WATER RECLAMATION
SOLID WASTE MANAGEMENT

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OF LOS ANGELES COUNTY

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September 23, 2010
File No.: 31-380.10B

Ms. Joan Denton, Ph.D.
Director
Office of Environmental Health Hazard Assessment
1001 I Street
Sacramento, California 95814

Dear Director Denton:

Comments on the Public Review Draft for Cumulative Impacts:
Building a Scientific Foundation

The Sanitation Districts of Los Angeles County (Sanitation Districts) appreciate this opportunity to comment on the Public Review Draft for Cumulative Impacts: Building a Scientific Foundation (Review Draft). The Sanitation Districts are a consortium of 23 special districts that provide environmentally sound, cost effective management of wastewater and solid wastes for about 5.7 million people in Los Angeles County and, in the process, convert these wastes into resources such as reclaimed water, energy and recycled materials. We are concerned that the proposed cumulative impacts framework and screening methodology will artificially exaggerate perceived impacts from well-controlled facilities, including those operated and maintained by the Sanitation Districts.

It is our understanding that the proposed methodology would tentatively identify communities with disproportionate cumulative impacts (CI). However, we are very concerned that the conservative and imprecise nature of this screening approach will actually undermine targeted risk reduction efforts. Instead of focusing on communities requiring immediate attention, the wide-spread misinterpretation of screening results will create a regulatory bottleneck as alarmed communities compete for limited risk abatement resources. The public and press will likely view these results as rigorous and legitimate metrics disregarding the underlying highly conservative assumptions and other, more prominent risk drivers. As an example, it is a common misconception that environmental exposures are increasing, whereas data collected by the South Coast Air Quality Management District (SCAQMD) in their MATES II and MATES III studies demonstrate considerable decreases in exposure.

Recycled Paper

Because it is difficult to un-ring the bell, we believe that a defendable scientific approach should be utilized to estimate cumulative impacts rather than the proposed subjective screening methodology. We believe that such an approach will tend to expedite real risk reductions in impacted communities.

We support the comments by the California Council for Environmental and Economic Balance that call for a more rigorous and scientifically defendable approach (enclosed). Furthermore, we ask that OEHHA explain and detail the caveats behind the assumptions establishing the causal linkage between emissions, exposures and health impacts, and address the limitations of the metric as a decision-making tool.

The following summarizes our other comments on the Review Draft:

- The overall score will rank communities at risk, yet burying the contributing factors into one number masks whether a high score is due to an alarmingly high environmental burden or severe economic duress. The strategies to remedy either condition are vastly different, and community leaders need a decision-making tool that illuminates the concern, not obscures it. Moreover, the formula result occludes whether a stationary source is the greatest burden, or if the burden is from mobile sources. The conclusion of SCAQMD's MATES III study is that the latter is often more impactful. Accordingly, a more revealing metric should be utilized.

- Although the Review Draft mentions examples of adverse health impacts triggered by environmental burdens, it neglects to explain that each illustration carries with it considerable caveats diluting the conclusions. For example, demonstrations are based on statistical analysis and do not necessarily establish a causal relationship. Although the case may be stronger where exposure is well documented (workplace exposure for example), in cases where the exposure is inferred, it is much harder to conclusively demonstrate cause and effect.

  As described in Cancers in the Urban Environment, urban cancers were the subject of an exhaustive study by Dr. Thomas Mack from the USC Keck School of Medicine. That 2004 study surveyed by census tract the incidence of roughly 80 types of cancers in Los Angeles County for a 26-year period. This study uncovered very few cancer clusters despite this basin's historic struggle with urban air pollution, and the vast majority of cancers were not attributable to specific sources.

  In the very last sentence of that same publication, Dr. Mack also states, "As of this writing, no evidence of a malignancy caused by strictly

environmental carcinogen has yet been confirmed." In light of this inferred, and inconclusive connection, we urge OEHHA to tread lightly in its conclusions on how such screening tools could be used in the regulatory arena. We strongly believe that screening tools should be supported by a rigorous validation process, including community-based monitoring.

- Finally, we feel that an appropriate campaign to inform the public on risks in their proper context will result in greater support for effective proposals that seek to reduce emissions and exposures.

We appreciate your consideration of our comments on the Review Draft, and look forward to future revisions of this work. If you have any questions regarding these comments, please do not hesitate to contact me at (562) 908-4288, extension 2412.

Very truly yours,

Stephen R. Maguin

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DLR:FRC:PG:bb
Enclosure

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September 23, 2010

Dr. Joan Denton
Director
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1001 I Street,
Sacramento, CA 95814

RE: Proposed Framework for Cumulative Impacts Analysis and Proposed Screening Methodology for Cumulative Impacts

Dear Director Denton,

The California Council for Environmental and Economic Balance (CCEEB) is a non-partisan, non-profit coalition of business, labor, and public leaders that advances balanced policies for a strong economy and a healthy environment.

CCEEB appreciates the opportunity to participate in the Cal/EPA Cumulative Impacts and Precautionary Approaches (CI/PA) Working Group and to comment on the cumulative impacts framework for analysis and screening methodology currently being developed by OEHHA for Cal/EPA (August 19, 2010 Public Review Draft – *Cumulative Impacts: Building a Scientific Foundation)(CI framework)*. CCEEB has long been involved in stakeholder discussion at Cal/EPA on environmental justice. We hope that our comments can help achieve the goals and objectives laid out in Cal/EPA's *Environmental Justice Strategy* (August 2004) and *Environmental Justice Action Plan* (October 2004).

However, CCEEB has serious concerns with the draft CI framework, and questions whether the proposed screening methodology fulfills the objectives specified under the EJ Strategy and EJ Action Plan. At best, this is a first step towards developing analytic tools and appropriate regulatory responses to the problem of cumulative impacts. However, emphasis on the screening methodology and the CI framework as currently written could divert resources from much more critical work, described in detail in the section below and in Attachment 1.

In summary, CCEEB believes that:

- Cal/EPA has departed from the goals and objectives laid out in the EJ Strategy and EJ Action Plan without cause. The work described in these documents should be renewed and made the focus of efforts on cumulative impacts and precautionary approaches.

- OEHHA should redirect its efforts towards developing scientific tools to assess cumulative impacts, with a focus on quantifying a community's cumulative pollution burden. Lessons learned from the Cal/EPA pilot projects should form the basis of this work.

