

Attachment E

Overview of Regulatory Programs for Criteria and Toxic Air Pollutants in California

I. Local District Stationary Source Programs

Large industrial sources, such as refineries, factories, and power plants, as well as the smaller retail gasoline service stations, dry cleaners, and bakeries, are known as “stationary sources.” The air pollution associated with growth in these stationary sources is addressed in regulatory programs independent of AB32. The following provides background information on how the air pollutant emissions from stationary sources are addressed in California.

Regulatory Structure

The regulation of stationary sources is conducted at three levels of government in California: federal, State, and local. The federal Clean Air Act requires states to directly regulate both stationary and mobile sources through a state implementation plan (SIP) to provide for implementation, maintenance, and enforcement of health-based national ambient air quality standards. The SIP outlines all of the national, statewide, and regional strategies that will be used to meet air quality standards by a given date. At the federal level, the United States Environmental Protection Agency (U.S. EPA) is responsible for implementation of the federal Clean Air Act. Some portions of the Act are implemented directly by the U.S. EPA. Other portions are implemented by state and local agencies.

Responsibility for attaining and maintaining ambient air quality standards in California is divided between the State Air Resources Board (ARB or Board) and the 35 independent local air pollution control and air quality management districts (districts). In addition to the federal Clean Air Act, the ARB and districts implement requirements of state law including the California Clean Air Act. Both State and federal law address pollutants like ozone and fine particulate matter, as criteria pollutants, and toxic pollutants like benzene and lead, as toxic air contaminants (TACs).

State law vests the ARB with direct authority to regulate pollution from mobile sources, fuels, and consumer products. Primary responsibility for controlling pollution from stationary sources lies with the districts. The ARB, however, is responsible for submitting plans and maintaining a program that is in compliance with federal regulations, should any district fail to meet its responsibilities. As a result, the ARB has an oversight role in assuring district compliance with federal requirements. The federal government retains the exclusive authority to regulate interstate trucks registered outside California, certain new farm and construction equipment, new locomotives, ships, and aircraft.

The U.S. EPA, the ARB, and the districts work together to complement each other’s efforts to achieve clean air. The ARB and districts collaborate on many air quality programs throughout California, including the development of the SIPs for achieving the national ambient air quality standards. Those portions of the plans which are federally required are then approved by the ARB and subsequently the U.S. EPA before becoming part of the federally-required SIP.

The State-to-local delegation of authority to the districts over stationary sources carries with it the responsibilities of developing region-specific rules, permitting, enforcement, collecting data associated with emissions inventory, and the preparation of local air quality plans. The districts

may obtain authority from the U.S. EPA to be the primary implementing and enforcing agency for certain federal requirements, such as new source performance standards (NSPSs), national emission standards for hazardous air pollutants (NESHAPs), and the prevention of significant deterioration (PSD) program.

Stationary Source Permitting

This section summarizes the primary legal requirements for permitting stationary sources of air pollution in California. Each district has adopted a set of rules to meet State and federal ambient air quality standards. District rules define the procedure and criteria districts use in permitting stationary sources. Although specific rules vary in scope and level of stringency by district depending on the region's air quality status, the general procedure for permitting new and expanding sources is the same throughout the State. Pollutant-emitting sources must obtain an authority to construct before beginning construction, and a permit to operate after the completed facility demonstrates compliance with district rules and the facility's permit conditions. Where applicable, district permit programs incorporate federal stationary source program requirements.

District requirements for stationary sources generally fit into two categories. The first category of rules applied to stationary sources is permitting rules for the construction and operation of new and expanding stationary sources. These rules are referred to as the New Source Review (NSR) program. A second category of requirements is rules which every source, or every source in a certain category of sources, must meet. These are often referred to as prohibitory rules. They apply whether or not a source is new or existing.

