State of California
Department of Housing and Community Development

FINAL ENVIRONMENTAL IMPACT REPORT
RESPONSES TO COMMENTS

ADOPTION OF REGULATIONS PERMITTING STATEWIDE RESIDENTIAL USE OF CHLORINATED POLYVINYL CHLORIDE (CPVC) PLASTIC PLUMBING PIPE WITHOUT FIRST MAKING A FINDING OF POTENIAL PREMAUTRE METALLIC PIPE FAILURE DUE TO LOCAL WATER OR SOILCONDITIONS

Arnold Schwarzenegger, Governor

Lynn Jacobs, Director
Department of Housing and Community Development

January 2007
State Clearinghouse No. 2006012044

California Department of Housing and Community Development

-CPVC Plastic Pipe EIR-

EIR Certification, CEQA Findings, and Statement of Overriding Considerations for the Adoption of Regulations Permitting Statewide Residential Use of Chlorinated Polyvinyl Chloride (CPVC) Plastic Plumbing Pipe Without First Making a Finding of Potential Premature Metallic Pipe Failure Due to Local Water or Soil Conditions

A. INTRODUCTION

1. These findings are made pursuant to the California Environmental Quality Act (Public Resources Code section 21000 et seq; "CEQA") and the CEQA Guidelines (California Code of Regulations title 14, section 15000 et seq.) by the California Department of Housing and Community Development ("HCD") in connection with the environmental impact report ("EIR") prepared for the Adoption of Regulations Permitting Statewide Residential Use of Chlorinated Polyvinyl Chloride (CPVC) Plastic Plumbing Pipe Without First Making a Finding of Potential Premature Metallic Pipe Failure Due to Local Water or Soil Conditions (the "Project"). These findings are based on substantial evidence in the entire administrative record and references to specific reports and specific pages of documents are not intended to identify those sources as the exclusive basis for the findings.

2. The Project is a change in existing regulations which currently permit the statewide use of chlorinated polyvinyl chloride plastic pipe ("CPVC") for residential plumbing systems. Currently, CPVC pipe is allowed for residential potable water systems, subject to two conditions. First, certain mitigation measures must be followed. Those mitigation measures are set forth in the applicable regulations and therefore have the effect of governing law applicable to CPVC use. The second condition is the requirement that a local building official must make a determination that there is or will be the premature failure of metallic pipes due to existing water or soil conditions, prior to allowing the use of CPVC (the "Findings Requirement"). The proposed Project is to delete this Findings Requirement thereby permitting CPVC plastic pipe to be used for any residential construction in the State of California, subject to the existing mitigation measures, but without the requirement for a finding by the local building official.

3. If HCD determines, based on a certified EIR, that it is appropriate to recommend this modification of the California Plumbing Code, the certified Final EIR will be forwarded to the Building Standards Commission ("BSC") for consideration. The BSC is a Responsible Agency, and it may rely on the certified Final EIR for a subsequent approval of the recommended changes to the California Plumbing Code.

4. Pursuant to CEQA and the CEQA Guidelines, HCD issued a Notice of Preparation for the EIR on January 11, 2006. A Draft EIR (the "July DEIR") was

prepared for the Project to analyze its environmental impacts. The Draft EIR was properly circulated for a 45-day public review period from July 31, 2006, to September 14, 2006. To provide more complete public disclosure regarding the potential environmental effects of the Project, HCD published a Recirculated Draft EIR ("RDEIR") on November 15, 2006. The RDEIR was properly recirculated for a 45-day public review period from November 15, 2006, to December 29, 2006. The responses to comments received on both the July DEIR and the RDEIR, changes to the RDEIR and additional information were published in a Final EIR on January 24, 2007 (the "Final EIR"). The July DEIR, the RDEIR, the Final EIR and all appendices thereto constitute the "EIR" referenced in these findings.

5. The custodian of the documents and other materials that constitute the record of the proceedings upon which HCD's decisions are based is Dennis L. Beddard, California Department of Housing and Community Development, or his designee. Such documents and other materials are located at the Department of Housing and Community Development, 1800 3rd Street, Room 440, Sacramento, CA 95814.

6. In accordance with CEQA, HCD certifies that the EIR has been completed in compliance with CEQA. HCD has independently reviewed the record and the EIR prior to certifying the EIR and approving the Project. By these findings, HCD confirms, ratifies, and adopts the findings and conclusions of the EIR. The EIR and these findings represent the independent judgment and analysis of HCD.

7. The Final EIR incorporates information obtained and produced after the RDEIR was completed, and the EIR contains additions, clarifications, and modifications. HCD finds that the changes and modifications made to the EIR after the RDEIR was circulated for public review and comment do not individually or collectively constitute significant new information within the meaning of Public Resources Code section 21092.1 or the CEQA Guidelines section 15088.5. Therefore, recirculation of the EIR is not required.

8. Public Resources Code section 21081.6 and CEQA Guidelines section 15097 require HCD to adopt a monitoring or reporting program to ensure that the mitigation measures and revisions to the Project identified in the EIR are implemented. In compliance with *Rio Vista Farm Bureau Center v. County of Solano*, 5 Cal. App. 4th 351, 380 (1992), the monitoring and reporting program in this case consists of the incorporation of the mitigation measures identified in the EIR into the California Plumbing Code and enforcement of these mitigation measures by local agencies through the required compliance with the legally binding provisions of the Code. HCD has adopted measures to substantially lessen or eliminate all significant effects where feasible by incorporating these measures into the California Plumbing Code. The mitigation measures incorporated into the Project approval will not have new significant environmental impacts that were not analyzed in the EIR.

B. FINDINGS REGARDING SIGNIFICANT IMPACTS

9. In accordance with Public Resources Code section 21081 and CEQA Guidelines sections 15091 and 15092, HCD adopts the findings and conclusions regarding impacts and mitigation measures that are set forth in the EIR. These findings do not repeat the full discussions of environmental impacts contained in the EIR.

IMPACTS THAT ARE REDUCED TO A LESS-THAN-SIGNIFICANT LEVEL OR ARE LESS THAN SIGNIFICANT

10. Under Public Resources Code sections 21081(a)(1) and CEQA Guidelines sections 15091 and 15092, HCD finds that the following impacts of the Project are reduced to a less-than-significant level or are less than significant impacts, as set forth below.

a. Water Quality:

(1) The potential impact of the Project related to leachates (Impact 4.3-1) is discussed on pages 124 to 129 of the RDEIR. Based on the EIR and the entire record before it, HCD finds that this impact will be less than significant. No new impacts related to leachates are expected to occur from the Project that were not analyzed as part of the 2000 Mitigated Negative Declaration. Evidence in the record shows that leachates resulting from the Project will not violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality. Mitigation measures to minimize or eliminate potential adverse impacts related to leachates are already in place under existing provisions of the California Plumbing Code.

(2) The potential impact of the Project related to disinfection byproducts ("DBPs") (Impact 4.3-2) is discussed on pages 129 to 130 of the RDEIR. Based on the EIR and the entire record before it, HCD finds that this impact will be less than significant. Given the nature of the regulatory controls for DBPs as well as the assurances of NSF/ANSI certification, CPVC products used in California will not significantly contribute quantities of DBPs or DBP precursors.

b. Worker Safety:

(1) The potential impact of the Project related to inhalation exposure to vapors from CPVC installation (Impact 4.4-1) is discussed on pages 142 to 149 of the RDEIR. Based on the EIR and the entire record before it, HCD finds that this impact will be less than significant. Evidence in the record demonstrates that installation of CPVC pipe does not present a significant impact to worker safety for short- or long-term exposures when the proper safety procedures and requirements under existing provisions of the California Plumbing Code are followed. Even in the event of improper installation, evidence shows that installers of CPVC pipe experience low levels of exposure to CPVC solvents. Impacts associated with improper CPVC installation are expected to be no more significant, and possibly less significant, than impacts associated with improper copper pipe installation.

(2) The potential impact of the Project related to dermal exposure to adhesives (Impact 4.4-2) is discussed on pages 149 to 151 of the RDEIR. Based on the EIR and the entire record before it, HCD finds that this impact will be less than significant. Proper installation of CPVC pipe minimizes or eliminates the risk for dermal exposure. Existing provisions of the California Plumbing Code require the use of non-latex thin gauge (4 millimeters) nitrile gloves, or other gloves providing an equivalent or better degree of protection, during the installation of CPVC plumbing systems. Cal/OSHA regulations only require skin protection for one of the solvent chemicals used in CPVC adhesives and nitrile gloves have been shown to provide adequate short term exposure protection for that chemical. The existing California Plumbing Code provisions also require that nitrile gloves be discarded and replaced upon contamination, which makes nitrile gloves adequately effective against dermal exposure. Contamination should not occur in the first instance if daubers are properly used during installation.

(3) The potential impact of the Project related to carcinogenic effects from adhesives (Impact 4.4-3) is discussed on pages 151 to 152 of the RDEIR. Based on the EIR and the entire record before it, HCD finds that this impact will be less than significant. Current data in the record does not indicate that tetrahydrofuran is a human carcinogen and there is no information in the record indicating that the other solvents used in CPVC adhesives are human carcinogens.

(4) The potential impact of the Project related to enforcement of California Plumbing Code regulations and mitigation measures (Impact 4.4-4) is discussed on pages 153 to 154 of the RDEIR. Based on the EIR and the entire record before it, HCD finds that this impact will be less than significant. Existing law and regulations require that employers provide safety equipment and instruction for safe use. Compliance with these requirements is enforced by Cal/OSHA and a failure to comply exposes employers to penalties and civil liability. In addition, the California Plumbing Code prohibits building officials from giving final permit approval of installed CPVC plumbing materials without finding that the installer has complied with required safety procedures. A contractor also must verify that he or she was aware of and properly followed all safety and training requirements associated with CPVC pipe installation.

c. Solid Waste:

(1) The potential impact of the Project related to landfill capacity (Impact 4.5-1) is discussed on pages 157 to 160 of the RDEIR. Based on the EIR and the entire record before it, HCD finds that this impact will be less than significant. Most disposal of CPVC pipe in landfills would not occur until residential structures plumbed with CPVC are demolished. Given its durability and protracted life, CPVC is likely to reduce both the necessity for replacement and any corresponding production of waste that would have occurred from leaking copper pipes, such as wet carpet, sheet rock, and water-damaged personal property. Additionally, the recycling and reuse of CPVC pipe is both technically feasible and, given current trends in plastic

recycling, is likely to become more prevalent by the time residential structures plumbed with CPVC pipe are demolished.

(2) The potential impact of the Project related to compliance with statutes and regulations (Impact 4.5-2) is discussed on page 160 of the RDEIR. Based on the EIR and the entire record before it, HCD finds that this impact will be less than significant. The Project will not violate or cause noncompliance with any federal, state, or local statutes or regulations related to solid waste. Currently, there are no solid waste regulations limiting the use of CPVC. In addition, a Landfill Facility Compliance Study in 2004 did not indicate the existence of any noncompliance with solid waste regulations related to CPVC.

SIGNIFICANT AND UNAVOIDABLE IMPACTS

11. Under Public Resources Code sections 21081(a)(3) and 21081(b), and CEQA Guidelines sections 15091, 15092, and 15093, HCD finds that the following impacts of the Project remain significant and unavoidable, notwithstanding the imposition of all feasible mitigation measures, as set forth below.

a. Air Quality:

(1) The potential impact of the Project related to an increase in reactive organic gas ("ROG") emissions in several air districts to a level that exceeds the ROG significance thresholds established by those districts (Impact 4.2-1) is discussed on pages 49 to 50 of the RDEIR. The EIR finds that the Project could increase ROG emissions in several air districts to a level that exceeds the significance thresholds established by those districts. More specifically, the EIR finds that the Project would generate ROG emissions exceeding the most restrictive significance thresholds in the following air districts:

- Bay Area Air Quality Management District;
- Feather River Air Quality Management District;
- Mojave Desert Air Quality Management District;
- Sacramento Metropolitan Air Quality Management District;
- San Joaquin Valley Air Pollution Control District; and
- South Coast Air Quality Management District.

Mitigation Measure 4.2-1, which requires the use of one-step cement (without primer), would reduce this impact to a less than significant level in the Feather River and Sacramento Metropolitan Air Pollution Control Districts. However, emissions would still exceed the most restrictive significance thresholds for the remaining Districts. This remaining potential unavoidable significant impact is overridden as set forth below in the Statement of Overriding Considerations.

(2) The EIR analysis of cumulative air quality impacts finds that several air basins in California are classified as non-attainment or non-attainment transitional under state and federal ozone regulations, and that even a small addition of ozone to these areas by the Project would be considered to be an incremental effect that would contribute to the problem in a manner that is cumulatively considerable. Mitigation Measure 4.2-1, which requires the use of one-step cement (without primer), would reduce the impact but not to a less than significant level. This potential unavoidable significant impact is overridden as set forth below in the Statement of Overriding Considerations.

C. FINDINGS REGARDING ALTERNATIVES

12. The three feasible alternatives analyzed in the EIR represent a reasonable range of feasible alternatives that reduce one or more significant impacts of the Project. These alternatives include (1) Alternative A - No Project Alternative ("No Project Alternative"); (2) Alternative B – Delete the Findings Requirement and Use Low-VOC Adhesives Alternative ("Low-VOC Alternative"); and (3) Alternative C – Delete the Findings Requirement and Use Low-VOC, One-Step Cement Alternative ("One-Step Cement Alternative").

13. HCD certifies that it has independently reviewed and considered the information on alternatives provided in the EIR and in the record. The EIR reflects HCD's independent judgment as to alternatives. HCD finds that the One-Step Cement Alternative provides the best balance between the project objectives, the Project's benefits as described below in the Statement of Overriding Considerations, and the mitigation of environmental impacts to the extent feasible. The Project and the other two feasible alternatives proposed and evaluated in the EIR are rejected for the reasons stated in the EIR and for the following reasons.

14. The No Project Alternative would avoid the significant and unavoidable air quality impacts associated with the Project. However, the No Project Alternative would not reduce any adverse water quality or worker safety impacts associated with the installation and use of copper pipe. This alternative is rejected as infeasible because it would not achieve the project objective which is to remove the Findings Requirements from the California Plumbing Code thereby allowing unconditional use of CPVC throughout California as an alternative pipe material for residential potable water plumbing systems.

15. Similar to the Project, the Low-VOC Alternative would result in significant and unavoidable air quality impacts resulting from potential increases in ROG emissions in several air districts to levels that exceed the ROG significance thresholds established by those air districts. However, air quality impacts under the Low-VOC Alternative would be reduced compared to the Project because use of CPVC adhesives with VOC content exceeding the amounts assumed in the EIR analysis would be prohibited. The Low-VOC Alternative is rejected as inferior to the One-Step Cement Alternative because it does not reduce air quality impacts to the maximum extent feasible.

16. Similar to the Project, the One-Step Cement Alternative would result in significant and unavoidable air quality impacts resulting from potential increases in ROG emissions in several air districts to levels that exceed the ROG significance thresholds established by those air districts. However, air quality impacts under the One-Step Cement Alternative would be reduced compared to both the Project and the Low-VOC Alternative because use of primers during CPVC installation would be prohibited, thereby lowering ROG emissions by an estimated 25 percent for single-family structures and by 21 percent for multi-family structures. Based on the EIR and the entire record before it, HCD finds the One-Step Cement Alternative provides the best balance between the Project objectives, the Project's benefits as described below in the Statement of Overriding Considerations, and the mitigation of environmental impacts to the maximum extent feasible.

D. STATEMENT OF OVERRIDING CONSIDERATIONS

17. HCD finds that each of the specific economic, legal, social, technological, environmental, and other considerations and the benefits of the Project independently outweigh these remaining significant, adverse impacts and is an overriding consideration independently warranting approval. The remaining significant adverse impacts identified above are acceptable in light of each of these overriding considerations.

18. The Project will allow the current statewide use of CPVC pipe for residential potable water use but without the requirement for local building officials to make a finding of potential premature failure of metallic pipe due to corrosive local water or soil conditions. Despite the ability of local building officials to make this discretionary finding, many consumers in California have had to replace copper pipe multiple times. Removal of the Findings Requirement will increase consumer options throughout the state and improve the quality and affordability of the State's housing stock by allowing consumers a greater choice in residential plumbing materials for construction and repair.

19. The Project will help supply affordable housing by providing a less expensive alternative to copper pipe, both for new construction and replacement of existing pipe. The use of CPVC has significant savings to consumers in terms of the cost of both materials and labor. Copper pipe currently is more than four times as expensive as CPVC pipe. This gap has been widening in recent years, as copper prices have nearly doubled since the end of 2004 due to a surge in global demand from rapidly industrializing countries such as China and India. Similarly, labor costs for installing CPVC pipe have been calculated to be approximately 65 percent of the costs for copper pipe installations. Reducing the cost of housing is consistent with the legislative mandate found in Health and Safety Code section 17922.9(a) that "the provision of an adequate level of affordable housing, in and of itself, is a fundamental responsibility of the state and that a generally inadequate supply of decent, safe, and sanitary housing affordable to persons of low and moderate income threatens orderly community and regional development, including job creation, attracting new private investment, and creating the physical, economic, social, and environmental conditions

to support continued growth and security of all areas of the state." To this end, the Project will help reduce the cost of housing and, importantly, lower the costs associated with the repair, replacement and consequent damage to personal property from corrosion-related copper plumbing failures. Moreover, many retrofits of aging plumbing systems that create health issues due to corrosion may not go forward due to cost considerations if copper pipe is the only available product option.

20. The Project will reduce water quality impacts from dissolved copper discharged into State waters because of copper pipes that are part of residential plumbing systems. Studies have shown that corrosion of copper piping used in domestic plumbing accounts for a significant portion of the dissolved copper found in wastewater treatment discharges. Wastewater treatment plants are typically not equipped to remove copper so it is discharged as effluent back into State waters.

21. The Project will foster greater competition in the marketplace for residential plumbing materials. If Californians have a choice among a range of safe and reliable materials, they can choose the material which they perceive to best meet their needs. The Lead Agency expects greater competition to tend to lower prices and improve quality, thereby improving the affordability and quality of the State's housing stock, and thus helping to achieve the positive social goals of providing decent, safe, and affordable housing to all Californians.

PASSED AND ADOPTED by the California Department of Housing and Community Development.

Dated: January 24, 2007 California Department of Housing and Community Development

By:_____

Lynn Jacobs
Director
California Department of Housing and Community Development

Table of Contents

1.0 INTRODUCTION 1

2.0 COMMENTS AND RESPONSES 5

3.0 REVISIONS AND ERRATA TO THE RECIRCULATED DRAFT EIR 410

CHAPTER 1.0 INTRODUCTION

This document, together with the Recirculated Draft Environmental Impact Report (Recirculated Draft EIR), constitutes the Final Environmental Impact Report (Final EIR), for review and consideration for certification by the State of California Department of Housing and Community Development (the Lead Agency) as complete and adequate under the California Environmental Quality Act (CEQA). The Recirculated Draft EIR was circulated to affected public agencies and interested parties for a 45-day public review period.

The purposes of the Response to Comments document are to respond to all significant environmental issues raised in comments received on the July 2006 Draft Environmental Impact Report (Draft EIR) and the Recirculated Draft EIR, and to incorporate appropriate changes, additions, or corrections to the information presented in the Recirculated Draft EIR. (CEQA Guidelines, Section 15088). All written comments received during both the comment period from July 31 to September 14, 2006, for the Draft EIR and the comment period from November 15 to December 29, 2006, for the Recirculated Draft EIR are included in this document. This chapter provides a summary of certification and project selection procedures, public involvement, the requirements for consideration of recirculation, and an overview of the response to comment process. The Response to Comments document includes:

- **Chapter 1.0: Introduction**
- **Chapter 2.0: Comments and Responses**
- **Chapter 3.0: Revisions and Errata to the Recirculated Draft EIR**

1.1 EIR Certification - Project Selection Process

The Lead Agency must certify that (1) the Final EIR has been completed in compliance with CEQA; (2) the Lead Agency has reviewed and considered the information within the Final EIR; and (3) the Final EIR reflects the Lead Agency's independent judgment and analysis (CEQA Guidelines, Section 15090). The Lead Agency will review the Final EIR for adequacy and will exercise its independent judgment regarding certification. If the Lead Agency certifies the Final EIR, it will then consider the Project separately for approval or denial.

As part of the approval of either the Project or an alternative, the Lead Agency must make written findings for each significant effect identified in the EIR. These findings will state whether the identified significant effect can be avoided or substantially decreased through feasible mitigation measures or a feasible alternative, whether the effect can only be mitigated by the action of some agency other than the Lead Agency, or whether the identified mitigation measures or alternatives are infeasible and cannot be implemented. (CEQA Guidelines § 15091(a)). To ensure implementation of all adopted mitigation measures, the Lead Agency must adopt a mitigation monitoring and reporting plan. (CEQA Guidelines § 15097). In addition, after all feasible mitigation measures are adopted, if some effects are still considered

significant and unavoidable, the Lead Agency must adopt a Statement of Overriding Considerations that identifies the specific economic, social, technical, or other considerations that, in the Lead Agency's judgment, outweigh the significant environmental effects. (CEQA Guidelines § 15094)

Once it is certified, the Final EIR will be used by the California Building Standards Commission, as a responsible agency, in deciding whether, or under what conditions, to approve the Project.

1.2 Public Involvement

On July 31, 2006, the Lead Agency released the Draft EIR for public review and comment. Copies of the Draft EIR were distributed to state agencies, local governments, elected officials, groups, and individuals. The Draft EIR comment period closed on September 14, 2006. On November 15, 2006, the Lead Agency released the Recirculated Draft EIR for public review and comment. Copies of the Recirculated Draft EIR were distributed to state agencies, local governments, elected officials, groups, and individuals. The Recirculated Draft EIR comment period closed on December 29, 2006. After the release of the Final EIR, the Lead Agency will make a decision regarding certification of the Final EIR and recommendation to the California Building Standards Commission regarding approval of the Project.

1.3 Agency Approvals and Permits

The EIR is intended to provide information to the Lead Agency and the general public about the nature and impacts of proposed changes to regulations pertaining to the use of CPVC pipe for potable water piping in buildings under the jurisdiction of the Lead Agency. The regulations, if approved, would become part of the California Plumbing Code, which is a segment of the California Building Standards Code. The California Building Standards Commission is responsible for final adoption of the California Building Standards Code. The California Building Standards Commission receives proposed codes for various types of occupancies. The code provisions related to potable water piping in residential buildings are the responsibility of the Lead Agency.

1.4 Requirements for and Consideration of Recirculation

If significant new information is added to an EIR after the public review, the lead agency is required to recirculate the EIR or a portion of it for additional public review and comment. (CEQA Guidelines § 15088.5). "[N]ew information to an EIR is not significant unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment on a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect (including a feasible project alternative) that the project's proponents have declined to implement . . . [R]ecirculation is not required where the new information added to the EIR merely clarifies or amplifies . . . or makes insignificant modification in . . . an adequate EIR."

(*Laurel Heights Improvement Ass'n of S.F., Inc. v. Regents of the Univ. of Cal.* (1993) 6 Cal. 4th 1112, 1129-30).

Significant new information requiring recirculation includes, a disclosure showing that:

1) A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented.

2) A substantial increase in the severity of an environmental impact would result unless mitigation treasures are adopted that reduce the impact to a level of insignificance.

3) A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the significant impacts of the project, but the Project's proponents decline to adopt it.

4) The DEIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

(CEQA Guidelines § 15088.5(a)).

An EIR is adequate as long as it provides specific responses to all specific questions about significant environmental issues, and as long as the EIR, as a whole, reflects a good faith effort at full disclosure. Recirculation is not required where the new information added to an EIR merely clarifies or amplifies or makes insignificant modifications to an adequate EIR. (CEQA Guidelines § 15088(a)).

The EIR is adequate and none of the commenters disclose any new significant information that would require recirculation of the EIR. No new significant or substantially more severe environmental impacts have been identified that would result from the project or from an alternative or a new mitigation measure proposed as part of the project. Moreover, no new feasible mitigation measures or alternatives have been identified that are considerably different from others previously analyzed and would clearly lessen the significant environmental impacts of the project that the Lead Agency have declined to implement. All of the responses to comments contained in this Final EIR provide information that clarifies and amplifies the evaluation of impacts contained in the Recirculated Draft EIR as explained in the responses to comments provided in Chapter 2.0 of the Final EIR. Minor clarifying revisions are contained in Chapter 3.0, which do not change any of the EIR impact conclusions.

1.5 Responses to Comments

Under CEQA, the Lead Agency must respond to all significant environmental issues raised in comments on the Draft EIR and Recirculated Draft EIR (CEQA Guidelines § 15088). Responses to all written comments received within the close of both of the comment periods are contained in this Final EIR. Possible responses include requiring specific suggested mitigation measures,

supplementing analyses, making factual corrections and explaining why certain comments do not warrant further agency response.

Chapter 2.0 of this document includes responses to comments on environmental issues or factual data received on the Draft EIR and Recirculated Draft EIR. Each comment letter is numbered and the comments within each letter are assigned numbers (1-1, 1-2, etc.). Responses to the comments within each letter immediately follow the letter.

Changes/errata to the Draft EIR and Recirculated Draft EIR text are shown in Chapter 3.0. Changes and errata in the text are signified by strikeouts where text is removed and by underlined italics where text is added.

CHAPTER 2.0 COMMENTS AND RESPONSES

2.1 Introduction

Table 2-1, List of Commenters, lists federal, state, and local agencies that have commented on the Draft EIR and the Recirculated Draft EIR during the public comment periods. Table 2-1 lists each commenter and their corresponding comment letter number. Each piece of correspondence has been numbered sequentially. Each comment is referred to by a two-character code; i.e., Comment 9-1 refers to the first statement or question from Letter 9.

2.2 List of Commenters

Table 2-1 List of Commenters

Commenter	Agency Group/Affiliation	Letter Number
Federal Agencies		
None		
State/Local Agencies		
Phil Bobel	City of Palo Alto Public Works Department	Letter 4
Robert E. Raymer	California Building Industry Association	Letter 6
Virgil Koehne	Town of Discovery Bay CSD	Letter 8
Virgil Koehne	Town of Discovery Bay CSD	Letter 9
Rockard J. Delgadillo	City of Los Angeles	Letter 16
Dennis J. Herrera	City of San Francisco	Letter 17
Sandra Cleisz	City of American Canyon Planning and Building Department	Letter 22
Private Organizations / Citizens		
Bruce Brennan	N / A	Letter 1
Rick Carlile	N / A	Letter 2
Mike Lions	Spears Manufacturing Co.	Letter 3
Tom Lent	Healthy Building Network	Letter 5
Dave Louden	California Professional Association of Specialty Contractors	Letter 7
Michael Lozeau	San Diego Baykeeper, Santa Monica Baykeeper, San Francisco Baykeeper, Deltakeeper, Russian Riverkeeper, Orange County Coastkeeper, and the Inland Empire Waterkeeper	Letter 10
Michael H. Zischke	Noveon, Inc.	Letter 11
Thomas A. Enslow	Coalition for Safe Building Materials	Letters 12 and 19

Commenter	Agency Group Affiliation	Letter Number
Petra Pless, D. Env.	Coalition for Safe Building Materials	Letter 13
Thomas S. Reid	Coalition for Safe Building Materials	Letters 14 and 20
Jim Bellows, PhD, MPH	Coalition for Safe Building Materials	Letters 15 and 21
Andrew Kireta, Jr.	Copper Development Association	Letter 18

2.3 Comment Letters and Responses

The following pages provide each of the comment letters and the corresponding responses.

Robin Gilb

From: bruce brennan [bjbinsjo@yahoo.com]
Sent: Tuesday, August 29, 2006 9:45 AM
To: CPVC 2006
Subject: CPVC Piping

Dear Ms. Gilb:

HCD should certify the Draft Environmental Impact Report that would permit the use of CPVC pipe in residential dwellings without the need for restrictive local findings of necessity. It's time for the state to do something to help keep costs down for new housing, and for us individual homeowners. 1-1

Removal of the local findings requirement is very importance to consumers.

Copper piping costs have skyrocketed in recent years, putting pricing pressure on new homes and exacerbating California's housing affordability crisis. 1-2

HCD should certify the DEIR and forward it to the Building Standards Commission with a recommendation to adopt the proposed regulations. 1-3

Sincerely,

Bruce J. Brennan
3706 Williams Rd
San Jose, CA 95117

Do You Yahoo!?
Tired of spam? Yahoo! Mail has the best spam protection around http://mail.yahoo.com

Response to Letter 1: Bruce J. Brennan

Comment 1-1. This comment supporting the Project and the certification of the EIR will be part of the record considered by the Lead Agency in determining whether to certify the EIR and approve the Project, and by the Building Standards Commission in determining whether to approve the Project.

Comment 1-2. Please see response to Comment 1-1.

Comment 1-3. Please see response to Comment 1-1.

2

Robin Gilb

From: Rick Carlile [r.carlile@comcast.net]
Sent: Tuesday, September 05, 2006 9:59 AM
To: CPVC 2006
Subject: CPVC Alert

87 emails

August 28, 2006

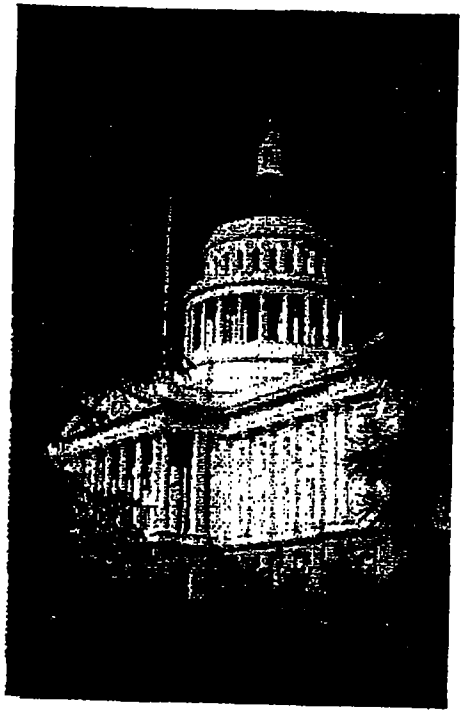
Department of Housing and Community Development
Attn: Robin Gilb, Staff Counsel
Sacramento, CA 945252

e-mail: cpvc2006@hcd.ca.gov

Dear Ms. Gilb:

I write to urge HCD to certify the Draft Environmental Impact Report prepared in connection with regulations that would permit the use of CPVC pipe in residential dwellings without the need for restrictive local findings of necessity. The DEIR fully complies with CEQA's requirements and HCD should certify the document and forward it to the Building Standards Commission with a recommendation to adopt the proposed regulations. 2-1

Removal of the local findings requirement is of substantial importance to the homebuilding industry and 2-2



consumers. As the EIR notes, the Uniform Plumbing Code permits the unrestricted use of CPVC pipe for hot and cold water distribution within residential buildings and California is the only state in the nation that has modified the UPC to require restrictive local findings of necessity as a precondition to such use. 2-3 The DEIR also points out the anomalous fact that California currently allows use of CPVC pipe for potable water in mobilehomes, manufactured homes and commercial modulars. 2-4 Use of CPVC is an important alternative to copper piping as the cost of copper has skyrocketed in recent y ears, putting upward pricing pressure on new homes and exacerbating California's housing affordability crisis. 2-5 Also, the incidence of premature copper pipe failures is increasing in the state and many consumers have had to replace copper piping multiples times. 2-6

For these reasons, HCD should certify the DEIR and forward it to the Building Standards Commission with a recommendation to adopt the proposed regulations. 2-7

Thank you for the opportunity to comment.

Respectfully,

Rick Carlile
3556 Foxwood PL
Santa Rosa, CA 95405
707-542-6451

Response to Letter 2: Rick Carlile

Comment 2-1. This comment supporting the Project and the certification of the EIR will be part of the record considered by the Lead Agency in determining whether to certify the EIR and approve the Project, and by the Building Standards Commission in determining whether to approve the Project. .

Comment 2-2. Please see response to Comment 2-1..

Comment 2-3. Please see response to Comment 2-1.

Comment 2-4. Please see response to Comment 2-1

Comment 2-5. Please see response to Comment 2-1.

Comment 2-6. Please see response to Comment 2-1.

Comment 2-7. Please see response to Comment 2-1.

3

SPEARS® MANUFACTURING CO.
CORPORATE OFFICE
15853 OLDEN STREET • SYLMAR, CALIFORNIA 91342
MAILING ADDRESS: P.O. BOX 9203 • SYLMAR, CALIFORNIA 91392
Telephone (818) 364-1611 • Fax (818) 362-1596
www.spearsmfg.com

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LEGAL AFFAIRS DIVISION
SEP 11 2006
DEPARTMENT OF HOUSING
COMMUNITY DEVELOPMENT

September 6, 2006

Department of Housing and Community Development
Robin Gilb, Staff Counsel
P.O. Box 952052
Sacramento, CA 94252-2052

Dear Robin,

As a Los Angeles based manufacturer of CPVC and PVC Pipe Fittings and Valves for over 37 years, Spears® Manufacturing Company urges acceptance of revisions to the California plumbing code to allow for the full use of CPVC in plumbing systems throughout the state. This Material is not only environmentally friendly, but also provides a superior performing product with reduced potential health risks as compared to conventional metal potable water plumbing systems. 3-1 3-2

For almost four decades Spears® has sold CPVC for potable water use in Schedule 80 size format for the worldwide market and use in all states, including California. Because of our long problem free worldwide experience with CPVC piping systems, we are committed to making this beneficial product available to all Californians.

Throughout the last decade we have sold copper Tube Size (CTS) CPVC piping systems for hot and cold water distribution in all of the other 49 states (and around the world) and during the last five years we have sold these products in certain designated cities in California. During all of this time we have never heard of one complaint or claim about our CPVC product causing any kind of health or environmental problem, not one. 3-3

The benefits of CPVC systems are numerable. CPVC does not degrade, corrode or leach metals into the water or environment like metal systems do and is independently certified by NSF International for use in potable water systems under ANSI/NSF Standard 61. In contrast, metals rust, scale, pit and corrode. This has been widely seen in galvanized pipe installations and to considerable degree in copper systems. It is a well-known fact that the corrosive breakdown of metals by nature induces a variety of potential health risks in our drinking water systems. Additionally, CPVC requires less energy to process than metals and is every bit as recyclable. 3-4 3-5

Not only does CPVC allow easier installation at lower costs, but also provides a service life that is at least twice as long as metal systems. 3-6
In fact, CPVC can be expected to fully outlast the life span of building in which it is installed. Moreover, CPVC is a natural insulator providing the homeowner with hotter water sooner and longer at lower energy cost than in metal systems; CPVC piping systems can be buried in the ground or in concrete without concern for corrosion; and CPVC has been observed to perform very well in earthquakes, thereby reducing damage potential.

These factors make CPVC piping systems an obvious benefit for plumbing in California homes. It is time that California homeowners are provided with the value, longevity and environmental safety of CPVC systems available to the rest of the country, despite the obstruction by of certain special interest groups and their unwarranted protestations. 3-7

We strongly urge the State of California to finally approve the general installation of CPVC piping systems in all of our homes. This can only enhance the housing resource for our citizens and give them a better quality of life.

Sincerely,

Mike Lyons

Mike Lyons
Pacific Regional Sales Manager

Response to Letter 3: Spears Manufacturing Co.

Comment 3-1. This comment supporting the Project and the certification of the EIR will be part of the record considered by the Lead Agency in determining whether to certify the EIR and approve the Project, and by the Building Standards Commission in determining whether to approve the Project.

Comment 3-2. Please see response to Comment 3-1.

Comment 3-3. Please see response to Comment 3-1.

Comment 3-4. Please see response to Comment 3-1. The revised analysis of water quality impacts in the Recirculated Draft EIR includes a discussion of potential health risks associated with the use of copper plumbing systems in the discussion of the Project's environmental setting.

Comment 3-5. Please see response to Comment 3-1.

Comment 3-6. Please see response to Comment 3-1.

Comment 3-7. Please see response to Comment 3-1.

City of Palo Alto
Public Works Department

4

September 11, 2006

Department of Housing and Community Development
Robin Gilb, Staff Counsel
PO Box 952052
Sacramento, CA 94252-2052

Divisions

Administration
650.329.2373
650.329.2299 fax

Engineering
650.329.2151
650.329.2299 fax

Environmental Compliance
650.329.2598
650.494.3531 fax

Equipment Management
650.496.6922
650.496.6958 fax

Facilities Management
650.496.6900
650.496.6958 fax

Operations
650.496.6974
650.852.9289 fax

Regional Water Quality Control
650.329.2598
650.494.3531 fax

Dear Mr. Gilb,

Thank you for the opportunity to comment on the Department of Housing and Community Development's Draft Environmental Impact Report entitled "Adoption of Regulations Permitting Statewide Residential Use of Chlorinated Polyvinyl Chloride (CPVC) Plastic Plumbing Pipe without First Making a Finding of Potential Premature Metallic Pipe Failure Due to Local Water or Soil Conditions". The City of Palo Alto strongly supports the Report's proposed Project, the removal of the "Findings Requirement" from the California Plumbing Code.

The City of Palo Alto operates a regional wastewater treatment facility that discharges treated wastewater to San Francisco Bay. Wastewater treatment plants are not designed to remove heavy metals such as copper, and a portion of the copper present in treatment plant influent is discharged in the effluent. San Francisco Bay is listed by the Environmental Protection Agency as a water body impaired by copper pollution. Source identification studies conducted by the City of Palo Alto and other agencies indicate that corrosion of copper piping used in domestic plumbing systems accounts for greater than 50 percent of the copper present in treatment plant influent. Removal of the Findings Requirement from the California Plumbing Code would allow the City to consider reducing copper discharges to the water environment by allowing the use of CPVC plastic piping in domestic plumbing systems. We urge the Department of Housing and Community Development to implement the proposed Project and remove the Findings Requirement. 4-1 4-2

Best regards,

Phil Bobel, Manager
Environmental Compliance Division

P.O.Box 10250
Palo Alto, CA 94303

Response to Letter 4: City of Palo Alto

Comment 4-1. This comment supporting the Project will be part of the record considered by the Lead Agency and by the Building Standards Commission in determining whether to approve the project. The revised analysis of water quality impacts in the Recirculated Draft EIR includes a discussion of copper pollution in the San Francisco Bay resulting from corrosion of copper piping in residential plumbing systems. Please refer to section 4.3 of the Recirculated Draft EIR, at pages 115-119.

Comment 4-2. This comment will be considered by the Lead Agency and by the Building Standards Commission in determining whether to approve the proposed action.