- OEHHA makes assertions about the relationship between socioeconomic status (SES) and the effects of exposure to environmental pollution without adequate scientific evidence. Of particular concern is the assertion that race and ethnicity can independently influence the rate of incidence of disease caused by environmental pollution.

- OEHHA must consolidate the CI framework with its guidance on the screening methodology. It is impossible to fully comment on either the CI framework or the draft screening methodology without understanding how the tool will be used and how it will be constructed – these critical details should not be left to some future guidance document to explain.

- OEHHA should complete a true scientific review of all available literature.

1. Cal/EPA Process

In its 2004 EJ Strategy and EJ Action Plan, Cal/EPA lays out a detailed process for identifying and addressing any gaps in its existing programs, policies, and activities that may impede the achievement of environmental justice. The EJ Strategy and EJ Action Plan commit Cal/EPA to developing science-based tools, protocols, and guidance to assess and address cumulative impacts (See Attachment 1). OEHHA was designated as the lead for this work, which was to be based directly on lessons learned from six pilot projects conducted by Cal/EPA's boards and departments. However, the CI framework report makes no mention of these pilot projects or lessons learned. Cal/EPA seems to have departed from its own self-defined process without making this explicit to public stakeholders or providing the rationale for this significant change in course.

Cal/EPA's environmental justice goals are required by statute, but also stem from multi-year discussions between Cal/EPA and public stakeholders. More importantly, the development of scientific tools to assess cumulative impacts informs regulators and government decision makers by answering the following questions:

(1) What is the level of cumulative pollution burden?
(2) Is the level *disproportionate* when compared to other communities in the region or in the state?
(3) What level of burden results in health risks that could warrant special protection and trigger regulatory action above and beyond current policies and programs?
(4) What are the sources contributing to the cumulative pollution burden?
(5) What is the relative contribution of each source?
(6) What is the timeframe for action needed to be protective of health?

CCEEB has the following concerns with respect to the proposed CI framework in the context of responding to these questions. We had expected that the CI framework would provide the science-based tools needed to answer these fundamental and critical

questions. However, rather than developing a toolkit to assess cumulative impacts, OEHHA has chosen to focus on the last part of the cumulative impacts working definition: "Impacts will take into account sensitive populations and socio-economic factors, where applicable and to the extent data are available."[1] The CI framework is wholly devoted to the subjects of sensitivity and socioeconomic status (SES), and yet still fails to describe when these factors are "applicable" or the extent to which data is "available". For SES in particular, it is critically important to provide detailed and science-based guidance to regulators about when and how to include this data.

CCEEB recommends that Cal/EPA renew focus on developing a science-based toolkit for assessing cumulative impacts. We note that Appendix 3 is not a comprehensive inventory of available tools, and includes a very limited and select number of examples, most of which were developed by or in consultation with OEHHA academic advisers to the CI framework or their working colleagues. **More importantly, not one example deals with risk assessment, risk characterization, hazard identification, or cost-benefit analysis.** We would expect to see these types of tools and resources as part of the CI framework. It would be helpful to know whether OEHHA has reviewed and considered other approaches to evaluate cumulative impacts. If it has, then we ask OEHHA for its assessment of their applicability and why these approaches were not selected as models/methods for inclusion in the CI framework.

Screening ≠ Assessing Cumulative Impacts

Screening for vulnerability is not an impact assessment. However, throughout the report, OEHHA suggests that a screening tool is a type of assessment (emphasis added below):

> "The report lays out a new screening methodology for <u>analyzing cumulative impacts</u> that takes into account all of the above factors." [p.v]
>
> "The report describes a screening methodology approach to <u>assessing cumulative impacts</u> of pollution in California communities in a structured and focused manner." [p.vii]
>
> "…the screening method presented in this report is intended to apply a scientific method to <u>achieve the EJ Action Plan objectives</u> on cumulative impacts guidance development." [p.3]
>
> "…the report describes a common, systematic approach that Cal/EPA's Boards and Departments can use to <u>begin to assess</u> and respond to cumulative impacts on communities." [p.5]
>
> "A screening analysis would enable the identification of highly impacted areas <u>as well as the types of facilities or activities</u> that contribute most to impacts." [p.44]

[1] "Cumulative impacts means exposures, public health or environmental effects from the combined emissions and discharges, in a geographic area, including environmental pollution from all sources, whether single or multi-media, routinely, accidentally, or otherwise released. Impacts will take into account sensitive populations and socio-economic factors, where applicable and to the extent data are available." [Cal/EPA Working Definition of Cumulative Impacts]

Only on page 8 does OEHHA clarify that "[T]he proposed screening method will help identify communities with disproportionate cumulative impacts, although it **will not substitute for detailed assessments**."

Community screening tools, such as the one proposed by OEHHA, have limited application and are not considered an "assessment" of cumulative impacts.[2] Screening tools can identify communities appropriate for further investigation, and can be used to target resources such as grants, funding, and enforcement efforts. Screening tools are best suited to help identify potentially impacted communities that lack local environmental review and oversight; screening results are less beneficial for communities already organized, although it can help legitimize community concerns.

CCEEB's primary concern is that community screening methods only indicate associations among possible variables, which themselves are highly confounding, i.e., a screening analysis does not substantiate causal linkages between "emissions, discharges, and exposures," SES, and observed disparities in environmental or public health effects. Another limitation is that screening tools fail to identify when a cumulative impact is unhealthy or disproportionate (e.g., all Californians are exposed in some degree to multiple sources of pollution from multiple pathways), how the burden might lessen or increase over time, and what sources contribute the most to the cumulative burden.

If Cal/EPA proceeds with the screening methodology as a first step, then it should (1) carefully delineate how it should be used, (2) clearly define its limitations, including its inability to answer any of the six questions posed on page 2 of our comments, (3) consider broadly its possible uses, and (4) be prepared to address unintended consequences. CCEEB recommends removing all language that suggests that a screening method assesses or analyzes cumulative impacts, and instead clarify that a screening method identifies highly impacted communities and targets areas for further investigation.

