

State of California
AIR RESOURCES BOARD

PUBLIC MEETING TO CONSIDER THE REVISION OF
EMISSION CONTROL REQUIREMENTS TO MITIGATE THE IMPACT OF
TRANSPORTED POLLUTANTS ON OZONE CONCENTRATIONS IN DOWNWIND AREAS

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EXECUTIVE SUMMARY

In August of 1990, the Air Resources Board adopted regulations to mitigate the impact of transported pollutants on downwind areas. This report describes the need for amendments to those regulations and presents a number of alternatives for the Board's consideration.

The transport mitigation regulations were adopted to implement the California Clean Air Act of 1988 (the Act). Last year, key features of the Act were modified, creating a need to revisit the permitting component of the transport mitigation requirements.

The 1990 regulations required that upwind areas adopt a "no net increase" permitting program for ozone precursors for all new or modified stationary sources. This was consistent with a statutory mandate that the same program be in place in serious and severe nonattainment areas. Five areas are subject to the transport mitigation regulation: the Broader Sacramento Area, San Francisco Bay Area, San Joaquin Valley, the Ventura and Santa Barbara portions of the South Central Coast Air Basin, and the South Coast Air Basin.

Between 1988 and 1992 it became apparent that the "no net increase" permitting requirement put undue pressure on small businesses. Accordingly, the author of the original Act (Assemblyman Byron Sher) sponsored amendments which, among other things, provided greater flexibility to all but the most polluted areas (AB 2783; Chapter 945, Statutes of 1992).

The amended Act allows districts with "moderate," "serious," and "severe" classifications to permit incrementally smaller stationary sources without directly mitigating their air quality impacts. This permitting relief is limited to stationary sources with a potential-to-emit of less than 25, 15 and 10 tons per year for moderate, serious and severe areas, respectively. The amendments also added an additional classification--extreme--which retains the no net increase requirement.

The statutory amendments did not, however, modify the original transport mandates nor did they alter the Board's existing regulations. Thus, the new permitting thresholds can be applied only in those areas not subject to transport mitigation requirements.

Staff believe that the economic pressures which prompted AB 2783 are present throughout the state. Permitting relief is needed whether the small businesses are located in upwind or downwind areas. Accordingly, staff is recommending that the ARB's transport mitigation regulation be modified. Specifically, staff is proposing that the Board add a potential-to-emit threshold of 10 tons per year to the current no net increase requirement. This would restrict its applicability to larger stationary sources in all but the South Coast, which is statutorily required to retain a more stringent permitting program.

There are several other methods for achieving the permitting relief objective. A second option the Board may wish to consider is deleting the permitting component of the regulation entirely. This option would allow districts to use the potential-to-emit thresholds set forth in statute.

If the regulation is amended, districts in four of the five upwind areas would have greater flexibility in permitting stationary sources. These districts would be able to issue permits to small facilities--such as gasoline service stations, dry cleaning operations and small auto body shops--without using credits in the community bank or requiring the operator to obtain offsets.

There are three major issues associated with staff's proposal: the potential for adverse environmental impacts on downwind areas, inequities between upwind and downwind areas, and legislative intent. These issues are discussed further in the staff report.

Staff's proposal would allow some unmitigated emission increases in upwind areas. Therefore, it may result in significant, adverse environmental effects. Staff believe there are overriding economic considerations which outweigh the potential adverse environmental impacts.

No adverse economic impact to small business is anticipated because the proposed amendments are expected to produce an economic benefit by lowering the cost of obtaining an air quality permit.

The proposed amendments to the transport mitigation regulations were developed after consultation with affected districts and a public workshop.

I. BACKGROUND

A. Existing Regulations

The goal of the California Clean Air Act of 1988 is clear: expeditious attainment of the state air quality standards. Accordingly, the Act requires each district with an air quality problem related to ozone, carbon monoxide, sulfur dioxide or nitrogen dioxide to develop a plan and an emission control program to attain the standards. For one pollutant--ozone--the Act specifically recognizes that meeting this goal requires upwind districts to mitigate the impact of the pollutants they generate and transport downwind.

The Act requires the Board to take specific actions related to the transport of ozone and ozone precursors between air basins. Health and Safety Code (HSC) section 39610(a) requires the Board to identify air basins affected by transported air pollutants and the upwind source of origin, to assess the relative contribution of upwind emissions to downwind ozone concentrations to the extent permitted by available data, and to establish mitigation requirements commensurate with the level of contribution from upwind areas.

In December 1989, the Board adopted a regulation identifying 14 transport couples, each consisting of an upwind area that is the source of transported ozone or ozone precursors, and the downwind receptor area affected by those pollutants (Title 17, CCR, section 70500).

In August 1990 the Board approved a qualitative assessment of transport impacts based on the staff's evaluation of ozone violation days in downwind areas. At that time, the Board categorized downwind impacts as follows:

- o transport was deemed "overwhelming" on the days that upwind emissions independently caused a violation of the state ozone standard in the downwind area;
- o transport was deemed "significant" on the days that upwind emissions contributed measurably to a violation of the state ozone standard in the downwind area, but locally generated emissions also influenced the ozone concentrations;
- o transport was deemed "inconsequential" on the days that the state ozone standard was violated in the downwind area without a significant transport contribution from the upwind area.

Because transport impacts were evaluated for individual ozone violation days, some areas fell in more than one category. Table 1 shows the 14 identified transport couples and the relative contributions(s) of the upwind emissions on downwind ozone exceedences.

Table 1

IMPACT OF TRANSPORTED POLLUTANTS ON DOWNWIND OZONE CONCENTRATIONS

Transport Couple	Impact
Broader Sacramento to Upper Sacramento Valley	S,I
Broader Sacramento to San Francisco Bay Area	S,I
Broader Sacramento to San Joaquin Valley	S,I
San Francisco Bay Area to Broader Sacramento	S,I
San Francisco Bay Area to North Central Coast	O
San Francisco Bay Area to San Joaquin Valley	S,I
San Joaquin Valley to Broader Sacramento	S,I
San Joaquin Valley to Great Basin Valleys	O
San Joaquin Valley to Southeast Desert	O,I
South Central Coast to South Coast	S,I
South Coast to Southeast Desert	O,I
South Coast to San Diego	O,S,I
South Coast to South Central Coast	S,I

Legend: O - overwhelming
S - significant
I - inconsequential

Also in August 1990, the Board adopted regulations for mitigating the impact of upwind emissions on downwind ozone concentrations. The regulations impose specific requirements on the areas identified as having a significant or overwhelming impact on exceedences of the ozone standard in downwind areas. The five areas affected by the regulations are: the Broader Sacramento Area (as defined in the regulation), San Francisco Bay Area, San Joaquin Valley, the Ventura and Santa Barbara portions of the South Central Coast Air Basin, and the South Coast Air Basin.

The mitigation regulations specify two requirements which apply to all upwind areas: 1) a permitting program which provides for no net increase in emissions of ozone precursors from new or modified permitted stationary sources, to be adopted by July 1, 1991; and 2) best available retrofit control technology (BARCT) requirements for existing stationary sources. The BARCT requirement applies to all sources and is, at a minimum, to be adopted for the source categories that emit 75% of the emissions of reactive organic gases (ROG) and oxides of nitrogen (NOx) from permitted stationary sources, by January 1, 1994 (the remaining 25% of source categories may be regulated after that date). The 75% is calculated for each ozone precursor, against the 1987 actual emission inventory for permitted stationary sources.

Districts which are the source of overwhelming transport must meet one additional requirement. These districts must demonstrate that their plans are sufficient to attain the state ozone standard in both their own districts and in the downwind area(s) on which they have an overwhelming impact.

The Act requires the Board to revisit its transport analysis at least once every three years. Reconsideration of the transport mitigation regulations, as discussed in this report, is scheduled for the Board's March 1993 hearing. A separate hearing on the identification of transport couples is scheduled for August 1993.

B. California Clean Air Act Amendments

During the 1991-92 legislative session, the California Clean Air Act was significantly amended (AB 2783, Statutes of 1992, Chapter 945). Among other changes, AB 2783 modified the nonattainment area classification scheme and the permitting requirements for new and modified stationary sources.

The Act originally classified nonattainment areas by the length of time needed to attain state standards. Under this scheme all of the urban areas in the state, including the transport source areas, were classified as severe. Area classifications are now based on measured pollutant concentrations. In addition, a new classification, "extreme," has been added to the existing moderate, serious and severe classifications. As a result of these changes, urban area classifications now range from moderate to extreme.

The change to permitting requirements was equally significant. Prior law required serious and severe areas to prevent any net increase in emissions due to the permitting of new or modified sources. Under current law this requirement is limited to areas classified as extreme (i.e., the South Coast). Areas classified as moderate, serious, or severe may allow unmitigated emissions from sources that have the potential to emit up to 25, 15 and 10 TPY, respectively. The new ozone classifications and thresholds for stationary sources subject to no net increase permitting requirements are shown in Figure 1. The classifications of upwind areas under previous and current law are contrasted in Figure 2.

Although AB 2783 provides for increased flexibility for districts in establishing permitting requirements it does not modify the Act's transportation mitigation requirements, nor does it automatically override the Board's transport mitigation regulations. Unless the Board acts to change its regulations, the potential permitting relief granted by AB 2783 will not be available to districts whose transported pollutants have a significant or overwhelming impact on downwind areas.

Figure 1

Ozone Classification and Permitting Thresholds
Under Current Law

<u>Area Classification</u>	<u>Peak 1989-91 Ozone Concentration*</u>	<u>No Net Increase Applicability**</u>
Moderate	0.09 ppm to 0.12 ppm	25 TPY
Serious	0.13 ppm to 0.15 ppm	15 TPY
Severe	0.16 ppm to 0.20 ppm	10 TPY
Extreme	Greater than 0.20 ppm	0 TPY

* excludes exceptional and extreme concentration events, and transport from upwind areas

** based on potential-to-emit

Figure 2

Ozone Classifications for Upwind Areas

<u>Upwind Area</u>	<u>Old</u>	<u>New</u>
San Francisco Bay Area	Severe	Serious
Broader Sacramento	Severe	Serious
San Joaquin Valley	Severe	Severe
Santa Barbara/Ventura	Severe	Moderate/Severe
South Coast	Severe	Extreme

II. NEED FOR CHANGES TO EXISTING REGULATION

The permitting relief granted by AB 2783 was provided due to the ongoing difficulty of finding emissions offsets for smaller sources. This relief is needed over the long term, since offsets will become gradually harder to obtain.

Permitting relief has become even more necessary in light of California's economic climate. The current economic downturn hit California later than it did the rest of the nation, and the State's recovery is also expected to lag behind that of other states. Unemployment in the State continues at a rate of approximately 10%. Thus, permitting relief is needed in the near term to aid economic recovery.

Two types of businesses would benefit from the proposed change to the transport mitigation regulation. Large industry with individual facilities below the 10 TPY potential-to-emit threshold, and small businesses with operations emitting far below that amount. Both are

important generators of jobs and contribute to the overall economic health of the state.

Districts that have a "no net increase" permitting rule cannot allow any increase in emissions from new or modified permitted stationary sources. New facilities that wish to locate in the area, or existing facilities that want to expand their operations, must provide emission reductions to offset the proposed increases.

Offsets--emission reductions in excess of those required by district clean air plans--are in short supply in most areas of the state. This shortage constrains growth and the replacement of small, independent businesses. Securing offsets is also a greater burden for small businesses due to the high cost. At a minimum, offset costs would be equivalent to the cost of control measures for NOx and ROG. Control costs vary for both pollutants, but the cost of reducing NOx emissions, for example, may be as much as \$24,000 per ton (based on power plant controls). In addition, because of market factors such as limited availability, offset costs may be higher than control costs.

Some districts have established community emission banks to provide offsets for small sources. However, the demand for these reductions exceeds the available emission credits. The Ventura and Bay Area districts provide community bank emissions to sources emitting less than five and 25 tons per year, respectively. Both districts expect to exhaust their community banks soon.

Small businesses make up the bulk of facilities which would receive permit relief under these amendments. The staff's proposal responds to current economic realities and continues the Board's practice of considering the small business impacts of its actions.

III. ALTERNATIVES FOR AMENDING REGULATION

In light of the changes made to the California Clean Air Act, staff is proposing that the Board provide upwind areas a degree of permitting relief comparable to that afforded other areas by AB 2783. Specifically, staff recommends that the Board revise the transport mitigation regulations to make only those stationary sources with the potential to emit 10 TPY or more of an ozone precursor (reactive organic gases (ROG) or oxides of nitrogen (NOx)) subject to the no net increase requirement.