New Source Review. The NSR program is the foundation of stationary source emission control in California and allows industrial growth to continue in polluted areas while not undermining progress toward meeting clean air standards. NSR rules apply in areas that do not comply with ambient air quality standards (i.e., nonattainment areas). Because most districts are nonattainment for at least one criteria pollutant, NSR is a key component of stationary source permitting programs. NSR rules regulate new or expanding stationary sources that emit or have the potential to emit any criteria pollutant (or precursor) for which there is a State or federal ambient air quality standard. NSR is intended to allow growth while limiting emissions from new or expanded sources. Therefore, NSR programs provide mechanisms to (1) reduce emission increases up-front through clean technology, (2) provide for a no net increase in emissions, and (3) result in a net reduction in emissions. This is accomplished through two major requirements in each district NSR rule: best available control technology (BACT) and offsets.

Best Available Control Technology. BACT is required for new and expanding equipment or processes at stationary sources that result in emission increases above designated thresholds. BACT requires use of the cleanest, state-of-the-art technology to achieve the greatest feasible emission reductions. Significant reductions in criteria pollutants have been achieved using this strong technology-based approach to air pollution control. For example, BACT emission levels for oxides of nitrogen (NOx) in California are 98 percent less for power plant gas turbines than in 1982 and 91 percent less for gas-fired industrial boilers than in 1983.

Emission Offsets. In addition to BACT requirements, owners of new or expanding sources may be required to mitigate, or offset, the increased emissions that result after installation of BACT. Offsetting is the use of emission reductions from existing sources to offset emission increases from new or expanding sources. The amount of offsets required depends on the distance between the source of offsets and the new or expanding source. Offsets are generally required at a greater than 1-to-1 ratio so that when the new or expanded facility begins operation, more emissions are reduced than are increased. If a source obtains emission offsets outside the local area (i.e., interbasin), or if one type of pollutant is offset against another type (i.e., interpollutant), the source must use air quality modeling to show that these offsets will result in a net benefit. Some districts have pre-established ratios for interpollutant offsets in their rules.

Creation of Offsets. If a stationary source reduces emissions below actual emission levels allowed by the district, in some cases that source may "bank" the reduction in emissions to offset emissions from future projects. Emissions banked in this manner are called emission reduction credits (ERCs) and can be used as offsets by the source or sold to other sources. ERCs must meet specific criteria before they can be issued. Criteria include that the actual emission levels reduced be adequately documented via records, emissions are in addition to that which are required by law, and there be mechanisms in place to ensure those reductions continue into the future.

Prohibitory Rules. Each district also has rules aimed at limiting emissions from existing stationary sources, known as prohibitory rules; however these rules apply to new sources as well. Prohibitory rules may be generic, such as limiting the maximum level of a particular pollutant (such as NOx) at any facility, or they may address specific equipment, such as a turbine, a boiler, or a reciprocating internal combustion engine. Sources are also subject to a general nuisance rule which provides authority to the district to control the discharge of any air contaminants that will cause injury, detriment, nuisance, endangerment, discomfort, annoyance, or which have a natural tendency to cause damage to business or property. To date, the 35 districts in total have adopted hundreds of prohibitory rules aimed at reducing criteria and toxic air pollutant emissions. Except where a source is exempt from permit, the proponent of a new or expanding source will normally have to demonstrate compliance with both NSR and prohibitory rule requirements in any permit application submitted to the district.

Toxic Air Contaminant Requirements. Most districts include TAC review coincident with permit review of criteria pollutants. Sources emitting TACs must comply with district requirements regarding the risk assessment and mitigation of TAC emissions. Some districts have established acceptable levels of health risk. Screening analyses and health risk assessments may be performed as part of the permitting process, or as part of the State AB2588 Hot Spots Program. In the case of significant health risks, districts may require mitigation sufficient to reduce increased risk to tolerable levels. In addition, a new or expanding source, as well as existing sources, may be subject to either a federal NESHAP, a State-mandated airborne toxic control measure promulgated by the ARB, or both.