2. Underlying Science

The science presented in the report is narrowly focused on studies of health disparities, race and ethnicity, and SES. Regarding these studies, the report generally lacks any critical assessment of a study's strengths or weaknesses. Thus, the degree of uncertainty regarding scientific conclusions is unknown. Another problem is that the CI framework does not always link studies listed in the references to report findings, so it is unclear which studies are driving OEHHA's assertions. For example, on page 10, the draft states that, "Evidence also suggests that cumulative exposures from multiple sources of environmental pollution may be more harmful than single exposures," but does not cite the evidence.

Similarly, the accompanying literature review provided by academic consultants to OEHHA is organized around five key assertions[3], and then compiles studies in support

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[2] From presentation by R. Morello-Frosch on EJSM at the UC Symposium on Cumulative Impacts, December 15, 2009 and CI/PA Working Group discussion on June 3, 2010.

[3] Assertion 1: Health disparities are significant and exist for diseases that are both socially and environmentally mediated; Assertion 2: Exposure disparities are significant and exist for key environmental factors;

of these assertions. No counterviews are given, the degree of uncertainty in these studies is largely unknown or at least not presented, and studies with conflicting or contradictory results are not mentioned. In general, the framework appears to have been written from an advocacy perspective rather than a scientific one.

CCEEB believes that a more objective and comprehensive approach needs to be taken in reviewing the scientific literature. We urge Cal/EPA and OEHHA to consider a broader range of topics of primary concern to cumulative impacts in its CI framework. Regulators and public stakeholders need better information on the additive and synergistic effects from cumulative impacts. This means looking across all media and pollution sources, and enhancing current risk assessment practices.

What follows are more specific concerns regarding Chapter 1.

Fails to Address Cumulative Pollution Burden

> "Fully summarizing the <u>known</u> relationships between chemical pollutants and disease is beyond the scope of this work." [p.9, emphasis added]

Per the working definition, assessments of cumulative impacts should include evaluation of exposure to the combined emissions and discharges in a geographic area, including environmental pollution from all sources, whether single or multi-media, as well as environmental and public health effects. The CI framework should determine what scientific tools are available or needed to analyze cumulative, additive and synergistic health effects caused by exposure to multiple sources of pollution over time, as well as background and relative risk levels. While the CI framework cites literature regarding pollution exposure, it does not address cumulative or relative risks from exposure.

Health Effects Are Caused by Multiple Factors and Risks

> "Inequalities in health outcomes are created or perpetuated in people of different socioeconomic backgrounds, races, or cultures in numerous ways…. [T]hese can include exposure to environmental pollutants; adverse environmental conditions; biological or genetic differences such as early-life conditions and nutritional status; or other factors, such as housing, inadequate health care, unsafe working conditions, unhealthy behaviors (smoking, physical inactivity), social exclusion, and discrimination." [p.18]

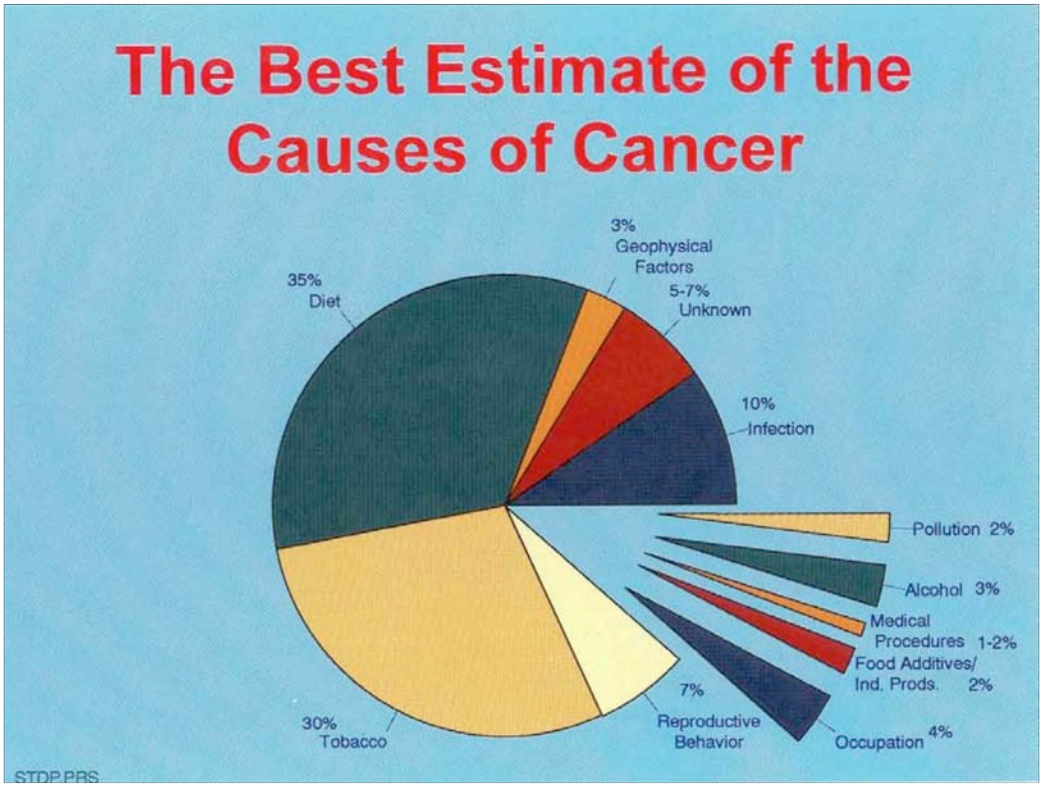
> "It should be noted that many diseases have multiple causes and are not uniquely caused by environmental exposures." [p.9-10]

OEHHA misses an important opportunity to help regulators and the public understand the degree to which exposure to environmental pollutants contributes to disease. For example, estimates have been made of the contribution of industrial chemicals to cancer incidence as compared to other environmental sources such as diet. (See Figure 1

Assertion 3: Health disparities may result in part from exposure disparities;
Assertion 4: Intrinsic (biological and physiological) susceptibility contributes to differences in the frequency and severity of environmentally-mediated disease:
Assertion 5: Vulnerability that results from non-intrinsic factors (socially-derived factors at the individual and community levels) also modifies the effect of environmental agents on health and can contribute to health disparities.

below) As another example, in the Bay Area, the estimated lifetime cancer risk from air toxics, based on theoretic models, is about 400-in-a-million, as compared to a total lifetime cancer risk of approximately 400,000 cases per million from all causes.[4]

Figure 1: Doll and Peto, Harvard Report on Cancer Prevention: vol 1, Causes of Human Cancer, 1996



Given the focus of the report on health disparities that are driven by multiple factors, OEHHA needs to place cumulative pollution burden in context and evaluate the relative risks. This information would help regulators and government decision makers understand which factors can achieve the greatest results in improving public health as well as what might be the potential tradeoffs from different policy options.