There are several advantages to the staff proposal. First, the 10 TPY threshold would provide permitting relief for the vast majority of small stationary sources. Second, the principle that upwind areas have equally stringent control measures as downwind areas would be preserved in all but the South Central Coast-to-South Coast transport corridor. Third, the regulation would treat all transport producers the same.

Another option which the Board may wish to consider is deleting the permitting requirement from the transport mitigation regulation entirely. This would provide somewhat more permitting relief to the San Francisco Bay

Area, the Broader Sacramento Area, and Santa Barbara County. Rather than a uniform 10 TPY, each upwind area would be subject to the AB 2783 thresholds for moderate, serious and severe areas without regard to its status as a transport contributor.

Figure 3 compares both options to the existing transport mitigation regulations. Under both options, the effect on the San Joaquin Valley, the South Coast, and Ventura County is the same. However, the degree of permitting relief afforded to the San Francisco Bay Area, Broader Sacramento Area, and Santa Barbara County varies depending on which option is chosen.

Figure 3

**Comparison of Existing, Proposed, and Statutory
"No Net Increase" Applicability Levels**

<u>Upwind Area</u>	<u>Existing Regulation</u>	<u>Staff Proposal</u>	<u>Statutory Threshold</u>
San Francisco Bay Area	0 TPY	10 TPY	15 TPY
Broader Sacramento Area	0 TPY	10 TPY	15 TPY
San Joaquin Valley	0 TPY	10 TPY	10 TPY
Santa Barbara/Ventura	0 TPY	10/10 TPY	25/10 TPY
South Coast	0 TPY	0 TPY	0 TPY

A third approach to amending the transport mitigation regulation was considered by staff, but ultimately rejected. Under this approach, ARB would require that the permitting rule in each upwind area be as strict as the most stringent permitting rule in any corresponding downwind area. This approach would have the same effect as the 10 TPY threshold, except that Ventura and Santa Barbara would be required to mitigate all emission increases due to their transport impacts on the South Coast Air Basin. Staff rejected this approach because it granted no relief to Ventura and Santa Barbara counties. The former is about to exhaust its community offsets bank and has a pressing need for greater flexibility. The latter has an emissions inventory that pales in comparison to the South Coast (South Coast's is 26 times larger).

The last option considered by staff was "no change." Leaving the current regulation in place would provide the maximum degree of air quality protection to downwind areas. However, it does nothing to address California's economic climate or the need for permitting relief. For that reason, staff rejected the no change alternative.

IV. MAJOR ISSUES

Potential For Adverse Environmental Impacts

Staff's proposal could result in some adverse environmental impacts. These are described in Chapter VI, with further detail and calculation methods provided in Appendix D. The overall emissions impact of the proposed action appears to be small: 0.1 - 2.1 tons per day of combined ozone precursors, in each upwind area, by the year 2000.

The difference between staff's recommendation and the second option is smaller still, though equity is an important consideration (see next issue). If the Board were to delete the permitting requirement entirely, staff estimates an emissions impact of up to 2.6 tons per day. This half ton difference is for the same year (2000) and includes both ozone precursors.

For rural areas overwhelmed by transport, any emissions increase (or rather, foregone reductions) is considered to be too much. Air quality in such districts is almost entirely dependent on the actions of upwind areas. Staff believe the steady downward trend in vehicular emissions, plus the effectiveness of other transport mitigation requirements, is sufficient protection for the near to mid-term. However, given the uncertainties in the emission impact analysis, staff recommends that the Board revisit this assessment periodically. That would be consistent with the triennial review required by the Act.

Equity

Staff's proposal creates at least one equity issue between upwind and downwind areas. The 10 TPY option allows districts transporting pollutants to the South Coast (Ventura and Santa Barbara) to have a less stringent permitting program than that District. The 10 TPY differential also gives the South Central Coast districts a competitive advantage. Given that every other district adjacent to the South Coast has the same advantage (San Diego, San Bernardino, Imperial), staff believes that the apparent competitive advantage is not significant. Regarding the disparity in stringency, staff points out that South Central Coast transport is never "overwhelming" in magnitude. South Coast, by contrast, overwhelms its downwind neighbors. Similarly, all other upwind areas have at least one area downwind of them that is overwhelmed by their transport.

Choosing the second option identified by staff would raise additional equity concerns. Under this approach, Bay Area and the Broader Sacramento Area would have a 15 TPY threshold, while the San Joaquin Valley which receives transport from both would have 10 TPY. This option also creates inequities between transport producers. Under the existing regulations, all transport producers have the same permitting requirement. Under this option, potential-to-emit thresholds would vary from 10 TPY to 25 TPY (leaving South Coast aside).

Staff believes that the equity considerations are important and should be weighed carefully by the Board. However, it must also be said that basing equity and/or "equivalence" on permitting thresholds is fairly

simplistic. The stringency of any requirement must be considered in the context of overall district programs, including other aspects of permitting, enforcement, and related prohibitory rules.

Legislative Intent

Some commenters argue that AB 2783 was intended to grant permitting flexibility to all districts, irrespective of transport status. If the Board accepts this view, there is really only one option: to conform the transport mitigation requirements to current law.

Staff believes the Board has wider latitude. AB 2783 did not change the transport provisions of the Act nor did it supercede the transport mitigation regulations. In staff's view, the intent of the Legislature was to provide permitting relief and to protect downwind areas. Accordingly, approval of any of the alternatives discussed in this report is consistent with legislative intent.

V. PUBLIC COMMENTS AND STAFF'S RESPONSE

This chapter reports and responds to comments made at the public workshop on December 1, 1992, and written comments received prior to the publication of this staff report.

Negligible Environmental Impact

~~Comment: Transport is caused by existing sources, not by new sources.~~
The retrofit element of the regulation is the most important emission reduction element in the regulation; the permitting element should be deleted.

Response: Staff agrees that the largest quantity of emissions reductions will be obtained by the application of retrofit technology to existing sources. However, transport contributions are not limited to existing stationary sources (see next response, below).

Comment: Sources that emit less than 15 TPY of NOx or ROG are generally small facilities that don't have tall stacks. Because the emissions from these sources are small and emitted at low elevations, they do not contribute significantly to long-distance transport.

Response: All emission sources contribute to transport. It is not the amount of emissions contributed by any particular source or group of sources that is important, but rather the total amount of pollutants emitted collectively. Transport can occur near the earth's surface or in layers aloft. The height of the emission release is important in determining where pollutants will be transported, but not in whether or how far they will be transported. Some atmospheric conditions will cause emissions from both high and low level sources to mix and be transported in the same direction, while other atmospheric conditions will effect little mixing and cause these pollutants to be transported in different directions.

Potential for Larger Environmental Impacts

Comment: Differential permitting requirements could exacerbate the jobs/housing imbalance in the upper San Joaquin Valley by attracting business to the Bay Area or Broader Sacramento Area, while growth restrictions continue to push residential development into the Valley. Additional long-distance commute traffic will increase emissions overall and will increase transport impacts.

Response: There is a risk that option two (deleting the permitting requirement) would have this effect. Its magnitude is impossible to quantify, however, given all the factors that affect job creation and residential development. Among such factors are local growth restrictions, development incentives, and housing costs.

Unfair Economic Advantage

Comment: Upwind areas allowed to have less stringent permitting requirements will find it easier to attract and permit new industries. This is an unfair economic advantage, particularly given their effect on downwind transport recipients.

Response: Both options have this defect to some degree. Under the staff's proposal, the competitive advantage is limited to Ventura and Santa Barbara as compared to the South Coast. Since all other districts adjacent to the South Coast have this advantage already, staff believes the effect will be minimal. Under option two, Santa Barbara gains an additional edge over Ventura (25 TPY vs. 10 TPY), and the Bay Area and Broader Sacramento Area gain an advantage over the San Joaquin Valley (15 TPY vs. 10 TPY). This could have a more dramatic effect for the reasons suggested in the prior comment. However, that effect cannot be quantified. In addition, though competitive advantages are a factor, staff believes the Board should base its decision on primarily air quality considerations. From that standpoint, the difference between staff's proposal and option two are far less significant.

Lack of Technical Support for the Proposals

Comment: The Board is being asked to relax its transport mitigation requirements without modeling data to support such a recommendation. The negative impacts of changing the regulation need to be identified and dealt with first.

Response: The technology needed to quantify the transport impact of increased emissions is being developed for most areas, but it is not yet available. However, the staff's analysis of potential emissions impacts indicates that either proposal will produce a very small percentage increase in emissions. It is likely that the increased pollutant transport associated with this emissions increase will also be small.

Comment: If subsequent modeling shows that relaxing the transport mitigation regulations harm downwind areas, will the Board re-apply stricter controls?

Response: The Board is directed to review its transport analysis every three years. The results of air quality models now under development will be considered in future reviews of the Board's transport mitigation requirements.

Effective Date of Permitting Requirements

Comment: Some upwind districts did not adopt NSR limits by July 1, 1991, as required by the transport mitigation regulations. To ensure equity, they should be required to mitigate emissions increases after that date. If not, districts that met this deadline should be given credit for the emissions that were mitigated as a result.

Response: All serious and severe nonattainment areas were required to have a no net increase permitting program in place by July 1, 1991 by prior statute (Health and Safety Code, section 40918(a), as originally enacted). The permitting thresholds that took effect January 1, 1993 did not remove this obligation, but rather established a new statutory minimum from that date forward. Previously complying districts cannot bank the emissions reductions achieved under prior mandates. Non-adopting districts will be required to mitigate emissions increases occurring from July 1, 1991 to the local adoption date.

Applicability of Potential-to-Emit Thresholds

Comment: Offset thresholds should apply to individual permit units rather than the entire facility. The percentage emission increase due to offset thresholds based on application size is the same as that based on facility size, but the number of permit applications is much larger.

Response: The Act's permitting program requirements refers to new or modified stationary sources which emit or have the potential to emit various levels ozone precursors. The ARB interprets "stationary source" to mean the entire facility.

Permit activity summaries provided by the BAAQMD showed some facilities that had submitted more than 20 permit applications in a single year. The precursor emission increases for some of these large facilities were indeed small despite the large number of applications. There is no guarantee, however, that this would always be the case.

If this suggestion is implemented, a facility with 20 permit units located in an area with a 10 TPY no net increase rule will be able to avoid mitigation requirements as long as each permit unit has the potential to emit no more than 9.9 TPY of each ozone precursor. The entire facility could have the potential to emit almost 400 TPY of precursors and still be exempt from mitigation requirements.

This commenter's proposal could extend AB 2783's relief well beyond small sources, and greatly increase allowable emissions in upwind areas.

VI. IMPACT OF PROPOSED REGULATION

A. Environmental Impacts

Adoption of the proposed amendments to the transport mitigation regulations may result in adverse impacts to the environment. The amendments would allow four upwind transport areas to relax their new source siting requirements for permitted stationary sources that emit ozone precursors. Thus, this action may result in increased ozone concentrations in both upwind and downwind districts. Because there is no requirement that the local district provide emission reductions to compensate for the resulting emission increases, the proposed revisions may reduce the effectiveness of the air quality plans required in these areas. The added emissions may also increase the amount of ozone and ozone precursors transported into downwind areas.

While it is not possible to quantify the transport impact of these emissions on downwind areas, staff have estimated the potential emission increases associated with both 10 TPY and the statutory thresholds (see Appendix D). Uncertainties in the analysis and the significance of the potential emission increases are also discussed.

The potential emission increases in the year 2000 with a 10 TPY threshold range from 0.1 to 2.1 tons per day (total ozone precursors) in each upwind area. Although the emission increases represent a small fraction of the total emissions inventories for all affected districts, a significant adverse environmental effect may occur because some quantity of emission increases will go unmitigated as a result of the amendments.

There are overriding considerations which outweigh the unavoidable significant adverse environmental impacts associated with the proposed amendments. As described in Chapter II these are primarily economic. The amendments would provide needed permitting relief to small businesses and some larger businesses.

Staff recommends that the Board recognize that the proposed amendments may result in significant, adverse environmental impacts and make a finding of overriding considerations.

B. Economic Impacts

The Executive Officer of the Board has determined that the proposed amendments will not create costs or savings [as defined in Government Code Section 11346.5(a)(6)] to any state agency or in federal funding to the state, costs or mandate to any local agency or school district reimbursable by the state pursuant to Part 7 (commencing with Section 17500), Division 4, Title 2 of the Government Code, or result in other nondiscretionary costs or savings to local agencies.

