th Cir. 1998)), the Surface Transportation Board itself has ruled that not all state and local regulation is preempted. Citing an earlier decision, the STB stated: “In particular, we stated that state or local regulation is permissible where it does not interfere with interstate rail operations, and that localities retain certain police powers to protect public health and safety.” *Borough of Riverdale Petition for Declaratory Order re The New York Susquehanna and Western Railway Corporation*, STB Finance Docket No. 33466 (September 9, 1999), 1999 STB Lexis 531, p.4. In that decision, the STB noted that an environmental permitting requirement that set up a prerequisite to the railroads’ use, maintenance, or upgrading of their facilities would be preempted because such requirements would of necessity impinge upon the federal regulation of interstate commerce. (*Borough of Riverdale*, p.5.) Under this decision, other environmental and land use regulation, however, would be subject to a “fact-bound” analysis of whether a particular restriction interferes with interstate commerce. (*Id.*) PR 3503 does not impose any permitting or other “prerequisite” to rail operations. As set forth by the decision of the Surface Transportation Board, PR 3503 would therefore not be preempted. Case law also supports this view. In *Jones v. Union Pacific Railroad Company*, 79 Cal. App. 4th 1053 (2000), the Court of Appeal held that “state and local regulation of Union Pacific’s trains is permissible if it does not interfere with Union Pacific’s interstate rail operations.” (*Jones, supra*, p. 1060.) In that case, the court stated that if idling was necessary to operate the railroads,~~

attempts to control it would be preempted, but if the idling did not further rail operations, attempts to control it would not be preempted. (Id.) PR 3503 does not attempt to regulate activities that further rail operations and, as a result, avoids preemption by the ICCTA or any other federal statute.

Specifically, with respect to PR 3503, the District will be requiring the operators or railyards to submit a railyard-wide criteria pollutant and TAC emissions inventory within 12 months of the date of adoption of the rule, together with a HRA within ~~12~~15 months of the date of adoption of the rule. Railyards presenting risks over a specified threshold will be required to undergo public notification. There is nothing in these requirements that would interfere with the railroads' interstate operations; hence the rule is not preempted.

CHAPTER 2: SUMMARY OF PROPOSED RULE 3503

OVERVIEW

PUBLIC PROCESS

PROPOSED RULE 3503 REQUIREMENTS

OVERVIEW

The purpose of PR 3503 is to determine criteria pollutant and toxic emissions from railyards, to conduct HRAs to estimate the cancer risk and chronic and acute hazard indices caused by emissions at railyards, and to notify the public regarding such health risks. PR 3503 is applicable to railyard operations operated by Class I freight railroads and switching and terminal railroads in the Basin. A public workshop on the proposed rule was held on August 26, 2005. Comments from the workshop are summarized in Attachment C.

Passenger railyards operating in the District, such as Amtrak and Metrolink, would be excluded from the requirements of PR 3503 based on a preliminary analysis of AQMP data indicating that passenger railroads contribute less than ten percent of NO_x and PM emissions from rail operations. Passenger railyard operations are sufficiently different than freight yards because they are characterized by very little, if any, switching and cargo handling activities, in addition to considerably lower traffic volumes. Due to their lower emissions, passenger railyard operations pose proportionally lower health risks than freight railyards. Exclusion of passenger railroads at this time is consistent with the District's approach to AB 2588 program implementation, in which submittal of facility HRAs is prioritized based on TAC emission levels. If warranted, passenger operations may be considered in the future.

The proposed railyard emissions inventory requirement calls for operators to provide specific emissions data for equipment dedicated to railyards (e.g., cranes, locomotive switchers, stationary internal combustion engines) and average emissions data for transient equipment that is not used exclusively at railyards (e.g., line haul locomotives, delivery trucks). The District's Railyard Emissions Inventory Methodology (Attachment A) provides the means for developing emissions inventories for use in railyard HRAs. For transient equipment, the objective is to develop an annual average emissions inventory. Toward this end, railyard operators are expected to select representative emission rates for the vehicles and reasonable activity rates and from that information develop an overall inventory for modeling. The use of an average operating mode (AOM) is included in the Emission Inventory Methodology to allow for such generalization of emissions and risk analysis criteria. A more detailed description addressing emissions inventories is included in responses to comments in Attachment C.

PUBLIC PROCESS

The District staff began development of PR 3503 in September 2004. To facilitate communication with affected parties, the Proposed Regulation XXXV Working Group was formed, consisting of the District, CARB, railroads with operations in the Basin, environmental groups, and community groups. The District staff met with the Proposed Regulation XXXV Working Group five times – on February 9, 2005, March 23, 2005, August 23, 2005, August 30, 2005, and September 22, 2005 to discuss PR 3503. A public workshop to present rule concepts was held on March 8, 2005. The first draft of PR 3503 was publicly released on March 16, 2005 and presented in detail at an April 6, 2005 public workshop. On August 16, 2005 the District staff released a revised version of PR 3503 and preliminary draft staff report that included two

guidance documents: (1) Railyard Emissions Inventory Methodology and Health Risk; and (2) Health Risk Assessment Guidance for Railyards and Intermodal Facilities. The public comment period for the draft rule and preliminary draft staff report closed on September 7, 2005. A PR 3503 public workshop was held on August 26, 2005. On September 7, 2005, District staff released a revised version of PR 3503 and a draft staff report to clarify provisions and incorporate revisions based on comments from the working group, as well as comments received at the August 26, 2005 PR 3503 public workshop and written comments received prior to September 7, 2005.

PROPOSED RULE 3503 REQUIREMENTS

Following is a summary of key elements of PR 3503.

Purpose

- Determine criteria pollutant and toxic emissions from railyards;
- Conduct health risk assessments to estimate cancer risk and chronic and acute hazard indices caused by emissions from railyards; and
- Require public notification of risks from railyards.

Applicability

- 17 railyards operated by Class I freight railroads in the Basin (See list on pages 3-1 to 3-2);
- Two railyards operated by switching and terminal freight railroads in the Basin (See list on pages 3-1 to 3-2);
- No passenger railroads;
- New railyards operated by Class I freight railroads and switching and terminal railroads; and
- Additional railyards upon notification by the Executive Officer.

Emissions Inventory

- On or before (*6 months after date of adoption*) submit a Interim Railyard Emissions Inventory Report to include for all emission sources within the railyard:
 - Identification of all stationary and on- road and off-road mobile sources;
 - Description of the time interval to be represented by the facility-wide emissions inventory, including basis for selecting the time interval. The time interval must be at least three months within the last two years, or a shorter interval approved by the Executive Officer and, after extrapolation to reflect annual emissions, be representative of typical operations and equipment activity for the railyard;
 - Description of the source(s) of emission factors used and emission control efficiencies, if applicable;
 - Description of the railyard, including areas where emissions may occur; and
 - Universal Transverse Mercator (UTM) coordinates for railyard location and boundary vertices.
- On or before (*12 months after date of adoption*) submit a facility-wide criteria pollutant and toxic air contaminant (TAC) emissions inventory for all emission sources within the railyard including:

- For dedicated railyard equipment, annual criteria pollutant and TAC emissions based on throughput data specific to the source;
- For transient railyard equipment, annual criteria pollutant and TAC emissions based on average number of daily trips, idling time, duration of time the source is at the railyard, and emission factors representative of the fleet mix for each category;
- Documentation of emission factors used and emission control efficiency claimed; and
- Sum of TACs, weighted by the toxicity of the TACs.
- Methodology
 - Emissions inventory for stationary sources shall be consistent with CARB's *Emissions Inventory Criteria and Guidelines (July 1997)* or the most recently approved CARB revision to the Guidelines addressing this emissions inventory and/or any subset of these Guidelines, as specified by the Executive Officer; and
 - Emissions inventory for mobile sources shall be consistent with the District's *Railyard Emissions Inventory Methodology*. The Methodology is included in this staff report as Attachment A; or
 - Railyard operators may propose alternative emissions inventory methodologies for specific source categories, subject to Executive Officer approval.

Health Risk Assessment

- On or before (~~12~~15 months after date of adoption) submit a HRA based on the railyard-wide TAC emissions inventory including:
 - Railyard name, address, and contact person
 - Facility plot plan (including length scale), showing:
 - All stationary and mobile source locations;
 - Building dimensions;
 - Truck and train routes;
 - Truck and train idling activities;
 - Cargo handling activities;
 - Other on- and off-road equipment activities;
 - UTM coordinates for railyard location and railyard boundary vertices;
 - Air dispersion model(s) used and rationale for selection, model parameters, and adjustments, if applicable;
 - Receptor grid information for the impact area, including fenceline receptors, as specified in the District's most recent *Health Risk Assessment Guidance for Railyards and Intermodal Facilities*. The Guidance is included in this staff report as Attachment B;
 - Meteorological data used and rationale for selection;
 - Risk assessment, based on an exposure duration of 70 years for residents and schools and 40 years for workers, including appropriate multipathway factors;
 - Exposure isopleths identifying areas in surrounding communities showing the impact area; and
 - In instances where the impact areas of two or more railyards operated by a single operator overlap and where the summed cancer risk for all of the overlapping impact areas is greater than ten in one million, as identified by health risk assessments, the operator of each railyard shall report the aggregate risk in the areas of overlap as part of their HRA submittals.

- Follow policies and procedures of the District's *Health Risk Assessment Guidance for Railyards and Intermodal Facilities*.

Approval of Health Risk Assessment

- Executive Officer shall accept or reject the HRA within 120 days of submittal;
- ~~AQMD~~ the District will conduct a public meeting to address the evaluation of the HRA prior to accepting the HRA;
- If rejected, all identified deficiencies shall be corrected and the revised HRA shall be re-submitted within 90 days after the decision; and
- Within 90 days of submittal of the revised HRA, ~~AQMD~~ the District will accept or reject the second submittal and, if rejected, the ~~AQMD~~ District will modify the HRA to correct any deficiencies and accept the corrected document within 120 days of the second submittal or failure to re-submit

Updating Emissions Inventory and Health Risk Assessment

- Beginning March 1, 2008 and on March 1 every two years thereafter, update and submit the emissions inventory for the previous calendar year;
- Update and submit the HRA by September 1 following submittal of an updated emissions inventory if the sum of TACs, weighted by the toxicity of the TACs, is greater than 1.1 times the highest sum of weighted TACs from the initial emissions inventory;
- Update and submit emissions inventory and HRA if the impact area shifts due to changes at a railyard, such as movement of equipment or operations from previously established locations; and
- The previous HRA is in effect until the Executive Officer approves the updated HRA.

Public Notification Requirements

- For an approved HRA showing risk exceeding the Public Notification Level, the railyard operator shall notify the public within 60 days of the approval of the HRA and every 12 months thereafter unless the total railyard-wide risk has been reduced to below the Public Notification Level.
- Notification shall be provided in accordance with the most recently District approved "Public Notification Procedures for Phase I and II Facilities under the Air Toxics Hot Spots Information and Assessment Act". This document specifies that the Public Notification Level is when facility-wide risk levels are greater than or equal to 10 in one million maximum individual cancer risk or total hazard index is greater than one.
- As part of the public notification process, a minimum of two public notification meetings shall be held within the impact area. Public notification meetings shall be held at locations proposed by railyard operators and subject to the approval of the Executive Officer, based on a determination that the location is reasonably accessible to residents and workers in the impact area.

Additional Railyards

- The Executive Officer may require emissions inventories and HRAs for additional railyards if it is determined that emissions could possibly cause an exceedance of the public notification level.

- Unless HRAs show risk that is less than the Public Notification Level, New Rrailyards operated by Class I freight railroads or switching and terminal railroads must submit an Interim Railyard Emissions Inventory Report within 12 months of initiation of operation of the railyard, submit an emissions inventory 18 months following initiation of operation of the railyard, and submit a HRA ~~18~~21 months following initiation of operation of the railyard.
- ~~The Executive Officer may require emissions inventories and HRAs for additional railyards if it is determined that emissions could possibly cause an exceedance of the public notification level.~~

Fees

- The Interim Railyard Emissions Inventory Report, emissions inventory, HRA, as well as the annual updates to the emissions inventory and HRA, if applicable, shall constitute plans for the purpose of fees assessed in Rule 306 – Plan Fees.

Penalties

- Failure to comply with any requirement of this rule, including failure to comply with requirements of the District's Health Risk Assessment Guidance for Railyards and Intermodal Facilities, is a violation of this rule and is subject to penalties.

CHAPTER 3: IMPACT ASSESSMENT

SUMMARY OF BASIN RAIL OPERATIONS

CALIFORNIA ENVIRONMENTAL QUALITY ACT

COST ANALYSIS

**DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY
CODE 40727**

COMPARATIVE ANALYSIS

SUMMARY OF BASIN RAIL OPERATIONS

Railroads and Locomotive Populations

Railroads are used to move more than 40 percent of the freight moved in the United States, on a ton-miles basis¹. In 2002, there were 554 railroads in the United States, operating on approximately 142,000 miles of track.² During this same period, 30 freight railroads operated over approximately 5,900 miles of track in California.³ Two railroads with operations in California, BNSF and UP, are categorized as Class I railroads by the U.S. Department of Transportation, Surface Transportation Board. Class I railroads are those with operating revenues of at least \$277 million (49 CFR Part 1201 Subpart A). The remainder of the railroads operating in California are classified as regional railroads (non-Class I line-haul railroads operating 350 or more miles of road and/or with revenues of at least \$40 million), local railroads (railroads which are neither Class I nor a regional railroads and engaged primarily in line-haul service), or switching and terminal railroads (non-Class I railroads engaged primarily in switching and /or terminal services for other railroads). There are currently four railroads with operations in the District, consisting of the two Class I railroads (BNSF and UP) and two switching and terminal railroads, Los Angeles Junction Railway (LAJ) and Pacific Harbor Line, Inc. (PHL). LAJ is wholly owned by BNSF. CARB estimates that BNSF and UP operate approximately 240 locomotives exclusively in the District, while LAJ and PHL operate approximately 25 locomotives exclusively in the District⁴.

Basin Railyards Affected by PR 3503

Of the freight and switching and terminal railroads with operations in the District, the following 19 Basin railyards would be subject to PR 3503:

- Burlington Northern and Santa Fe Railway Company at the following locations:
 - Commerce Diesel Maintenance Facility, 6300 Sheila Avenue, Commerce, CA 90040;
 - Commerce/Eastern Intermodal Facility, 2818 Eastern Avenue, Commerce, CA;
 - La Mirada Yard, 14503 Macaw Street, La Mirada, CA 90638;
 - Los Angeles Intermodal Facility, 3770 Washington Boulevard, Commerce, CA 90023;

¹ Association of American Railroads, 2004, Overview of U.S. Freight Railroads.

² Association of American Railroads, 2004, Railroad Service in the United States – 2002

³ Association of American Railroads, 2004, Railroad Service in California – 2002.

⁴ California Environmental Protection Agency, Air Resources Board, 2004, Staff Report: Initial Statement of Reasons – Public Hearing to Consider Proposed Regulatory Amendments Extending the California Standards for Motor Vehicle Diesel Fuel to Diesel Fuel Used in Harborcraft and Intrastate Locomotives.

- Pico Rivera Yard, 7427 Rosemead Boulevard, Pico Rivera, CA 90660;
- San Bernardino Yard, 1535 W 4th Street, San Bernardino, CA 92411; and
- Watson Yard, 1302 Lomita Boulevard, Wilmington, CA 90744.
- A railyard operated by Los Angeles Junction Railway, 4433 Exchange Avenue, Los Angeles, CA 90058
- A railyard operated by Pacific Harbor Lines, 340 W. Water Street, Wilmington, CA 90744
- Union Pacific Railroad Company at the following locations:
 - Anaheim Yard, 200 S. Adams Street, Anaheim, CA 92802;
 - City of Industry Yard, 17225 Arenth Street, City of Industry, CA 91748;
 - Colton Yard, 19100 Slover Avenue, Bloomington, CA 92316;
 - Commerce Intermodal Facility, 4341 E. Washington Boulevard, Commerce, CA 90023;
 - Dolores Yard, 2442 Carson Street, Carson, CA 90810;
 - Intermodal Container Transfer Facility (ICTF), 2401 Sepulveda Blvd, Long Beach, CA 90810;
 - Los Angeles Transportation Center Intermodal Facility, 750 Lamar Street, Los Angeles, CA 90031;
 - Meade Yard, 2402 Anaheim Street, Wilmington, CA 90744
 - Mira Loma Auto Distribution Facility, 4500 Etiwanda Avenue, Mira Loma, CA 91752; and
 - Montclair Yard, 10773 Central Place, Montclair, CA 91763.

Railyard Site Visits

AQMD District staff visited several railyards as part of the PR 3503 rule development process. The railyards visited and date(s) of visits are as follows:

- BNSF
 - Commerce Diesel Maintenance Facility, Commerce (March 10, 2005 and August 17, 2005);
 - Commerce/Eastern Intermodal, Commerce (March 10, 2005 and August 17, 2005);
 - Los Angeles Intermodal/Hobart, Commerce (March 10, 2005 and August 17, 2005);
 - San Bernardino Yard, San Bernardino (August 25, 2005); and
 - Watson Yard, Wilmington (August 18, 2005);
- UP
 - Aurant Yard, Alhambra (August 18, 2005);
 - City of Industry Yard, Rowland Heights (May 31, 2005 and August 25, 2005);
 - Colton Yard, Colton (March 10, 2005 and August 25, 2005);
 - Commerce Intermodal, Commerce (May 31, 2005 and August 17, 2005);
 - Dolores Yard, Carson (August 18, 2005);
 - Intermodal Container Transfer Facility (ICTF), Long Beach (August 18, 2005);
 - LATC, Los Angeles (August 18, 2005); and
 - Mira Loma Auto Distribution, Mira Loma (May 31, 2005 and August 25, 2005);

The site visits on August 17, 18, and 25 were conducted jointly with CARB staff.

Estimated Basin Emissions Contribution

The 2003 Air Quality Management Plan estimates NO_x emissions of 36.52 tons per day and particulate matter less than 10 microns (PM₁₀) emissions of 1.01 tons per day from locomotives. VOC, CO, SO_x, and particulate matter less than 2.5 microns (PM_{2.5}) emissions are estimated to be 1.82, 6.42, 3.25, and 0.93 tons per day, respectively.⁵ NO_x and VOC are the primary contributors to ozone formation. VOC, SO_x, and NO_x are precursors to PM₁₀ and PM_{2.5}. In addition, NO_x and PM affect visibility.

Potential Cancer Risk

In October 2004, the California completed a HRA of PM emissions from diesel-fueled locomotives at the Union Pacific J.R. Davis Yard, located in Roseville, California.⁶ The J.R. Davis Yard is one of the largest railyards in the state and is in close proximity to residents. Diesel PM emissions from locomotive operations were estimated to be about 25 tons per year, or approximately 0.07 tons per day in 2000. Moving locomotives were estimated to account for about 50 percent, idling locomotives for about 45 percent, and locomotive testing for about 5 percent of total diesel PM emissions. The Roseville study did not attempt to measure risk from non-locomotive sources at the J.R. Davis Yard.

The maximum off-site diesel PM cancer risks from the J.R. Davis Yard ranged from 900 to 1,000 in a million. Cancer risk levels greater than 500 in a million (average = 645) occurred over roughly 10 to 40 acres. Cancer risk levels between 100 and 500 in a million (average = 170) occurred over roughly 700 to 1,600 acres in which about 14,000 to 26,000 people live. Risk levels between 10 and 100 in a million (average = 40) occurred over a roughly 46,000 to 56,000 acre area in which about 140,000 to 155,000 people live. By way of comparison, traditional stationary sources in the District are required to reduce their maximum risk to <100 in a million, and are required to reduce their maximum risk to <25 in a million unless such risk reduction is not technically and economically possible (Rule 1402(e)).

The estimated concentrations of diesel PM due to emissions from the J.R. Davis yard are in addition to regional background levels of diesel PM, which were estimated to be 360 in a million for the entire Sacramento Valley in 2000. Taking into consideration both the regional background emissions and the impacts from the yard, residents in that area would have a potential cancer risk of over 1,000 (645 per million from the yard and 360 per million due to regional background).

The cancer risks from railyards in the Basin is not known. However, the railroads have issued Proposition 65 notices with respect to emissions from seven railyards within the Basin. In addition, based on CARB's HRA for the railyard in Roseville, the [AQMD-District](#) has sufficient

⁵ South Coast Air Quality Management District, 2003 Air Quality Management Plan: Appendix III – Base and Future Year Emission Inventories.

⁶ California Environmental Protection Agency, Air Resources Board, 2004. Roseville Railyard Study.

information to believe that the cancer risk from railyards in the Basin may pose a health risk to a considerable number of persons significantly greater than the action risk level (25 in a million) and public notification level (10 in a million), which is established by the Governing Board and applicable to traditional stationary sources. The purpose of PR 3503 is to gather further information about railyards in the Basin to determine the health risks from railyards, and to provide public notification of any risks exceeding the significance level.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The AQMD District initially proposed four ~~railyard~~ rules ~~together that affected railroads as a project~~ for adoption ~~in the same timeframe~~ by the Board but has now closely considered whether the contents of the four rules are so intimately related that ~~joint~~ ~~consideration in the same timeframe~~ is necessary. ~~Staff now believes that joint consideration is no longer necessary and is undesirable, since the rules encompass varying complex and technical issues and that more focused consideration of the rules would be in the public's best interest. With those concerns in mind, staff reevaluated the rule proposals and determined that two rules, PR 3501 and 3502, which relate specifically to locomotive engines, could and should be separately proposed. In addition, as to the two rules relating to railyards, PR 3503 (information gathering) and 3504 (health risk reduction), staff determined that information gathering under PR 3503 should proceed first in order to evaluate the scope and form of any future risk reduction rule, if any, that should be proposed. As a result, PR 3504 was withdrawn and PR 3503 is being separately proposed for consideration. Based on that evaluation, staff determined that PR 3503 should be proposed separately. The requirements of PR 3503 are independent of the other railroad rules, and PR 3503 serves information-gathering and information-disseminating purposes that are quite distinct from the purposes and requirements of each of the other proposed rules. PR 3503 will serve those independent, information-related purposes whether or not any other rules are adopted. Furthermore, separate consideration of PR 3503 will increase the public's ability to consider in depth the types of information that would enhance public knowledge of risks inherent in railyard emissions. Accordingly, the staff will propose that the Board adopt PR 3503 regardless of whether it adopts any other railroad rules.~~

~~In deciding to propose PR 3503 separately, staff reviewed the facts to determine whether the law required PR 3503 to be considered together with the other rules. The requirements of PR 3503 are independent of the other railroad rules, and PR 3503 serves information-gathering and information-disseminating purposes that are quite distinct from the purposes and requirements of each of the other proposed rules. PR 3503 will serve those independent, information-related purposes whether or not any other rules are adopted. In addition, separate consideration of PR 3503 will increase the public's ability to consider in depth the types of information that would enhance public knowledge of risks inherent in railyard emissions. Moreover, information gathered by PR 3503 will be used to plan for future rulemaking, if needed. The District believes that information to be gathered from railroads as a result of PR3503 will assist the District in best fashioning any future rule regarding railyard risk reduction plans. Based upon future information provided from the railroads under PR 3503, the District may or may not proceed with a health risk reduction rule, or may take a completely different approach to health risk reduction.~~

Under the California Environmental Quality Act (CEQA), the ~~AQMD-District~~ is the Lead Agency and has reviewed Proposed Rule (PR) 3503 pursuant to CEQA Guidelines §15002(k)(1). PR 3503 is an information-gathering ~~and information disseminating~~ rule that requires railroads to develop an emissions inventory and health risk assessment to estimate cancer risk and chronic and acute hazard indices caused by emissions at railyards. The information gathered by PR 3503 will then be used to determine whether to even adopt a risk reduction rule, and if so, the rule's scope and form. ~~In addition,~~ PR 3503 also requires the public notification to be notified of this information if the railyard's approved health risk assessment exceeds a certain significant risk threshold level. Accordingly, this proposed rule is exempt from CEQA pursuant to CEQA Guidelines §§15306 and 15262.