How Should Research on SES and Health Disparities Be Treated?

As noted in Section 1 above (Cal/EPA Process), the CI framework fails to describe when "sensitivity" and "socioeconomic factors" are *applicable* or the extent to which data are *available*.

CCEEB agrees with the assertion that disadvantaged communities are more likely to be burdened by disparate health outcomes. We also agree that individuals living in a disadvantaged community may be less capable of coping with disease and illness due to factors such as access to medical and preventative care, diet and nutrition, and personal behaviors such as smoking, drug addiction, and exercise.

[4] BAAQMD *Draft Bay Area Clean Air Plan, 2010*, page 1-17.

However, we disagree with the assertion that the effects of pollution are modified by race or socioeconomic status (SES), i.e., that SES and race can result in an *independent* biological response to exposure to environmental pollutants, all else being equal. This is described in more detail in our discussion of *Effects Modification Based on Race and SES* below.

A major limitation of health disparity studies is the potential for residual bias from SES and other risk factors. Covariates are often highly correlated and study authors generally make no mention of model diagnostics. The problem is even more pronounced when race and ethnicity are examined, or as summarized by one medical researcher:

> "Racial/ethnic differences are likely to reflect unmeasured socioeconomic differences. The concerns expressed above underscore the fact that—without measuring all relevant SES dimensions, life stages, and aggregation levels (e.g., individual, household, neighborhood, city)—an observed racial/ethnic disparity in health cannot be considered 'independent of SES.' However, racial/ethnic differences also cannot be assumed to be reducible to socioeconomic issues; for example, systematic socioeconomic differences between racial/ethnic groups can reflect racial discrimination at the institutional/structural level, personal experience, or both. Researchers who observe racial/ethnic disparities in health outcomes should explicitly acknowledge the plausible role of unmeasured aspects of SES and other potentially relevant explanations, including institutional or personal experiences of discrimination."[5]

CCEEB suggests that OEHHA treat SES as part of background risk levels. OEHHA should review a broader base of public health and medical literature to help identify SES factors that most appropriately relate to health disparities based on disease type (rather than exposure or proximity). This would help address our concern regarding lack of information on what data is available. It could also help improve understanding of the background risk in disadvantaged communities, with possible implications for cumulative risk assessment – we note that this approach is different than proving "effects modification," is simpler to understand and analyze, and is more transparent when applied.

To answer when SES is "applicable," OEHHA should take into consideration the needs of Cal/EPA and consult with the Boards and Departments. Questions to consider might include the following:

- During which agency activities should SES be considered (e.g. permit approvals vs. land use zoning vs. allocation of health resources vs. targeting grants)?
- What components of SES should be considered? Does this change depending on the chemical or health effect? For example, if the age of a residence is indicative of the presence of lead-based paint, when should this information be applied, by whom, and how?
- To what degree does SES account for health disparities? How does this compare to the contribution to risk from exposure?

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[5] Braveman, Paula, et. al. *Socioeconomic Status in Health Research: One Size Does Not Fit All*, Journal of the American Medical Association, December 14, 2005—Vol 294, No. 22, Page 2885.

Evidence Does Not Support Effects Modification Based on Race and SES

> "Race, income, access to health care, and other socioeconomic factors may influence the effect of environmental pollutants." [Page 3]
>
> "An abundance of this research suggests that non-intrinsic factors such as socioeconomic status may modify the response to pollutant exposure. Some studies suggest up to three-fold increases in the response." [p.16]
>
> "Specific studies show possible health effect modification by race, meaning that race and pollution exposure may independently affect health outcomes." [p.17]

To our knowledge, studies presented in the report and literature review—or any other study—do not conclusively show that race/ethnicity or SES *independently* modifies the effects of exposure to environmental pollutants. There remains a great deal of uncertainty regarding whether or not these factors independently result in a higher incidence of disease and illness, given the same level of exposure to pollutants. Should Cal/EPA and OEHHA retain this assertion, CCEEB asks that the CI framework describe in detail the level of uncertainty that exists, and describe critical reviews of cited studies, if any.

SES may indeed affect an individual's ability to cope with or manage disease and illness, but this is different from effects modification. Similarly, SES could account for disparities in health outcomes, regardless of exposure to pollutants. We recommend that OEHHA investigate these two areas.

Bias Against Some Sources, Not Truly "Cumulative"

> "…we discuss scientific evidence relating to proximity to toxic facilities and emissions, exposure to environmental pollutants in air and other measures of exposure as they relate to minority and low SES populations." [p.10]

Over-reliance on TRI-based Studies

Section 2a in Chapter 1 on *Exposure Disparities* is largely devoted to studies that look at proximity to toxics release inventory (TRI) reported facilities, which tend to be concentrated in urban industrial areas near many other sources of pollution. An over-reliance on TRI-data fails to meet the Cal/EPA definition of "cumulative impacts" because these studies ignore any other source of pollution such as transportation facilities and small commercial emitters of toxic air contaminants that are not subject to TRI reporting requirements. For example, one group of researchers described their use of the TRI data as, "…presenting a new measure of performance: whether *companies* are having a particularly high and disparate impact on disadvantaged communities."[6] An approach that only looks at TRI-reported facilities or even a single category of sources simply isn't cumulative. Also, the use of this data in this manner equates the proximity of a receptor with an adverse exposure. As described in the proximity/exposure section below, this isn't necessarily the case.

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[6] Pastor, et. al., *Justice in the Air: Tracking Toxic Pollutants from America's Industries and Companies to our States, Cities, and Neighborhoods.* University of Massachusetts and University of Southern California, April 2009.

Among the studies based on monitored and modeled air pollution data, only one study[7] looks at California specifically, and then only at the South Coast Air Basin. Non-white and low-income people are grouped with "those living in densely populated areas," which could include much of the geographic region, including predominantly white and middle- or even high-income communities.