5

HEALTHY BUILDING
Tom Lent 2464 West St, Berkeley CA 94702 510-845-5600 tlent@healthybuilding.net

September 12, 2006
VIA FACSIMILE AND U.S. MAIL
FAX: (916) 323-2815

Robin Gilb
Staff Counsel
Department of Housing and Community Development
P.O. Box 952052
Sacramento, CA 94252-2052

RE: Draft Environmental Impact Report on Approval of CPVC Plastic Plumbing Pipe; State Clearinghouse No. 2006012044

Dear Ms. Gilb

I am writing to urge the Department of Housing and Community Development to revise their draft environmental impact report (EIR) prior to proceeding with any approval of CPVC for drinking water pipe. The draft EIR currently fails to disclose the lifecycle impacts of CPVC pipe, including the impacts associated with manufacturing, performance and disposal of this product. The draft EIR should be revised to consider other alternative pipe materials and feasible mitigation measures. 5-1 5-2

The Healthy Building Network has extensive experience in analyzing the environmental and human impacts of chlorinated plastics and their alternatives. Recently we assisted the City of San Francisco Department of Environment with an analysis of various plastic pipe materials. That study compared the chemical hazards, performance, and recyclability of various plastic pipe materials. The study concluded that PVC pipe, including CPVC, should be avoided because of the generation throughout its lifecycle of highly toxic chemicals that have been prioritized by a number of local and national governments and international treaty for elimination. 5-3

Based upon our experience, we have grave concerns about the environmental and health impacts of HCD's proposal to require all cities and local jurisdictions in California to allow the use of CPVC in any residential building. Before HCD makes a decision with such major environmental and health implications, the agency should fully study CPVC's lifecycle impacts and compare these impacts with those of feasible alternative materials. 5-4

Currently, the draft EIR fails to evaluate at all the impacts associated with manufacturing CPVC, including the harmful release of vinyl chloride and dioxins into the environment. The Draft EIR also fails to disclose the dangers associated with disposal of CPVC, including the release of dioxins and hydrochloric acid when incinerated or burned in household fires. 5-5 5-6

The Draft EIR should also be revised to correct several glaring misstatements regarding CPVC. The Draft EIR currently states that "There is no reason to suspect that CPVC solid waste will be any better or worse than other non-bottle plastics." This is simply untrue. CPVC, like all PVC, poses much greater solid waste disposal concerns than other plastics. CPVC and PVC are the only plastic products produced in large volume that are chlorinated, hence the only ones that release dioxins and hydrochloric acid when burned in a landfill fire. Landfill fires have been identified by the US EPA as one of the largest single sources of dioxin to the environment and PVC sources including CPVC have been identified as the primary contributor of chlorine to that problem. PVC/CPVC pipes are also the only plastic pipes on the market that contains OSPAR chemicals for priority action. Because of these issues, disposal of CPVC raises unique and more dangerous conditions relative to other plastics. 5-7 5-8 5-9

The Draft EIR also states that CPVC is likely to be extensively recycled in the future. This statement is contrary to current knowledge about this product. CPVC pipe is not generally recycled back into pipe due to additive and contamination concerns but instead is generally downcycled. Downcycling does not reduce the amount of virgin material and hence the manufacturing pollution needed to supply CPVC pipe and only delays, but does not stop the material's progress to the landfill, only delaying the ultimate disposal issues. 5-10

Generally CPVC should be avoided wherever possible. Where alternatives are available, those alternatives should be encouraged. Alternatives exist for most PVC products. CPVC is no exception. The Draft EIR should be revised to fully analyze the environmental impacts of CPVC, consider alternative pipe materials, and identify feasible mitigation measures. 5-11 5-12

Sincerely,

Tom Lent
Technical Policy Director
Healthy Building Network

Response to Letter 5: Healthy Building Network

Comment 5-1. The Draft EIR was revised and recirculated for a second round of public review. The Recirculated Draft EIR, in the Lead Agency's opinion, evaluates all the potentially significant effects of the proposed deletion of the Findings Requirement. As noted in the EIR, the Project is to delete that Findings Requirement, and CPVC pipe has already been approved as a suitable product for residential uses, subject to that Findings Requirement. Potential impacts related to the performance of CPVC pipe are evaluated throughout the Recirculated Draft EIR, and potential solid waste impacts related to disposal of CPVC are evaluated in Section 4.5 of the Recirculated Draft EIR. Please see the responses to Comments 12-124 and 12-183 for responses to comments related to potential impacts related to the manufacture of CPVC pipe, fittings, and adhesives.

Comment 5-2. The proposed action is the deletion of the Findings Requirement for a material that is already approved for residential use in the uniform code. Based on this scope of proposed action, the Lead Agency does not agree that it needs to consider alternative pipe materials as a project alternative under CEQA. However, the Recirculated Draft EIR analyzes the use of copper pipe under the No Project Alternative. The Recirculated Draft EIR analyzes feasible mitigation measures.

Comment 5-3. The Lead Agency has evaluated comments based on the San Francisco study, which was also referenced in comments submitted by the Adams Broadwell & Cardozo law firm on behalf of the Coalition for Safe Building Materials (see generally the responses to comment letters 12 and 19). Please see the responses to Comments 12-192, 12-197, 12-198, 12-199, 12-201, 16-15, and 17-9 for specific discussion of the issues raised by the San Francisco study and issues related to the recyclability of CPVC. Based on the analysis and evidence before it, the Lead Agency has concluded that the proposed deletion of the Findings Requirement will not result in any new significant environmental impacts other than the impact on air quality emissions that is evaluated in the Recirculated Draft EIR.

Comment 5-4. The concerns expressed in this comment, and in this letter, will be considered by the Lead Agency in determining whether to certify the EIR and to recommend deletion of the Findings Requirement, and they will be part of the record before the Building Standards Commission in determining whether to approve the deletion of the Findings Requirement. The proposed action is the deletion of the Findings Requirement for a material that is already approved for residential use in the uniform code. Based on this scope of proposed action, the Lead Agency does not agree that it needs to consider alternative pipe materials as a project alternative under CEQA.

Comment 5-5. Please see the responses to Comments 12-124 and 12-183 for a response to similar comments regarding potential impacts associated with the manufacturing of CPVC pipe, fittings, and adhesives.

Comment 5-6. The Draft EIR has been revised and recirculated. Section 4.5 of the Recirculated Draft EIR fully analyzes the potential solid waste impacts associated with the Project. Please see

the responses to Comments 12-204 and 16-16 for a discussion of potential impacts related to the release of dioxins and other chemicals when CPVC is incinerated. Please see the response to Comment 16-10 for a discussion of potential impacts related to the burning of CPVC in household fires.

Comment 5-7. Please see the response to Comment 12-192 regarding the substantial evidence in the record supporting the statement in the Draft EIR that there is no reason to suspect that CPVC solid waste will be any better or worse than other non-bottle plastics. Please see the responses to Comments 12-204 and 16-16 for a response to similar comments regarding the release of dioxins from the burning of CPVC in incinerators and landfill fires. The commenter's statement that "[l]andfill fires have been identified by the US EPA as one of the largest single sources of dioxin to the environment" appears to be outdated and inaccurate. The EPA's National Center for Environmental Assessment recently published a report inventorying sources and environmental releases of dioxin-like compounds.[1] The EPA report is a detailed compilation and description of all known U.S. sources and their associated activities that cause these compounds to be released into the environment.[2] The EPA report indicates that no information exists to permit any reliable estimates of environmental releases of dioxins from accidental fires at municipal solid waste landfills.[3] Thus, the EPA has recently indicated that it cannot quantify how landfill fires compare to other sources of dioxin to the environment.

Comment 5-8. The concern of the OSPAR Commission of the Marine Environment of the North-East Atlantic is international cooperation on the protection of the Marine Environment of the North-East Atlantic.[4] As such, OSPAR concerns regarding specific chemicals are not relevant to the Project, which is limited in geographical scope to the state of California.

Comment 5-9. This comment is addressed by the responses to Comments 5-5 through 5-8, and by the responses to other similar comments referred to therein.

Comment 5-10. Please see the responses to Comments 12-192, 12-197, 12-198, 12-199, 12-201, 16-15, and 17-9, which address similar comments made by other commenters regarding the recyclability of CPVC and "down-cycling" of CPVC. Please also see the response to Comment 12-124 for a response to claims regarding potential impacts related to pollution from manufacturing of CPVC.

Comment 5-11. If the Project is approved, copper and potentially other pipe materials would remain available as alternatives to CPVC pipe.

---

[1] National Center for Environmental Assessment, Office of Research & Development, U.S. Environmental Protection Agency, *An Inventory of Sources and Environmental Releases of Dioxin-Like Compounds in the United States for the Years 1987, 1995, and 2000.* (Nov. 2006).
[2] *Ibid.* at xlii.
[3] *Ibid at* xliv-xlvii.
[4] OSPAR Commission, *Welcome to the OSPAR Commission!*, at http://www.ospar.org/eng/html/content.htm (last viewed Jan. 9, 2007).

Comment 5-12. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR fully analyzes the potential environmental impacts of the Project. Please also see the response to Comment 5-2.

6

September 12, 2006

Robin Gilb, Staff Counsel
Department of Housing & Community Development
P.O. Box 952052
Sacramento, Ca. 94252-2052

RE: CBIA Support for HCD's DRAFT ENVIRONMENTAL IMPACT REPORT:
Adoption of Regulations permitting Statewide Residential Use of Chlorinated Polyvinyl Chloride (CPVC) Plastic Plumbing Pipe without First Making a Finding of Potential Premature Metallic Pipe Failure Due to Local Water or Soil Conditions

The California Building Industry Association (CBIA) is a statewide trade association representing over 6,500 member companies involved in residential and light commercial construction. Over eighty percent of the new homes constructed in California each year are built by CBIA member-companies. **Please be advised that the California Building Industry Association strongly supports the findings presented in HCD's Draft EIR dated July 2006** [State Clearinghouse No. 2006012044]. The document is extremely thorough and provides a sound foundation for the conclusion reached therein. 6-1

With regard to the Department's proposed adoption of the 2006 Uniform Plumbing Code by reference and with amendments into the 2007 California Plumbing Code, specifically Section 604.1.1, HCD proposes to remove the requirement that, prior to the installation of CPVC water pipe in residential structures, a local building official must make a finding that there is or will be a premature failure of metallic pipe if installed in the structure. Put another way, if at the local level, a builder can provide acceptable evidence to the building official that harsh soil and/or water conditions exist within a particular region; the building official may allow the use of CPVC plastic pipe as an alternative to metallic pipe products. 6-2

CBIA strongly supports the present effort by HCD to reconsider California's curious restriction on the use of this product which requires a local building official to grant specific approval of its use if a local soil and/or water report is provided showing that metal plumbing pipe may not fare well as a product over the long term. **After all, if it is okay to use CPVC plastic pipe under conditions too harsh for metal pipes, why wouldn't it be appropriate to use CPVC plastic pipe under conditions where metal pipes seem to fare well?** As a licensed mechanical engineer, I cannot explain the justification for this "odd" product restriction to my counterparts in other states.

Please find below reasons why CBIA supports HCD's proposed change to the existing 2000 California Plumbing Code:

- California is the only State in the country that has a statewide restriction on the use of CPVC for hot & cold water distribution. This situation presents a serious design and product-purchasing problem for the many companies that build homes in multiple states that include California. 6-3

- CPVC is a less expensive alternative than other (typically copper) pipe. The price differential is most pronounced in retrofit applications. The installation costs of CPVC plastic pipe in the retrofit of a large, 3-story apartment building will be 50%-70% less than the costs associated with the retrofit of the same building using copper pipe. This large differential cost is due almost entirely to the reduced labor costs associated with the use of the plastic pipe. It is in this retrofit situation that the health benefits from the use of plastic pipe are the most apparent; the retrofit of the plumbing system in a 30-40 year-old inner-city apartment building may not go forward due to cost considerations if copper plumbing is the only available product option. **6-4**

- Housing affordability is a growing challenge for California families. It is not uncommon to find jurisdictions throughout California with "affordability percentages" which are less than 15% (ie: less than 15% of the families in the jurisdiction could afford to purchase a home in that jurisdiction). **6-5**

- The incidence of premature copper pipe failures is increasing in the state. In some parts of the state, the aggressive nature of incoming potable water and/or soil can corrode copper pipe, causing leaks (including accompanying mold problems) and other structural damage. But CPVC withstands even the most aggressive water conditions, including pH at all levels and/or high levels of chlorination by municipal water treatment plants. **6-6**

- Many Californians have had to replace leaking copper pipes two, three, and even four times. Repetitive plumbing system repairs cause tremendous cost and inconvenience as contractors are forced to rip out walls, floors and ceilings to repair or replace corroded pipes.

- Plumbing contractors are held liable for plumbing system failures even when they are required by local building codes to use only copper pipe in new construction. Under the current restrictions on using CPVC, plumbing repairs must be accomplished using the same pipe material that has already failed-copper. **6-7**

- Unless CPVC is allowed as an option, additional copper pipe failures (and the resulting lawsuits) are virtually guaranteed.

Sincerely,

Robert E. Raymer, PE
Technical Director/Staff Engineer

Response to Letter 6: California Building Industry Association

Comment 6-1. This comment supporting the Project and the certification of the EIR will be part of the record considered by the Lead Agency in determining whether to certify the EIR and approve the Project, and by the Building Standards Commission in determining whether to approve the Project. .

Comment 6-2. Please see response to Comment 6-1.

Comment 6-3. Please see response to Comment 6-1. .

Comment 6-4. Please see response to Comment 6-1. The reduced cost of CPVC pipe compared to some other materials is one of the reasons that the deletion of the Findings Requirement was proposed.

Comment 6-5. Please see response to Comment 6-4.

Comment 6-6. Issues related to existing use of copper pipe, including premature copper pipe failures due to corrosion, are discussed at pages 107-120 of the Recirculated Draft EIR.

Comment 6-7. Please see the responses to Comments 6-1 and 6-6.

7 181

CALPASC CALIFORNIA **California Professional Association of Specialty Contractors**

September 13, 2006

Ms. Robin Gilb
Staff Counsel
Department of Housing and Community Development
1800 Third Street
Sacramento, CA 95814

181 cards + 2 sent by mail/fax

Re: Public Comments on the CPVC Draft EIR

Dear Ms. Gilb:

Please find enclosed almost 200 postcards from California builders, plumbers, and concerned individuals who want their voices to be heard. They returned these postcards in response to a direct mail campaign regarding the Draft EIR for CPVC. They are all saying, "Yes, I'm in favor of revising the California plumbing code to allow for the universal use of CPVC." 7-1

Please submit these postcards as evidence of public support for the certification of the Draft EIR for CPVC dated July 2006.

Sincerely,

Dave Louden
Director of Government Affairs

3636 American River Drive, 2nd Floor, Sacramento, CA 95864
◈ Phone: (916) 609-8372 ◈ Fax: (916) 488-3492

☑ **Yes**, I'm in favor of revising the California plumbing code to allow for the universal use of CPVC. I think it is time that California joined the other 49 states in allowing the use of this cost-effective alternative.

The most recent Environmental Impact Report confirms that CPVC can be used safely. In addition, it has a 45+-year proven track record of reliable performance that, unlike copper, is not compromised by aggressive water and/or soil conditions. And, it represents a positive step in making housing more affordable in California due to its material and labor cost savings.

As a building professional, I'm tired of being held liable for premature copper pipe failures that I can't control. California deserves to have a choice when it comes to piping materials.

The code needs to change to reflect the current economic environment.

7-1 (cont.)

Signature: William H. Fox	Printed Name: William H. Fox
Company: Fox Company	Title: PRES.
Address: 3995 OLIVE HWY	Phone: 530-533-2750
City, State, Zip: OROVILLE CA 95966	E-mail: N/A

RECEIVED
LEGAL AFFAIRS DIVISION
SEP 14 2006
DEPARTMENT OF HOUSING
COMMUNITY DEVELOPMENT

Response to Letter 7: California Professional Association of Specialty Contractors (submitting 183 postcards from California builders, plumbers, and other individuals)

Comment 7-1. These comments supporting the Project and the certification of the EIR will be part of the record considered by the Lead Agency in determining whether to certify the EIR and approve the Project, and by the Building Standards Commission in determining whether to approve the Project.

8

TOWN OF DISCOVERY BAY CSD

1800 Willow Lake Road, Discovery Bay, CA 94514
Telephone: (925) 634-1131 Fax: (925) 513-2705

Board Members

President-Bob Doran	r.doran1234@sbcglobal.net
V. President-David Piepho	d.piepho@sbcglobal.net
Treasurer-Ray Tetreault	r.tetreault8431@sbcglobal.net
Director-Shannon Murphy-Teixeira	s.murphy.teixeira@sbcglobal.net
Director-Patty Knight	plhewitt@us.ibm.com

September 22, 2006

Department of Housing and Community Development (HCD)
Attn: Robin Gilb, Staff Counsel
P.O. Box 952052
Sacramento, CA 94252-2052

RE: Support of the Revising the California Plumbing Code to Allow for the Universal use of CPVC

Dear Robin Gilb:

The Town of Discovery Bay Community Services District (CSD) is in favor of revising the California plumbing code to allow for the universal use of CPVC.

Our district has approved and adopted a local Ordinance #15 to try and ban the use of copper water piping as part of our Pollution Prevention Plan which Discovery Bay is required to develop as a condition to receiving its NPDES permit from the California Regional Water Quality Control Board. The specific objective of Ordinance #15 was to reduce the amount of dissolved copper being discharged into Discovery Bay's wastewater by eliminating the use of copper piping within buildings connected to Discovery Bay's sewage system. The water and wastewater piping systems for all new buildings and/or remodels are required to be composed of either CPVC or "a similar material" as a condition to accessing the town's sewage system. 8-1

Again, we are very much in favor of the revision of California's plumbing code to allow for the universal use of CPVC. 8-2

Sincerely,

Virgil Koehne, General Manager
Town of Discovery Bay CSD

VK/ca

Response to Letter 8: Town of Discovery Bay CSD

Comment 8-1. This comment supporting the Project will be part of the record considered by the Lead Agency and by the Building Standards Commission in determining whether to approve the proposed action. The revised analysis of water quality impacts in the Recirculated Draft EIR includes a discussion of discharges of copper pollution into wastewater resulting from corrosion of copper piping in residential plumbing systems. Please refer to pages 107-120 of the Recirculated Draft EIR.

Comment 8-2. This comment will be considered by the Lead Agency and by the Building Standards Commission in determining whether to approve the proposed action.

9

TOWN OF DISCOVERY BAY CSD

1800 Willow Lake Road, Discovery Bay, CA 94514
Telephone: (925) 634-1131 Fax: (925) 513-2705

Board Members

President-Bob Doran	r.doran1234@sbcglobal.net
V. President-David Piepho	d.piepho@sbcglobal.net
Treasurer-Ray Totreault	r.terreault8431@sbcglobal.net
Director-Shannon Murphy-Teixeira	s.murphy.teixeira@sbcglobal.net
Director-Patty Knight	plhewitt@us.ibm.com

October 3, 2006

Department of Housing and Community Development (HCD)
Attn: Robin Gilb, Staff Counsel
P.O. Box 952052
Sacramento, CA 94252-2052

RE: Support of the Revising the California Plumbing Code to Allow for the Universal use of CPVC

To Whom It May Concern:

The Town of Discovery Bay Community Services District (CSD) is in favor of revising the California plumbing code to allow for the universal use of CPVC piping materials.

Our district has approved and adopted Ordinance #15 to ban the use of copper water piping as part of our Pollution Prevention Plan which Discovery Bay is required to develop as a condition to receiving its NPDES permit from the California Regional Water Quality Control Board to operate it's wastewater treatment facility. The specific objective of Ordinance #15 was to reduce the amount of dissolved copper being discharged into Discovery Bay's wastewater by eliminating the use of copper piping within buildings connected to Discovery Bay's sewage system. The water and wastewater piping systems for all new buildings and/or remodels are required to be composed of either CPVC or "a similar material" as a condition to accessing the town's sewage system. 9-1

Again, we are very much in favor of the revision of California's plumbing code to allow for the universal use of CPVC. 9-2

Sincerely,

Virgil Koehne

Virgil Koehne, General Manager
Town of Discovery Bay CSD

VK/ca

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OCT 10 2006
DEPARTMENT OF HOUSING
COMMUNITY DEVELOPMENT

Response to Letter 9: Town of Discovery Bay CSD

Comment 9-1. Please see response to Comment 8-1.

Comment 9-2. Please see response to Comment 8-2.

10

LAW OFFICE OF
MICHAEL R. LOZEAU
1516 OAK STREET, SUITE 216
ALAMEDA, CALIFORNIA 94501

mrlozeau@lozeaulaw.com
TEL: (510) 749-9102
FAX: (510) 749-9103

September 14, 2006

Department of Housing and Community Development
Robin Gilb, Staff Counsel
P.O. Box 952052
Sacramento, CA 94252-2052

Re: Draft Environmental Impact Report –Adoption of Regulations Permitting Statewide Use of Chlorinated Polyvinyl Chloride (CPVC) Plastic Plumbing Pipe (July 2006) State Clearinghouse No. 2006012044

Dear Mr. Gilb,

Please accept these comments on behalf of San Diego Baykeeper, Santa Monica Baykeeper, San Francisco Baykeeper, Deltakeeper, Russian Riverkeeper, Orange County Coastkeeper and Inland Empire Waterkeeper ("Waterkeepers"). The Waterkeepers are on-the-water citizen organizations who patrol the waters of California, responding to and addressing pollution problems around the state through their advocacy before the California Regional Water Quality Control Boards and State Water Resources Control Board, as well as other federal and local agencies and state and federal courts. Through that work, the Waterkeepers are aware of ongoing tributyltin and toxicity pollution occurring in California's waters and the current contribution of the State's sewage plants to those pollution problems.

The Department's proposal has serious implications for California's rivers, bays and estuaries by allowing, if approved, significant discharges of tributyltin and possibly other pollutants to numerous water bodies already cumulatively harmed by those pollutants. Indeed, by requiring flushing in order to address the equally serious threat to the health of the people installing these pipes and residents, the Department is proposing to maximize the discharge of organotins and other pollutants from new residences to the environment. Sewage plants generally are not designed to remove organotins from their wastewater. Hence, the Department's statewide, contaminant flushing proposal is a proposal to dump organotins that will be released from these CPVC pipes in perpetuity, into the State's waters and downstream drinking water supplies. 10-1 10-2

The Waterkeepers submitted extensive comments on the Department's previous effort to approve the use of CPVC pipes in residences throughout the State without any findings by local building officials of necessity based on existing soil or water conditions. Letter from Michael Lozeau on behalf of the Waterkeepers to Dave Walls, Department of Housing and Community Development re: Addendum to Adopted Mitigated Negative Declaration; State Clearinghouse No. 2000091089 (April 25, 2005) ("2005 Waterkeeper Comments"). Those previous comments are attached hereto and incorporated by reference. Despite that extensive effort to gather and present substantial information to 10-3

the Department, the Department's newly proposed draft EIR fails to mention, never mind analyze, the Waterkeepers' substantive concern regarding the environmental impacts of discharges of tributyltin to the State's waters leached from CPVC pipes. The draft EIR ignores 1) the presence of organotins, particularly tributyltin, in CPVC pipes, 2) the propensity of organotins to leach from CPVC pipes, increasing in concentration as the pipes age, 3) the stringent water quality objective of 0.0014 ug/L established for tributyltin by the State Water Resources Control Board for the State's ocean waters, 4) the stringent water quality criteria for tributyltin established by the federal EPA, 5) the presence of numeric effluent limitations for tributyltin in National Pollutant Discharge Elimination System ("NPDES") permits issued to municipal sewage plants in California, 6) the presence of existing violations of tributyltin limits by municipal sewage plants in California, and 7) the presence of existing violations of tributyltin standards in waters of the state and the contribution of additional tributyltin that would result from adoption of the Department's proposed project. *See* 2005 Waterkeeper Comments. Each of these concerns is laid out in detail in the Waterkeepers' previous comments. The same concerns remain unaddressed in the draft EIR. **10-3 (cont.)**

A. The Department Cannot Rely On The 2000 Negative Declaration Because That Document Fails To Address Organotin Discharges From CPVC Pipes.

In the draft EIR's discussion of water quality, the Department suggests that water quality issues relating to the use of CPVC pipes have already been addressed by the Department in its 2000 mitigated negative declaration. DEIR at 51. No such analysis is found in the 2000 negative declaration, especially in regard to the presence of organotins in leachate from CPVC pipe that, under the proposed rule, would be required to be flushed to the local sewage plant and discharged to the State's waters with little or no treatment. **10-4**

Although briefly acknowledging the presence of organotins in the CPVC pipes and that water conveyed by CPVC pipes can contain trace contaminants from the CPVC itself, the mitigated negative declaration from six years ago does not further elaborate on the potential effects of organotin discharges from CPVC pipes for the limited project reviewed by that document. *See* Sept 2000 Initial Study at 13-16. In 2000, the Department did not discuss, consider or adopt any mitigation measures addressing organotins leaching from CPVC pipes. The Department's silence in the DEIR regarding the discharge of organotins from its planned expansion of CPVC pipes throughout the State is not justified by the 2000 negative declaration's contents (or lack thereof).

B. The Department's EIR Fails To Identify And Analyze The Significant Environmental Effects Of Organotin Discharges To California's Waters Resulting From The Department's Proposed Project.

Unlike the 2000 negative declaration, the DEIR does not even mention the presence of leaching organotins in CPVC pipes. No effort is made by the Department to **10-5**

quantify the proposed increase in organotin releases to the State's waters and sewage plants. At most, about 4% of residential construction (or 33 housing units per day) in the State was allowed to use CPVC pipes under the existing rules. Comments of Phyllis Fox, Ph.D. (April 25, 2005) ("Fox Comments") (attached hereto). That very limited use of CPVC was confined to a few southern California counties - Orange, Los Angeles, San Diego, Riverside, and San Bernardino.[1] The Department estimates that its proposed rule will increase the percentage of residential construction using CPVC pipe to 30% of the State's residential construction. DEIR at 12-13. What loading and concentration of organotins that increased use of CPVC will add to local sewage systems and the State's waters is anybody's guess given the Department's failure to tackle this important issue. Despite that drastic increase in organotin sources to sewage plants throughout the state and ultimately the waters into which those plants discharge, no consideration whatsoever is given by the Department to this clear water quality impact of its project, contrary to CEQA. **10-5 (cont.)**

1. The Department Ignores Relevant Thresholds Of Significance Based On Water Quality Standards And Criteria Adopted By The State Water Resources Control Board And The Federal EPA.

In their previous comment, the Waterkeepers identified the EPA criteria for tributlytin published by the United States EPA as well as the State Water Resources Control Board's adoption of a numeric water quality objective for tributyltin in the state's ocean waters. 2005 Waterkeeper Comments at 9-10. In the Ocean Plan, the State Board has established a very low numeric water quality objective of 0.0014 ug/L for tributlytin. The federal EPA also has issued water quality criteria for tributlytin of 0.46 ug/L for acute exposures (1-hour) and 0.072 ug/L for chronic exposures (4-day) in freshwater and 0.42 ug/L acute and 0.0074 ug/L chronic for saltwater. These are the criteria or objectives which the State Board and regional water quality control boards must apply to regulate tributyltin where that contaminant emerges from the drain systems into which newly constructed residential developments will discharge – the municipal sewage plant systems. By failing to analyze the levels of organotins that would be present in the sewage plant systems and their discharges, the Department fails to disclose, analyze, and avoid or mitigate an important environmental impact of its proposal. **10-6**

In the DEIR, no effort is made by Department to gauge whether the cumulative contribution of organotins to various sizes and types of sewage plants around the state could potentially exceed or contribute to exceedances of either EPA's criteria or the State Board's numeric objective. Instead, the Department focuses on a set of criteria for different contaminants as well as categories that generally are not the most protective levels. Thus, for example, reportable quantities of hazardous substances and drinking water criteria do not include any levels for organotins and do not represent discharge levels of organotins that would protect all of the beneficial uses of the State's waters. **10-7**

[1] Fax from Garry Gage, Noveon, to Bill Stack, HCD, Re: Repipes, September 15, 2004.

Despite the absence of any discussion of the applicable water quality criteria and objective for tributyltin applied by the State Board and regional boards in California, the Department concludes that "CPVC Pipe and adhesives are not currently regulated or proposed to be regulated by the [State Board] for impacts on water quality, or to ensure compliance with discharge requirements at Publicly Owned Treatments Works." DEIR at 60. As was the case with a similar assertion in the 2000 negative declaration, this claim is inaccurate and misleading. *See* 2005 Waterkeeper Comments at 9-10. The State Board already regulates discharges of tributyltin. Neither the State Board nor the regional boards would address their regulations to particular products like CPVC pipes or their adhesives. They have established a criterion for ocean waters. They also apply EPA's water quality criteria when issuing discharge permits. The regional boards have applied organotin limits to many sewage plant discharges throughout the state. 2005 Waterkeeper Comments, pp. 10-12. The Department's sweeping claim suggesting that the Boards do not have an interest in organotins and do not perceive any water quality concerns from the discharge of those substances is wrong and misleading. **10-8**

2. The Absence Of Any Discussion Of Organotin Discharges From CPVC Pipes Proposed By The Department For Use Statewide Fails To Provide The Decision-maker And The Public The Information Necessary To Evaluate The CPVC Pipe Project's Impacts On The State's Waters.

Of all of the potential impacts resulting from the Department's proposal, the perpetual release of organotins from CPVC pipes through sewage plants to the State's waters is one that is to be borne by all of the State's residents, whether by the direct degradation of uses they make of the waters or increased costs of sewage treatment as their local treatment plant confronts the costs of expensive upgrades to address high levels of organotins discharging from the plant. By failing to assess the implications of its project on every sewage plant's ability to meet tributyltin and other organotin limits and assure that all of the beneficial uses of the State's waters are fully protected, the Department has undermined the goals of CEQA. Neither the Department nor the public is currently in a position of being able to determine the impacts of increased organotin discharges from the increased levels of CPVC use that will result from the Department's adoption of the proposed project. Instead, the Department would have the issue disappear by simply ignoring it, leaving it to the State's cities, sewage plants and unwitting homeowners to pick up the tab and clean up any resulting mess, either through costly upgrades or expensive retrofits. CEQA prohibits such uninformed decisions and their consequences. **10-9**

Given the Department's failure to address the organotin pollution that will result from its proposed project, the Waterkeepers respectfully request that the Department withdraw the DEIR and head back to the drafting table. The Department should retain the services of its qualified sister agencies or technical consultants who could gather the information necessary for the Department to address its proposed actions effects on **10-10**

organotin loadings to sewage plants and the consequences of discharges of that toxic pollutant on the state's waters. **10-10 (cont.)**

Sincerely,

Michael R. Lozeau

On behalf of San Diego Baykeeper, Santa Monica Baykeeper, San Francisco Baykeeper, Deltakeeper, Russian Riverkeeper, Orange County Coastkeeper, Inland Empire Waterkeeper

Response to Letter 10: San Diego Baykeeper, Santa Monica Baykeeper, San Francisco Baykeeper, Deltakeeper, Russian Riverkeeper, Orange County Coastkeeper, Inland Empire Waterkeeper

Comment 10-1. The Draft EIR has been revised and recirculated. As explained in the water quality analysis in the Recirculated Draft EIR, tributyltin (TBT) is not a component of CPVC, except perhaps as a trace contaminant at extremely low concentrations with no human health or other environmental significance. The Recirculated Draft EIR analyzes cumulative water quality impacts on pages 222-224.

Comment 10-2. The potential water quality impacts related to the flushing mitigation measure which would continue to apply if the Project is approved are evaluated within the Recirculated Draft EIR's analysis of cumulative water quality impacts on pages 222-224. The Recirculated Draft EIR concludes that such impacts will be less than significant.

Comment 10-3. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR reflects the Lead Agency's evaluation and consideration of the entire record regarding CPVC at the Lead Agency, including the previous comments and supplemental information submitted by the commenters during the 2005 Draft Addendum proceedings. As explained in the water quality analysis in the Recirculated Draft EIR, tributyltin (TBT) is not a component of CPVC, except perhaps as a trace contaminant at extremely low concentrations with no human health or other environmental significance. The Lead Agency has been presented with no evidence that other triorganotins are present in CPVC. As explained in the 1998 EIR, which is part of the record supporting the 2000 Mitigated Negative Declaration, dibutyltin and other organotins used as stabilizers in CPVC are far less toxic than tributyltin. (1998 Final EIR at 50). As the Recirculated Draft EIR explains, all CPVC pipe allowed for use in California under the both the current California Plumbing Code and under the proposed code changes that comprise the Project must be tested and certified by NSF to meet NSF/ANSI standards, including standards for organotins.

Comment 10-4. The potential impacts of CPVC pipe use related to organotins, including tributyltin, were analyzed in the 2000 Mitigated Negative Declaration and in the 1998 EIR, which is part of the record supporting the analysis in the 2000 Mitigated Negative Declaration. Both of those prior documents determined that such impacts would be less than significant. More specifically, water quality impacts related to organotins were analyzed on pages 13 through 16 of the Explanation of Checklist Judgments within the 2000 Mitigated Negative Declaration and on pages 40-53 and 172-174 of the 1998 Final EIR. The project analyzed in the 2000 Mitigated Negative Declaration consisted of regulations that included the existing flushing mitigation measure, and the conclusion of the 2000 Mitigated Negative Declaration that the use of CPVC pipe subject to the Findings Requirement would result in less than significant water quality impacts related to organotins was based in part on the required use of the flushing mitigation measure. The Draft EIR has been revised and recirculated, and the Recirculated Draft EIR analyzes potential water quality impacts related to leaching of chemical, including organotins, at pages 124-129. Please also see the response to Comment 10-3 above, which

explains that triorganotins, which are the most toxic type of organotins, are not present within CPVC pipe.

Comment 10-5. Please see responses to Comment 10-3 and 10-4. As explained on page 27 of the Recirculated Draft EIR, CPVC pipe is estimated to be used currently for approximately 13 percent of the annual residential water plumbing installations in California. As explained on page 28 of the Recirculated Draft EIR, the estimate in the Draft EIR that the Project could result in CPVC pipe accounting for 30 percent of the potable water pipe sold in California has been increased to 32 percent in the Recirculated Draft EIR.

Comment 10-6. Please see the response to Comment 10-3. The Lead Agency has declined to incorporate the threshold of significance recommended by this comment because tributyltin is not present within CPVC pipe, except perhaps as a trace contaminant at extremely low concentrations with no human health or other environmental significance.

Comment 10-7. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR includes an analysis of the Project's potential cumulative water quality impacts related to organotins on pages 222-224.

Comment 10-8. The Draft EIR has been revised and recirculated. The statement discussed in this comment is not present within the Recirculated Draft EIR.

Comment 10-9. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR includes an analysis of the Project's potential project-specific water quality impacts related to organotins on pages 124-129 and an analysis of the Project's potential cumulative water quality impacts related to organotins on pages 222-224. Please also see the responses to Comments 10-4 and 10-5.

Comment 10-10. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR fully and adequately analyzes the Project's potential water quality impacts related to oragnotins. The Lead Agency determined that it was unnecessary to retain the services of sister agencies or technical consultants beyond those persons consulted in the preparation of the Recirculated Draft EIR.

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MORRISON | FOERSTER

425 MARKET STREET
SAN FRANCISCO
CALIFORNIA 94105-2482

TELEPHONE:415.268.7000
FACSIMILE:415.268.7522

WWW.MOFO.COM

MORRISON & FOERSTER LLP

NEW YORK, SAN FRANCISCO,
LOS ANGELES, PALO ALTO,
SAN DIEGO, WASHINGTON, D.C.

DENVER, NORTHERN VIRGINIA,
ORANGE COUNTY, SACRAMENTO,
WALNUT CREEK, CENTURY CITY

TOKYO, LONDON, BEIJING,
SHANGHAI, HONG KONG,
SINGAPORE, BRUSSELS

September 14, 2006

Writer's Direct Contact
415.268.6718
Telefacsimile: 415.276.7286
MZischke@mofo.com

By Electronic Mail and Regular Mail

Department of Housing and Community Development
Robin Gilb, Staff Counsel
P.O. Box 952052
Sacramento, CA 94252-2052

Re: Noveon Comments on the Draft EIR for Adoption of Regulations Deleting the Requirement for Findings for Residential Use of CPVC

Dear Ms. Gilb:

On behalf of Noveon, Inc., we appreciate this opportunity to comment on the draft environmental impact report ("Draft EIR") for the adoption of regulations that will allow the continued statewide residential use of chlorinated polyvinyl chloride (CPVC) plastic plumbing pipe, but without the requirement to first make a finding of potential premature metallic pipe failure due to local water or soil conditions (the "Project").

The proposed Project is important because currently it is difficult or impossible, in many locations in California, for homeowners and homebuilders to use CPVC plastic pipe in homes as an alternative to copper pipe, and the Project would provide Californians with that option. Copper pipe tends to pit and create construction defect problems, and is much more expensive to install. CPVC plumbing also is less expensive to install than copper pipe, and therefore allowing its use as an alternative can reduce the cost of new housing as well as costs for repiping of existing homes. All 49 states except California allow CPVC as an alternative to copper. CPVC has already been reviewed through an extensive CEQA process over a period of more than 15 years and mitigation measures have been developed to avoid any adverse impact of CPVC use. HCD is now proposing to preserve all of those mitigation measures in the Plumbing Code, but to delete a requirement that local building officials make findings about copper pipe failure prior to allowing the use of CPVC. This findings requirement has dramatically limited the use of CPVC in California, even though CPVC was previously approved for statewide use with the required mitigation measures. 11-1 11-2

In general, a substantial amount of good work has gone into the Draft EIR in calculating the anticipated usage of CPVC in residential plumbing systems and the solvents and cements that are used to join CPVC pipe. In many instances, however, the Draft EIR overestimates 11-3

the potential for expanded use and as a result overstates impacts. Consequently, additional information needs to be added to the EIR to amplify what has already been included with respect to the evaluation of impacts of the proposed deletion of the findings requirement. 11-3 (cont.)

A. A Comparison of the Proposed Alternatives Should Be Added to the EIR

An analysis comparing and evaluating the proposed alternatives should be added to the EIR. 11-4

B. Project Description

The Draft EIR's Project Description generally describes the Project in an accurate and thorough manner. However there, are a couple of revisions that should be made. First, a map showing the location of the project (i.e., the entire State of California) should be added. Second, the "Use of this EIR" section on page 10 of the Draft EIR correctly indicates that the CSBC is a Responsible Agency and may use the EIR for a subsequent discretionary approval, and also correctly explains on page 1 that if HCD determines to recommend approval of the proposed modification of the Plumbing Code, the CSBC would then consider approving the modification. The discussion on page 10 should be revised so that it clarifies that the CSBC's subsequent approval would consist of the modification of the California Plumbing Code to make the changes described in the Project Description. 11-5

C. Air Quality Chapter

1. Additional information should be added comparing the Project to the existing environmental baseline, in order to demonstrate that the Draft EIR properly used a conservative approach

While the analysis regarding emissions of air quality pollutants is generally strong, additional information regarding the existing environmental baseline should be added in order to support the Draft EIR by demonstrating that it takes a conservative approach that, if anything, overestimates the Project's air quality impacts. The environmental baseline to which the Project is compared involves the use of other residential plumbing products where CPVC is currently not available for use due to the findings requirement. When the incremental increase in the amount of VOC emissions is compared to the air pollutant emissions from the use of other products, the air quality impacts from approval of the Project are minimal and, therefore, less than significant. 11-6

2. The Draft EIR's conservative approach in estimating future usage of CPVC overestimates potential air quality impacts

The Draft EIR's analysis of air quality impacts properly takes a conservative approach. We understand this cautious approach, but wish to submit some additional information into the 11-7

record that demonstrates that, if anything, this approach resulted in the Draft EIR overestimating the extent of potential air quality impacts. In calculating the amount of CPVC usage, the Draft EIR assumes that CPVC plastic plumbing pipe has an approximately 30 percent share of the national market for potable water plumbing and that it would claim the same share of the California market. This assumption is based on information previously provided to HCD by Noveon, which erred on the side of overestimating CPVC usage. 11-7 (cont.)

However, additional information demonstrates that the 30 percent assumption was conservative. Data from the NAHB Research Center, Inc. indicates that CPVC has a nationwide market share of approximately 25 percent. (See **Exhibit A**). In addition, a July 2006 Copper Development Association advertisement indicates that copper has an 80 percent share of the national market for potable water plumbing. (See **Exhibit B**). Together, these materials demonstrate that the likely market share of CPVC will be well less than 30 per cent.

In addition, additional information supports the Draft EIR's estimation of the amount of solvent cement used in single-family and multi-family residential units by demonstrating that it was conservative. To determine these amounts, which factored into the Draft EIR's calculation of VOC emissions, the Draft EIR relied upon the E-Z Weld Calc tool found at http://members.aol.com/ezweld/ezcalc.html. Using this tool, the Draft EIR assumed that 0.270 liters of primer and 0.810 liters of cement would be used for each single-family unit, and 0.110 liters of primer and 0.420 liters of cement would be used for each multi-family unit. Two letters from plumbers that previously were submitted to HCD indicate that the amount of primer and solvent typically used is substantially lower than that predicted by the E-Z Weld Calc tool. A letter dated April 17, 2006, from Chris Mace of Tri-Valley Plumbing indicates that a 2,200 square foot single-family home typically requires ¾ pint of solvent cement and ¼ pint primer. (See **Exhibit C**). Similarly, a letter dated April 28, 2006, from Tyler Stevens of Dynamic Plumbing indicates that a typical condominium unit requires only four ounces (¼ pint) of one-step cement. (See **Exhibit D**). 11-8

Thus, this information demonstrates that the Draft EIR used a conservative approach to estimating the percentage of California residential plumbing systems that would use CPVC and of the amounts of cements and primers that would be used in installation of these systems. This is an appropriate approach for HCD to have taken under CEQA and, if anything, may have resulted in overestimation of the Project's potential air quality impacts. 11-9

3. The EIR needs to more clearly distinguish project-specific and cumulative air quality impacts

We generally support the conclusions in the Draft EIR's analysis of the Project's potential air quality impacts. However, the analysis of these impacts should distinguish more clearly 11-10

between project-specific impacts (i.e., impacts resulting solely from the Project) and cumulative impacts (i.e., impacts resulting from the combination of the Project's incremental effects with other projects causing related impacts). Clarifying this distinction would also make it apparent that Potential Impact 2 should be found to be less than significant. 11-10 (cont.)