Districts which are designated nonattainment for ozone, carbon monoxide, sulfur dioxide, and nitrogen dioxide are required to develop and prepare a plan pursuant to Health and Safety Code Section 40910 et seq. The costs incurred by the districts in connection with the planning process are not reimbursable by the state pursuant to Part 7 (commencing with Section 17500), Division 4, Title 2 of the Government Code because the applicable statutes do not mandate a new program within the meaning of Section 6 of Article XIII B of the California Constitution. In addition, districts have the authority to levy fees sufficient to cover their costs for planning, enforcement, and other district programs. See Health and Safety Code Sections 42311 and 41512.5

The adoption of amendments to the transport mitigation regulations is not expected to result in any adverse economic effects. On the contrary, the amendments are expected to be economically beneficial to small businesses since they will ultimately reduce permitting requirements for small sources of pollution.

As a result, the Executive Officer has determined that adoption of these amendments will not have a significant adverse impact on small businesses or private persons or businesses (other than small businesses).

The Board must determine that no alternative considered by the agency would be more effective in carrying out the purpose for which the regulations are proposed, nor would be as effective or less burdensome to affected persons than the proposed action.

VII. PUBLIC PARTICIPATION

The staff conducted a workshop on December 1, 1992, to discuss possible revisions to the permitting requirements of the ARB transport mitigation regulations. An announcement for this workshop was mailed to over 700 individuals and all air pollution control districts. The notice identified three alternatives: 1) make no change; 2) add a 10 TPY threshold to the no net increase permitting requirement (staff's proposal); or 3) require permitting rules in the upwind area to be at least as stringent as permitting rules in affected downwind areas.

Approximately 40 people attended the workshop. Oral comments were made for and against the staff's proposal. In addition, a fourth option was suggested: to allow each district's permitting requirements be determined solely by its classification under AB 2783, without regard to the issue of transport. All parties felt that a more quantitative assessment was needed to distinguish between the various options, and to gauge the overall impact of amending the transport mitigation regulation. Staff attempted to address that concern Appendix D to this staff report.

Staff received nine comment letters in response to the workshop notice. The major issues raised in the oral and written comments are discussed in Chapter V. Copies of the workshop notice and written comments on the staff's proposal are contained in Appendices B and C, respectively.

APPENDIX A

Text of Proposed Regulation

Note: Language to be added is underlined and language to be removed is dashed through

PROPOSED TEXT OF REGULATIONS
FOR MITIGATING THE IMPACT OF UPWIND EMISSIONS
ON DOWNWIND OZONE CONCENTRATIONS.

Amend Subchapter 1.5. Air Basins and Air Quality Standards, of Chapter 1, Title 17, California Code of Regulations, sections 70600 and 70601, as follows:

ARTICLE 6. TRANSPORT MITIGATION

70600. Emission Control Requirements

Districts within the areas of origin of transported air pollutants, as identified in section 70500(c), shall include sufficient emission control measures in their attainment plans for ozone adopted pursuant to Chapter 10 of the Health and Safety Code, Part 3, Division 26, beginning with section 40910, to mitigate the impact of pollution sources within their jurisdictions on ozone concentrations in downwind areas. At a minimum, the attainment plans for districts within the air basins or areas specified below shall conform to the following requirements:

- ~~1-(a)~~ Broader Sacramento Area (as defined in section 70500(b)(3)) shall:
- (a1) require the adoption and implementation of best available retrofit control technology, as defined in Health and Safety code section 40406, on all existing stationary sources of ozone precursor emissions as expeditiously as practicable. At a minimum, the plan shall provide for the adoption of rules that represent best available retrofit control technology for source categories that collectively amount to 75 percent of the 1987 actual reactive hydrocarbon emission inventory for permitted stationary sources, and 75 percent of the 1987 actual nitrogen oxides emissions inventory for permitted stationary sources, no later than January 1, 1994.
 - (b2) provide for a permitting program designed to achieve no net increase in emissions of ozone precursors from all new or modified permitted stationary sources that have the potential to emit 10 tons per year or more of either oxides of nitrogen or reactive organic gases. Such program shall be adopted and implemented no later than July 1, 1991.
 - (c3) include measures sufficient to attain the state ambient air quality standard for ozone by the earliest practicable date within the Upper Sacramento Valley, except as provided in Health and Safety Code section 41503(d), during air pollution episodes which the state board has determined meet the following conditions:

- (1A) are likely to produce a violation of the state ozone standard in the Upper Sacramento Valley;
- (2B) are dominated by overwhelming pollutant transport from the Broader Sacramento Area; and
- (3C) are not measurably affected by emissions of ozone precursors from sources located within the Upper Sacramento Valley.

2-(b) San Francisco Bay Area Air Basin shall:

- (a1) require the adoption and implementation of best available retrofit control technology, as defined in Health and Safety Code section 40406, on all existing stationary sources of ozone precursor emissions as expeditiously as practicable. At a minimum, the plan shall provide for the adoption of rules that represent best available retrofit control technology for source categories that collectively amount to 75 percent of the 1987 actual reactive hydrocarbon emissions inventory for permitted stationary sources, and 75 percent of the 1987 actual nitrogen oxides emissions inventory for permitted stationary sources, no later than January 1, 1994.
- (b2) provide for a permitting program designed to achieve no net increase in emissions of ozone precursors from all new or modified permitted stationary sources that have the potential to emit 10 tons per year or more of either oxides of nitrogen or reactive organic gases. Such program shall be adopted and implemented no later than July 1, 1991.
- (c3) include measures sufficient to attain the state ambient air quality standard for ozone by the earliest practicable date within the North Coast Air Basin, except as provided in Health and Safety Code section 41503(d), during air pollution episodes which the state board has determined meet the following conditions:
 - (1A) are likely to produce a violation of the state ozone standard in the North Coast Air Basin;
 - (2B) are dominated by overwhelming pollutant transport from the San Francisco Bay Area Air Basin; and
 - (3C) are not measurably affected by emissions of ozone precursors from sources located within the North Central Coast Air Basin.

3-(c) San Joaquin Valley Air Basin shall:

- (a1) require the adoption and implementation of best available retrofit control technology, as defined in Health and Safety Code

section 40406, on all existing stationary sources of ozone precursor emissions as expeditiously as practicable. At a minimum, the plan shall provide for the adoption of rules that represent best available retrofit control technology for source categories that collectively amount to 75 percent of the 1987 actual reactive hydrocarbon emissions inventory for permitted stationary sources, and 75 percent of the 1987 actual nitrogen oxides emissions inventory for permitted stationary sources, no later than January 1, 1994.

- (b2) provide for a permitting program designed to achieve no net increase in emissions of ozone precursors from all new or modified permitted stationary sources that have the potential to emit 10 tons per year or more of either oxides of nitrogen or reactive organic gases. Such program shall be adopted and implemented no later than July 1, 1991.
- (c3) include measures sufficient to attain the state ambient air quality standard for ozone by the earliest practicable date within the Southeast Desert Air Basin and the Great Basin Valleys, except as provided in Health and Safety Code section 41503(d), during air pollution episodes which the state board has determined meet the following conditions:
 - (1A) are likely to produce a violation of the state ozone standard in the Southeast Desert Air Basin or the Great Basin Valley;
 - (2B) are dominated by transported pollutants from the San Joaquin Valley Air Basin; and
 - (3C) are not measurably affected by emissions of ozone precursors from sources located within the Southeast Desert Air Basin or the Great Basin Valleys, as applicable.
- 4. (d) South Central Coast Air Basin south of the Santa Barbara-San Luis Obispo County border shall, for sources located in that portion of the Basin:
 - (a1) require the adoption and implementation of best available retrofit control technology, as defined in Health and Safety Code section 40406, on all existing stationary sources of ozone precursor emissions as expeditiously as practicable. At a minimum, the plan shall provide for the adoption of rules that represent best available retrofit control technology for source categories that collectively amount to 75 percent of the 1987 actual reactive hydrocarbon emissions inventory for permitted stationary sources, and 75 percent of the 1987 actual nitrogen oxides emissions inventory for permitted stationary sources no later than January 1, 1994.

- (b2) provide for a permitting program designed to achieve no net increase in emissions of ozone precursors from all new or modified permitted stationary sources that have the potential to emit 10 tons per year or more of either oxides of nitrogen or reactive organic gases. Such program shall be adopted and implemented no later than July 1, 1991.

6-(e) South Coast Air Basin shall:

- (a1) require the adoption and implementation of best available retrofit control technology, as defined in Health and Safety Code section 40406, on all existing stationary sources of ozone precursor emissions as expeditiously as practicable. At a minimum, the plan shall provide for the adoption of rules that represent best available retrofit control technology for source categories that collectively amount to 75 percent of the 1987 actual reactive hydrocarbon emissions inventory for permitted stationary sources, and 75 percent of the 1987 actual nitrogen oxides emissions inventory for permitted stationary sources, no later than January 1, 1994.
- (b2) provide for a permitting program designed to achieve no net increase in emissions of ozone precursors from all new or modified permitted stationary sources. Such program shall be adopted and implemented no later than July 1991; and
- (c3) include measures sufficient to attain the state ambient air quality for ozone by the earliest practicable date within the portions of the South Central Coast Air Basin south of the Santa Barbara-San Luis Obispo County border, the San Diego Air Basin, and the Southeast Desert Air Basin, except as provided in Health and Safety Code section 41503(d), during air pollution episodes which the state board has determined meet the following conditions:
- (1A) are likely to produce a violation of the state ozone standard in the South Central Coast Air Basin south of the Santa Barbara-San Luis Obispo County border, or in the San Diego Air Basin, or in the Southeast Desert Air Basin;
- (2B) are dominated by transported pollutants from the South Coast Air Basin; and
- (3C) are not measurably affected by emissions of ozone precursors from sources located within the South Central Coast Air Basin south of the Santa Barbara-San Luis Obispo County border, or the San Diego Air Basin, or the Southeast Desert Air Basin, as applicable.

NOTE: AUTHORITY CITED: SECTIONS 39601, 39610(b), HEALTH AND SAFETY CODE.
REFERENCES CITED: SECTIONS 39610, 40911(b), 40912, 40913, 40921 AND 41503, HEALTH AND SAFETY CODE.

70601. Procedure For Limiting the Application of Best Available Retrofit Control Technology

A district may exclude one or more sources from the requirement to apply best available retrofit control technology as transport mitigation pursuant to section 70600 provided that the district plan prepared pursuant to Part 3, Chapter 10 (commencing with section 40910) of Division 26 of the Health and Safety Code and approved by the Board pursuant to Part 4, Chapter 1 (commencing with section 41500) of Division 26 of the Health and Safety Code demonstrates that:

- (a) emissions from the source, because of its location, do not contribute to ozone violations in any downwind area; or
- (b) emissions reductions from the source are not needed to attain the ozone standard in any downwind area; or
- (c) the district is implementing an alternative emission reduction strategy pursuant to section 40914 of the Health and Safety Code and that strategy will be at least as effective and as expeditious as the transport mitigation requirements specified in section 70600.

**NOTE: AUTHORITY CITED: SECTIONS 39601, 39610(b), HEALTH AND SAFETY CODE.
REFERENCES CITED: SECTIONS 39610, 40911(b), 40912, 40913, 40921 AND 41503, HEALTH AND SAFETY CODE.**

AIR RESOURCES BOARD

2020 L STREET
P.O. BOX 2815
SACRAMENTO, CA 95812



Public Workshop to Discuss Potential Amendments to the
Existing Transport Mitigation Regulation (CCR Section 70600)

The Air Resources Board (ARB/Board) staff has scheduled a public workshop to discuss potential revisions to the existing transport mitigation regulation (Title 17, California Code of Regulations, section 70600), given changes made to the California Clean Air Act (Act) during the 1991-92 Legislative Session (AB 2783, Sher; Chapter 945). The public workshop will be held at the time and location identified below:

DATE : December 1, 1992
TIME : 10:00 am - 1:00 pm
PLACE: Air Resources Board
Hearing Room, Lower Level
2020 L Street
Sacramento, California

In 1990, the Air Resources Board established a transport mitigation regulation for districts which cause or contribute to violations of the state ozone standard in downwind areas (see attachment for more background). The regulation imposes a "no net increase" permitting requirement for new and modified stationary sources, and a best available retrofit control technology (BARCT) requirement for existing stationary sources.

The California Clean Air Act of 1988 imposed equally stringent permitting and BARCT requirements on all serious and severe nonattainment areas. However, amendments to the Act effective January 1, 1993, alter both the classification framework and the stringency of permitting requirements in all but one newly defined "extreme" area. One objective of the Act's amendments is to provide relief to small businesses unable to locate or afford the offsets needed to comply with "no net increase" permitting rules.

Staff is contemplating revisions to the transport mitigation regulation to provide a comparable degree of relief. Three options are under consideration: 1) no change; 2) add a 10 ton per year threshold to the no net increase permitting requirement; or 3) require that the permitting rules in upwind areas be at least as stringent as the rules in all affected downwind areas.