Health Risk Assessment. As mentioned above, the impacts from any TACs that are emitted from a stationary source project are addressed using a health risk assessment, or HRA. An HRA

is an evaluation of the potential for adverse health effects that can result from public exposure to emissions of toxic substances. The information provided in an HRA can be used to decide if or how a project should proceed. Some districts have regulations, or established policies, on HRAs for making risk management decisions. An HRA addresses three categories of health impacts from all pathways of exposure: acute health effects from inhalation only, chronic non-cancer health effects, and cancer risks from multiple exposure paths. Acute health effects generally result from short-term exposure to high concentrations of pollutants. Chronic non-cancer health effects, such as lead intoxication affecting the nervous system, and cancer risks may result from long-term exposure to relatively low concentrations of pollutants.

Air dispersion models are used to predict the ambient air concentrations of the toxic substances emitted by the source. The output from modeling is combined with pollutant-specific factors called unit risk factors (for cancer effects) or reference exposure levels, for acute and chronic non-cancer health effects. Combining this information will provide an estimate of the potential cancer risk (in chances per million) and potential non-cancer impacts expressed as a hazard index. Depending on the results, the district may approve the project as is, require additional pollution controls that represent the best available control technology for reducing toxic emissions (T-BACT), or may reject the project altogether.

Ambient Air Quality Impact Analysis. In California, most district permitting rules require evaluation of the air quality impact of a project to be based on proposed emissions of the project. Rarely will district source permitting rules determine permitting requirements using projections of air quality impacts generated by air quality models. Usually, air quality analyses are only required when emission offsets are not provided. In most cases, only NSR requirements are imposed by California districts since PSD requirements are mostly enforced by the U.S. EPA. As a result, air quality modeling is mostly used to demonstrate that the project does not create a new violation of a State or federal ambient air quality standard, or exacerbate an existing one. If there are projected new violations of standards or, in some cases, PSD increments, the project may not be approved, unless acceptable mitigation measures are provided. The project is assumed to meet the net air quality benefit requirement if it complies with all district emission offset requirements. The emission threshold level at which offsets are required varies by district and is in accordance with minimum requirements of the California Clean Air Act.

Federal Program. In addition to the district rules, there are also federal rules which govern the permitting of new or expanding stationary sources—federal NSR and PSD. The purpose of federal NSR is to ensure that air quality does not deteriorate any further in areas with bad air quality (“nonattainment areas”), while PSD ensures that areas with good air quality will continue to maintain good air quality (“attainment areas”). Many district rules incorporate these federal regulations by reference.

Review of Significant Effects on the Environment

Before the district can issue or deny a permit for a project which may have a significant effect on the environment, the project must comply with the California Environmental Quality Act (CEQA). The purpose of CEQA is to ensure that a project's environmental impacts and alternatives are disclosed to governmental decision-makers and the general public, and that any

impacts are mitigated to the maximum extent feasible. CEQA applies to governmental decisions that require the exercise of judgment or deliberation (i.e., "discretionary activities"), as opposed to decisions involving only objective measurements without the use of personal subjective judgment regarding the wisdom or manner of carrying out a project. In addition, CEQA does not apply to statutorily or categorically exempt projects, which are defined in CEQA. Regulatory agencies issue permits after the project has been approved by the lead agency. The lead agency is generally the agency with the broadest discretionary authority in approving the project; this is typically the local land use agency such as a county planning department.

The CEQA Process. If a project is not exempt from CEQA review, it is analyzed to determine if there is the possibility of a significant effect on the environment. If a significant effect is possible, the lead agency prepares an initial study to evaluate the potential for an effect. If there are no potential impacts, a negative declaration is issued by the lead agency. If a potential impact exists which the project proponent can and will commit to mitigate, a mitigated negative declaration can be issued. Otherwise, the lead agency will issue a notice of preparation (NOP) of an environmental impact report (EIR). At this point, responsible agencies may comment on the required content of the EIR. These comments are then used by the lead agency to produce a draft environmental impact report (DEIR). The purpose of a DEIR is to assess any significant effect on the environment by the project and to evaluate potential mitigation measures. This report is available for review by responsible agencies and the public during the public review period. Comments on the DEIR by any of these parties may be submitted prior to the end of the public review period on such topics as completeness and accuracy of the draft EIR. The lead agency then reviews these comments and prepares a final EIR with responses to comments on the draft EIR. The final EIR is used by the lead agency in approving the project and by responsible agencies in issuing permits.