As provided in CEQA Guidelines §15306, the proposed project is exempt because it will consist of basic data collection, research and resource evaluation activities and will not result in a serious or major disturbance to an environmental resource. As noted in these same Guidelines, section 15306 exempts such a project for information-gathering purposes, or as part of a study leading to future action which the agency has not yet taken. As also provided in Guidelines § 15262, the proposed project is also exempt because it involves only feasibility or planning studies for possible future actions.

~~Information gathered by this rule may or may not be used in future rulemaking that has not been approved adopted or funded. Accordingly, this proposed rule is exempt from CEQA pursuant to the categorical exemption for information collection. CEQA Guidelines §15306 exempts information gathering either for its own sake or as part of a study leading to future action which the agency has not yet taken. Further, the proposed project will consist of basic data collection, research and resource evaluation activities and will not result in a serious or major disturbance to an environmental resource.~~

Moreover, ~~Implementing~~ PR 3503 will have no significant adverse environmental impacts. Since the requirements are administrative in nature, in that they involve only gathering and disseminating information, it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, and thus, the project is also exempt from the requirements of CEQA pursuant to state CEQA Guidelines §15061(b)(3).

Since PR 3503 is an information-gathering and information-disseminating rule, it is not expected to generate any adverse environmental impacts. Nor is it expected to cause cumulative impacts in conjunction with other projects that may occur concurrently with or subsequent to the proposed project (CEQA Guidelines §15065(a)(3)). Where, as here, a proposed project has no environmental impacts whatsoever, it does not contribute to any cumulative impact, and cumulative impacts created by other projects need not be discussed. In the case of PR 3503, the proposed project's contribution to a potentially significant cumulative impact cannot be cumulatively considerable and, thus, is not significant (CEQA Guidelines §15065(a)(3)).

A Notice of Exemption has been prepared pursuant to CEQA Guidelines §15062 - Notice of Exemption. The Notice of Exemption will be filed with the county clerks of Los Angeles,

Orange, Riverside and San Bernardino counties immediately following the adoption of the proposed project.

COST ANALYSIS

AFFECTED INDUSTRIES AND FACILITIES

PR 3503 would affect railyard operations conducted by Class I freight railroads and switching and terminal railyards in the district. Class I railroads are line haul freight railroads that primarily transports freight rather than passenger and have operating revenue in excess of \$277 million. The railyard operations belong to [North American Industrial Classification System (NAICS) 482111] and switching and terminal railyards belong to NAICS 482110. PR 3503 would affect 19 railyard facilities in the district. Out of the 19 affected facilities, 14 are located in Los Angeles County, one in Orange County, one in Riverside County, and the remaining three are located in San Bernardino County.

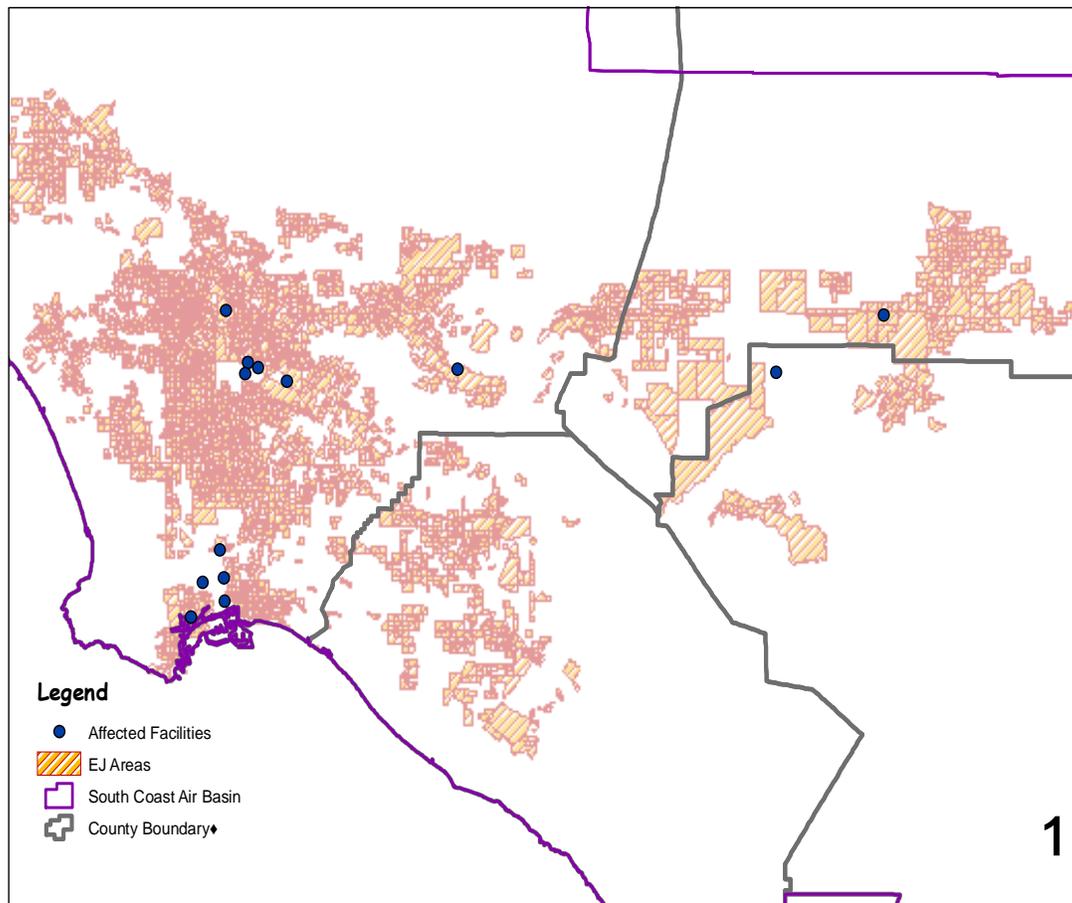
The proposed rule would affect two Class I railroads companies Burlington Northern Santa Fe (BNSF) and Union Pacific (UP) and two switching and terminal railyards, Los Angeles Junction Railways (LAJ) and Pacific Harbor Lines (PHL) in the district. LAJ is wholly owned by BNSF. Out of the 19 facilities, eight belong to BNSF including LAJ, 10 belong to UP Company, and the remaining one belongs to PHL. Based on the latest (July 2005) financial reports, the UP had 48,000 employees with a gross revenue of \$12.2 billion and BNSF had 38,000 employees with a gross revenue of \$10.9 billion in 2004. Figure 1 illustrates the geographical location of the affected facilities in the four-county area.

The Environmental Justice (EJ) areas in Figure 1 are defined based on AB 1390 (Firebaugh), Point Ranking. Under the District's application of AB 1390, an area is defined EJ if at least 10 percent of the population falls below the federal poverty level based on the 2000 census, has an annual average PM concentration of 46 micrograms per cubic meter or above based on interpolated data from the ~~AQMD's-District's~~ monitoring stations, and has a cancer risk of over 1,000 in a million. It should be noted that the dots represent approximate location of a railyard but not the size.

COMPLIANCE COST

PR 3503 would potentially affect 19 facilities. Fourteen out of 19 facilities are considered as large and the remaining 5 are considered as smaller railyards based on information in the 2005 CARB Statewide Agreement. Staff provided compliance cost estimates for both small and large facilities. The compliance cost of PR 3503 would include cost of preparing emission inventory, HRA, update of emission inventory and HRA for every two years, and public notification. In addition, the affected facilities would pay ~~AQMD-District~~ fees for its review of the emission inventories and HRAs every two years.

Figure 1
Location of Affected Facilities in the Four-County Area



Based on an Air Resources Board (ARB) 2004 study on Roseville Railyard Study (which is considered to be one of the largest railyard in California and for which the first emission inventory and HRA in the state has been performed) and contacts with consultants, staff assumed a high-end cost of \$250,000 for a large railyard and a low-end cost of \$50,000 for a small railyard for preparing the emission inventory and HRA. Based on the staff past experience with other industries, once a facility conducts an emission inventory and a HRA, the subsequent cost of updating them would be substantially lower. As a result, the update of emission inventory and HRA was assumed to have a low-cost of \$50,000 regardless of its size.

The cost of preparing emission inventories and HRAs were annualized over two years at an interest rate of four percent. The average annualized cost from 2006 to 2020 is \$0.13 and \$0.57 million for all the affected small and large railyards, respectively.

The PR 3503 requires a public meeting prior to approval of the HRA. This meeting would be noticed and conducted by ~~the AQMD-District~~ staff. In addition, the PR 3503 requires a public notification if a facility's cancer risk is exceeding 10 in-one-million. This public notification would be distributed to impacted businesses and households surrounding the railyards.

The cost of public notification is estimated at \$234,016 to \$288,280 for each small and large railyard, respectively. This cost includes obtaining mailing list (\$73,000 to \$90,000), copying (\$23,360 to \$28,800), stuffing, folding, addressing (\$40,880 to \$50,400), envelope and mailing label (\$5,526 to \$6,400), postage (\$90,520 to \$111,600), and meeting hall rentals at \$1,000 assuming two meetings per year. Since all the affected railyards are expected to have cancer risks exceeding 10 in-one-million, the public notification cost is assumed to incur every year. However, the public notification cost for the updates excludes the cost of obtaining mailing list because it is assumed that the initially obtained list can also be used for updates. The proposed rule does not prohibit an operator of railroad to combine notifications for multiple railyards where the impacted community is the same. The total average annual cost of public notification from 2006 to 2020 for small and large railyards collectively is estimated at \$0.85 and \$2.94 million, respectively.

Lastly, the cost of reviewing emission inventories and HRAs by ~~the AQMD-District~~ staff is assumed to incur every two years and is estimated at \$5,000 per facility for the initial submission and the subsequent updates. This cost was also annualized over two years. The average annual cost of ~~the AQMD-District~~ review is estimated at \$0.013 and \$0.037 million for all the affected small and large railyards, respectively.

Table 3-1 provides a summary of the estimated costs to the five small and 14 large affected railyards. The total average annual compliance cost of PR 3503 is estimated at \$4.53 million from year 2006 to 2020. The majority of the cost (84 percent) is from the public notification requirements. This cost represents about 0.02 percent of the gross revenues of the UP and BNSF combined (\$22 billion) in 2004.

Table 3-1
Estimated Annual Cost of
Compliance (millions of 2005 dollars)

Railyards	2006	2008	2020	Average Annual (2006-2020)
Larger yards	\$5.93	\$3.18	\$3.18	\$3.54
Smaller Yards	\$1.31	\$0.95	\$0.95	\$0.99
Total	\$7.24	\$4.13	\$4.13	\$4.53

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE SECTION 40727

Requirements to Make Findings

California Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing a rule or regulation, the ~~AQMD-District~~ Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the staff report.

Necessity

A need exists to adopt Proposed Rule 3503 to accomplish the following:

- conduct emissions inventories at major railyards in the Basin in a shorter timeframe than would be achieved under the 2005 CARB statewide agreement;
- conduct HRAs at major railyards in the Basin in a more specific timeframe than would be achieved under the 2005 CARB statewide agreement; and
- conduct public notification when railyard risk exceeds the Public Notification Level, which would not be required under the 2005 CARB statewide agreement.

Authority

The ~~AQMD-District~~ Governing Board has authority to adopt Proposed Rule 3503 pursuant to the California Health and Safety Code Sections 39002, 40000, 40001, 40702, 40716, 40725 through 40728, 41508, 41511, and 41700.

Clarity

Proposed Rule 3503 is written or displayed so that its meaning can be easily understood by the persons directly affected by the rule.

Consistency

Proposed Rule 3503 is in harmony with and not in conflict with or contradictory to, existing statutes, court decisions or state or federal regulations.

Non-Duplication

Proposed Rule 3503 will not impose the same requirements as any existing state or federal regulations. The proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, ~~AQMD~~the District.

Reference

By adopting Proposed Rule 3503, the ~~AQMD-District~~ Governing Board will be implementing, interpreting or making specific the provisions of the California Health and Safety Code Sections 40702 (rules to carry out duties), 41700 (nuisance), 40001 (rules to attain state and federal

ambient air quality standards), and 41511 (rules to require determination of amount of emissions).

Health and Safety Code Section 40727.2

Health and Safety code section 40727.2 requires a comparative analysis. This analysis is in a subsequent section of this staff report.

Rule Adoption Relative to Cost-effectiveness

Proposed Rule 3503 is not a control measure, but rather an information-gathering mechanism, in the 2003 Air Quality Management Plan (AQMP) and thus, was not ranked by cost-effectiveness relative to other AQMP control measures in the 2003 AQMP. Cost-effectiveness in terms of dollars per ton of pollutant reduced is not applicable to rules regulating TACs. Moreover, PR 3503 does not require the reduction of emissions, so cost-effectiveness per ton is not applicable.

AQMP and Legal Mandates

Proposed Rule 3503 is not a measure in the Air Quality Management Plan (AQMP) and does not require any emission reductions. However, the AQMP does include a large “black box” of NOx and VOC reductions for which specific measures have not been identified. Therefore, the AQMP requires all feasible measures to reduce these pollutants be implemented. PR 3503 does not require any emission reductions, but may result in railyard operators voluntarily reducing emissions in order to reduce risks once such risks are determined.

COMPARATIVE ANALYSIS

Proposed Rule (PR) 3503 quantifies emissions and identifies health risks associated with rail activities in the South Coast Air Basin (Basin). As part of the rule development process for Proposed Rule 3503, ~~AQMP-District~~ staff will seek consistency with federal and state requirements. The following comparative analysis has been completed pursuant to Health and Safety code section 40727.2.

Existing Federal Requirements

As described in Chapter 1, in April 1998, the U.S. EPA promulgated a rulemaking, entitled, “Emission Standards for Locomotives and Locomotive Engines”. This rulemaking establishes emission standards and associated regulatory requirements for the control of emissions from locomotives and locomotive engines as required by the Clean Air Act section 213(a)(5). The primary focus of the emission standards, which became effective in 2000, is NO_x. In addition, standards for HC, CO, PM and smoke were also promulgated. The rulemaking also includes a variety of provisions, including certification test procedures and assembly line and in-use compliance testing requirements, to implement the emission standards and to ensure rule compliance. The rule also includes an emissions averaging, banking, and trading program to provide flexibility. The U.S. EPA rulemaking describes types of state and local requirements relating to the control of emissions from new locomotives and new locomotive engines which the

U.S. EPA believes are preempted pursuant to §209(e) of the Clean Air Act.⁷ The federal regulations do not address the quantification of emissions and risk from railyard operations. A summary of the U.S. EPA emissions standards is shown in Table 1-1.

Existing State Requirements

In November 2004, CARB approved with 15-day changes “Proposed Regulatory Amendments Extending the California Standards for Motor Vehicle Diesel Fuel to Diesel Fuel Used in Harborcraft and Intrastate Locomotives”. This rulemaking requires that beginning January 1, 2007, diesel fuel sold, supplied, or offered for sale to California intrastate locomotive operators statewide be required to meet specifications for vehicular diesel fuel, as specified in Title 13, California Code of Regulations, Sections 2281, 2282, and 2284. These specifications include maximum sulfur levels of 15 parts per million by weight and aromatics level of ten percent by volume. Current U.S. EPA requirements, finalized in June 2004, specify that 15 ppmw fuel be used in locomotives in 2012. The CARB rulemaking requires the use of low-sulfur diesel fuel six years earlier than required federally.⁸

Existing District Requirements

The District has no rules specifically applicable to railyards; however, two existing AQMD rules address emissions from locomotives. AQMD Rule 401 – Visible Emissions, most recently amended on November 9, 2001, prohibits the discharge into the atmosphere of any air contaminant, including any from locomotives, for a period of three minutes in one hour if it is as dark or darker in shade as that designated No. 1 on the Ringelmann Chart, or if it is of such opacity as to obscure an observer’s view as much as or more than smoke designated as No. 1 on the Ringelmann Chart. AQMD Rule 402 – Nuisance, adopted on May 7, 1976, prohibits the discharge from any source, including locomotives, of air contaminants which cause injury, detriment, nuisance, or annoyance to the public or which endangers the comfort, repose, health or safety of the public or which causes injury or damage to business or property.

⁷ United States Environmental Protection Agency, 1998, 40 CFR Parts 85, 89 and 92: Emission Standards for Locomotives and Locomotive Engines; Final Rule.

⁸ California Environmental Protection Agency, Air Resources Board, 2004, Staff Report: Initial Statement of Reasons – Public Hearing to Consider Proposed Regulatory Amendments Extending the California Standards for Motor Vehicle Diesel Fuel to Diesel Fuel Used in Harborcraft and Intrastate Locomotives.

**ATTACHMENT A: RAILYARD EMISSIONS INVENTORY
METHODOLOGY**

Proposed Rule 3503

Railyard Emissions Inventory Methodology

| **Version 1.11.2**

| **JulyOctober 2005**

Introduction

Rule 3503 – Emissions Inventory and Health Risk Assessment for Railyards requires an emissions inventory be conducted for railyards operated by all Class 1 freight railroads and switching and terminal railroads in the Basin for the purpose of conducting a Health Risk Assessment. The following methodology is intended to provide a quantification methodology to estimate the emissions of both criteria and toxic air pollutants (VOC, NO_x, PM₁₀, CO, SO_x, and Toxic Air Contaminants) from all dedicated and transient mobile sources at railyards in the Basin. This methodology is applicable to locomotives (both line haul and switching), cargo handling equipment (e.g., yard tractors), on-road trucks and vehicles, and other off-road equipment such as transport refrigeration units. All mobile emissions within the railyard boundary, as defined in Proposed Rule 3503, must be quantified using this methodology. This methodology does not apply to stationary sources and the emissions inventory for stationary sources shall be conducted according to Proposed Rule 3503 (d)(2).

For the purpose of preparing Health Risk Assessment air dispersion modeling inventory input data, use of annual emissions can be desegregated into hourly emissions based upon operational profiles, for each equipment category, that can represent peak or average hourly emissions. This approach is appropriate provided the derived peak hourly emissions that are derived from annual average emissions utilize appropriate assumptions, such as seasonal variations, daily variations, etc., that would represent the peak hourly.

The following sections describe specific emissions inventory methodologies for each source category.

Locomotives

Locomotive emissions must be quantified separately for line haul and switcher locomotives. Emissions are based on number of locomotives, engine size, activity level (i.e., time spent in each power notch) and applicable emission factors from a district approved source (e.g., U.S. EPA, manufacturer's certification data) for each locomotive type. Since locomotives operate in discrete throttle settings called notches, ranging from notch position one through eight, plus an idle position, emissions for each locomotive must be calculated based on the time spent in each notch as well as the corresponding emission factor for each notch. Any locomotive activity, regardless of ownership, that occurs within the railyard should be included in the emissions inventory. The emissions inventory, however, does not include emissions outside of the railyard, such as emissions from locomotives that may travel along rail lines that are adjacent to the railyard. This means that the emissions from locomotives on main lines that pass through railyards must be quantified, while emissions from locomotives on main lines located adjacent to but outside of railyards should not be quantified.

Use of an average operating mode (AOM) for an equipment category may be used in cases where it can be shown that equipment will be operating in a pattern that is predictable and repetitive.

Sufficient verifiable data must be provided to validate the AOM of the equipment category and the use of the average operating mode must be approved by the Executive Officer. Use of an AOM shall include only the necessary information to validate normal use of the equipment which shall, include but not be limited to, time in each engine load or notch, fuel type and amount utilized, time in idle mode, distance traveled in miles within the railyard, hours of operation in railyard, or any other information to show the predictable and repetitive nature of the equipment.

a) Line Haul Locomotives

Data Needed:

1. number of line haul locomotives
2. size (hp), make, and model of locomotive
3. emission factor (EF) per locomotive per notch (g/hp-hr)
4. time-in-notch (hours) for each locomotive within rail yard boundary

Emissions Calculation:

$$EI_{Line\ haul} = \sum_{i=1}^n EF_{ij} * (Time - in - Notch)_{ij} * HP_i$$

Where:

$EI_{Line\ haul}$	=	Emissions inventory for all line haul locomotives
EF_{ij}	=	Emission factor per locomotive per notch (g/bhp-hr)
$Time-in-Notch_{ij}$	=	Time spent in each notch for each locomotive (hours)
HP_i	=	Horsepower of each locomotive (hp)

b) Switcher Locomotives

Data Needed:

1. size (hp), make, and model of locomotive
2. emission factor (EF) per locomotive per notch (g/hp-hr)
3. time-in-notch (hours) for each locomotive within rail yard boundary

Emissions Calculation:

$$EI_{Switchers} = \sum_{i=1}^n EF_{ij} * (Time - in - Notch)_{ij} * HP_{ij}$$

Where:

$EI_{Switchers}$	=	Emissions inventory for all switcher locomotives
EF_{ij}	=	Emission factor per locomotive per notch (g/bhp-hr)
$Time-in-Notch_{ij}$	=	Time spent in each notch for each locomotive (hours)
HP_i	=	Horsepower of each locomotive (hp)

c) Maintenance and Certification Testing of Locomotives (Line Haul or Switcher)

Data Needed:

1. size (hp), make, and model locomotive
2. emission factor (EF) per locomotive per notch (g/hp-hr)
3. Time-in-notch (hours) or operating test mode time interval for each locomotive within railyard boundary

Emissions Calculation:

$$EI_{Maintenance} = \sum_{m=1}^n EF_m * (Time-in-notch)_m * HP_m$$

Where;

$EI_{Maintenance}$	=	Emissions inventory for all locomotives
EF_m	=	Emission factor per locomotive per notch (g/bhp-hr)
$Time-in-notch_m$	=	Time spent in each notch or operating test mode time interval for each locomotive (hours)
HP_m	=	Horsepower per locomotive per notch (hp)

Cargo Handling Equipment

Cargo handling equipment (CHE) refers to all off-road mobile equipment used to move containers or bulk goods at rail yards such as yard tractors, forklifts, cranes, side and top picks, chassis stackers, loaders, and flippers. Emissions are based on number and type of equipment, activity levels (i.e., hours of operation), and applicable emission factor from a district approved source (e.g., U.S. EPA, manufacturer's certification data) for each equipment type.

Use of an average operating mode (AOM) for an equipment category may be used in cases where it can be shown that equipment will be operating in a pattern that is predictable and repetitive.

Sufficient verifiable data must be provided to validate the AOM of the equipment category and the use of the average operating mode must be approved by the Executive Officer. Use of an AOM shall include only the necessary information to validate normal use of the equipment which shall, include but not be limited to, engine load, fuel type and amount utilized, time in idle mode, distance traveled in miles within the railyard, hours of

operation in railyard, or any other information to show the predictable and repetitive nature of the equipment.

Data Needed:

1. population of cargo handling equipment
2. emission factor (EF) by size and model year (g/bhp-hr)
3. size (hp)
4. load factor (LF)
5. activity within rail yard boundary (hours)

Emission Calculation:

$$EI_{CHE} = \sum_{i=1}^n EF_i * HRS_i * HP_i * LF_i$$

Where:

EI_{CHE}	=	Emissions inventory for all cargo handling equipment
EF_i	=	Emission factor for each CHE by type, size, and model year (g/bhp-hr)
HRS_i	=	Operating hours within rail yard boundary (hours)
HP_i	=	Horsepower of each equipment (hp)
LF_i	=	Load factor

On-Road Trucks

The emissions from on-road trucks, either dedicated or transient visitors (e.g., delivering containers) are based on number of trucks, activity levels (i.e., vehicle average miles to designated areas traveled within rail yard boundary, idling hours), and applicable emission factors from CARB's most recently approved EMFAC model. An overall fleet average for each class of on-road trucks (i.e., heavy-heavy-duty on-road trucks, heavy-duty on-road trucks) can be used to estimate emissions.

Use of an average operating mode (AOM) for an equipment category may be used in cases where it can be shown that equipment will be operating in a pattern that is predictable and repetitive.

Sufficient verifiable data must be provided to validate the AOM of the equipment category and the use of the average operating mode must be approved by the Executive Officer. Use of an AOM shall include only the necessary information to validate normal use of the equipment which shall, include but not be limited to, time in each engine load or notch, fuel type and amount utilized, time in idle mode, distance traveled in miles within the railyard, hours of operation in railyard, or any other information to show the predictable and repetitive nature of the equipment.