At present, staff prefers the second option. This option would provide additional permitting flexibility in upwind areas, without significantly diminishing the degree of mitigation afforded to downwind areas.

Staff is encouraging all interested persons to attend the public workshop. You may also provide oral or written comments. If you wish to submit the latter, please send to the attention of Ms. Sylvia Oey, Office of Air Quality & Transportation Planning, P.O. Box 2815, Sacramento, California, 95812, or telephone Ms. Oey at (916) 323-1495. Staff would appreciate receiving comments on the proposed options prior to December 1, 1992. An additional opportunity to comment will be provided if and when specific changes to the transport mitigation regulation are proposed.

Sincerely,

A handwritten signature in cursive script, reading "Catherine Witherspoon", followed by a long horizontal flourish.

Catherine Witherspoon
Assistant Executive Officer

WORKSHOP NOTICE ATTACHMENT

Background

The California Clean Air Act of 1988 (The Act) requires the Air Resources Board (the ARB or Board) to take specific actions related to the transport of ozone precursors between air basins. In December 1989, the Board identified 14 transport couples as required by the Act (Health and Safety Code (HSC) Section 39610(b)).

In August 1990, the Board adopted a regulation for mitigating the impact of upwind emissions on downwind ozone concentrations. The regulation imposes specific requirements on the areas identified as having a significant or overwhelming impact on exceedences of the ozone standard in downwind areas. The five areas affected by this regulation are: the Broader Sacramento Area (as defined in the regulation), San Francisco Bay Area, San Joaquin Valley, the Ventura and Santa Barbara portions of the South Central Coast Air Basin, and the South Coast Air Basin.

There are two specific mitigation requirements: 1) a permitting program which allows no net increase in emissions of ozone precursors from new or modified permitted stationary sources, to be adopted by July 1, 1991; and 2) best available retrofit control technology (BARCT) requirements for existing stationary sources. The BARCT requirement applies to all sources and is, at a minimum, to be adopted for the source categories that emit 75% of the ROG and NOx emissions from permitted stationary sources by January 1, 1994. This percentage is calculated for each pollutant, against the 1987 actual emission inventory for permitted stationary sources.

Districts which are the source of overwhelming transport must meet one additional requirement. These districts must demonstrate that their plans are sufficient to attain the state ozone standard in both their own districts and in the applicable downwind areas.

Changes to the Act

The 1988 Act established three nonattainment area classifications: "moderate," "serious," or "severe," depending on the projected attainment date. AB 2783, which will take effect on January 1, 1993, alters this classification scheme and adds a fourth category, "extreme". The new scheme classifies each area based on measured air pollutant concentrations between 1989 and 1991. For ozone, the cutpoints are:

Moderate	0.09 ppm to 0.12 ppm
Serious	0.13 ppm to 0.15 ppm
Severe	0.16 ppm to 0.20 ppm
Extreme	Greater than 0.20 ppm

ATTACHMENT, PAGE 2

The original Act contained two separate permitting requirements. Moderate areas were to adopt rules which mitigated all emissions increases from new and modified sources with the potential to emit 25 tons per year (TPY) or more. Serious and severe areas were to achieve no net increase from all new and modified sources (in effect, a 0 ton per year threshold, though alternative methods for achieving no net increase were permissible).

The amended Act contains four separate permitting requirements. The 25 ton per year threshold has been retained for moderate areas. New thresholds have been added for serious and severe areas; these are 15 TPY and 10 TPY, respectively. The no net increase requirement for all new and modified sources has been limited to extreme areas.

Impact of Law Change on Upwind Districts

For the five areas affected by the transport mitigation regulations, the level of growth allowed for new or modified permitted stationary sources will depend largely on whether the transport mitigation regulation is revised in response to AB 2783. The table below shows the permitting requirements that would apply in each area based on various options.

As stated in the workshop notice, the three options under consideration by staff are the following: 1) no change; 2) add a 10 TPY threshold to the no net increase permitting requirement; or 3) require permitting rules in the upwind area to be at least as stringent as permitting rules in affected downwind areas.

Mitigation Requirements Under Various Options

<u>Upwind Area</u>	<u>Option 1</u>	<u>Option 2</u>	<u>Option 3</u>
San Francisco Bay	0 TPY	10 TPY	10 TPY*
Broader Sacramento Area	0 TPY	10 TPY	10 TPY*
San Joaquin Valley	0 TPY	10 TPY	10 TPY
South Central Coast	0 TPY	10 TPY	0 TPY**
South Coast	0 TPY	0 TPY	0 TPY

* Based on transport to the San Joaquin Valley

** Based on transport to the South Coast Air Basin



BAY AREA AIR QUALITY MANAGEMENT DISTRICT

ALAMEDA COUNTY
Edward R. Campbell
Loni Hancock
Greg Harper
Frank H. Ogawa

December 24, 1992

Air Resources Board
RECEIVED
DEC 28 1992
Office of Air Quality &
Transportation Planning

CONTRA COSTA COUNTY
Paul L. Cooper
Sunne Wright McPeak
Tom Powers

MARIN COUNTY
Al Aramburu

NAPA COUNTY
Paul Battisti
(Secretary)

Ms. Sylvia Oey
Office of Air Quality and Transportation Planning
State of California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

SAN FRANCISCO COUNTY
Roberta Achtenberg
Harry G. Britt

Dear Ms. Oey:

SAN MATEO COUNTY
Anna Eshoo
(Chairperson)

SANTA CLARA COUNTY
Martha Clevenger
Rod Diridon
Joe Head
Dianne McKenna

SOLANO COUNTY
Osby Davis

SONOMA COUNTY
Jim Harberson
Patricia Hilligoss
(Vice-Chairperson)

This letter and transmittal of information is in regard to the Public Workshop to Discuss Potential Amendments to the Existing Air Resources Board (ARB) Transport Mitigation Regulation (CCR Section 70600) and your December 12, 1992 emission data request. The staff of the Bay Area Air Quality Management District (District) appreciates the opportunity to provide information to the ARB pertaining to the impacts of the amendments to the transport mitigation regulation. Likewise, we recognize our responsibility to mitigate the emissions originating within the District which impact the surrounding air quality regions.

This District's experience with emission offsets goes back to the first California New Source Review Rule of December 20, 1977. Since the first New Source Review, the District has processed over 18,000 applications for new and modified sources. We realize that the determination of the proper offset threshold for any non-attainment area is a very difficult task. However, the ARB is fortunate to have the guidance provided by the Legislature approving and the Governor signing AB-2783, which contains reasonable offset thresholds. Therefore, we recommend that consideration be given to the ARB Staff Option 4, which is the offset thresholds contained in AB-2783.

We have segregated the attached technical information into four sections in order to assist your review. The data contained in each of the four sections has also been summarized in order to further assist your evaluation.

I. Evaluation of No Net Increase Offset Thresholds

Appendix I contains data pertaining to the No Net Increase Offset Thresholds.

An analysis of permit activity for the twelve months period from July 1, 1991 through June 30, 1992 is presented in four parts in Appendix I, Figure 1. This information clearly shows that most permit activity for both Precursor Organic Compounds (POC) or Nitrogen Oxides (NOx) is occurring at small facilities with facility-wide emissions of either POC or NOx of less than 15 tons per year. In addition, this information shows that most permits issued by the

Ms. Sylvia Oey
Office of Air Quality & Transportation Planning
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December 24, 1992

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District are for new emissions of POC or NOx totalling less than 15 tons per year.

Therefore, a No Net Increase offset threshold of 15 tons per year would greatly facilitate the permit process for small and large businesses alike.

The analysis of permit activity shown in Appendix I, Figure 1 is presented in four parts and can be summarized as follows:

Part A shows the total tonnage of new POC emissions permitted at plants (facilities) in the following three size categories: 1) less than 10 tons per year; 2) equal to or greater than 10 tons per year but less than 15 tons per year; and 3) equal to or greater than 15 tons per year. The data shows that the total POC permitting comprise only 3% of the permitted stationary source inventory ($965.81 \text{ tpy} \div 31270.6 \text{ tpy}$) and only 0.5% of the projected 1994 Clean Air Plan planning inventory ($965.81 \text{ tpy} \div 185055 \text{ tpy}$). In order to determine the impact of the 10 tpy versus a 15 tpy offset threshold, Part A-2 should be reviewed. The data shows that the POC permitting from plants in the 10 tons per year to 15 tons per year range comprise 0.2% of the permitted stationary source inventory ($56.22 \text{ tpy} \div 31270.6 \text{ tpy}$) and 0.03% of the projected 1994 Clean Air Plan planning inventory ($56.22 \text{ tpy} \div 185055 \text{ tpy}$).

Part B shows the total tonnage of new NOx emissions at plants (facilities) in the following three size categories: 1) less than 10 tons per year; 2) equal to or greater than 10 tons per year but less than 15 tons per year; and 3) equal to or greater than 15 tons per year. The data shows that the NOx emissions has even a smaller impact than the POC emissions. The data shows that the total NOx permitting comprise only 0.1% of the permitted stationary source inventory ($41.28 \text{ tpy} \div 40852 \text{ tpy}$) and only 0.02% of the projected 1994 Clean Air Plan planning inventory ($41.28 \text{ tpy} \div 204765 \text{ tpy}$). Reviewing the impact of an offset threshold based upon plant size of 10 tons per year or 15 tons per year shows as non-measurable impact. The permitted NOx emission increases from plants in the 10 tons per year to 15 tons per year size range comprise only 0.004% of the permitted stationary source inventory ($1.82 \text{ tpy} \div 40852 \text{ tpy}$) and 0.0009% of the projected 1994 Clean Air Plan planning inventory ($1.82 \text{ tpy} \div 40852 \text{ tpy}$).

Part C shows the total tonnage of new POC emissions granted to plants of all sizes in permit applications authorizing a POC emission increase of: 1) less than 10 tons per year; 2) equal to or greater than 10 tons per year but less than 15 tons per year; and 3) equal to or greater than 15 tons per year. Part C differs from Part A of the review in order to show

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the distinction between using the size of the facility rather than the size of the application as the threshold for offsets under the No Net Increase program. The permitted POC emission increases from applications in the 10 tons per year to 15 tons per year size range comprise 0.2% of the permitted stationary source inventory ($70.35 \text{ tpy} \div 31270.6 \text{ tpy}$) and 0.03% of the projected 1994 Clean Air Plan planning inventory ($70.35 \text{ tpy} \div 31270.6 \text{ tpy}$). As you can see, there is no percentage difference between the air quality impact of basing the offset threshold on application size or facility size.

However, the impact of the number of applications which trigger offsets is thirteen times higher when facility size rather than application size is used as the threshold for offsets (80 vs. 6).

Part D shows the total tonnage of new NOx emissions granted to plants of all sizes in permit applications authorizing total NOx emissions of: 1) less than 10 tons per year; 2) equal to or greater than 10 tons per year but less than 15 tons per year; and 3) equal to or greater than 15 tons per year. There were no permit applications that proposed emission increases of greater than 10 tons per year of NOx during the review period.

A review of the above summary information shows that a 15 tons per year offset threshold is appropriate because:

1. Only 5.8% of new POC emissions and 4.4% of new NOx emissions from permits granted during the twelve month review period fall in the 10 tons per year to 15 tons per year size range;
2. New POC permits in the 10 tons per year to 15 tons per year size range total only 0.2% of the permitted stationary source inventory and 0.03% of the projected 1994 Clean Air Plan planning inventory; and
3. New NOx permits in the 10 tons per year to 15 tons per year size range total only 0.004% of the permitted stationary source inventory and 0.0009% of the projected 1994 Clean Air Plan planning inventory.

A review of the above summary information shows that offset thresholds should be based on the size of the application rather than the size of the facility because:

1. The percentage emission increase due to offset thresholds based on application size and facility is the same; and

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2. The impact on the number of permit applications that trigger offsets due to a facility size threshold is over an order of magnitude greater than basing offsets on application size.

Tabulations of permit activity for each of the twelve categories summarized in Appendix I, Figure 1 are attached as Tables A-1 through D-4. All of the emissions shown in the twelve tables are based upon the term 'potential to emit.' Potential to emit emissions for new source permits is the conditioned maximum allowable emissions. All permits with emissions listed as 0.00 have a potential to emit of 0.004 tons per year, 8 pounds per year or less.

The above noted emission increase due to new permits is less than those stated because sources rarely emit up to the conditioned potential to emit maximum where a violation notice will be issued. Our experience shows that a source will usually have actual emissions one-half to two-thirds of permitted emissions.

Another reason that the noted emission increases due to new permits is less than stated is because this evaluation does not account for permit reductions due to shutdowns, offsets, loss of permit and replacements. The above mentioned unaccounted permit activity may significantly reduce or reverse the calculated increase in emissions from new permitted sources.