The EIR's analysis of Potential Impact 2 evaluates whether the Project will violate any air quality standard or would contribute substantially to an existing or projected air quality violation. This is a project-specific impact, as it involves the question of whether the Project alone would make a *substantial contribution* to an air quality violation, not whether the Project would cumulatively contribute to an air quality violation resulting from the combination of the Project with other projects or emission sources that contribute to the same air quality violation. The latter question is considered in the Draft EIR's discussion of Potential Impact 3, which conservatively concludes that the Project's minor indirect impacts on air quality could result in a cumulatively considerable net increase of ozone in areas that are currently designated as non-attainment for ozone or where maintaining attainment status is difficult. 11-11

However, since the Draft EIR's analysis indicates that the Project's VOC emissions are likely to be relatively minor, the conclusion of the EIR's analysis for Project Impact 2 should be revised to indicate that the Project itself will not make a *substantial* contribution to air quality violations related to ozone and, therefore, this impact would be less than significant. Such a revision would be consistent with the conclusion in the discussion of Potential Impact 3 on page 49 of the Draft EIR that "the Lead Agency has determined that the proposed Project will have minor indirect impacts on air quality" and with the discussion of cumulative impacts on page 72.

4. Suggested revision to discussion of Potential Impact 1.

We support the Draft EIR's conclusions regarding Potential Impact 1 related to air quality. A statement should be added to this section stating that because the Project would not cause any adverse impact on any local air quality plans, it is consistent with these plans. 11-12

D. Water Quality Chapter

1. Additional information comparing the Project to the existing environmental baseline

Additional information regarding the existing environmental baseline should be added in order to support the conclusions of the water quality analysis in the Draft EIR by demonstrating that it takes a conservative approach that, if anything, overestimates the Project's water quality impacts. The environmental baseline to which the Project is 11-13

compared involves the use of other residential plumbing products where CPVC is currently not available for use due to the findings requirement. 11-13 (cont.)

2. The EIR needs to more clearly distinguish project-specific and cumulative impacts

The discussion of thresholds of significance in this analysis should more clearly distinguish between project-specific and cumulative impacts. On page 57, the Draft EIR states that the identified thresholds of significance are for "cumulative impacts" related to contamination of the waters of the State. However, both thresholds of significance listed could apply either to project-specific or cumulative impacts related to the Project. Thus, the word "cumulative" should be deleted from the first sentence in the "Thresholds of Significance" on page 57. 11-14

3. The deletion of the findings requirement will not result in any new impacts related to leaching

The initial study supporting the 2000 Mitigated Negative Declaration concluded that effects related to leachates would be less than significant with the incorporation of the flushing mitigation measure, which will remain in place under the current proposal. These evaluations in the 1998 EIR and 2000 Mitigated Negative Declaration are part of the record that supports the current EIR, and it is appropriate to rely on these evaluations, since any water quality impacts related to leachates from CPVC pipe would be the same under the current Project as under the Project adopted pursuant to the 2000 Mitigated Negative Declaration. 11-15

Although these impacts have already been addressed in the 2000 Mitigated Negative Declaration and the Project would not result in any new impacts in this regard, we are providing some additional information demonstrating that the Project will not have any significant water quality impacts related to leaching of tributyltin (TBT) or other organotins, MEK, or acetone. These impacts were previously addressed in the record, including in the 1998 EIR and the 2000 Mitigated Negative Declaration, and determined not to be significant. As the 1998 EIR explained, TBT is not a component of CPVC and, therefore, the Project will not result in any leaching of TBT. The 2000 Mitigated Negative Declaration acknowledged that some organotins (but not TBT) are used as stabilizers in CPVC and concluded there would be no significant water quality impacts. Additionally, there have been no significant changes in either the regulatory setting or the scientific knowledge related to organotins since the prior analysis was conducted. 11-16

The 1998 Final EIR included substantial analysis of the potential environmental impacts related to organotins, acetone, MEK, and other leachates, which could arise from the statewide approval of CPVC. 1998 Final EIR at 43-51, 168, 172-174. The 1998 Final EIR

indicated that "TBTO[1] is not added to CPVC. The organotins used as stabilizers in CPVC are far less toxic than TBTO." 1998 Final EIR at 50. Similarly, the 1998 Final EIR stated that issues raised by commenters regarding TBT were irrelevant because "[t]ributyltin is not an ingredient of CPVC, and if it is present as a trace impurity (which has not been confirmed), the concentrations would so low as to be undetectable in leaching from pipe and not significant." 1998 Final EIR at 172. Moreover, the 1998 Final EIR indicated that HCD had "reviewed literature reports of organotin leaching from CPVC and [found] that the reported values are much lower than the applicable standards." *Id.* at 49. 11-16 (cont.)

The 1998 Final EIR concluded that solvent-based leaching, including leaching of MEK and acetone, would not be a significant effect even in the absence of NSF 61 testing and certification, flushing requirements, and low-VOC materials. *Id.* at 48. It also concluded:

> In reviewing the available information on organotin leaching from CPVC pipe, the Lead Agency does not find evidence to suggest that environmental contamination would occur at levels that would constitute a significant impact of the proposed use of CPVC for potable water piping in residential buildings in California. The highly toxic organotin TBTO is *simply not present* in CPVC except perhaps as a trace contaminant at extremely low concentrations with no human health or other environmental significance. This is not a potential impact associated with the proposed use of CPVC.

1998 Final EIR at 50 (emphasis added). In addition, the responses to comments in the 1998 Final EIR stated that "[t]he Lead Agency considers organotin leachate contamination to be less than significant. The Lead Agency considers the established, human health risk assessment based organotin leachate limitations summarized in this EIR and assured by NSF testing and certification to be adequately protective of human health." *Id.* at 173.

Also, the EIR recognized that CPVC pipe and the fittings, primers and cements used with CPVC are already among the materials already approved for use in public drinking water systems. *Id.* at 42. The solvents in these primers and cements used in public systems are the same solvents that would be used to join CPVC pipe in residential buildings. *Id.* Thus, these materials are already part of the existing environment and are currently in contact with the state's drinking water. *Id.* 11-17

The absence of any significant organotin impacts is also confirmed by the U.S. Environmental Protection Agency's 1983 review of organotins and certain other compounds 11-18

[1] The 1998 EIR refers to tributyltin as "TBTO," or tributyltin oxide. *See* 1998 Final EIR at 50.

in response to a request from the Federal Interagency Testing Committee. That review evaluated organotin exposures in the environment, including exposure from the manufacture and distribution of CPVC, and found that the environmental exposure to organotins is "extremely low." That review also found that most of the exposure that did occur was primarily from tributyltin pesticides, which degrade in the environment into mono- and dibutyltin compounds. The report concluded "Neither has EPA found evidence that the current manufacture, distribution in commerce, processing use or disposal of these substances may present unreasonable risk of injury to the environment" U.S. Environmental Protection Agency, *Alkyltin Compounds, Response to the Interagency Testing Committee,* 48 Fed. Reg. No. 217, pp. 51361, 51364. A copy of this report is attached as **Exhibit E.** 11-18 (cont.)

E. Worker Safety Chapter

Additional information regarding the existing environmental baseline should be added in order to support the conclusions of the worker safety analysis in the Draft EIR. The existing environmental baseline to which the Project is compared involves the use of other residential plumbing products where CPVC is currently not available for use due to the findings requirement. Use of other plumbing products raises worker safety issues such as potential inhalation of heavy metal emissions, burning, and eye injuries. Also, the mitigation measures that avoid worker safety problems with CVPC do not apply to other pipe products at this time, such that CPVC can be considered at least as safe as other products if not safer. 11-19

F. Chapter Regarding Statutorily Required Sections

1. An explanation regarding why consumption of energy and natural resources is a less than significant impact should be added

The Draft EIR concludes that the Project would likely result or contribute to irreversible consumption of energy and natural resources associated with the production of CPVC and CPVC adhesives. The EIR should also include a brief discussion explaining that this impact, although irreversible in the sense that some energy is consumed, does not constitute a significant environmental impact. There is substantial analysis at pages 65 through 67 of the 1998 Final EIR which reaches that conclusion, and an updated version of that analysis should be included in this EIR to support the same conclusion. 11-20

In addition, as explained in "The Facts About TempRite CPVC," a brochure produced by Noveon that is attached as **Exhibit F**, CPVC has a relatively low petroleum content, and its production process therefore uses less of our non-renewable oil reserves than do most other plastics. (**Ex. F**, p. 4). This results in the basic energy requirements of CPVC production being quite low when compared to other materials. (**Ex. F**, p. 8). CPVC is also very light-weight compared with most alternative materials, especially metals, which results in energy 11-21

savings when transporting both raw CPVC for processing and finished CPVC-based products. (**Ex. F**, p. 5). This information should be included in the discussion of impacts related to consumption of energy and natural resources. **11-21 (cont.)**

2. An explanation that it is not feasible to adopt other mitigation measures in addition to the low-VOC cement requirement should be added

We concur with the Draft EIR's determination on pages 72-73 that the only significant and unavoidable adverse impact of the Project would be cumulative air quality impacts. A statement should be added to the discussion of significant and unavoidable impacts explaining that since the Project has incorporated a requirement for low-VOC adhesives, there are no other feasible mitigation measures that could reduce this cumulative impact to a less than significant level. **11-22**

We appreciate your consideration of our comments.

Sincerely,

Michael H. Zischke

Response to Letter 11: Noveon, Inc.

Comment 11-1. This comment supporting the Project will be part of the record considered by the Lead Agency in determining whether to certify the EIR and approve the Project, and by the Building Standards Commission in determining whether to approve the Project..

Comment 11-2. Please see response to Comment 11-1.

Comment 11-3. The Draft EIR has been revised and recirculated. The air quality section has been extensively revised in the Recirculated Draft EIR. See Recirculated Draft EIR section 4.2, Air Quality.

Comment 11-4. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR includes an analysis comparing and analyzing proposed alternatives to the Project.

Comment 11-5. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR project description does not include a map of California. However, the air quality section of the Recirculated Draft EIR contains six maps of the state of California. The Recirculated Draft EIR contains a discussion of the Building Standards Commission's role in the code adoption process.

Comment 11-6. The Draft EIR has been revised and recirculated. The air quality section has been extensively revised. See Recirculated Draft EIR section 4.2, Air Quality.

Comment 11-7. The Draft EIR has been revised and recirculated. The air quality section has been extensively revised. (See RDEIR section 4.2, Air Quality). As explained on pages 45-46 of the Recirculated Draft EIR, the revised air quality analysis evaluated the Project based both on a design value estimate that the Project would result in CPVC pipe attaining a 32 percent share of the California market for residential potable water systems and a maximum value estimate assuming that the Project could result in a maximum 58 percent share of the California market.

Comment 11-8. the Draft EIR has been revised and recirculated. As explained on pages 46-47 of the Recirculated Draft EIR, the Lead Agency decided to continue to use the E-Z Weld methodology for estimating adhesive usage because it results in the greatest (i.e., the most conservative) application rates.

Comment 11-9. Please see responses to Comment 11-7 and 11-8.

Comment 11-10. The Draft EIR has been revised and recirculated. The air quality section has been extensively revised. Cumulative and project-specific air quality impacts have been distinguished. See Recirculated Draft EIR sections 4.2.4, Air Quality Impacts and Mitigation Measures and 6.3, Cumulative Impacts. However, the revised analysis in the Recirculated Draft EIR determined both project-specific and cumulative air quality impacts to be significant and unavoidable.

Comment 11-11. The Draft EIR has been revised and recirculated. The air quality section has been extensively revised. The Lead Agency finds that the Project, with all feasible mitigation, will result in significant, unavoidable air quality impacts. Therefore, the Lead Agency declines to accept the commenter's proposed conclusions as to the potential impacts related to air quality.

Comment 11-12. The Draft EIR has been revised and recirculated. The air quality section has been extensively revised. The Project may result in ROG emissions that exceed air quality thresholds of significance for some local air districts. See Recirculated Draft EIR section 4.2 generally and section 4.2.3 in particular.

Comment 11-13. The Draft EIR has been revised and recirculated. The Environmental Setting section in the Water Quality section of the Recirculated Draft EIR has been revised such that it more fully describes the existing environmental baseline in California.

Comment 11-14. The Draft EIR has been revised and recirculated. The water quality and cumulative impacts sections of the Recirculated Draft EIR have been revised to more clearly distinguish and provide additional information regarding project specific and cumulative impacts.

Comment 11-15. The Recirculated Draft EIR analyzes potential water quality impacts related to leachates on pages 124-129 of the Recirculated Draft EIR. As explained in the responses to Comment Letter 12, the Lead Agency agrees with the commenter that it is appropriate to rely on the evaluations of such impacts in the 2000 Mitigated Negative Declaration and the 1998 EIR, which is part of the record supporting the 2000 Mitigated Negative Declaration, to the extent that the Project will not result in any new significant or substantially more severe impacts that were not analyzed in those prior CEQA documents.

Comment 11-16. The Draft EIR has been revised and recirculated. The Lead Agency has considered and analyzed the information provided in this comment during preparation of the water quality analysis set forth in the Recirculated Draft EIR.

Comment 11-17. Please see the response to Comment 11-16.

Comment 11-18. Please see the response to Comment 11-16.

Comment 11-19. The Draft EIR has been revised and recirculated. The worker safety analysis in the Recirculated Draft EIR includes an analysis of the existing use of other residential plumbing products that comprises the environmental baseline in the discussion of the Environmental Setting, on pages 134-139.

Comment 11-20. The Draft EIR has been revised and recirculated. A discussion of impacts related to natural resources and energy has been included in the Recirculated Draft EIR.

Comment 11-21. Please see response to Comment 11-20.

Comment 11-22. The Draft EIR has been revised and recirculated. The air quality section in the Recirculated Draft EIR has been extensively revised. The Lead Agency has considered another mitigation measure for the Project – requiring one-step cement – in addition to a requirement for the use of low-VOC CPVC Adhesives. However, even with this additional mitigation, the Project will result in significant and unavoidable project-specific and cumulative air impacts.

Comments of

COALITION FOR SAFE BUILDING MATERIALS

(California Pipe Trades Council, California Professional Firefighters, Consumer Federation of California, Planning and Conservation League, Center for Environmental Health, Sierra Club of California and Communities for a Better Environment)

on the

DRAFT ENVIRONMENTAL IMPACT REPORT
FOR
ADOPTION OF REGULATIONS PERMITTING STATEWIDE RESIDENTIAL USE OF CHLORINATED POLYVINYL CHLORIDE (CPVC) PLASTIC PLUMBING PIPE WITHOUT FIRST MAKING A FINDING OF POTENTIAL PREMATURE METALLIC PIPE FAILURE DUE TO LOCAL WATER OR SOIL CONDITIONS
STATE CLEARINGHOUSE NO. 2006012044

VOLUME I

COMMENTS PREPARED BY:

Daniel L. Cardozo
Thomas A. Enslow
Adams Broadwell Joseph & Cardozo
1225 8th Street, Suite 550
Sacramento, CA 95814

Petra Pless, Ph.D.
440 Nova Albion Way
San Rafael, CA 94903

Thomas S. Reid
TRA Environmental Sciences, Inc.
545 Middlefield Road, Suite 201
Menlo Park, CA 94025

Jim Bellows, Ph.D., MPH
5000 Manila Avenue
Oakland, CA 94609

September 14, 2006

TABLE OF CONTENTS

I. INTRODUCTION 1

II. HCD PROPOSES TO AMEND CPC SECTIONS 604.1, 604.1.1, AND 604.1.2 TO ALLOW THE STATEWIDE APPROVAL OF CPVC POTABLE WATER PIPE 5

III. THE DEIR FAILS TO COMPLY WITH THE FUNDAMENTAL INFORMATIONAL AND PUBLIC DISCLOSURE REQUIREMENTS OF CEQA 6

A. LEGAL STANDARDS 6
B. APPLICATION OF LEGAL STANDARDS TO THE DEIR 8

IV. THE DEIR REPRESENTS YET ANOTHER ATTEMPT BY HCD TO CIRCUMVENT CEQA THROUGH GRUDGING AND PRO FORMA COMPLIANCE DESIGNED TO SECURE PROJECT APPROVAL "QUICKLY AND EFFICIENTLY" 9

A. LEGAL STANDARDS 10
B. HCD'S LONGSTANDING RESISTANCE TO CEQA COMPLIANCE 11
1. Unfinished 1989 EIR *11*
2. HCD's Unlawful Decision to Approve Statewide Use of CPVC Without CEQA Compliance *12*
3. HCD Hastily Prepares 1998 EIR With No Technical Experts, No Industry Funding and Without Addressing the Technical Issues and Evidence Raised by Public Comment *13*
4. 2000 Settlement Rescinding "Incomplete" 1998 EIR and Allowing Very Limited Approval of CPVC *17*
5. HCD Attempts to Approve Statewide Use of CPVC Through Proposed 2000 Addendum Without Completion of an EIR *17*
6. HCD Hastily Prepares the 2006 DEIR With No Technical Experts, No Industry Funding and Without Addressing the Technical Issues and Evidence Raised by Public Comment *18*
C. RESULT IS A GRUDGING AND PRO FORMA COMPLIANCE DESIGNED TO SECURE PROJECT APPROVAL "QUICKLY AND EFFICIENTLY" 19

V. ..THE DEIR DOES NOT REFLECT AN INDEPENDENT REVIEW AND ANALYSIS BY THE LEAD AGENCY 20

A. LEGAL STANDARDS 20

B. APPLICATION OF LEGAL STANDARDS TO THE DEIR 21

VI. HCD IMPROPERLY RELIED ON THIRD-PARTY ASSURANCES IN FINDING NO SIGNIFICANT IMPACT ON DRINKING WATER WITHOUT CONDUCTING ANY INDEPENDENT REVIEW 24

A. HCD WAS REQUIRED TO INDEPENDENTLY REVIEW AND ANALYZE THE ADEQUACY OF NSF STANDARDS AND TESTING 24
B. NSF CERTIFICATION DOES NOT RELIEVE THE LEAD AGENCY FROM ITS DUTY TO EXAMINE INDEPENDENTLY THE EVIDENCE THAT CPVC MAY HAVE AN ADVERSE IMPACT ON THE ENVIRONMENT 25
C. HCD FAILED TO INDEPENDENTLY REVIEW THE UNDERLYING BASIS FOR THE NSF STANDARDS 26
D. THE EPA EXPRESSLY CAUTIONS FEDERAL AND STATE JURISDICTIONS FROM RELYING ON NSF STANDARDS IN LIEU OF INDEPENDENTLY EVALUATING THE ACCEPTABILITY AND SAFETY OF DRINKING WATER PIPE, FITTINGS AND OTHER MATERIALS 28
E. NSF CERTIFICATION IS INADEQUATE TO REFUTE THE EVIDENCE THAT CPVC MAY HAVE AN ADVERSE IMPACT ON THE ENVIRONMENT 31
1. NSF Expressly Disclaims any Responsibility for Providing Safety Requirements 31
2. The Record Contains Ample Evidence That NSF Standards and Testing Are Not Adequate to Establish a Product's Safety and Lack of Impact on the Environment 32

VII. THE DEIR'S RELIANCE UPON THE FINDINGS IN THE 2000 MND IS IMPROPER AND LACKS FOUNDATION 33

A. AN EIR CANNOT BE TIERED FROM A NEGATIVE DECLARATION 34
B. THE DEIR MAY NOT TIER FROM A PRIOR PROJECT WITH A NARROWER SCOPE 34
C. THE ANALYSIS CONTAINED IN THE 2000 MND IS INAPPLICABLE DUE TO NEW INFORMATION AND CIRCUMSTANCES 37

VIII. THE DEIR IS BASED UPON UNSUPPORTED AND INACCURATE STATEMENTS 39

A. LEGAL STANDARDS 39
B. APPLICATION OF LEGAL STANDARDS TO THE DEIR 40

IX. THE DEIR PROVIDES AN INADEQUATE AND MISLEADING PROJECT DESCRIPTION 41

A. LEGAL STANDARDS 41
B. APPLICATION OF LEGAL STANDARDS TO THE DEIR 42

1. The DEIR Deliberately Misrepresents the Proposed Project *42*
2. The DEIR Grossly Underestimates the Scope of the Project *43*
3. The DEIR Incorrectly Describes the Current Authorization for CPVC Outside of California *46*
4. The DEIR Fails to Adequately Describe the Low-VOC Solvents Required Under the Project *47*
5. The DEIR Fails to Include the Complete Plumbing System Proposed for Authorization *47*
6. The DEIR Fails to Include Variations in Manufacturing Formulas for CPVC Pipe *48*

X. THE THRESHOLDS OF SIGNIFICANCE RELIED UPON IN THE DEIR ARE ARBITRARY, LACK FOUNDATION AND IGNORE CRITICAL CONTRARY EVIDENCE **49**

A. LEGAL STANDARDS 49
B. APPLICATION OF LEGAL STANDARDS TO THE DEIR 49

XI. INADEQUATE ANALYSIS OF POTENTIAL IMPACTS **51**

A. LEGAL STANDARDS 51
B. THE DEIR'S AIR QUALITY ANALYSIS IS INADEQUATE 52
1. The DEIR Substantially Understates the Scope of the Project's Air Quality Impacts *53*
(a) The DEIR Underestimates the Potential Future Market Share of CPVC Pipe in California 53
(b) The DEIR's Calculations Underestimate the Number of CPVC Re-Pipes 54
(c) Use of CPVC Pipe to Repair Slab Leaks Is Not Considered 55
(d) VOC Emissions from Cleaners Are Not Included 56
(e) Indirect VOC Emissions from Manufacturing Are Not Included 56
(f) The DEIR's Statistical Analysis Is Flawed 58
(g) The DEIR Contains Numerous Computational Errors 59
(h) The DEIR's Calculation Errors Significantly Underestimate the Project's Potential Air Quality Impact 59
2. The DEIR Improperly Rejects Applicable Thresholds of Significance *60*
3. The DEIR Improperly Compares Project VOC Emissions to Natural Background VOC Emissions *61*
4. The DEIR Fails to Adequately Disclose and Analyze the Correlation between the Project's Air Quality Impacts and Specific Respiratory Conditions and Illnesses *62*
5. The DEIR Fails to Evaluate All Feasible Mitigation Measures *63*
C. THE DEIR FAILS TO DISCLOSE OR EVALUATE SUBSTANTIAL EVIDENCE THAT CPVC MAY LEACH TOXIC CHEMICALS INTO DRINKING WATER 63

1. The DEIR Fails to Disclose or Evaluate the Issue of Organotin Leaching From CPVC Pipe or Fittings *64*
(a) US EPA Has Determined That Leaching of Organotins From CPVC May Have Toxicological Significance 65
(b) New Information About Public Health Standards for Organotins Has Become Available Since the Issuance of the 2000 MND 65
(c) Levels of Organotins in Drinking Water Are Cumulatively Significant 66
2. The DEIR Assumes without Foundation that Low-VOC Adhesives Will Reduce the Amount of Chemicals Leached From CPVC Pipe *67*
3. New Formulations of CPVC Pipe and CPVC Solvents May Pose a Significant Leaching Risk *68*
4. The Mitigation Measures Proposed to Address Leaching Impacts Are Inadequate *69*
(a) The DEIR's Assumption that a One-Week Flushing Regimen Reduces the Level of Drinking Water Contamination to a Level of Insignificance Lacks Evidentiary Support 70
(b) Mitigation Measures Must Be Feasible and Enforceable, Meaning Capable of Being Accomplished in a Successful Manner, Taking Into Account Economic, Environmental, Social and Technological Factors 71
(c) Recent Studies Demonstrate That the Flushing Protocol Is Not Adequate, Feasible or Enforceable 72
D. THE DEIR FAILS TO ADEQUATELY EVALUATE POTENTIAL WORKER HEALTH AND SAFETY IMPACTS 74
1. The DEIR Fails to Evaluate Substantial Evidence That the Proposed Project Will Likely Expose Workers to Harmful Levels of Hazardous Chemicals *74*
2. Substantial Evidence Exists That Current Mitigation Measures Proposed to Address Worker Health and Safety Are Inadequate *76*
(a) The Glove-Use Mitigation Measures Are Inadequate Even if Implemented or Enforced 76
(b) The Ventilation and Glove-Use Mitigation Measures Are Not Being Implemented or Enforced 77
(c) Need for Further Study of Worker Safety Mitigation 79
3. The DEIR Inaccurately Implies that the EPA Has Determined that Worker Exposure to MEK Is Not Hazardous *81*
4. The DEIR Fails to Consider the Increased Risk to Workers Manufacturing CPVC Pipes and Solvents *82*
5. A Revised and Recirculated DEIR Is Required to Fully Consider the Potential Impacts on Worker Health and Safety *83*
E. THE DEIR FAILS TO ADEQUATELY CONSIDER AND MITIGATE THE SOLID WASTE IMPACTS OF THE PROJECT 83

F. THE DEIR FAILS TO EVALUATE THE INCREASED RISKS OF FIRE PROPAGATION AND TOXIC SMOKE POSED BY THE INCREASED USE OF CPVC 89

G. THE DEIR FAILS TO EVALUATE POTENTIAL MECHANICAL FAILURE IMPACTS 90

XII. INADEQUATE ASSESSMENT OF CUMULATIVE IMPACTS 91

A. LEGAL STANDARDS 91

B. APPLICATION OF LEGAL STANDARDS TO THE DEIR 92

1. Failure to Consider Cumulative Impacts on Worker Safety 93

2. Failure to Consider Cumulative Impacts on Drinking Water Contamination 93

3. Inadequate Consideration of Cumulative Impacts on Solid Waste Disposal 94

XIII. INADEQUATE ASSESSMENT OF ALTERNATIVES 94

XIV. A NEW DEIR MUST BE RECIRCULATED FOR PUBLIC REVIEW 95

A. LEGAL STANDARDS 95

B. APPLICATION OF LEGAL STANDARDS TO THE DEIR 97

XV. IN ADDITION TO THE HEALTH AND SAFETY AND ENVIRONMENTAL RISKS POSED BY CPVC, APPROVAL OF THE PIPE WOULD RESULT IN LITTLE TO NO SHORT-TERM SAVINGS AND MUCH GREATER LONG-TERM COSTS TO CONSUMERS 98

XVI. CONCLUSION 98

I. INTRODUCTION

On behalf of the Coalition for Safe Building Materials ("Coalition"), this letter provides comments on the July 2006 Draft Environmental Impact Report[1] ("DEIR") for the proposed adoption of regulations that would amend the California Plumbing Code ("CPC") to authorize the statewide approval of Chlorinated Poly-Vinyl Chloride ("CPVC") drinking water pipe for all residential construction ("Project"). The Coalition members include the California Pipe Trades Council, the California Professional Firefighters, the Sierra Club, the Planning and Conservation League, Communities for a Better Environment, the Consumer Federation of California and Center for Environmental Health. The environmental, consumer, public health and labor organizations that make up the Coalition represent literally millions of Californians concerned about the safety of new building materials.

The Department of Housing and Community Development ("HCD") has prepared the DEIR as the lead agency under the California Environmental Quality Act ("CEQA").

The proposed Project will result in a massive expansion of CPVC potable water pipe use, both geographically and in quantity. During the scoping period for the DEIR, we commended HCD for finally agreeing to complete an environmental impact report ("EIR") for the Project. We stated that we hoped the document would address the concerns that we have raised, fully evaluate and disclose the Project's potential impacts, and be an open, impartial decisionmaking document based on real science. The DEIR fails in all of these respects. **12-1**

The gross inadequacy of the DEIR is both baffling and frustrating. Last year the coalition and numerous other interested parties provided HCD with extensive comments and over seven volumes of evidence that needed to be evaluated in an EIR. The DEIR simply ignores this evidence as if it didn't exist. HCD continues to resist a meaningful analysis of the issues that have been identified and presented to the Department in exhausting detail during past proceedings.

Our scoping comments referred HCD to these past submittals. Our scoping letter and the comments submitted to HCD during the 2005 proceedings describe in detail the impacts that were of greatest concern. These impacts included: drinking water contamination; worker exposure to toxic solvents; increased air emissions; manufacturing impacts; solid waste **12-2**

[1] State Clearinghouse No. 2006012044.

impacts; increased fire hazards; and aquatic toxicity and premature pipe failure. 12-2 (cont.)

The DEIR, however, limits its analysis almost entirely to air quality impacts. The DEIR's air quality analysis, while deeply flawed, admits that the Project will result in increased ozone pollution throughout California.

The DEIR's evaluation of all other impacts is either cursory or nonexistent. The DEIR's evaluation of drinking water contamination, worker exposure to toxic solvents, and solid waste impacts is perfunctory, focuses on irrelevant issues and entirely ignores the evidence and comments that had been submitted on this issue. The DEIR contains no discussion, whatsoever, of manufacturing impacts, fire hazard impacts, aquatic toxicity impacts or the environmental impacts that would be associated with premature pipe failure.

HCD's failure to evaluate objectively the health, safety and environmental impacts of its proposal renders the DEIR legally inadequate. 12-3 As discussed in detail below and in the technical comments, the DEIR's evaluation of the project fails to meet the minimum standards of CEQA. Aside from its air quality analysis, which itself lacks foundation and grossly understates the potential impacts, the DEIR's analysis of potential impacts is completely devoid of any quantification, empirical analysis or factual examination. The document fails to provide substantial evidence to support its findings regarding potential environmental effects and lacks foundation for its ultimate conclusions.

The evidence in the record, along with the expert comments and studies attached to this letter, overwhelmingly demonstrate that the proposed statewide approval of CPVC may have significant effects on the environment that have not been adequately disclosed or evaluated in the DEIR. As discussed in more detail later in this document, these impacts include:

- **Air Quality Impacts**
  - o Widespread use of CPVC solvents and cements will result in Volatile Organic Compound ("VOC") emissions in exceedance of standards of significance. 12-4
  - o The DEIR's analysis substantially understates the scope of the Project's air quality impacts. 12-5
- **Worker Health & Safety Impacts**
  - o 1989 Department of Health Services Study concluded that workers installing CPVC pipe were regularly exposed to toxic 12-6

chemicals such as tetrahydrofuran ("THF"), methyl ethyl ketone ("MEK"), cyclohexanone ("CHX") and acetone ("ACE") at levels exceeding established workplace standards. **12-6 (cont.)**

- o Worker exposure occurs through inhalation and dermal absorption. **12-7**
- o Most gloves offer no protection against dermal absorption of any of these chemicals. The use of gloves may actually make the problem worse. **12-8**
- o Ventilation and glove-use requirements will not reduce these risks below a level of significance. **12-9**
- o Recent studies have determined that where CPVC has been approved on a limited basis, enforcement and implementation of ventilation and glove-use requirements has been virtually non-existent. **12-10**

- **Contamination of drinking water**
  - o CPVC pipe leaches chemicals such as THF, MEK, ACE, CHX and organotins (including tributyltin) into drinking water. **12-11**
  - o Proposed flushing mitigation is inadequate and unenforceable. **12-12**
  - o The public is exposed through consumption and through inhalation and skin exposure during bathing. **12-13**
  - o Aquatic toxicity concerns – organotins (and particularly tributyltin) are toxic to many aquatic animals. Most water treatment plants leave significant amounts of organotins in the effluent discharged into receiving waters. **12-14**
- **Manufacturing Impacts**
  - o CPVC pipe, fittings, cements and solvents are manufactured in California. **12-15**
  - o Increased manufacturing of these products will result in significant air quality and worker health and safety impacts. **12-16**
  - o The manufacture of CPVC pipe and fittings results in the release of dioxins and other highly toxic chemicals. **12-17**
- **Solid Waste Impacts**
  - o CPVC pipe is extremely difficult to recycle and is considered a "contaminant" in the waste stream. **12-18**
  - o Copper piping is completely recyclable. **12-19**

- **Fire Hazard Impacts**
  - o CPVC pipe releases dioxins and toxic smoke when burned. 12-20
  - o CPVC pipe makes residential fires, plastic incinerators and landfill fires significantly more dangerous. 12-21

The DEIR must be revised to evaluate these deficiencies and recirculated for public review and comment. 12-22

We have prepared these comments with the assistance of technical experts.. Their *curriculum vitae* are attached as Exhibits D through F.

Exhibit A contains the comments and analysis of the air quality issues prepared by Dr. Petra Pless. Dr. Pless has over ten years of experience preparing or reviewing air quality analyses for EIRs. Dr. Pless presents a detailed calculation of the VOC emissions that will result from Project approval. 12-23

Exhibit B includes the technical comments prepared by Thomas Reid of TRA Environmental Services, Inc. These comments focus on the chemistry of CPVC plastic pipe, leaching impacts, solid waste impacts, premature rupture of CPVC, and fire and smoke toxicity issues. Tom Reid has over 30 years of experience in preparing EIRs for public agencies and for project applicants. He also has 25 years of experience studying the chemistry of plastic plumbing products, and evaluating the human health and environmental effects associated with such materials.

Exhibit C contains the technical comments of Dr. James D. Bellows. Dr. Bellows is a Certified Industrial Hygienist and Certified Safety Professional. He is exceptionally well qualified to address the worker health and safety issues associated with the Project, having served as the lead author of the 1989 Department of Health Services ("DHS") CPVC worker exposure study relied upon by HCD in the abandoned 1989 and 1998 CPVC EIRs. Dr. Bellows presents a detailed analysis of the significant worker health impacts that would result from the Project.

Please note that these experts' comments supplement the issues addressed below and must be addressed and responded to separately.

These comments describe in detail the failure of the DEIR to disclose, evaluate and mitigate the potential impacts of the Project. The DEIR fails in significant aspects to perform its function as an informational document that is meant "to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment" and "to list ways in which the significant effects of such a 12-24

project might be minimized."[2] Because the DEIR fails to comply with the requirements of CEQA, it may not be used as the basis for approving the Project. 12-24 (cont.)

II. HCD PROPOSES TO AMEND CPC SECTIONS 604.1, 604.1.1, AND 604.1.2 TO ALLOW THE STATEWIDE APPROVAL OF CPVC POTABLE WATER PIPE

Under HCD's proposed statewide approval, all local building officials would be required to permit the use of CPVC potable water pipe in any residential building. This represents a massive expansion of the authorized allowable use of CPVC potable water pipe in California. 12-25

Currently, CPC section 604.1.2 strictly limits the use of CPVC to the few areas of the state where a finding can be made that metallic pipe has or "will" prematurely fail due to existing water or soil conditions. Furthermore, even where such a finding is made, the approval of CPVC by local building officials is discretionary, not mandatory. CPC section 604.1.2 and CPC Appendix I, sections 301.0.1.1 and 301.0.2.1 also impose flushing, ventilation, glove-use and inspection requirements where such limited approval is granted. 12-26

The current regulations restricting where CPVC drinking water pipe may be installed were adopted in 2000 after the preparation of Mitigated Negative Declaration State Clearinghouse No. 2000091089 ("2000 MND"). The 2000 MND expressly and repeatedly stated that its findings were based upon the limited nature of the approval.

Prior to the 2000-limited approval, HCD twice determined in Initial Studies that the much broader statewide approval of CPVC would have numerous potentially significant effects on the environment (including contamination of drinking water, worker exposure to toxic solvents, increased air emissions, manufacturing, solid waste impacts and increased fire hazards) and would require the preparation of an EIR. Furthermore, HCD twice drafted incomplete EIRs on the impact of statewide approval of CPVC, only to abandon them prior to completion. 12-27

Under the Project examined in the DEIR, HCD proposes to amend the CPC to remove the restriction limiting the use of CPVC drinking water pipe to the few areas of the state where metallic pipe is proven to corrode 12-28

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[2] *Laurel Heights Improvement Assn. v. Regents of University of California ["Laurel Heights I"]* (1988) 47 Cal.3d 376, 391.

prematurely due to water or soil conditions.[3] This represents an enormous increase in the approved use of CPVC and in potential CPVC installations. Industry estimates obtained from HCD demonstrate that the current limited approval has resulted in installation of CPVC in only *one to four percent (4%)* of the annual residential plumbing installations in California.[4] **12-28 (cont.)**

HCD also proposes to amend the CPC to require that all plastic pipe and fittings joined with solvent cement shall utilize low-VOC[5] primers, if primer is required, and low-VOC solvent cements.[6] For CPVC, HCD proposes defining low-VOC cement as cement with a VOC content of less than or equal to 490 g/l and defining low-VOC primer as primer with a VOC content of less than or equal to 550 g/l.[7] **12-29**

III. THE DEIR FAILS TO COMPLY WITH THE FUNDAMENTAL INFORMATIONAL AND PUBLIC DISCLOSURE REQUIREMENTS OF CEQA

A. Legal Standards

CEQA is designed to inform decisionmakers and the public about the potential, significant environmental effects of a project.[8] "CEQA's fundamental goal [is] fostering informed decision-making."[9] "The purpose of CEQA is not to generate paper, but to compel government at all levels to make decisions with environmental consequences in mind."[10] **12-30**

An EIR is "the heart of CEQA,"[11] and "serves as the informational tool to facilitate informed decision-making."[12] An EIR serves "to demonstrate to

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[3] See DEIR at pp.18-20.

[4] HCD's "Addendum to Adopted Mitigated Negative Declaration State Clearinghouse No. 2000091089" states that 310,980 residential units were piped in 2004. (HCD, Addendum to Adopted Mitigated Negative Declaration State Clearinghouse No. 2000091089 (March 3, 2005) at p. 19.) A December 3, 2004 e-mail to HCD from a representative of Noveon, Inc., the company that holds the patents on CPVC, shows that an average of only 2,275 homes a year were piped with CPVC in California from 2000 to 2003 and that only 12,000 homes were piped with CPVC in California in 2004. (See Appendix 20.) According to these numbers, the limited approval of CPVC examined in the 2000 MND applied to only one to four percent (4%) of residential units statewide. See also Exhibit A at Exhibit 1 ("Dr. Fox Comments").

[5] Volatile Organic Compound.

[6] DEIR at pp.16-18.

[7] DEIR at p. 16.

[8] 14 Cal. Code Regs. ("CEQA Guidelines") § 15002, subd. (a)(1).

[9] *Laurel Heights I, supra,* 47 Cal.3d at 402.

[10] *Bozung v. LAFCO* (1975) 13 Cal.3d 263, 283.

[11] *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810.

[12] *Dusek v. Anaheim Redevelopment Agency* (1985) 173 Cal.App.3d 1029, 1037.

an apprehensive citizenry that the [agency] has analyzed and considered the ecological implications of its action."[13] Thus, an EIR "protects not only the environment but also informed self-government."[14]

12-30 (cont.)

To fulfill this function, the discussion of impacts in an EIR must be detailed, complete, and "reflect a good faith effort at full disclosure."[15] CEQA requires an EIR to disclose all potential direct and indirect, significant environmental impacts of a project.[16] A significant environmental impact is "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."[17]

A legally adequate EIR "must contain sufficient detail to help ensure the integrity of the process of decision-making by precluding stubborn problems or serious criticism from being swept under the rug."[18] Mere conclusory pronouncements are not sufficient. An adequate EIR must contain facts and analysis that provide a road map to how an agency has reached its conclusions.[19]

CEQA also imposes an affirmative obligation on agencies to avoid or reduce environmental harm by adopting feasible project alternatives or mitigation measures.[20] If an EIR identifies potentially significant impacts, it must then propose and evaluate mitigation measures and alternatives sufficient to minimize these impacts.[21] This requirement is the heart of CEQA. Without an adequate analysis and description of feasible mitigation measures, it would be impossible for agencies relying upon an EIR to meet this obligation.

Mitigation measures must be designed to minimize, reduce or avoid an identified environmental impact or to rectify or compensate for that impact.[22] A public agency may not rely on mitigation measures of uncertain efficacy or

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[13] *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 86.
[14] *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564.
[15] CEQA Guidelines § 15151; *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 721-722.
[16] Pub. Resources Code § 21100, subd. (b)(1); CEQA Guidelines § 15126.2, subd. (a).
[17] CEQA Guidelines § 15382.
[18] *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 733.
[19] See *Citizens of Goleta Valley v. Board of Supervisors, supra,* 52 Cal.3d at 568.
[20] Pub Resources Code §§ 21002-21002.1; CEQA Guidelines § 15002, subds. (a)(2)-(3); see also, *Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1354; *Citizens of Goleta Valley v. Board of Supervisors, supra,* 52 Cal.3d at 564; *Laurel Heights I, supra,* 47 Cal.3d at 400.
[21] Pub. Resources Code §§ 21002.1, subd. (a), 21100, subd. (b)(3).
[22] CEQA Guidelines § 15370.

feasibility.[23] "Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.[24] 12-30 (cont.)