Ignores Role of Land-Use in Co-Locating Sources and Receptors

> "The presence of toxic hazards in communities can lead to general social disinvestment, bringing low property values, poor schools, stigma, blocked mobility, and intergenerational inequity." [Footnote, p.13]

There is a chicken-and-the-egg argument embedded in the report that seems to imply that industrial pollution is imposed on existing communities. There is no mention of the many communities in California that grew up around existing industrial zones or adjacent to transportation and trade corridors, or the land use decisions that brought people and sources together.

In Appendix 3, the report notes work by the BAAQMD to incorporate cumulative impacts into land use decisions and planning, and describes a policy approach ("tiered thresholds" also known as differential standards) that was ultimately not recommended by District staff, nor approved by their Governing Board. Instead, BAAQMD is developing community-level risk reduction plans that enhance air pollution data available to planners and recommend multiple land use and transportation measures that can be implemented by local governments to reduce the most significant sources of risk. CCEEB strongly recommends eliminating the section (page 78) that describes the rejected policy option of tiered thresholds.

Proximity to a source (without regard to emissions) ≠ Exposure or Environmental Effects

> "It is reasonable to assume some exposures may occur over time due to accidental releases, even if those exposures are infrequent and cannot be quantified." [p.26]

CCEEB objects to the characterization of "proximity" to a source as being equivalent to or a measure of exposure. Proximity to a source should not be used as a proxy for exposure in risk assessment because it fails to identify the chemicals involved, the dose of exposure (including the dispersion of pollutants), the duration of the exposure, or the toxicity of the chemicals in question. As OEHHA itself acknowledges, "Proximity to source(s) alone, however, does not always predict the distribution of pollutants in the environment."[8] CCEEB concurs with this statement and strongly recommends that OEHHA follow its own scientific conclusions by not treating proximity the same as exposure in the report.

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[7] JD Marshall, *Environmental Inequality: Air Pollution Exposures in California's South Coast Air Basin*, 2008, Atmospheric Environment 42:5499-503

[8] Draft report, page 8

The above-quoted sentence appearing on page 26 should be removed. On page 32, we recommend removing the description of exposures (first two sentences of the first bullet), and replace it with:

> "Measures of exposure can best be indicated by environmental monitoring data. While emissions by themselves do not necessarily indicate exposure, they can be used as a surrogate suggesting the potential (though not certain) contact with pollutants."

In the following sentence, "Environmental effects reflect the physical conditions of the community, such as contamination by hazardous materials…" we recommend striking the last half that states, "…and facilities where hazardous chemicals are stored, treated or disposed." Again, this treats proximity to a source as a proxy for exposure without regard to the level of emissions or discharges from that source. It also appears to be unworkable in practice. For example, it would impractical for Cal/EPA to include all facilities that have a fuel tank as an "environmental effect", as this language suggests.

Because OEHHA interprets "environmental effects" loosely as proximity to stationary sources, the screening methodology has many of the same problems as the section on exposure disparities – large categories of sources are completely omitted from consideration, while others appear to be double counted. For example, in the screening methodology, the only indicators included for environmental effects are proximity to hazardous waste sites and leaking underground storage tanks. No indicators are given for environmental degradation or ecological harm, as described on page 26.

3. Cumulative Impact Definition Broadened, Not Consistent with CEQA

CEQA defines "cumulative impact" to refer to <u>the incremental impact</u> of the project when added to other closely related past present, and reasonably foreseeable probable future projects. 2010 CEQA Guidelines, section 15355. The Guidelines further state that:

> The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable. *2010 CEQA Guidelines, section 15064(h)(4).*

CEQA's emphasis on the <u>incremental</u> contribution by a single project is to be contrasted to the broad purpose and approach of the Cal/EPA CI framework.

> "Cumulative impacts means exposures, public health or environmental effects from the combined emissions and discharges, in a geographic area, including environmental pollution from all sources, whether single or multi-media, routinely, accidentally, or otherwise released. Impacts will take into account sensitive populations and socio-economic factors, where applicable and to the extent data are available." [Cal/EPA Working Definition of Cumulative Impacts]

> "Understanding the cumulative impacts of environmental pollution fundamentally means understanding communities and people." [p.7]

> "This scientific evidence suggests a likely role for pollutant-mediated adverse effects in people, particularly for low-income and minority populations." [p.7]

As mentioned before, OEHHA has focused almost exclusively on the last part of the working definition: "Impacts will take into account sensitive populations and socio-economic factors, where applicable and to the extent data are available." By doing so, OEHHA has shifted focus to look at community health broadly; cumulative pollution burden is just one among many factors influencing "pollution-mediated adverse effects," and community health. At the least, OEHHA should clearly define what is considered a "pollution-mediated adverse effect" (or develop criteria to characterize this) and explain whether this is the same or different from "public health effects".

We also note that the CEQA definition looks at "considerable" "effects" and "other environmental impacts" whereas under the Cal/EPA definition, merely the combined exposures from multiple sources (regardless of any evidence of anticipated health impacts) constitute a "cumulative impact".

The CI framework should be clarified further to avoid unintended implications that it should be employed by lead agencies having obligations to comply with CEQA when determining whether significant cumulative impacts are present for an individual project. As stated in the Executive Summary: "This screening methodology is not designed to serve as a quantitative assessment of community health impacts, rather it can be used as a relative ranking to distinguish higher-impacted communities from lower-impacted communities and to identify which factors are the greatest contributors to cumulative impact. This screening methodology is not comprehensive, <u>is not sensitive to small changes in impact, and cannot determine the cause of health outcomes in a community.</u> The methodology is a screening tool that will help Cal/EPA programs prioritize their activities and target those communities with the greatest cumulative impacts." [p.v-vi, emphasis added]

The CI framework also explains at page 37:

> *"What can't the methodology be used for?*
>
> - A comprehensive assessment of the cumulative impacts of all pollutants within a community.
> - Detecting the impact of small incremental changes within a community.
> - Determining the cause of health outcomes in a community and predicting human health risks.
> - As a human health risk assessment.
> - <u>Supplanting existing regulatory requirements (such as those specified in CEQA</u>)". (emphasis added)

The CI framework also states, at page 42, that: "Whether and how cumulative impacts should be considered in permitting processes is a topic that needs more discussion within Cal/EPA and more input from the CIPA Work Group and other stakeholders."