II. Permitting as a Transport Mitigation

The issue of whether permitting should be included as part of the transport mitigation regulations or whether another emission control strategy should be used as a substitute was discussed during the December 1, 1992 workshop. This section briefly reviews some additional information not discussed during the workshop.

A listing of the type of applications which have been permitted during July 1, 1991 and June 30, 1992 period which have the potential to emit equal to or greater than 10 tons of POC per year but less than 15 tons POC per year is contained in Appendix I, Table C-2. Four of the six applications are automobile repair/paint spray booths and two are printing operations. The automobile repair industry is inelastic, demand is not created by additional facilities. The increase in auto repair facilities are either: 1) a replacement for another facility that has been shutdown or is in the process of losing business; or 2) needed to meet the demand of an increasing population. Most No Net Increase programs do not credit existing inelastic source facility shutdowns to the permit program. The emission impacts due to nonoperational inelastic permitted plants are usually part of the net emission growth/decline estimates contained in the air quality planning process. Therefore, inelastic sources such as automobile paint repair shops, drycleaners or service stations are inaccurately measured in a low offset threshold No Net Increase permit program.

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Another problem is the emission accounting program for small sources. As discussed earlier, new facilities are permitted at the potential to emit level but they rarely emit at that high of an emission rate. It is proper to permit new sources at the maximum allowable level in order to have an effective permit-enforcement tool.

Do small emitters have low stacks? A review of the 1508 POC applications permitted and listed in Appendix I, Table C-1 (less than 10 tons POC per year) and the six POC applications permitted and listed in Table C-2 (less than 15 tons POC per year and greater than 10 tons POC per year) have mostly low level sources that would participate in the formation of ozone. Likewise, 43 percent of the 71 applications with NOx emissions less than 10 tons per year are mostly low level sources with stacks less than 50 feet in height (coffee roasters, food service, spray booth ovens or crematory retorts).

It is highly questionable whether these 71 applications which emit 41 tons NOx per year participate in the significant transport of ozone precursors to the air basins surrounding the District. By reviewing Appendix II, Table 3, the 41 tons NOx per year can be compared to the comparable high point source projected 1997 emission inventory. The 41 tons NOx per year appears to be insignificant compared to the inventory.

Appendix II, Table B-7 contains a listing of existing plants with emissions greater than 10 tons per year but less than 15 tons per year. The 116 existing plants in the 10-15 tons per year size category comprise only 3.5% of the existing POC emissions and 0.8% of the existing NOx emissions (Appendix II, Figure 3) and 2% of the total plants in permitted stationary source inventory. Of the 1846 sources in the 10-15 tons per year size category, a number have stacks greater than 50 feet in height. However, most of the sources with stacks higher than 50 feet in height will be required to reduce their NOx emissions due to the boiler, heater, engine Best Available Retrofit Control Technology (BARCT) rules which are also part of the Transport Strategy.

One of the three options discussed in the ARB workshop notice was to "...require permitting rules in the upwind area to be at least as stringent as permitting rules in the affected downwind areas." The key word to this option is stringency. Offset thresholds are but one measure of stringency. The stringency of the whole NSR rule must be reviewed, not just the offset threshold in determining equivalence. For example, in order to judge the stringency of two NSR rules, it is appropriate to compare what type of emission reduction will qualify as an offset. Does the NSR rule allow as offsets a percentage of the reductions which is mandated as BARCT under the transport mitigation regulation? Does the NSR rule propose to allow mobile source reductions or transportation control measures as a source of offsets? Is the NSR rule combined with a facility, industry or basin-wide bubble to reduce emissions?

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Therefore, the comparison of the stringency of the NSR rule should include how the rule is implemented; what qualifies as offsets and what types of sources are exempted from offsets as special cases. An offset threshold is but one of the comparators of stringency.

Mr. John White, a representative of the South Coast AQMD and the Sierra Club, may be correct in suggesting, at the workshop, that a strategy other than NSR may be more effective in mitigating transport. The existing source NOx emission reduction strategy does exactly that.

III. Mitigation of Existing Sources

The mitigation of existing sources is the heart of the strategy to reduce the existing transport problem. The seven major NOx transport reduction rules for existing sources reviewed in Appendix III, Tables 1 and 2, have the potential to reduce emissions by 26793 to 30881 tons per year (the District NOx control strategy may exceed the above reduction estimate at an earlier date projected!). This significant reduction of existing emissions far outweighs the 41 tons of NOx potential to emit per year that was part of the permit program during the review year.

During 1992 over 97.6% of the permitted stationary source NOx emissions were emitted from the 328 plants with emissions greater than 15 tons per year. Figure 5 in Appendix II shows how the majority of the existing permitted stationary source transport emissions (NOx) are from the very large (500 plus ton per year) facilities.

Figures 2 and 3 in Appendix II show the distribution of emissions from all permitted sources in the District based on plant (i.e. facility or stationary source) size. These figures show the actual emissions calculated on December 12, 1992 for the year prior to the computer run. The three categories used are plants with total facility-wide emissions of any one of the five criteria pollutants of: 1) less than 10 tons per year; 2) equal to or greater than 10 but less than 15 tons per year; and 3) equal to or greater than 15 tons per year. Figure 2 depicts this information on a total tonnage basis while Figure 3 shows the same data on a percentage basis.

Both representations clearly show that the preponderance of the total permitted stationary source inventoried emissions for the District are occurring at plants with emissions equal to or greater than 15 tons per year. For POC, over 80% of the District-wide total permitted stationary source emissions during 1992 occurred at the larger plants. For NOx, this percentage increases to more than 97%. However, 52% of the sources, which the District has in the permit system, is located at small plants with emissions less than 15 tons per year.

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A review of Tables B-1 through B-7 in Appendix II will provide the evaluator the type of plant that falls in various emission categories. Many of the plants listed are small businesses.

IV. The Impact of Offsets on Small Business

Offsets present a major obstacle for the new small businessperson. From July 1, 1991 until June 30, 1992, the study period, the District issued permits to over 1592 new or modified permit applications. Although we do not have first hand experience in obtaining emission offsets, we do have first hand experience interfacing with the small businessperson who is faced with the task of obtaining emission offsets.

Virtually all of the new or modified source small businesspersons who come to the District to seek a permit have no problems with installing Best Available Control Technology (BACT) on their new/modified sources. Even the small businessperson, who is unsophisticated in the nuance of air pollution control, realizes the environmental soundness of minimizing emissions to the greatest extent practical. However, offsets presents a major challenge to small businesspersons because of the following:

1. Cost of the offsets;
2. Inability to locate the necessary quantity of offsets (either too much or too little available);
3. Lack of time to negotiate the price;
4. Lack of personnel to seek, negotiate and purchase offsets.

In order to ameliorate the offset problem with the zero emission threshold NSR rule called for by the original Clean Air Act, the District created a Small Facility Bank. The small facility bank is available for facilities that emit less than 25 tons per year. The bank was created by emission reductions that were above and beyond that required to meet the ambient air quality standards and are "federally enforceable." The bank credits are real, excess, enforceable and surplus. Unfortunately, the small facility emission reduction credits will be consumed in the very near future. Small Facility Banks, Community Banks or any other mechanism to assist small business are, based on our experience, stop-gap measures with a finite life.

Small facilities would be adversely impacted if there is a 10 ton per year offset threshold. Appendix II, Table B-7 lists the small facilities which emit more than 10 tons per year but less than 15 tons per year. Although there are some large to medium size companies on Table B-7, many are small businesses such as dry cleaners, auto body shops, fiberglass set-up shops, small municipalities and hospitals are also on the list.

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In summary, there are many factors to be weighed in determining the appropriate transport mitigation. Some of these factors are:

1. The small amount of emissions (0.0009-0.2% of the inventory) in the 10-15 ton per year application or facility class;
 2. The existing transport problem is caused by existing sources. Most of the transport emissions (91%) is from the plants that emit more than 100 tons of NOx per year;
 3. The current, existing permitted stationary source transport mitigation requirements will reduce transport NOx emissions by 40 percent;
 4. Numerous small businesses fall into the 10-15 ton per year category;
 5. Emission offsets are difficult to obtain for small businesspersons to obtain. Small businesspersons do not object to either BACT or BARCT; and
-
6. The recent amendments to the California Clean Air Act relative to offset thresholds.

The District staff appreciates the opportunity to provide the ARB information on the impacts of the options pertaining to transport mitigation. If you have any questions pertaining to this information, please feel free to contact me. We suggest that the ARB staff meet again with the District in order to discuss your proposal prior to finalization.

Sincerely,

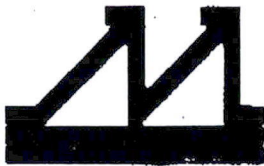


Peter Hess, P.E., DEE
Deputy Air Pollution Control Officer

PH:ca
Attachments

cc: Milton Feldstein
Jan Bush
James Boyd, ARB
Catherine Witherspoon, ARB
Patrick Nevis, ARB
John White, White & Associates
David Crow, SJVAQMD
Norman Covell, SMAQMD

William Fray, SCAQMD
K. C. Bishop, Chevron
Cindy Tuck, CCEEB
Dan Pehlan, BALIA
Bruce Kern, EDAB



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Sun Microsystems, Inc.

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Chairman of the Board
Intel Corporation

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FMC Corporation

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Advanced Micro Devices, Inc.

WILLIAM TERRY
Executive Vice President
Hewlett-Packard Company

DAVID PACKARD
Chairman of the Board
Hewlett-Packard Company

Working Council Chair
JOHN D. HASSBELL
FMC Corporation

November 30, 1992

Ms. Sylvia Oey
Office of Air Quality &
Transportation Planning
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

Dear Ms. Oey:

Subject: Potential Amendments to the Existing Transport Mitigation Regulation

The Santa Clara County Manufacturing Group (SCCMG) was a major participant working with Assemblyman Byron Sher supporting the passage of AB 2783, the amendments to the California Clean Air Act. We believe that AB 2783 adequately addresses significant California environmental and economic issues. With this knowledge in mind, SCCMG recommends and endorses the following fourth option for consideration by the Air Resources Board:

Require that every Air District adopt permitting rules as set forth by AB 2783.

We ask that ARB and the affected Air Districts review the air quality data and modelling results related to transport of pollutants between districts. In particular the correlation of high pollutant concentrations downwind with high pollutant concentrations upwind should be studied. This study should look at transport in both directions, and the relative impact of the transported pollutants on the receptor district. If the transported pollutants are not significant contributors on the days when concentrations exceed the state ambient air quality standards, then we believe there are other measures which are more appropriate than immediately requiring the upwind district to adopt tighter controls.

Santa Clara County Manufacturing Group would like to work with ARB and the BAAQMD to develop measures which could decrease any impacts from transported pollutants. If you would like further information regarding these comments, please call Kraig Kurucz at (408) 742-0195.

Sincerely,

Gary Burke
President

GB:bf



BAY AREA AIR QUALITY MANAGEMENT DISTRICT

ALAMEDA COUNTY
Edward R. Campbell
Loni Hancock
Greg Harper
Frank H. Ogawa

CONTRA COSTA COUNTY
Paul L. Cooper
Sunne Wright McPeak
Tom Powers

MARIN COUNTY
Al Aramburu

NAPA COUNTY
Paul Battisti
(Secretary)

SAN FRANCISCO COUNTY
Roberta Achtenberg
Harry G. Britt

SAN MATEO COUNTY
Anna Eshoo
(Chairperson)

SANTA CLARA COUNTY
Martha Clevenger
Rod Diridon
Joe Head
Dianne McKenna

SOLANO COUNTY
Osby Davis

SONOMA COUNTY
Jim Harberson
Patricia Hilligoss
(Vice-Chairperson)

November 24, 1992

Air Resources Board
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Office of Air Quality &
Transportation Planning

Catherine Witherspoon
Assistant Executive Officer
Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

Dear Ms. Witherspoon:

This letter is in regard to the December 1, 1992 workshop to discuss potential amendments to the existing Transport Mitigation Regulation (CCR Section 70600). The staff of the District recommends a fourth option to be considered under the transport mitigation requirements. We recommend that the offset thresholds for the appropriate permitting area correspond to the thresholds contained in AB 2783.

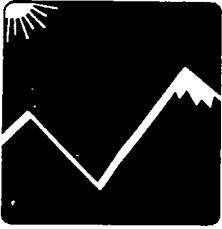
The proposed option No. 4 will greatly enhance the streamlining of permitting and benefit small business.

Thank you for your consideration of this matter.