CEQA analyses must consider: impacts of facility construction; indirect emissions from increased mobile source activity; and the cumulative impacts of projects within the area. For example, construction impacts might include fugitive dust emissions raised by mobile construction equipment. Indirect emissions may include emissions from trips to and from work by employees as well as increases in emissions from commercial vehicles using the facility. Cumulative effects means the individual effects from the project are considered with the effects of past projects, other current projects, and reasonably foreseeable future projects. If there is a significant impact, the lead agency will evaluate the need for mitigation measures identified in the EIR before approving the project.

II. Statewide Programs

Efforts at the State level supplement local district stationary source permitting programs through activities that target the reduction of air toxics and criteria pollutants at both stationary and mobile sources. With respect to air toxics, the process of identifying and developing regulations to reduce the public health risks from TACs is led by the ARB through a comprehensive statewide Toxic Air Contaminant Program. State-level mobile source programs assist in reducing the localized air quality impacts of stationary sources, as mobile source emissions associated with traffic to and from and within stationary sources can be significant—particularly

with stationary sources that serve as transportation hubs such as distribution centers, ports, and rail yards. The major State programs are described below.

Air Toxics Program

California's air toxics program began in 1983 with the adoption of the Toxic Air Contaminant Identification and Control Act. The goal of the air toxics program is to protect the public health. Since 1990, the estimated cancer risk from toxic air pollutants, measured statewide, has been reduced by 45 percent even though California has had significant growth in the number of motor vehicles and industry.

To decide what toxic air pollutants are the most important, the ARB has a comprehensive process to prioritize the identification of substances and to develop control measures. The ARB conducts research and uses the most up-to-date scientific information on the chemicals used in California's industry and commerce. Based upon reviews of exposure and health effects information, the ARB identifies the priority toxic air pollutants that pose the greatest health threat. While there are thousands of chemicals emitted into the air, the ARB's ongoing review ensures resources are focused on control actions that most benefit public health. The Air Toxics Program has indentified almost 200 substances which are hazardous to the people of California, and the list continues to grow. Among those listed are asbestos, environmental tobacco smoke, and, diesel particulate matter (diesel PM).

Control measures that reduce TACs (known as airborne toxic control measures, or ATCMs) adopted by the ARB have resulted in significant reductions of toxic emissions. These ATCMs require stringent controls and in some cases, complete elimination of the use of the toxic air pollutants through pollution prevention. For ATCMs that apply to stationary sources, the districts typically adopt the State control measure into their own rules. To date, the ARB has adopted 17 non-diesel PM toxic control measures that reduce the health impacts from both mobile and stationary sources. These measures include reducing chromium emissions from decorative chrome plating facilities, reducing benzene from retail gasoline service stations, prohibiting the sale and use of automotive coatings containing hexavalent chromium or cadmium, and prohibiting the use of asbestos-containing rock on unpaved roads.

Another component of California's air toxics program is the AB2588 Air Toxics "Hot Spots" program, which requires facilities to report their air toxics emissions. Facilities with emissions that pose a significant risk to public health must notify the local community of the potential risk and then take steps to reduce that risk.