CCEEB supports these acknowledgements that the screening methodology is not well suited to evaluate individual projects. However, this should be made clearer by including the statement from page 42 quoted above in the Executive Summary and Introduction to avoid misapplication of the screening methodology by CEQA lead agencies. Further,

the statements regarding what it cannot be used for, quoted above, at page 37, should be amended to state that the methodology cannot:

> "Be used to meet existing regulatory requirements (such as those specified in CEQA)."

The statements noted above acknowledging that the screening methodology is not intended to apply in reviewing individual projects is confused by the statement in Appendix 3 on page 77 that states: "Cumulative impact methodologies may be useful in land use and planning decisions, specifically through the California Environmental Quality Act (CEQA)." This statement is immediately followed by a summary of the BAAQMD tiered threshold proposal that, as noted above, was neither recommended by BAAQMD staff nor adopted by the BAAQMD Governing Board. This CEQA statement on page 77 should also be deleted.

Public Health Effects Should Be Limited to Those with Causal Relationships to Exposure

Among the examples given, OEHHA includes two that do not relate to cumulative pollution burden, and should be removed:

- Heat-related illness: CCEEB agrees that exposure to heat can cause or contribute to serious health effects, but we disagree that heat is caused by sources of pollution and contributes to the cumulative pollution burden. Neither Cal/EPA nor any other agency can regulate temperature. CCEEB recommends that this section on heat-related illnesses be removed, and that "heat" be removed under the definition of "pollution" on page 27.

- Miscarriage: This effect was included because of a single study that found an associative relationship between miscarriages and proximity to freeways or busy roadways. Study authors, including OEHHA, determined that additional research is needed to confirm the findings and to clarify underlying mechanisms. Other risk factors could influence results; for example, neighborhoods in close proximity to freeways tend to be lower in SES, which itself could at least partially explain disparity in outcomes.

These examples underscore the need for clear and transparent criteria to guide regulators at Cal/EPA in determining which health effects to include. OEHHA should develop explicit guidance as part of the scientific framework.

Environmental Effects Should Be Outcome Oriented, Not Proximity to Sources

CCEEB has serious concerns with the broad interpretation of "environmental effects" and recommends that this category be limited to environmental degradation and ecological effects. "Threats" uses the problematic indicator of proximity to sources, and should be removed since this relates to potential exposure (or cause) rather than the effect (or outcome). For example, just because an underground storage tank is leaking, does not mean there is any exposure. A better metric would be if the concentrations of toxic compounds could be measured in groundwater at locations in nearby communities.

We also note that the report initially describes proximity to sources as a "factor" in Chapter 1, and then recategorizes proximity as an "effect" in Chapter 2. This results in an inconsistency across the CI framework.

4. Screening Methodology Is Flawed

Pollution Burden Double Counts Factors, Indicators Are Not Independent

In the screening methodology, OEHHA characterizes "pollution burden" by adding together exposure, environmental effects, and health effects. OEHHA has generally defined exposures as "contact with pollution" while defining "public health effects" as "disease and other health conditions influenced by exposure to pollutants". Inherent in these definitions are that exposures can lead to public health effects. This means that an exposure is double counted – first as an exposure and then second as a public health or environmental effect. To put it another way, OEHHA is not using fully independent variables in the screening methodology.

Language in the CI framework and the screening methodology is indicative of statistical bias wherein the dependent and independent variables are confounded, leading to results of questionable validity. CCEEB believes that the determinants of "impact" (i.e., dependent variables) are now conflated with independent variables such as income and exposures; these same dependent variables appear to be joined to the independent variable "vulnerability" (i.e., SES). In this circular argument, there is no possibility of finding significant impacts and exposures to non-vulnerable communities. Also, the absence of a control group against which to measure cumulative and disproportionate impacts is troublesome, as its omission suggests that not all possibilities for outcomes have received consideration.

These problems underscore the fact that a screening tool is not equivalent to an assessment, and that explicit criteria need to be developed to determine which health and environmental effects should be included, and how much weight these indicators should be given.

Multiplicative Approach

Existing screening methodologies use two different design approaches:

- Additive – scores for different components are added together into a cumulative score, e.g., U.S. EPA EJ SEAT, the Pastor, Morello-Frosch and Sadd EJSM, ARB AB32 Screening (partial)[9]

- Double screen – exposure and risk levels are first determined; a second SES and sensitivity screen is then applied to determine final results, e.g., BAAQMD CARE Communities Program

[9] ARB uses an economic "cut-point" to determine final results, which is like a double screen after an additive approach to scoring and ranking.

OEHHA uses a multiplicative approach, where the cumulative pollution burden is multiplied by community characteristics to determine a final score. Staff explains that multiplication is consistent with risk assessment practices when a modifying effect can be shown to exist, i.e., there is a known causal relationship between factors. OEHHA does not provide a rationale that justifies why SES can have a factor of three modifying effect on the pollution burden.

CCEEB disagrees with the multiplicative approach, and is concerned that this weights final results such that community characteristics are valued higher than actual cumulative exposure or risk levels. As stated previously, we do not believe that current science substantiates a modifying effect, or that a causal relationship between SES and response to exposures has been shown to exist.

CCEEB strongly recommends that OEHHA use a double-screen approach because it is more consistent with the stated goals of simplicity, ease of use, and transparency. The double-screen approach ensures that communities with the highest exposure levels are identified regardless of SES, with a second screen ensuring that disadvantaged communities are prioritized for agency efforts. Neither the additive nor the multiplicative approaches have these benefits. The double-screen approach also provides regulators and decision makers with greater flexibility in interpreting the results. For example, regulators might be most concerned with SES when prioritizing grants. However, for directing clean-up efforts, regulators might be more concerned with those communities with the highest risk levels regardless of SES.

Weighting and Scoring is Subjective, Not Scientific

The proposed weighting of indicators and scoring system do not take into account the relative contribution of each factor to the overall cumulative pollution burden. **Weighting and scoring appear to be based on subjective rationales and data availability, and at times are counterintuitive**. For example, components with less certainty are assigned narrower ranges than those with more certainty. As another example, living near a leaking underground storage tank with no exposure could be given the same value as another indicator with direct exposure. A better way to approach this would be to assign ranges based on the degree to which factors are independent, which in turn would minimize double counting in the methodology.