Sincerely,

Milton Feldstein
Air Pollution Control Officer

PH:MF:ca
cc: Sylvia Oey
James Boyd



San Joaquin Valley Unified Air Pollution Control District

November 24, 1992

Catherine Witherspoon
Assistant Executive Officer
State of California Air Resources Board
P. O. Box 2815
Sacramento, CA 95812

DEAR: Ms. Witherspoon

SUBJECT: Potential Amendments to Transport Mitigation Regulation

The San Joaquin Valley Unified Air Pollution Control District urges that no change in the transport regulations be made which would allow less stringent standards, enforcement, or implementation schedules in upwind areas. As reflected in Resolution 90-53 adopting the transport requirements "Transported ozone, transported hydrocarbons, and transported nitrogen oxides all affect ozone concentrations in downwind areas". The challenge facing a downwind air basin is made increasingly more difficult if the level of regulatory restriction is not maintained in upwind basins. Relaxing upwind requirements may postpone or prevent attainment of air quality standards, adversely affecting the health of our citizens.

The District urges that permitting rules in upwind areas be at least as stringent as the rules in all affected downwind areas, as described in option 3 of the public workshop announcement for the December 1st meeting to consider revisions to transport requirements. Failure to maintain the same level of stringency may allow greater emissions growth in upwind areas, undermining the more stringent reductions required downwind. The San Joaquin Valley has been designated as both an upwind transporter and downwind recipient of transported emissions (upwind of Great Basin Valley, Southeast Desert, and Broader Sacramento; downwind of Broader Sacramento, San Francisco Bay Area). The District recognizes its responsibility to reduce emissions affecting

C-11

David L. Crow
Executive Director/Air Pollution Control Officer
1999 Tuolumne Street • Fresno, CA 93721 • (209) 497-1000 • Fax (209) 233-2057

Northern Region
4230 Kiernan Avenue • Modesto, CA 95356
(209) 545-7000 • Fax (209) 545-8652

Central Region
1999 Tuolumne Street • Fresno, CA 93721
(209) 497-1000 • Fax (209) 233-2057

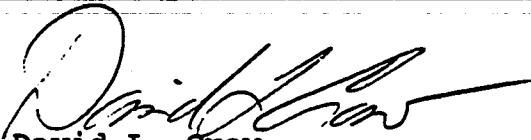
Southern Region
2700 M Street, Suite #275 • Bakersfield, CA 93301
(805) 861-3682 • Fax (805) 861-2060

Page 2
November 24, 1992
Transport Regulation

downwind air basins. All upwind air basins should be held to standards which are at least as stringent as conditions imposed in the downwind basin.

In August your Board approved our 1991 Air Quality Attainment Plan which classified the San Joaquin Valley ozone problem as severe. The goal of five percent emissions reduction per year cannot be met even by expeditious implementation of all feasible control measures. The District Plan commits to implementation of all feasible control measures, and seeks the support of the California Air Resources Board to provide all possible reductions under state administration and jurisdiction to assist the District in its effort to improve San Joaquin Valley air quality. To meet the air quality goals, the District needs the assistance of state actions and equivalent emissions restrictions in all upwind basins which impact our air quality. Setting less stringent goals for upwind districts could counterbalance the reductions our regulatory actions are expected to achieve.

Sincerely,



David L. Crow
Executive Director / Air Pollution Control Officer

DLC/jws

Attn: Sylvia Oey, Office of Air Quality Transportation Planning



AIR QUALITY
MANAGEMENT DISTRICT

December 1, 1992

Catherine Witherspoon
Assistant Executive Officer
California Air Resources Board
PO Box 2815
Sacramento, CA 95812

Subject: Public Workshop on Transport Mitigation Regulation - Dec 1, 1992

Dear Ms. Witherspoon:

Thank you for the opportunity to comment on the ARB staff's proposal to revise the Transport Mitigation Regulation.

With the passage of AB2783, Sher, the District has anticipated a change in the Transport Mitigation Regulation (CCR Section 70600) that would align the State's administrative law in this regard with statutory law. As you state in your workshop notice, "... one objective of the Act's amendments is to provide relief to small businesses unable to locate or afford the offsets needed to comply with 'no net increase' permitting rules". Accordingly, it was surprising that the workshop notice did not indicate that staff was proposing an option reflecting the 15TPY offset threshold for areas classified as "serious", as did AB2783. We hereby request that serious consideration be given to that option.

Health and Safety Code Section 39610(b) states that the state board shall "... in cooperation with the Districts... establish mitigation requirements commensurate with the level of contribution". District staff believes that several factors should be considered in assessing what is commensurate for the Sacramento AQMD.

1. The contribution from all permitted stationary source emissions to the Sacramento ROG and NOx total emission inventory is only 5% and 4% respectively. To provide for a 15TPY offset threshold will not impact the quantity of emissions from mobile sources - our most significant contributor.
2. The contribution of permitted stationary sources in the 10 to 15TPY emission range to the Sacramento ROG and NOx total emission inventory is much less than 1%.

December 1, 1992
Catherine Witherspoon

3. The contribution of permitted stationary sources in the 10 to 15TPY emission range to the total transport of ROG and NOx to the San Joaquin Valley is much less than 1%.

The choice of a 10TPY threshold instead of a 15TPY threshold would cause a minimal (much less than 1%) difference in total emissions transported from Sacramento to the San Joaquin Valley. Yet, to a small business trying to locate in Sacramento it could be the difference between being in business or not. In this case, further restricting the stationary source emission threshold allowed by AB2783 is not "commensurate" with the level of contribution. Significant reductions in transported emissions will occur with regulations reducing emissions from mobile sources and unpermitted area sources (such as consumer products) rather than permitted stationary sources.

Please consider our request to revise CCR Section 70600 to specify the 15TPY threshold level for "serious" areas as stated in AB2783. We believe this would accurately reflect the legislature's intent to provide flexibility to small business.

~~If you have any questions please call Bruce Nixon at 386-6623.~~

Sincerely,



Richard G. Johnson
Assistant Air Pollution Control Officer

cc: Honorable Byron Sher
Norm Covell, APCO
Sylvia Oey, ARB

lbwn\mitreq.jet

Alameda County

Economic Development Advisory Board

Don Perata, Chairman
Alameda County Board of Supervisors

Dennis C. Cuneo, Vice Chairman
New United Motor Mfg., Inc.

Daniel Boggan, Jr.
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Stern Club

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Charles R. Roberts
Port of Oakland

Lindsay J. Roberts
Union City Chamber of Commerce

Larry E. Rose
Kraft General Foods

August Scornalenchil
Alameda County Superintendent of Schools

James W. Sievers
Gregory Group, Inc.

Mayor David W. Smith
City of Newark

Mayor Peter Snyder
City of Dublin

Arnold Steinman
Ion Systems

Jodi Stewart
KTVU, Inc.

Selma Taylor
East Bay Small Business Development Center

Daniel I. Wilkowsky
Union Sanitary District Board

Mayor E. William Withrow, Jr.
City of Alameda

John Woodbury
Green Belt Alliance

December 10, 1992

Ms. Sylvia Oey
Office of Air Quality & Transportation
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

Dear Ms. Oey:

Subject: POTENTIAL AMENDMENTS TO THE EXISTING TRANSPORT
MITIGATION REGULATION (CCR SECTION 70600)

As chairman of the Industry/Government Relations Committee and representing the Alameda County Economic Development Advisory Board, I would like to comment on the options you are considering for a revision to the transport mitigation regulation referred to above.

From the information I have received, it appears you are looking at three options: (1) no change; (2) adding a 10 ton per year threshold to the no net increase permitting requirement; and (3) requiring the permitting rules in upwind areas be at least as stringent as the rules in all affected downwind areas.

None of these three options allows the Bay Area Air Quality Management District the full allowance of 15 tons per year as a threshold to the no net increase permitting requirement. Therefore, I recommend a 15 ton per year threshold to the no net increase permitting requirement as the option of choice for a facility of any size. The reason I am requesting this option is because this was the intent of the negotiated legislation and is thus consistent with the actual language passed in the amendments to the Clean Air Act (AB2783). Given the problems the Bay Area is faced with regarding job flight to other parts of the State, other states and overseas, it does not seem reasonable for the Air Resources Board to consider anything more stringent than what is required in the amendments. Our businesses are interested in achieving clean air but the constraints put on them are unreasonable in comparison to the amount currently being imposed on non-stationary sources.

Thank you for your consideration of this matter. If you would like to discuss this issue in greater detail with my committee members, please contact Mary Ortendahl of my staff at (510) 272-3889 and she can assist in making those arrangements.

Very truly yours,

Ignacio De La Fuente

IGNACIO DE LA FUENTE, Chairman
Industry/Government Relations Committee

IDLF:MO/al/0160c
Attachments

cc: Bruce Kern, Director of Economic Development
Members, Industry/Government Relations Committee

Steven C. Szalay, County Administrator - Bruce L. Kern, Director of Economic Development
1221 Oak Street, Suite 555, Oakland, CA 94612
Phone: 510-272-6984 Fax: 510-272-3784 or 272-5007

Air Resources Board
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SAN JOAQUIN FARM BUREAU FEDERATION

MEETING TODAY'S PROBLEMS / PLANNING FOR TOMORROW

December 4, 1992

Ms. Sylvia Oey
California Air Resources Board
Office of Air Quality & Transportation Planning
P.O. Box 2815
Sacramento, CA 95812

Air Resources Board
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Office of Air Quality &
Transportation Planning

RE: Transport Mitigation Regulation

Dear Ms. Oey,

Air quality regulations are resulting in higher costs to agricultural operations. The San Joaquin Farm Bureau believes that farmers are being regulated and subjected to taxation to cover air quality problems that, to a large extent, may originate in other areas.

The San Joaquin Valley suffers from poor air quality. However, we are concerned that some of the biggest contributors in terms of pollutants may be outside of our air basin. The pollution produced in the urban areas around Sacramento and the Bay Area has been shown to flow into the Central Valley and adversely impacts the valley district's air quality.

The San Joaquin Farm Bureau would like access to more research that would determine exactly how much of the San Joaquin Valley pollution can be attributed to the Bay Area and Sacramento. Any studies completed or now being conducted would be greatly appreciated. They could be mailed to the address listed below.

Three options are mentioned in a letter describing a workshop that was held on December 1, 1992. Given the increasingly stringent requirements being placed on the residents in the San Joaquin Valley, it only seems fair and equitable to require the Bay Area and Sacramento to adopt similar regulations. This option (option 3) may not be popular in the Bay Area or Sacramento region, however, it is fair to those downwind who breathe the pollution those areas produce.

Sincerely,

Paul M. Sanguinetti
PAUL M. SANGUINETT
President

PMS:sg

**ALL AMERICAN
PIPELINE COMPANY**

*Sylvia - approp
action*

December 16, 1992

Catherine Witherspoon
Assistant Executive Officer
ARB
P. O. Box 2815
Sacramento, CA 95812

Air Resources Board
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Office of Air Quality &
Transportation Planning

Dear Ms. Witherspoon:

After our Mr. Lou Boll attending the workshop December 1, on the Transport Mitigation regulation, we wish to register a few comments with you for your consideration.

First of all, we support the relaxation of the "no net increase" requirements and since the San Joaquin Valley Unified APCD is listing for a threshold of 10 TPY in options 2, 3 and 4, we can support any of the three.

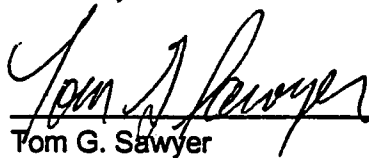
The applicability of the threshold has two possible interpretations as was brought up at the workshop. We prefer the interpretation that allows the 10 TPY to be an across the board credit allowance for any new or modified source, i.e., if a 20 TPY unit is proposed, only 10 TPY will have to be offset.

We think this interpretation to be more equitable and will prevent staging that magically falls under the threshold, especially for modifications.

We are concerned about the whole process however, learning that some districts still don't have a no net increase rule or that have established thresholds. We have just completed a purchase of 3.9 TPY of VOC offsets knowing that 6 months from now we might not have to .

Thanks for the opportunity for us to participate in the process.

Sincerely,



Tom G. Sawyer

Manager, Right-of-Way Department

TGS/LAB/dsc

782.ltr

BALIA

Bay Area League of Industrial Associations

November 25, 1992

Ms. Sylvia Oey
Office of Air Quality & Transportation Planning
P.O. Box 2815
Sacramento, CA 95812

Dear Ms. Oey:

This letter is in reply to Ms. Witherspoon's undated letter announcing a workshop on December 1, 1992 on transport mitigation and the permitting program.

~~As a member of the AB 2783 working group, I am very interested in this subject. I~~
believe you need to consider a fourth option providing for a threshold of 15 TPY in the San Francisco Bay. I believe this is clearly indicated under AB 2783.