Data Needed:

1. for each class of truck, the number of trucks
2. fleet average EMFAC emission factor (EF_{VMT}) for average speed within rail yard (g/mile) – for dedicated on-road trucks, use model year specific EMFAC emission factor
3. fleet average EMFAC emission factor (EF_{idling}) for idling (g/hour) – for dedicated on-road trucks, use model year specific EMFAC emission factor
4. average of miles to designated areas traveled within rail yard boundary (VMT) for each truck
5. time spent idling within rail yard boundary (hours)

Emission Calculation:

$$EI_{Trucks} = \sum_{i=1}^n (EF_{VMT})_i * VMT_i + (EF_{idling})_i * HRS_i$$

Where:

EI_{Trucks}	=	Emissions inventory for all trucks
EF_{VMTi}	=	fleet average (model year specific for dedicated on-road trucks) EMFAC emission factor for average speed within rail yard (g/mile)
EF_{idling}	=	fleet average (model year specific for dedicated on-road trucks) EMFAC emission factor for idling (g/hour)
VMT_i	=	number of average miles to designated areas traveled in each truck within rail yard boundary
HRS_i	=	idling hours for each truck (hours)

Other On-Road Vehicles (e.g., Light Duty Service Trucks)

The emissions from other on-road vehicles such as light duty service trucks, either dedicated or transient visitors, are based on number of trucks, activity levels (i.e., vehicle miles traveled within rail yard boundary), and applicable emission factors from CARB's most recently approved EMFAC model. **Employee passenger vehicles are to be excluded from the inventory.** An overall fleet average for each class of on-road vehicles (i.e., light-duty trucks, medium-duty trucks) can be used to estimate emissions.

Use of an average operating mode (AOM) for an equipment category may be used in cases where it can be shown that equipment will be operating in a pattern that is predictable and repetitive.

Sufficient verifiable data must be provided to validate the AOM of the equipment category and the use of the average operating mode must be approved by the Executive Officer. Use of an AOM shall include only the necessary information to validate normal use of the equipment which shall, include but not be limited to, engine load, fuel type and amount utilized, time in idle mode, distance traveled in miles within the railyard, hours of

operation in railyard, or any other information to show the predictable and repetitive nature of the equipment.

Data Needed:

1. for each on-road vehicle class, the number of on-road vehicles
2. fleet average EMFAC emission factor (EF) (g/mile) – for dedicated on-road trucks, use model year specific EMFAC emission factor
3. miles traveled within rail yard boundary (VMT) for each vehicle

Emission Calculation:

$$EI_{Onroad} = \sum_{i=1}^n EF_i * VMT_i$$

Where:

- EI_{Onroad} = Emissions inventory for other on-road vehicles
- EF_i = fleet average (model year specific for dedicated on-road trucks) EMFAC emission factor (g/mile)
- VMT_i = number of miles traveled within rail yard boundary

Other Off-Road Equipment

The emissions from other off-road equipment such as transport refrigeration units (TRU) are based on activity level (i.e., number of equipment, activity levels (i.e., hours of operation), and applicable emission factor from a district approved source (e.g., U.S. EPA, manufacturer's certification data) for each equipment type.

Use of an average operating mode (AOM) for an equipment category may be used in cases where it can be shown that equipment will be operating in a pattern that is predictable and repetitive.

Sufficient verifiable data must be provided to validate the AOM of the equipment category and the use of the average operating mode must be approved by the Executive Officer. Use of an AOM shall include only the necessary information to validate normal use of the equipment which shall, include but not be limited to, engine load, fuel type and amount utilized, time in idle mode, distance traveled in miles within the railyard, hours of operation in railyard, or any other information to show the predictable and repetitive nature of the equipment.

Data Needed:

1. population of off-road equipment (non-cargo handling equipment)
2. baseline emission factor (EF) by size and model year (g/bhp-hr)

3. size (hp)
4. load factor (LF)
5. activity within rail yard boundary (hours)

Emission Calculation:

$$EI_{offroad} = \sum_{i=1}^n EF_i * HRS_i * HP_i * LF_i$$

Where:

$EI_{offroad}$	=	Emissions inventory for all other equipment
EF_i	=	Emission factor by type, size, and model year (g/bhp-hr)
HRS_i	=	Operating hours within rail yard boundary (hours)
HP_i	=	Horsepower of each equipment (hp)
LF_i	=	Load factor

Total Emissions from Rail Yards

The total mobile source emissions from rail yards are calculated by summing the individual totals for each source category as follows:

$$EI_{TotalMobile} = EI_{Linehaul} + EI_{Switcher} + EI_{Maintenance} + EI_{CHE} + EI_{Trucks} + EI_{Onroad} + EI_{Offroad}$$

Recordkeeping Requirement

The railyard operator must maintain records of all items described above under Data Needed for each locomotive, CHE, on-road truck, other on-road vehicle or off-road equipment. The information must be recorded in a format approved by the ~~AQMD~~ District and be maintained for a minimum of two years. The source for all emission factors and information used to determine emission factors shall be referenced and documented.

The emissions inventory for each source category shall be determined in accordance with Rule 3503 ~~(g)(d)~~ and provided in a format that is re-producible by ~~AQMD-District~~ staff.

**ATTACHMENT B: HEALTH RISK ASSESSMENT GUIDANCE
FOR RAILYARDS AND INTERMODAL
FACILITIES**

Health Risk Assessment Guidance for Railyards and Intermodal Facilities

South Coast Air Quality Management District

~~August~~September 2005

Introduction

The purpose of this document is to provide dispersion modeling and health risk assessment guidance for railyard and intermodal facilities. The California Air Resources Board (ARB) has done significant work in this area. Much of the guidance presented here is built upon their previous work on the Diesel Risk Management Plan^[1] and the Roseville Rail Yard Study.^[2]

Air Dispersion Modeling

Air dispersion modeling is performed for the exposure assessment of the health risk assessment (HRA). A basic understanding of dispersion modeling is presumed. For a more detailed overview of regulatory modeling procedures, the reader is referred to the U.S. Environmental Protection Agency's "Guideline on Air Quality Models."^[3]

Facility Description and Source Information

The HRA report should contain a brief description of the facility and its activities as shown in the detailed HRA report outline provided in Appendix A. Table 1 lists the information on the facility and its surroundings that must be provided in the modeling analysis. The facility location is used to determine the most representative meteorological data for the analysis. The nearby land use is needed to properly label receptors as residential, commercial, sensitive, etc.

The facility plot plan (including a length scale) is needed to determine all stationary and mobile source locations (including their elevations above sea level), building dimensions, truck and train routes, truck and train idling activities, cargo handling activities, other on- and off-road equipment activities, and the property boundary. Table 2 lists the potential sources that must be included in the HRA. The operating profile, the hourly emission rates, the annual average emission rates, and the source parameters listed in Table 1 are necessary to accurately characterize the source emissions. It is acceptable to estimate the hourly emission rate of certain equipment based on operating profiles. The reader is referred to the detailed outline provided in Appendix A for additional information and guidance.

Source Treatment

On-road and off-road mobile emission sources, such as trucks, locomotives, cargo handling equipment, etc., should be treated as point sources when stationary or idling and as volume sources when moving. Stack parameters representative of the fleets of trucks, locomotives, and cargo handling equipment for the railyard should be used. The stationary or idling mobile equipment are not typically uniformly distributed throughout the facility. Their location in the dispersion modeling should be based on a detailed study and survey of the facility activity; emissions should only be placed where activity occurs.

Emissions from the movement of trucks and trains should be simulated as a series of volume sources along their corresponding routes of travel. A typical railyard or intermodal facility can have a large number of individual sources; the ARB modeling for the Roseville Railyard Study^[2] included about 20,000 individual sources. It is acceptable

and even encouraged to combine sources into large volumes in order to make the modeling analysis manageable. Like or related pollutant sources with similar source parameters may be combined. The volume source footprint should remain within the confines of the activity. Spreading the emissions to areas outside the activity is not acceptable. Appropriate volume source heights for the trucks and trains can be estimated by calculating effective plume height under expected travel speeds, atmospheric stability conditions, and stack parameters representative of the truck and train fleet.

Table 1. Required Source Information.

<p><u>Information on the Facility and its Surroundings</u></p> <ul style="list-style-type: none"> • Location (i.e., address and UTM coordinates) • Local land use (within 20 km) • Local topography (within 20 km) • Facility plot plan <ul style="list-style-type: none"> - Property boundaries - Horizontal scale - Building heights (for building downwash calculations) - Stationary source locations including elevations <ul style="list-style-type: none"> • Maintenance and servicing areas • Fueling areas • Vehicle entrance and exit of railyard • Weigh and dispatch stations • Switching, classification, hump location, yard sidings and spurs - Locations of truck and train idling activity including elevations <ul style="list-style-type: none"> • Locomotive and truck crossing locations, weigh and dispatch stations • Truck queuing prior to loading - Truck and train routes within the facility <ul style="list-style-type: none"> • Including crossing locations - Cargo handling activities <ul style="list-style-type: none"> • Maintenance, servicing, storage, mobile fueling locations • Intermodal loading/unloading, chassis loaders and stackers, yard hostlers, etc. <p><u>Point Source Information (stacks, vents, etc.)</u></p> <ul style="list-style-type: none"> • Annual emissions • Operating profile (e.g., seasonal, monthly, weekly, or daily operating schedule) • Maximum and average hourly emission rates • Stack location (in UTM coordinates) on plot plan including elevation • Stack height • Stack gas exit velocity • Stack gas exit temperature • Building dimensions, heights, and location <p><u>Mobile and Fugitive Source Information (i.e., area and volume sources)</u></p> <ul style="list-style-type: none"> • Maximum and average hourly emission rates • Annual emissions • Source location (in UTM coordinates) on plot plan including elevations • Source height • Area or volume dimensions
--

Table 2. Potential Emission Sources for Consideration in the HRA.

Source Category	Examples
Stationary	Boilers (all fuels), water heaters (all fuels), emergency generator sets and fire pumps (all fuels), fuel dispensing (LPG, gasoline, diesel, etc.), fuel storage tanks (LPG, gasoline, diesel, etc.), waste water treatment facilities
On-road mobile	heavy duty diesel trucks (idling & moving), crew vans, crew trucks (all fuels)
Off-road mobile	overhead cranes, side loaders, chassis stackers, chassis loaders, yard hostlers, rubber tire gantry cranes, utility trucks, dozers, forklifts, locomotives (switchers and line haul)

Two important modeling input parameters are initial lateral and vertical dimensions. As recommended by the ISCST3 User's Guide,^[4] the initial lateral dimension is calculated by dividing the adjacent source separation distance by 2.15 and the initial vertical dimension is calculated by dividing the effective height of the plume by 2.15. The reader is referred to a couple of ARB modeling studies for additional guidance and clarification.^{[1],[2]} Table 3 recommends the ISCST3 source treatment for typical sources expected at a railyard.

Table 3. ISCST3 source treatment for typical railyard sources.

Source Category	Specific Sources	ISCST3 Source Treatment
Stationary	Natural gas boilers & water heaters	Point
	Diesel & natural gas emergency generators	Point
	Diesel & gasoline fuel pumps	Point
	Fuel storage tanks with floating roofs	Volume or Area
	Fuel storage tanks with vent valves	Point
	Waste water treatment facilities	Point
On-road mobile	Heavy duty diesel trucks (idling)	Point
	Heavy duty diesel trucks (moving)	Volume
	Crew vans & trucks	Volume
Off-road mobile	Overhead cranes	Volume
	Side loaders	Volume
	Chassis stackers	Volume
	Chassis loaders	Volume
	Yard hostlers	Volume
	Rubber tire gantry cranes	Volume
	Utility trucks	Volume
	Dozers	Volume
	Forklifts	Volume
	Locomotives (moving)	Volume
	Locomotives (idling)	Point

Stacks with Raincaps and Area Sources

Emission release points with raincaps or which are oriented so that the exhaust is vented downward or horizontally may not use the velocity inside the stack as the vertical velocity of the point source in the model. However, as a point source must be modeled with some vertical velocity, these stacks may be modeled with a positive vertical velocity of no more than 0.1 meters per second. In general, if there is uncertainty on how to represent sources in a model, South Coast Air Quality Management District (SCAQMD) staff in the AB2588 Section should be consulted before proceeding with modeling.

According to U.S. EPA guidance for area sources in ISCST3,^[4] the aspect ratio (i.e., length/width for area sources) should be less than 10 to 1. If this is exceeded, then the area should be subdivided to achieve a 10 to 1 or less aspect ratio for all sub-areas.

Model Selection and Model Options

All stationary source risk assessments prepared for the SCAQMD must follow the Office of Environmental Health Hazard Assessment (OEHHA) guidance^[5] and use ARB's Hotspots Analysis and Reporting Program (or HARP).^[6] The U.S. Environmental Protection Agency (U.S. EPA) air quality dispersion model, called ISCST3 (Industrial Source Complex – Short Term, Version 3) is used by HARP for the exposure assessment. Given the many and varied activities at a typical railyard or intermodal facility, HARP may not be the best tool for simulating the risks from the diesel particulate sources. Such sources may be best treated directly by ISCST3 and the risks estimated using procedures outlined in Appendix B. It is suggested that HARP be used for all the non-diesel sources and that the results from the two approaches be combined.

ISCST3 is a Gaussian plume model capable of estimating pollutant concentrations from a wide variety of sources that are typically present in an industrial source complex. The model is applicable to transport distances of 50 km or less;^[3] therefore, receptors should be limited to within 50 km of the source. Emission sources are categorized into four basic types: point, area, volume, and open pit sources. ISCST3 estimates hourly concentrations for each source/receptor pair and calculates concentrations for user-specified averaging times, including an average concentration for the complete simulation period. ISCST3 includes atmospheric dispersion options for both urban and rural environments and can address flat, gently rolling, and complex terrain situations. ISCST3 documentation is available at the U.S. EPA website.^[4] Table 4 summarizes the dispersion modeling assumptions required by the SCAQMD. These requirements are discussed in more detail next.

ISCST3 should be executed using the urban dispersion parameters (i.e., URBAN), which is SCAQMD policy for all air quality impact analyses in its jurisdiction. The U.S. EPA regulatory defaults options are implemented except that the calm processing option is disabled (i.e., NOCALM). The SCAQMD believes that calm processing is inappropriate for its meteorological data for the following reasons:

- Calm processing was developed by the U.S. EPA to correct problems with preprocessed data in which calm winds are given the speed of 1 m/s and the direction

of the last non-calm hour. This results in artificial persistence. Wind data collected by the SCAQMD is not preprocessed.

- Wind speeds in the SCAQMD stations are always 1 m/s or greater. Thus, model problems associated with lower wind speeds are not an issue.
- Wind direction is always recorded regardless of the wind speed and the direction is randomized over a 22.5 degree sector. Thus, artificial persistence is not an issue.
- SCAQMD data is more like on-site data and calm processing is not appropriate for on-site data.
- Given the high frequency of calms at many sites in the South Coast Air Basin and their association with high pollutant concentrations, it would be inappropriate to eliminate that portion of the data.

For these reasons, the SCAQMD does not require calm processing for dispersion modeling that uses SCAQMD supplied meteorological data.

Table 4. Summary of SCAQMD Dispersion Modeling Guidance.

Parameter	Assumption
<i>Model Control Options</i>	
Use regulatory default?	No
Urban or Rural?	Urban
Gradual plume rise?	No
Stack tip downwash?	Yes
Buoyancy induced dispersion?	Yes
Calms processing?	No
Missing data processing?	No
<i>Source Options</i>	
Include building downwash?	Yes
Lowbound option?	No
<i>Meteorology Options</i>	
Meteorological data	See note #1 below

1. The data are available for download from the SCAQMD website; see reference [7].

Meteorological Data

The SCAQMD has 1981 meteorological data (i.e., hourly winds, atmospheric stability, and mixing heights) at 35 stations in the South Coast Air Basin, as shown in Figure 1 and listed in Table 5.

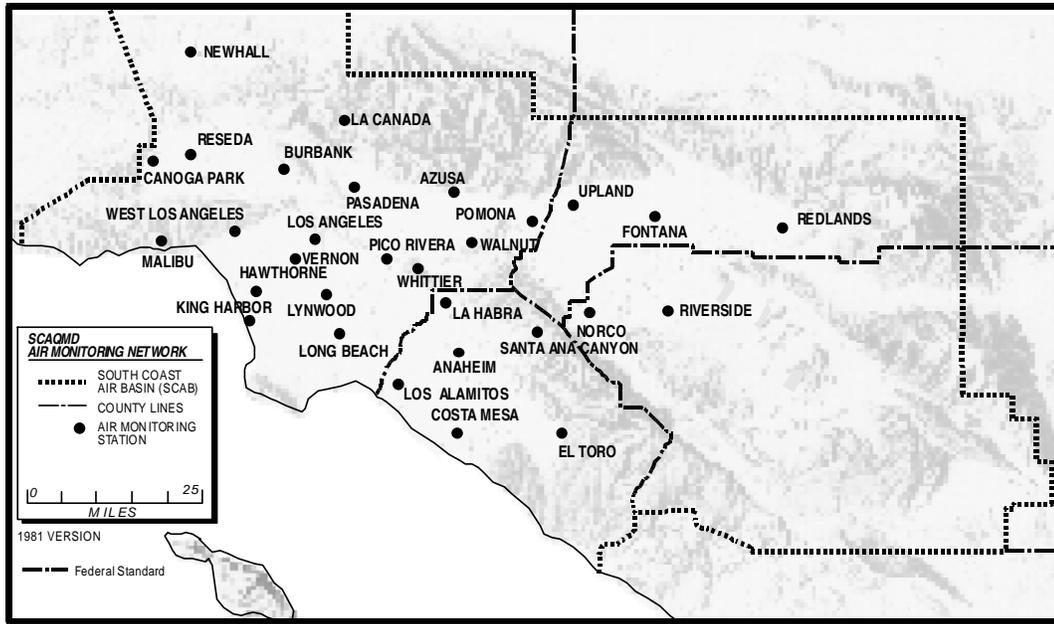


Figure 1. Locations of meteorological stations.

Table 5. Locations of Meteorological Stations

Station name	UTM Coordinates (m)		Lat./Long. Coordinates	
	E-W	N-S	Latitude	Longitude
Anaheim	415.0	3742.5	33°49'16"	117°55'07"
Azusa	414.9	3777.4	34°08'09"	117°55'23"
Banning	510.5	3754.5	33°55'58"	116°53'11"
Burbank	379.5	3783.0	34°10'58"	118°18'27"
Canoga Park	352.9	3786.0	34°12'23"	118°35'48"
Compton	385.5	3750.3	33°53'19"	118°14'17"
Costa Mesa	413.8	3724.2	33°39'21"	117°55'47"
Downtown Los Angeles	386.9	3770.1	34°04'02"	118°13'31"
El Toro	436.0	3720.9	33°37'39"	117°41'25"
Fontana	455.4	3773.9	34°06'24"	117°29'01"
Indio	572.3	3731.0	33°43'06"	116°13'11"
King Harbor	371.2	3744.4	33°50'00"	118°23'30"
La Canada	388.2	3786.1	34°12'42"	118°12'49"
La Habra	412.0	3754.0	33°55'28"	117°57'07"
Lancaster	396.0	3839.5	34°41'38"	118°08'08"
Lennox	373.0	3755.0	33°55'46"	118°22'26"
Long Beach	390.0	3743.0	33°49'24"	118°11'19"
Los Alamitos	404.5	3739.8	33°47'45"	118°01'54"
Lynwood	388.0	3754.0	33°55'20"	118°12'42"
Malibu	344.0	3766.9	34°01'59"	118°41'23"
Newhall	355.5	3805.5	34°22'59"	118°31'02"

continued

Table 5. Concluded.

Station name	UTM Coordinates (m)		Lat./Long. Coordinates	
	E-W	N-S	Latitude	Longitude
Norco	446.8	3749.0	33°52'54"	117°34'31"
Palm Springs	542.5	3742.5	33°49'25"	116°32'27"
Pasadena	396.0	3778.5	34°08'38"	118°07'41"
Pico Rivera	402.3	3764.1	34°00'53"	118°03'29"
Pomona	430.8	3769.6	34°03'60"	117°44'60"
Redlands	486.2	3769.4	34°04'00"	117°09'00"
Reseda	359.0	3785.0	34°11'54"	118°31'49"
Riverside	464.8	3758.6	33°58'10"	117°22'50"
Santa Ana Canyon	431.0	3748.4	33°52'32"	117°44'46"
Upland	440.0	3773.1	34°05'55"	117°39'02"
Vernon	387.4	3762.5	33°59'55"	118°13'10"
Walnut	420.0	3761.7	33°59'41"	117°51'58"
West Los Angeles	372.3	3768.6	34°03'08"	118°23'01"
Whittier	405.3	3754.0	33°55'26"	118°01'28"

This data is in a format which can be directly read by U.S. EPA's dispersion model, ISCST3 and by ARB's health risk assessment tool, HARP. The nearest representative meteorological station should be chosen for modeling. Usually this is simply the nearest station; however, an intervening terrain feature may dictate the use of an alternate station. Modelers should contact the AB2588 Section regarding the most representative meteorological station, if necessary. The data are available for download from the SCAQMD website.^[7] The railyard may propose an alternative set of meteorological data subject to the Executive Officer's approval, provided that the data is representative and complete for modeling purposes.

Receptor Grid

Air dispersion modeling is required to estimate (a) annual average concentrations to calculate the Maximum Exposed Individual Resident (MEIR); the Maximum Exposed Individual Worker (MEIW); the Maximum Individual Cancer Risk (MICR), which is simply the greater of the MEIR and MEIW; the maximum chronic HI; the zones of impact; and excess cancer burden and (b) peak hourly concentrations to calculate the health impact from substances with acute non-cancer health effects. To achieve these goals, the receptor grid should begin at the facility fence line and extend to cover the zone of impact. However, the modeling domain should not extend more than 50 km in any direction from the facility due to the pollutant transport limitation of 50 km for ISCST3.^[3] In addition, the receptor grid should be fine enough to identify the points of maximum impact.

To identify the maximum impacted receptors (i.e., peak cancer risk and peak hazard indices) a grid spacing of 100 meters or less must be used. All receptors should be identified in UTM coordinates. Receptor grid points outside of the facility boundary with grid spacing of 100 meters or more must be placed so that individual grid points are placed at UTM coordinates ending in "00" (e.g., grid point UTM East 572300 and UTM

North 3731000). Receptor grids with less than 100 meter spacing must include grid points at UTM coordinates ending in “00”.

Receptors on the facility boundary must be placed along the boundary following the maximum spacing requirements shown in Table 6. Sensitive receptors must be identified by exact UTM coordinates. Elevations must be provided for all receptors.

The density of the receptor network can be relaxed in downwind regions outside the peak impact area. The network must only be sufficiently dense to develop the 1, 10, 25, 100, 250, 500, 1000, 2500, 5000, etc. in a million cancer risk isopleths and the 0.5, 1, 3, 5, and 10 non-cancer hazard index isopleths.

Table 6. Maximum Receptor Spacing Requirements for Fenceline Receptors.

Area of Facility	Maximum Receptor Spacing
Area < 4 acres	20 meters
4 acres ≤ Area < 10 acres	30 meters
10 acres ≤ Area < 25 acres	50 meters
25 acres ≤ Area < 100 acres	75 meters
Area ≥ 100 acres	100 meters

Missing or Incomplete Data

Currently Rule 3503 requires the concurrent development of an air toxics inventory and health risks assessment one year after the adoption of the rule. Since annual and peak hourly emission rates are required for the preparation of the HRA, it may be necessary to estimate annual emissions from less than a complete year of activity. Given the requirements of the rule, it is acceptable to extrapolate annual emissions from less than a full year of activity. If the activity is seasonal in nature, then extrapolation to obtain the annual emissions needs to rely on operational profiles.

Risk Assessment

The SCAQMD requires that all stationary source HRAs be prepared in accordance with OEHHA and ARB guidance.^[5] This guidance is implemented through the ARB computer program called, Hotspots Analysis and Reporting Program (HARP).^[6] HARP is a convenient and the preferred tool to evaluate risks from multiple sources emitting multiple toxics. However, given the many and varied activities at a typical railyard or intermodal facility, HARP may not be the best tool for simulating the risks from the diesel particulate sources. Such sources may be best treated directly by ISCST3 and the risks estimated using procedures outlined in Appendix B. It is suggested that HARP be used for the all the non-diesel sources and that the results from the two approaches be combined. OEHHA guidance assumes that risks are additive.