Diesel Program

Particulate matter from diesel-fueled engines (diesel PM) contributes over 70 percent of the known risk from air toxics today and is the most common airborne toxic that Californians breathe. In addition, diesel PM is a significant fraction of the State's particulate pollution problem. In September 2000, the ARB adopted an aggressive plan to require cleaner diesel fuel and cleaner diesel engines and vehicles. The Diesel Risk Reduction Plan will reduce diesel emissions from year-2000 levels by 75 percent by 2010 and 85 percent by 2020. This plan will

retrofit new and existing engines with PM filters to reduce emissions. A major component of the plan calls for extensive use of low-sulfur diesel fuel. Traffic at industrial facilities, such as the trucks that deliver raw materials and remove products and waste, can be a large contributor to the impact of an industrial facility on a community. The Diesel Risk Reduction Plan is reducing emissions from diesel engines, thereby reducing the contribution from diesel trucks and engines. Since the adoption of the Diesel Risk Reduction Plan, some of the strategies in place today in reducing diesel PM include:

Cleaner diesel fuel. California's diesel fuel is the least polluting in the nation. In 2003, the ARB adopted a new regulation lowering the sulfur content of diesel fuel to enable the use of advanced emission control technologies for diesel engines, such as diesel particulate filters. The sulfur level in diesel fuel was lowered to less than 15 parts per million in July 2006. California's fuel regulation applies to on-road, off-road, and stationary engines, while the federal low sulfur diesel rule applies only to on-road vehicles.

Cleaner new diesel engines. In 2001, the ARB adopted new PM and NOx emission standards to clean up new on-road diesel engines that power big-rig trucks, trash trucks, delivery vans, and other large vehicles. The new PM standard is a 90-percent reduction from the existing PM standard. With respect to new off-road diesel engines, the ARB has worked closely with U.S. EPA on developing new PM and NOx standards for engines used in off-road equipment such as backhoes, graders, and farm equipment. The U.S. EPA has proposed new standards that would reduce the emissions from off-road engines to levels similar to the on-road engines by 2010 to 2012.

Cleaner in-use diesel engines. The ARB has adopted regulations aimed at reducing PM and other pollutants from in-use diesel engines. The regulations generally rely on the following approaches to significantly reduce emissions from diesel engines: (1) replace the existing engine with a new diesel engine; (2) apply an ARB-verified diesel emission control system to the existing engine and fuel system (includes alternative fuels); (3) replace the vehicle with an alternative-fueled vehicle or a vehicle with a new, cleaner diesel engine; and (4) operational modification (includes reduced operating time, reduced idling, or use of electric power). Some of the specific regulations adopted by the ARB are listed below:

- Requirements for Stationary Diesel Agricultural Engines (2006)
- Ocean-going Ship Auxiliary Engines (2005)
- Public and Utility Diesel Truck Fleets (2005)
- Heavy-duty Diesel Truck Idling Technology (2005)
- Commercial Motor Vehicle Idling Restrictions (2004)
- Transport Refrigeration Units (2004)
- Portable Engines (2004)
- Stationary Engines (2004)
- Waste Collection Trucks (2003)
- School Bus Idling Restrictions (2002)

Goods Movement Program. Air pollution from international trade and all goods movement in California is a major public health concern at both regional and community levels. Goods

movement is now the dominant contributor to transportation emissions in the State. In April 2006, the ARB approved the *Emission Reduction Plan for Ports and Goods Movement* in California to reduce the emissions and health risk in communities near ports, rail yards, and high-traffic corridors. The plan will reduce emissions of diesel PM, the NO_x and sulfur oxides (SO_x) that contribute to fine particles, and, to a lesser extent, the volatile organic compounds (VOCs) that mix with NO_x in the atmosphere to form regional ozone. The plan envisions emission reductions at each step in the goods movement path—from ship to shore to truck or locomotive to the final destination. Plan strategies, as well as some near-term actions already taken at the State level, are described below:

Goal for Ships—Reduce today’s emissions of diesel PM by half, NO_x by one-third, and SO_x by 80 percent by 2020. The plan seeks to reduce emissions from all cargo and passenger vessels operating in California ports and up to 24 nautical miles from the California coast. Ship strategies include cleaner engines and fuels for main and auxiliary engines, expanded speed reduction near the coast, and shore-based electric power in port. In 2007, the ARB adopted a regulation estimated to reduce hotelling diesel PM and NO_x emissions from container ships, passenger ships, and refrigerated cargo ships by nearly 50 percent in 2014 and 75 percent in 2020. The emission reductions will occur in areas at and near ports where community impacts are of most concern.