Mitigation measures must be specific and fully enforceable through permit conditions, agreements or other legally binding instruments.[25] Mitigation measures that are vague or so undefined that it is impossible to evaluate their effectiveness are legally inadequate.[26]

B. Application of Legal Standards to the DEIR

The combined deficiencies in the DEIR result in a document that fails to meet the most basic informational and public disclosure requirements of CEQA. As explained in detail in each of the sections that follow and in the attached technical exhibits, the DEIR does not reflect an independent assessment of the Project, fails to disclose the analytical and technical basis for its conclusions, fails to include an accurate or complete Project description, wholly fails to address a number of Project impacts and inadequately addresses others, fails to identify an environmentally preferred alternative, and fails to evaluate feasible alternatives and mitigation measures. The document is so profoundly defective, it constitutes little more than a "*post hoc* rationalization" designed to secure Project approval "quickly and efficiently." 12-31

Rather than "fostering informed decision-making," the DEIR misleads the public and the decision-maker regarding both the true nature of the Project and the true scope and severity of potential environmental and public health effects. The deliberate lack of disclosure in the document effectively sweeps under the rug the complicated issues raised by the Project. The absence of analysis in the DEIR has also improperly shifted to the public the burden of identifying and analyzing the serious environmental and public and worker health issues associated with the proposed Project. The DEIR does not serve "to demonstrate to an apprehensive citizenry that the [agency] has analyzed and considered the ecological implications of its action."[27]

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[23] *Kings County Farm Bureau v. City of Hanford, supra,* 221 Cal.App.3d at 727 (finding groundwater purchase agreement inadequate mitigation measure because no record evidence existed that replacement water was available).
[24] CEQA Guidelines § 15364.
[25] CEQA Guidelines § 15126.4, subd. (a)(2).
[26] *San Franciscans for Reasonable Growth v. City & County of San Francisco* (1984) 151 Cal.App.3d 61, 79.
[27] *No Oil, Inc. v. City of Los Angeles, supra,* 13 Cal.3d at p. 86.

IV. THE DEIR REPRESENTS YET ANOTHER ATTEMPT BY HCD TO CIRCUMVENT CEQA THROUGH GRUDGING AND PRO FORMA COMPLIANCE DESIGNED TO SECURE PROJECT APPROVAL "QUICKLY AND EFFICIENTLY"

The Department's reluctant preparation of an EIR and its seeming determination to approve the Project before the potential end of the current Administration have, once again, undermined the integrity of the environmental review process. 12-32

This is the third time HCD has prepared a facially inadequate EIR for this Project. HCD prepared legally inadequate EIRs on the statewide approval of CPVC in 1989 and, again, in 1998. Both times, the draft EIRs were heavily criticized for failing to disclose and evaluate significant impacts. The 1989 EIR was abandoned by industry prior to completion. The 1998 EIR was rescinded on the grounds that it was "incomplete."[28] HCD's unwillingness to confront these issues illustrates its continued bias and lack of objectivity.

The similarities between the 1998 EIR process described below and the current 2006 DEIR process are conspicuous. In both cases, an Administration with strong financial ties to the building industry first attempted to approve CPVC statewide without completing the required EIR. When that failed, HCD rushed the preparation of an EIR to ensure completion prior to upcoming gubernatorial elections.

This fast track did not allow for any meaningful assessment of the serious health and environmental issues associated with CPVC installation and use. In both cases, HCD decided not to hire independent experts at the manufacturer's expense. Instead, in both cases, HCD prepared the EIR entirely in-house at taxpayers expense by persons with no expertise in the areas they were evaluating.

The results are also the same. In both cases, HCD's grudging and pro-forma compliance with CEQA resulted in deeply flawed documents that failed to evaluate entire categories of impacts, contained glaring misstatements and failed to provide any meaningful review. Incredibly, the 2006 DEIR is even more flawed and incomplete than the 1998 EIR. HCD's continued refusal to objectively evaluate the health, safety and environmental impacts of their proposal renders the DEIR legally inadequate.

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[28] Appendix 1; see Letter of Settlement Terms, p.1,art. 2.

A. Legal Standards

The courts have emphasized that the integrity of the environmental review process depends upon a genuine, objective and complete assessment of a project's potential environmental effects before the agency has decided to approve a project.[29] The Supreme Court explained the policy rationale for this requirement in *Laurel Heights*: 12-33

> A fundamental purpose of an EIR is to provide decision makers with information they can use in deciding *whether* to approve a proposed project, not to inform them of the environmental effects of projects that they have already approved. If post-approval environmental review were allowed, EIR's would likely become nothing more than *post hoc* rationalizations to support action already taken. We have expressly condemned this use of EIR's. [Citation omitted].[30]

The courts have given particular consideration to "how a public agency must approach the environmental planning and approval process the second time around when its original actions have been declared violative of CEQA."[31] In *Laurel Heights*, for example, the Supreme Court put the lead agency on notice that its prior approval of the project would not excuse anything less than full and complete compliance with CEQA requirements: 12-34

> The [lead agency] must begin anew the analytic process required under CEQA. We will not accept *post hoc* rationalizations for actions already taken, particularly in light of the fact that those activities were begun in violation of CEQA, even if done so in good faith. To do so would tarnish the integrity of the decision making process required by CEQA . . . .[32]

The courts will not countenance a "grudging and pro forma compliance" with environmental review requirements.[33] The "assessment of environmental impacts . . . must be genuine [and] open to the public, 12-35

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[29] *Laurel Heights I, supra,* 47 Cal.3d at p. 394, *Mira Monte Homeowners Assn. v. County of Ventura* (1985) 165 Cal.App.3d 357, 366, *County of Inyo v. City of Los Angeles* (1984) 160 Cal.App.3d 1178, 1185.

[30] *Laurel Heights I,* 47 Cal.3d at p. 394; original emphasis.

[31] *San Franciscans for Reasonable Growth v. City and County of San Francisco, supra,* 209 Cal.App.3d at 1522-1523.

[32] *Laurel Heights I, supra,* 47 Cal.3d at p. 425.

[33] *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 742.

premised upon a full and meaningful disclosure of the scope, purposes, and effect of a project."[34] 12-35 (cont.)

"[A] *post hoc* rationalization of a decision already made" defeats the fundamental informational and public disclosure objectives of CEQA.[35] "Only by requiring the [lead agency] to fully comply with the letter of the law can a subversion of the important public purposes of CEQA be avoided . . . ."[36]

B. HCD's Longstanding Resistance to CEQA Compliance

Under pressure from the plastics industry, HCD has, for more than twenty (20) years, attempted to approve CPVC without genuine, complete and objective compliance with CEQA. Indeed, the history of HCD's review of CPVC epitomizes the term "grudging and pro forma compliance." 12-36

1. Unfinished 1989 EIR

The statewide approval of CPVC pipe as a new material to deliver drinking water was first proposed to be included in the CPC in 1982.[37] The proposal was based on the inclusion of CPVC in the 1982 Uniform Plumbing Code, the privately published model code upon which the CPC is based. 12-37

An Initial Study was then prepared by HCD. The 1982 Initial Study determined that the approval of CPVC would present a potential for numerous significant effects on the environment and thus required the preparation of an EIR.[38]

A *draft EIR* was prepared for this project in 1989, *but was never completed.* All parties – the California Department of Health Services ("DHS"), the Attorney General, HCD attorneys and even the plastic industry – agreed that the 1989 document was woefully inadequate and that substantial additional evaluation and analysis would be required before a final EIR could be released.[39] 12-38

Although the 1989 Draft EIR failed to address a wide range of issues and was deficient in its examination of other impacts, the preliminary studies

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[34] *County of Inyo v. City of Los Angeles, supra,* 160 Cal.App.3d 1178, 1185; *see also Mira Monte Homeowners Assn. v. County of Ventura, supra* 165 Cal.App.3d at p. 366.
[35] *Laurel Heights I, supra,* 47 Cal.3d 376, 395.
[36] *People v. County of Kern* (1974) 39 Cal.App.3d 830, 842; *Mira Monte Homeowners v. County of Ventura* (1985) 165 Cal.App.3d 357, 366; *San Franciscans for Reasonable Growth v. City and County of San Francisco* (1984) 151 Cal.App.3d 61, 71-72.
[37] See Appendices 5 and 101.
[38] Appendix 5, 1982 Initial Study.
[39] Appendix 10.

prepared in conjunction with the Draft EIR nonetheless identified potentially significant impacts on human health and the environment with CPVC use. For example, at the request of HCD, the DHS prepared a study finding that workers installing CPVC pipe would be regularly exposed to toxic substances in excess of legal exposure limits.[40] Preliminary leaching studies also showed the persistence of toxic and carcinogenic compounds in the drinking water carried by CPVC.[41] 12-38 (cont.) 12-39 12-40

Faced with the mounting evidence of potential hazards associated with plastic pipe use and the need for additional study, the plastics industry directed HCD to terminate all work on the 1989 EIR.[42] As a result of this directive, the 1989 EIR was abandoned and left incomplete. 12-41

2. HCD's Unlawful Decision to Approve Statewide Use of CPVC Without CEQA Compliance

In 1995, in a compromise aimed at addressing the limited problem of corrosive water and soil conditions causing premature failures of metallic pipe, AB 151 was enacted authorizing by statute the limited use of CPVC for an experimental two-year period.[43] The approval of CPVC was limited to local jurisdictions where metallic pipe was found to fail prematurely. The Legislature also imposed mitigation measures in an attempt to address the public health and worker health hazards associated with CPVC during the experimental use period.[44] The two-year period expired in 1997 and was not renewed.[45] 12-42

The same year that AB 151 was enacted, BFGoodrich asked then-Governor Wilson to expand this limited approval statewide, *without any further compliance with CEQA*, by declaring CPVC approved "by edict." BFGoodrich executives made this request orally at a fundraiser in Ohio during Wilson's presidential campaign and, again, in a follow-up letter to Wilson.[46] A month after receiving the BFGoodrich request, Wilson directed HCD to adopt emergency regulations approving CPVC without completing the 1989 EIR and without requiring any measures to protect workers or consumers.[47]

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[40] Appendix 6.
[41] Appendix 7.
[42] Appendix 9.
[43] Health & Saf. Code § 17921.9.
[44] *Id.*
[45] *Id.* However, almost identical provisions were enacted again in 2000 by the HCD regulations that were the subject of the 2000 MND.
[46] Appendix 12.
[47] Appendix 13.

On October 26, 1995, the Department approved proposed regulations authorizing the statewide approval of CPVC.[48] Numerous individuals, members of the Legislature, consumer groups, environmental and labor organizations and plumbing and mechanical contractor associations objected to this proposed approval of CPVC on the grounds that HCD had failed to address the serious public health and environmental issues associated with CPVC potable water pipe raised as a result of the abandoned 1989 EIR. **12-42 (cont.)**

The Department rejected these arguments and submitted the proposed regulations approving CPVC to the California Building Standards Commission ("CBSC") for adoption as required by the California Building Standards Law.[49] Despite the overwhelming evidence raised in the 1989 DEIR proceedings, HCD representatives testified before the CBSC that the approval of CPVC potable water pipe would not have significant environmental effects. HCD further argued that CEQA did not apply to amendments to the CPC. The CBSC then adopted HCD's proposed regulations.[50]

A coalition of labor, environmental and contractor groups, including many of the current members of the Coalition for Safe Building Materials, challenged the HCD/CBSC approval in court for failure to comply with CEQA. The court found that an amendment to the California Plumbing Code allowing the use of CPVC pipe constituted discretionary action subject to CEQA, and that such action could result in potentially significant environmental effects.[51] On this basis, the court invalidated the CPVC approval and ordered HCD and the CBSC to take no further action to approve CPVC without first completing an Initial Study and either an EIR or a negative declaration.[52]

3. HCD Hastily Prepares 1998 EIR With No Technical Experts, No Industry Funding and Without Addressing the Technical Issues and Evidence Raised by Public Comment

In response to the court's order in *Cuffe*, HCD hurriedly prepared an EIR that was certified in December 1998, in the final days of the Wilson **12-43**

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[48] Appendix 14.

[49] Health & Saf. Code §§ 18901, *et seq.*

[50] Appendix 15.

[51] *Cuffe v. California Building Standards Commission and California Department of Housing and Community Development* (Sup. Ct. San Francisco County, 1997, No. 977657) Order granting writ of mandate filed Jan. 21, 1997; Appendix 15.

[52] *Cuffe v. California Building Standards Commission and California Department of Housing and Community Development, supra*, Judgment granting peremptory writ of mandate filed April 9, 1997; Appendix 16.

Administration. Internal memos from HCD and the Business, Transportation and Housing Agency ("BTH") released in response to public records requests revealed the clear instruction to HCD that CPVC be *approved* before the end of the Wilson Administration irrespective of any requirements for environmental review.[53] This politically imposed deadline precluded HCD from conducting any genuine analysis of potential impacts.

12-43 (cont.)

Unlike the 1989 EIR process, the 1998 EIR was prepared without any outside consultants or technical experts and instead relied largely on information provided by CPVC manufacturers. HCD recognized the need to hire an independent consulting firm with the necessary expertise to evaluate the technical issues involved in this Project during the 1989 proceedings. During those proceedings, HCD contracted with the Stanford Research Institute ("SRI") to prepare the EIR. SRI had in-house expertise in a number of the relevant disciplines, and also subcontracted for additional technical expertise to consider the industrial hygiene, fire safety and other specialized subjects.[54] The costs of the independent consultant were paid for by the Society of the Plastics Industry, representing the product manufacturers that were the proponent of the project.[55]

In the 1998 proceeding, HCD once again recognized its lack of technical competence to evaluate the environmental issues and public and worker health issues associated with the project. The record shows, however, that BTH and HCD were more concerned that engaging an independent consultant would delay the process and jeopardize approval of the project prior to the end of the Wilson Administration.[56]

BTH and HCD even considered having the EIR prepared by another state agency, and discussed the matter with Caltrans. Caltrans representatives indicated, however, that while Caltrans has experience with CEQA procedures and had the "expertise to *manage*" the preparation of an

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[53] After the then-director of HCD reported to BTH of HCD's proposal to engage technical experts and develop a plan for the environmental analysis, the HCD Director was called to a meeting with BTH officials. An internal Agency memorandum reported that the purpose of the meeting was to ensure that HCD understood that its mission was to ensure CPVC approval by December 1998. The BTH representative reported that he "just had a come to Jesus meeting with [the HCD Director]." (Appendix 18.) The memorandum reported that the HCD Director indicated that he had been specifically told by BTH "that he [HCD Director] was individually and personally on the line to manage and make this thing work. That his job, reputation and [expletive] would be ground into nothingness if he failed . . . . [HCD Director] also apologized if he misunderstood his role, and is ready and willing to cooperate to make plastic pipe for residential use a reality." (*Id.*)

[54] Draft EIR, Plastic Plumbing Pipe, August 1989, "1989 Draft EIR," p. 117; see also Appendix 101.

[55] Appendix 9.

[56] Appendix 58.

EIR, it did "not have in-house expertise to deal with the [public] health" issues raised by the CPVC Project.[57]

12-43 (cont.)

The internal documents reveal that the solution ultimately proposed was to have the CPVC manufacturers provide the technical support and analysis, and have the document "managed" in-house at HCD. This approach was recommended "given the short time line" and "the willingness and ability of the industry to support the effort with timely responses to our needs."[58]

Concerned about the "litigation risk" of relying on information submitted by the Project proponent, and without in-house technical expertise to review independently such information, BTH/HCD sought advice from the General Counsel of the California Resources Agency, the State's chief legal authority on CEQA.[59] The Resources Agency General Counsel advised against the approach proposed by BTH/HCD, and recommended HCD retain an independent consultant to prepare the EIR.[60] BTH and HCD rejected the advice, citing the potential delays involved in hiring an independent consultant in a memorandum to the Resources Agency General Counsel:

> During the meeting, you indicated that it was not desirable to have a project proponent, or its consultant, perform the environmental analysis. I can certainly understand that it may appear to be somewhat of a conflict of interest and would, therefore, raise some political questions. These considerations can, and will be, an important factor in our decisions. They must, however, be weighed against whether proceeding in that manner presents a *real* litigation risk . . . [¶] This is an issue of some importance, since neither HCD nor CBSC really has staff on board to manage the preparation of a complicated EIR. While I fully endorse your idea to retain a specialist consultant to oversee the project and to ensue [sic] the state's independent review of the draft environmental documents, each additional consultant will require a certain level of expense and personnel time. Minimally, there will be costs and delays involved, if nothing else, in the preparation of bid documents and contracts, the establishment of accounting systems to accept funds from the applicant, the payment of contract expenses, and the preparation of final audits. As a practical matter, it will also be much more difficult to ask the project applicant for

[57] Appendix 60.
[58] Appendix 61.
[59] Appendix 58.
[60] *Id.*

reimbursement of state costs than to simply ask them to find the appropriate consultants and ensure that quality materials are provided and merely cover the state's billings for the consultant retained to assist in independent review of the prepared materials as you have recommended . . . . [¶] *Since the goal is to accomplish this CEQA review quickly and efficiently*, I am reluctant to reject this alternative out-of-hand unless it presents an unwarranted litigation risk.[61]

12-43 (cont.)

BTH/HCD decided subsequently that even the alternative approach of seeking funding from BFGoodrich to retain an independent consultant to review the materials prepared by the project proponent presented too great a risk to the timeline for approval. No industry funding was ever secured and no independent consultant was retained.

Instead, the Department of Food and Agriculture ("DFA") loaned HCD a career civil service employee with experience in CEQA procedures to manage the EIR preparation relying on materials supplied by BFGoodrich. This DFA employee became the principal author of the 1998 EIR, responsible for the ultimate technical evaluations in the documents. A copy of the resumé secured from DFA revealed that the employee had no training or experience in any of the technical areas involved in this project.[62]

As a result, the hastily prepared 1998 EIR contained almost no new analysis from the abandoned and universally discredited 1989 EIR. Furthermore, it concluded that *no* safety measures were required with CPVC installation and use, even though HCD's 1989 EIR, prepared with independent technical consultants, concluded that such safety measures were *essential*. Particularly troubling was the fact that the final EIR reached this conclusion without addressing the technical issues raised in the several hundred pages of comments on the 1998 Draft EIR submitted by consumer, environmental and labor groups, public agencies and officials, plumbing and mechanical contractors and others.

The public comments on the 1998 EIR were highly critical of the cursory and biased treatment of the serious health and environmental issues associated with CPVC drinking water pipe. Nonetheless, HCD followed its orders and certified the obviously inadequate EIR. Not surprisingly, this led to another lawsuit.

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[61] *Id.*; first emphasis in original, second emphasis added.
[62] Appendix 62.

4. 2000 Settlement Rescinding "Incomplete" 1998 EIR and Allowing Very Limited Approval of CPVC

Given the blatant deficiencies of the 1998 EIR, HCD agreed to settle the lawsuit in 2000. As part of that settlement, HCD rescinded the certification of the EIR and expressly admitted that the document was "incomplete."[63] The settlement provided that the parties to the lawsuit would not challenge a proposed Mitigated Negative Declaration on the limited approval of CPVC, *even if it were deficient.*[64] In return, the Project analyzed by the 2000 MND and approved by HCD was limited to granting local building officials the discretionary authority to approve CPVC only where the official determines that there will be a premature failure of metallic pipe due to existing water or soil conditions. Furthermore, express mitigation measures were imposed in an attempt to address public health and worker health. 12-44 12-45

As a result of the settlement, both the 1989 and the 1998 EIRs examining the potential impacts of statewide approval of CPVC were left unfinished. The settlement deems the 1998 EIR incomplete and expressly provides that nothing in the settlement agreement is intended to affect any future action by the state related to the possible approval of CPVC on a statewide basis. 12-46

5. HCD Attempts to Approve Statewide Use of CPVC Through Proposed 2000 Addendum Without Completion of an EIR

In 2005, HCD attempted yet again to authorize the statewide use of CPVC without completing an EIR. This time HCD claimed that completion of an EIR was unnecessary due to its argument that statewide approval of CPVC could be based on an "Addendum" to the 2000 MND allowing the restricted use of CPVC. This attempted backdoor approval violated both the spirit of the 2000 settlement agreement and the letter of CEQA law. 12-47

Furthermore, the proposal to use the inapplicable addendum process mirrored the Wilson Administration's 1995 attempt to allow the statewide approval of CPVC without environmental review through the improper use of the emergency regulation process. As discussed above, the Wilson Administration directed HCD to approve CPVC without completing an EIR at the urging of CPVC manufacturer BFGoodrich during Wilson's short-lived presidential campaign. The 1995 approval was overturned as unlawful in the

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[63] Appendix 1; See Letter of Settlement Terms at p. 1, art. 2.

[64] Appendix 1; See Letter of Settlement Terms at p. 2, arts. 4 & 5.

1997 *Cuffe* Decision. This then led to the hastily prepared, inadequate 1998 EIR that was rescinded in 2000. 12-47 (cont.)

In the case at hand, HCD's attempt to approve the statewide use of CPVC without environmental review in 2005 occurred after Governor Schwarzenegger promised the California building industry during his campaign that he would approve CPVC pipe.[65] Coincidently, the building and development industry is Governor Schwarzenegger's number one source of campaign contributions.[66]

The proposed 2005 Addendum met with broad public opposition. 12-48 Various municipalities, state legislators and a wide range of environmental, consumer and labor groups submitted comments opposing the Addendum. Moreover, the Addendum was facially unlawful because the statewide approval of CPVC was beyond the scope of the limited approval of CPVC 12-49 analyzed in the 2000 MND. The Addendum also failed to meet the criteria for an addendum set forth in CEQA Guidelines section 15162 and represented an improper piecemealing of the Project. As a result of the widespread opposition and legal deficiencies, HCD withdrew its proposed 12-50 Addendum and agreed to prepare an EIR prior to expanding CPVC approval statewide.

6. HCD Hastily Prepares the 2006 DEIR With No Technical Experts, No Industry Funding and Without Addressing the Technical Issues and Evidence Raised by Public Comment

Rather than taking the time to engage expert consultants and 12-51 commission the necessary studies, HCD hurriedly prepared the present, inadequate EIR. The apparent decision to emphasize timely approval over actual investigation and analysis is evident in the striking parallels between the 1998 proceedings and the present proceedings. As in 1998, HCD appeared to be under pressure to complete the 2006 EIR prior to the upcoming gubernatorial elections.

HCD recognized during the preparation of the DEIR that it did not have a staff with the technical qualifications to consider the drinking water, industrial hygiene, air quality, fire safety, and other highly specialized issues involved in this Project.[67]

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[65] Appendix 3.

[66] According to the watchdog group ArnoldWatch.org , Governor Schwarzenegger has raised more special interest money than any California governor in history, almost $16 million of it from the building and development industry. Appendix 4.

[67] See Appendix 54 (testimony of Dennis Beddard, chief counsel for HCD, California Building

Nonetheless, HCD again decided: (1) to prepare the DEIR in-house, without any substantive review by state technical staff; (2) not to engage an independent technical consultant to meaningfully analyze the technical issues; (3) not to secure industry funding to pay for the DEIR, including any needed studies or independent expert evaluation; and (4) to ignore the extensive comments and evidence that had been previously submitted on this issue.[68] **12-51 (cont.)**

C. Result is a Grudging and Pro Forma Compliance Designed to Secure Project Approval "Quickly and Efficiently"

The DEIR reflects little more than a *post hoc* rationalization of the Department's prior decision to approve the Project. In an approach almost identical to what took place during the preparation of the grossly deficient, decertified 1998 EIR, the 2006 DEIR review process once again was designed to achieve Project approval "quickly and efficiently," rather than to evaluate thoroughly and objectively the potential environmental and public health dangers of CPVC pipe. **12-52**

As a consequence, HCD has once again failed to provide the resources and expertise necessary to produce a meaningful and substantive analysis of the issues. It has resulted in an assessment that is not genuine or objective, that lacks foundation, and that has given short shrift to the serious public health and environmental issues associated with the installation and use of CPVC potable water pipe.

HCD appears both unwilling and unable to learn from its past mistakes. HCD continues to resist and refuse to comply with CEQA and to address the issues and evidence that have been laid out in exhausting detail during past proceedings. HCD's longstanding unwillingness to genuinely confront these issues illustrates that it has prejudged the issues. The result is a grudging and pro forma compliance with CEQA designed solely to secure project approval "quickly and efficiently."

Standards Commission meeting (July 27, 2006)).

[68] See Section V.B, *infra*.

V. THE DEIR DOES NOT REFLECT AN INDEPENDENT REVIEW AND ANALYSIS BY THE LEAD AGENCY

The DEIR fails to comply with CEQA's requirement that the document reflect the lead agency's *independent* review and analysis of potential environmental effects.[69] As demonstrated below, HCD did not utilize technical staff qualified to give an independent assessment of the issues. 12-53

A. Legal Standards

CEQA requires that the lead agency independently review and analyze the issues identified in an EIR.[70] It also requires that an EIR reflect the lead agency's independent judgment.[71] CEQA Guidelines specify further that a lead agency must subject information submitted by others to the lead agency's own review and analysis before using that information in an EIR.[72]

In order to fulfill CEQA's mandate for an independent review and analysis of potential environmental effects, the lead agency obviously must have the technical capability to conduct such review and analysis. CEQA Guidelines expressly require that an EIR reflect an interdisciplinary approach and consideration of qualitative as well as quantitative factors that is conducted by competent individuals in the relevant disciplines.[73] Accordingly, the courts have required that agencies possess the appropriate expertise or seek expert assistance when analyzing issues or making determinations under CEQA that demand specialized knowledge.

In *Sundstrom v. Mendocino County*, the court rejected a mitigated negative declaration on the grounds that the County's planning staff did not have the expertise necessary to determine that a potentially significant effect would not occur. In particular, the *Sundstrom* court rejected the planning staff's dismissal of potential vegetative changes resulting from the project, explaining:

> What will be the effect of this uninterrupted soil humidity on an ecosystem adapted to seasonal drought? CEQA exists to compel local agencies to address questions like this. As the implementing guidelines recognize, CEQA's objective of preserving "high quality ecological systems" demands "an

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[69] Pub. Resources Code § 21082.1, subd. (c).
[70] Pub. Resources Code § 21082.1, subd. (c)(1).
[71] Pub. Resources Code § 21082.1, subd. (c)(2).
[72] CEQA Guidelines § 15084, subd. (e).
[73] CEQA Guidelines § 15142.

interdisciplinary approach which will ensure the integrated use of the natural and social sciences and the consideration of qualitative as well as quantitative factors." (CEQA Guidelines § 15142; Pub. Resources Code § 21000, subd. (b).) Some degree of interdisciplinary consultation may be necessary in an initial study as well as in preparation of an EIR. *Without seeking the opinion of, say, a qualified botanist or ecologist, the Planning Commission staff was not in a position to dismiss the possibility of potentially adverse vegetative change.*[74]

12-53 (cont.)

The courts have also held that agencies may rely on staff analysis and opinion when making CEQA determinations only where the staff is qualified to conduct the analysis or render the opinion. In *Greenebaum v. City of Los Angeles*, for example, the court affirmed the adequacy of an EIR in the face of conflicting evidence over the proposal's compliance with the City's General Plan only after finding that the lead agency's independent review was conducted by qualified experts. Appellants had submitted expert testimony that the Project was not consistent with the General Plan, while the City planning department concluded otherwise. The court found that the planning department staff "qualify as experts since this type of analysis is their business."[75]

Similarly, in *Stanislaus Audubon Society v. County of Stanislaus*, the court rejected the defendant's contention that the planning department was not qualified to render an opinion regarding a project's potential growth-inducing impacts. The court found that the planning department's determination "should be given sufficient weight since its staff members are professionals in the field."[76] The court also found that it was not unreasonable to presume that the department which was "relied upon by the County to study and evaluate development proposals, in light of its prior experience in the area, has *expertise upon the subject*, is *qualified to assess the data presented* and to render opinions thereon."[77]

B. Application of Legal Standards to the DEIR

The DEIR fails to meet the independent review requirements of CEQA because HCD: (1) did not retain independent consultants; (2) did not have the in-house expertise to review and analyze independently the technical issues associated with the proposed project; and (3) did not involve state technical experts in the substantive review.

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[74] *Sundstrom v. Mendocino County* (1988) 202 Cal.App.3d 296, 312; emphasis added.
[75] *Greenebaum v. City of Los Angeles* (1984) 153 Cal.App.3d 391, 413
[76] *Stanislaus Audubon Soc'y v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 153
[77] *Id.* at 155; emphasis added.

The proposed statewide approval of CPVC pipe to carry potable water raises highly technical issues involving several disciplines and specialized fields, including, at a minimum, chemistry, toxicology, industrial hygiene, drinking water quality, air quality, solid waste disposal, and fire safety. HCD's statutory responsibilities for state housing programs and policies do not require staff with technical capabilities in these areas.[78]

12-53 (cont.)

As discussed in detail in Section IV.B, *supra*, HCD recognized, both in the 1989 proceeding and in the 1998 proceeding, that its independent review and analysis of the technical issues raised by the Project would require technical expertise outside the Department. Typically, the way an EIR process is conducted in such cases is that the project proponent funds the technical studies, which are typically prepared by outside technical consultants.[79] That's the process that HCD followed in 1989, but failed to abide by in 1998.

HCD again recognized during the preparation of the 2006 DEIR that it did not have a staff with the technical qualifications to consider the drinking water, industrial hygiene, air quality, fire safety, and other highly specialized issues involved in this Project. Dennis Beddard, chief counsel for HCD, testified at the July 27, 2006 CBSC meeting that HCD is "not set up to do environmental impact reports or assessments" of potential plastic pipe impacts.[80] This testimony occurred just five days prior to the release of the DEIR. This lack of expertise is not unexpected since these issues are outside of HCD's normal regulatory and jurisdictional responsibility.

Nonetheless, HCD has repeated the error of 1998 in this proceeding. HCD has again decided not to seek industry funding for an independent consultant to prepare the DEIR, or for technical consultants to assist the Department in conducting its independent analysis of the issues.

Instead, the 2006 DEIR was prepared entirely by two in-house attorneys, HCD chief counsel Beddard and HCD staff attorney Robin Gilb.[81] A public record request for their resumés revealed that neither attorney has any technical expertise in worker health, air quality, leaching, fire, solid waste or any other potential impacts that had previously been identified by

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[78] *See* Health & Saf. §§ 50400, *et seq.*

[79] See Pub. Resources Code § 21089; CEQA Guidelines § 15045.

[80] Appendix 54.

[81] A third attorney is also listed as a preparer of the document, but her only role was providing a non-substantive edit for style and grammar. See Appendix 23 (E-mail from Suzanne Moser to Thomas Enslow (8/16/2006)).

commentators.[82] Of course, no one person could be expected to possess this range of expertise. 12-53 (cont.)

The documents provided in response to requests for all supporting materials and correspondence related to the preparation of the DEIR reveal absolutely no other agency or outside experts substantively evaluated the Project's potential impacts.[83] No industry funding was ever secured and no independent consultant was retained.

While the DEIR does include a long list of persons "consulted," the record demonstrates that, with only one exception, none of the persons "consulted" by HCD provided any *written* report, analysis or evaluation to HCD on any of the Project impacts evaluated in the DEIR.[84] The DEIR contains no citations, footnotes or other references to any substantive evaluation or analysis of the CPVC issues by state technical experts or outside parties other than responses to requests for raw data regarding future housing projections, CPVC market estimates, and average primer and cement usage.[85] Moreover, HCD's response to our request for "all documents referenced or relied upon to support conclusions in the draft Environmental Impact Report" contained no substantive evaluations or analyses by state technical experts or outside parties.[86]

The one exception mentioned above was a recommendation regarding the appropriate thresholds of significance for evaluating air quality impacts provided by staff at the California Air Resources Board ("CARB").[87] This recommendation was the only substantive recommendation submitted to HCD by state technical staff regarding evaluation of Project impacts. Remarkably, the DEIR's determinations with regard to the appropriate thresholds of significance for evaluating air quality impacts are *contrary* to this recommendation. 12-54

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[82] In addition to their law degrees, Mr. Beddard has a B.A. in political science and a Masters in Public Administration and the Ms. Gilb has a B.S. in agriculture with some molecular biology experience as a lab technician. Appendix 26.

[83] Appendix 66; see also Appendix 83.

[84] The DEIR does contains a reference to a 1998 letter from DHS stating that CPVC potable water pipe has little potential to contribute significantly to the formation of disinfection byproducts. (DEIR at p. 60, fn. 39.) The formation of disinfection products, however, is not one of the issues raised by commentators during HCD's 2005 CPVC proceedings. Moreover, this letter is out of date and does not evaluate the comments and evidence that were submitted during the 2005 Addendum proceedings.

[85] See Appendix 39 (March 1. 2006 Public Record Request to HCD for "All Documents Related to CPVC, PEX and PEX-AL-PEX" and August 1, 2006 Request to HCD for "Documents Referenced in the Draft EIR on the Statewide Approval of CPVC"); see also Appendices 66 and 83.

[86] *Id.*

[87] Appendix 55; DEIR at p. 48.

It is also clear from the administrative record that none of the persons "consulted" by HCD were provided a complete Project description or provided copies of the extensive expert comments, technical reports and other substantial evidence that required evaluation.[88] A meaningful analysis of the Project's impacts by these persons would have been impossible without access to, and evaluation of, the relevant underlying data, studies and reports. 12-55

As discussed in Section IV, *supra*, HCD's reluctance to commit to genuine participation by state experts or to hire independent outside consultants appears motivated once again by a determination to stay on schedule and not jeopardize the approval timeline set for the Project. As a result, the DEIR fails to adequately assess the Project's impacts and its ultimate determinations are arbitrary and lack foundation. 12-56

VI. HCD IMPROPERLY RELIED ON THIRD-PARTY ASSURANCES IN FINDING NO SIGNIFICANT IMPACT ON DRINKING WATER WITHOUT CONDUCTING ANY INDEPENDENT REVIEW

A. HCD Was Required to Independently Review and Analyze the Adequacy of NSF Standards and Testing

Even assuming the lead agency possessed the expertise to analyze independently the technical issues and render judgments regarding the significance of potential drinking water impacts, it failed to exercise its independent judgment. To support its finding of no significant impact on drinking water safety, the DEIR relies on the levels of contamination accepted by NSF, and on the NSF process for testing and certification of CPVC pipe.[89] The record conclusively demonstrates, however, that HCD never *independently* evaluated the levels of contamination accepted by NSF to determine their safety, never reviewed the actual levels of leachate found in NSF testing and never reviewed the results of the NSF testing with regard 12-57

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[88] Appendix 66. Even the scoping notices for the Project failed to provide sufficient information to permit an informed response from other state agencies. The January 11, 2006 Scoping Notice and the April 3, 2006 Agency Invitation to Scoping Meeting both fail to identify numerous potential impacts. (DEIR at Appendices B & C.) They fail to disclose potential solid waste impacts, drinking water contamination, fire safety impacts, or manufacturing impacts and others. They also fail to adequately describe the project. The notices do not disclose that low-VOC cements will be required, do not disclose the massive scope of new CPVC installations that will be allowed under the Project, and do not disclose that the Project will eliminate the discretion of local jurisdictions to disapprove the use of CPVC.

[89] DEIR at pp. 52, 53, 55, 59 and 60.

to the CPVC pipe it is considering in this Project. HCD's reliance on a private entity for the fundamental health risk determination without any independent review of that determination violates CEQA's requirement that the DEIR reflect the lead agency's independent judgment.[90]

12-57 (cont.)

In each of HCD's past attempts to conduct a CEQA evaluation of CPVC, it has been criticized for relying on CPVC's compliance with standards set by NSF International without independently reviewing the underlying basis for the NSF standards and the adequacy of the NSF testing and certification program to ensure that CPVC will have no significant impacts.

NSF is a private organization that tests products. NSF/ANSI Standard 61 certifies that drinking water system components have been evaluated by NSF to meet certain undisclosed performance and safety evaluations. NSF/ANSI Standard 14 similarly certifies plastic piping system components and related materials.

NSF, however, expressly disclaims any responsibility for the decision whether to use an NSF-certified product, does not make its test results available for others to review, and limits its testing protocols based on undisclosed assumptions derived from information provided by manufacturers.

B. NSF Certification Does Not Relieve the Lead Agency From Its Duty to Examine Independently the Evidence That CPVC May Have an Adverse Impact on the Environment

HCD may not rely on NSF/ANSI standards without independently reviewing the underlying data and independently assessing the evaluation process. Such reliance on a private entity's judgment without any independent review violates CEQA's requirement that a lead agency exercise its own independent judgment.

In amending the CPC, HCD may require an NSF *listing* for CPVC pipe under the authority of the California Housing Law and the California Building Standards Law. However, HCD's authority to require compliance with ANSI, NSF, IAPMO, ASTM or other materials standards, does not alter its obligation under *CEQA* to conduct an independent review and analysis of potentially significant effects when preparing an EIR.[91]

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[90] See Section V, *supra*.

[91] See *Plastic Pipe and Fittings Assn. v. California Building Standards Com'n* (2004) 124 Cal.App.4th 1390, 1399-1400 (appellate court upheld requirement of the California Building Standards Commission to independently review the potential environmental impacts from

Even apart from CEQA, a determination of the level of public drinking water contamination that would be allowed by the regulatory approval of a plumbing product coming in contact with that water constitutes an exercise of police power that cannot be delegated to a non-governmental entity.[92] HCD's reliance on NSF's current and future standards would be constitutionally permissible only if HCD independently evaluated the adequacy of such standards to protect California drinking water consumers.[93] 12-58

HCD's response to the public record request for supporting documents demonstrates that HCD never *independently* evaluated the basis for the NSF certifications. HCD has not evaluated the levels of contamination accepted by NSF to determine their safety and never reviewed the actual levels of leachate found in NSF testing. 12-59

Nonetheless, HCD repeatedly relies upon the NSF standards as a basis for finding that the statewide approval of CPVC would have no potential impact on drinking water quality.[94] This blind reliance on NSF standards violates CEQA's requirement for the exercise of independent judgment by the lead agency, and violates the constitutional bar against the delegation of police powers to non-governmental bodies.

C. HCD Failed to Independently Review the Underlying Basis for the NSF Standards

The DEIR claims that "Based on review of the NSF standards and testing, the lead agency considers NSF testing and certification [SIC] meet existing standards to provide a reasonable and conservative presumption and assurance of safety."[95] This statement lacks any foundation, citation to evidence or description of the analytic process that led to this conclusion. Moreover, it is contrary to evidence in record.

A close look at HCD's "consultation" with NSF reveals that HCD has once again merely relied upon standards established by NSF without ever obtaining or independently reviewing the studies and data that were used to establish the NSF standards and without evaluating the NSF testing and certification process. On August 1, 2006, counsel for commentators sent HCD

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the approval of PEX plastic potable water pipe despite the fact that PEX met NSF standards).

[92] 63 Ops.Cal.Atty.Gen. 566 (1980).

[93] *Id.* at pp. 580-582.

[94] DEIR at pp. 53, 57 & 59.

[95] DEIR at pp. 59-60.

a request for all documents referenced in, or relied upon, to support the conclusions in the DEIR, including:

12-59 (cont.)

> all correspondence, reports, studies, expert opinions, e-mails, memos, notes of meetings, notes of telephone conversations, all other notes, and any other documents consulted in the preparation of the DEIR, including any notes, correspondence or other documents obtained as a result of HCD's consultation with any consultants, experts, state agencies, local agencies, federal agencies, organizations, manufacturers, trade groups or any other persons or entities with whom HCD has consulted in preparation of the DEIR.[96]

The documents provided in response to this request contained no evidence that HCD obtained or independently evaluated the studies and data that served as the basis for the NSF standards or that it reviewed NSF testing protocols or results regarding CPVC potable water piping. The only documents that HCD obtained from NSF were: (1) its NSF/ANSI 14 and NSF/ANSI 61 standards; (2) its general certification policies for plastic pipe and drinking water system components; and (3) its general standards development and maintenance policies.[97]

The NSF/ANSI 14 and NSF/ANSI 61 standards set forth the health risk assessment methodology applied by NSF in setting allowable levels of contaminants in drinking water. While examination of that methodology is an important starting point in HCD's evaluation of the NSF action level determinations, a review of the methodology alone is not sufficient to determine the adequacy of those levels in protecting public health. NSF's analytical method could produce a wide range of action level determinations depending on the specific toxicity data and assumptions used in applying that method to the analysis of particular contaminants. A review of the underlying toxicity studies and data considered by NSF in applying the NSF/ANSI 14 and NSF/ANSI 61 methodology is essential to any meaningful review of the adequacy of the NSF determinations regarding allowable levels of contamination.