Uncertainty in Risk Assessment

The SCAQMD recognizes that there can be uncertainty in health risk assessments. It is appropriate to include a discussion on the topic of risk assessment uncertainty in the Executive Summary and main body of the HRA. Any discussion of uncertainty must consider both the factors that contribute to risk overestimation and those that contribute to risk underestimation (see pages 1-4 and 1-5 of the OEHHA Guidelines^[5]).

Toxic Pollutants Considered in the HRA

Emissions of all compounds in Appendix A-I of the OEHHA Guidelines^[5] must be quantified and included in the HRA. Appendix A-I in the OEHHA Guidelines^[5] provides a “degree of accuracy” for each compound, which is nothing more than a de minimis emission level for reporting. As a result, facility-wide emissions of toxics greater than one-half of their corresponding degree of accuracy must be inventoried, reported, and included in the HRA.

The degree of accuracy for diesel particulate matter given in Appendix A-I is inappropriate since it was established before OEHHA developed a cancer potency for diesel particulate. Thus, all emissions of diesel particulate matter must be reported and included in the HRA.

Although OEHHA has developed acute and chronic reference exposure levels (RELs) for many criteria pollutants, such as carbon monoxide, nitrogen dioxide, ozone, and sulfur dioxide, emissions of these pollutants should not be included in the HRA. ~~Emissions of all other compounds in Appendix A-I of the OEHHA guidelines^[5] must be quantified and included in the HRA.~~

AQMD Risk Assessment Guidance

All HRAs prepared for the SCAQMD must include a Tier-1 evaluation, which is defined by OEHHA as a point estimate using standard assumptions. For the purpose of Proposed Rule 3503, public notification is based on OEHHA’s Tier-1 risk assessment. Tier-2, Tier-3, and Tier-4 evaluations may be prepared and presented in the HRA. However, the results from any Tier-2, Tier-3, or Tier-4 evaluations must be presented in separate, clearly titled, sections, tables, figures, and text. Table 7 summarizes the risk assumptions required by the SCAQMD. These requirements are discussed in more detail next.

Residential cancer risks assume a 70-year exposure and must include, at a minimum, the following pathways: home grown produce, dermal absorption, soil ingestion, and mother’s milk. A deposition velocity of 0.02 m/s should be assumed for the non-inhalation pathways. The HRA should assume the urban default value of 5.2 percent for the fraction of homegrown fruits and vegetables consumed. The other pathways of fish ingestion; dairy milk ingestion; drinking water consumption; and meat (i.e., beef, pork, chicken, and egg) ingestion should be included only if the facility impacts a local fishable body of water, grazing land, dairy, or water reservoir. The “Derived (Adjusted)” risk calculation method^[8] should be used for estimating cancer risks at residential receptors.

To estimate chronic non-cancer risks at residential receptors the “Derived (OEHHA)” risk calculation method^[9] should be used.

Worker cancer risks assume a 40-year exposure and must include the pathways of dermal absorption and soil ingestion. A deposition velocity of 0.02 m/s should be assumed for these pathways. The “Point estimate” risk calculation method should be used for estimating cancer and non-cancer chronic risks at worker receptors.

The air concentration that the neighboring workers breathe when present at work is different than the annual average concentration calculated by the dispersion model, ISCST3. The annual average estimated by the dispersion model is a 24 hours per day, 7 days per week, 365 days per year average, regardless of the actual operating schedule of the emitting facility. Thus, the model-predicted concentrations must be adjusted by a multiplying factor to reflect the pollutant concentration that the worker breathes. For example, suppose that the off-site worker and the emitting facility have the same operating schedule, perhaps 8 hours per day, 5 days per week, and 52 weeks per year. The annual average concentrations predicted by ISCST3 must be adjusted by a factor of 4.2 (i.e., $7/5 \times 24/8$). The reader is referred to the OEHHA guidelines^[5] on pages 8-5 and 8-6 for further detail on this issue.

Table 7. Summary of SCAQMD Guidance.

Parameter	Assumption
<i>Pathway</i>	
Drinking water	Site specific; see note #1 below
Fish water	Site specific; see note #1 below
Beef/dairy (pasture)	Site specific; see note #1 below
Home grown produce	Required for residential receptors
Pigs, chickens, and/or eggs	Site specific; see note #1 below
Dermal	Required for residential & worker receptors
Soil ingestion	Required for residential & worker receptors
Mother's milk	Required for residential receptors
Deposition velocity	0.02 meters per second
Fraction of homegrown fruits & vegetables consumed	5.2 percent
<i>Cancer Risk Assumptions or Methods for Residential Receptors</i>	
Exposure duration	70 years
Analysis method	Derived (Adjusted)
<i>Cancer Risk Assumptions or Methods for Worker Receptors</i>	
Exposure duration	40 years; see note #2 below
Analysis method	Point estimate
<i>Chronic Non-cancer Risk Assumptions or Methods for Residential Receptors</i>	
Analysis method	Derived (OEHHA)
<i>Chronic Non-cancer Risk Assumptions or Methods for Worker Receptors</i>	
Analysis method	Point estimate; see note #3 below

1. Required pathway only if the facility impacts a local fishable body of water, grazing land, dairy, or water reservoir.
2. See text discussion and Table 8 for required concentration adjustments.
3. The concentration adjustments provided in Table 8 are not necessary for non-cancer chronic risks.

The adjustment factors for all possible operating schedules are given in Table 8. These factors are entered into HARP by activating the worker scenario labeled "Use adjusted GLC or exposure assumptions" and entering the appropriate factor in Table 8 in the data field labeled "GLC adjustment factor." If the emitting facility operates continuously then the user should activate the worker scenario labeled "Use modeled GLC and default exposure assumptions."

Table 8. Adjustment Factors for Off-site Worker Ground-level Concentrations.*

Hours of Operation per Day	Days of Operation per Week		
	1 to 5	6	7
1 to 8	4.2	3.5	3.0
9	3.7	3.1	2.7
10	3.4	2.8	2.4
11	3.1	2.5	2.2
12	2.8	2.3	2.0
13	2.6	2.2	1.8
14	2.4	2.0	1.7
15	2.2	1.9	1.6
16	2.1	1.8	1.5
17	2.0	1.6	1.4
18	1.9	1.6	1.3
19	1.8	1.5	1.3
20	1.7	1.4	1.2
21	1.6	1.3	1.1
22	1.5	1.3	1.1
23	1.5	1.2	1.0
24	1.4	1.2	1.0

* These adjustment factors should only be used when calculating worker cancer risks. The adjustment factors should not be used when calculating chronic non-cancer risks.

Reporting Format

The reporting format for the HRA must follow the detailed outline presented in Appendix A. A completed Health Risk Assessment Summary form must be included in the executive summary of all health risk assessments submitted to the SCAQMD; a sample of the form can be downloaded from the SCAQMD's AB2588 website.^[10] The detailed HRA outline provided in Appendix A lists the HARP computer files to be included in a CD with the HRA. Three (3) copies of the HRA and two (2) copies of CD(s) should be sent to the engineer or air quality specialist involved in the facility HRA. The HRA, in electronic form (i.e., pdf format), should also be included on the CD.

Cancer risk values should be reported to the nearest tenth and should be rounded up from 5 (e.g., 5.05 in a million is rounded up to 5.1 in a million). Non-cancer risk values should be reported to the nearest hundredth and should be rounded up from 5 (e.g., a hazard index of 0.105 is rounded to 0.11)

Notification Risk Levels

The SCAQMD Governing Board has adopted risk levels for purposes of public notification as shown in Table 9. Additional information regarding the SCAQMD's notification procedures are available on the web site.^[11]

Table 9. Public Notification Risk Levels.

Risk Variable	Public Notification Levels
Cancer risk	≥ 10 in a million
Non-cancer risk	Hazard index > 1

MEIR, MEIW, and MICR

To identify the location of the Maximum Exposed Individual Resident (MEIR); the Maximum Exposed Individual Worker (MEIW); the Maximum Individual Cancer Risk (MICR), which is simply the greater of the MEIR and MEIW, it is necessary to examine current land use and allowable land use in the vicinity of the point of maximum impact (residential, commercial/industrial or mixed use). The use of block group or census tract centroids as surrogates for the maximum exposed individuals does not provide sufficient spatial resolution and will not be approved.

Cancer risk and non-carcinogenic hazard indices (HIs) must be provided for both the most exposed residential and the most exposed commercial/industrial receptors. Additionally, cancer risk and hazard index values at each sensitive receptor located within the zone of impact must be presented in a table. The zone of impact is discussed in the next section.

Zone of Impact

In any risk assessment, it is necessary to define a zone of impact or a method to set boundaries on the analysis. The SCAQMD requires that the risk assessment must encompass the area subject to an added lifetime cancer risk (all pathways) of one in a million or greater ($\geq 1.0 \times 10^{-6}$). For large railyards and intermodal facilities, one in a million cancer risks could occur more than 50 km downwind, which would exceed the 50 km pollutant transport distance limitation of ISCST3. In those instances it is acceptable to limit the receptor network to conform to the model limitation.

For non-carcinogens the analysis must bound the area subject to a hazard index of greater than or equal to one half (≥ 0.5).

Land Use Considerations

Risk estimates are sensitive to land uses (e.g. residential, commercial, vacant) since these factors can affect exposure assumptions. If residential or worker risks are not calculated at the point of maximum impact because the land is currently vacant, the location, zoning and potential future land uses must be discussed. Updated information on current land uses is requested when updated emission estimates are reported to the SCAQMD.

Maps

Maps showing the location of the source in relation to the zone of impact must be submitted. Dispersion modeling for sources should be conducted with receptors defined in terms of Universal Transverse Mercator (UTM) coordinates. For carcinogen impacts, total risk isopleths for facilities should be plotted on the street map at cancer risk intervals

of 1, 10, 25, 50, 100, 250, 500, 1000, 2500, 5000, etc. in a million. Isopleths for non-carcinogens must include levels corresponding to a HI of 0.5, 1, 3, 5, and 10.

Separate maps should be provided for each of the three risk variables: cancer risks, non-cancer acute risks, and non-cancer chronic risks. The maps must contain an accurate scale for measuring distances and a legend. The map scale that can accommodate the isopleths and show the greatest level of detail must be used. The names of streets and other locations must be presented and be legible.

The location of schools, hospitals, day-care centers, other sensitive receptors, residential areas and work-sites within the zone of impact must be identified on the map. If the area of the zone of impact is very large, then more detail should be devoted to higher concentration/risk areas versus lower risk areas. The land uses in the vicinity of the point of maximum impact (off-site) must be shown in detail. This may require a separate map. If sensitive receptors are located within the zone of impact, then risk and hazard index values must also be presented in the form of a table including all the sensitive receptors.

References

- [1] Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. Appendix VII – Risk Characterization Scenarios. ARB. October 2000. The document can be downloaded at the following link: <http://www.arb.ca.gov/diesel/documents/rrpapp7.pdf>
- [2] ARB. 2004. Roseville Rail Yard Study. The document can be downloaded at the following link: <http://www.arb.ca.gov/diesel/documents/rrstudy.htm>
- [3] U.S. EPA. 2003. Guideline on Air Quality Models, Appendix W of 40CFR Part 51. The document can be downloaded at the following link: <http://www.epa.gov/scram001/tt25.htm#guidance>
- [4] U.S. EPA. 1995. User's Guide for the Industrial Source Complex (ISC3) Dispersion Models. EPA-4504/B-95-003a & EPA-4504/B-95-003b. The program and documentation can be downloaded at the following link: <http://www.epa.gov/scram001/tt22.htm#isc>
- [5] OEHHA. 2003. "The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments." The document can be downloaded at the following link: http://www.oehha.ca.gov/air/hot_spots/HRSguide.html
- [6] ARB. 2003. HARP User Guide. The program and document can be downloaded at the following link: <http://www.arb.ca.gov/toxics/harp/harp.htm>
- [7] Meteorological data for ISC3 and HARP can be downloaded at the following link: <http://www.aqmd.gov/smog/metdata/MeteorologicalData.html>

- [8] An explanation of the “Derived (Adjusted)” cancer risk method is provided at the ARB web site under frequently asked questions; refer to the following link: <http://www.arb.ca.gov/toxics/harp/rmpolicyfaq.htm#11>
- [9] An explanation of the “Derived (OEHHA)” cancer risk method is provided at the ARB web site under frequently asked questions; refer to the following link: <http://www.arb.ca.gov/toxics/harp/rmpolicyfaq.htm#10>
- [10] Forms mentioned here can be downloaded from SCAQMD’s web site at the following link: http://www.aqmd.gov/prdas/AB2588/AB2588_forms.html.
- [11] AQMD’s notification procedures can be downloaded at the following link: http://www.aqmd.gov/prdas/AB2588/AB2588_B4.html
- [12] ARB. 2003. Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk. Letter dated 10/9/2003. The document can be downloaded at the following link: <http://www.arb.ca.gov/toxics/harp/docs.htm#rm>

APPENDIX A
OUTLINE FOR THE HEALTH RISK ASSESSMENT
REPORT

I. Table of Contents

- Section headings with page numbers indicated.
- Tables and figures with page numbers indicated.
- Definitions and abbreviations. Must include a definition of acute, chronic, and cancer health impacts.
- Appendices with page numbers indicated.

II. Executive Summary

- Name of facility and the complete address.
- Facility ID number.
- Description of facility operations and a list identifying emitted substances, including a table of maximum 1-hour and annual emissions in units of lbs/hr and lbs/yr, respectively.
- List the multipathway substances and their pathways.
- Text presenting overview of dispersion modeling and exposure assessment.
- Text defining dose-response assessment for cancer and noncancer health impacts and a table showing target organ systems by substance for noncancer impacts.
- Summary of results. Potential cancer risks for residents must be based on 70-year, Tier-1 analysis and potential cancer risks for workers must be based on 40-year, Tier-1 analysis. (The results from any Tier-2, Tier-3, or Tier-4 evaluations must be presented in separate, clearly titled, sections, tables, figures, and text):
 - Location (address or UTM coordinates) and description of the maximum exposed individual resident (MEIR), maximum exposed individual worker (MEIW), and the maximum individual cancer risk (MICR). See reference #10 for the required summary form.
 - Location (address or UTM coordinates) and description of any sensitive receptors that are above a cancer risk of ten in one million or above a noncancer health hazard index of one.
 - Text presenting an overview of the total potential multipathway cancer risk at the MEIR, MEIW, MICR, and sensitive receptors (if applicable). Provide a table of cancer risk by substance for the MEIR and MEIW. Include a statement indicating which of the substances appear to contribute to (i.e., drive) the potential health impacts. In addition, identify the exposure pathways evaluated in the HRA.
 - Provide a map of the facility and surroundings and identify the location of the MEIR, MEIW, and MICR.

- Provide a map of 70-year lifetime cancer risk zone of impact (i.e., 1 in one million risk contour), if applicable. Also show the 10, 25, 50, 100, 250, 500, 1000, 2500, 5000, etc. in one million risk contours, if applicable.
- Text presenting an overview of the acute and chronic noncancer hazard quotients or the (total) hazard indices for the MEIR, MEIW, and sensitive receptors. Include separate statements (for acute and chronic exposures) indicating which of the substances appear to drive the potential health impacts. In addition, clearly identify the primary target organ(s) that are impacted from acute and chronic exposures.
- Identify any subpopulations (e.g., subsistence fishers) of concern.
- Table and text presenting an overview of estimates of population exposure.
- Version of the Risk Assessment Guidelines and computer program(s) used to prepare the risk assessment.

III. Main Body of Report

A. Hazard Identification

- Table and text identifying all substances emitted from the facility. Include the CAS number of substance and the physical form of the substance if possible. The complete list of the substances to be considered is contained in Appendix A of *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (August 2003)*.^[5]
- Table and text identifying all substances that are evaluated for cancer risk and/or noncancer acute and chronic health impacts. In addition, identify any substances that present a potential cancer risk or chronic noncancer hazard via noninhalation routes of exposure.
- Describe the types and amounts of continuous or intermittent predictable emissions from the facility that occurred during the reporting year. As required by statute, releases from a facility include spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping (fugitive), leaching, dumping, or disposing of a substance into ambient air. Include the substance(s) released and a description of the processes that resulted in long-term and continuous releases.

B. Exposure Assessment

This section describes the information related to the air dispersion modeling process that should be reported in the risk assessment. In addition, doses calculated by pathway of exposure for each substance should be included in this section. The ~~educated~~**experienced** reader should be able to reproduce the risk assessment without the need for clarification. The location of any information that is presented in appendices, on electronic media, or attached documents that supports information presented in this section, must be clearly identified by title and page number in this section's text and in the document's table of contents.

B.1. Facility Description

Report the following information regarding the facility and its surroundings:

- Facility name.
- Facility ID.
- Facility location (i.e., address).
- Local topography.
- Facility plot plan identifying: emission source locations, property line, horizontal scale, building heights and dimensions.
- Description of the site/route dependent exposure pathways. Provide a summary of the site-specific inputs used for each pathway (e.g., water or grazing intake assumptions). This information may be presented in the appendix with the information clearly presented and cross-referenced to the text.

B.2. Emissions Inventory

Report the following information regarding the facility's sources and emissions in table format; see Appendix K of OEHHA Guidelines (2003).^[5] Depending on the number of sources and/or pollutants, this information may be placed in the main body of the report or in an appendix.

- Source identification number used by the facility.
- Source name.
- Source location using UTM coordinates (in meters); be sure to indicate the projection assumed (e.g., NAD 1927, NAD 1983, etc.).
- Source base elevation (m).
- Source height (m).
- Source dimensions (e.g., stack diameter, building dimensions, area/volume size, etc.) (m).
- Stack gas exit velocity (m/s) if applicable.
- Stack gas volumetric flow rate (ACFM) if applicable.
- Stack gas exit temperature (K).
- Number of operating hours per day and per year.
- Number of operating days per week.
- Number of operating days or weeks per year.
- Report emission control equipment and efficiency by source and by substance. The description should be brief.

- Report emission inventory methods indicating whether emissions are measured or estimated.
- Report emission rates for each toxic substance, grouped by source, in table form including the following information (see Appendix K of OEHHA Guidelines, 2003). Depending on the number of sources and/or pollutants, this information may be placed in the main body of the report or in an appendix.
 - Source name.
 - Source identification number.
 - Substance name and CAS number.
 - Annual average emissions for each substance (lbs/yr & g/s). Radionuclides are reported in Curies/yr.
 - Maximum one-hour emissions for each substance (lbs/hr & g/s). Radionuclides are reported in millicuries/yr.
- Report facility total emission rates by substance for all emittants including the following information (see Appendix K of OEHHA Guidelines, 2003). This information should be in the main body of the report.
 - Substance name and CAS number.
 - Annual average emissions for each substance (lbs/yr & g/s). Radionuclides are reported in Curies/yr.
 - Maximum one-hour emissions for each substance (lbs/hr & g/s). Radionuclides are reported in millicuries/yr.

B.3. Air Dispersion Modeling

- The HRA should indicate the source and time period of the meteorological data used. Include the meteorological data electronically with the HRA. The SCAQMD has 1981 meteorological data (i.e., hourly winds, atmospheric stability, and mixing heights) at 35 stations in the South Coast Air Basin. This data can be downloaded from the SCAQMD web site.^[7]
- Include proper justification for using the meteorological data. The nearest representative meteorological station should be chosen for modeling. Usually this is simply the nearest station to the facility; however, an intervening terrain feature may dictate the use of an alternate site.
- HARP should be used for all health risk assessments prepared for the SCAQMD. Make sure that the latest version of the program is used.
- Table and text that specifies the following information:
 - Selected model options and parameters.
 - Receptor grid spacing.

- For the MEIR, MEIW, MICR, and any sensitive receptors required by the SCAQMD, include tables that summarize the annual average concentrations calculated for all substances.
- For the MEIR, MEIW, MICR, and any sensitive receptors required by the SCAQMD, include tables that summarize the maximum one-hour; maximum four-, six-, or seven-hour (for those substances with RELs based on those averaging periods); and 30-day average (lead only) concentrations.

C. Risk Characterization

HARP generates the risk characterization data needed for the outline below. Any data needed to support the risk characterization findings should be clearly presented and referenced in the text and appendices. A listing of HARP output files that meet these HRA requirements are provided in this outline under the section entitled “Appendices.” All HARP files should be included in the HRA. Ideally, the HRA report and a summary of data used in the HRA should be on paper and all data and model input and output files should be provided electronically (i.e., CD). The SCAQMD also requires the HRA in electronic form (i.e., pdf format).

The potential cancer risk for the MEIR and sensitive receptors of interest must be presented in the HRA’s text, tables, and maps using a lifetime 70-year exposure period. MEIW location should use appropriate exposure periods. A 70-year exposure duration should be used as the basis for residential public notification and risk reduction audits and plans. All HRAs must include the results of a Tier-1 exposure assessment. If persons preparing the HRA would like to present additional information (i.e., exposure duration adjustments or the inclusions of risk characterizations using Tier-2 through Tier-4 exposure data), then this information must be presented in separate, clearly titled, sections, tables, figures, and text.

The following information should be presented in this section of the HRA. If not fully presented here, then by topic, clearly identify the section(s) and pages within the HRA where this information is presented.

- Description of receptors to be quantified.
- Identify the site/route dependent exposure pathways (e.g., water ingestion) for the receptor(s), where appropriate (e.g., MEIR). Provide a summary of the site-specific inputs used for each exposure pathway (e.g., water or grazing intake assumptions). In addition, provide reference to the appendix (section and page number) that contains the modeling (i.e., HARP/dispersion modeling) files that show the same information.
- Tables and text providing the following information regarding the potential multipathway cancer risks at the MEIR, MEIW, MICR, and any sensitive receptors of concern:
 - Location in UTM coordinates
 - Contribution by substance
 - Contribution by source

- 9- and 30-year cancer risks
- Tables and text providing the following information regarding the acute noncancer hazard quotient at the MEIR, MEIW, MICR, and any sensitive receptors of concern:
 - Location in UTM coordinates
 - Target organ(s)
 - Contribution by substance
 - Contribution by source
- Tables and text providing the following information regarding the chronic noncancer (inhalation and oral) hazard quotient at the MEIR, MEIW, and any sensitive receptors of concern:
 - Location in UTM coordinates
 - Target organ(s)
 - Contribution by substance
 - Contribution by source
- Table and text presenting estimates of population exposure. Tables should indicate the number of persons exposed to a total cancer risk greater than 10^{-6} , 10^{-5} , 10^{-4} , 10^{-3} etc. and total hazard quotient or hazard index greater than 0.5, 1.0, 3.0, 5.0, and 10.0. Total excess cancer burden should also be provided.
- Provide maps that illustrate the HRA results as noted below. The maps should be an actual street map of the area impacted by the facility with UTM coordinates and facility boundaries clearly labeled. This should be a true map (i.e., one that shows roads, structures, etc.), drawn to scale, and not just a schematic drawing. U.S. Geologic Survey 7.5 minute maps are usually the most appropriate choice. The following maps are required:
 - Locations of the MEIR, MEIW, MICR, and sensitive receptors for the cancer and noncancer acute and chronic risks. Also show the facility emission points and property boundary.
 - Total multipathway cancer risk contours for the following risk levels: 1, 10, 25, 50, 100, 250, 500, 1000, 2500, 5000, etc. in a million. Maps should be provided for the minimum exposure pathways (i.e., inhalation, soil ingestion, dermal exposure, and breast-milk consumption) and for all applicable exposure pathways (i.e., minimum exposure pathways plus additional site/route specific pathways). Include the facility location on the maps.
 - Noncancer acute and chronic hazard index contours for the following levels: 0.5, 1.0, 3.0, 5.0, and 10.0. Include the facility location.
- The risk assessor may want to include a discussion of the strengths and weaknesses of the risk analyses and associated uncertainty directly related to the facility HRA.
- If appropriate, comment on the possible alternatives for control or remedial measures.
- If possible, identify any community concerns that influence public perception of risk.