I will not be able to attend the workshop due to a previous commitment. Ms. Cindy Tuck of CCEEB will be presenting more details on the reason to adopt the 15 TPY option. I support her position.

This issue is extremely important to those of us in the Bay Area who supported AB 2783, the '91 CAP. An overly stringent restriction on growth will only hinder this effort.

Please keep us on your mailing list and include us in any further discussions of your proposal.

Sincerely,



Daniel V. Phelan
Executive Director

DVP:gw

cc: Cindy Tuck

APPENDIX D

Emission Impact Analysis

APPENDIX D

Air Quality Impact Analysis

Staff analyzed the emissions impact of two options discussed in the staff report: 1) inserting a 10 TPY threshold above which the no net increase requirement would apply; and 2) deleting the permitting requirement entirely, which would have the effect of allowing upwind districts to revert to the thresholds set forth in the Health & Safety Code for moderate, serious, severe, and extreme nonattainment areas.

Part I of this Appendix analyzes the emissions impact of the first option: that upwind districts be allowed to enact permit programs which require the mitigation of emission increases from facilities that have the potential to emit 10 tons per year (TPY) or more of reactive organic gases (ROG) or oxides of nitrogen (NOx).

Part II shows the potential emissions increases that could occur if the permitting provisions for new and modified stationary sources were deleted from the transport mitigation regulations.

Part III discusses the significance of modifying the existing regulation in either fashion. This discussion supports and expands upon the assessment of environmental impacts contained in the Staff Report.

Part IV of this Appendix explains how the emissions calculations were done. The state's emission inventory does not have facility-by-facility data for stationary sources emitting less than 10 TPY, in all areas. The staff's analytical procedure therefore contains some assumptions that may skew the results. For example, the staff assumed that the distribution of stationary sources in various size categories in the South Coast Air Quality Management District (for which there is a relatively complete data set) is comparable to the distribution in the other districts. This assumption and other factors which may produce bias and/or uncertainty are described at the end of Part IV.

Some districts potentially affected by the Board's decision provided additional data which could not be fully analyzed in time for inclusion in this report. A cursory analysis indicates that the magnitude of emission changes projected by the districts is comparable to the magnitude of changes projected by the staff's analyses. If further analysis indicates significant discrepancies between the ARB and district emission projections, these will be brought to the Board's attention at the public hearing.

PART I.

IMPACT OF ADDING 10 TPY POTENTIAL-TO-EMIT THRESHOLD

In this part, staff assessed the impact of relaxing the "no net increase" mitigation requirement across-the-board, making it applicable to sources with the potential to emit 10 or more tons of ROG or NOx per year. The ARB point source inventory was used for this analysis. It was assumed that all emissions in the stationary source inventory are from permitted sources. Estimates for the South Coast are not included since that district is required by statute to retain its "no net increase" program for all new and modified stationary sources. All estimates are for ROG and NOx combined.

TABLE A.1

Annual ROG & NOx Emissions From Stationary Sources Emitting 10 TPY or less

(tons per year)

<u>Upwind Area</u>	<u>1992</u>	<u>2000</u>	<u>% Change</u>	<u>2010</u>	<u>% Change from 1992</u>
Bay Area	6,674	7,430	11.3%	7,997	19.8%
Broader Sacramento Area	1,131	1,290	14.1%	1,475	30.4%
San Joaquin Valley	10,180	10,378	1.9%	10,942	7.5%
Santa Barbara/Ventura	1,662	1,686	1.5%	1,782	7.2%

Note: For this analysis the Broader Sacramento Area is considered to be comprised of Sacramento County, the Mountain Counties Air Basin portion of El Dorado County, and the Sacramento Valley Air Basin portions of Yolo and Placer counties.

TABLE A.2

Daily ROG & NOx Emissions From Stationary Sources Emitting 10 TPY or less

(tons per day)

<u>Upwind Area</u>	<u>1992</u>	<u>2000</u>	<u>Increase</u>	<u>2010</u>	<u>Increase from 1992</u>
Bay Area	18.3	20.4	+ 2.1	21.9	+ 3.6
Broader Sacramento Area	3.1	3.5	+ 0.4	4.0	+ 0.9
San Joaquin Valley	27.9	28.4	+ 0.5	30.0	+ 2.1
Santa Barbara/Ventura	4.5	4.6	+ 0.1	4.9	+ 0.4

PART II.

IMPACT OF DELETING NSR PROVISION FROM TRANSPORT MITIGATION REGULATION

In this part, staff assumed that affected districts would relax their permitting programs to the extent allowed by statute for moderate, serious, severe, and extreme areas (HSC sections 40918(a), 40919(b), 40920(b), and 40920.5(b)). Specifically, the size of stationary sources subject to the "no net increase" requirement in each area would be as follows: Bay Area 15 TPY; Broader Sacramento Area 15 TPY; San Joaquin Valley 10 TPY; Santa Barbara 25 TPY; and Ventura 10 TPY. Again, all estimates are for combined ozone precursors (ROG and NOx).

TABLE B.1

Annual ROG & NOx Emissions
From Stationary Sources Based
on Statutory Threshold Levels
If Not Offset

(tons per year)

<u>Upwind Area</u>	<u>1992</u>	<u>2000</u>	<u>% Change</u>	<u>2010</u>	<u>% Change from 1992</u>
Bay Area	8,256	9,191	11.3%	9,893	19.8%
Broader Sacramento Area	1,399	1,596	14.1%	1,825	30.4%
San Joaquin Valley	10,180	10,378	1.9%	10,942	7.5%
Santa Barbara/Ventura	2,124	2,173	2.3%	2,282	7.4%

TABLE B.2

Daily ROG & NOx Emissions
From Stationary Sources Based
on Statutory Threshold Levels
If Not Offset

(tons per day)

<u>Upwind Area</u>	<u>1992</u>	<u>2000</u>	<u>Increase</u>	<u>2010</u>	<u>Increase from 1992</u>
Bay Area	22.6	25.2	+ 2.6	27.1	+ 4.5
Broader Sacramento Area	3.8	4.4	+ 0.4	5.0	+ 1.2
San Joaquin Valley	27.9	28.4	+ 0.5	30.0	+ 2.1
Santa Barbara/Ventura	5.8	6.0	+ 0.2	6.3	+ 0.5

PART III.

SIGNIFICANCE OF POTENTIAL EMISSION INCREASES

Part III provides information to help the reader assess the significance of the emission increases that may occur if the transport mitigation regulations are revised as proposed. Tables C.1 and C.2 describe the emission increases if the 10 TPY option was chosen as a percentage of each area's stationary source inventory and the total emissions inventory. Table C.3 and C.4 illustrate the same information except for the statutory threshold levels.

Table C.5 compares the emission increases for both options against the total emissions reductions that each district proposes in their air quality plans.

Table C.6 lists some of the measures and emission reductions associated with some of the control measures proposed in the Bay Area and San Joaquin Valley air quality plans. The plans adopted by other upwind areas contain similar control measures.

TABLE C.1

Percent ROG & NOx Emission Increases
From Stationary Sources Emitting
10 TPY or Less If Not Offset

<u>Upwind Area</u>	<u>% of SS Inventory* in Year 2000</u>	<u>% of SS Inventory* in Year 2010</u>
Bay Area	0.38%	0.61%
Broader Sacramento Area	0.46%	0.86%
San Joaquin Valley	0.07%	0.26%
Santa Barbara/Ventura	0.05%	0.25%

These percentages were calculated by dividing each area's emission increase from 1992 to 2000 and 2010 by each area's stationary source emissions in the planning inventory for the same years.

* Percentage of Each Area's Stationary Source (SS) Inventory

TABLE C.2

Percent ROG & NOx Emission Increases
From Stationary Sources Emitting
10 TPY or Less If Not Offset

<u>Upwind Area</u>	<u>% of Total Inventory* in Year 2000</u>	<u>% of Total Inventory* in Year 2010</u>
Bay Area	0.20%	0.36%
Sacramento	0.16%	0.34%
San Joaquin Valley	0.04%	0.17%
Santa Barbara/Ventura	0.03%	0.15%

These percentages were calculated by dividing each areas's emission increase from 1992 to 2000 and 2010 by each area's stationary source emissions in the planning inventory for the same years.

* Percentage of Each Area's Total Emissions Inventory

TABLE C.3

Percent ROG & NOx Emission
Increases From Stationary Sources
Based on Statutory Threshold Levels
If Not Offset

<u>Upwind Area</u>	<u>% of SS Inventory in Year 2000</u>	<u>% of SS Inventory in Year 2010</u>
Bay Area	0.47%	0.76%
Broader Sacramento Area	0.56%	1.07%
San Joaquin	0.07%	0.26%
Santa Barbara/Ventura	0.11%	0.33%

These percentages were calculated by dividing each areas's emission increase from 1992 to 2000 and 2010 by each area's stationary source emissions in the planning inventory for the same years.

* Percentage of Each Area's Stationary Source (SS) Inventory

TABLE C.4

Percent ROG & NOx Emission
Increases From Stationary Sources
Based on Statutory Threshold Levels
If Not Offset

<u>Upwind Area</u>	<u>% of Total Inventory* in Year 2000</u>	<u>% of Total Inventory* in Year 2010</u>
Bay Area	0.24%	0.44%
Broader Sacramento Area	0.20%	0.042
San Joaquin	0.04%	0.17%
Santa Barbara/Ventura	0.06%	0.20%

These percentages were calculated by dividing each areas's emission increase from 1992 to 2000 and 2010 by each area's stationary source emissions in the planning inventory for the same years.

* Percentage of Each Area's Total Emissions Inventory

TABLE C.5

Comparison of Potential ROG & NOx Emission Increases
From Current Proposals With Reductions From
District Stationary Source
Control Measures in Attainment Plans
in the Year 2000

(tons per day)

<u>Upwind Area</u>	<u>10 TPY Option</u>	<u>Statutory Option</u>	<u>District Measures</u>
Bay Area	+ 2.1	+ 2.6	- 90.0
Broader Sacramento Area	+ 0.4	+ 0.4	- 37.1
San Joaquin	+ 0.5	+ 0.5	- 367.6
Santa Barbara/Ventura	+ 0.1	+ 0.2	- 28.5

TABLE C.6

**Emission Reductions From Measures
in Bay Area and Joaquin Valley
Air Quality Plans**

(tons per day)

Bay Area Stationary Source Control Measures

<u>VOC Control Measures</u>	<u>Emission Reductions</u>
Control Of Emissions From Household Solvent Disposal	0.22
Architectural Coatings Rule	0.92 - 1.3
Industrial Maintenance Coatings Rule	0.62 - 0.94
Aerospace Coatings Rule	0.31 - 0.44
Metal Parts Surface Coatings Rule	0.30 - 0.41
Plastic Parts Surface Coatings Rule	0.32 - 0.43
Magnet Wire Coating Rule	0.12 - 0.14
Automobile Assembly Coatings Rule	0.74 - 1.1
Solvent and Surface Coating Rule	0.25 - 0.38
Elimination of Coatings Rules Alternative	0.17 - 0.35
Emission Control Plans	
Improved Graphic Arts Printing Operations Rule	0.19 - 0.26
Improved Coatings and Ink Manufacturing Rule	0.50 - 0.67
Improved Semiconductor Manufacturing Operations	0.07 - 0.08
Improved Organic Chemical Terminals and Bulk Plants Rule	0.19 - 0.28
Further Emission Reductions From Gasoline Delivery Vehicles	0.05 - 0.07
Improved Pressure Relief Valves at Refineries and Chemical Plants Rule	0.36 - 0.48
Improved Pump and Compressor Seals at Refineries and Chemical Plants Rule	0.86 - 0.96
Improved Process Vessel Depressurization Rule	0.03 - 0.07
Control of Emissions from Petroleum Refinery	0.19 - 0.22
Improved Wastewater (oil-water) Separators Rule	2.4 - 2.5
Control of Emissions from Adhesives Use	1.7 - 1.9
Substitute Solvents Used For Surface Preparation/ Cleanup of Coatings	7.6 - 11.4
Further Control of Emissions From Wastewater Treatment at Refineries	1.7 - 1.8
Improved Valves and Flanges at Refineries and Chemical Plants Rules	1.8 - 2.5
Limitations on Marine Vessel Tank Purging	1.3 - 1.4
Improved Storage of Organic Liquids Rule	1.0 - 1.3
Ultra-Low VOC Coatings	20.2 - 21.3