HCD's response to our request for supporting documents revealed that HCD never requested or obtained copies of the underlying toxicological studies and data considered by NSF in conducting health risk assessments to establish each of the NSF Maximum Allowable Levels ("MAL"), Maximum Drinking Water Levels ("MDWL"), Short Term Exposure Levels ("STEL") or any other NSF action level relied upon or cited in the DEIR. HCD also did

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[96] Appendices 39 & 66.
[97] Appendices 66 & 83.

not request or obtain copies of test reports, data or other information showing the levels or concentrations of leachate from CPVC pipe and fittings found by NSF through its NSF/ANSI 61 testing and certification program with respect to organotins, acetone, cyclohexanone, methyl ethyl ketone, tetrahydrofuran, or any other drinking water contaminant considered in the DEIR. Likewise, HCD failed to request or obtain copies of reports, data or other information showing the calculations performed by NSF to estimate "at-the-tap" levels of exposure by "normalizing" contaminant levels determined in the laboratory with respect to organotins, acetone, cyclohexanone, methyl ethyl ketone, tetrahydrofuran, or any other drinking water contaminant considered in the DEIR. **12-59 (cont.)**

Accordingly, there is no evidence in the record that lead agency independently evaluated the review of the toxicity studies and data underlying the applicable NSF standards. Indeed the DEIR fails to even disclose what levels of chemical leaching from CPVC are permitted under NSF standards.

D. The EPA Expressly Cautions Federal and State Jurisdictions from Relying on NSF Standards in Lieu of Independently Evaluating the Acceptability and Safety of Drinking Water Pipe, Fittings and other Materials

Rather than independently evaluate the basis for the NSF standards, the DEIR suggests that it may rely on NSF certification because such an approach has been endorsed by the United States Environmental Protection Agency ("EPA"). This suggestion lacks foundation and is contrary to the evidence in the record. **12-60**

The DEIR first suggests that its reliance is justified because "Certification against NSF/ANSI 61 has replaced the EPA Additives Advisory Program for drinking water system components."[98] This statement is misleading and incomplete. The EPA Additives Advisory Program was a discretionary program, not required under statute, that EPA was no longer able to continue because of resource constraints and the need to implement mandatory provisions of the Safe Drinking Water Act.[99] The EPA thus helped develop a private version of the program. The EPA, however, expressly stated that the private advisory program does not take the place of the authority and responsibility of federal or state jurisdictions to "determine the acceptability of drinking water additives."[100]

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[98] DEIR at p. 53.
[99] 53 Fed. Reg. 130 (July 7, 1988) at pp. 25587-25588.
[100] *Id.*

The DEIR then states that "[t]he EPA recognizes NSF/ANSI Standard 61 as the criteria for determining the health effects acceptability of water contact materials as referenced in Federal Register Notices Vol. 53, No. 130 July 7, 1988 and Vol. 62, No. 163 August 22, 1997.)"[101] This claim is misleading, unsupported by the references contained in the DEIR and is contrary to the evidence in the record. **12-60 (cont.)**

As stated above, the EPA in "Federal Register Notices Vol. 53, No. 130 July 7, 1988" expressly states that these privately created standards *do not* take the place of the authority and responsibility of federal or state jurisdictions to determine the acceptability of drinking water contact materials.[102] The Federal Register Notice states: "EPA recognizes the authority and responsibility of the individual States to determine the acceptability of drinking water additives. Hence, it is up to the states and the utilities to determine the suitability of any "third-party" certification."[103] The Federal Register Notice goes on to warn that the "competency and reliability of organizations claiming to conduct evaluations under these standards" are not evaluated or warranted under this program.[104]

The DEIR's reference to "Federal Register Notice Vol. 62, No. 163 August 22, 1997" also fails to support its claim. First, this notice is not applicable. It involves the specific development of "lead" leaching standards from new plumbing and fittings fixtures. Unlike the NSF/ANSI 61 standards related to plastic pipe, the EPA actively participated in the development of the lead standard due to specific statutory requirements limited to these particular lead standards. These "lead" standards were developed pursuant to Section 1417 of the Safe Drinking Water Act, which expressly directed EPA to assist the development of voluntary standards and testing protocols. Second, this Notice states that these privately developed standards do not affect "the authority and responsibility of the individual States to determine the acceptability of drinking water additives."[105]

Furthermore, not even the EPA will rely on NSF's application of the EPA-approved methodology without an independent review of the underlying toxicological data. EPA's position on this issue was clearly stated in its ongoing consideration of organotins as a priority contaminant for regulation under the Federal Safe Drinking Water Act ("SDWA"). **12-61**

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[101] DEIR at p. 53.
[102] 53 Fed. Reg. 130 (July 7, 1988) at pp. 25587-25588.
[103] *Id.* at pp. 25588.
[104] *Id.*
[105] *Id.* at p. 25588.

Pursuant to the SDWA, EPA has established a Drinking Water Contaminant Candidate List ("CCL") identifying priority contaminants for drinking water research and monitoring, and which also serves to identify contaminants for drinking water regulation.[106] After careful review and analysis, EPA adopted a final list of 50 chemical contaminants out of an original list of 391 contaminants considered.[107] Organotins were listed by EPA as a contaminant of special concern.[108]

12-61 (cont.)

After the draft CCL was published on October 6, 1997, EPA received four comment letters arguing that organotins should be deleted from the list; three letters were submitted by industrial manufacturers of organotin stabilizers for CPVC pipe manufacture, and one letter was submitted by NSF.[109] NSF submitted detailed comments describing its health risk assessment process and testing and certification program with respect to organotins, and emphasizing reliance on NSF by other public agencies.[110] On these grounds, NSF argued that EPA should delete organotins from the CCL because NSF's program assured protection of the public health.[111]

EPA rejected NSF's arguments and listed organotins on the final CCL:

> The Agency is aware of the NSF certification program, and has noted that many States require the use of NSF-certified material in the construction of new buildings. The Agency agrees with the NDWAC Working Group recommendation that *an assessment of the toxicological data underlying the action levels established by the NSF needs to be made* along with assessment of other available information on organotins, before these compounds can be disregarded as of concern. The Agency requested this information from the NSF, and learned that due to confidentiality agreement, NSF cannot disclose this information, therefore we have not yet been able to assess the toxicological data. [¶] [extended discussion of concerns regarding organotin leaching from CPVC pipe] [¶] In view of these concerns, the Agency believes that organotins, including mono- and diorganotins, should remain on the CCL until the Agency can perform *its own in-depth evaluation of the occurrence and toxicological data* of the contaminants of this class.[112]

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[106] 62 Fed.Reg. 193 (Oct. 6, 1997).
[107] 63 Fed.Reg. 40 (March 2, 1998).
[108] 62 Fed.Reg. 193 (Oct. 6, 1997), p. 52211 and 63 Fed.Reg. 40 (March 2, 1998), p. 10276.
[109] 63 Fed.Reg. 40 (March 2, 1998), p. 10282.
[110] Appendix 27.
[111] *Id.*
[112] 63 Fed.Reg. 40 (March 2, 1998), p. 10282; emphasis added.

Like the EPA, HCD simply could not independently assess the adequacy of the NSF standards and testing program in protecting public health without reviewing the underlying toxicity and testing data. The administrative record, however, reveals that HCD has not performed "its own in-depth evaluation of the occurrence and toxicological data of the contaminants of this class." **12-61 (cont.)**

E. NSF Certification is Inadequate to Refute the Evidence That CPVC May Have an Adverse Impact on the Environment

The DEIR clams that "[NSF/ANSI 61 and NSF/ANSI 14] certifications can only result from findings that concentrations of leached materials from CPVC plumbing system products, materials, and ingredients (including all chemicals, contaminants, or impurities in the product) that came in contact with the water did not result in any unacceptable toxicological levels."[113] This statement lacks foundation, citation to evidence or a description of the analytic process that led to this conclusion. Moreover, it is contrary to the evidence in the record. **12-62**

1. NSF Expressly Disclaims any Responsibility for Providing Safety Requirements

NSF itself does not claim that its certification is adequate to ensure that there is no potential for any significant impacts from the use of CPVC. NSF expressly disclaims responsibility or liability to "*anyone*" relying on its standards or testing and emphasizes the importance of independent judgment and regulatory action by any public agency relying on its standards: **12-63**

> NSF International ("NSF"), in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. The opinions and findings of NSF represent its professional judgment. *NSF shall not be responsible to anyone for the use of or reliance upon this standard by anyone.* NSF shall not incur any obligations or liability for damages, including consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this standard. . . . Participation in NSF's standards development activities by regulatory agency representatives (federal, local, state) shall not constitute their agency's endorsement of NSF or any of its standards.[114]

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[113] DEIR at p. 59.

[114] Appendix 2 at p. iii.

Such a disclaimer underscores the need to conduct an independent assessment of the basis for those standards. Without such an assessment it is impossible to know what these standards actually mean and to what extent they can be relied upon to resolve effects that are potentially significant. **12-63 (cont.)**

2. The Record Contains Ample Evidence That NSF Standards and Testing Are Not Adequate to Establish a Product's Safety and Lack of Impact on the Environment

The DEIR's reliance upon NSF standards without independently reviewing the underlying basis for the standards and the adequacy of NSF's testing and certification program is not merely a technical, legal defect. As discussed in detail in the technical comments attached as exhibits to this letter, the NSF standards, testing and certification process are not adequate to ensure protection of the public health.

The attached expert comments, including the 1998 Smith and Lopipero comments and the 1998 and updated 2006 Thomas Reid comments demonstrate numerous substantive deficiencies in NSF standards. These deficiencies include the following:

1. Many of NSF allowable levels of contamination are too high to adequately protect human health. **12-64**
2. NSF relies on Manufacturer's assertions of product formulas and fails to independently test materials as done in some foreign countries. **12-65**
3. NSF accepts "range formulas" without disclosure of actual formulas to NSF.
4. NSF "normalization calculation" to estimate "at-the-tap" exposures significantly underestimates exposures for residential plumbing installations. **12-66**
5. NSF expressly retains the discretion in applying NSF 61 to certify products even where the exposure concentration is in excess of the established MAL for the contaminant. **12-67**
6. Entire NSF testing and certification process is confidential. **12-68**
7. NSF is private entity and not accountable to public.
8. NSF's operations are almost entirely funded by manufacturers of plumbing products listed and tested by NSF.

9. NSF standards for unregulated contaminants are established largely on the basis of toxicity information and studies provided by and owned by the manufacturers of the regulated products. 12-69

10. NSF's standards setting and testing-processes are dominated by the industrial participants that have an economic stake in the results of the process. 12-70

These deficiencies demonstrate that certification under NSF/ANSI standards 14 and 61 may not provide sufficient assurances regarding CPVC's chemical leaching potential. Without an independent review of the actual product formula data, the results of the normalization calculations, the actual performance test results and information on the number of products certified even after failing the testing process, and without ongoing disclosure of this data and information to the public and state regulators, HCD simply has no basis to conclude that the NSF process will protect drinking water consumers, either currently or in the future. 12-71

The DEIR relies on standards established in a non-public, confidential process, by a non-governmental body without conducting any independent assessment of the basis for those standards, or their adequacy in protecting public health. The non-governmental body in turn disclaims any responsibility or liability to the public or public regulatory agencies relying on such standards. CEQA's requirement for the exercise of independent judgment by the lead agency, and the constitutional bar against the delegation of police powers to non-governmental bodies, are both intended to prevent just this kind of avoidance of public accountability.

VII. THE DEIR'S RELIANCE UPON THE FINDINGS IN THE 2000 MND IS IMPROPER AND LACKS FOUNDATION

HCD justifies its failure to fully disclose, evaluate or mitigate all impacts, other than air quality, on the grounds that these impacts were previously analyzed in the 2000 MND.[115] In essence, HCD is attempting to tier off the 2000 MND in order to avoid disclosing and evaluating the overwhelming evidence that the expanded approval of CPVC may result in: increased worker health and safety impacts; drinking water contamination; aquatic toxicity impacts; premature rupture manufacturing impacts; solid waste impacts; and fire hazard impacts. The DEIR's reliance upon the findings in the 2000 MND, however, violates CEQA's restrictions on the use of tiering. 12-72

[115] See, e.g., DEIR at pp. 2, 4-5, 51, 61, 65.

CEQA defines "tiering" as "using the analysis of general matters contained in a broader EIR (such as one prepared for a general plan or policy statement) with later EIRs and negative declarations *on narrower projects*; incorporating by reference the general discussions from the broader EIR; and concentrating the later EIR or negative declaration solely on the issues specific to the later project.[116] "Tiering is appropriate when the sequence of analysis is from an EIR prepared for a general plan, policy, or program to an EIR or negative declaration for another plan, policy, or program of *lesser scope*, or to a site-specific EIR or negative declaration."[117] "When tiering is used, the later EIRs or negative declarations shall refer to the prior EIR and state where a copy of the prior EIR may be examined. The later EIR or negative declaration should state that the lead agency is using the tiering concept and that it is being tiered with the earlier EIR."[118] **12-72 (cont.)**

The DEIR's reliance upon the 2000 MND fails to meet any of these requirements.

A. An EIR Cannot Be Tiered From a Negative Declaration

First, an EIR cannot be tiered from a mitigated negative declaration as a first tier document. CEQA does not allow a mitigated negative declaration to excuse a lead agency from adequately analyzing the reasonably foreseeable significant environmental effects of a later project.[119] Tiering is only appropriate "when the sequence of analysis is from an EIR . . . to an EIR or negative declaration."[120] Accordingly, the 2000 MND may not be relied upon by the DEIR in lieu of actual evaluation of the Project's potential impacts. **12-73**

B. The DEIR May Not Tier From a Prior Project With a Narrower Scope

Second, the DEIR may not tier from the 2000 MND because the project it analyzes is significantly broader in scope than the project analyzed in the 2000 MND. A later EIR may only tier from a prior EIR if: (1) the prior EIR is a "broader EIR" prepared for a "general plan, policy, or program," and (2) the later EIR involves a "narrower project" of "lesser scope."[121] Because the Project proposed by the DEIR differs substantially in scope and content from **12-74**

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[116] CEQA Guidelines § 15152, subd. (a), emphasis provided.
[117] CEQA Guidelines § 15152, subd. (b), emphasis provided.
[118] CEQA Guidelines, § 15152, subd. (g); § 21094 , subd. (e).
[119] CEQA Guidelines § 15152.
[120] *Id.*; see also Pub. Resources Code § 21094; see also *Gilroy Citizens for Responsible Planning v. City of Gilroy* (2006) 140 Cal.App.4th 911, 929-930.
[121] *Id.*

the project reviewed in the 2000 MND, the DEIR may not rely on the 2000 MND for its evaluation of the Project's potential impacts.[122]

12-74 (cont.)

When the scope of a project expands, it becomes a new project, subject to separate CEQA review, and the agency may not rely on a prior CEQA document. In *Apartment Association of Greater Los Angeles v. City of Los Angeles,* the City of Los Angeles adopted a permanent housing code enforcement program aimed at the repair of residential rental units found to be in violation of the City of Los Angeles' building, safety, fire or health regulations.[123] The permanent enforcement program replaced a nearly identical *interim* code enforcement program.[124] The court held that the adoption of the permanent housing code enforcement program was a new "project" under CEQA because it was "*broader in scope*" than the interim enforcement program.[125] The court held, "The very fact one was temporary and the other is permanent is enough to distinguish them because the environmental impact of a short-term program may be much less significant than a program of indefinite duration."[126] The City thus could not rely on its prior CEQA document prepared for the interim program to escape CEQA review for the permanent program.

Similarly, in *Chamberlin v. City of Palo Alto,* the court held that a permanent traffic plan for a neighborhood was a separate CEQA project from a nearly identical six-month interim traffic plan for the same area.[127] Even though the only difference between the two plans was permanency, the court concluded that the City could not rely on the negative declaration prepared for the interim plan when adopting the permanent plan, and an EIR was required for the permanent plan.[128] The court noted that if the City were allowed to evade CEQA review by issuing a negative declaration for a short-term plan, and then approving the same plan on a broader permanent basis by relying on the prior negative declaration, then the approach suggested by the City would result in precisely the sort of "piecemeal" environmental litigation prohibited by the Supreme Court in *Bozung v. Local Agency Formation Committee.*[129]

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[122] CEQA Guidelines §§ 15152, 15162; *see* also Pub. Resources Code § 21166; *Concerned Citizens of Costa Mesa v. 32nd Dist.* (1986) 42 Cal. 3d 929; see *Sierra Club v. Sonoma* (1992) 6 Cal.App.4th 1307 at 12320-1321.

[123] *Apartment Ass'n of Greater Los Angeles v. City of Los Angeles ("Apartment Ass'n"),* (2001) 90 Cal.App.4th 1162.

[124] *Id.* at 1168.

[125] *Id.* at 1169.

[126] *Id.*

[127] *Chamberlin v. City of Palo Alto* (1986) 186 Cal.App.3d 181, 187.

[128] *Id.*

[129] *Id.*; *Bozung v. Local Agency Formation Committee* ("*Bozung v. LAFCO*") (1975) 13 Cal.3d 263.

In the case at hand, the expanded statewide approval of CPVC drinking water pipe examined in the DEIR is much broader in scope than the limited approval of CPVC examined in the 2000 MND. Data obtained from HCD indicates that only one to four percent (4%) of new or re-piped homes have been plumbed annually with CPVC as a result of the 2000 approval.[130] By contrast, the proposed expanded statewide approval would allow each and every new home and re-pipe job to be plumbed with CPVC. This is up to a 100-fold increase in the potential scope of CPVC usage – an increase of 10,000%.[131]

12-74 (cont.)

Moreover, the 2000 MND for the limited approval of CPVC pipe goes to great length to emphasize the limited nature of its approval. The MND expressly stated:

> because the local CPVC approval authority that would be granted by the proposed regulations requires findings of existing or expected metallic pipe failure due to existing soil and water conditions, the potential scope of CPVC use that will result from the proposed project will be limited. Information in the record of previous HCD examinations of CPVC pipe indicates that corrosive drinking water is not a widespread problem in California. The evidence before the Lead Agency indicates that the problems with metallic pie corrosion have been isolated and occurred significantly only in certain limited areas of the state where residential units are being served by underground water wells. Finally, no cities or counties have filed with HCD modifications or changes in California Plumbing Code provisions to approve CPVC pipe pursuant to Health and Safety Code section 17958.7. For these reasons, *the Lead Agency has concluded that the CPVC installations that may result from the proposed regulatory approval will be limited in scope.*[132]

The 2000 MND repeats this analysis prior to its evaluation of each potential impact, including air quality impacts, hazardous material impacts,

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[130] See, *supra*, Section II, fn. 4; see also Dr. Fox Comments at p. 1-2; Appendix 20.

[131] The DEIR assumes that only 35% of new homes and re-pipes would be plumbed with CPVC upon approval of the Project. As discussed more fully in section IX.B.2, *infra*, this assumption lacks foundation. Evidence provided by the building industry to HCD indicates that more than 65% of new homes and the vast majority of re-pipes will be plumbed with CPVC. See Appendices 78, 79 & 80. But even 35% of new homes would represent a massive expansion in the number of workers, consumers, waste disposal facilities and air basins subject to the potential impacts associated with CPVC use.

[132] Appendix 1 at pp. 3-4 (emphasis added).

water quality impacts and solid waste impacts.[133] After going to such lengths to emphasize that the 2000 action would not have significant impacts precisely because of its "limited scope," HCD cannot now argue that its 2000 action was a "broader" action than the expanded statewide approval currently being considered for approval. 12-74 (cont.)

The proposed Project will result in a massive expansion of CPVC use both geographically and in quantity. This change will result in a substantial increase in the scope and severity of impacts and in the number of persons and communities impacted.

Furthermore, the regulations examined in the 2000 MND allow local building officials the discretion to deny the use of CPVC even where a finding of premature failure of metallic pipe has been made.[134] The proposed expanded statewide approval of CPVC, however, would remove this discretionary language and would thus *require* local building officials to allow the use of CPVC when specified in any residential building plan.[135]

In addition, the Project proposes to require the use of low-VOC CPVC cements and primers. Because the content of Acetone, MEK, THF and other hazardous chemicals varies between low-VOC CPVC cements and primers and regular CPVC cements and Primers, the worker health and leaching impacts may differ from those considered in the 2000 MND. 12-75

The DEIR Project is fundamentally different from and far beyond the scope of the limited 2000 MND Project. Reliance upon the 2000 MND for analysis of the potential impacts of the DEIR Project is therefore improper and lacks foundation. HCD's attempt to bootstrap the larger and more expansive DEIR Project to the smaller and much more limited 2000 MND project subverts the intent of CEQA and fails to meet the legal prerequisites for tiering off of a prior EIR. 12-76

C. The Analysis Contained in the 2000 MND Is Inapplicable Due to New Information and Circumstances

Third, the DEIR's reliance upon the analysis in the 2000 MND is improper because the circumstances under which the 2000 MND was proposed have changed and new information has become available regarding the scope and significance of impacts and the effectiveness of mitigation measures. An EIR may not rely on a prior EIR's evaluation of impacts where 12-77

[133] Appendix 1 at pp.3-23.
[134] CPC § 604.2.
[135] See DEIR at p. 18.

new circumstances or new information may impact the accuracy and validity of the prior analysis.[136] 12-77 (cont.)

In *Security Environmental Systems v. SCAQMD*, after an EIR for an incinerator was prepared, new scientific information was published showing that dioxin emissions from the incinerator would be far more hazardous than previously believed. The court held that a new EIR was required for re-permitting of the same incinerator to analyze the new toxicity data, and to evaluate whether any additional mitigation measures were appropriate in light of the new data.

In the case at hand, the acceptable workplace exposure limits for Acetone have been significantly lowered since the 2000 MND. Also, new formulations of CPVC cements and primers have been introduced to the market. Furthermore, new particulate matter (PM10 and PM2.5) air quality standards have been adopted since 2000 as a result of new scientific information.[137] All three of these changes impact the accuracy and validity of the conclusions made in the 2000 MND. 12-78

In addition, new evidence has been submitted demonstrating that mitigation measures to prevent drinking water contamination adopted in the 2000 MND and proposed for adoption in the DEIR are not sufficiently adequate, feasible or enforceable to eliminate the potential for significant impacts from leaching.[138] New evidence has also been submitted of actual, systematic non-compliance with the proposed ventilation and glove-use mitigation measures.[139] This evidence demonstrates that these measures fail to reduce adverse impacts "to a point where clearly no significant effect" will result.[140] 12-79 12-80

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[136] *Security Environmental Systems v. South Coast Air Quality Management District ("Security Environmental Systems v. SCAQMD")* (1991) 229 Cal. App. 3d 110, 124; *Mira Monte Homeowners v. County of Ventura, supra,* 165 Cal.App.3d 357 (EIR required because impacts on wetlands would be more severe than previously believed); See also *Christward Ministry v. Superior Court* (1986) 184 Cal.App.3d 180 (prior CEQA document did not analyze previously unidentified significant effects, and therefore new EIR required).

[137] See, e.g., U.S. EPA, Air Quality Criteria for Particulate Matter, Second External Review Draft, March 2001; see also *Whitman v. American Trucking Assoc.* (Feb. 27, 2001) 531 U.S. 457.

[138] See section XI.C, *infra*; Exhibit B; Appendix 25 (Capitolo Report); Appendix 27 (Calone Report).

[139] See Section XI.D, *infra*; Exhibit C; Appendix 25; Appendix 27.

[140] The courts have held that actual evidence of failure to enforce mitigation measures is considered new substantial evidence that adverse impacts may occur. (*Oro Fino Gold Mining Corp. v. County of El Dorado* (1990) 225 Cal.App.3d 872 at 876, 883 (evidence of past failure to enforce the mitigation measures for noise impacts imposed in a prior MND demonstrated that there may still be a significant impact even with the proposed mitigation measures).)

Finally, new reports have demonstrated that CPVC is considered among the dirtiest of all plastics when lifecycle impacts, including manufacturing and disposal impacts, are considered.[141] Recent reports have also determined that CPVC is considered a "contaminant" in the waste stream.[142] The 2000 MND did not analyze the lifecycle impacts of CPVC and thus may not be relied upon to evaluate these reports. 12-81

VIII. THE DEIR IS BASED UPON UNSUPPORTED AND INACCURATE STATEMENTS

A. Legal Standards

CEQA requires conclusions in an EIR to be supported by substantial evidence.[143] "The EIR must contain facts and analysis, not just the bare conclusions of a public agency."[144] Furthermore, an EIR must provide the reader with the analytic bridge between its ultimate findings and the facts in the record.[145] The environmental assessment "must reflect the analytic route the agency traveled from evidence to action."[146] In particular, any conclusion that a potential effect will not be significant must be supported by a rigorous scientific analysis and concrete substantial evidence.[147] 12-82

The courts have also held that agency judgment and opinion cannot substitute for facts and analysis.[148] "An agency's opinion *concerning matters within its expertise* is of obvious value, but the public and decision-makers, for whom the EIR is prepared, should also have before them the basis for that opinion so as to enable them to make an independent reasoned judgment."[149] Thus, the DEIR must disclose the specific facts and technical analysis that supports the lead agency's opinion regarding the significance of the Project's potential environmental effects.[150] This disclosure is even more critical where the lead agency is exercising its judgment regarding matters *outside* the lead agency's expertise.

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[141] See Appendices 21, 53 & 67-74.
[142] See, e.g., Appendix 21.
[143] Pub. Resources Code § 21081.5; CEQA Guidelines § 15091, subd. (b).
[144] *Santiago Water District v. County of Orange* (1981) 118 Cal.App.3d 818, 831.
[145] *Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506; see CEQA Guidelines, § 15091.
[146] *Kings County Farm Bureau v. City of Hanford, supra,* 221 Cal.App.3d at p. 733.
[147] *Id.*
[148] *Santiago Water District v. County of Orange, supra,* 118 Cal.App.3d at p. 831.
[149] *Id.*, emphasis added.
[150] *Id.*

Finally, CEQA requires that the specific facts and technical analysis supporting the lead agency's conclusions and opinions be disclosed *in an EIR*. The lead agency's reliance on facts and technical analyses that appear in documents or studies outside of an EIR cannot substitute for an analysis presented in the document circulated for public review. An EIR itself "must reflect the analytic route the agency traveled from evidence to action."[151] **12-82 (cont.)**

Like an Environmental Impact Statement ("EIS") prepared under the federal National Environmental Policy Act ("NEPA"), an EIR must be "an essentially self-contained instrument, [which should] be capable of being understood by the reader without the need for undue cross-reference."[152] The presentation of the technical data and information in an EIR must be "sufficient to permit full assessment of significant environmental impacts by reviewing agencies and members of the public."[153] In addition, the *complete* details of the technical analysis and data supporting the findings of an EIR must be presented in an appendix to the main body.[154]

While CEQA permits an EIR to incorporate by reference all or portions of other publicly-available documents, CEQA Guidelines make clear that this procedure is appropriate only for documents providing general background, but not for materials that "contribute directly to the analysis of the problem at hand."[155]

B. Application of Legal Standards to the DEIR

As discussed in detail throughout these comments, the DEIR is largely based upon conclusory assumptions, opinions and factual assertions that lack any foundation or evidentiary basis. A partial list of unsupported statements is attached as Appendix 86. The Coalition, however, objects to each and every unsupported assumption, statement and conclusion contained in the DEIR. **12-83**

The sheer number of unsupported and inaccurate statements in the DEIR renders the document essentially meaningless. Without disclosure of the underlying evidentiary support and the critical analytical details, the public is denied an opportunity to meaningfully consider and comment on the DEIR's conclusions. The DEIR must be withdrawn and revised to ensure that it is based upon rigorous scientific analysis and concrete substantial

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[151] *Kings County Farm Bureau v. City of Hanford, supra,* 221 Cal.App.3d at p. 733.
[152] *Baltimore Gas & Electric Co. v. Natural Resources Defense Council* (1983) 462 U.S. 87, 99-101, fns. 12, 13.
[153] CEQA Guidelines § 15147.
[154] *Id.*
[155] CEQA Guidelines § 15150, subd. (f).

evidence. The DEIR must then be recirculated to allow the public a meaningful opportunity for comment.[156] 12-83 (cont.)

IX. THE DEIR PROVIDES AN INADEQUATE AND MISLEADING PROJECT DESCRIPTION

A. Legal Standards

The definition of the project under review in an EIR is critically important since it informs the public and government decisionmakers of the nature of the proposed activity and determines the scope and content of the analysis that follows. The courts have declared that "[a]n accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR."[157] 12-84

CEQA Guidelines also require that a project definition include "the whole of the action, which has a potential for resulting in a physical change in the environment, directly or ultimately . . . ."[158]

The policy behind the requirement for a clear, accurate and complete project definition was cogently stated in *County of Inyo v. City of Los Angeles*:

> A curtailed or distorted project description may stultify the objectives of the reporting process. Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal (i.e., the 'no project' alternative) and weigh other alternatives in the balance.[159]

Another court noted that a failure to include all components of a project in the project description defeats CEQA's mandate for full public disclosure and consideration of potential impacts: "Because of this omission, some important ramifications of the proposed project remained hidden from

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[156] See CEQA Guidelines § 15088.5, subd. (a).

[157] *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App. 3d 185, 193; *see also City of Santee v. County of San Diego* (1989) 214 Cal.App.3d 1438; *Rural Land Owners Association v. Lodi City Council* (1983) 143 Cal.App.3d 1013, 1024-1025; and *Santiago County Water District v. County of Orange, supra,* 118 Cal.App.3d at pp. 829-830.

[158] CEQA Guidelines § 15037, subd. (a); *see also City of Santee v. County of San Diego, supra,* 214 Cal.App.3d at pp. 1450-1455; and *Rural Landowners Association v. Lodi City Council, supra,* 143 Cal.App.3d at p. 1025.

[159] *County of Inyo v. City of Los Angeles, supra,* 71 Cal.App.3d at p. 193; see *also City of Santee v. County of San Diego, supra,* 214 Cal.App.3d at pp. 1450-1455.

view at the time the project was being discussed and approved. This frustrates one of the core goals of CEQA."[160] 12-84 (cont.)

B. Application of Legal Standards to the DEIR

1. The DEIR Deliberately Misrepresents the Proposed Project

The DEIR fails to include basic information necessary to assess the impacts of the Project and is purposely misleading as to the massive scope of the Project. Most egregiously, the DEIR repeatedly contends that the "[t]he Project is not the approval of CPVC plastic pipe for potable water distribution."[161] This statement is pure doublespeak.[162] 12-85

The Project is unequivocally about expanding the approval of CPVC pipe for potable water distribution in residential construction. To state otherwise deliberately misleads the public as to the true nature of the Project.

In order to obscure the fact that the Project will massively expand the approval of CPVC plastic pipe for potable water distribution, the DEIR claims the project is simply the removal of the "Findings Requirement."[163] HCD wants the public to believe that the removal of the Findings Requirement is a minor technical change to the 2000 MND prepared for HCD's action allowing CPVC only in areas with corrosive soil or groundwater.

The "Findings Requirement" referred to is the restriction in CPC section 604.1.2, subdivision (a), that limits installation of CPVC water pipe in residential structures to the few areas of the state where there is or will be premature failure of metallic pipe due to corrosive soil or water conditions. Removal of this "Finding Requirement" is anything but a minor technical change. Annually, only 1% to 4% of new residential structures have satisfied the Finding Requirement and installed CPVC drinking water pipe.[164] Accordingly, CPVC remains barred in the other 96% to 99% of the homes being built or re-piped in the state.

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[160] *Santiago County Water District v. County of Orange, supra,* 118 Cal.App.3d at p. 830.
[161] DEIR at pp. 1, 51.
[162] See George Orwell, Nineteen Eighty-Four (1949).
[163] DEIR at pp.1, 51.
[164] See fn. 4, *supra*; see also Appendix 20; Dr. Fox Comments at p. 1-2.

By removing the Finding Requirement, CPVC use could increase from the approximately 4% of housing to up to 100% of new and re-piped homes.[165] This is an increase of 2500% to 10,000%. This will also increase many of the environmental impacts of CPVC by 2500% to 10,000%, as discussed more fully in the attached expert comments.[166] Even if only 40% of new homes installed CPVC as a result of this Project, this would still result in an increase of 1000% to 4000%. **12-85 (cont.)**

An increase in the scope of the Project by a 1000% to up to 10,000% is simply not a minor technical change. Such an increase will impact millions of people and hundreds of jurisdictions throughout California that currently are not subject to the limited conditions permitting the installation of CPVC potable water pipe.

By repeatedly defining the Project as the mere removal of a Findings Requirement, the DEIR is blatantly and purposefully misleading. It fails to meet the basic requirements for accuracy of Project description since the public is misled to believe the Project is merely a minor technical change to a previously approved Project, when in fact it is a massive new Project that may expand the approval of CPVC potable water pipe throughout the state by up to 10,000%.

2. The DEIR Grossly Underestimates the Scope of the Project

The DEIR's Project description is further inadequate due to its assumption that only 30% of the homes constructed or repiped in California will use CPVC if the Project is approved.[167] This assumption lacks foundation and significantly underestimates number of homes likely to be piped with CPVC in California under this Project. **12-86**

The DEIR states that "According to industry sources, CPVC plastic plumbing pipe has an approximately 30 percent share of the nation's market for potable water plumbing."[168] It then, without any analysis, assumes that, were the Project to be approved, "CPVC would claim the same share of California's potable water plumbing pipe market."[169]

The DEIR supports this assumption with a citation to a Feb. 23, 2006 e-mail to HCD staff attorney Robin Gilb from Jeff Cash, the Business

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[165] *Id.*
[166] *Id.*
[167] DEIR at p. 12-13, 36.
[168] DEIR at p. 36.
[169] *Id.*

Director for CPVC manufacturer Noveon, Inc. Mr. Cash's e-mail states that the North American market (including Canada, the United States and Mexico) for potable water pipe is 230 million pounds: CPVC is about 70 million pounds or 30%; PEX is about 40 million pounds or 17%; and copper accounts for the remainder at around 53%.[170] **12-86 (cont.)**

Contrary to the DEIR's assertion, he does not state that the CPVC market share in the "nation" is 30%. Instead, he combines Canada and Mexico into his estimate. Moreover, he states that there are "a lot of regional differences in the above ratios."[171] "For example, Florida is a heavy CPVC user while as you imagine California is not."[172] **12-87**

Mr. Cash's e-mail underscores one of the fallacies in relying on this 30% estimate. The 30% estimate includes California, which currently does not approve PEX and severely limits the use of CPVC. Arkansas, New York City, Chicago and numerous other jurisdictions also restrict the use of CPVC.[173] Accordingly, the 30% estimate must be adjusted to factor out the number of pounds of potable water pipe sold in California, Arkansas, New York City and Chicago. California alone would result in an upward adjustment of 10%.[174]

Given the size of these markets, this would be a significant adjustment. Moreover, such an adjustment would still result in an artificially low estimate of CPVC's likely market share since it would not adjust for the numerous smaller jurisdictions such as Lake in the Hills, Illinois and Nacogdoches, Texas which also prohibit the use of CPVC pipe for potable water distribution in buildings.[175]

Moreover, the evidence in the record strongly suggests that Mr. Cash's e-mail is inaccurate. A public record request by counsel for the Coalition obtained a subsequent e-mail dated Feb. 24, 2006 to Robin Gilb from Bob Raymer, the technical director for the California Building Industry Association ("CBIA").[176] This e-mail states that the North American Market for CPVC is 90 million pounds or 39%, not 30% as stated in the DEIR. Mr. Raymer further states that the market for PEX is about 40 million pounds or 17% and states that copper makes up the remaining 44%. **12-88**

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[170] Appendix 78.
[171] *Id.*
[172] *Id.*
[173] See Section IX.B.3, *infra*; Appendix 77.
[174] See Exhibit A ("Dr. Pless Comments") at pp. 10-11.
[175] Appendix 77.
[176] Appendix 79.

Ms. Gilb received this e-mail a day after the Cash e-mail, yet simply ignored this inconsistent evidence. The DEIR fails to explain the inconsistency between Mr. Raymer's estimate and Mr. Cash's estimate or how it determined 30% was the more accurate number. Accordingly, its reliance on Mr. Cash's 30% estimate over Mr. Raymer's 39% estimate is arbitrary and without foundation. **12-88 (cont.)**

The estimates of both Mr. Cash and Mr. Raymer must also be adjusted to take into account that CPVC potable water pipe weighs significantly less than copper potable water pipe. Both the Cash and Raymer estimates determine market share by the number of pounds of piping sold. Accordingly, 70 to 90 million pounds of CPVC pipe may represent much more of an actual market share than 100 to 130 million pounds of copper pipe. **12-89**

Both the Cash and Raymer emails suggest that they have converted their estimates are given in pounds "as measured by CPVC." However, they fail to provide any information as to how this adjustment was actually made. Without access to the analytical steps that were taken to adjust for the weight differences between copper, CPVC and PEX, the lead agency, and the public, are unable to ascertain if these estimates accurately reflect CPVC's market.

The DEIR also fails to adjust these numbers for the fact that PEX plastic pipe is not approved for use in California.[177] Because PEX users already demonstrate a predilection for using plastic potable water pipe, it is reasonable to assume that a significant portion of the 17% of the market that uses PEX would choose CPVC if PEX was not an option. The Project description should thus assume that the CPVC potable water market share in California would be in *at least* 47% to 56% of new homes. The actual market share will be much higher after making adjustments for markets that do not allow CPVC and for the difference in weight between copper and CPVC. **12-90**

The DEIR's reliance on Mr. Cash's 30% market share estimate is arbitrary, lacks foundation and is contrary to the evidence in the record. As a result, the DEIR improperly conceals the actual scope of this project, preventing meaningful public review. **12-91**

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[177] CPC § 604.1.

3. The DEIR Incorrectly Describes the Current Authorization for CPVC Outside of California

The DEIR states that "CPVC pipe also is permitted for residential potable water distribution in the other 49 states."[178] This assertion that all other 49 states allow CPVC lacks foundation, is misleading and is contrary to the evidence in the record. Numerous jurisdictions throughout the United States also restrict the use of CPVC. CPVC is banned in New York City, Chicago and many other smaller jurisdictions including the towns of Lake in the Hills, Illinois and Nacogdoches, Texas.[179] The State of Arkansas also restricts the use of CPVC potable water pipe.[180] **12-92**

The DEIR's inaccurate description of the current authorization of CPVC outside of California is significant because it presents a distorted context of the Project. This statement implies that there can be no legitimate basis for California's singular refusal to approve a material allowed everywhere else in the country. This also reflects a misunderstanding of HCD's legal obligations under CEQA.

The authorization or use of CPVC in other jurisdictions is irrelevant unless an analysis of the potential environmental impacts of such authorization and use, or subsequent studies and tests of the leaching, worker health and other impacts of installation and use, have been conducted. The DEIR must present and discuss this information in its present analysis if CPVC authorization and use elsewhere are to be considered properly in the present CEQA analysis. **12-93**

In claiming approval for CPVC in all other 49 states, the DEIR simply parrots a line that has become a mantra of the CPVC lobbyists. What is revealing, however, is that this claim has been rebutted on more than one occasion with evidence presented to HCD in prior proceedings, including the unfinished 1998 CPVC EIR. The fact that the DEIR repeats this assertion without referring to evidence in its own record, indicates either that the DEIR authors are not familiar with the record, or that they simply incorporated the CPVC lobbyist assertions without any attempt at an independent review. **12-94**

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[178] DEIR at p. 12.

[179] Appendix 77.

[180] Similar to California, the restrictions in Arkansas contain an exception for pipe that is exposed to aggressive soil conditions. Appendix 77.

4. The DEIR Fails to Adequately Describe the Low-VOC Solvents Required Under the Project

The DEIR's Project description is further deficient because it fails to include a sufficient description of the low-VOC primers and cements that it proposes to require. As part of its proposed expanded approval of CPVC potable water pipe, HCD proposes to require the use of low-VOC primers and cements. As discussed in detail in the attached expert comments and in Section XI, *infra*, the proportion of ingredients in low-VOC primers and cements may differ significantly from the regular CPVC primers and cements reviewed in the 1989 DHS study on worker health and safety impacts. **12-95**

HCD admits in the DEIR that "reduction in VOC content also has generally resulted in an increase in acetone concentrations."[181] In addition, one of the authors of the 1989 DHS study observed in his 1998 report that low-VOC solvents may contain ten times the amount of MEK, resulting in significantly increased worker exposure impacts.[182] **12-96**

The DEIR, however, fails to disclose the actual proportions of ingredients found in low-VOC primers and cements. Without the disclosure of this significant information, the public is unable to compare these products with the findings in the 1989 DHS study or otherwise meaningfully evaluate their potential impacts. **12-97**

5. The DEIR Fails to Include the Complete Plumbing System Proposed for Authorization

The Project description is also inadequate because the DEIR fails to fully describe the complete plumbing system proposed for authorization. CPVC pipe requires special insulation materials, hanging systems and construction methods to address abrasion and noise, and to protect the pipe from elevated temperatures and extreme cold. CPVC pipe also requires special fire stopping systems. These other components of the CPVC plumbing system are essential to the installation and use of CPVC pipe and are an integral part of the Project under consideration. The DEIR's failure to address all components of the CPVC plumbing system presents a misleading picture of the full scope of potential impacts. **12-98**

An examination of the complete plumbing system proposed for approval is particularly relevant to HCD's ability to define and mitigate potential impacts. Past failures with CPVC as well as with other plastic pipes have resulted in part from an incompatibility between materials **12-99**

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[181] DEIR at p. 63.