D. References

IV. Appendices

The appendices should contain all data, sample calculations, assumptions, and all modeling and risk assessment files that are needed to reproduce the HRA results. Ideally, a summary of data used in the HRA will be on paper and all data and model input and output files will be provided electronically (e.g., CD). All appendices and the information they contain should be referenced, clearly titled, and paginated. The following are potential appendix topics unless presented elsewhere in the HRA:

- List of all receptors in the zone of impact and their associated risks.
- Emissions by source.
- Census data.
- Maps and facility plot plan.
- All calculations used to determine emissions, concentrations, and potential health impacts at the MEIR, MEIW, MICR, and sensitive receptors.
- Presentation of alternate risk assessment methods (e.g., alternate exposure durations, or Tier-2 to Tier-4 evaluations with supporting information).

V. Computer Files

The list of computer files that must be submitted on CD with the HRA is as follows:

- Provide facility, device, process, emissions, and stack data in electronic transaction file, EXPORT.TRA
- ISC workbook file with all ISC parameters (filename.ISC).
- ISC input file generated by HARP when ISC is run (filename.INP).
- ISC output file generated by HARP when ISC is run (filename.OUT).
- ISC binary output files; holds χ/Q values for each hour (filename.BIN).
- List of error messages generated by ISC (filename.ERR).
- Source-receptor file; contains lists of sources and receptors for the ISC run; file generated by HARP when ISC is run (filename.SRC).
- Point estimate risk values generated by HARP; this file is updated automatically each time you perform one of the point estimate risk analysis functions (filename.RSK).
- Average and maximum χ/Q values for each source-receptor combination; values are generated by ISC (filename.XOQ).
- Plot file generated by ISC (filename.PLT).
- Representative meteorological data used for the facility air dispersion modeling (filename.MET).

- Site-specific parameters used for all receptor risk modeling (filename.SIT).
- Map file used to overlay facility and receptors (filename.DEB).

Appendix B

Calculation of Inhalation Cancer Risk for Diesel Particulate Matter

Below is a procedure for estimating the inhalation cancer risk from exposure to diesel particulate matter (DPM). Impacts to residential and worker exposures are addressed. The methods below represent a Tier-1 assessment as described by OEHHA.^[5]

The inhalation cancer risk equation is as follows:

$$\text{Cancer risk} = \text{Cancer Potency (CP)} \cdot \text{Inhalation Dose (Dose-Inh)}$$

$$\text{Dose-Inh} = 10^{-6} \cdot C_{\text{air}} \cdot \text{DBR} \cdot (\text{EF} \cdot \text{ED})/\text{AT}$$

Where,

CP	= Cancer potency; the cancer potency for DPM is 1.1 cancers/mg/kg-day;
Dose-inh	= Dose through inhalation (mg/kg-day);
10^{-6}	= Unit conversion factor;
C_{air}	= Model-estimated DPM concentration ($\mu\text{g}/\text{m}^3$);
DBR	= Daily breathing rate (L/kg-day);
EF	= Exposure frequency (days/year);
ED	= Exposure duration (years); and
AT	= Averaging time period over which exposure is averaged, in days.

Assumptions for the above parameters are given in the table below:

Receptor	DBR	EF	ED	AT
Residential	302*	350	70	25,550
Worker	149	245	40	25,550

* 80th percentile breathing rate per ARB's interim risk management guidance for inhalation risk at residential receptors.^[12]

The inhalation cancer risk for a residential receptor simplifies to:

$$\text{Cancer risk} = 318.5 \cdot C_{\text{air}} \cdot 10^{-6}$$

The inhalation cancer risk for a worker receptor simplifies to:

$$\text{Cancer risk} = 62.9 \cdot C_{\text{air}} \cdot 10^{-6}$$

The model-predicted DPM concentration that a worker is exposed to (i.e., C_{air}) must be adjusted using the factors given in Table 8 of the main body of this document.

ATTACHMENT C: PUBLIC COMMENTS

PUBLIC COMMENTS

On August 26, 2005 a public workshop was held at ~~AQMD-District~~ headquarters, to solicit information and suggestions from the public regarding ~~Proposed Rule PR 3503—Emissions Inventory and Health Risk Assessment for Railyards~~. Approximately 25 people attended, with one individual providing comment at the meeting. One written comment letter was received prior to the September 7, 2005 close of the public comment period for ~~Proposed Rule PR 3503~~. ~~Three Comment letters were received on or after September 7, 2005 will be addressed in the final PR 3503 staff report and are summarized in a new section entitled “Written Comments Received on and After September 7, 2005.” The new comments are not summarized in underlined text. Comment letters received to PR 3503 are included in this attachment as Appendices A through F.~~

A summary of the verbal comments, as well as staff responses, are given below.

Public Workshop Comments

1. Comment: What is the status of rule development efforts for other ~~AQMD District~~ proposed rules addressing railroads?

Response: The current rule development schedule tentatively calls for Proposed Rule 3501 – Recordkeeping for Locomotive Idling and Proposed Rule 3502 – Minimization of Emissions from Locomotive Idling to be presented to the ~~AQMD-District~~ Governing Board in late-2005. Proposed Rule 3504 – Risk Reduction from Diesel Related Operations at Railyards—~~is tentatively planned for presentation to the Governing Board after Proposed Rules 3501 and 3502 will be further considered after information is received under PR 3503 to determine if the risks are substantial. Whether PR 3504 will be adopted, and its time and content will depend on the results obtained under PR 3503.~~

Written Comments Received Prior to September 7, 2005

2. Comment: ~~Proposed Rule PR 3503~~ is pre-empted by under federal law.

Response: The District staff believes that it has the legal authority to adopt and implement ~~Proposed Rule PR 3503~~. Under ~~Proposed Rule PR 3503~~, the District will require operators to submit a railyard-wide criteria pollutant and TAC emissions inventory, together with a HRA within 12 months of date of adoption. Railyards presenting risk over a specified threshold will be required to undergo public

notification. There is nothing in these requirements that would interfere with the railroads' interstate operations; hence the rule is not federally preempted by the ICCTA. PR 3503 does not affect how the manufacturer designs the engine or locomotive, thus it is not a standard or requirement related to the control of emissions for purposes of preemption under the Clean Air Act. Please refer to the section titled "Regulatory Authority" in the Draft Staff Report for a more detailed discussion.

3. Comment: The ~~ARB-CARB~~ occupies the field pertaining to air toxic measures pertaining to mobile sources, so the District lacks the authority to adopt PR 3503.

Response: As explained in the staff report, the air districts~~d~~ have primary responsibility to regulate non-vehicular sources, even if they are "mobile", such as locomotives. The California Supreme Court has upheld the districts' authority to adopt toxics rules for sources within their jurisdiction. Finally, Health and Safety Code sec. 41511 authorizes air districts to require owners or operators of any air pollution emission source, which would include railyards, to determine the amount of emissions from such source.

4. Comment: If transient emission sources are required for railyard emission inventories, they should also be required for all sources submitting AB2588 inventories.

Response: ~~Proposed Rule-PR~~ 3503 is an information gathering rule requiring preparation of emission inventories, HRAs, and possibly public notice. Pursuant to Health and Safety Code Section 40716(a)(1), a district may adopt and implement regulations to "reduce or mitigate emissions from indirect and areawide sources of air pollution." Therefore, under state law the district may regulate railyards to reduce or mitigation emissions resulting from mobile sources associated with or attracted to railyards.

~~Proposed Rule-PR~~ 3503 requires the gathering of information from which emissions and risk may be calculated. The districts may adopt such rules to collect information about emissions that may affect public health, such as designated and transient on- and off-road mobile sources that emit toxic air contaminants. Under ~~Proposed Rule-PR~~ 3503, railyard operators are required to gather information about emissions and to calculate the risk posed to surrounding community. Therefore this rule falls within the authority granted by Health and Safety Code Section 41511 as well

as general authority to regulate non-vehicular sources. Please refer to the section titled “Regulatory Authority” in the Draft Staff Report for a more detailed discussion. Moreover, there is a good reason for requiring railyards to include transient sources in their inventories, while not requiring this of other sources. The emissions and resulting risks from transient sources, including locomotives, at railyards are likely to exceed significance levels by a large amount, which is less likely at a typical stationary source. Should the District identify other types of sources for which transient sources contribute comparable toxic risk, the District may in the future require risk assessments from such sources to include transient sources. The District is not required to regulate all aspects of a problem at once, but may begin with one aspect, such as railyards.

5. Comment: By not requiring railyards to submit health risk assessments in the past under AB2588, the air districts have determined that railyards are not “facilities” subject to AB2588.

Response: PR 3503 is a separate requirement from AB2588. The District believes that railyards fit within the definition of “facility” under AB2588 (Health & Saf. Sec. 44304), but is developing PR 3503 to avoid any uncertainty with respect to that issue.

6. Comment: Health and Safety Code sec. 40702 prohibits local districts from regulating locomotives.

Response: As explained in the staff report, Health and Safety Code sec. 40702 only prohibits district regulation of the design, type of construction, or similar method of compliance with a regulation. It does not prohibit a requirement that railyards assess their risks, including risks from locomotives.

Written Comments Received on and After September 7, 2005

7. Comment: The applicability section implies that all Class 1 freight, switching and terminal railroads in the District are subject to this Rule. It is recommended that the rule specifically indicate which railyards are subject to the rule.

Response: The 19 Class 1 freight, switching and terminal railyards are now listed in the applicability section of PR 3503.

8. Comment: PR3503 does not apply to passenger train yards. However, passenger trains traveling either through or immediately adjacent to a Class 1 rail yard can be a significant source of diesel PM emissions. The District may want emissions from these passenger trains to be included in the rail yard's emissions inventory.

Response: Emissions from any locomotive that is passing through the railyard should be included in the emissions inventory. Emissions from locomotives that are traveling on rail lines that are adjacent to the railyard are not included in the emissions inventory.

9. Comment: The definition for "dedicated railyard" equipment should include the concept to include stationary, mobile, and portable equipment; including routine and predictable activities; and include equipment owned, leased, or contracted by the rail company.

Response: The definition has been modified to include the concept of stationary, mobile, and portable equipment and equipment owned, leased, or contracted by the railroad. Routine and predictable activities are addressed in the Railyard Emissions Inventory Methodology.

10. Comment: Regarding the definition of "impact area," the District should be aware that for larger rail yards the impact area is likely to exceed the modeling domain.

Response: To address the potentially large impact area and the capabilities of the air dispersion model, the definition of impact area under PR 3503 has been modified to indicate that this is an area "extending no further than 50 kilometers downwind in any direction."

11. Comment: Regarding the definition of MICR, the District may wish to reconsider the utility of using a MICR for complex sources like a large rail yard. Suggestion would be to use a spatially averaged risk level like that used in Roseville Railyard Study.

Response: It is the District's understanding that in the Roseville Railyard Study, that the in the Executive Summary and the body of the study that spatially average risk levels were used. However, in the Appendix to the Roseville Railyard Study, maximum cancer risks were specified.

Using the MICR is consistent with District rules (Rule 1401 and 1402) and AB2588. The District staff believes that it would be inequitable to require stationary sources to calculate MICRs and to allow railyards to calculate a spatially averaged risk level. Thus, PR 3503 maintains that railroads are required to develop a MICR.

The District staff understands that mobile sources are different from stationary sources. Therefore, mobile sources are treated as volume sources instead of point sources. Also, the averaging concept is incorporated into the inventory development protocol. MICR is defined as the maximum modeled value among pre-defined receptor grids at 100 meter spacing. MICR is used in this rule solely for the purpose of public notification, an approach that is consistent with treatment of facilities subject to the AB 2588 Hot Spots program and with the District Board's adopted public notification procedures.

12. Comment: Regarding the definition of "railroad operations," it is not clear if through train activity is included in railroad operations.

Response: Through train activity is included in railroad operations. As discussed in Response to Comment #1, any locomotive activity that occurs within the railyard, regardless of ownership, should be included in the emissions inventory. The emissions inventory, however, does not include emissions outside of the railyard. This includes emissions from locomotives that may travel along rail lines that are adjacent to the railyard. This will be clarified in the emissions inventory guidance document.

13. Comment: The District may want to define the term "terminal operations."

Response: The reason for this request is unclear since the term "terminal operations" is not used in PR 3503, although the term "switching and terminal railroad" is used in the proposed rule and defined as a non-Class I railroad engaged primarily in switching or terminal services for other railroads. The U.S. Census Bureau website defines "railroad switching and terminal establishments" as establishments primarily engaged in the furnishing of terminal facilities for rail passenger or freight traffic for railway operators. Terminal companies operate the stations and terminals.²⁴ The definition of "switching and terminal railroads" is from an AAR publication²⁵ and is intended to differentiate the two Class I railroads in California (BNSF and UP) from the other railroads with operations in California. The sole purpose for use of the term "switching and terminal railroad" was to include LAJ and PHL in the proposed rule, rather than to propose unique rule provisions for certain types of rail operations. As a result, the District staff questions the need for a definition of "terminal operations".

²⁴ <http://www.census.gov/epcd/ec97/def/4882102.HTM>

²⁵ Association of American Railroads, 2004, Railroad Service in California – 2002.

14. Comment: Regarding the definition of “transient railyard equipment”, transport refrigeration units (TRUs) are identified in the Railyard Emission Inventory Methodology under “other Off-road equipment.” The District may want to include TRUs in this definition to ensure the rail companies are aware the emissions from this source type will be inventoried.

Response: The definition of transient railyard equipment has been modified to state that transient railyard equipment includes emission sources within a railyard that are not exclusively used at the railyard, “including, but not limited to, line haul locomotives, delivery trucks, or transport refrigeration units.”

15. Comment: The proposed timeframe of 6 months from date of rule adoption for an interim inventory and 12 months from date of rule adoption for the final inventory is not feasible. From the Roseville Study it took up to 6 months to gather credible emissions inventory when historical data was available. If historical data is not available, it will take 12 to 18 months to collect and prepare the data.

Response: The emissions inventory methodology in the District’s Railyard Emissions Inventory Methodology provides sufficient guidance to develop the emissions inventory within 12 months. The methodology allows the use of average operating mode for an equipment category where it can be shown that equipment will be operating in a pattern that is predictable and repetitive. This approach will allow for emissions calculations for groups of locomotives that are similar.

In addition, for on-road mobile sources such as delivery trucks, emissions are based on an overall fleet average using EMFAC emission factors and multiplying the number of trucks and the miles traveled within the railyard and the average time idling for trucks visiting the railyard.

District staff believes that reasonable emissions inventories can be developed for all 19 railyards within 12 months. For safety and other purposes, the railroads are closely tracking railyard activities, which will facilitate the collection of inventory data called for under PR 3503. Furthermore, in preparing inventories and HRAs for multiple railyards, it is expected that the railroads will achieve economies of scale, which will reduce the amount of time needed to prepare inventories and HRAs. The biennial update requirement in PR 3503 allows for continued improvement to the emissions inventory methodology.

Regarding intermodal equipment, in August 2005, CARB presented its statewide Diesel Fueled Cargo Handling Equipment Inventory. The inventory includes cargo handling equipment used at intermodal facilities, including intermodal railyards in the Basin. The methodology used to estimate emissions from CARB's emissions inventory is consistent with the District's Railyard Emissions Inventory Methodology. PR 3503 would allow the use of this information that was previously gathered under the CARB rulemaking.

16. Comment: To require 19 railyards to submit emissions inventory in 12 months is inconsistent with the timing provided under the District's "Hot Spot" program. It is recommended that the District consider amending the provision to be consistent with the timing provided under the District's "Hot Spots" program.

Response: Under Rule 1402, affected facilities are required to submit emissions inventories and HRAs within 150 days of notification by the Executive Officer. PR 3503 allows 12 months to complete emissions inventories, nearly twice the time period allowed for stationary sources to complete their emissions inventories and HRAs under Rule 1402. The District staff understands that the Class I railroads have multiple railyards that will be required to complete emissions inventories. Similar to the Roseville study where Union Pacific had utilized a technical consultant to develop the emissions inventory, the District staff believes that the railroads will use technical consultants if necessary to develop emissions inventories required under PR 3503. As a result, the proposed rule provides sufficient time for the railroads to complete the emissions inventories within the specified time period.

17. Comment: It is recommended that the most recent full year of data be used, if historical data exists. For rail yards where there is no historical data, the rule should allow the District to make a case-by-case determination on the level of detail needed for the emissions inventory and the time period allowed for data collection. We believe that situations are likely to occur where extending the emissions inventory data collection period will be appropriate.

Response: The railroads have commented that railyard operations are fairly consistent. Therefore, it may not be necessary to have reporting of 12-month actual data for all equipment. Under PR 3503, the railroads can propose appropriate sampling periods, subject to Executive Officer approval, to estimate a representative emissions inventory.

The District staff believes that the emissions inventory approach presented in the District's Railyard Emissions Inventory Methodology will ensure that railyard emissions are accurately and efficiently estimated. The District staff agrees that if a full year of data is available that it should be used to estimate the emissions from railyard operations. PR 3503 has been amended to reflect a preference for reporting based on a full year of data. In the absence of a full year of emissions data, PR 3503 allows railyards to use a time period of at least three months within the past two years or a shorter time interval as approved by the Executive Officer, provided the shorter time interval can accurately characterize typical annual emissions.

The purpose of developing the emissions inventory is to develop an annual average emissions inventory for railyard operations. PR 3503 allows affected railyards sufficient time to develop the emissions inventory. The District's Railyard Emissions Inventory Methodology stipulates the level of detail needed for the emissions inventory.

18. Comment: The District may want to modify Section (d)(1)(C) to cover the full time interval.
- Response: PR 3503 has been modified to no longer require the submittal of any emissions data as part of the Interim Railyard Emissions Inventory Report. Instead, all emissions data would be required under PR 3503 under the emissions inventory submitted 12 months after rule adoption.
19. Comment: The District should allow certain equipment or operations to be excluded in the final emissions inventory if the District finds that the emissions from this activity will not significantly change the outcome of the HRA.
- Response: The District staff believes that it is important that all source categories be included in the emissions inventory. It is possible that a specific operation may have an insignificant contribution to the overall inventory, but that is located very close to a receptor. It is premature to exclude certain equipment or operations at this time. In addition, development of an inventory may be needed to demonstrate that a source is insignificant. Thus, initial exclusion of equipment or operations would likely not result in significant cost savings to the railroads. To fully characterize the potential risk to the community, all source categories should be included in the emissions inventory.

20. Comment: The proposed timeframe of 12 months from the date of rule adoption to submit a HRA is not feasible. The Roseville Study showed that up to 12 months following the development of the emissions inventory was necessary to develop a credible HRA. It is encouraged that the District amend this provision to be consistent with the timing provided under the District's "Hot Spot" program.
- Response: In response to this comment, the District has modified the HRA timeframe from 12 to 15 months. As described previously, facilities requested to complete HRAs under Rule 1402 are required to submit both emissions inventories and HRAs within 150 days of notification by the Executive Officer. The District believes that the revised proposed timeline is clearly feasible.
21. Comment: Section (e)(1)(H), may be problematic due to the possibility that "the impact areas that overlap" may be miles apart. Recommend that facilities be responsible only for the emissions under the control of the director of operations for the specific facility.'
- Response: The definition of Impact Area has been amended to specify that it includes an area extending no further than 50 kilometers, which is the limit that the ISCST3 model is capable of handling. Also, subparagraph (e)(1)(H), has been modified to include only railyards operated by a single operator.
22. Comment: It appears that the District may require the use of HARP. It is recommended that the District allow considerable flexibility in the selection of the modeling approach and not require the use of HARP.
- Response: Given the many and varied activities at a typical railyard or intermodal facility, HARP may not be the best tool for simulating the risks from the diesel particulate sources. Such sources may be best treated directly by ISCST3 and the risks estimated using procedures outlined in Appendix B of the *Health Risk Assessment Guidance for Railyards and Intermodal Facilities*. It is suggested that HARP be used for all non-diesel sources and that the results from the two approaches be combined.
23. Comment: Given the time schedule and the fact that cancer risk from diesel PM is likely to be the risk driver for railyards, the District may wish to have the HRAs focus on diesel PM cancer risk and address more qualitatively the chronic diesel PM and multipathway impacts.
- Response: Currently, all information regarding criteria or toxic air pollutants for emissions inventory are required, so the District may ascertain

which pollutants are of the most significance in determining toxic risks. Once those risk drivers are determined, the District may modify the toxic air pollutants required for updating the HRA. CARB staff has also indicated in meetings with District staff that inventories of all pollutants are required under the statewide agreement between CARB and the Class I railroads adopted earlier this year.

24. Comment: To ensure adequate peer review we recommend that the HRAs be submitted to CARB and OEHHA for their review and comment prior to approval by the Executive Officer of the District. Further, the time period for review, approval, and or disapproval of the HRA by the District should be extended from 120 days to 180 days to ensure substantive comments from the reviewers.

Response: Rule 1402 does not include provisions for CARB and OEHHA review and comment prior to final approval, although HRAs under the AB 2588 Hot Spots program do require OEHHA approval. PR 3503 is not part of the Hot Spots program. As a result, OEHHA approval is not required; however, the adoption resolution does direct District staff to make the emissions inventories and HRAs available to CARB and OEHHA staff for their voluntary review.

25. Comment: Requiring an emissions inventory and a new HRA potentially every year is not a good use of limited resources for both the District and the railroads. It is suggested that this provision be modified to establish a trigger level for emissions increase that would require a revised emissions inventory and possibly a revised risk assessment. Unless there is a significant increase in emissions, we suggest requiring an update emissions inventory and revised risk assessment every three years.

Response: Staff agrees that annual emissions inventory or HRAs may be unnecessary under certain conditions and has modified this provision to require an emission inventory update once every two years and has provided a trigger mechanism for when an updated HRA is required. The new trigger mechanism is the “weighted toxic air contaminant” and is now part of the definitions. District staff recommends a two year interval rather than a three year interval to ensure that emissions increases due to increasing rail freight activity are properly accounted for. Based on information from BNSF and UP, Basin rail activity, as measured by the number of container lifts at intermodal yards, has increased every year for the past several years.

If the updated emissions inventory is greater than 1.1 times the sum of weighted toxic air contaminants from the first emissions

inventory submitted as required by paragraph (d)(2), or impact area shifts due to changes at the railyard, such as movement of equipment or operations from previously established locations, a new updated HRA will be required no later than September 1 of the year the updated emissions inventory was required.

26. Comment: AAR and the railroads reserve the right to submit additional comments prior to, and provide testimony at, the October 7, 2005 hearing of the District Governing Board. This reservation is made, in part, because the detailed materials accompanying PR 3503 were not available until August 2005 and the railroads did not have sufficient time to complete their review of the materials. Pursuant to the mandates of California law, it is requested that these comments be included in the official administrative record relating to PR 3503 and Proposed Regulation XXXV.

Response: The District staff began development of PR 3503 in September 2004. The District staff met with the Proposed Regulation XXXV Working Group five times – on February 9, 2005, March 23, 2005, August 23, 2005, August 30, 2005, and September 22, 2005 to discuss PR 3503. The first draft of PR 3503 was publicly released on March 16, 2005 and presented in detail at an April 6, 2005 public workshop. The Association of American Railroads (AAR) submitted written comments to PR 3503 on April 25, 2005. On August 16, 2005 the District staff released a revised version of PR 3503 and preliminary draft staff report that included two guidance documents: (1) Railyard Emissions Inventory Methodology and Health Risk; and (2) Health Risk Assessment Guidance for Railyards and Intermodal Facilities. A PR 3503 public workshop was held on August 26, 2005, at which time no comments were received regarding the need for additional time to review rule documentation. At the August 30, 2005 Regulation XXXV Working Group meeting, District staff had an extensive dialog with working group members on the details of PR 3503. District staff received a 519 page comment letter package from the AAR to the preliminary draft staff report on September 7, 2005. Also on September 7, 2005, District staff released a revised version of PR 3503 and a draft staff report to clarify provisions and incorporate revisions based on comments from the working group, as well as comments received at the August 26, 2005 PR 3503 public workshop and written comments received prior to September 7, 2005. District staff met with the Regulation XXXV Working Group on September 22, 2005 to discuss final revisions to the proposed rule and staff report. At that meeting, three technical issues were raised and are discussed in the response to comments.