Goal for Trucks—Reduce today’s emissions of diesel PM and SO_x by 85 percent and NO_x by two-thirds by 2020. The plan focuses on the heaviest diesel trucks capable of hauling cargo containers or substantial bulk goods. Introduction of 2010+ trucks with advanced technology will continue the decline in emissions. Cleaning up the older truck fleets (including the short-haul trucks serving ports), reducing traffic congestion and idling, routing trucks away from neighborhoods, and providing the cleanest diesel fuel are components of the overall truck strategy. Recent ARB actions include anti-idling rules, controls for refrigeration units, more inspections in communities, low sulfur fuel, and software upgrades for 1993-1998 trucks. In 2007, the ARB adopted a regulation that establishes emission standards for in-use, heavy-duty diesel vehicles that transport cargo to and from California’s ports and intermodal rail facilities.

Goal for Locomotives—Reduce today’s emissions of diesel PM and NO_x by over 80 percent, and SO_x by 99 percent by 2020. The plan seeks to reduce emissions from locomotives pulling cargo and passenger trains, both at rail yards and in long-haul service throughout California. Locomotives are subject to federal standards and two agreements negotiated with the ARB in 1998 and 2005 that include phase-out of non-essential idling, and preparation of new health risk assessments for 16 major rail yards and implementation of mitigation measures based on those results. Low sulfur fuels are being phased in, starting in 2007. Idling limits and inspection programs are already reducing diesel PM at rail yards by 20 percent. As the U.S. EPA has the sole authority to adopt and enforce locomotive emission standards, the ARB has been encouraging the U.S. EPA to expeditiously require the introduction of the next generation (Tier 3) of locomotive emission standards.

Goal for Harbor Craft—Reduce today’s emissions of diesel PM and NOx by roughly 70 percent by 2020. The plan addresses all commercial harbor craft (tugs, ferries, and fishing vessels) operating out of California ports. U.S. EPA requires 30-45 percent control on new harbor craft and the ARB is requiring low sulfur diesel fuel as of 2007. In 2007, the ARB adopted a regulation that establishes new and in-use engine emission standards for both auxiliary and propulsion diesel engines on ferries, excursion vessels, tugboats, and towboats.

Goal for Cargo Handling Equipment—Reduce today’s emissions of diesel PM by over 95 percent and NOx by over 80 percent by 2020. Cargo handling equipment is used to move goods at ports and intermodal rail yards. In 2005 and 2006, the ARB adopted two rules to clean up new and existing diesel equipment and gas forklifts. As an example, the diesel rule requires that all yard trucks be replaced with new, very low diesel PM engines (or cleaner alternative fuels), most within the next five years.

The ARB received \$1 billion from Proposition 1B, the *Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006*, to reduce emissions from activities related to goods movement along California's four major trade corridors. These funds are allocated to high pollution areas to reduce the public health impacts of goods movement activities.

III. Conclusion

As a result of the local air districts’ and the ARB’s work to reduce criteria and toxic air pollution, Californians today breathe the cleanest air since measurements have been recorded. The number of first stage alerts in the Los Angeles area has been cut from over 200 per year in the 1970s to less than 10 per year today. Other regions of the State also have vastly improved air quality despite increases in population, the number of motor vehicles, and the distances they are driven. The number of unhealthy days has improved considerably across the State, down by almost half between 1980 and 2000 in Los Angeles. The decline in statewide health risk from air toxics, like benzene and lead, has been equally dramatic. However, California still has a long way to go to achieve its clean air goals. Much of the State is still nonattainment for the State and federal ozone and particulate matter ambient air quality standards, and nearly all Californians breathe unhealthy air at times. The programs described above will continue to reduce criteria and toxic pollutants into the future. In the 2020 timeframe, new SIP strategies provide the reductions necessary to achieve federal air quality standards. The potential criteria pollutant and air toxics co-benefits from AB32 are very small when compared to what the State will achieve in the future through its long-standing regulatory programs.