[182] Appendix 28 at pp. 18-22, 28.

supplied by different manufacturers. The best-known example is the widespread failure of polybutylene ("PB") pipe due to problems with a particular brand of fitting used with the PB plumbing system. Industry documents have revealed that CPVC may fail when exposed to numerous common household substances.[183] By failing to disclose the complete plumbing system, the DEIR hinders analysis of the need for alternatives or mitigation measures to address these incompatibilities. **12-99 (cont.)**

6. The DEIR Fails to Include Variations in Manufacturing Formulas for CPVC Pipe

"CPVC" is a generic term for plastic produced by chlorinating polyvinyl chloride ("PVC"), and there can be significant differences in the chemical composition of the material resulting from varying manufacturing methods. CPVC pipe and fittings contain potentially harmful chemicals that are introduced during the manufacturing and extrusion process. The differences in manufacturing and extrusion methods result in differing chemical compositions and create a potential for a wide variation in health and environmental effects. **12-100**

New formulations or revised formulations of CPVC are often introduced into the market.[184] Furthermore, California has always seen low cost Pacific Rim imports enter the construction materials market. Cost pressures and patent restrictions increase the likelihood of low-cost manufacturers turning to "dirtier" methods of producing CPVC.

CPVC resin is extruded into pipe and plumbing system components by different companies than the companies that manufacture the CPVC resins. Because the extrusion process occurs at high temperatures and under high mechanical stress, chemical additives are necessary. The DEIR must define the full range of manufacturing options for thermal stabilizers and CPVC formulations that may be applied to manufacture the products subject to approval.

The same need for comprehensive definition applies to cements and other components of the piping system being proposed for approval. An adequate environmental assessment must address current variations in solvent cement and primer formulations, and must also evaluate the potential impacts from reasonably foreseeable future changes in these formulations. **12-101**

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[183] See Section XI.G, *infra*.
[184] Exhibit B ("Reid Comments").

X. THE THRESHOLDS OF SIGNIFICANCE RELIED UPON IN THE DEIR ARE ARBITRARY, LACK FOUNDATION AND IGNORE CRITICAL CONTRARY EVIDENCE

A. Legal Standards

CEQA Guidelines define a "threshold of significance" as "an identifiable quantitative, qualitative or performance level of a particular environmental effect."[185] A lead agency may formulate standards of significance for use in an EIR as long as a reasonable basis exists for using those standards. This requires that the agency make a policy judgment about where the line should be drawn for distinguishing adverse impacts deemed substantial from those that are not deemed substantial.[186] This judgment must, however, be based on scientific information and other substantial evidence.[187] 12-102

"Thresholds of significance" create a presumption of significance or insignificance. However, they do not relieve a lead agency of its duty to evaluate substantial evidence that may rebut this presumption. Nor do they apply where the threshold is inapplicable to the substantial evidence presented. "If evidence is submitted tending to show that the environmental impact might be significant despite the significance standard used in the EIR, the agency must address that evidence."[188] "If the agency does not respond by changing the standard it should respond by explaining the factual and policy basis for the standard used and why the project meets the standard."[189]

B. Application of Legal Standards to the DEIR

As addressed in detail throughout this comment letter, the thresholds of significance formulated by HCD for use in the DEIR are arbitrary and fail to address substantial evidence showing that the environmental impact of the Project might be significant despite the significance standard. The thresholds of significance in the DEIR lack foundation, citation to supporting 12-103

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[185] CEQA Guidelines § 15064.7, subd. (a).

[186] CEQA Guidelines § 15064, subd. (b).; *Mira Mar Mobile Community v. City of Oceanside* (2004) 119 Cal.App.4th 477.

[187] Kostka & Zischke, *Practice Under the California Environmental Quality Act*, § 13.2, p. 621.

[188] Kostka & Zischke, *Practice Under the California Environmental Quality Act*, § 13.2, p. 624; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App. 4th 1099, 1111.

[189] Kostka & Zischke, *Practice Under the California Environmental Quality Act*, § 13.2, p. 624; *Mira Mar Mobile Community v. City of Oceanside* (2004) 119 Cal.App.4th 477; *National Parks & Conserv. Assn. v. County of Riverside* (1999) 71 Cal.App.4th 1341, 1355.

evidence, or description of the analytic process that led to the selection of these thresholds. **12-103 (cont.)**

Moreover, as discussed in detail in Section V, *supra*, the authors of the DEIR lacked the necessary expertise to select thresholds of significance for these impacts. They also lacked the expertise to determine that other evidence of significant impacts should be disregarded. **12-104**

Public records requests reveal absolutely no consultation with agency or outside experts regarding the determination of appropriate thresholds of significance, with one exception. The one exception was HCD's consultation with CARB that was subsequently ignored and rejected by the preparers of the DEIR, who do not share CARB's expertise in this area. **12-105**

As discussed briefly in Section V, *supra*, HCD staff attorney Ms. Gilb requested that CARB staff recommend the appropriate threshold of significance for evaluating the Project's potential VOC air quality impacts.[190] CARB replied that HCD should use local air district's operational *and* construction thresholds of significance for VOC emissions. CARB stated that using these methods would provide "reasonable but conservative estimates of impacts."

The DEIR, however, rejects this recommendation. Instead, the DEIR concludes, apparently based solely on the opinion of HCD's attorneys, that the "use of local air district construction and operation thresholds of significance for VOC emissions are not appropriate standards to evaluate the air impacts for a proposed building code change."[191] What is more, the DEIR fails to disclose CARB's contrary recommendation either in the text of document or as part of the supporting documentation made available to the public.[192]

The DEIR's thresholds of significance for water quality, worker safety and solid waste impacts further violates CEQA because these thresholds arbitrarily ignore the substantial evidence submitted during prior proceedings that indicate that these impacts may be significant. CEQA does not permit a lead agency to ignore evidence of Project impacts by formulating extraneous thresholds of significance. **12-106**

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[190] Appendix 55; DEIR at p. 48.
[191] DEIR at p. 48.
[192] Appendix 66.

XI. INADEQUATE ANALYSIS OF POTENTIAL IMPACTS

As discussed in detail below and in the technical comments, the DEIR's discussion of Project impacts fails to meet the minimum standards of CEQA. Some Project impacts are not discussed *at all*, while others are treated in cursory fashion. The only issue evaluated in any detail is air quality, but even that analysis is deeply flawed. Aside from the flawed air quality analysis, the DEIR's impact analysis is completely devoid of any quantification, empirical analysis or any factual examination of any kind. 12-107 12-108 12-109

The burden of environmental analysis is placed on the lead agency and not the public. A lead agency cannot "hide behind its own failure to gather relevant data." The sparseness of record presented by the DEIR thus enlarges the scope of issues that must be examined in a recirculated EIR that responds to the issues identified in these comments.[193] 12-110

A. Legal Standards

An EIR prepared by the lead agency must include a detailed statement setting forth all significant effects of the proposed project.[194] Its purpose is "to provide the public and governmental decision-makers . . . . with *detailed information* of the project's likely effect on the environment; to describe ways of minimizing significant effects; to point out alternatives to the project."[195] 12-111

CEQA provides that the "environmental impact report *shall* include a detailed statement setting forth *all* of the following: (1) *All* significant effects on the environment of the proposed project . . . ."[196] Additionally, the agency is required to make findings "with respect to each significant effect" that are based on substantial evidence in the record.[197]

Failure to disclose a significant impact in an EIR would deprive "the public, who relied on the EIR's representations, of meaningful participation . . . ."[198] An EIR must disclose to the public and to decision-makers whether an impact is significant, so that the public may have an opportunity to review and comment on the severity of the impact and the adequacy of mitigation measures. "In reviewing an EIR a paramount consideration is the right of the public to be informed in such a way that it can intelligently weigh the

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[193] *Sundstrom v. Mendocino County, supra,* 202 Cal.App.3d 296, 361.
[194] Pub. Resources Code § 21100, subd. (b)(1).
[195] *County of Inyo v. City of Los Angeles, supra,* 71 Cal.App.3d at p. 192; emphasis added.
[196] Pub. Resources Code § 21100, subd. (b)(1); emphasis added.
[197] Pub. Resources Code §§ 21081, subd. (a), 21081.5.
[198] *Mira Monte Homeowners v. San Buenaventura, supra,* 165 Cal.App.3d at p. 365.

environmental consequences of any contemplated action and have an appropriate voice in the formulation of any decision."[199] 12-111 (cont.)

CEQA "contemplates serious and not superficial or pro forma consideration of the potential environmental consequences of a project."[200] "Conclusory comments in support of environmental conclusions are generally inappropriate."[201] "To facilitate CEQA's informational role, the EIR must contain facts and analysis, not just the agency's bare conclusions or opinions."[202]

Preparing an EIR requires research and information gathering. Lead agencies must thoroughly investigate potential project impacts. The burden of this environmental investigation is placed on the government rather than the public.[203] "The agency should not be allowed to hide behind its own failure to gather relevant data."[204] The agency "must use its best efforts to find out and disclose all that it reasonably can."[205]

The process of analyzing a project's impacts must be an interactive one between the public and the lead agencies. The process "must be open to the public, premised upon a full and meaningful disclosure of the scope, purposes, and effect of a consistently described project, with flexibility to respond to unforeseen insights that emerge from the process."[206]

B. The DEIR's Air Quality Analysis is Inadequate

The DEIR finds that the Project will increase the statewide use of CPVC primer and cement and therefore increase emissions of VOCs. VOCs are ozone precursor compounds. Ozone pollution is a principal component of smog and is a major source of respiratory illness in California. The DEIR concludes that the increased VOC emissions from the Project would result in significant and unavoidable adverse impacts on air quality.[207] 12-112

Despite its admission that the Project will result in significant and unavoidable air quality impacts, the DEIR's air quality analysis contains a number of substantial deficiencies that mislead the public as to the severity of the Project's impacts. First, the DEIR's air quality analysis substantially 12-113

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[199] *Karlson v. City of Camarillo* (1980) 100 Cal.App.3d 789, 804.
[200] *Leonoff v. Monterey County Bd. of Supervisors* (1990) 222 Cal.App.3d 1337, 1347-48.
[201] *Laurel Heights I, supra*, 47 Cal.3d at p. 404.
[202] *Id.*
[203] *Sundstrom v. Mendocino County, supra*, 202 Cal.App.3d 296, 311.
[204] *Id.; see also* p. 361 (sparseness of record suggests existence of significant issues).
[205] CEQA Guidelines § 15144.
[206] *County of Inyo v. City of Los Angeles, supra*, 160 Cal.App.3d at p. 1185.
[207] DEIR at pp. 47-48.

understates the scope of the Project's air quality impacts. Second, the DEIR improperly rejects applicable thresholds of significance. Third, the DEIR misleads the public by inaccurately comparing Project VOC emissions to natural background VOC emissions. The comparison of Project VOC emissions to background emissions is irrelevant. 12-114 12-115

In addition, the DEIR's air quality analysis is deficient because it fails to adequately identify and analyze the health impacts resulting from the adverse air quality impacts. The DEIR also fails to evaluate feasible mitigation measures such as requiring the use of one-step cements. 12-116 12-117

1. The DEIR Substantially Understates the Scope of the Project's Air Quality Impacts

While admitting that the Project would have significant air quality impacts, the DEIR trivializes the extent of these impacts by grossly understating their scope. Throughout the DEIR, HCD characterizes the air quality impacts as minimal. For example, the DEIR states that Project emissions may contribute substantially to an existing or projected violation of ambient air quality standards for ozone "where the addition of *even a small amount of ozone precursors* can be considered a substantial contribution."[208] 12-118

HCD further minimizes the severity of the air quality impacts by characterizing the potential variability in emissions with a flawed statistical analysis rather than using conservative values for the factors involved in the calculations, as is common practice. As discussed in detail in the comments of Dr. Pless, the DEIR's emissions estimates contain numerous erroneous and unsupported assumptions, computational errors, and flawed use of statistical tools.[209] As a result, the DEIR substantially underestimates the potential ozone precursors emissions from the proposed Project and thus fails to disclose the potential magnitude of the Project's adverse effects on air quality. 12-119

(a) The DEIR Underestimates the Potential Future Market Share of CPVC Pipe in California

The DEIR's estimate of potential VOC emissions resulting from the proposed Project is based on the assumption that CPVC pipe would achieve a 30 percent market share in California.[210] As discussed in detail in Section IX.B.2, *supra*, this value for future market share of CPVC is neither 12-120

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[208] DEIR at pp. 47-48, emphasis provided.
[209] Dr. Pless Comments.
[210] DEIR at pp. 12-13 and 36.

reasonable nor adequately supported by the facts. Using the data from industry estimates, actual market share of CPVC is more likely to be at least 47% to 56%, even before adjusting for the markets that currently bar CPVC.[211] As a result, the DEIR significantly underestimates the number of homes that can reasonably be expected to be piped with CPVC in California in the future.[212] **12-120 (cont.)**

Because the DEIR's calculation of air quality impacts is based on its estimate of the number of homes likely to piped by CPVC annually, this error misleads the public as to the actual scope of the Project's contribution to California's air quality problems.

(b) The DEIR's Calculations Underestimate the Number of CPVC Re-Pipes

The DEIR states that its emission calculations assume that 100,000 units per year would be re-piped with CPVC pipe in the year the code change would be adopted.[213] This assumption is based on a ballpark estimate provided by the CBIA.[214] Review of the DEIR's calculations, however, reveals that only 30 percent of these estimated 100,000 CPVC re-pipes were taken into account to estimate potential VOC emissions from the Project for both the 2007 estimate and the 39-year average projection of future emissions. This error effectively reduces the total number of units assumed to be re-piped with CPVC from 100,000 units to 30,000 units. As a result, the DEIR underestimates potential VOC emissions from units repiped with CPVC. **12-121**

The DEIR fails to explain the inconsistency between its statement that 100,000 units were assumed for its emissions calculations and the fact that it reduces this number by multiplying it with the projected future market share of CPVC of 30 percent. Based on industry information it must be assumed that the re-pipe market in California would largely use CPVC rather than copper. In an email to HCD, Bob Raymer, CBIA technical director, noted the following:

> One thing is very clear; the existing multifamily housing stock (apartments primarily) in California will be needing extensive plumbing system rehab in the coming years. The units built in the 1950's through 1970's will be needing substantial and expected rehab. Many of these rehab projects will be indefinitely postponed if allowable materials are limited to metal pipe.

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[211] See Section IX.B.2, *supra*.
[212] Dr. Pless Comments at pp. 10-11.
[213] DEIR at p. 3.
[214] Exhibit 80.

> Regarding metal pipes, the labor costs associated with the time-extensive rehab of existing multi-family dwellings are simply too high to make many projects economically viable.[215]

12-121 (cont.)

This statement implies that the re-pipe market, at least for MF housing units, would almost exclusively be plumbed with CPVC if the code change would be adopted.[216]

The DEIR, thus, considerably underestimates VOC emissions by applying a 30 percent market share to the 100,000 units estimated to be re-piped in California with CPVC in 2007. Based on this error, the DEIR calculates a statewide total of 347 lb/working-day of VOC emissions, whereas inclusion of all 100,000 units to be re-piped results in VOC emissions of 635 lb/working-day.[217] Thus, the DEIR has underestimated total average VOC emissions from the proposed Project by 288 lb/work-day17 or 36.0 tons/year.[218]

Results for the 39-year average projections are similarly underestimated because the number of re-pipes was assumed to be the same. Here the DEIR calculates a total of 343 lb/working-day instead of 632 lb/working-day of VOC emissions under the corrected calculation.[219]

It should be noted that these emission estimates only account for the incorrect application of the 30% market share to the number of re-pipes. Actual emissions from the Project would be considerably higher due to the numerous other faulty assumptions and miscalculations discussed in these comments.

(c) Use of CPVC Pipe to Repair Slab Leaks Is Not Considered

12-122

The DEIR's air quality analysis is further deficient because it fails entirely to address the potential use of CPVC pipe to repair slab leaks. In an email to the preparers of the DEIR, the California Building Industry Association identified slab leaks in existing, aging housing units as another large market for CPVC pipe.[220] The email estimated that repair of slab leaks "could...be a very large quantity with probable 200,000 leaks per year in southern and Northern Cal."[221]

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[215] *Id.*
[216] Dr. Pless Comments at p. 12.
[217] *Id.* at pp. 11-13, Table A-1.
[218] *Id.* at p. 13, Table A-1.
[219] *Id.* at p. 13, Table A-2.
[220] Appendix 80.
[221] *Id.*

A large number of homes in California are built with a concrete slab foundation with hot and cold water pipes located underneath the slab. Because of the lack of access to pipes located underneath slab, it is difficult to simply spot patch small leaks. As a result, slab leaks are more often fixed by partially re-piping the system to bypass the slab.[222] **12-122 (cont.)**

The DEIR fails to include the VOC emissions associated with the repair of 200,000 slab leaks a year in its emission estimates. As a result, it significantly understates the scope of the Project's air quality impacts.

(d) VOC Emissions from Cleaners Are Not Included

The DEIR's emission calculations also fail to take into account VOC emissions from the cleaning of CPVC pipe prior to application of the primer and cement. The mating surface of CPVC pipe must be free of dirt, dust, grease, paint, water and other substances. The mating surface, however, may contain waxy chemicals that are slippery and provide a barrier to cementing. These chemicals originate from extrusion aids and molding release agents used to manufacture the pipe. If not removed, they "provide a serious jeopardy to the making of a successful joint."[223] **12-123**

Cleaning of the mating surface may be done using a volatile solvent such as MEK if deposits cannot be removed with a dry paper or cotton towel or rag. The solvents used to remove waxy, hydrocarbon-based contaminants are called cleaners. A cleaner is frequently used in addition to primer. An E-Z Weld (vendor of CPVC joining chemicals and source for the DEIR's values for cement use) Technical Note explains that: "[p]ipe cleaner is a non-aggressive mix of solvents used to remove contamination from joints and pipes prior to cementing. It will remove inks, dirt, oils and grease that could affect joint quality – and will not carry them into the plastic – as would primer."[224] The DEIR failed to include VOC emissions from cleaners in its air quality analysis.

(e) Indirect VOC Emissions from Manufacturing Are Not Included

The Air quality analysis is further deficient because it fails to examine indirect VOC emissions from manufacture of CPVC pipe, fittings, primers **12-124**

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[222] Dr. Pless Comments at p. 14.
[223] Dr. Pless Comments at p. 14.
[224] *Id.*

and cements. CEQA requires analysis of a project's "indirect" impacts such as manufacturing that will be caused by the project.[225]

12-124 (cont.)

For example, in the case *Building Code Action v. Energy Resources Conservation and Development Commission*, the court addressed a CEQA challenge to an agency decision requiring the use of double-paned glass.[226] The court agreed that the proposed regulation could result in the increased production of glass at various glass factories throughout the state. The court also agreed that there was a fair argument that increased glass production caused by the regulation may have an adverse impact related to increased pollution from glass factories. The court held that CEQA review was required to analyze this impact.

CEQA requires that both primary or direct and secondary or indirect consequences of a project be evaluated.[227] The Project will increase the demand for CPVC pipe, fittings, and joining chemicals. It is reasonable to assume that a portion of this increase in demand will be met by existing California manufacturers.[228]

Similarly, the expanded statewide approval of CPVC drinking water pipe will greatly increase demand for CPVC pipe, cement, primers and cleaners.[229] This is likely to increase manufacturing of these products at factories in the state, thereby causing increased pollution from those factories.[230] This is a potentially significant impact that must be reviewed in an EIR.

Evaluation of manufacturing impacts is further required because HCD previously identified manufacturing impacts as potentially significant in the 1982 Initial Study for plastic pipe.[231] That document stated:

> Should the expanded use of plastic plumbing pipe be approved in California, a significant demand may be produced for additional pipe. This demand may lead to increased production or a general increase in activity at major chemical plants. Increased production may produce an

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[225] *Kings Co. Farm Bureau v. Hanford* (1990) 221 Cal. App.3d 692 at 717; CEQA Guidelines, 14 CEQA Guidelines § 15064, subd. (d) & Appendix G.
[226] *Building Code Action v. Energy Resources Conservation and Development Comm.* (1980) 102 Cal. App. 3d 577.
[227] CEQA Guidelines § 15064, subd. (d); .
[228] Dr. Pless Comments at p. 15.
[229] *Id.*
[230] *Id.*
[231] Appendix 5.

increase in air emissions with a potential decrease in ambient air quality.[232]

12-124 (cont.)

The DEIR fails to analyze this impact at all despite its admission that the Project will increase the demand for CPVC pipe, fittings, and joining chemicals.

The NSF's product database and other sources indicate that CPVC pipe and fittings, cement, and primers are manufactured in California at eight facilities.[233] VOC emissions from manufacturing originate from storing and blending solvents in tanks, mixers, and dispensers.[234] Some of the solvents used in these processes may also be manufactured in California, further increasing indirect emissions. This would increase VOC emissions from these existing manufacturing facilities, increasing the Project's adverse impacts on air quality.[235]

Given the magnitude of the increase in CPVC use proposed by the Project, the increase from existing manufacturing facilities in California could be individually and cumulatively significant.[236] The DEIR must be revised to include indirect emissions from manufacturing in its air quality analysis. It must also be revised to evaluate all feasible mitigation measures to reduce these emissions.

(f) The DEIR's Statistical Analysis Is Flawed

12-125

The DEIR presents seven pages of text and seventeen tables to support its calculations of potential VOC emissions from the proposed Project.[237] Unfortunately, a careful review of this air quality analysis by Dr. Pless reveals that it is riddled with computational errors, erroneous assumptions, and flawed use of statistical tools.[238]

The DEIR's calculation is flawed in part because it mischaracterizes the degree of confidence attributable to the result of its calculation.[239] The DEIR ignores the uncertainty (standard deviation) inherent in most of the factors used to calculate the annual VOC emissions from CPVC pipe use. In fact, the application considers only the uncertainty in the number of new units to be constructed in the future. It ignores the uncertainty inherent in

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[232] *Id.* section III.2.a.
[233] Appendix 52.
[234] *Id.*
[235] *Id.*
[236] *Id.*
[237] DEIR at pp. 35-42 and Appx. A, Tables 11 though 28.
[238] Dr. Pless Comments at p. 15.
[239] Dr. Pless Comments at pp. 15-20.

other factors including: (1) the uncertainty in the primer and cement use rates; (2) the uncertainty of the future market share of CPVC of the potable water pipe market; (3) the uncertainty of the number of units to be constructed by county each year; and (4) the uncertainty of the number of re-piped units per year.[240] As a result, the standard deviation associated with the DEIR's annual average VOC emissions estimate is too small because it only considers the uncertainty in the number of housing units to be built and ignores all other uncertainties.[241] **12-125 (cont.)**

(g) The DEIR Contains Numerous Computational Errors

The review of the DEIR spreadsheets by Dr. Pless also revealed a number of computational errors.[242] For example, the spreadsheet used to calculate the average use of primer and cement for single family and multi-family housing units contains a number of incorrect input values as well as a number of incorrect cell references in the formulas calculating the averages and standard deviations.[243] The corrected values for these calculations are provided by Dr. Pless in her comments.[244] **12-126**

(h) The DEIR's Calculation Errors Significantly Underestimate the Project's Potential Air Quality Impact

The errors identified by Dr. Pless result in a significant understatement of the Project's potential air quality impacts. As an example, Dr. Pless recalculated the annual average VOC emissions and the upper limit of the 95% confidence interval[245] for Riverside County to correct the identified calculation errors. **12-127**

The DEIR's flawed calculations estimated annual average VOC emissions of 58.7 lb/working-day for Riverside County. In contrast, the corrected Dr. Pless calculations estimate an annual average VOC emission rate of 131.1 lb/working-day and an annual average VOC emission rate of 248.6 lb/day at the upper 95% confidence level.[246] Thus, the DEIR underestimates potential future emissions in Riverside County by almost 50

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[240] *Id.*
[241] *Id.*
[242] Dr. Pless Comments at p. 16.
[243] *Id.* at p. 18.
[244] Dr. Pless Comments at Table A-4.
[245] The 95% confidence interval is the estimated amount that has a 95% probability of not being exceeded, considering the uncertainty of all of the factors used in its derivation.
[246] Dr. Pless Comments at p. 20 and Table A-6.

lb/working-day and by 163 lb/working-day at the upper 95 percent confidence level. 12-127 (cont.)

Even the annual average emissions of 248.6 lb/working-day at the upper 95% confidence level understate potential peak daily emissions because they ignore daily variations throughout the year. This estimate characterizes the annual average rather than average daily variability.[247] The construction sector, however, has considerable seasonal variations in California. Moreover, the peak construction season coincides with the peak ozone season.[248] Thus annual average VOC emissions fail to disclose the extent of daily impacts that may occur when the peak ozone season coincides with the peak construction season. Further, this estimate does not include a number of emission sources including VOC emissions from CPVC pipe use due to slab leaks and indirect emissions from manufacturing.[249] 12-128

By substantially understating the air quality impacts, the DEIR fails to meet the fundamental disclosure requirements of CEQA. Where an EIR substantially understates the severity of an environmental impact, CEQA requires the EIR to be revised and recirculated in order to apprise the public of the actual scope of a project's impact.[250] 12-129

2. The DEIR Improperly Rejects Applicable Thresholds of Significance

The DEIR misleads the public as to the severity of the Project's air quality impacts by wrongly concluding that local air districts' operational and construction significance thresholds for VOC are not applicable to the Project. As discussed in detail in Section X, *supra*, the DEIR's statements and conclusions regarding the applicability of local air districts' significance thresholds lack foundation and are contrary to the recommendations of CARB.[251] 12-130

CARB is the state agency with the authority to coordinate the efforts in the state to attain and maintain ambient air quality standards through the California Clean Air Act. In response to a direct request by HCD, CARB advised HCD to evaluate emissions against both the operational and construction thresholds of significance to give "reasonable but conservative estimates of impacts."[252] Despite this recommendation, HCD, having no

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[247] Dr. Pless Comments at p. 20.
[248] *Id.*
[249] *Id.*
[250] CEQA Guidelines § 15088.5, subd. (a)(2).
[251] See also Dr. Pless comments at pp. 5-7.
[252] Appendix 55.

technical expertise in air quality analysis, chose to ignore the CARB's expert opinion and advice and declined to adopt either of these quantitative thresholds of significance.[253] To compound its error, HCD failed to even disclose CARB's recommendation that the DEIR apply these thresholds.[254] 12-130 (cont.)

Moreover, the DEIR fails to identify any other quantitative thresholds. Instead, it relies on a merely qualitative discussion of potential adverse impacts on air quality from the proposed code change. 12-131

3. The DEIR Improperly Compares Project VOC Emissions to Natural Background VOC Emissions

The DEIR attempts to trivialize the Project's potential impacts on air quality caused by emissions of ozone precursor compounds by comparing its potential VOC emissions to county and statewide VOC emissions from natural background sources.[255] Natural background sources of VOC emissions include biogenic or geogenic sources or wildfires.[256] 12-132

The DEIR declares that "VOC emissions projected to occur as a result of the change in the plumbing code are well below background ROG levels emitted by Natural Sources."[257] This statement implies that Project-related emissions would be negligible in comparison and, thus, irrelevant. This comparison is not only entirely immaterial in the context of a CEQA analysis; it is also deceiving.

On a state or county-wide mass emissions basis, natural background emissions of VOC, mostly biogenic emissions from vegetation, are generally orders of magnitude higher than potential VOC emissions attributable to the Project. However, the actual contribution of biogenic and anthropogenic VOC emissions to local or regional ozone formation is dissimilar and can not be inferred simply from absolute mass emissions. In the South Coast Air Basin, the Central Valley, and other parts of California, anthropogenic VOC sources are by far the largest contributor to ozone formation.[258] A number of factors contribute to this phenomenon including spatial and temporal distribution patterns of biogenic and anthropogenic VOC emissions.[259]

Moreover, the DEIR's comparison also fails to take into account that the Project's VOC emissions would occur in addition to the natural 12-133

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[253] DEIR at p. 42.
[254] See Appendix 66.
[255] DEIR at pp. 47-48.
[256] Dr. Pless Comments at p. 7.
[257] DEIR at p. 47.
[258] Dr. Pless Comments at pp. 7-8.
[259] *Id.*

background VOC emissions and other existing emissions.[260] Accordingly, the DEIR should have analyzed these natural background VOC emissions in the context of the Project's cumulative impacts.[261] The DEIR's attempt to downplay potential emissions from the proposed code change is misleading and fails to disclose the potential magnitude of adverse impacts on air quality. 12-133 (cont.)

4. The DEIR Fails to Adequately Disclose and Analyze the Correlation between the Project's Air Quality Impacts and Specific Respiratory Conditions and Illnesses

The DEIR's air quality analysis is further deficient because it fails to adequately identify and analyze the health impacts resulting from the adverse air quality impacts. CEQA requires that an EIR discuss health and safety problems caused by the physical changes that the proposed project will precipitate.[262] An EIR that fails to "correlate the identified adverse air quality impacts to resultant adverse health effects" is legally inadequate.[263] 12-134

The DEIR concludes that the Project would cause significant unavoidable adverse impacts on regional air quality due to emissions of VOCs, which are ozone precursor compounds.[264] The DEIR, however, offers only cursory acknowledgement that poor air quality due to increased formation of tropospheric ozone can lead to adverse impacts on human health. The DEIR offers only the following brief statement: "Ozone is a respiratory irritant that increases susceptibility to respiratory infections."[265] Such a brief reference to respiratory illnesses is not sufficient.[266]

There is no acknowledgement or analysis of the well-known connection between reduction in air quality and resultant increases in specific respiratory conditions and illnesses. After reading the DEIR, the public would have no idea of the health consequences that result when more VOCs are added to a non-attainment basin causing ozone levels to further increase.

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[260] *Id.*

[261] *Id.*

[262] CEQA Guidelines § 15126.2, subd. (a); *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1216.

[263] *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1216.

[264] DEIR at pp. 47-48.

[265] DEIR at p. 28.

[266] *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1216 ("brief references to respiratory illnesses" are insufficient to disclose the "health consequences that result when more pollutants are added to a nonattainment basin. . . .[T]he health impacts resulting from the adverse air quality impacts must be identified and analyzed in [a revised EIR]").

The DEIR must be revised to contain an adequate discussion of health impacts resulting from the contribution of Project VOC emissions to regional ozone formation. **12-134 (cont.)**

5. The DEIR Fails to Evaluate All Feasible Mitigation Measures

CEQA requires a lead agency to adopt all feasible mitigation measures or feasible project alternatives that can substantially lessen or avoid any significant effects on the environment associated with a project to be approved.[267] The DEIR must evaluate if alternative joining compounds or methods exist that would further mitigate the Project's impacts.[268] In addition, the DEIR should consider requiring CPVC manufacturers and residential builders to fund research for primers and sealers with a lower VOC content. **12-135** **12-136**

C. The DEIR Fails to Disclose or Evaluate Substantial Evidence That CPVC May Leach Toxic Chemicals into Drinking Water

The statewide approval of CPVC may cause significant drinking water impacts due to the leaching of toxic chemicals directly from the CPVC pipe, cements and solvents. The DEIR, however, fails to fully disclose or adequately evaluate this leaching or its associated health risks. **12-137**

As discussed fully in the attached comments of Thomas Reid, past studies demonstrate organic chemicals such as THF, MEK, ACE, CHX, chloroform and organotins have been found to leach into drinking water from plastic pipe and the primers, solvents and cements used to join the pipe.[269] What is currently known about these substances raises serious questions about the safety of chronic human exposure to them singly or in concert.[270]

THF, for example, is potentially carcinogenic.[271] THF may also cause depression of central nervous system functions.[272] **12-138**

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[267] Pub Resources Code §§ 21002-21002.1; CEQA Guidelines § 15002, subds. (a)(2)-(3); see also, *Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1354; *Citizens of Goleta Valley v. Board of Supervisors, supra,* 52 Cal.3d at 564; *Laurel Heights I, supra,* 47 Cal.3d at 400.
[268] Dr. Pless Comments at p. 20.
[269] Reid Comments.
[270] *Id.*
[271] Appendix 24 at pp. 7, 8.
[272] Appendix 28 at p. 36.

MEK causes irritation and central nervous system depression even in low doses.[273] In higher doses, MEK may be embryotoxic, fetotoxic and potentially teratogenic.[274] Chronic irritation is associated with skin cancer. Subchronic toxicity studies of MEK show that it causes liver damage. 12-139

MEK also potentiates the toxic effects of other common contaminants, including such common CPVC leachates as THF and Acetone.[275] Peripheral neuropathy may be caused by the combined exposure of MEK and THF.[276] Furthermore, MEK and acetone may cause polyneuropathy when found together.[277] 12-140

Organotins such as diorganotins and triorganotins are of particular concern. Both are irritants to the skin and eyes and are powerful metabolic inhibitors.[278] Diorganotins are hepatoxic and can cause damaging effects on the liver and bile duct, immunotoxicity, reproductive toxicity and developmental toxicity.[279] Triorganotins, such as tributyltin, are highly toxic to the central nervous system.[280] 12-141

The DEIR, however, fails to evaluate leaching of organotins whatsoever. Moreover, it assumes without foundation that the potential impacts of all leachates will be mitigated below a level of significance based upon an unevaluated one-week flushing regimen and the requirement to use low-VOC CPVC primer and cement. As discussed in more detail below, these assumptions are arbitrary, without foundation and contrary to the best available evidence. 12-142

1. The DEIR Fails to Disclose or Evaluate the Issue of Organotin Leaching From CPVC Pipe or Fittings

The DEIR's failure to evaluate the impact of organotin leaching from CPVC renders the document legally inadequate. This is an issue that was raised in detail by several commentators during the 2005 Addendum proceedings. The DEIR, however, fails to mention the word "organotin" even once, much less evaluate the evidence that it leaches from CPVC pipe and fittings. 12-143

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[273] Appendix 24 at pp. 23.
[274] *Id.* at p. 9.
[275] *Id.* at pp. 9-10, 13-14.
[276] *Id.*
[277] *Id.*
[278] *Id.* at pp.15-17.
[279] *Id.*
[280] *Id.*

(a) US EPA Has Determined That Leaching of Organotins From CPVC May Have Toxicological Significance

The United States Environmental Protection Agency ("EPA") has corroborated that leaching of organotins from CPVC pipe may be a public health concern. In 1998, EPA published a Federal Register notice stating that "organotins, including mono- and di-organotins which are used as heat stabilizers in PVC and chlorinated polyvinyl-chloride (CPVC) pipes, are of sufficient concern to warrant further investigation."[281] EPA cited in support of this conclusion numerous reports demonstrating that new CPVC systems have the potential to contaminate drinking water with organotin compounds for a significant period of time after installation.[282] 12-144

Of particular concern to EPA were reports of tributyltin contamination of drinking water from PVC pipes since tributyltin is of far more toxicological significance than mono- and di- organotins.[283] Moreover, NSF does not test CPVC for tributyltins.[284] EPA concluded that the toxicology and leaching of organotins required further in-depth evaluation.[285]

This conclusion by EPA is substantial evidence that leaching of organotins from CPVC may significantly affect drinking water. Yet, the DEIR fails to disclose or to evaluate this potential impact.

(b) New Information About Public Health Standards for Organotins Has Become Available Since the Issuance of the 2000 MND

Since the issuance of the 2000 MND, a new study has become available concluding that the drinking level concentration for organotins safe for human consumption is much lower than stated in the 1998 EIR.[286] The 1998 EIR relied upon a recommended drinking water concentration limit of 20 ug/L of dibutyltins and tributyltin compounds a day.[287] A study by the German Federal Institute for Health Protection of Consumers and Veterinary Medicine, however, recommended that this value be reduced by more than 12-145

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[281] 63 Fed. Reg. 10282 (Mar. 2, 1998).
[282] *Id.*
[283] *Id.*
[284] Reid Comments.
[285] 63 Fed. Reg. 10282 (Mar. 2, 1998).
[286] Reid Comments.
[287] *Id.*

half to 8.75 ug/L per day for an adult.[288] The drinking water concentration that would be protective of an infant is even lower, about 4.9 ug/L a day.[289] 12-145 (cont.)

In September 2003, the Agency for Toxic Substances and Disease Registry ("ASTDR"), an agency of the U.S. Department of Health and Human Services, recommended new Minimal Risk Levels ("MRLs") for organotin compounds.[290] The ASTDR recommendations for tributyltin corresponded to a drinking water concentration of 10.5 mg/L for an adult and 5.9 ug/L for an infant.[291]

Both of these new studies were provided to HCD during the 2005 Addendum proceedings. Nonetheless, the DEIR fails to evaluate the Project's leaching impacts in light of these new studies.

(c) Levels of Organotins in Drinking Water Are Cumulatively Significant

The DEIR is also inadequate because it fails to analyze the potential cumulative impacts of organotins in drinking water. The exposure levels examined by HCD assume that one hundred percent of the exposure is from drinking water. However, there are many other sources of organotin compounds, including packaged foods (leached from plastic containers), seafood (highly bioaccumulated), bottled drinks (leached from plastic containers), and swimming in contaminated waters (many receiving waters in California have elevated levels).[292] 12-146

Even if HCD could rely on NSF/ANSI 61 to establish a threshold applicable to a single product, the organotin levels would be significant. NSF/ANSI 61 establishes requirements for the testing and evaluation of contaminants that are extracted (leached) from water that has been exposed to products that convey potable water. It sets two significance thresholds for drinking water. The total allowable concentration ("TAC") is the maximum concentration allowed in a public drinking water supply from all sources of contamination.[293] A single product allowable concentration ("SPAC") is the maximum concentration that a single product is allowed to contribute.[294] The SPAC is intended to account for potential contribution by multiple products or materials in the drinking water system. 12-147

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288 *Id.*
289 *Id.*
290 *Id.*
291 *Id.*
292 *Id.*
293 *Id.*
294 *Id.*

The single product allowable concentration, based on NSF/ANSI 61, is designed to account for potential contribution by other sources.[295] For dibutyltin compounds, the NSF calculated the SPAC by multiplying the TAC by 20%.[296] Using the same approach, the SPAC for dibutyltin, based on the German TDI value would be 1.75 ug/L for an adult and 0.59 ug/L for an infant.[297] The leaching data reported by the U.S. EPA (0.8 – 2.6 ug/L) and by the 1987 Cooper study (33 ug/L) indicate that dibutyltin levels in drinking water in CPVC-piped systems can exceed these levels, for both adults and infants.[298] **12-147 (cont.**

The DEIR must be revised to disclose and evaluate these impacts. Feasible mitigation measures to reduce or eliminate organotin leaching impacts must also be investigated.

2. The DEIR Assumes without Foundation that Low-VOC Adhesives Will Reduce the Amount of Chemicals Leached From CPVC Pipe

The DEIR assumes without foundation or evaluation that the "[c]hemicals released into the water after CPVC installation will be reduced by the inclusion of the low-VOC Adhesive requirement."[299] The DEIR similarly states that the requirement to use low-VOC adhesives "will reduce the amount of cyclohexanone, methyl ethyl ketone, and tetrahydrofuran that will be discharged into the wastewater."[300] These statements lack any foundation, citation to evidence or description of the analytic process that led to these conclusions. Moreover, they are contrary to the available evidence. **12-148**

The DEIR admits in its worker health and safety evaluation that the requirement to use low-VOC adhesives will increase the amount of Acetone in CPVC primers and cements.[301] This admission directly contradicts the DEIR's statement that "[c]hemicals released into the water after CPVC installation will be reduced by the inclusion of the low-VOC Adhesive requirement." The DEIR, however, fails to disclose this crucial information in its water quality analysis or to evaluate if this will lead to significant leaching of Acetone into drinking water. **12-149**

Furthermore, the unsupported statement that the use of low-VOC cements and primers will reduce the leaching of other chemicals, including **12-150**

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[295] Appendix 2, Sec. A.7.4, p. A13.
[296] Appendix 2, Table E1.
[297] Reid Comments.
[298] *Id.*
[299] DEIR at p. 4.
[300] DEIR at p. 58.
[301] DEIR at p. 63.