Another issue regarding the Notice of Exemption for PR 3503 was raised.

27. Comment: PR 3503 is not necessary since most major elements are already contained in the 2005 Statewide Rail Yard Memorandum or Understanding (the “MOU”) including an inventory of criteria and toxic pollutants, a Health Risk Assessment, determination of risk, and notification to the public. It is a duplication of the MOU that is unnecessary and will lead to public confusion.

Response: The MOU as currently written requires railroads to submit emissions inventories 21 to 33 months after the MOU was signed, as compared to PR 3503 which requires emissions inventories 12 months after date of adoption. The MOU does not specify when HRAs will be completed, as opposed PR 3503 which specifies a date of 15 months from rule adoption. In addition, the methodologies for inventories and HRAs are not specified under the MOU, as opposed to PR 3503 which provides specific guidance for emissions inventories and HRAs. Also, although the MOU does require a meeting with the community upon approval of the HRA, there is no requirement specifying who in the community would be informed of the meeting. In addition, unlike PR 3503 there are no requirements in the MOU to update inventories or HRAs or to specify dates for subsequent public meetings. Lastly, the MOU specifies that 10 Basin railyards will be addressed by emission inventories and HRAs, while PR is applicable to 19 railyards.

28. Comment: PR 3502 contains infeasible compliance deadlines. A tiered approach should be developed because it is not possible to complete the inventory and HRA requirements for 19 railyards within a year.

Response: Under Rule 1402, affected facilities are required to submit emissions inventories and HRAs within 150 days of notification by the Executive Officer. The District staff understands that the Class I railroads have multiple railyards that will be required to complete emissions inventories. Similar to the Roseville study where Union Pacific had utilized a technical consultant to develop the emissions inventory, the District staff believes that the railroads will use technical consultants to develop emissions inventories required under PR 3503. District staff has revised PR 3503 to allow additional time to complete HRAs. The schedule for completion of

inventories remains at 12 months following rule adoption, while HRAs are now due 15 months following rule adoption.

29. Comment: Gathering data and preparing an HRA as required by PR 3503 will cause a disproportionate expenditure of resources for the inventory and HRAs, and will not result in emission reductions. These costs, in additions to the costs required to comply with the MOU cause a burden on the railroads that cannot be justified.

Response: PR 3503 focuses on information gathering from Basin railyards, completion of emissions inventories and HRAs, and public notification of risks. It is not intended to result directly in emission reductions, but rather to assist the railroads, the District, and state and federal agencies in identifying sources of railyard emissions which, in turn, will identify possible future avenues for addressing means to reduce emissions or modify railyard operations to mitigate risk to the public. It is necessary to first quantify emissions and potential risks to identify candidates for control strategies. Indeed, the state legislature has previously recognized that gathering of information pertaining to public health risks of TACs has independent utility apart from emission reductions. This is clear from passage of AB 2588, which originally did not contain a risk reduction component. The costs to the railyards are described in the socioeconomic impact section of the staff report. As in the case of traditional stationary sources, there is a public benefit to requiring HRAs and risk notification. District staff believes this benefit outweighs the costs to the railroads, which each have gross annual revenues of over \$10 billion.

30. Comment: This is an overview of legal comments which are covered in the "Legal Authority" letter in more detail.
- The process employed by the District to promulgate PR 3503 violates CEQA by claiming it is exempt because it is merely information gathering, while, in reality it requires emission inventories, health risk assessment, and public notice as well.
 - Separating PR 3503 from the other railroad rules amounts to piecemealing a project which requires a Program Environmental Assessment as originally proposed by the District.
 - The District's promulgation of PR 3503 and Regulation XXXV exceeds its authority under federal and California law. In addition, mobile source control rightfully belongs to CARB.

Response: Responses to specific legal comments are reflected in Comments 56 through 64.

31. Comment: This is an overview of technical comments which are covered in the “Technical Deficiencies” letter in more detail.
- PR 3503 will mislead the public by requiring communications that grossly overstates the possible public health risk posed by railroad operations because of the extremely conservative emissions, modeling, health risk assumptions mandated by the proposed rule. Other concerns include the Diesel Particulate Matter potency factor and the failure to allow presentation of Tier-2, Tier-3, and Tier-4 information or other information generated by other appropriate analysis in the main report instead of relegating it to an appendix the public is likely to miss or discount. The railroads support accurate and complete communication of risk.
 - PR 3503 duplicates CARB’s efforts to reduce locomotive emission impacts and new state and federal regulations to address emissions from on- and off-road vehicles at rail yards.

Response: This question is addressed in various staff responses to comments. Regarding the first point, District staff follows risk assessment guidelines from the state Office of Environmental Health Hazard Assessment (OEHHA) in all of its risk-based rules, such as Rules 1401 and 1402 and for risk assessments prepared per the Hot Spots Act. The health conservative assumptions used in a Tier-1 assessment were established by OEHHA, which requires Tier-1 evaluation so as to avoid underestimating risk to the public. Health risk assessments prepared under PR 3503 can present Tier-2 through Tier-4 evaluations in the main report, in addition to Tier-1 assessments; however, consistent with other District risk-based rules, public notification must be conducted based on the Tier-1 results.

Regarding the second point, as discussed previously, the District’s Governing Board has directed staff to develop PR 3503. District staff believes that the MOU will not definitively result in evaluation of health risks from Basin railyards in a manner consistent with current District and state practices. District staff disagrees that the PR 3503 rule development effort is duplicative of CARB’s locomotive efforts (see response to Comment 27); rather, the staff believes that PR 3503 remedies shortcomings of the MOU. The proposed rule does not duplicate new and state federal regulations addressing on- and off-road vehicles at railyards because it does not include provisions for alternative emissions standards from these sources.

32. Comment: In order for notification to the public regarding health risks from criteria and toxic air emissions at railyards to be beneficial it must

be technically accurate, provide an understanding of the accuracy of underlying data, and be useful to the public. Implementation of PR 3503 would not achieve this objective because:

- The data and assumptions required to be used to derive the emissions inventories and HRAs are highly uncertain;
- The methodology required to be used for emissions inventories and HRAs relies on highly uncertain assumptions that, in some case are known to be inaccurate; and
- The manner in which the results of the HRAs are required to be reported omits or censors relevant information.

Because of these deficiencies, implementation of PR 3503 could cause the dissemination of inaccurate information to the public and omit relevant information causing public misperception and confusion.

Response: This question is addressed in various staff responses to comments. In general, staff believe that the proposed emissions inventory and HRA methodologies represent the most accurate available method to achieve the objectives of notifying the public regarding health risks associated with railyards.

The District's *Railyard Emissions Inventory Methodology* and *Health Risk Assessment Guidance for Railyards and Intermodal Facilities* are tools to be used as the framework in developing the respective documents.

It is anticipated that emissions data and assumptions submitted for the respective documents would be submitted by the railroads and are representative of what the equipment or operations would be emitting and must be substantiated by the railroads as required per paragraph (d)(2) of PR 3503. As an example, emission factors for a locomotive can be substantiated with certification of a new or repowered locomotive, source testing information, or emissions standards testing. Estimation of emissions from diesel powered trucks or on-road vehicles may be estimated using EMFAC or the latest CARB approved version. EMFAC is the mobile source emissions modeling tool used to create emission inventories for on-road motor vehicles in California. It should be re-stated that all information submitted for development of the emissions inventory or HRA must have approval by the Executive Officer.

The methodologies for emissions inventory and HRA are flexible and rely on the technical expertise of the railroads or their technical consultants. The two documents give flexibility to the railroads to submit alternative ways to gather the necessary information required to obtain an emissions inventory and HRA. It is anticipated that questions that arise during the development process of the emissions inventory and HRA will be dealt with in a timely manner with District staff. As stated earlier, these documents must be approved by the Executive Officer and any deficiencies will be brought to the railroads for them to address.

The OEHHA Guidelines require the inclusion of a Tier-1 evaluation in all HRAs prepared for the Hot Spots Program (see page 2-5 of the OEHHA Guidelines). OEHHA requires Tier-1 evaluation so as to avoid underestimating risk to the public. Additionally, to keep the process of public notification on a level playing field, PR 3503 calls for the same public notification requirements as in the Hot Spots Act. Please refer to Comment 34.

Overall, methodologies for determining emissions inventory, HRA and public notification for railyards are consistent with OEHHA guidelines and requirements for other facilities subject to the Hot Spots Act.

33. Comment: PR 3503 definitions for “health risk assessment”, “impact area”, “public notification level”, “total acute hazard index”, and others should reflect the concept that HRAs derive theoretical estimates of potential exposure and corresponding health risks for hypothetical receptors and populations, not actual persons or populations.

Response: Although there are people at the site of the MICR and in the impact area, the definitions are not intended to establish actual risks for any persons but to predict the potential or probable risk at a particular location dependent on estimated ground level concentrations of toxins, meteorology, and assumed breathing rates based upon Hotspots Analysis and Reporting Program (HARP) for stationary sources and Industrial Source Complex – Short Term, Version 3 (ISCST3) for exposure assessment. The definitions do not associate HRAs with actual persons or populations. The methodologies used for both the emissions inventories and HRAs are based on methodologies established by OEHHA and adopted for use by CARB.

34. Comment: The definition for “Maximum Individual Cancer Risk (MICR)” is flawed. Because of the conservative assumptions used for the AB2588 Tier 1 methodology mandated by PR 3503, MICR overestimates exposure and corresponding health risk for people living near railyards. Questionable Tier 1 assumptions include: a) current emission rates for each source will remain constant for 70 years despite being replaced by lower emitting equipment, and b) the Maximum Exposed Individual Resident (MEIR) is present at a single fixed location for 24 hours each day, 350 days per year, for 70 years. These high-end estimates of emissions do not represent actual conditions and inflate the MICR value resulting in an inaccurate and unrepresentative exposure and cancer risk for the actual population near the railyards. The staff report does not adequately justify using these assumptions on which cancer burden and public notification are based. The railyards should have the flexibility to use more realistic and representative data to derive estimates of health risks that trigger additional actions.

Response: OEHHA has developed a risk assessment guidance. That guidance is contained in the document titled, *Air Toxics Hot Spots Program Risk Assessment Guidelines: The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (referred to as the OEHHA Guidelines). The District follows that guidance in all its risk-based rules, such as, 1401 and 1402 and for risk assessments prepared per the Hot Spots Act. PR 3503 follows the same approval

Under PR 3503, the emissions inventory is based on annual average emissions. In addition, mobile sources that are moving in a railyard are treated as volume sources where emissions are averaged over specified railyard areas over which those sources are expected to move. HRAs conducted under PR 3503 are intended to be “snapshots” based on conditions at the time the HRA is prepared. This is consistent with the District’s approach to risk from stationary sources. PR 3503 includes provisions to update emissions inventories. The proposed rule does not prevent a railyard operator from updating an HRA to demonstrate a reduction in risk from a previously completed HRA.

The conservative assumptions assumed in a Tier-1 assessment, which the commenter is critical of, were established by OEHHA per their responsibility and authority under the Hot Spots Act. The OEHHA Guidelines require the inclusion of a Tier-1 evaluation in all HRAs prepared for the Hot Spots Program (see page 2-5 of the OEHHA Guidelines). In addition, the Tier-1 evaluation should be

the basis of all public notification and risk management decisions (see page 8-3 of the OEHHA Guidelines). OEHHA requires Tier-1 evaluation so as to avoid underestimating risk to the public (see also page 8-3 of the OEHHA Guidelines).

In response to earlier expressed concerns, the District document titled, *Health Risk Assessment Guidance for Railyards and Intermodal Facilities* (referred to as the District HRA Guidance for Railyards) allows for the presentation of Tier-2 through Tier-4 evaluations in the main body of the HRA instead of being relegated to an appendix. So the risk assessor can present and communicate the range of possible risks. It should also be pointed out that the District HRA Guidance for Railyards allows for the presentation of 9- and 30-year cancer risk estimates (see Appendix A of the District HRA Guidance for Railyards).

35. Comment: PR 3503's definition of "railyard" is overly broad and vague. As proposed it would encompass all of AAR members' activities along entire systems or include passenger railyard activities.

Response: The definition of railyard clearly does not encompass all of AAR members' activities along entire systems because the applicability of the rule is limited to the District. To clarify whether passenger railyard activities would be included, the rule's applicability is limited to 19 specific freight and switching and terminal operations in the District. As specified in PR 3503 subdivision (i), the District may consider additional railyards in the future as well as new railyards for which risk cannot be demonstrated to be less than the Public Notification Level (MICR of ten in one million or a total acute or chronic hazard index of 1.0).

36. Comment: PR 3503's definition of Toxic Air Contaminant (TAC) as "an air pollutant which may cause or contribute to an increase in mortality or serious illness, or which may pose a present or potential hazard to human health," is overly broad. Only those chemicals listed in Appendix A-I of the OEHHA Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments which exceed specific thresholds for inclusion in the HRA should be considered TACs for the purpose of PR 3503. The District has not provided justification for deviating from the OEHHA list.

Response: This comment is addressed on page 9 of the District HRA Guidance for Railyards. Only the pollutants listed in Appendix A-I of the OEHHA Guidelines shall be included in the emission

inventory. However, carbon monoxide, nitrogen dioxide, ozone, and sulfur dioxide should be excluded from the HRA. Language has been added to the District HRA Guidance for Railyards to discuss the relationship between ‘degree of accuracy’ in Appendix A-I of the OEHHA Guidelines and minimum reporting thresholds for risk assessment.

37. Comment: PR 3503 requires submittal of an Interim Railyard Emissions Inventory Report covering stationary as well as on- and off-road mobile sources including the time interval for the inventory. The proposed rule does not specify those insignificant activities that can be excluded from the inventory, thereby requiring the railyards to use extensive resources to identify all sources of criteria or TACs. This is inconsistent with AB 2588 analysis which includes clearly specified *de minimis* levels for assessment.

Response: Language will be added to the District HRA Guidance for Railyards to discuss the relationship between ‘degree of accuracy’ in Appendix A-I of the OEHHA Guidelines and minimum reporting thresholds for emissions inventory. The initial emissions inventory would require gathering of all appropriate emission sources to be reported to allow the District to determine whether those emissions can be considered insignificant. Some emissions may be small in comparison to the facilities over all emissions, but those small emissions may cause a localized toxic impact. Further, emissions inventory for use in risk analysis should include those areas where routine and predictable emissions are anticipated. An example of what will not be included in an emission inventory would be an accidental spill or unforeseen circumstance that may cause an emission to occur, and is beyond the control of the railroad, and is not part of a normal, routine occurrence. Thus, insignificant activities can be eliminated from consideration when submitting the initial Interim Railyard Emissions Inventory Report as suggested in the comment, but will require approval by the Executive Officer.

38. Comment: It is difficult to predict with any certainty the number and duration of transient railyard equipment, such as delivery trucks or other third party vehicles at a railyard. Furthermore, the railyards cannot be expected to presage the emission rate for such third party vehicles. The requirement to include these vehicles in the emissions inventories exceeds the requirements established by the District for stationary sources of toxic air pollutants.

Response: We expect the railroads to know the number of resident vehicles at railyards and the number of vehicles visiting the railyard. It is staff's understanding that the number of trucks dropping off and picking up containers from intermodal railyards is known. District staff visits to numerous railyards and a local dispatch center show that for safety and operational purposes, locomotive activity, on-site equipment, and truck visits are closely monitored. This information will assist in the preparation of emissions inventories. The objective is to develop an annual average emissions inventory. The District's emissions inventory guidance provides a methodology that is based on a fleet average using EMFAC. Railyard operators are expected to select representative emission rates for the vehicles and reasonable activity rates and from that information develop an overall inventory for modeling (EMFAC or the latest CARB approved version) and the use of an average operating mode (AOM) is included in the Emission Inventory Methodology to allow for such generalization of emissions and risk analysis criteria.

The degree of accuracy values in Appendix A-I of the OEHHA Guidelines should be used for determining the toxics to be included in the HRAs. Language will be added to the District Guidance for Railyards to discuss the relationship between 'degree of accuracy' in Appendix A-I and minimum reporting thresholds for risk assessment. Thus, insignificant activities can be eliminated from consideration.

39. Comment: District Rule 1402 provides thresholds for toxic air contaminants. The purpose of identifying thresholds deemed by the District to be *de minimis* is to prevent unnecessary expenditures for the resources of those subject to regulation and the District reviewing staff for emission inventories by including only the emissions of sufficient quantities that are likely to substantially contribute to potential health risks. No technical basis is provided to depart from the Rule 1402 scheme.

Response: Once complete inventories are prepared by railyard operators, the District may consider methods, such as thresholds, in the future, if warranted, to exclude certain categories of processes or equipment from inventory requirements.

40. Comment: The proposed Emission Inventory Methodology is technically unsound and scientifically unsupportable. Certain fundamental information is lacking including, for example, a sampling

frequency for transient activities; forecasts of future emission rates and activity levels; treatment of employee and visitor vehicles; and *de minimis* reporting levels for activities, sources, emission rates, etc.

Response: The technical methodology to quantify emissions under PR 3503 is technically sound and is appropriate for developing an annual emissions inventory. As discussed previously, railyard operators are expected to develop representative emission rates and reasonable activity rates to develop appropriate modeling inventories, the use of an average operating mode (AOM) is included in the Emission Inventory Methodology to allow for such generalization of emissions and risk analysis criteria. To address specific elements of this comment, forecasts of future emission rates and activity levels are not required to develop railyard emissions inventories. The railroads are expected to provide reasonable estimates for employee and visitor vehicles. As described previously, *de minimis* reporting levels are not specified at this time. (Also, see response to Comment 37).

41. Comment: PR 3503 requires Class I freight operations to submit a scientifically supportable HRA on the railyard-wide TAC emission inventory within 12 months of date of adoption. This is not possible without a HRA plan identifying modeling assumptions and data sources, objectives, and acceptable limits of uncertainty, accuracy, and reliability. As proposed under PR 3503, the HRA would be technically unsound because it would be based on incomplete, uncertain, and possibly inaccurate information.

Response: PR 3503 subparagraphs (d)(2)(A) and (d)(2)(B) specify that emissions inventories for dedicated railyard equipment are to be based on fuel use or activity data specific to each dedicated source, while inventories for transient railyard equipment are to be based on representative information for each transient source category. PR 3503 subparagraph (d)(2)(C) specifies that documentation for emission factors is to be provided and allows for the use of alternative data sources. Although PR 3503 does not require an HRA plan, the Interim Railyard Emissions Inventory Report required in PR 3503 is intended for railyard operators to present emission inventory methods, assumption, uncertainties, etc. using the District's Health Risk Assessment Guidance for Railyards and Intermodal Facilities. The District HRA Guidance specifies the modeling parameters for conducting the HRA, including required source information, emission sources to be considered in the HRA, treatment for typical railyard sources, dispersion modeling defaults,

meteorological information to be used, receptor grid description, and treatment of missing or incomplete data. Thus, the District HRA Guidance is to be used by the railyard operators as a modeling protocol. HRA submittals are to specify how the HRA Guidance is to be implemented.

42. Comment: Risk assessments under PR 3503, as proposed, would be based on a 70 year exposure for residents and students and 40 years for workers, including appropriate multipathway factors. These assumptions are not consistent with OEHHA guidelines and the District provides no scientific basis to depart from the guidelines.

Response: The 70- and 40-year exposures are consistent with OEHHA Guidelines. As mentioned earlier, the OEHHA Guidelines require at a minimum a Tier-1 evaluation for all HRAs (see page 2-5 of the OEHHA Guidelines) and that public notification and risk management decisions be based on the Tier-1 evaluation (see page 8-3 of the OEHHA Guidelines). It is assumed that the commenter is concerned with the 70-year exposure duration for school children required by the District. Risk assessment for school children is based on a 70-year lifespan because it is more health-protective and because, presumably, the children at a school also live in the area and may continue to live in the area after they finish attending the school.

43. Comments: Isopleths lend an aura of precision to an HRA for a complex source that is unsupported by the underlying data. If isopleths are used to represent HRA results, they should accurately reflect the uncertainty in the results due to uncertainties in underlying assumptions.

Guidance documents from the National Academy of Sciences, EPA and the State of California stress the importance of uncertainty analysis in HRAs prepared for regulatory purposes. These uncertainties should be analyzed and conveyed clearly to the public. PR 3503 limits uncertainty evaluations to Tier 2, Tier 3, and Tier 4 evaluations and only allows the results to be presented in an appendix to the report. This contradicts guidance from the other organizations and appears to be an attempt to hide information which is inconsistent with a program that purports to have public risk communication as a primary goal.

Response: We disagree with the comment's characterization that the OEHHA Guidance stresses the importance of uncertainty analysis. The

OEHHA Guidance addresses risk uncertainty on two pages of a 254 page document. The District HRA Guidance for Railyards was modified subsequent to these comments. It is acceptable to include and discuss the Tier-2, Tier-3, and Tier-4 evaluations in the main body of the HRA. Also, a discussion of uncertainties can also be included in the main body of the HRA. The topic of uncertainty will be added to the District HRA Guidance for Railyards. Any discussion of uncertainty must consider both the factors that contribute to risk overestimation and those that contribute to risk underestimation (see pages 1-4 and 1-5 of the OEHHA Guidance).

44. Comments: The uncertainty and questionable reliability of input data leads to questionable and uncertain output data. Given the uncertainty, intentional inaccuracy and unrepresentativeness of exposure isopleths will result in the communication of misleading information to the public.

Response: The Hot Spots Act recognizes OEHHA as the State's expert in health risk assessment and the District HRA Guidance for Railyards is consistent with the OEHHA Guidance. Lifetime and daily exposure assumptions, breathing rate assumptions, etc. can be communicated in the HRA report. In addition, the District HRA Guidance for Railyards does not preclude the presentation of alternate lifetime exposure assumptions, such as 9 and 30 years (see Appendix A of the District HRA Guidance). However, public notification and risk management decisions are based on the Tier-1 evaluation of 70-year exposure, which is consistent with the OEHHA Guidelines and the Hot Spots Act. See response to Comment 40.

45. Comment: PR 3503 would require railyard operators to report aggregate risk in the areas of overlap if the impact areas of two or more railyards operated by a single operator overlap, however "overlap" is not defined making it difficult to assure uniform application of the term.

Response: PR 3503 has been amended to clarify that reporting of aggregate risk is required only when the impact areas of one or more railyards under common ownership overlap and when the summed cancer risk for all of the overlapping impact areas is greater than ten in one million. Because the usage is defined in the rule language itself and because the term is only used in subparagraph (e)(1)(H), a new definition has not been added for "overlap."

46. Comment: PR 3503 requires railyard operators to follow the risk assessment policies and procedures of OEHHA, however, certain provisions of the proposed rule conflict with the guidelines. PR 3503 gives no guidance for this, leaving railyard operators liable. In addition to risk assessment assumptions, another inconsistency is PR 3503's prohibition of including results of Tier 2, 3, and 4 HRAs in the Executive Summary or narrative. OEHHA guidelines state that results of other exposure assumptions or tier evaluations may be presented but must be clearly labeled. No technical basis supports the Districts decision to limit risk management decisions to Tier 1 assessments which are highly uncertain and designed to be inaccurate. OEHHA guidelines also allow the presentation of residential cancer risk using shorter exposure durations than 70 years whereas the District restricts railyards from presenting this information.

Response: The current version of the District HRA Guidance for Railyards allows for the presentation of Tier-2 through Tier-4 evaluations in the main body of the report. The District HRA Guidance for Railyards states the following: "Tier-2, Tier-3, and Tier-4 evaluations may be prepared and presented in the HRA. However, the results from any Tier-2, Tier-3, or Tier-4 evaluations must be presented in separate, clearly titled, sections, tables, figures, and text." In addition, the District HRA Guidance for Railyards does not preclude the presentation of alternate lifetime exposure assumptions, such as 9 and 30 years (see Appendix A of the District HRA Guidance for Railyards).