The recent profusion of screening methodologies, and the significant differences among them, suggests that screening procedures are at least in part policy constructs, and not purely scientific. Weighting and scoring assigns relative importance to each component, and often masks underlying assumptions and value judgments on policy questions. Lacking a public process to vet policy questions and make explicit any assumptions, the screening methodology loses transparency. CCEEB asks OEHHA to explain in the CI framework why a new and separate screening methodology is needed, and how its methodology improves upon existing ones.

CCEEB also recommends that OEHHA consult with Cal/EPA Boards and Departments as well as the CI/PA Working Group in an open and public process to determine appropriate weighting and scoring. We note that U.S. EPA has taken several years to vet the EJSEAT methodology, which is still not finalized. Similarly, the EJSM has been under development for at least five years. As part of this public process, OEHHA should

include both an uncertainty analysis and a sensitivity analysis as background information. The uncertainty analysis would inform the public how much of a range in each individual score reflects lack of ability to accurately estimate the value (e.g., exposure score expressed as 5 ± 2). The associated sensitivity analysis would show how each component influences the overall score, taking into account the findings from the uncertainty analysis.

Such a refinement process could be tied to discussions on applicability and use of the screening. In other screening methods, the purpose was well defined ahead of time, and could inform weighting and scoring as well as the selection of indicators. Without understanding how the screening will be used, it is difficult to design a sound and credible methodology.

OEHHA should also consider consulting with U.S. EPA staff that has been working to develop a cumulative risk assessment for EPA's traditional risk assessment framework. Their framework acknowledges the importance of social and economic factors, but does not attempt to incorporate all factors into one equation as OEHHA has attempted to do.[10]

Suggested Indicators

OEHHA staff has indicated that the selection of indicators will be determined as it develops a follow-up guidance document, and that the indicators described in the CI framework are just examples of potential indicators.

CCEEB recommends that the screening methodology and the guidance be consolidated into a single document. Both the methodology and the guidance should be developed with the purpose in mind, that is, how Cal/EPA will use the results. OEHHA should also recommend objective, and science-based criteria to help guide the selection of indicators. Input from Cal/EPA Boards and Departments should drive this process, since those agencies maintain key data sets and are best qualified to determine which indicators are of highest importance and best represent exposure.

Proximity indicators such as the presence of leaking underground storage tanks and hazardous waste sites should be removed; environmental effects should instead include indicators that measure environmental degradation and ecological effects, such as the examples given on page 26.

For SES indicators, CCEEB reiterates its recommendation that OEHHA draw on a wider pool of scientific literature to better capture all of the important dimensions of SES. For example, the SES component currently consists only of race and two highly correlated estimates of wealth (income and poverty), with other important dimensions of SES (e.g., education, occupation, and social class) ignored.

CCEEB also recommends that OEHHA consider whether a regional approach is needed, so the screening methodology can be more finely tailored to a community's characteristics and concerns. For example, water, soil, and pesticide use may be of greater concern in rural areas, whereas air quality and waste management may be more

[10] U.S. EPA. 2007. Concepts, Methods and Data Sources for Cumulative Health Risk Assessment of Multiple Chemicals, Exposures and Effects: A Resource Document. U.S. Environmental Protection Agency, National Center for Environmental Assessment, Cincinnati, OH. EPA/600/R-06/013F

indicative of urban problems. This level of detail needs to be developed before any methodology is finalized.

5. Applicability, Use of Report and Screening

OK to use Screening	Needs Cumulative Risk Assessment
Incentives, grants, funds	Permitting
Site cleanup prioritization	Enhanced Risk assessment
Enforcement prioritization	Standard setting
Environmental monitoring	
Education and outreach	
Development of programs (depends)	

The most fundamental question involved in designing a screening methodology is: What is the problem to be solved? The open-ended narrative of Chapter 4 suggests that the problem statement has not been fully developed, i.e., it is unclear for what purpose the screening will be used or by whom. Again, CCEEB strongly recommends that a discussion of applicability be combined with the screening methodology into a single document following a clear statement of the problem that the screening methodology is intended to address, and the uses to which it is expected to be put.

Other screening efforts—and the results—have been controversial. Ranking communities is fraught with both technical and political challenges. Does the methodology accurately and consistently identify impacted communities? How are differences in health effects (e.g., cancer vs. asthma vs. low-birth rates) and risk levels accounted for? What does it mean if one community is ranked higher than others? What happens if results do not confirm the concerns of a community—is the methodology flawed, or does the community have other factors driving health disparities? Having a clear articulation of the purpose for the screening helps overcome these challenges and frames how the results will be interpreted.

CCEEB agrees that screening tools are likely compatible with resource allocation decisions, education and outreach efforts, and development of programs where cumulative impacts are a key concern. However, we disagree that screening tools can or should be used in decision-making that depends on scientifically sound risk analysis, such as permitting, enhanced risk assessment, or standard setting. For these activities, a full assessment of cumulative pollution burden is needed, as well as guidance on appropriate science-based thresholds for action.

Extra care should be taken when policy options to address cumulative impacts may have a negative influence on economic development in disadvantaged communities. Permitting restrictions or differential standards placed on a community because of low socioeconomic status is counterintuitive – this discourages investment in the communities that need it most. As health experts have consistently shown, income and wealth are the two most important factors contributing to public health. **Environmental policies that hamper investment could have the unintended consequence of deepening existing SES problems.**

Determining whether such extreme policy options are necessary requires a finding that risk from environmental pollution is so serious that it warrants additional protection despite probable negative economic consequences. It also signals a likely gap in traditional risk assessment and regulatory processes, which should be identified and remedied at a programmatic level to ensure that other communities are not similarly effected. Most importantly, analysis is needed to identify the sources of highest concern, since effective solutions will depend on actions that are targeted to reduce actual risk. CCEEB believes firmly that each source category should do its fair share to address cumulative impacts, but proportional contribution still needs to be assessed.

In terms of standard setting, CCEEB believes that health-based standards should apply equally to all Californians, regardless of income or race and ethnicity. Environmental standards and risk assessment already account to a large extent for sensitive populations and maximum possible exposure levels for any individual. If standards and risk assessment are found to be deficient, these gaps should be addressed universally, not community by community.