MEK, contradicts evidence that has previously been provided to HCD. In his 1998 comments, Dr. Bellows determined that low-VOC cements and primers may contain up to ten times the level of MEK than the regular CPVC cements and primers evaluated in the 1989 DHS study.[302] Accordingly, the use of low-VOC primer and cement may actually result in greater leaching impacts of certain chemicals. HCD must obtain the composition of low-VOC adhesives from the manufacturers in order to adequately evaluate this issue in the DEIR. **12-150 (cont.)**

The unqualified statement that "[c]hemicals released into the water after CPVC installation will be reduced by the inclusion of the low-VOC Adhesive requirement." is further inaccurate because it fails to take into account leaching of organotins.[303] Organotins leach directly from CPVC pipe and fittings.[304] Accordingly, the rate of organotin leaching is unaffected by the composition of CPVC primer and cement. **12-151**

3. New Formulations of CPVC Pipe and CPVC Solvents May Pose a Significant Leaching Risk

The DEIR's evaluation of leaching impacts is further deficient due to its failure to examine the ever-changing composition of CPVC Pipe and CPVC cements and primers. Reid identifies in his comments numerous changes to CPVC pipe composition and CPVC primer and cement formulations since the 2000 MND.[305] HCD, however, fails to identify these alternative formulations or assess the potential public health and environmental impact of their use. **12-152**

Reid finds that these new formulations may pose significant leaching issues.[306] Some of the additives raise public health concerns not addressed in earlier HCD reviews of this issue. For example, unreacted monomers from impact modifiers may contain butadiene or acrylonitrile, which are carcinogens.[307]

As discussed above, new low-VOC formulations for CPVC primers and cements contain varying percentages of Acetone, MEK, THF and other chemicals that may leach into drinking water.[308] The DEIR relies upon earlier leaching tests that do not accurately reflect the amount of chemical leaching that may occur when these new low-VOC primers and cements are applied. Dr. Bellows testimony that low-VOC primers and cements may

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[302] Appendix 28 at pp. 18-20.
[303] Reid Comments.
[304] *Id.*
[305] Reid Comments.
[306] *Id.*
[307] *Id.*
[308] See also Section XI.D.1, *infra*.

contain ten times more MEK than the primers and cements studied in the 1989 DHS study highlights the danger of failing to analyze new formulations of CPVC pipe, fittings, primers and adhesives.[309] 12-152 (cont.)

These ongoing changes in pipe and cement formulations underscore the legal inadequacy of HCD's persistence in treating CPVC piping, fittings and solvents as an inert material. Without examining the new formulations of the products it is proposing to approve, HCD has no foundation to support its determination that there will be no new significant leaching impacts.

4. The Mitigation Measures Proposed to Address Leaching Impacts Are Inadequate

During the 2005 Addendum proceedings, we submitted substantial evidence that the mitigation measures proposed to eliminate contamination of drinking water from the chemicals leaching from CPVC pipe and solvents and cements fail to reduce the impacts to a level of insignificance.[310] The DEIR is inadequate because it fails to disclose or evaluate this evidence and assumes, without foundation, that the proposed mitigation measures are sufficient. 12-153

The DEIR assumes, without any citation to supporting evidence, that a one-week flushing regimen is sufficient to eliminate the contamination of drinking water from CPVC pipe and solvents. Studies of the leaching characteristics of CPVC demonstrate that CPVC pipe may leach organotins, MEK, THF and other chemicals into drinking water at levels of concern long beyond the first week of use.[311] Accordingly, the assumption that a one-week flushing regimen fully mitigates the Project's leaching impacts lacks any foundation. It is also contrary to the best available evidence. 12-154

In addition, there is substantial evidence that even this inadequate flushing regimen is not being enforced, implemented or monitored.[312] As a result, drinking water consumers are exposed to these leached chemicals from the initial time of installation. 12-155

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[309] Appendix 28 at pp. 18-20, 28.
[310] See *Architectural Heritage Ass'n v. County of Monterey, supra,* 122 Cal.App.4th at pp. 1111, 1118-19.
[311] Reid Comments; Appendices, 7, 19 & 100.
[312] Appendix 25 (Capitolo Report); Appendix 27 (Calone Report).

(a) The DEIR's Assumption that a One-Week Flushing Regimen Reduces the Level of Drinking Water Contamination to a Level of Insignificance Lacks Evidentiary Support

The DEIR indicates that because the 2000 MND already considered and required pipe flushing to prevent the contamination of drinking water from CPVC leachates, these issues need not be reevaluated. Even if HCD could rely on the 2000 MND[313], the 2000 MND presented no studies, data or analysis to support a finding of no significant impact. The 2000 MND never identified the levels of leaching before flushing or after flushing, nor did it indicate how the flushing requirement would reduce the leaching that has been identified after the initial installation. 12-156

Furthermore, the claim that a one-week flushing regimen would reduce the potential for leaching impacts below a level of significance is contrary to current available data. For example, CPVC leaches levels of MEK at unacceptable levels for more than a month.[314] Levels of THF are still unacceptable after 75 days.[315] Organotins stay at unacceptable levels for three weeks or longer.[316] 12-157

NSF screening data for CPVC materials, pipes, and fittings for product certification indicate that the concentration of dibutyltin ranged from 0.0013 ug/L to 140 ug/L and averaged 11 ug/L.[317] The data reported by NSF, when screened using the German tolerable intake level for dibutyltin, indicates that leaching of organotin compounds could result in a significant public health impact.[318] The average concentration of dibutyltin exceeds the German tolerable daily intake level of 8.75 ug/L in 6% of the samples after 21 days of leaching.[319] Thus, the proposed flushing mitigation measure would not eliminate this impact.

The failure to disclose that leaching may remain significant even after one week of flushing violates the fundamental public information and disclosure objectives of CEQA. More importantly, there is no substantial evidence to support HCD's conclusion that the proposed mitigation will reduce these impacts to a level of insignificance. The DEIR's reliance on a 12-158

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[313] As discussed fully in Section VII, *supra*, HCD may not rely on the 2000 MND in lieu of analyzing these impacts in the DEIR.
[314] Reid Comments; Appendices, 7, 19 & 100.
[315] *Id.*
[316] *Id.*
[317] *Id.*
[318] *Id.*
[319] *Id.*

one-week flushing regimen without any factual foundation for this reliance is arbitrary and capricious. **12-158 (cont.)**

(b) Mitigation Measures Must Be Feasible and Enforceable, Meaning Capable of Being Accomplished in a Successful Manner, Taking Into Account Economic, Environmental, Social and Technological Factors

The incorporation of mitigation measures into a project means to modify the project to ensure that the measures mitigating potential impacts "necessarily will be implemented."[320] Accordingly, mitigation measures must be feasible, meaning capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors.[321] **12-159**

In addition, CEQA requires that public agencies adopt "feasible" mitigation measures that must "actually be implemented as a condition of development, and not merely adopted and then neglected or disregarded."[322] "When the success of mitigation is uncertain, an agency cannot reasonably determine that significant effects will not occur."[323]

For example, in the case *Federation of Hillside and Canyon Associations,* Petitioners contended that there was no assurance that the proposed measures to mitigate the significant effects on transportation would be implemented because funding for the mitigation measures was highly speculative and because the mitigation measures were dependent on the cooperative efforts of various public agencies.[324] The Court agreed and held that the city failed to provide mitigation measures that would actually be implemented.[325]

The case at hand is analogous to the case *Oro Fino Gold Mining Corp. v. County of El Dorado.* In *Oro Fino Gold Mining Corp.*, a mining company that six years earlier had received a permit allowing drilling of up to 300 holes based upon a mitigated negative declaration sought a new permit to **12-160**

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[320] *Federation of Hillside and Canyon Associations v. City of Los Angeles* (2000) 83 Cal.App.4th 1252, 1261, fn. 4.
[321] Pub. Resources Code, § 2106.1; CEQA Guidelines § 15364.
[322] *Federation of Hillside and Canyon Associations v. City of Los Angeles, supra,* 83 Cal.App.4th at 1261; see Public Resources Code § 21002.1, subd. (b).
[323] Remy, Thomas & Moose, Guide to CEQA, *supra*, p.426; see *Sundstrom v. County of Mendocino, supra,* 202 Cal.App.3d at 306-308.
[324] *Federation of Hillside and Canyon Associations v. City of Los Angeles, supra,* 83 Cal.App.4th at 1260.
[325] *Id.* at 1261.

drill 30 new holes in an area that overlapped the old permit based upon a new mitigated negative declaration. **12-160 (cont.)**

The new mitigated negative declaration proposed imposing the same 50-dBA drilling noise limit mitigation measure as the earlier permit.[326] Under the proposed mitigation, the drilling noise could not exceed the county standard of 50-dBA measure from a point within 50 feet of a residence.[327] While no one argued that the standard itself was inadequate, evidence was presented that during the previous project the same standard was not monitored or enforced vigorously and that residents had made multiple complaints to the county about noise from the project.[328]

The Agency determined that the evidence of past failure to enforce the mitigation measures imposed by the prior mitigated negative declaration demonstrated that there may be a significant impact even with the re-imposition of the same mitigation measures.[329]

The Appellate court upheld the Agency's decision, holding that evidence of actual past failures to monitor and enforce mitigation measures "constitute substantial evidence."[330] In other words, actual failure to monitor and enforce compliance with mitigation measures is substantial evidence that adverse impacts may occur.

(c) Recent Studies Demonstrate That the Flushing Protocol Is Not Adequate, Feasible or Enforceable

Two recent reports show a systematic failure to enforce or implement the flushing protocol imposed by the 2000 MND. In 2005, Mark Capitolo conducted a survey of building officials to evaluate the effectiveness of the mitigation measures imposed on the current limited approval of CPVC. Capitolo located 33 jurisdictions that have approved some use of CPVC under the current California Plumbing Code provisions.[331] Of the 33 jurisdictions surveyed, only *one* jurisdiction (a mere three percent) fully enforced the entire one-week flushing regimen.[332] **12-161**

One other jurisdiction enforced the initial flush and the warning tag requirement, but did not return to ensure the second flush took place. Two

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[326] *Oro Fino Gold Mining Corp. v. County of El Dorado, supra* 225 Cal.App.3d at 876.
[327] *Id.* at 882.
[328] *Id.*
[329] *Id.*
[330] *Id.*
[331] Appendix 25.
[332] *Id.* at p. 4.

jurisdictions required the architect, engineer or contractor to certify they have complied with the flushing requirement, but did not inspect to ensure compliance. Generally, the sentiment was that "enforcing the second flushing was difficult." *Id.* **12-161 (cont.)**

In addition to not being enforced by local building officials, the existing flushing requirements are not being followed by plumbing contractors. Attached to this Comment is a 2005 investigative report by Robert Calone, a certified plumbing inspector and a plumbing instructor who conducted an inspection of several worksites where CPVC potable water pipe was being installed in residential occupancies. He also conducted interviews with a number of journeymen plumbers experienced in the installation of CPVC pipe and who had recently installed CPVC in residential buildings.

Calone's investigation found zero compliance with the flushing requirements.[333] Workers doing the finish work reported that they would run the water through the system in order to test the fixtures, but did not run it for the time required by the protocol of flushing the system as a guard against chemical leaching. These plumbers also did not return a week later to give the system a second flush. Furthermore, none of the workers tagged the fixtures as required to indicate that a seven-day static flush was in place and none of the fixtures in the buildings Calone inspected were tagged.

The courts have held that "mere concern" that mitigation measures might not be enforced does not constitute admissible evidence.[334] In the case at hand, however, the evidence presented is not of feared or anticipated non-compliance, but of actual, systematic non-compliance demonstrating the complete failure of the mitigation measures. The court in *Oro Fino Gold Mining Corp.* recognized this distinction and held that actual evidence of failure to enforce mitigation measures was substantial evidence that adverse impacts may occur.[335] **12-162**

This information was presented to HCD during the 2005 Addendum proceedings. Unfortunately, HCD chose to ignore this information in the DEIR. The DEIR must be revised and recirculated to disclose and evaluate the evidence that the one-week flushing regimen is inadequate, systematically ignored, and unenforced. The DEIR's evaluation of leaching impacts must be based upon actual substantial evidence. Its proposed mitigation measures must be feasible and enforceable. **12-163**

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[333] Appendix 27.

[334] *Oro Fino Gold Mining Corp. v. County of El Dorado, supra,* 225 Cal.App.3d at 883; *Lucas Valley Homeowners Ass'n v. County of Marin* (1991) 233 Cal.App.3d 130, 164.

[335] *Oro Fino Gold Mining Corp. v. County of El Dorado, supra,* 225 Cal.App.3d at 883.

D. The DEIR Fails to Adequately Evaluate Potential Worker Health and Safety Impacts

1. The DEIR Fails to Evaluate Substantial Evidence That the Proposed Project Will Likely Expose Workers to Harmful Levels of Hazardous Chemicals

Past studies have demonstrated that without effective mitigation measures, workers installing CPVC pipe will be regularly exposed to levels of harmful chemicals exceeding established workplace standards. The most comprehensive study on this subject was conducted by DHS in 1989.[336] The DEIR, however, fails to even disclose the existence of this study, much less evaluate its relationship to the proposed Project. This failure is surprising since HCD was the agency that commissioned this study as part of its preparation of the abandoned 1989 EIR. **12-164**

At HCD's request, DHS examined worker exposure to the chemicals in the solvents used to join the pipes and concluded that workers installing CPVC pipe regularly suffered significant exposure to toxic chemicals in excess of the legal exposure limits for those chemicals.[337] The study found that chemicals such as THF, CHX, ACE and MEK enter the bloodstream of workers through vapors, solvent skin contact and through permeation of gloves and clothes.

Dr. James Bellows, one of the primary authors of the 1989 DHS report, has extensively studied the potential health risks to workers installing CPVC pipe. Attached as Appendix 8 and Exhibit C are his 1998 worker health report prepared in conjunction with HCD's earlier CEQA review process and his 2006 update to that report. Bellow's analysis of the evidence demonstrates that the expanded statewide approval of CPVC would result in serious violations of workplace chemical exposure standards that must be considered significant under CEQA unless effective mitigation measures are implemented.[338] **12-165**

The 1989 DHS study found that workers installing CPVC pipe are exposed above legal limits to the solvents contained in CPVC primer and cement – including THF, MEK, CHX and ACE. The likelihood of overexposure above the full-shift exposure limit was estimated to be 10% for a typical workday of installing CPVC pipe for potable water in residential construction. The likelihood of overexposure above the short-term exposure limit at least once in a typical eight-hour workday was estimated to be 68%. **12-166**

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[336] Appendix 6.

[337] *Id.*

[338] Dr. Bellows Comments; see also Appendix 28 & Dr. Pless Comments.

Urine monitoring provided strong evidence that dermal absorption contributed substantially to the overall exposure in some workers. The DHS study further concluded that while THF and MEK have not been well studied, the available evidence suggests that these substances may cause cancer. **12-166 (cont.)**

Dr. Bellows has also found that the proposed requirement to use low-VOC primer and cement will actually result in *higher* combined exposures than were observed in the 1989 DHS study.[339] The typical low-VOC primer and cements contain almost ten times the amount of MEK found in the cements and primer used by workers in the 1989 study. Accordingly, use of the required low-VOC primers and cements may result in "ten-fold higher airborne concentrations [of MEK] as the primer and cement evaporate."[340] The DEIR must be revised to evaluate the impact on workers from the change in the relative composition of ingredients found in low-VOC primers and cements. **12-167**

Even at levels lower than recommended exposure limits, MEK and acetone produce irritation of the eyes and nose and throat.[341] Indeed a substantial percentage of plumbers report experiencing irritation during the installation of CPVC pipes.[342] DHS has stated clearly that short-term irritation is a material impairment to health.[343] Furthermore repeated irritation may contribute to chronic illness.[344] **12-168**

In addition, all four solvents used in CPC primers and cements – THF, MEK, CHX and acetone – may lead to the depression of central nervous system functions. Dizziness was the second most common symptom of ill health reported by workers participating in the 1989 DHS study, followed by headaches.[345]

In 1998, Dr. Martyn Smith, Professor of Toxicology in the School of Public Health at the University of California, Berkeley, and Peggy Lopipero, M.P.H., reviewed the potential adverse health impacts for worker exposure to THF, MEK and acetone. Their report concluded that exposure to these chemicals may cause significant health effects[346] and that THF was **12-169**

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[339] Appendix 28 at p. 18-20.
[340] *Id.* at p. 20.
[341] Appendix 24 at p. 23.
[342] *Id.* p. 23.
[343] Appendix 28 at p. 25.
[344] *Id.*
[345] *Id.* p. 36.
[346] Even at levels lower than recommended exposure limits, MEK and acetone produce irritation of the eyes and nose and throat. (Appendix 24 at p. 23.) Indeed a substantial percentage of plumbers report experiencing irritation during the installation of CPVC pipes.

potentially carcinogenic.[347] Lopipero and Smith also warned that CPVC solvents and cements in combination with each other or with other contaminants may cause illness where each individually would not. They concluded that MEK, acetone and possibly THF have the ability to potentiate the toxic effects of other chemicals including common contaminants of tap water.[348] **12-169 (cont.)**

In the 1998 Draft EIR, HCD acknowledged these potential adverse impacts on worker health from CPVC installation. HCD stated that: "Workers not following safe use recommendations or using improper materials can be injured, and the lead agency considers this to be the worst case situation."[349] The DHS experts then advising HCD on the preparation of the incomplete 1998 EIR corroborated this conclusion, writing: "Case reports point to the likelihood that overexposure related to poor ventilation has already led to illness in pipe workers."[350] **12-170**

2. Substantial Evidence Exists That Current Mitigation Measures Proposed to Address Worker Health and Safety Are Inadequate

(a) The Glove-Use Mitigation Measures Are Inadequate Even if Implemented or Enforced

Current CPC regulations require workers to use non-latex thin gauge (4 millimeters) nitrile gloves during the installation of the CPVC plumbing system.[351] The DEIR assumes without any foundation that this requirement is sufficient to reduce potential worker health and safety impacts to a level of insignificance. This assumption is contrary to the only substantial evidence available on this issue. **12-171**

In his 1998 comments, Dr. Bellows recommended requiring the use of chemical protective gloves during all handling of CPVC primers and cements

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(*Id.* p. 23.) DHS has stated clearly that short-term irritation is a material impairment to health. (Appendix 28 at p. 25.) Furthermore repeated irritation may contribute to chronic illness. (*Id.*) All four solvents used in CPC primers and cements – THF, MEK, CHX and acetone – may lead to the depression of central nervous system functions. Dizziness was the second most common symptom of ill health reported by workers participating in the 1989 DHS study, followed by headaches. (*Id.* p. 36.)

[347] Appendix 24 at pp. 1-2, 23.

[348] Appendix 24 at p. 13.

[349] 1998 Draft EIR, p. 69.

[350] Comments of Elizabeth Katz, MPH, Acting Chief, Hazard Identification System and Information Service, Department of Health Services; June 11, 1998.

[351] CPC, Appendix I, IS 20, § 301.0.2.2.

"providing gloves can be identified that give reliable, lasting protection against liquid THF, MEK, CHX and ACE."[352] The 2000 MND imposed glove mitigation measures, but never analyzed whether the gloves provided "reliable, lasting protection against liquid THF, MEK, CHX and ACE." 12-171 (cont.)

At our request, Dr. Bellows recently evaluated how well these gloves protect workers who handle CPVC primers and cements. Dr. Bellows compared the chemicals commonly found in CPVC primers and cements with studies and performance guides for 4 mil nitrile gloves. What he found was that nitrile gloves are not recommended for protection against ACE, CHX, MEK, or THF.[353] Numerous references specifically cited the failure of nitrile gloves for these chemicals. THF, for example, was found to permeate 4 mm nitrile gloves "almost instantaneously".[354]

Dr. Bellows further concluded that use of these gloves may, in fact, increase exposure to these chemicals by holding contaminants in intimate contact with the skin after they have penetrated the protection. 12-172

The CPC does recommend that gloves "be replaced upon contamination by cements," but provides no guidance on what this means.[355] This vague directive provides no explanation as to when a glove is considered contaminated nor does it state how long a glove may be worn before it must be replaced. The continued use of THF, MEK, CHX and Acetone in CPVC cement and primer thus creates a significant likelihood of worker health and safety impacts even with the use of thin-gauge nitrile gloves. 12-173 12-174

The DEIR's failure to acknowledge and evaluate this impact renders it legally inadequate. Moreover, the decision to ignore this issue based solely on the fact that the 2000 MND (erroneously) determined this glove mitigation measure to be effective demonstrates a callous disregard for the safety of the workers who would install this material.

(b) The Ventilation and Glove-Use Mitigation Measures Are Not Being Implemented or Enforced

As discussed earlier, mitigation measures must be feasible, meaning capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and 12-175

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[352] Appendix 28 at p. 44, emphasis provided.
[353] Dr. Bellows Comments.
[354] Dr. Bellows Comments.
[355] CPC, Appendix I, IS 20, § 301.0.2.2.

technological factors.[356] Furthermore, mitigation measures must "actually be implemented as a condition of development, and not merely adopted and then neglected or disregarded."[357] **12-175 (cont.**

When successful implementation of a proposed mitigation measure is uncertain, an agency cannot reasonably determine that significant effects will not occur."[358] Evidence of past failure to vigorously monitor and enforce compliance with similar or identical mitigation measures is substantial evidence that adverse impacts may occur.[359]

In the case at hand, substantial evidence exists of actual, systematic non-compliance with the proposed ventilation and glove-use mitigation measures, demonstrating that these measures fail to reduce adverse impacts "to a point where clearly no significant effect" will result.[360] The 2005 reports by Robert Calone and by Mark Capitolo demonstrate that the ventilation and glove-use mitigation measures are not being enforced, implemented or monitored.[361] As a result, many workers installing CPVC will be exposed to potentially hazardous amounts of toxic chemicals as detailed in the 1989 DHS report. **12-176**

The survey conducted by Mark Capitolo reveals that the overwhelming majority of building officials fail to enforce ventilation and glove-use mitigation measures even in the very limited situations in which CPVC is currently approved.[362] Not one of the 33 jurisdictions surveyed by Mr. Capitolo fully enforced the ventilation and glove use measures.[363] Six out of thirty-three jurisdictions required contractors to certify that they were aware of these regulations, but did not conduct any inspections to verify compliance. Twenty-seven of the thirty-three jurisdictions (82%) failed to enforce *any* of the mitigation measures.[364]

The Robert Calone report demonstrates that not only are these mitigation measures unenforced as demonstrated by the Capitolo survey,

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[356] Pub. Resources Code, § 2106.1; CEQA Guidelines § 15364.
[357] *Federation of Hillside and Canyon Associations v. City of Los Angeles* (2000) 83 Cal.App.4th 1252, 1261; see Pub. Resources Code § 21002.1, subd. (b).
[358] *Federation of Hillside and Canyon Associations v. City of Los Angeles, supra*, 83 Cal.App.4th at 1260; *Oro Fino Gold Mining Corp. v. County of El Dorado* (1990) 225 Cal.App.3d 872, 882.
[359] *Oro Fino Gold Mining Corp. v. County of El Dorado, supra*, 225 Cal.App.3d at 882.
[360] See *Architectural Heritage Ass'n v. County of Monterey* (2004) 122 Cal.App.4th 1095, 1111, 1118-19.
[361] Appendix 25; Appendix 27.
[362] Appendix 25.
[363] Appendix 27 at p. 4.
[364] Appendix 27 at p. 4.

they are also rarely implemented.[365] Robert Calone is a certified plumbing inspector and a plumbing instructor who has inspected several worksites that were installing CPVC drinking water pipe into residential homes. He also interviewed a number of journeymen plumbers who had recently installed CPVC. He concludes in his report that there is almost universal non-compliance with the ventilation and glove-use mitigation measures. Workers that did use gloves tended to use cotton or PVC gloves, which provide zero protection from the dermal absorption of THF. He also found that most CPVC installers failed to use any eye protection. The only worksite he observed that actually complied with the safety standards did so only *after* a serious accident. **12-176 (cont.)**

In light of the ineffectiveness of the mitigation measures imposed by the 2000 MND, the DEIR cannot rely on that mitigation to support a finding of no significant worker health impacts.[366]

(c) Need for Further Study of Worker Safety Mitigation

Dr. Bellows concludes that the actual effectiveness of proposed mitigation measures must be fully evaluated before they can be considered effective and reliable.[367] Dr. Bellows further warns that it is not sufficient to review the technical merit alone of a proposed worker safety measure in understanding whether the measure will result in any real exposure reduction. **12-177**

The Calone and Capitolo studies were not comprehensive enough to reveal exactly why implementation of the 2000 MND mitigation measures has failed, but Dr. Bellows suggests that the implementation problems may be sociological or economic.[368] Contractors, for example, have a powerful economic interest in avoiding protective measures that add cost and time to the job. This makes it likely that at least some contractors will fail to ensure that such measures would be implemented. Indeed, the Capitolo and Calone reports found that almost no contractors ensure that the worker training, ventilation and glove use requirements are implemented. The one contractor who did implement these measures did so only after one of his workers was seriously injured installing CPVC.[369]

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[365] Appendix 27.

[366] See *Oro Fino Gold Mining Corp. v. County of El Dorado, supra*, 225 Cal.App.3d at 876 (evidence of past failure to enforce the mitigation measures for noise impacts imposed in a prior MND demonstrated that there may still be a significant impact even with the proposed mitigation measures).

[367] Dr. Bellows Comments.

[368] *Id.*

[369] Appendix 27.

Workers also may have an inherent resistance to these measures. Many workers find wearing chemical protective gloves to be uncomfortable and to slow their work.[370] Plumbing requires a reasonable sense of touch for the installation of piping, especially in finishing work, where some of the work may be done "blind" inside cabinets and the like.[371] In addition, some workers believe incorrectly that any type of gloves will provide protection. Workers under pressure to complete a job quickly may not take care to minimize or clean up spills, or to set up ventilation when their CPVC installation must be done in enclosed spaces. **12-177 (cont.)**

Regulatory agencies may also have inherent barriers to enforcement. The staffing and resources may not be there to enforce measures outside of an agency's normal purview and may make enforcement of such measures a low priority. When directly asked in the Capitolo survey, none of the building officials felt that enforcing the ventilation and glove use measures was either feasible or effective.[372] Most of them pointed to a lack of manpower and resources. They also stated that enforcement was difficult because "it would require us to be present when they are doing the installation."[373] The building officials surveyed also complained "it's difficult for building officials to enforce" these provisions because they go "beyond the scope of their jobs."[374] **12-178**

For now, the exact reason or reasons for the failure of the proposed mitigation measures remains unknown. Further study is needed to determine exactly why these mitigation measures are failing and what measures may be imposed to improve the effectiveness of future mitigation measures. **12-179**

Dr. Bellows lists a number of additional mitigation measures that should be considered to further reduce the risk to worker health and safety. These measures include: (1) requiring the use of one-step cements with no primer; (2) requiring small containers and small daubers; (3) requiring the use of chemical protective gloves during all handling of CPVC primers and cements, *providing that gloves can be identified that give reliable, lasting protection against liquid THF, MEK, CHX and ACE*; (4) identifying and banning the use of gloves that are determined to increase worker exposure to contaminants; (5) improving and expanding worker training; (6) establishing adequate funding or personnel to ensure genuine enforcement of required **12-180**

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[370] Dr. Bellows Comments.
[371] See Appendix 101 at p. IV.C-49.
[372] *Id.*
[373] *Id.*
[374] *Id.*

mitigation measures; and (7) establishing a monitoring system to improve enforcement of all relevant standards, especially those regarding gloves and ventilation.[375] 12-180 (cont.)

Dr. Bellows, however, cautions that these additional mitigation measures should be considered, not because they will guarantee that worker health impacts will be reduced below a level of insignificance, but because they may offer some additional protection. Where mitigation measures are demonstrated to be ineffective or only partially effective, they fail to ensure that there will be no adverse impacts on the environment. While this does not mean that partially effective mitigation measures should not be imposed in order to "reduce" the potential impacts, it does mean that such mitigation measures are inadequate to reduce such impacts to a "level of insignificance." 12-181

3. The DEIR Inaccurately Implies that the EPA Has Determined that Worker Exposure to MEK Is Not Hazardous

The DEIR's analysis of worker health impacts is further deficient because it misleads the public into believing that worker exposure to MEK is not considered hazardous. The DEIR states in its worker health and safety analysis that "Methyl ethyl ketone has been removed from the federal toxic air contaminant list by the U.S. Environmental Protection Agency." 12-182

While EPA has, in fact de-listed MEK from the Clean Air Act section 112 hazardous air pollutants ("HAP") list, the *HAP list is not applicable to worker health and safety issues.*[376] The HAP list only looks at emissions that may be adverse to receptors outside of facility boundaries. Health effects of emissions within a facility are under the purview of OSHA.[377] The HAP list delisting expressly states that it does not change workplace Threshold Limit Values ("TLV") for MEK.

Making this statement as part of its worker health and safety discussion is deliberately misleading. It falsely suggests to the lay reader that worker exposure to MEK is not considered hazardous. The DEIR must be revised to clarify that the worker exposure to MEK is considered potentially hazardous.

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[375] Dr. Bellows Comments.
[376] Federal Register, Vol. 70, No. 242 (Dec. 19, 2005) at p. 75055; Appendix 82. The HAP list also does not consider the role of MEK as an ozone precursor.
[377] *Id.*

4. The DEIR Fails to Consider the Increased Risk to Workers Manufacturing CPVC Pipes and Solvents

The DEIR fails to address at all the worker health impacts associated with the increased manufacturing of CPVC resins, CPVC pipe and fittings, and CPVC solvent cements and primers. The DEIR's complete failure to address the impacts of increased CPVC and related product manufacturing in response to the project approval is contrary to CEQA requirements.[378] 12-183

Throughout the manufacture of CPVC, dioxins, furans, hexachlorobenzene, and PCBs are unavoidably produced, primarily because of CPVC's chlorine content.[379] When evaluated in relation to other plastics used to make pipe, CPVC is considered "worst in class" for use of harmful substances and earned a recommendation of "avoid" in the Plastic Pipe Alternatives Assessment produced by the San Francisco Department of the Environment.[380]

Not surprisingly, CPVC manufacture can result in significant worker exposures to toxic and carcinogenic chemicals.[381] In her 2005 comments, Dr. Phyllis Fox calculated that dioxin emissions alone may expose workers to a cancer risk of over 5 per million – five times above relevant significance thresholds.[382] In addition, workers are exposed to a wide range of other toxic chemicals, including THF, MEK and CHX.[383] The Vinyl Chloride industry in particular has a very disturbing record of manufacturers knowingly exposing workers to serious and life-threatening workplace conditions.[384]

The proposed action to allow the use of CPVC for all residential drinking water systems would increase the potential CPVC use in residential homes by as much as 25 to 100 times current annual use. This in turn would substantially increase the risk to workers in the CPVC pipe and solvent manufacturing industry. This is a potentially significant adverse impact that must be reviewed in an EIR.

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[378] See *Building Code Action v. Energy Resources Conservation and Development Commission* (1980) 102 Cal.App.3d 577.
[379] Appendix 21; Dr. Fox Comments.
[380] Appendix 21 at p. 4.
[381] Dr. Fox Comments, §II.B.
[382] *Id.*
[383] *Id.*
[384] Appendix 36.

5. A Revised and Recirculated DEIR Is Required to Fully Consider the Potential Impacts on Worker Health and Safety

Substantial evidence based upon real world monitoring of the limited approval of CPVC establishes that workers will experience significant exposures under actual field conditions even with the proposed mitigation measures in place. HCD must determine by empirical evidence and expert analysis if proposed ventilation and glove-use measures would avoid worker overexposures. Furthermore, it must analyze why past measures have not been effectively implemented and identify the specific measures that are necessary to ensure implementation. 12-184

The DEIR must be revised and recirculated to allow for this analysis. Only then may appropriate mitigation measures be developed to ensure effective implementation of the work practices and conditions that the DEIR itself indicates are necessary to protect workers.

E. The DEIR Fails to Adequately Consider and Mitigate the Solid Waste Impacts of the Project

The DEIR's conclusion that the Project "will not result in any new solid waste impacts" lacks foundation, fails to apply the proper baseline comparison and is contrary to the evidence in the record. Rather than disclosing the Project's potential solid waste impacts, the DEIR seems intent on obscuring and justifying these impacts. 12-185

Indeed, the DEIR goes so far as to state: "Any disposal challenges, however, must be balanced against the benefits derived from the long productive life of CPVC pipes."[385] This statement demonstrates a fundamental misunderstanding of the role of an EIR. An EIR must disclose and impose feasible mitigation for all impacts of a project. It may not avoid such disclosure and mitigation by claiming to balance a Project's benefits.[386] Moreover, this statement lacks foundation. No evidence supports the inaccurate claim that CPVC pipes have a longer productive life than copper pipe. 12-186

The DEIR inaccurately states that "[t]he durability and protracted life of CPVC is likely to reduce both the necessity for replacement and any corresponding production of waste."[387] This statement lacks any foundation,

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[385] DEIR at p. 67.
[386] See CEQA Guidelines §§ 15091 & 15093.
[387] DEIR at p. 70.

citation to evidence or description of the analytic process that led to this conclusion. Moreover, it is contrary to the evidence that copper pipe has much longer estimated life than CPVC.[388] CPVC's estimated lifespan is only 20 to 40 years.[389] Copper pipe, on the other hand, has an estimated lifespan of well-over 50 years.[390] As a result, on average CPVC plastic pipe will need to be replaced more often than copper pipes. This statement is also contrary to the evidence that copper pipe is substantially more likely to be recycled and reused than CPVC pipe.[391] Accordingly, the replacement of CPVC pipe will result in much greater waste disposal impacts than the replacement of copper pipe. **12-186 (cont.)** **12-187**

Instead of evaluating the impact of substantially increasing the amount of CPVC waste, the DEIR embarks on a discussion of why plastics generally are "useful and popular."[392] Furthermore, instead of comparing the solid waste impacts of CPVC plastic pipe with the solid waste impacts of copper pipe (the material CPVC would replace), the DEIR compares CPVC plastic pipe with other types of plastics.[393] **12-188** **12-189**

The DEIR irrelevantly and inaccurately states that "[w]hile the cumulative effect on solid waste disposal may occur in the future, the effect is not expected to be any greater than the current plastic disposal issues."[394] It then goes on to state that "[t]here is no reason to suspect that CPVC solid waste impacts will be any better or worse than other non-bottle plastics."[395] These both are misleading straw arguments with no relevance to the question of whether the proposed use of CPVC plastic pipe will result in worse solid waste impacts than the current use of copper pipe.

In addition, these statements lack any foundation, citation to evidence or description of the analytic process that led to this conclusion. Neither of the preparers of the DEIR have any technical expertise in solid waste disposal or plastic recycling issues. **12-190** **12-191**

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[388] Reid Comments.
[389] In 1989, HCD determined that a CPVC or other plastic potable water system would have a service life of 20 years. (1989 Plastic Pipe Draft EIR, p. 88.) While HCD has since made varying other claims as to CPVC's expected lifespan, it has never explained why its initial estimate of 20 years should be disregarded. The patent for at least one CPVC manufacturer states that the lifespan of CPVC is "as long as 30 or 40 years." (Appendix 37.)
[390] Reid Comments.
[391] Reid Comments.
[392] DEIR at p. 66.
[393] DEIR at pp. 5, 68.
[394] DEIR at p. 5.
[395] DEIR at p. 68.

Moreover, these statements ignore and contradict the evidence submitted to HCD during prior proceedings that CPVC solid waste impacts are, in fact, much worse than that of other plastics. CPVC and PVC plastics are distinguished as being the only chlorinated plastic compounds.[396] This results in unique environmental and health exposures impacts. As a result, CPVC is extremely difficult to recycle, is rarely recycled and is considered a "contaminant" in the plastic recycling waste stream.[397] Recent reports on CPVC have stated bluntly, "there is no safe way to get rid of it, and no good way to recycle it."[398] 12-192

A recent 2005 draft report by the San Francisco Department of the Environment examined the solid waste problem posed by various types of plastic pipe and found that CPVC posed the most significant problem. The report found that CPVC is hard to recycle and is considered a "contaminant" by most plastic recycling programs.[399] It also found that CPVC posed disposal problems because it (and PVC) is the only plastic pipe on the market that has OSPAR[400] Chemicals for Priority Action (organotins, lead and possibly cadmium) in the final product itself.[401] 12-193

HCD was provided this report during the 2005 Addendum proceedings, yet fails to disclose or evaluate the report's findings in the DEIR. Moreover, the DEIR's conclusions contradict this report without any evidence or expertise to support such a contrary finding. 12-194

The DEIR also states without foundation that "[i]t is a common construction industry practice for existing pipe to be left in the structure when it is replaced with new pipe."[402] This statement again lacks any citation to evidence or description of the analytic process that led to this conclusion. 12-195

The DEIR justifies its general lack of analysis by claiming that "[t]here is no way of predicting the exact amount or location of this disposal."[403] However, then the DEIR goes on to say that 7, 349 housing units are demolished every year.[404] The DEIR also states that there will be 100,000 re- 12-196

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[396] Appendices 21, 67, 72.
[397] Appendices 21, 54, 67, 72.
[398] Appendix 69 at p. 17
[399] Appendix 21 at pp. 3, 15.
[400] Oslo-Paris Convention for the Protection of the Marine Environment of the North-East Atlantic ("OSPAR"). Chemicals on the OSPAR list are of high concern for water toxicity.
[401] Appendix 21 at p. 3.
[402] DEIR at p. 67.
[403] DEIR at p. 69.
[404] *Id.*

pipes every year.[405] This data provides a simple method for estimating the Project's resultant solid waste impact. HCD simply needs to multiply the estimated average linear feet of CPVC used per house and multiply it by the number of units demolished and re-piped every year. Furthermore, HCD indicates that this data may be available per county. HCD states that 2,531 homes are demolished a year in the County of Los Angeles. The DEIR must be revised to provide this analysis and disclose the actual solid waste impacts expected from the Project. **12-196 (cont.)**

The DEIR then goes on to conclude that "[i]f CPVC pipe is used more extensively in the future in California, it is likely that it too will be recycled."[406] The DEIR also states "[r]ecycling and reuse of CPVC pipe is both technically feasible and likely given current trends in plastic recycling."[407] These statements again lack any foundation, citation to evidence or description of the analytic process that led to these conclusions. These statements also fail to provide any baseline comparison between the expected recycling rate of CPVC and the expected recycling rate of copper pipe. **12-197**

Furthermore, these statements are contrary to the evidence in the record that CPVC is not "recyclable," but rather is only "down-cyclable." A 2002 report by Dr. Joe Thorton determined that recycled post-consumer PVC (including CPVC) is "always of lower quality than the original material."[408] As a result, CPVC is down-cycled, rather than recycled.[409] Dr. Thorton goes on to explain that **12-198**

> Down-cycling does not reduce the amount of PVC produced each year or the total quantity of PVC building up on the planet. The illusion of recycling actually increases the global PVC burden by finding new uses for old PVC while creating a positive image for a product that can be neither safely disposed of nor truly recycled.[410]

The DEIR also fails to evaluate whether recycling CPVC in significant amounts is economically feasible in addition to be technically feasible. Mere technical feasibility is not sufficient to support a finding that CPVC pipe will be recycled. Dr. Thorton's report examined current PVC recycling trends in **12-199**

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[405] DEIR at p. 35.
[406] DEIR at p. 68.
[407] DEIR at p. 69.
[408] Appendix 67 at p. 54.
[409] *Id.*
[410] *Id.*

Europe, where more ambitious recycling programs are in place, and found that: 12-199 (cont.)