The comment states that the District's requirement that public notice and risk management be based on Tier-1 evaluation is arbitrary and not technically based. The comment is invalid. To quote from page 8-3 of the OEHHA Guidelines, "For the Hot Spots Program, the 70-year exposure duration should be used as the basis for public notification and risk reduction audits and plans." The 10 in one million threshold for PR 3503 noticing is based on a MICR assuming a 70 year exposure duration for residents and 40 years for worker receptors. Earlier on the page it states, "risk management of facilities in the Air Toxics Hot Spots program is based on the 70-year risk at the highest exposed receptor point using high-end estimates of breathing rate. Clearly, the use of Tier-1 evaluation for public notice and risk management is not arbitrary but consistent with the OEHHA Guidelines.

47. Comment: PR 3503 requires HRAs to be based on scientifically unsupported assumptions such as mischaracterizing certain sources as stationary sources when they should be treated as volume sources. HRA guidance also requires the use of ISCST3 when that may not be the most appropriate model for all yards. For sources located near complex terrain or sources where building downwash may be a significant factor, some other model may be more appropriate. HRA guidance regarding model selection is scientifically unsupported because it implies that CARB's Hotspots Analysis and Reporting Program (HARP) can only be used in conjunction with ISCST3 when it can, in fact, be used with other models. Determination of the appropriate models should be consistent with State guidance and based on site-specific factors.

Response: The comment speaks in generalities so it is difficult to provide a response. However, as demonstrated in previous comments, PR 3503 and the District HRA Guidance for Railyards are consistent with the OEHHA Guidelines. In addition, District staff believes that the District HRA Guidance for Railyards closely follows the modeling and risk assessment procedures used by the CARB in the Roseville Railyard Study.

District staff is open to different source treatments than specified in Table 3 of the District HRA Guidance for Railyards, if justification is provided. Notice it is stated on page 4 of the District HRA Guidance for Railyards that Table 3 provides recommended source treatments.

As stated in the OEHHA Guidelines on page 4-22, ISCST3 and SCREEN3 are the preferred models for HRA analyses. ISCST3 was the model used in the Roseville Railyard Study. So PR 3503 and the District HRA Guidance for Railyards are consistent with OEHHA and CARB.

The commenter incorrectly states that HARP can be used with dispersion models other than ISCST3. A HARP user is provided with two dispersion modeling options: SCREEN3 or ISCST3. No other model options are provided.

The comment's concern with complex terrain is not warranted for several reasons. First of all, most of the railyards of concern are located near flat or gently rolling terrain. Secondly, given that most of the sources associated with railyards are at or near ground-level, complex terrain should not be an issue. (Complex terrain is important for elevated sources such as power plants, which have

tall stacks and hot plumes.) Lastly, ISCST3 can address complex terrain situations albeit in a conservative fashion.

48. Comment: Meteorological data presented in the HRA Guidance is from 1981 and are designed to represent a severe single year which is not appropriate for risk assessments using a 70 year exposure period. No technical basis is provided for using such a severe meteorological assumption.

Response: The meteorological data provided on the District website has been used for permitting purposes for more than 20 years. The CARB, OEHHA, and the U.S. EPA have not objected to its use for permitting and health risk assessment. In fact, one of the consultants for the commenter (Gary Rubenstein) has used the District's meteorological data for countless permit applications he has been involved in. Staff is not aware of him objecting to its use for those purposes. That being said, the District staff is open to the development of alternate meteorological data for modeling. The District's HRA Guidance allows for the use of alternative meteorological data subject to the Executive Officer's approval, provided that the data is representative and complete for modeling purposes. However, the HRA must still be provided 12 months after the adoption of the rule. Developing the meteorological data cannot be used as an excuse for delays in the process since off-the-shelf data are available for modeling.

49. Comment: Assumptions proposed for PR 3503 are inconsistent with assumptions CARB used for the Roseville Study and no technical reason has been given for the inconsistencies. The District should not ignore what has been learned from that study which recognizes the uncertainties inherent in analyses of complex source like railyards and the need to practice good risk communication principles. The report addresses these uncertainties with ranges of results and a variety of techniques to present the information to avoid presenting misleading estimates of impacts.

Response: As stated in earlier comments, Tier-2 through Tier-4 evaluations can be presented in the Executive Summary and the main body as long as the results are clearly labeled and distinct from the Tier-1 evaluation. An uncertainty discussion can be included in the HRA as long as the discussion considers both the factors that contribute to risk overestimation and those that contribute to risk underestimation. Lastly, the District HRA Guidance for Railyards does not preclude the presentation of alternate lifetime exposure

assumptions, such as 9 and 30 years (see Appendix A of the District HRA Guidance for Railyards). However, in order to be consistent with OEHHA Guidelines, public notification and risk management decisions are based on the Tier-1 evaluation.

50. Comment: EPA and Health Effects Institute (HEI) have determined it is not possible to derive, with confidence, a quantitative estimate of the cancer risk for diesel engine exhaust. EPA estimated a range of possible cancer potency of diesel exhaust with a lower end annotated with “zero risk cannot be ruled out.” AAR agrees with EPA and HEI so it is inappropriate to require potential cancer risk estimates to be made as precisely as PR 3503 requires. Risk communications should reflect this uncertainty.

Response: District staff recognizes the inherent uncertainties associated with cancer potencies established by OEHHA, and that on a national level, there has not been any recommendation for a quantified value for diesel. District staff further understands the concerns about earlier studies, which contributed to the California diesel risk assessment. However, OEHHA has established quantitative estimates of cancer potency and for diesel and the District staff relies upon the medical expertise within OEHHA for establishing pollutant toxicity (as well as the state ambient air quality standards for criteria pollutants). It has been the District’s policy to rely on OEHHA’s cancer potencies in its risk assessment and risk management decisions.

51. Comment: PR 3503 requires annual updates; however, the District provides no technical basis for such frequent updates. This is not justified unless emission increases exceed *de minimis* levels and should not be required more often than the four year interval for emission inventory updates.

Response: The annual update requirement has been replaced with a requirement that an emission inventory be submitted every two years. An updated HRA would be required if the weighted toxic emissions increased by more than 10 percent or if the impact area shifts due to changes at the railyard (e.g., movement of equipment or operations).

52. Comment: PR 3503 requires public notification and annual updates for HRAs that show an exceedance of the Public Notification Level. Proposition 65 already requires notification for cancer risks exceeding 10 in one million and lower limits for reproductive

toxicants. The District does not provide a technical or other basis for this duplication of effort. Furthermore, the notification level in PR 3503 is substantially lower than that of District Rule 1402 and no basis is given for imposing more stringent public notification requirements on railyards relative to industrial facilities. PR 3501 would also require public notification meetings whereas Rule 1402 has less stringent requirements and no scientific basis is given for departing from the Rule 1402 threshold.

Response: Proposition 65 has a different purpose than PR 3503. Proposition 65 considers pollutants individually, whereas PR 3503 is a facility-wide risk assessment for all AB 2588 TACs in which risk contribution from each toxic are summed to get a total risk. Therefore, PR 3503 is not redundant. Furthermore, in contrast to Proposition 65, in which the railroads did not present the actual levels of risk imposed by their operations, PR 3503 requires the public notification to include information such as MICR and risk distribution. District staff in the past has requested the backup information related to Proposition 65 and could not obtain any risk quantification.

Secondly, the 25 in a million and 100 in a million thresholds of Rule 1402 mentioned in the comment are risk reduction thresholds and not public notification thresholds. The District's public notification thresholds are 10 in a million for cancer risk and/or a hazard index of 1.0 for non-cancer risk. These thresholds have been approved by the District Governing Board and are clearly stated in Table 9 of the District HRA Guidance for Railyards. The commenter is also referred to the District website at http://www.aqmd.gov/prdas/AB2588/AB2588_B4.html. (This link was also provided in reference #11 of the District HRA Guidance for Railyard.) It should also be noted that 27 of the 35 local districts in California use a public notification threshold of 10 in a million (refer to the CARB website at http://www.arb.ca.gov/ab2588/district_levels.htm). The other eight local districts do not use a different threshold they just have not established a public notification threshold. So essentially the 10 in a million public notification threshold is universal throughout the state of California.

In summary, District's public notification threshold of 10 in a million has been approved by the Governing Board and is consistent with thresholds used throughout the state.

53. Comment: In light of the sheer volume of highly uncertain and possibly inaccurate data required by PR 3503 for Emissions Inventories and HRAs, the proposed rule's liability provision seems overly punitive and unreasonable. With the uncertainty built in to HRAs based solely on Tier 1 methodology, there is no technical justification to impose fines or other penalties upon a railroad for providing accurate, technically defensible analyses consistent with OEHHA guidance.

Response: As described previously, the use of Tier-1 evaluations for public notice and risk management is not arbitrary but consistent with the OEHHA Guidelines. The penalty provision under PR 3503 is intended to include violations such as failure to submit inventories or HRAs according to clearly defined timelines will result in penalties. Failure to provide a Tier-1 evaluation will be considered a violation of the rule.

54. Comment: The District should consider all relevant information, including preliminary results of the Roseville Rail Yard Study, in addressing diesel particulate matter. The District should review how the conventional stationary source modeling analyses compare with the findings of the monitoring program to determine if the modeling is the appropriate mechanism to identify risks or possible mitigation measures in the South Coast Air Basin.

Response: The District staff has reviewed the results of the Roseville Railyard Study and has determined, despite the uncertainties of the analysis, that the potential health risk impacts to the community from railyard activity is of concern and needs to be addressed at a local level. Thus, District staff has developed PR 3503. Because the risks in Roseville were so significant and extended over such a large impact area, development of emissions inventories and HRAs is needed. Affected communities have a right to know the risks. Regarding the second part of the comment, the District's MATES II study showed that the modeled and measured annual average concentrations of 29 compounds measured at ten sites showed a reasonable degree of agreement.²⁶

55. Comment: The District has not provided scientific or other support to demonstrate that conducting emissions inventories for major railyards in the Basin is necessary in a shorter timeframe than under the 2005 CARB statewide agreement.

²⁶ South Coast Air Quality Management District, 2000. Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-II) – Final Report - Appendices, March 2000.

Response: The initial version of PR 3503, which was released before the 2005 CARB statewide agreement, specified a 12 month requirement for HRAs. Based on results from the Roseville study and the number of diesel sources utilized at railyards, the District staff has sufficient information indicating that railyards may cause a significant and adverse health impact to the local communities that surround them and therefore should be required to determine this risk and notify the public as quickly as possible. PR 3503 sets shorter deadlines than the 2005 CARB statewide agreement because the District believes shorter deadlines are feasible. Rail operations are a significant source of diesel particulate matter and criteria pollutants emissions. The timeframes established in PR 3503 are generous compared to District Rule 1402 which requires emissions inventories and HRAs with 150 days of notification by the Executive Officer. As mentioned previously, District staff believes there is sufficient information and resources available for completion of an emissions inventory in 12 months and a HRA in 15 months.

56. Comment: PHL seeks an exclusion from PR 3503 based on its small size and relatively small revenues, relative to BNSF, LAJ (a wholly owned subsidiary of BNSF) and UP. PHL seeks an exclusion from PR 3503 also on the basis that the emissions from its 21 locomotives are only a fraction of the emissions from the Class I railroads. PHL's emissions are also a fraction of the emissions from passenger railroads, which are excluded from PR 3503

Response: The District staff believes that PHL should be included in PR 3503 as the public has a right to know the potential health risks. The emissions inventory and health risk assessment are needed to quantify the potential health risk from the facility before it can be determined that PHL does not impose a significant health risk to the community. The District staff estimates the cost for complying with Proposed Rule 3503 represents 0.7% of Anacostia and Pacific Company's (parent company of PHL) gross revenue. In addition, the analysis for inclusion of railroads under PR 3503 is based on the overall source category of freight rail operations which account for 90 percent of rail emissions in the Basin, compared to 10 percent for all passenger operations taken together. PHL was included because it meets the definition of "railyard" under PR 3503.

57. Comment: PHL seeks exclusion from PR 3503 on the basis that the Port of Los Angeles has declared its intention to relocate PHL's railyard to a new location, probably within the next two years. Such a project will likely be preceded by a full environmental review that will presumably evaluate health risk impacts from the new facility. It makes little sense to require PHL to prepare an emissions inventory and HRA under PR 3503.

Response: The District staff believes that the community has a right to know the health risk exposure since rail operations have existing in that location for a number of years. As indicated in comments from PHL, it is "likely" that PHL will be relocated in two years, indicating uncertainty for the timing of the relocation. The District staff is concerned that siting for such a facility could extend well beyond two years. If an exemption was allowed for PHL and the relocation does not materialize, the emissions inventory and HRA could be delayed for several years. Therefore, it is environmentally prudent that PHL be included in Proposed Rule 3503.

58. Comment: The railroads claim that the categorical CEQA exemption under Guidelines section 15306 is inapplicable to Proposed Rule 3503. The railroads note that PR 3503 requires the preparation of emission inventories, health risk assessments, and public notice where required. Moreover, the railroads assert that section 15061(b)(3) is also inapplicable. The railroads also assert that Health & Safety Code section 41511 does not provide the requisite authority for the District to adopt PR 3503.

Response: While the District responds to this second assertion elsewhere, the statute is irrelevant to the applicability of the CEQA exemption. Guidelines section 15306 applies when the project "consists of basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource." The railroads provide no evidence why PR 3503 "goes far beyond information gathering." While PR 3503 contains an information reporting requirement, that is the public noticing requirement, this provision does not remove PR3503 from the exemption in section 15306. In apparently the only reported case dealing with Guidelines section 15306, *City of Ukiah v. Mendocino* (1987) 196 Cal. App. 3d 47, 54-55, the court found the approval of a reclamation plan covering gravel extraction activities to fit within the exemption. As noted by the court, the reclamation plan was approved with eleven conditions requiring detailed information gathering *as well as reporting*. PR 3503 likewise requires information gathering and

reporting. In addition, the railroads have not presented any evidence that PR 3503 would result in a serious or major disturbance to an environmental resource.

The railroads misunderstand the burdens of proof involved in evaluating the use of the CEQA categorical exemptions. As explained in *Magan v. County of Kings* (2002) 105 Cal.App.4th 468, 474, if substantial evidence supports the use of a categorical exemption, the burden shifts to the railroads to demonstrate with substantial evidence that PR 3503 has a reasonable possibility of adverse environmental impact sufficient to remove the project from its categorically exempt status. The railroads cite no evidence of any possibility of an adverse impact due to PR 3503. Instead, the railroads argue that PR 3501 and 3502, which are being separately evaluated under CEQA, may have those impacts. As will be later discussed, PR 3501 and 3502 are not part of the PR 3503 project.

Moreover, PR 3503 is exempt from CEQA pursuant to Guidelines section 15262, as PR 3503 involves information gathering and reporting as a feasibility or planning study to evaluate possible future actions. These future actions could include health risk reduction requirements based on a health risk threshold, one example of which is the currently withdrawn PR 3504. PR 3503 may show the need for greater flexibility in establishing these health risk thresholds, the need for a completely different approach to risk reduction, the infeasibility of additional risk reduction, or even the lack of necessity for any future rule requiring risk reduction.

Finally, the railroads cite no evidence to support their claim that PR 3503 is not exempt from CEQA under Guidelines section 15061(b)(3), which exempts a project if it can be seen with certainty that there is no possibility that it may have a significant effect on the environment.

59. Comment: The District has inadequately defined PR3503, exclusive of Regulation XXXV and the accompanying rules, as the project for purposes of environmental review under CEQA. PR3503 and the draft Staff Report improperly seek to ignore the history of Regulation XXXV and the interrelationship between the rules. Because the rules in Regulation XXXV “were intended to collectively regulate the railroad operations and emissions in the South Coast Air Basin” and because District staff initially proposed to bring the rules in Regulation XXXV to the AQMD Board for a single approval, the District must now consider the

cumulative effect of Regulation XXXV as a whole in a single CEQA document.

Response: For purposes of CEQA, a project is defined as “the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment . . . [and is] an activity directly undertaken by any public agency.” Guidelines § 15378. The District acknowledges that, for purposes of CEQA, the definition of a project has been given a broad interpretation. See *McQueen v. Board of Dir. Mid-Peninsula Regional Open Space Dist.*, 202 Cal. App. 3d 1136 (1998). Moreover, the District recognizes that “a public agency is not permitted to subdivide a single project into smaller individual projects in order to avoid the responsibility of considering the environmental projects as a whole.” See *Orinda Ass’n. v. Board of Supervisors of Contra Costa County*, 182 Cal. App. 3d 1145, 1171 (1986). However, not every independent activity of an agency must be treated as a single project for purposes of CEQA merely because they may be similar in nature. See, e.g., *Sierra Club v. The West Side Irrigation District*, 128 Cal. App. 4th 690, 699 (2005) (upholding an agencies use of negative declarations for two separate and independently negotiated water supply agreements).

While District staff did initially propose proceeding with a single CEQA assessment for all four rules contained in Regulation XXXV, after detailed discussions between rulemaking staff and CEQA staff, it was determined that a single CEQA review was neither necessary nor appropriate for two primary reasons. First, PR3503 has a sufficiently different purpose than that of PR3501 and PR3502 that it should not be considered at the same time as these two locomotive idling risk reduction rules. PR3503 addresses information gathering relating to railyard emissions and health risks; the other two rules (PR3501 and PR3502) address emission reduction from unnecessary locomotive idling throughout the basin. Also, idling controls reduce *regional* air pollutants and, thus has an independent purpose from gathering information about *localized* health risks from railyards. Second, the District now believes that information to be gathered from railroads as a result of PR3503 will assist the District in best fashioning any future rule regarding railyard risk reduction plans. Accordingly, it has decided to wait until information is received under PR3503 before moving forward with PR3504. As a result, any CEQA analysis of PR3504

is premature. Each of these reasons is further elaborated upon below.

- a. Under CEQA, the District need not treat promulgation of PR3503 as part of a larger project involving future consideration of PR3501 and PR3502.

The railroads assert that “the mere fact that District staff admits that Rules 3501 and 3502 will likely be considered before the Board in December 2005, and a Program Environmental Assessment will be prepared to support them, establishes that the same level of CEQA review must start at this time with PR3503.” In essence, the railroads argue that all these rules should be treated together in a CEQA document.

The District does not believe that there is a causal link between the promulgation of PR3503 and future consideration of PR3501 and PR3502 that requires treatment of all three rules as a single project for purposes of CEQA. See *Kaufman & Broad-South Bay, Inc. v. Morgan Hill Unified Sch. Dist.*, 9 Cal. App. 4th 464, 474 (1992)(requiring a causal link between the creation of a community facility district and future construction of new schools before CEQA applied); *Fullerton Joint Union High School Dist. v. State Bd. of Ed.*, 32 Cal. 3d 779, 798-97 (1982)(recognizing that analysis of future impacts is required when it is shown that the government action constitutes an essential step culminating in future action which may impact the environment). In the *Kaufman* case, the court was asked to determine whether a school district’s creation of a community facility district (CFD) to raise capital improvement funds must be treated as a project because of the likely environmental impacts associated with future school construction. The court found that there was no causal link between the “action” (formation of the CFD) and the alleged environmental impact associated with future new schools. The court reasoned that creation of the CFD did not itself create the need for new schools; nor was the construction of new schools in the future entirely dependent on the formation of the CFD.

Here, PR3503 is an information gathering rule intended to advise the District and public about the type of, amount of, and risks from, air pollution emissions associated with railyard facilities. This function stands independent from any future adoption of PR3501 and 3502, which are focused on actually reducing emissions associated with unneeded locomotive idling

in the basin. Like in *Kaufman*, adoption of PR3503 does not create any need to adopt rules relating to locomotive idling. Nor is adoption of PR3501 and PR3502 in any way dependent on adoption of PR3503.²⁷

The railroads also assert that “any claim by the District of the unforeseeability of the passage of the additional railroad regulations is refuted by the statements of staff and the current time line for Board reviews.” On this point, the railroads point to the California Supreme Court’s decision in *Laurel Heights Improvement Ass’n v. Regents of the Univ. of Cal.*, 47 Cal. 3d 376, 396 (1988), which held that in approving an action an agency must take into consideration the possible environmental effects of a future action if: (1) the future action “is a reasonably foreseeable consequence of the initial project;” and (2) the future action “will be significant in that it will likely change the scope or nature of the initial project or its environmental effects.” Absent either of these two circumstances, the future action need not be considered part of the proposed action. *Ibid.*

The District does not agree with the railroads that merely because a set of proposed rules relate to a similar industry, or because they may be promulgated within a relatively similar time frame, that the rules must be considered reasonably foreseeable consequences of each other. As noted above, there is no casual connection between promulgation of PR3503 and promulgation of PR3501/02. This was not the case in *Laurel Heights*, where the Court found a “myriad of facts” revealing that at the very time the Regents of the University of California were approving the acquisition of an office building, the Regents already had future plans to significantly expand the use of that very building. See *Sacramento Old City Ass’n. v. City Council of Sacramento*, 229 Cal. App. 3d 1011, 1026 (1991) (explaining and distinguishing the holding *Laurel Heights*).

²⁷ This was not the circumstance in the court cases cited by the railroads that found improper piecemealing of a project. Those cases overwhelmingly involve government agency approvals where courts found strong evidence that the approvals were part of larger construction or development projects, or that the approvals directly created the need for future action or approvals. See *Bozung v. LAFCO*, 13 Cal. 3d 263 (1975) (the court found that none of the parties made “any bones about the fact” that the impetus for the action – approval of a land annexation plan – was part of a larger project to allow an individual landowner to subdivide his 677 acres of agricultural land into residential lots); *Orinda Association v. Board of Supervisors*, 182 Cal. App. 3d 1145 (1986) (the court found that the administrative record showed from the “outset” that future demolition of two buildings was considered part the larger construction project approved by the agency); *McQueen v. Board of Dir. Mid-Peninsula Regional Open Space Dist.*, 202 Cal. App. 3d 1136 (1998) (the court found that the agency had defined its project – the purchase of two parcels of land – to narrowly by failing to mention the agency’s nearly simultaneous adoption of a land use and management plan for the newly acquired land).

Thus, the future expansion in *Laurel Heights* was directly linked to the initial project. See *Berkeley Keep Jets Over The Bay Committee v. Board of Port Commissioners of the City of Oakland*, 91 Cal. App. 4th 1344, 1362 (1991) (examining the holding in *Laurel Heights*).

- b. The District is not required to evaluate PR3504 under CEQA at this time.

The railroads further assert that PR3503 and PR3504 must be looked at together under CEQA because future adoption of PR3504 is a “reasonably foreseeable event” that will have “indirect physical changes to the environment.”

As already explained above, as an information gathering rule, PR3503 has an independent basis for being promulgated by the District. The information that will be gathered under this rule will assist the District, as well as other federal and state agencies and the public, to better understand the potential health risks associated with air emissions from railyard facilities. This function stands independent of any future decision by the District to promulgate a rule, such as PR3504, to reduce overall public health risks associated with railyards. Indeed, the state legislature has recognized that gathering of information pertaining to health risks of toxic air contaminants has independent utility apart from risk reduction. This is clear from the passage of AB2588, which originally did not contain a risk reduction component. In short, the District believes that under *Kaufman* these rules are not causally linked and, thus, the District may properly wait to undertake any necessary CEQA review of PR3504 until the District actually proceeds with its promulgation.

Moreover, even if there was a causal relationship between PR3503 and PR3504, the District cannot at this time engage in a CEQA evaluation of PR3504. Under CEQA, where future action is “unspecified and uncertain,” no purpose is served by requiring an agency to engage in sheer speculation as to future environmental consequences. See *Lake County Energy Council v. County of Lake*, 70 Cal. App. 3d 851, 854-55 (1977). As the California Supreme Court has held, CEQA does not require an agency to commit to a particular use or to predict precisely the environmental effects, if any, of future action. *Laurel Heights Improvement Ass’n v. Regents of the Univ. of Cal.*, 47 Cal.3d 376, 398 (1988). Thus where future action is

merely contemplated, but not yet proposed, environmental review is not required under CEQA. *Ibid.*

Although District staff initially proposed to promulgate PR3503 and PR3504 together, the District has since concluded that information to be gathered from railroads during the implementation of PR3503 will assist the District in best fashioning any future rule regarding railyard risk reduction plans. Based upon future information provided from the railroads, either from the Interim Railyard Emission Inventory Reports, the railyard-wide criteria pollutant and toxic air contaminant emissions inventory, or the health risk assessments, the District will further consider the need for PR3504 and, if such a need exists, the rule's scope. Depending on the level of risk found from the information generated by PR 3503, the District may consider different applicability, requirements, or compliance schedules, or even propose an entirely different approach to limit railyard risk. Indeed, if risks are determined to be at acceptable levels and likely to be maintained at such levels, the agency may not move forward with promulgation of PR3504 at all. Accordingly, CEQA review at this time of PR3504 would be premature because no definite plan has been formulated as to when or how to proceed with the rule. See *Kaufman & Broad-South Bay, Inc. v. Morgan Hill Unified Sch. Dist.*, 9 Cal. App. 4th 464, 474-75 (1992); *Berkeley Keep Jets Over The Bay Committee v. Board of Port Commissioners of the City of Oakland*, 91 Cal. App. 4th 1344, 1362 (1991) (“the mere fact that a lead agency acknowledges that it contemplates [a long range goal] is not, by itself, sufficient to conclude that it is a ‘reasonably foreseeable consequence of the initial project.’”).