NOx Control Measures**Emission Reductions**

Control of Emissions from Non-Utility Reciprocating Engines	6.6 - 8.5
Control of Emissions from Stationary Gas Turbines	6.5 - 6.9
Control of Emissions from Electric Power Generating Boilers	12.0 - 13.5
Control of Emissions from Boilers Steam Generators and Process Heaters	42.0 - 48.0
Control of Emissions from Cement Plant Kilns	2.7 - 3.3
Control of Emissions from Glass Manufacturing Plant Melting Furnaces	2.3 - 2.8
Control of Emissions from Residential Water Heating	1.3 - 1.6
Control of Emissions from Commercial Charbroiling	1.4

San Joaquin Valley Stationary Source Control Measure**VOC Control Measures****Emission Reductions**

Adhesives	1.33
Aircraft Fuel Storage and Refueling	0.04
Charbroiling, Commercial	0.39
Coatings - Aircraft and Aerospace Exteriors	0.04
Coatings - Architectural	1.75
Coatings - Plastic Parts	0.01
Coatings - Wood Furniture and Cabinets	1.01
Dry Cleaning - Perchloroethylene Solvents	1.77
Gasoline Dispensing - Small Service Stations and Small Tanks	0.28
Graphic Arts	3.03
Landfill Gas Control	2.27
Oil Production - Discharge of Produced Oil/Flashing Losses	61.5
Oil Production - Fireflood Operations	7.67
Oil Production - Gas Plant Glycol Regenerators	12.62
Oil Production - Oil Pipeline Pumping Fugitives	0.80
Oil Production - Well Cellars	0.57
Organic Liquid Storage	100.31
Organic Solvents - Degreasing Operations	8.98
Organic Solvents - Solvent Waste	0.14
Polyester Resin Operations	0.11
Printing Operations, Small	0.38
Rubber/Plastics Manufacturing	0.96
Tank Cleaning and Venting	3.19
Wastewater Separators	1.83
Wineries	7.08

NOx Control MeasuresEmission Reductions

Asphalt Batch Plants	0.08
External Combustion Devices	66.98
Glass Melting Furnaces	8.68
Heaters, Residential and Commercial Space Heaters	0.14
Oil Production - Oil Well Drilling and Workover	31.39
Rig Piston Engines	
Piston Engines, Stationary and Portable	15.6
Stationary Gas Turbine Engines	25.58
Water Heaters, Residential & Commercial	1.08

PART IV.

CALCULATION PROCEDURES

This part describes the step-by-step calculations used to estimate the emission increases and percent contributions described in parts I and II. The following assumptions were used to perform this analysis and are expanded further at the end of this chapter.

1. It is assumed that all sources in the South Coast point source inventory are permitted sources.
2. It is assumed that the percentage of emissions from small sources in the Bay Area, San Joaquin Valley, and the Ventura/Santa Barbara area correlates with the percentage of emissions from small sources in the South Coast area.
3. It is assumed that the percentage of permitted stationary sources within the total stationary source inventory for the South Coast area can be applied to the other areas affected by these regulations.
4. It is assumed that growth in emissions from small sources occurs at the same rate as the overall emissions growth from all stationary sources in the planning inventory.

STEP 1: Estimate distribution of stationary sources by size and emissions

Staff used the ARB point source emissions inventory for the South Coast Air Basin to define a generic emissions distribution by source size category for stationary sources in the 0-10, 0-15, 0-25, and >25 TPY categories.

Table D.1

**Number and Emissions of Stationary Sources
by Source Size Category Within
the South Coast Air Basin
(combined ozone precursors)**

<u>Year</u>	<u>Size</u>	<u># of facilities</u>	<u>Emissions</u>
1987	0-10 TPY	18,260	15,102 TPY
	0-15 TPY	18,540	18,683 TPY
	0-25 TPY	18,914	26,217 TPY
	> 25 TPY	976	148,145 TPY
	Total	19,890	174,362 TPY

STEP 2: Estimate emissions contribution of various size categories, as a percentage of the South Coast point source emissions inventory

In this step, the size and emissions distribution in Step 1 was used to calculate the percent contribution of various source size categories to the total South Coast point source emissions inventory. Below is a sample:

Table D.2

<u>Year</u>	<u>Category</u>	<u>Percentage of Total</u>
1987	0-10 TPY	8.7% (15,102 / 174,362)
	0-15 TPY	10.7%
	0-25 TPY	15.0%
	> 25 TPY	85.0%

STEP 3: Estimate percentage of stationary source emissions with respect to the stationary source planning inventory

Because detailed analysis showed that South Coast's inventory best reflected the mix of all source categories, this distribution of sources was applied to the other affected districts. The planning inventory was used as the basis for the emission inventory. However, the emission estimates in the ARB planning inventory include sources that are exempt from permitting requirements such as residential space heating and area sources. To screen these out, staff used the South Coast inventory data from Step 1 to determine the percentage of stationary source emissions relative to the planning inventory. This factor is used in subsequent steps to find the quantity of stationary source emissions in other areas.

Percentage of South Coast
ROG & NOx Point Source Emissions to
Stationary Source Planning Inventory

<u>Year</u>	<u>South Coast Point Source Inventory</u>	<u>Stationary Source Planning Inventory</u>
1987	174,362 TPY	408,661 TPY

$$42.7\% = 174.362 / 408,661$$

STEP 4: Calculate annual emissions from the stationary source planning inventory for each upwind area.

In this step, the relevant portions of the ARB planning inventory (which is estimated in tons per day) were converted to tons per year by multiplying by 365. See note 1 for bias introduced in this step.

Table D.3

Ozone Precursor (ROG and NOx) Emissions
from Stationary Source Planning Inventory
(tons per year)

<u>Upwind Area</u>	<u>1987</u>	<u>2000</u>	<u>2010</u>
Bay Area	167,801	201,049	216,390
Broader Sacramento Area	27,915	34,920	39,924
San Joaquin Valley	272,133	280,820	296,095
Santa Barbara/Ventura	44,567	45,632	48,224

STEP 5: Calculate quantity of stationary source emissions in each upwind area

In this step, the South Coast/Planning inventory factor from Step 3 was applied to the stationary source planning inventory to yield an estimate of the stationary source emissions in each upwind area.

Table D.4

Ozone Precursor Emissions
(ROG and NOx) from Stationary Sources
(tons per year)

<u>Upwind Area</u>	<u>1987</u>	<u>2000</u>	<u>2010</u>
Bay Area	71,595	85,781	92,326
Broader Sacramento Area	11,910	14,899	17,034
San Joaquin Valley	116,110	119,816	126,334
Santa Barbara/Ventura	19,015	19,470	20,575

Example: $71,595 = 167,801 * 0.426667$

STEP 6: Apply size ratio to determine emissions from various source categories

In this step, the size distributions in Step 1 and 2 were applied to the stationary source emissions calculated in Step 5 to determine the amount of emissions from each size category. An example, using the Broader Sacramento Area, is provided below. Note that the emissions contributions do not sum to the quantity in Step 5, due to overlapping source categories. Likewise, the percentages do not sum to one hundred (except for the 0-25 TPY plus the >25 TPY categories).

Table D.5

Contribution of Various Source Categories
To Stationary Source Emissions of Ozone Precursors

(Broader Sacramento Area)

<u>Year</u>	<u>Size Category</u>	<u>Emissions Contribution</u>
1987	0 - 10 TPY	1,032 = 11,910 x 8.7%
	0 - 15 TPY	1,276 = 11,910 x 10.7%
	0 - 25 TPY	1,791 = 11,910 x 15.0%
	> 25 TPY	10,120 = 11,910 x 85.0%

STEP 7: Determine emissions increase for years 2000 and 2010 from each source size category, in each upwind area

Finally the planning inventory can be used to determine the emissions increase for the years 2000 and 2010 for the various source size categories. Below are the future emissions from the 0-10 TPY and 0-15 TPY source categories.

TABLE D.6

0-10 Tons Per Year Category
(Tons Per Year)

<u>Upwind Area</u>	<u>1987</u>	<u>2000</u>	<u>2010</u>
Bay Area	6,201	7,430	7,997
Broader Sacramento Area	1,032	1,290	1,475
San Joaquin	10,057	10,378	10,942
Santa Barbara/Ventura	1,647	1,686	1,782

TABLE D.7

0-15 Tons Per Year Category
(Tons Per Year)

<u>Upwind Area</u>	<u>1987</u>	<u>2000</u>	<u>2010</u>
Bay Area	7,671	9,191	9,893
Broader Sacramento Area	1,276	1,596	1,825
San Joaquin	12,441	12,838	13,537
Santa Barbara/Ventura	2,037	2,086	2,205

STEP 8: Interpolate to find 1992 values

Emissions for 1992 are not routinely calculated as part of the planning inventory. The 1992 emissions for each area were calculated using a straight-line interpolation between 1987 and 2000, that is, by adding to the 1987 emissions the difference between 1987 and 2000 emissions, multiplied by 5/13. Tons per year were calculated by multiplying the tons per day emissions by 365. The following tables were taken from the ARB planning inventory for total stationary source emissions and total county or basin emissions. For reference purposes, projected emissions for 2000 and 2010 are also included.

TABLE D.8

Total Precursor Emissions (ROG & NOx)
From ARB Planning Inventory
(tons per day)

<u>Upwind Area</u>	<u>1987</u>	<u>1992</u>	<u>2000</u>	<u>2010</u>
Bay Area	1,314	1,212	1,050	1,011
Broader Sacramento Area	345	318	275	275
San Joaquin Valley	1,333	1,286	1,211	1,256
Santa Barbara/Ventura	279	258	224	218

TABLE D.9

Total Precursor Emissions (ROG & NOx)
From ARB Planning Inventory
(tons per year)

<u>Upwind Area</u>	<u>1987</u>	<u>1992</u>	<u>2000</u>	<u>2010</u>
Bay Area	479,636	442,526	383,155	368,894
Broader Sacramento Area	125,950	116,128	100,415	100,437
San Joaquin Valley	486,530	469,386	441,960	458,520
Santa Barbara/Ventura	101,853	94,104	81,705	79,647

STEP 9: Compare growth of source categories to various other inventories to define significance

As a final step, tables were developed that reflect the percentage of each emission increases to the total stationary source inventory and the total stationary and mobile source inventory. The difference in emissions between 1992 and 2000 and 1992 and 2010 was calculated and then divided by the either the stationary source inventory or total emissions inventory from the planning inventory. These values represent the percentage of emissions within the entire inventory.

FACTORS LEADING TO BIAS AND/OR UNCERTAINTY IN CALCULATIONS

1. Conversion of planning inventory to annual average emissions inventory by straight multiplication (PI x 365 days). The planning inventory reflects higher, seasonal emissions rather than a daily average. Direction of bias: overestimates emissions. Magnitude: may be 5-6% for ROG; 2-4% for NOx.
2. Use of constant factor (43.7%) to calculate quantity of stationary source emissions within the planning inventory. All large sources are permitted; many small sources are exempt. Direction of bias: overestimates quantity of stationary source emissions from small sources. Magnitude: unknown.
3. Use of constant size distribution, drawn from the South Coast. Other areas may have different size distribution, reflecting a smaller industrial base. Direction of bias: underestimates small source emissions in less industrialized areas (e.g., the Broader Sacramento Area). Magnitude: unknown.
4. Underlying growth projections. The planning inventories used in the calculation generally do not contain a control factor for NSR rules and are missing many prohibitory rules. Consequently, emission increases are forecast for most source categories (based on population growth and other economic indicators), even where existing rules may constrain that growth. Direction of bias: overestimates emissions. Magnitude: unknown.
5. Uninventoried sources. The small source portion of the emissions inventory is among the weakest. Steps are being taken to improve the estimates, but many believe that small source emissions (particularly ROG) continue to be underestimated. Direction of uncertainty: may underestimate small source emissions. Magnitude: unknown, though is probably greater for ROG than NOx.
6. The threshold effect. Establishing a size threshold below which sources are exempt from offset requirements causes some project proponents to downsize their facilities to escape the offset requirement. This could produce greater emissions growth in small sources than predicted in the baseline forecasts for 2000 and 2010. Direction of uncertainty: may underestimate small source emissions. Magnitude: unknown, but expected to be small since most sources under 25 TPY are in the 0-5 TPY range.

TABLE D.8

Summary of Bias and Uncertainty Effects

<u>Factor</u>	<u>Direction*</u>	<u>Magnitude</u>
Planning Inventory Conversion	high	5-6% ROG; 2-4% NOx
Permitted Emissions Factor	high	unknown
Constant Size Distribution	low**	unknown
Underlying Growth Projections	high	unknown
Uninventoried Sources	low	unknown, greater for ROG
Threshold Effect	low	unknown

* high means tendency to overestimate the emissions from small sources.
low means tendency to underestimate emissions from the same sources.

** effect greatest in areas with less industrial development than the South Coast air basin.

APPENDIX E

List of References

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