CCEEB agrees with OEHHA staff that Cal/EPA Boards and Departments must determine how and for what purpose the screening could be used. This step needs to be completed before the methodology is finalized.

Thank you again for this opportunity to comment. Please contact Janet Whittick at (415) 512-7890 ext. 11 or janetw@cceeb.org with any questions or to discuss our comments in greater detail.

Sincerely,

Gerald D. Secundy
CCEEB President

Sincerely,

Janet Whittick
CCEEB Policy Director

cc: Linda Adams, Secretary of Cal/EPA
Cindy Tuck, Undersecretary of Cal/EPA
Allan Hirsch, Chief Deputy Director, OEHHA
George Alexeef, Deputy Director, OEHHA
John Faust, CI/PA Program Manager, OEHHA
Mary Nichols, Chair, ARB
James Goldstene, Executive Officer, ARB
Mark Horton, Director, CDPH

Attachment 1: Excerpts from Cal/EPA Environmental Justice Reports and Documents

EJ Action Plan *Objectives* *Guidance on Cumulative Impacts (2.2)*	Develop a common, objective working definition for multi-media cumulative impacts
	Inventory current science-based cumulative impacts studies, protocols, and tools, and determine where gaps exist in current methodologies
	Develop criteria and protocols for identifying and addressing environmental justice gaps in standard risk assessment
	Develop guidance on multi-media cumulative impacts analysis, prevention and reduction; and recommend implementation options, including proposals for policy, regulatory, and statutory changes
EJ Action Plan *Implementation* *ChERRP Pilot Projects (3.1)*	Collect environmental emissions/discharge, exposure, and health risk data, and identify data gaps
	Inventory current science-based cumulative impacts studies, protocols, and tools, and determine where gaps exist in current methodologies; conduct preliminary cumulative impacts analysis, as appropriate
	Evaluate the pilot projects and prepare a report with findings, to be used in developing the guidance on precautionary approaches and cumulative impacts
EJ Action Plan *Implementation* *Organization and Assignments*	[OEHHA] staff will lead the cumulative impacts effort discussed in Section 2.2, and will focus on science-based cumulative impacts tools and analysis for the pilot projects
EJ Strategy *Objectives for Goal 3: Research and Data Collection*	Establish a Cal/EPA environmental justice clearinghouse
	Develop tools and approaches to assess and address adverse cumulative impacts
	Develop, promote and support efforts to collect community and environmental emissions/discharge, exposure, and health risk data (including data on and surrounding federal facilities) that will improve understanding of environmental justice problems, and lead to solutions and prevention of further problems
Proposed Working Definition for "Multi-Media Cumulative Impacts" *February 4, 2005 Draft*	The proposed definition is intended to address multi-media cumulative impacts within the traditional health risk assessment paradigm and explore the feasibility of including other quantifiable factors that could influence the susceptibility of sensitive populations. Consideration of such factors in a cumulative impacts analysis would be limited to the extent that scientific data and science-based, peer-reviewed tools and guidance are available to assess and quantify how these factors affect the communities' sensitivity to emissions, discharges, exposures and health risks.
	In considering a "combined effect," not only will the amount of a given emission, discharge or exposure be considered, but also its ability to cause an effect (i.e., its toxicity).
	Staff agrees that the proposal of a definition does not guide a determination as to whether cumulative impacts are occurring within a given community. Staff also recognizes that it will be necessary to "think through and resolve" such issues during the inventory, evaluation and development of cumulative impacts assessment tools and guidance.
	For purposes of the pilot projects, the feasibility of including social factors, such as health status, will be explored. However, consideration

	of such factors in a cumulative impacts analysis would be limited to the extent that scientific data and science-based, peer-reviewed tools and guidelines are available to assess and quantify how these factors affect the communities' sensitivity to emissions, discharges, exposures and health risks.
	Staff agrees with the comment that the nature and toxicity of a chemical emission, discharge, or exposure is important to consider in evaluating cumulative impacts….Such effects would include health risks associated with exposure to the chemical.
	The definition of cumulative impacts that is being proposed for the pilot projects is not intended to identify "guilty" or "innocent" parties in the assessment, but to identify sources that contribute the most to the combined effects on a given community.
	The degree to which impacts on a given community are disparate will be considered during the course of conducting pilot projects.
	Staff is not going to specifically introduce the concept of "baseline" into the definition at this time, although baseline exposure will be captured in the assessment of emissions, discharges, and exposures. Part of the aim of performing a cumulative impacts assessment is to determine where disparate impacts are occurring.
	The degree to which impacts on a given community are disparate will be considered during the course of conducting the pilot projects.
	The evaluation of health risks is expected to be a major component of the cumulative impacts assessment for the pilot projects.
	The issue of background, additivity, and synergy will all be considered in cumulative impacts assessment for the pilot projects, to the extent that information and tools are available.
Cal/EPA EJ Action Plan Pilot Projects *Addressing Cumulative Impacts and Precautionary Approaches* *March 25, 2005*	The pilot projects will collect environmental emissions/discharge, exposure, and health risk data; and identify data gaps at the community level. As part of the study design, the working definitions of cumulative impacts and precautionary approach will be applied to the extent feasible in applicable situations.
	It is envisioned the results from these projects will assist in developing a common approach that can be followed by BDOs in: a. Assessment of cumulative impacts, b. Application of precautionary approaches, c. Standardized protocol for public participation, and d. A list of actions to increase community capacity in decision-making process.
Goals for Cal/EPA EJ Pilot Projects *CEJAC Recommended Goals Adopted by the Cal/EPA Inter-agency Working Group* *October 25, 2005*	Projects should advance the assessment and reduction of cumulative impacts that disproportionately impact environmental justice communities. Per the working definition approved by the IWG, the assessment and reduction of cumulative impacts should be completed within the pilot project to the degree possible. Assessment and remedies that are not feasible due to resources or scientific limitations but would be beneficial to addressing the problem should be described in order assist with priority and policy setting.
	Project activities should have policy ramifications. Results from the pilot projects should be evaluated in a manner that addresses the sufficiency and gaps in current laws, regulations, and practices, and suggests new policies to improve protection of human health and the environment.