This determination is further supported by CEQA Guidelines § 15306, the categorical exemption for information collection. As already stated, the District's promulgation of PR3503 is subject to this exemption from CEQA. Section 15306 expressly applies to District activities taken “strictly for information gathering purposes, or *as part of a study leading to an action which [the District] has not yet approved, adopted, or funded.*” (Emphasis added). Thus, the categorical exemption recognizes that an agency may need to first gather sufficient information before it proceeds with an additional action. As is the case here, gathering and studying information on railyard emissions may lead to future action to promulgate a rule addressing risk reduction plans, such as PR3504.

However, until more complete information needed to make that decision is available, CEQA review of such action is premature and not required. See *Laurel Heights Improvement Ass'n v. Regents of the Univ. of Cal.*, 47 Cal. 3d 376, 398 (1988) (to require CEQA review before an action is sufficiently contemplated “would be inconsistent with the rule that mere feasibility and planning studies do not require an EIR.”). Even if it were known what PR 3504 would require in terms of quantity of risk reduction, it is impossible to foresee at this point what control technologies or other methods the railroads would use to comply with PR 3504, and what their environmental effects would be. Railroads could use any of a variety of technological and operational controls, each of which would have different environmental effects.

60. Comment: The proposed measures [PR3501, PR3502, PR3503 and PR3504] will have “potentially significant impacts” upon several environmental factors, including but not limited to air quality, land use/planning, transportation/traffic, utilities/service systems and noise. If the lead agency determines there is substantial evidence in the record that the project may have a significant effect on the environment, as it should in this instance, the lead agency shall prepare an EIR.

Response: As already noted, PR3503, the implementation of which will not cause any significant environmental impact, is not subject to preparation of an EIR under CEQA. Moreover, the District is not seeking to avoid a CEQA review of the potential environmental impacts that may be associated with any future proposed railroad rules. As the railroads acknowledge, the District is currently proceeding with a Program Environmental Impact Report for PR3501 and PR3502. Further, the District will prepare all required CEQA documents with respect to PR3504 when a decision (and timetable) is reached to proceed with the promulgation of that rule.

61. Comment: The railroads agree that it is appropriate for District staff to prepare a Draft PEA which will “analyze the potential adverse environmental impacts from the proposed project.” We further note that staff should consider all potential adverse environmental impacts from this rulemaking as, but not limited to, the significant impacts that would result from a substantial modal shift from rail to on-highway trucking, which may occur if the Rules 3501-3503, and certainly 3504, are adopted and implemented.

Response: CEQA permits variations in EIRs to accommodate different situations and intended uses. CEQA Guidelines § 15160. Review under a Program Environmental Impact Report imposes an “element of flexibility” into the CEQA process. *Kaufman & Broad-South Bay, Inc. v. Morgan Hill Unified Sch. Dist.*, 9 Cal. App. 4th 464, 476 (1992). It does not, however, obviate the need for a project to be properly defined or sufficiently advanced to begin environmental review. See *Ibid.*

For reasons set forth above, PR3503 is not subject to the preparation of an EIR under CEQA. As also noted, the District recognizes its obligation to implement CEQA to consider any potential environmental impacts that may be associated with any future proposed railroad rules.

62. Comment: Rule 3503 is preempted by the Federal Clean Air Act because it is a “standard or other requirement relating to the control of emissions” from new locomotives or locomotive engines preempted under section 209(e) of the Clean Air Act.

Response: The railroads argue that preemption under section 209(e) of the Clean Air Act relating to new locomotives is broader than preemption relating to new motor vehicles found in section 209(a). EPA appears to have interpreted section 209(e) relating to locomotives somewhat more broadly than it has interpreted section 209(a) relating to new motor vehicles, since it has included aftermarket requirements as among the requirements that are preempted with respect to locomotives, whereas the preemption for motor vehicles affects only requirements applicable to new motor vehicles. 40 CFR § 85.1603. However, even under EPA’s interpretation, the scope of Section 209(e) preemption does not extend to every regulation applicable to locomotives, and certainly does not extend to the railyard information gathering requirements of PR 3503.

In its 1998 regulation interpreting section 209(e) with respect to locomotives, EPA stated that “Any state control that would affect how a manufacturer designs or produces new ...locomotives or locomotive engines is preempted by section 209(e)(1).” 63 Fed. Reg. 18,978 at 18,994 (April 16, 1998). Similarly, EPA stated that section 209(e) does not bar “standards directed primarily at intrastate activities where the burden of compliance does not control locomotive emissions or effectively impact locomotive manufacturers and distributors.” 62 Fed. Reg. 6,366 at 6,397 (Feb. 11, 1997). As explained below, PR 3503 does not effectively

impact manufacturers and distributors and therefore is not preempted by the Clean Air Act.

PR 3503 includes two basic requirements applicable to operators of specified railyards. First, the railyard operator must prepare an emissions inventory summarizing the emissions from stationary and mobile sources at the railyards. This requirement mandates the gathering of information pertaining to emissions from various sources that use the railyard, both dedicated and transient sources, and the preparation of a report to be submitted to the District. Second, PR 3503 requires the operators of the specified railyards to take the data gathered in their emissions inventories and prepare health risk assessments showing the risk of cancer and noncancer health impacts from their operations on the surrounding community. This process requires the application of computer models using the inventory data collected, meteorological data, etc., to determine the impacts on surrounding areas. Neither of these two informational requirements even applies to manufacturers, much less affects how the manufacturer will design a locomotive. Therefore, they are not preempted under the Clean Air Act.

EPA has established by regulation a list of types of regulations which it believes would be preempted. This list includes “emission standards, mandatory fleet average standards, certification requirements, aftermarket equipment requirements, and nonfederal in-use testing requirements.” 40 CFR § 85.1603(c)(2). While this list is not exclusive, it establishes the type of regulation which EPA believes is preempted. PR 3503 would not constitute any of these types of requirements and does not contain any requirements that relate to the control of emissions. Accordingly, PR 3503 is not preempted.

The railroads assert that the District’s proposed rules would “impermissibly conflict with, interfere with, contradict or duplicate” EPA regulations under the Clean Air Act and would therefore be preempted. However, they fail to identify any provision of EPA rules for which that would be true. District staff is not aware of any such EPA rule. To the contrary, compliance with PR 3503 is fully consistent and compatible with the railyard operators’ ability to comply with EPA requirements.

The railroads cite a letter written in 2004 by former CARB Chairman Alan Lloyd expressing the opinion that a bill the District was sponsoring would be preempted because the mitigation fees

established by the bill allegedly “relate to the control of emissions.” The District disagrees with this letter. However, PR 3503 does not contain any requirements that relate to the control of emissions. Therefore, it is not preempted by the Clean Air Act.

63. Comment: The railroads argue that PR 3503 is preempted by the Interstate Commerce Commission Termination Act (ICCTA) because that statute gives the Surface Transportation Board exclusive jurisdiction over transportation by rail carriers and the construction and operation of rail facilities, and states that the remedies provided by the ICCTA with respect to rail transportation are exclusive and preempt other remedies under state or federal law. 49 U.S.C. § 10501(b)

Response: The ICCTA defines “transportation” to include “a locomotive, car, vehicle, vessel, warehouse, wharf, pier, dock, yard, property, facility, instrumentality, or equipment of any kind related to the movement of passengers or property, or both, by rail, regardless of ownership or an agreement concerning use.” 49 U.S.C. § 10102(9). Therefore, operations at railyards are within the scope of the ICCTA. But this conclusion certainly does not dictate that every regulation affecting railyards is preempted.

Although the Ninth Circuit Court of Appeals has stated that ICCTA’s preemption should be read broadly, (*City of Auburn v United States*, 154 F.3d 1025 (9th Cir. 1998)), that preemption has defined limits. As explained in the staff report, the Surface Transportation Board, which is the agency authorized to interpret the ICCTA, and thus entitled to deference, (*Green Mountain R.R. Corp. v. State of Vermont*, 404 F.3d 638, 642(2d. Cir. 2005)), has made clear that the ICCTA does not preempt state and local environmental requirements that do not pose an unreasonable burden on interstate commerce. The STB has stated that a “key element in the preemption doctrine is the notion that only ‘unreasonable burdens,’ i.e., those that ‘conflict with’ Federal regulation, ‘interfere with’ Federal authority, or ‘unreasonably burden’ interstate commerce, are superseded. The courts generally presume that Congress does not lightly preempt state law. *Medtronic Inc. v Lora Lohr*, 116 S.Ct. 2240, 2250(1996). Also, preemption does not deprive the states of the ‘power to regulate where the activity regulated is a merely peripheral concern’ of Federal law. *San Diego Building Trades Council v. Garmon*, 359 U.S. 236, 243 (1959).” (*Cities of Auburn and Kent, Wa.—Petition for Declaratory Order—Burlington Northern Railroad Company—*

Stampede Pass Line, 2 S.T.B. 330; 1997 STB LEXIS 143, p. 5(July 2, 1997))

A rule such as PR 3503, which merely requires information-gathering and risk calculation, does not conflict with or interfere with Federal regulation or authority. Nor does it unreasonably interfere with interstate commerce.

Indeed, the STB has stated that requirements similar to those contained in PR 3503 are among those which would not be preempted. The STB has stated that requirements that appear reasonable, and hence not preempted, include conditions requiring railroads to “submit environmental monitoring or testing information to local government entities for an appropriate period of time after operations begin.” *Joint Petition for Declaratory Order—Boston and Maine Corporation and Town of Ayer, Ma.*, 2001 STB LEXIS 435, p. 8 (May 1, 2001). In that decision, the STB cited with approval a condition which required the railyard to create a monitoring network for groundwater quality and quantity, and to provide monthly reports until the town determines that there is no significant impact on groundwater elevations from the rail operations. *Town of Ayer, supra*, 2001 STB 435, p. 10. Since the STB has held that requirements that railroads submit environmental testing and reports are not preempted, it follows that requirements such as PR 3503 for monitoring, testing and reports relative to toxic risks from air pollution generated at the railyard would not be preempted.

A recent decision of the U.S. Court of Appeals for the Second Circuit summarizes the types of local regulations that will be preempted and the types that will be upheld. That court noted that the ICCTA preempts most pre-construction permit requirements imposed by states and localities. According to the ICCTA, such requirements unduly interfere with interstate commerce by giving the local government the ability to deny the railroad the right to construct or operate, and because such processes can be time-consuming, allowing the local government to delay construction almost indefinitely. *Green Mountain Railroad Corp. v. State of Vermont*, 404 F.3d 638, 642 (2005). In contrast, the court stated that direct environmental regulations enacted for the protection of the public health and safety, and other generally applicable, non-discriminatory regulations and permit requirements would not be preempted. *Green Mountain, supra*, 404 F 3d. at 643. The court went on to note that to avoid preemption, local requirements must not have the effect of foreclosing or restricting the railroad’s ability

to conduct its operations or otherwise unreasonably burden interstate commerce. *Id.*

PR 3503 does not impose any kind of permitting or pre-construction or pre-operation review upon railroads. It simply requires the gathering of information and the preparation of a health risk assessment based on that information. This is the type of nondiscriminatory, directly applicable environmental regulation which the court in *Green Mountain* held is not preempted. The railroads have not made any showing that PR 3503 would interfere with rail operations or unreasonably burden interstate commerce. Instead, the railroads merely assert, without any evidence or logical rationale, that PR 3503 will interfere with rail operations.

As held by the STB in *Cities of Auburn and Kent* (Stampede Pass). 1997 STB LEXIS 143, p. 5, only “unreasonable” burdens are preempted, and it is presumed that Congress does not lightly preempt state law. Thus, the STB held that “state or local regulation is permissible where it does not interfere with interstate rail operations.” *Borough of Riverdale—Petition for Declaratory Order—the New York Susquehanna and Western Railway Corporation*, 4 S.T.B. 380; 1999 STB LEXIS 531, p. 4, (September 10, 1999). Similarly, the California Court of Appeal has held that state and local regulation “is permissible if it does not interfere with [the railroad’s] interstate rail operations.” *Jones v Union Pacific Railroad Company*, 79 Cal. App. 4th 1053, 1060 (2000). The STB has emphasized that whether a particular regulation interferes with interstate commerce is a fact-bound question. *Borough of Riverdale, supra*, at p. 5.; *Town of Ayer, supra*, at p. 7.

In view of the presumption against preemption, which applies in these railroad cases, *Village of Ridgfield Park v. New York Susquehanna and Western Railway Corp.*, 163 N.J. 446; 453, 750 A 2d. 57(2000), the railroads bear the “considerable burden” of establishing that the particular requirements of PR 3503 so interfere with rail operations as to be preempted. *DeBuono v. NYSAL-ELA Med. & Clinical Servs. Fund*, 520 U.S. 806, 814(1997). Therefore, the railroads must prove that the requirements of PR 3503 unreasonably interfere with their operations. In this instance, the railroads have presented no facts to demonstrate that PR 3503 so interferes with rail operations so as to be preempted by the ICCTA. Furthermore, given the limited nature of the requirements of PR 3503, and the fact that they involve merely data gathering and computer modeling, and public

notice requirements, it is very unlikely they would be able to establish preemption of PR 3503.

64. Comment: The CARB has exclusive authority over the regulation of toxic air contaminants from locomotives.

Response: The railroads argue that the CARB has exclusive authority over the emission of air toxics from motor vehicles, citing Health & Safety Code §§ 39002, 43000, and 43018. However, locomotives are not motor vehicles, as explained in the staff report. A motor vehicle is defined as a “vehicle that is self-propelled.”(Veh. Code § 415(a)). A “vehicle” is a “device by which any person or property may be propelled, moved, or drawn upon a highway, excepting a device moved exclusively by human power or used exclusively upon stationary rails or tracks.” Because they do not operate on the highway and because they operate on stationary tracks, locomotives are not “vehicles.” Air districts, rather than CARB, have primary authority over sources that are not motor vehicles. (Health & Saf. Code § 40000).

The railroads further cite Health & Safety Code. § 40702 for the proposition that air districts may not regulate railroads. However, that statute only precludes districts from specifying the design of equipment, construction, or particular method to be used in reducing the release of air contaminants from locomotives. PR 3503 does not require any reduction of air contaminants nor does it specify any particular methods for reducing air contaminants. Therefore, PR 3503 does not run afoul of this statute.

Finally, the railroads argue that the Legislature has made CARB the exclusive authority over locomotives through § 43018(d). That section provides that CARB shall hold workshops by 1991 on regulations for locomotives. However, this section does not repeal the air districts’ pre-existing authority to regulate locomotives. Rather, CARB is given concurrent authority with the districts, as explained in the staff report. Courts will not interpret a later law as repealing a district’s pre-existing authority unless it does so explicitly or there is “undebatable evidence” of such intent. *Western Oil & Gas Association v. Monterey Bay Unified Air Pollution Control District*, 49 Cal. 3d. 408 (1989). The statutes cited by the railroads do not expressly repeal the districts’ authority over railroads, nor is there undebatable, or indeed any, evidence of such intent to repeal or limit preexisting district authority. Furthermore, when the legislature chooses to limit the districts’ authority over nonvehicular sources, it does so explicitly. For

example, § 41712(f) provides that “a district shall adopt no regulation pertaining to disinfectants, nor any regulation pertaining to a consumer product that is different than any regulation adopted by the state board for that purpose.” If no specific limitation like this one exists, the legislature has explicitly allowed districts to adopt stricter regulations than those adopted by the CARB. Section 41508 provides: “Except as specifically provided in this division, any local or regional authority may adopt additional, stricter standards than those set forth by law or by the state board for nonvehicular sources.” Thus, the districts may adopt stricter rules for locomotives than those adopted by the CARB.

65. Comment: The railroads in 2005 have entered a memorandum of understanding with the CARB which attempts to reduce pollution through a contractual arrangement. Also, some railroads have corporate policies limiting locomotive idling. There is also a 1998 MOU relating to the turnover of fleets within the South Coast Air Basin. A question arises why the District’s proposed rules, which the commenter believes are unnecessary, should be imposed without regard to the environmental impacts of the regulations and the impact on rail operations.

Response: The 1998 MOU does not address health risks from locomotives or other railyard operations. The 2005 MOU does require railroads to prepare emission inventories, but does so on a lengthier schedule than required by PR 3503 (18 to 30 months of approval of the study plan vs. 12 months after rule adoption). The MOU calls upon the CARB, rather than the railroads, to prepare the health risk assessments, and does not contain any deadline for their preparation. In contrast, PR3503 requires HRAs to be prepared within 15 months of rule adoption. The MOU does not specify a process for notifying the public of the risks posed by railyards where PR 3503 does. PR 3503 is necessary to provide expeditious preparation of the HRAs, which will inform the public of the degree of risk posed by rail operations. If railroads have corporate policies limiting locomotive idling, such policies still do not result in quantifying the risk posed by railyard operations and informing the public. The District has reason to believe risks from at least some railyards may be significant, since the CARB determined the risk to neighbors of the Roseville yard would be as high as 1000 in a million, 10 times the District’s “significant” risk level.

The railroads also argue that various statutes, regulations, and case law establish that “the federal government has occupied the field of railroad regulation.” However, the cases and STB decisions

discussed above in these responses establish that state and local governments retain authority to regulate railroads so long as their regulations do not unreasonably interfere with rail operations. PR 3503 does not interfere with rail operations in any manner.

66. Comment: The District does not have the authority under state law to regulate locomotives. The authority relied on by the District to justify this rule does not support the District's position that it has the requisite authority under state law. Neither Health & Safety Code Section 43013, 40716, 40702, 41511 nor 41700 confer any authority to the District to regulate locomotives, including the requirement of health risk assessments and public notice.

Response: A thorough discussion of this issue appears in the Staff Report at pages 1-5 through 1-7.

The commenter has misinterpreted the District's citation of authority in the Staff Report. As explained in the Staff Report at page 1-5, state law confers upon the local air districts the primary responsibility to regulate air pollution from all sources, except for motor vehicles over which CARB has primary jurisdiction. In the absence of specific statutes which limit this broad district authority, the districts can adopt rules and regulations to control all non-motor vehicular sources of air pollution.

Locomotives are not motor vehicles. Thus the districts have the authority to regulate locomotives, unless the state legislature restricts this authority. See Staff Report at 1-5.

Health & Safety Code §43013

The District does not cite Health & Safety Code §43013 as authority for the District's regulation of locomotives. See Staff Report at 1-5. Rather the citation to this section of the Health & Safety Code is made to show that the state legislature, while granting authority to the Air Resources Board to regulate "off-road or non-vehicle engine categories" (§43013(b)) such as locomotives, did not revoke or limit the existing District authority to regulate these sources. Utility engines, which are also included under this section, are typically regulated by districts, and the Legislature took the further step under section 41750 (added in 1995) of the code to limit the existing authority of the districts after the Legislature had already given the CARB authority to regulate these sources under §43013 (added 1988). Had the legislature intended that §43013 be an exclusive grant of authority to CARB,

as the commenter suggests, there would have been no need for the legislature to take measures to limit District authority by adopting §41750.²⁸

Section 43013 cannot impliedly repeal the District's pre-existing authority to regulate nonvehicular sources, including locomotives, absent "undebatable evidence" of such intent. Western Oil & Gas Assn. v. Monterey Bay Unified APCD, 49 C.3d 408 (1989). The railroads have failed to cite any such intent, and it does not exist.

Health & Safety Code §40716

Health & Safety Code §40716 does confer authority to the District to mitigate emissions from indirect sources such as railyards. See Staff Report at 1-5. An indirect source is a source that does not necessarily emit air pollutants independently, but rather draws other sources such as trucks, yard hostlers, automobiles and a variety of other nonroad sources that pollute in and around the indirect source. As explained in the staff report, indirect sources include those that attract any kind of mobile sources, not just vehicles. Classic examples are stadiums, office buildings and ports. A railyard is also such an indirect source, with a variety of polluting sources such as locomotives, trucks, loaders and forklifts. Thus, the District has the authority to regulate pollution from railyards. The District disagrees that §40716 is limited to the authority to adopt rules to reduce the number or length of vehicle trips. That authority is found in §40716(a)(2); a wholly separate authority, found in §40716(a)(1), is to adopt regulations to "reduce or mitigate emissions from indirect or areawide sources..." This authority allows districts to regulate railyards as indirect sources.

Health & Safety Code §40702

The commenter clearly misinterprets the language of Health & Safety Code §40702. As thoroughly explained in the Staff Report at pages 1-5 through 1-6, this statute confers upon the District the duty to adopt rules and regulations to execute the powers and duties granted to it. Additionally, this statute places a limitation of the broad authority granted the District by restricting the District's ability to "specify the design of equipment, type of construction or particular method to be used in reducing the release of air contaminants from railroad locomotives." Here the legislature recognizes the existing authority the districts have to regulate

²⁸ §41750(a) "Existing law authorizes each district to impose separate and sometimes inconsistent emission control requirements..."

locomotives. The legislature continues to allow the districts to regulate locomotives, but limits the approach the districts may take in designing the rules they must adopt to control emissions. This rule does not specify a particular method by which locomotive emissions must be controlled, so the rule is in harmony with the enabling statute. The District's interpretation is not absurd, but rather the most logical interpretation. If the legislature had meant to completely prohibit the districts from regulating locomotives it would have said so, rather than adopting the specific limits in §40702.

Health & Safety Code §41511

The railroads argue that §41511 does not confer authority to require them to prepare HRAs and give public notice. However the commenter's conclusions regarding the limitations in this statute do not recognize the broad authority granted to the districts to regulate air pollution sources that are not vehicular sources, or the direct recognition in the Code of the district's ability to regulate locomotives (Health & Safety Code §40702). Since the legislature has conferred upon the District the ability to regulate these sources, it follows that this statute enables the District to adopt regulations that help the District to determine the amount of emissions from both locomotives and railyards. See Staff Report at page 1-6 for further analysis. When coupled with the general authority to regulate nonvehicular sources, this statute supports the authority of the District to adopt Proposed Rule 3503.

Health & Safety Code §41700

As explained in the Staff Report at pages 1-7, this section of the Health & Safety Code is directly enforceable by the District, and the District may adopt rules and regulations to ensure the compliance of sources with statute. There is clearly the potential for health risks exceeding the district's "significance" level of 10 in 1 million, based on the Roseville Study. This level of risk could be termed an endangerment to public health as prohibited by §41700, and an actual nuisance in this instance. As explained in the Staff Report at page 3-3, the District need not wait until an actual nuisance has occurred; rather, the District may adopt rules and regulations to ensure that the likely nuisance will not occur.

Here the railyards are apparently emitting large amount of diesel particulate matter, which endanger the public's comfort health and safety. Contrary to the railroads' arguments, neither case law nor

the District's own practices demonstrates that §41700 cannot provide authority to adopt an air toxics rule. The decision in Western Oil & Gas Assn. v. Monterey Bay Unified APCD, 49 Cal.3d 408, did not discuss the applicability of §41700 nor hold that the permit statutes were the only source of authority for district toxics rules. Moreover, the District's authority to adopt toxics rules outside the context of permitting has been upheld by the Court of Appeal. Ultramar, Inc., v. South Coast Air Quality Management District, 17 Cal.App.4th 689 (1993). The District expressly relied on §41700 in adopting the rule involved in that case. The railroads fail to cite any examples of how District practice supports the conclusion that §41700 does not provide authority to adopt implementing regulations.