> In the European Union countries, less than 3 percent of postconsumer PVC waste is recycled—the majority of which is actually down-cycling of cable and packaging wastes. . . .The European Commission projects that only 9 percent of all PVC waste is likely to be recycled by 2020, with a maximum potential of no more than 18 percent. Such low recycling rates, even with time to develop an ambitious program, indicate that PVC is not and cannot be a green building material.[411]

The potential environmental hazards of CPVC recycling must also be evaluated. Mechanical recycling of CPVC can release additives, including phthalates and stabilizers, which may then be dispersed into the recycled products, into the environment, or, if they are captured, disposed of on land or in incinerators.[412] 12-200

Moreover, because CPVC is considered a "contaminant" in the plastic recycling waste stream, increased amounts of CPVC waste may actually interfere with recycling of other plastics.[413] Efforts to recycle other types of plastics may be ruined by contamination with even small amounts of CPVC.[414] This makes strict segregation of PVC from the plastics waste stream essential. However, such segregation is often difficult to achieve in practice.[415] The potential impact of increased CPVC waste on the recycling of other plastics must be disclosed and mitigated if possible. 12-201

The DEIR also fails to evaluate the unique hazards associated with the ultimate disposal of CPVC. Dr. Horton's 2002 report found that "The final stage of PVC's lifecycle [including CPVC] creates the most severe environmental hazards."[416] Dr. Horton identifies three concerns about CPVC disposal. First, the persistence of CPVC, which typically lasts for centuries in a landfill, presents a significant burden in terms of the demand for landfill space. Second, the release of additives in the plastic can contaminate groundwater. Third, fires can occur during or after the disposal process, releasing hazardous substances into the air, including dioxins and metals.[417] 12-202 12-203 12-204

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[411] *Id.* at p. 55.
[412] *Id.* at p. 55.
[413] Appendix 21 at 3, 15; Appendix 71 at p. 28.
[414] *Id.*
[415] *Id.*
[416] Appendix 67 at p. 54.
[417] Appendix 67 at p. 56 ("PVC is the predominant source of dioxin-generating chlorine in these facilities. In municipal waste incinerators, PVC contributes at least 80 percent of the organically-bound chlorine and 50 to 67 percent of the total chlorine(organochlorines plus

The 2005 San Francisco Department of the Environment report also concluded that disposal of CPVC presents an increased risk of releasing dioxins, heavy metals and other gases into the air due to combustion in incinerators or landfill fires.[418] **12-204 (cont.)**

The evidence in the record demonstrates that the current trend is to reduce and replace CPVC use, not to recycle CPVC waste.[419] HCD's proposed massive expansion of CPVC use in California, however, runs directly counter to this national and international trend. **12-205**

The 2005 San Francisco Department of the Environment report concludes by recommending that CPVC be "avoided" due to its negative impact on solid waste disposal.[420] A 2003 report by the Global Development and Environment Institute has documented numerous efforts worldwide to phase out the use of PVC, including CPVC.[421] In California, the cities of Oakland, San Francisco and Berkeley have adopted resolutions to eliminate dioxin, including PVC use reduction as a broader strategy.[422] A number of U.S. health care institutions and professional societies have adopted resolutions encouraging the elimination of PVC and other products that are important contributors to dioxin formation.[423] Denmark, Spain, Germany, Norway, Luxembourg and Sweden have all adopted policies encouraging the phasing out of PVC use, including PVC piping.[424] Numerous water bottling companies in Europe are also phasing out the use of PVC.[425]

The DEIR's ultimate conclusion that the Project will not have any solid waste impacts is also contrary to its statement on page 70 of the DEIR that "[t]he Project will have indirect solid waste impacts."[426] The DEIR must be revised to explain this contradiction and to analyze the project's indirect solid waste impacts. **12-206**

This conclusion is also contrary to the 1997 Initial Study prepared by HCD that determined the impact on solid waste disposal that would result from statewide approval of CPVC "would result in problems in solid waste **12-207**

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inorganic chloride) in the waste stream—although it makes up only about 0.5 percent of the trash stream by weight.").

[418] Appendix 21 at p. 3.

[419] See, e.g., Appendix 68 at pp. 16, 40-45; Appendices 70 & 71 (calling for reduction of PVC in hospitals, including plastic plumbing pipes.); Appendix 72.

[420] Appendix 21 at, pp. 4, 17; *see also*, Appendix 53 (documenting PVC waste crisis).

[421] Appendix 68 at pp. 16, 40-45.

[422] *Id.* at p. 40.

[423] *Id.*

[424] *Id.* at pp. 41-42.

[425] *Id.* at p. 42.

[426] DEIR at p. 70.

disposal for demolition debris from structures which used CPVC pipe."[427] The 2000 MND also implicitly acknowledged that statewide approval may pose a solid waste problem by expressly stating that its finding with regard to solid waste impacts was "based on the limited number of anticipated residential installations of CPVC."[428] 12-207 (cont.) 12-208

Since the issuance of the 2000 MND, new evidence has arisen corroborating the potential solid waste problem posed by the increased use of CPVC and calling for the phasing out of this product. The DEIR fails to evaluate any of this evidence. CPVC pipe is universally considered to pose serious waste disposal concerns. The DEIR's conclusion to the contrary lacks foundation and credibility. Solid waste disposal is a potentially significant adverse environmental impact of the proposed statewide approval of CPVC. This significant impact must be disclosed and evaluated in a revised DEIR. 12-209 12-210 12-211

F. The DEIR Fails to Evaluate the Increased Risks of Fire Propagation and Toxic Smoke Posed by the Increased Use of CPVC

The DEIR fails to address at all the potential risk of fire propagation and toxic smoke posed by the increased use of CPVC. In its 1997 Initial Study, HCD determined that the statewide approval of CPVC posed a potentially significant risk of fire hazards.[429] HCD found that "During earlier analysis it was determined that CPVC pipe is more susceptible to fire damage than metal pipe, that it could allow more rapid spread of fire, and that it could produce toxic gases when exposed to fire." The DEIR contains no analysis or evidence evaluating this finding and proposes no mitigations to address this issue. 12-212

Substantial evidence exists that when CPVC burns, it produces dioxins, an extremely toxic substance known to cause cancer in humans.[430] Additionally, the burning of CPVC releases other toxic gases and heavy metals present in the pipe into the air and residual ash, including hydrogen chloride, and vinyl chloride.[431] CPVC starts to smolder and release toxic fumes such as hydrochloric acid long before it ignites.[432] If CPVC is gradually warmed, more than half of its weight is given off as fumes before it is hot enough to burst into flames.[433] 12-213 12-214 12-215 12-216

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[427] *Id.* at 16.
[428] Appendix 1.
[429] Appendix 17, pp. 7, 14.
[430] Appendix 21 at 3.
[431] Dr. Fox Comments; Appendix 21; see also Appendices 68, 69, 75.
[432] Appendix 68 at pp. 1,11.
[433] *Id.*

The increased use of CPVC will thus result in the increased likelihood of CPVC burning and releasing dioxins, hydrogen chloride and other toxic substances in accidental home fires, incinerators and landfill fires.[434] This is a potentially significant adverse environmental impact that could affect the health of firefighters, building occupants, and neighbors.[435] As HCD previously determined in 1997, this significant impact must be reviewed and analyzed in an EIR. 12-217

G. The DEIR Fails to Evaluate Potential Mechanical Failure Impacts

The DEIR fails to disclose or evaluate the issue of potentially catastrophic premature ruptures of CPVC pipe. Substantial evidence exists that CPVC may prematurely rupture when exposed to numerous common household substances, including termiticides, fungicides, WD-40, oil-based caulk and plasticized PVC (electric wire insulation).[436] This evidence was provided to HCD during the 2005 Addendum proceedings, yet ignored completely in the DEIR. 12-218

A new 2003 Canadian Report states that certain types of electrical wire and cable jacketing may contain plasticizers that leach out when in contact with CPVC pipe and damage the pipe.[437] Nothing in the building code, however, prohibits placement of electrical wiring adjacent to CPVC plastic pipe. Furthermore, it is common to install electrical wiring adjacent to CPVC plastic pipe since the same holes are often used for both plumbing and electrical service.[438] Termiticides, fungicides, WD-40 and caulk are also likely to be applied near or around CPVC pipe under sinks or where it passes through openings in walls. 12-219 12-220

Accordingly, there is a significant potential for premature failure due to incompatible materials. This impact must be reviewed and analyzed in a revised DEIR. 12-221

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[434] Dr. Fox Comments.
[435] *Id.*
[436] Reid Comments; Appendix 30 at p. 40; Appendix 31.
[437] Appendix 30 at p. 40.
[438] Appendix 50, Declaration of John Hall.

XII. INADEQUATE ASSESSMENT OF CUMULATIVE IMPACTS

A. Legal Standards

"Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."[439] Because of this potential additive effect, "the full environmental impact of a proposed project cannot be gauged in a vacuum."[440] For these reasons, CEQA requires that an EIR discuss a project's potential cumulative impacts when combined with past, present, and reasonably anticipated future projects. [441] 12-222

> [C]onsideration of the effects of a project or projects as if no others existed would encourage the piecemeal approval of several projects that, taken together, could overwhelm the natural environment and disastrously overburden the man-made infrastructure and vital community services. This would effectively defeat CEQA's mandate to review the actual effect of the projects upon the environment.[442]

CEQA's cumulative impact analysis requirement must be interpreted to afford the fullest possible protection to the environment.[443] Accordingly, the courts have vigorously enforced the obligation to consider cumulative impacts. As the court stated in *Citizens to Preserve the Ojai v. County of Ventura*:

> [I]t is vitally important that an EIR avoid minimizing the cumulative impacts. Rather, it must reflect a conscientious effort to provide public agencies and the general public with adequate and relevant detailed information about them. [Citation.] A cumulative impact analysis which understates information concerning the severity and significance of cumulative impacts impedes meaningful public discussion and skews the decisionmaker's perspective concerning the environmental consequences of a project, the necessity for mitigation measures, and the appropriateness of project

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[439] CEQA Guidelines § 15355, subd. (b).

[440] *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, 114, fns. omitted.

[441] Pub. Resources Code § 21083, subd. (b), CEQA Guidelines §§ 15130, subd. (b) & 15355, subd. (b).

[442] *Las Virgenes Homeowners Federation, Inc. v. County of Los Angeles* (1986) 177 Cal.App.3d 300, 306.

[443] *Citizens to Preserve the Ojai v. Board of Supervisors* (1985) 176 Cal.App.3d 421, 431-32; *Kings County Farm Bureau v. City of Hanford, supra,* 221 Cal.App.3d at p. 720.

approval. [Citation.] An inadequate cumulative impact analysis does not demonstrate to an apprehensive citizenry that the governmental decisionmaker has in fact fully analyzed and considered the environmental consequences of its action.[444]

12-222 (cont.)

A lead agency must find that a project will have a significant effect on the environment if "[t]he possible effects of a project are individually limited but cumulatively considerable."[445] The fact that a particular project's incremental impact is not significant, or is relatively small when compared to the greater overall problem, does not mean the project does not have significant cumulative impacts. This theory was rejected in *Kings County* because it would allow "the approval of projects which, when taken in isolation, appear insignificant, but when viewed together, appear startling."[446] The proper standard for a cumulative impacts analysis is whether the impacts are "collectively significant."[447]

Uncertainty about a project's potential cumulative impacts does not excuse the lead agency from analyzing those impacts.[448] An agency must use its best efforts to discover and disclose all information reasonably possible.[449] Even if the lead agency finds that there are no significant cumulative impacts, an EIR must explain the basis for that conclusion.[450]

B. Application of Legal Standards to the DEIR

The DEIR's brief paragraph on cumulative impacts falls far short of the CEQA standards discussed above. The DEIR, *without any quantification, analysis or factual discussion*, concludes that the statewide approval of CPVC would have no cumulatively considerable impacts other than impacts on air quality.[451] The failure to even consider cumulative impacts other than air quality "effectively defeat[s] CEQA's mandate to review the actual effect of the project[ ] upon the environment."[452]

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[444] *Citizens to Preserve the Ojai v. County of Ventura, supra,* 176 Cal.App.3d at p. 431.
[445] Pub. Resources Code § 21083, subd. (b); *see also* CEQA Guidelines § 15065, subd.(a)(3).
[446] *Kings County Farm Bureau v. City of Hanford, supra,* 221 Cal.App.3d at p. 720-21.
[447] *Id.* at p. 721, citing CEQA Guidelines § 15355.
[448] *Terminal Plaza Corp. v. City and County of San Francisco* (1986) 177 Cal.App.3d 892, 904-905.
[449] CEQA Guidelines § 15144.
[450] *Terminal Plaza, supra,* 177 Cal.App.3d at pp. 904-905.
[451] DEIR at pp. 72.
[452] *Las Virgenes Homeowners Federation, Inc. v. County of Los Angeles, supra,* 177 Cal.App.3d at 306.

1. Failure to Consider Cumulative Impacts on Worker Safety

An analysis of the total potential for worker chemical exposures indicates that such exposures would be cumulatively significant. As demonstrated in the technical comments, cumulative worker exposure is significant when exposures during concurrent system installation and long-term cumulative exposures are considered along with exposures from the Project. The failure to consider this issue is a critical defect in HCD's evaluation and undermines the integrity of its conclusions regarding worker safety. 12-224

Moreover, the DEIR fails to evaluate the cumulative impacts from HCD's current proposed adoption of regulations expanding the approval of acrylonitrile butadiene styrene ("ABS") and PVC drain, waste and vent ("DWV") pipe.[453] ABS and PVC DWV pipe also uses solvents to join the pipes and fixtures. The approval of these pipes may result in increased worker exposure to hazardous chemicals. This reasonably anticipated future project must be examined alongside the proposed expanded approval of CPVC to determine their potential cumulative impacts. 12-225

Revealingly, the DEIR formulates a threshold of significance for cumulative worker health and safety impacts that fails to take into account *any* past, present, or reasonably anticipated future projects. The DEIR states: "For a cumulative impact, the lead agency considers any repeated exceedance of the threshold of significance to be significant." This threshold improperly gauges the project's cumulative impacts in the vacuum of Project related exposures. It fails to consider the potential additive effect of the Project when considered in the context of concurrent system installations and exposures to other toxic chemicals on the construction worksite, such as ABS and PVC solvents. 12-226

As a result, the DEIR fails to provide any evaluation of the Project's "cumulative" worker health and safety impacts.

2. Failure to Consider Cumulative Impacts on Drinking Water Contamination

The DEIR fails to discuss or evaluate the potential for cumulative effects on drinking water contamination. No facts or data regarding background contaminant concentrations, Project contaminant concentrations, 12-227

[453] Appendix 81.

multiple pathway exposure potential, long-term exposure potential or expected total combined chemical exposure are provided. 12-227 (cont.)

As discussed in the attached technical comments, when background levels of contamination and long-term exposures are considered, the Project presents a potential for significant cumulative effects on drinking water contamination.

3. Inadequate Consideration of Cumulative Impacts on Solid Waste Disposal

The DEIR fails to analyze or evaluate the potential for cumulative effects on Solid Waste Disposal. As discussed in the attached technical comments, CPVC is considered a contaminant in the waste stream and may hinder efforts to recycle other plastics. Moreover, it makes landfill fires and incinerators significantly more dangerous due to the release of dioxins when CPVC is burned. CPVC will also burden the already overburdened waste disposal facilities and sites throughout California. CPVC pipe will replace the use of copper pipe, which has an almost 100 percent recycle rate. The DEIR fails to evaluate the Project's cumulative impact on any of these issues. 12-228 12-229 12-230

The failure to consider these potential cumulative impacts is a critical defect in HCD's evaluation and undermines the integrity of its conclusions. 12-231

XIII. INADEQUATE ASSESSMENT OF ALTERNATIVES

The DEIR's alternative analysis is legally inadequate for a number of reasons. First, it fails to identify and discuss several suitable and feasible alternatives. Second it fails to compare the significant effects of the alternatives with those that would result from the Project. Third, it fails to identify the environmentally superior alternative. Fourth, it fails to support its selection of alternatives and its identification of the "preferred alternative" with any analysis or substantial evidence. 12-232

An EIR must identify and evaluate a reasonable range of feasible alternatives that could avoid or substantially lessen the Project's significant environmental effects.[454] An EIR should explain how the Project alternatives were selected for analysis.[455] 12-233

The DEIR does select a range of alternatives. However, it fails to explain how these alternatives were selected for analysis. Furthermore, it 12-234

[454] Pub. Resources Code §§ 21002, 21002.1, subd. (a), 21100. subd. (b) & 21150.
[455] CEQA Guidelines § 15126.6, subd. (c).

fails to expressly identify and discuss copper pipe as a suitable and feasible alternative to CPVC. 12-235

CEQA requires more than just mere identification of alternatives. CEQA also requires that an EIR evaluate the comparative merits of the alternatives.[456] An EIR must contain information sufficient to allow an informed comparison of the relative impacts of the project and the alternatives.[457] An EIR must set forth facts and meaningful analysis of these alternatives rather than "just the agency's bare conclusions or opinions."[458] 12-236

The DEIR, however, fails to provide any such comparative data. As a result it precludes meaningful consideration of the alternatives. 12-237

Furthermore, an EIR must identify the environmentally superior alternatives.[459] If the "no project" alternative is the environmentally superior alternative, then the EIR must also identify an environmentally superior alternative from among the other alternatives.[460] 12-238

The DEIR, however, fails to identify the environmentally superior alternative. Instead, the DEIR merely states that the proposed Project is the "preferred alternative."[461] This statement fails to reveal if HCD believes the Project is the environmentally preferred alternative or simply the building industry's preferred alternative. Moreover, the DEIR's selection of the proposed Project as the "preferred alternative" lacks any foundation, citation to evidence or description of the analytic process that led to this conclusion. 12-239

XIV. A NEW DEIR MUST BE RECIRCULATED FOR PUBLIC REVIEW

A. Legal Standards

A DEIR must be recirculated if: (1) it reveals new substantial environmental impacts not disclosed in the DEIR; (2) it reveals a substantial increase in the severity of impacts (unless mitigated); (3) comments have been received that identify new feasible mitigation measures, but the feasible mitigation measures are not adopted; or (4) it is so fundamentally and 12-240

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[456] CEQA Guidelines § 15126.6, subds. (a) & (e).
[457] *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 733.
[458] *Preservation Action Council v. City of San Jose* (2006) 141 Cal.App.4th 1336.
[459] Kostka & Zischke, *Practice Under the California Environmental Quality Act*, § 15.37, p. 765; see also CEQA Guidelines § 15126.6; *Preservation Action Council v. City of San Jose* (2006) 141 Cal.App.4th 1336.
[460] *Id.*
[461] DEIR at p.3.

basically inadequate and conclusory in nature that public comment on the DEIR was essentially meaningless.[462]

12-240 (cont.)

The courts have held that the failure to recirculate an EIR turns the process of environmental evaluation into a "useless ritual" which could jeopardize "responsible decision-making."[463] Both the opportunity to comment and the preparation of written responses to those comments are crucial parts of the EIR process.

The *Sutter* court held that the failure to include all significant information in the original document denied the public the "opportunity to test, assess, and evaluate the data and make an informed judgment as to the validity of the conclusions to be drawn therefrom."[464]

Recirculation of an EIR is also required in order to assure that responses will be prepared by the lead agency to all comments. "The policy of citizen input which underlies the act supports the requirement that the responsible public officials set forth in detail the reasons why the economic and social value of the project, in their opinion, overcomes the significant environmental objections raised by the public."[465] The responses to comments play a vital role in insuring the integrity of the process by precluding stubborn problems or serious criticism from being swept under the rug.[466]

Responses to comments play such an important role in the environmental evaluation that CEQA Guidelines spell out the agency's duty to avoid pro forma responses:

> In particular, the major environmental issues raised when the lead agency's position is at variance with recommendations and objections raised in the comments must be addressed in detail giving reasons why specific comments and suggestions were not accepted. There must be good faith, reasoned analysis in response. Conclusory statements unsupported by factual information will not suffice.[467]

CEQA is much more than simply a presentation to the public of the lead agency's environmental analysis. Public comments and responses to comments are equally essential ingredients of a valid EIR.[468]

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[462] CEQA Guidelines § 15088.5, subd. (a).
[463] *Sutter Sensible Planning v. Sutter County Board,* (1981) 122 Cal.App.3d 813, 822.
[464] *Sutter Sensible Planning v. Sutter County Board, supra,* 122 Cal.App.3d at p. 822.
[465] *People v. County of Kern, supra,* 39 Cal.App.3d at p. 841.
[466] *Id.*
[467] CEQA Guidelines § 15088, subd.(c).
[468] See *County of Inyo v. City of Los Angeles, supra,* 160 Cal.App.3d at p. 1185.

B. Application of Legal Standards to the DEIR

These comments have identified several substantial environmental impacts that were not discussed at all in the DEIR or were not meaningfully considered. These include direct and cumulative impacts on drinking water contamination, worker health and safety, solid waste disposal, mechanical failure and fire safety. In addition, we have presented substantial evidence that the severity of air quality impacts from the Project will be much greater than disclosed in the DEIR. The DEIR must be withdrawn, revised and recirculated to properly evaluate these impacts. **12-241**

We have also identified feasible mitigation measures that have not been evaluated or proposed for adoption by the DEIR. Under CEQA Guidelines, the DEIR must be revised and recirculated to allow for public comment on these unadopted feasible mitigation measures. **12-242**

The DEIR must also be revised and recirculated to address its failure to meaningfully evaluate Project alternatives and its failure to identify the environmentally superior alternative. **12-243**

Finally, the DEIR must be withdrawn and revised because its numerous deficiencies preclude meaningful public comment. As discussed throughout this comment letter, these deficiencies include: (1) its grudging, pro forma consideration of an action previously approved by the lead agency; (2) the failure to conduct an independent analysis and evaluation; (3) the failure to disclose or explain the analytical basis for the DEIR's conclusions; (4) the fundamentally inaccurate and incomplete project definition; (5) the arbitrary selection of thresholds of significance; (6) the reliance on unsupported and inaccurate assumptions and factual assertions; and (7) the inadequate and incomplete assessment of potential impacts. **12-244**

The combined deficiencies in the DEIR reflect a document "so fundamentally and basically inadequate and conclusory in nature that public comment on the draft was in effect meaningless."[469] The omission of numerous analytical details or factual explanations for the critical conclusions contained within the DEIR denied the public an "opportunity to test, assess, and evaluate the data and make an informed judgment as to the validity of the conclusions to be drawn therefrom."[470] Under these circumstances, recirculation is required under the *Laurel Heights II* test.

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[469] *Laurel Heights II, supra,* 6 Cal.4th at p. 1130.

[470] *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 131; CEQA Guidelines § 15088.5.

XV. IN ADDITION TO THE HEALTH AND SAFETY AND ENVIRONMENTAL RISKS POSED BY CPVC, APPROVAL OF THE PIPE WOULD RESULT IN LITTLE TO NO SHORT-TERM SAVINGS AND MUCH GREATER LONG-TERM COSTS TO CONSUMERS

Extensive comments on the economic ramifications of plastic pipe approval were submitted in the 1989 proceeding by Dr. William T. Dickens. In his comments, Dr. Dickens concludes that any savings from the use of plastic piping would not be passed on to homebuyers.[471] 12-245

At the time of his study, Dr. Dickens was a professor of economics at the University of California, Berkeley, and is now a resident scholar in economic studies at the Brookings Institution. He received his Ph.D. in economics from M.I.T. in 1981, has been a Research Associate of the National Bureau of Economic Research since 1983 and serves as a reviewer for the National Science Foundation and several other granting agencies and for all the major economic journals.[472] He is also a former member of the President's Council of Economic Advisors.

Dr. Dickens explained that under standard economic theory, any plumbing system cost savings would not be passed on to homebuyers or renters. Since the supply of housing is limited, price is not determined by the cost of construction, but land prices and the demand for housing.[473] In other words, the price of a house depends on land costs and what people will pay for it and not on what it cost to build. Dr. Dickens also concluded that, in the long run, the shorter lifespan of CPVC versus copper pipe results in higher replacement costs for consumers and higher total costs.[474]

No response to Dr. Dicken's comments has ever been presented, and they remain even more relevant today with the skyrocketing price of real estate outpacing any increases in the actual cost of construction.

XVI. CONCLUSION

As demonstrated in these comments, the DEIR is profoundly inadequate and fails to meet the minimum requirements of CEQA. The document does not provide substantial evidence or an analytic basis to 12-246

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[471] Appendix 100-F.
[472] Appendix 33.
[473] Appendix 100-F.
[474] *Id.*

support its findings or project approval. Further, the DEIR ignores a vast body of evidence demonstrating that the expanded statewide approval of CPVC may have numerous significant impacts on public health and the environment. As a result, it fails in significant aspects to perform its function as an informational document that is meant "to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment" and "to list ways in which the significant effects of such a project might be minimized."[475] 12-246 (cont.) 12-247

The Coalition for Safe Building Materials respectfully requests that HCD withdraw the DEIR and revise it to fully and completely address the issues and evidence that we have presented. The revised DEIR must then be recirculated for public review. 12-248

[475] *Laurel Heights I, supra,* 47 Cal.3d at 391.

Response to Letter 12: Coalition for Safe Building Materials

Comment 12-1. The Recirculated Draft EIR revised the Draft EIR. All of the comments on the Draft EIR raised by the commenters and others were considered during the preparation of the Recirculated Draft EIR. The Recirculated Draft EIR relied on the entire record before THE LEAD AGENCY, including the extensive comments and appendixes to those comments that the commenters submitted during the public comment period on the 2005 Draft Addendum. The Recirculated Draft EIR addresses the concerns raised by the commenters, fully evaluates and discloses the Project's potential impacts, and is an open, impartial document based on science.

Comment 12-2. The Recirculated Draft EIR included a revised and expanded evaluation of drinking water contamination, worker exposure to toxic solvents, and solid waste impacts. The Recirculated Draft EIR includes a discussion of aquatic toxicity impacts within Section 4.3, Water Quality. As explained on page 5 of the Recirculated Draft EIR, this current EIR is a Subsequent EIR to the 2000 Mitigated Negative Declaration prepared pursuant to CEQA Guidelines section 15162. As such, the EIR does not repeat the review of impacts that remain the same as those addressed in the 2000 Mitigated Negative Declaration, including fire hazard impacts and impacts associated with potential premature pipe failure. Please refer to the responses to Comments 12-124 and 12-183 for responses to the commenters' more detailed comments regarding manufacturing impacts. Please refer to the response to Comment 12-212 for responses to the commenters' more detailed comments regarding fire hazard impacts. Please refer to the responses to Comments 12-99 and 12-218 through 12-221 for responses to the commenters' more detailed comments regarding impacts associated with potential premature pipe failure.

Comment 12-3. The Recirculated Draft EIR meets all applicable requirements of CEQA and the CEQA Guidelines. The Recirculated Draft EIR includes a revised air quality analysis based on additional evidence and which utilizes a conservative approach, and therefore does not understate the Project's potential air quality impacts. The findings and conclusions in the Recirculated Draft EIR are supported by substantial evidence. The Recirculated Draft EIR adequately discloses and evaluates the Project's potential significant effects on the environment.

Comment 12-4. This comment is consistent with the analysis in the Recirculated Draft EIR. VOC emissions are evaluated in Section 4.2 of the Recirculated Draft EIR, which indicates on pages 49-50 that ROG emissions (i.e., VOC emissions), potentially would exceed the most restrictive significant thresholds in certain local air districts.

Comment 12-5. The revised analysis of air quality impacts in the Recirculated Draft EIR used a conservative approach and does not substantially understate such impacts, which the Recirculated Draft EIR concludes are significant and unavoidable. Please refer to the responses to the commenters' more specific comments regarding the air quality analysis for additional explanation as to why the Recirculated Draft EIR does not substantially understate the Project's air quality analysis.

Comment 12-6. The concerns expressed by this comment are addressed by the responses to Comments 12-164 and 12-166.

Comment 12-7. The concerns expressed by this comment are addressed by the responses to Comments 12-164, 12-166 and 12-171.

Comment 12-8. The concerns expressed by this comment are addressed by the response to Comment 12-171.

Comment 12-9. The concerns expressed by this comment are addressed by the responses to Comments 12-164, 12-166 and 12-171.

Comment 12-10. The concerns expressed by this comment are addressed by the response to Comment 12-176.

Comment 12-11. The Recirculated Draft EIR analyzes potential impacts related to leaching of chemicals from CPVC pipe on pages 124-129. Please refer to the responses to Comments 10-1, 10-3, 10-4, 12-141, 12-144, 12-145, 12-146, and 12-147 regarding organotins (including tributyltin).

Comment 12-12. Please refer to the response to Comment 12-79.

Comment 12-13. The Recirculated Draft EIR analyzes potential impacts related to leaching of chemicals from CPVC pipe on pages 124-129. Please also refer to the response to Comments 12-137 through 12-163.y7

Comment 12-14. Please refer to the responses to Comments 10-1, 10-3, 10-4, 12-141, 12-144, 12-145, 12-146, and 12-147.

Comment 12-15. Please refer to the responses to Comments 12-124 and 12-183.

Comment 12-16. Please refer to the responses to Comments 12-124 and 12-183.

Comment 12-17. Please refer to the responses to Comments 12-124 and 12-183.

Comment 12-18. Please refer to the response to Comment 12-192.

Comment 12-19. The Recirculated Draft EIR indicates on page 155 that copper is "highly recyclable."

Comment 12-20. Please refer to the responses to Comments 12-212, 12-204, 16-10, and 16-16.

Comment 12-21. Please refer to the responses to Comments 12-212, 12-204, 16-10, and 16-16.

Comment 12-22. The Draft EIR was been revised and recirculated for public review and comment.

Comment 12-23. The Lead Agency has separately responded to the comments from Dr. Petra Pless, Thomas Reid, and James D. Bellows that comprised Exhibits A, B, and C to the comment letter 12. Please refer to the responses to comment letters 13, 14, and 15, respectively.

Comment 12-24. The DEIR has been revised in order to comply with the requirements of CEQA and has been recirculated. The Recirculated Draft EIR may be used by the Lead Agency and other responsible agencies in determining whether or not to approve the Project.

Comment 12-25. CPVC is already approved for statewide use. The proposed action is to remove the requirement of a finding regarding premature failure of metallic pipe. The Project does not require local building officials to permit the use of CPVC, but allows such use without the requirement of any finding by a local official. Thus the purpose of the proposed action is to allow builders and homeowners to use CPVC as a matter of right, without the need for any specific approval for the local building official. The Lead Agency disagrees with the commenters' characterization of the Project as a "massive expansion" of the authorized allowable use of CPVC potable water pipe in California. As explained on pages 45-46 of the Recirculated Draft EIR, the current market share of CPVC pipe for residential plumbing systems in California is 13 percent and it is estimated that CPVC pipe will account for 32 percent of the market share if the Project is approved. While this would be an expansion of CPVC pipe use compared to current levels, the Lead Agency believes it is unreasonable to characterize this increase in 19% of the market share as "massive."

Comment 12-26. This comment describes the proposed Project and refers to the 2000 Mitigated Negative Declaration.

Comment 12-27. The Lead Agency wishes to clarify that the 1998 EIR was not abandoned prior to completion. The 1998 EIR was completed and certified, but pursuant to a court-approved settlement agreement with plaintiffs that included several of the members of the Coalition for Safe Building Materials, the Lead Agency rescinded certification of the 1998 EIR.

Comment 12-28. As explained on page 27 of the Recirculated Draft EIR, CPVC pipe is estimated to be used currently for approximately 13 percent of the annual residential water plumbing installations in California.

Comment 12-29. The Project analyzed in the Recirculated Draft EIR would not require the use of low-VOC CPVC primers and cements. Instead, the proposed mitigation measures for the Project would require the use of one-step, low-VOC CPVC adhesives. Requiring the use of low-VOC, but not one-step, CPVC primers and cements is analyzed as an alternative to the Project in the Recirculated Draft EIR.

Comment 12-30. The Lead Agency believes that the EIR satisfies the informational standards set forth in this comment.

Comment 12-31. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR meets the informational and public disclosure requirements of CEQA. As explained in the responses to the commenters' more detailed comments that follow, the Recirculated Draft EIR reflects an independent assessment of the Project, discloses the analytical and technical basis for its conclusions, includes a complete and accurate Project description, adequately addresses all potentially significant Project impacts, identifies an environmentally preferred alternative, and evaluates all feasible alternatives and mitigation measures. The Recirculated Draft EIR clearly describes the nature of the Project and the scope and severity of potential environmental and public health effects, and demonstrates that the Lead Agency has analyzed and considered the ecological implications of the Project.

Comment 12-32. The Lead Agency disagrees with many aspects of the commenters' characterization of the history of prior EIRs prepared for the approval of CPVC. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR includes an objective evaluation of the Project's health, safety, and environmental impacts.

Comment 12-33. The Lead Agency believes that the EIR satisfies the informational standards set forth in this comment.

Comment 12-34. This comment is irrelevant, as none of the Lead Agency's actions with respect to the 2000 Mitigated Negative Declaration, the Draft Addendum, the Draft EIR, or the Recirculated Draft EIR have been declared by a court to have violated CEQA.

Comment 12-35. See response to comment 12-33.

Comment 12-36. The Lead Agency disagrees with the commenters' characterization of the history of the Lead Agency's review of CPVC.

Comment 12-37. This comment regarding the history of previous CEQA documents regarding CPVC prepared by the Lead Agency is informational in nature and does not include a specific issue with the DEIR. No response is necessary.

Comment 12-38. The Lead Agency disagrees with the commenters' statement that "[a]ll parties . . . agreed that the 1989 document was woefully inadequate."

Comment 12-39. The concerns expressed by this comment are addressed by the responses to Comments 12-164 and 12-166.

Comment 12-40. Water quality impacts related to leachates are analyzed on pages 124-130 of the Recirculated Draft EIR.

Comment 12-41. See response to Comment 12-37.

Comment 12-42. The Lead Agency disagrees with the commenters' implication that the 1989 DEIR proceedings raised "overwhelming evidence" that approval of CPVC potable water pipe would have significant environmental effects.

Comment 12-43. The Lead Agency disagrees with the commenters' statement that a politically imposed deadline precluded genuine CEQA analysis during preparation of the 1998 EIR, and the commenters' statement that an internal memorandum circulated within the Lead Agency "revealed the clear instruction to HCD that CPVC be *approved* before the end of the Wilson Administration irrespective of any requirements for environmental review." To the contrary, the internal memorandum (Appendix 18, as referred to in footnote 53 of Comment Letter 12) includes a statement that the project manager at the Lead Agency "needed to have experience with CEQA and expertise in environmental sci [sic]." The Lead Agency also disagrees with the commenters' characterization of the 1998 EIR as "obviously inadequate," and wishes to clarify that many comments on the 1998 EIR supported the analysis in that document.

Comment 12-44. The Lead Agency wishes to clarify that its agreement to settle the lawsuit over the 1998 EIR in 2000 was not based on "blatant deficiencies" in that document.

Comment 12-45. See response to Comment 12-37.

Comment 12-46. See response to Comment 12-37.

Comment 12-47. The Lead Agency disagrees that the preparation of the Draft Addendum in 2005 was an "attempted backdoor approval," or that it "violated the spirit of the 2000 settlement agreement or the letter of CEQA law." As noted in Comment 12-46, the settlement agreement expressly provided that nothing in the agreement was intended to affect any future action by the state related to the possible approval of CPVC on a statewide basis.

Comment 12-48. The Lead Agency wishes to clarify that the proposed 2005 Addendum, rather than being met with "broad public opposition," was met with a broad spectrum of public comments, both supporting and opposing the Addendum.

Comment 12-49. The Lead Agency disagrees with the commenters' legal analysis and conclusion that the Draft Addendum was "facially unlawful."

Comment 12-50. The Lead Agency disagrees with the commenters' suggestion that the Lead Agency withdrew the Draft Addendum "as a result of widespread opposition and legal deficiencies."

Comment 12-51. The DEIR was revised and recirculated and this comment is not applicable to the Recirculated Draft EIR. The Lead Agency disagrees with the commenters' unsupported suggestion that it was under pressure to complete the DEIR prior to the 2006 gubernatorial elections. In addition, the Lead Agency wishes to clarify that while the testimony of Dennis Beddard cited as Appendix 54 to Comment Letter 12 indicates that the Lead Agency is "not set

up to do environmental impact reports or assessments," this testimony does not state that the Lead Agency does not have a staff with the technical qualifications to evaluate the Project.

Comment 12-52. The Lead Agency disagrees that the DEIR reflects a *post hoc* rationalization of a prior decision to approve the Project. The Lead Agency will consider whether to recommend approval of the Project after reviewing a completed, certified EIR. The EIR process has been designed to thoroughly and objectively evaluate the potential environmental impacts of the Project. The history of the CEQA review process related to CPVC indicates that the Lead Agency has continuously made efforts to thoroughly and objectively analyze the potential environmental impacts of the Project, as evidenced by the decision to prepare an EIR after receiving voluminous comments on the Addendum, and the decision to revise and recirculate the DEIR with an expanded analysis of potential impacts.

Comment 12-53. The Lead Agency disagrees with the commenters' assessment that the DEIR did not reflect the Lead Agency's independent review and analysis of potential environmental effects, and also portions of the commenters' description of the applicable legal standards. For instance, the commenters rely on CEQA Guidelines Section 15142 for the proposition that an EIR "must reflect an interdisciplinary approach . . . that is conducted by competent individuals in the relevant disciplines." Section 15142 states "[t]he interdisciplinary analysis shall be conducted by competent individuals, but *no single discipline shall be designated or required to undertake this evaluation*." The commenters have selectively quoted and interpreted this language in a manner that ignores the phrase that is italicized above, which directly contradicts the commenters' position that CEQA documents must be prepared by individuals with expertise in all relevant disciplines.

Additionally, CEQA Guidelines section 15149(b) indicates that "an EIR is not a technical document that can only be prepared only by a registered professional." The commenters also inaccurately imply that the provisions of CEQA stating that an EIR must reflect a lead agency's independent review of potential environmental effects also requires that the lead agency must possess a certain level of technical expertise to do so, whereas neither CEQA nor the CEQA Guidelines contain such a requirement.

Moreover, the cases cited by the commenters for the proposition that agencies may rely on staff analysis and opinion when making CEQA determinations only where the lead agency's review was conducted by qualified experts do not make such a holding. For instance, the discussion in the *Greenbaum* case referred to by the commenters merely involves the principle that disagreement among experts does not make an EIR inadequate, and the holding of the *Stanislaus Audubon Society* referred to by the commenters is only that one party's position that a planning department was unqualified to render an opinion about growth-inducing impacts of a project was meritless.

Finally, the Lead Agency itself prepared the Draft EIR, and therefore it is obvious that the Lead Agency independently reviewed the document.

Comment 12-54. The revised air quality analysis in the Recirculated Draft EIR uses the thresholds of significance recommended by CARB.

Comment 12-55. Nothing in CEQA or the CEQA Guidelines requires that persons consulted by a lead agency must be provided a complete project description or copies of all comments, technical reports, and other evidence in the record.

Comment 12-56. The Lead Agency disagrees with the commenters' conjecture regarding the Lead Agency's motivations regarding the CEQA process. The Recirculated Draft EIR adequately assesses the Project's impacts and its ultimate determinations are supported by substantial evidence.

Comment 12-57. As discussed in the response to Comment 12-53, the commenters fundamentally misunderstand the CEQA requirement that a lead agency must conduct an independent review as requiring the Lead Agency to review the underlying data and independently assess the evaluation process with respect to standards established by an outside entity. Substantial evidence in the record supports the Lead Agency's reliance on the levels of contamination accepted by the NSF, and on the NSF process for testing and certification of CPVC pipe.

The NSF Water Treatment and Distributions Program came into being as a result of U.S. Environmental Protection Agency ("EPA") efforts in 1979 to carry out its mandate to review past advisory opinions, develop test protocols and decision criteria, and ultimately resume offering toxicological opinions on drinking water additives to all states.[5] Due to resource, budget, and priority constraints, the EPA determined that the private sector could better handle this large, complex advisory program.[6] All products added to drinking water or coming into contact with drinking water during treatment, storage, transmission, or distribution fall within the scope of the program.[7] In early 1985, the EPA initiated the development of the Drinking Water Additives third-party program by awarding a cooperative agreement to a consortium led by NSF.[8] NSF was awarded the lead role in the program; and as in its other programs, NSF worked closely with industry, regulatory agencies, product users, and others to develop equitable, practical standards and an objective product certification program that effectively serves all interested parties, and continues to do so.[9] Thus, the NSF testing program, although conducted by an independent voluntary consensus standards and third-party certification order, essentially replaced the EPA's formal advisory program to carry out its mandate to develop test protocols and decision criteria regarding products added to or coming into contact with drinking water.

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[5] *NSF International: Water Treatment and Distribution Systems: History*, available at http://www.nsf.org/business/water_distribution/dwa_history.asp?program=WaterDistributionSys (last accessed Jan. 5, 2007); *see also* 53 Fed. Reg. 25586 (July 7, 1988).
[6] *Ibid.*
[7] *Ibid.*
[8] *Ibid.* Other consortium members included the American Water Works Association Research Foundation, the Association of State Drinking Water Administrators, the Conference of State Health and Environmental ("COSHEM") and the American Water Works Association, although COSHEM has since been dissolved. *Ibid.*
[9] *Ibid.*

It is also important to note that, as indicated by the commenters in Comment 12-59, the Lead Agency obtained from NSF and independently reviewed the following documents: (1) NSF/ANSI 14 and NSF/ANSI 61 standards; (2) NSF's general certification policies for plastic pipe and drinking water components; and (3) NSF's general standards development and maintenance policies. The Lead Agency has also independently reviewed and considered all other documents in the record for the Project pertaining to NSF certification, testing, and standards.

For the above reasons, the Lead Agency believes it is appropriate to rely upon NSF testing to NSF/ANSI standards, and that the Lead Agency does not need to independently evaluate the underlying data and evaluation process used by NSF in order to satisfy the independent review requirements of CEQA.

Comment 12-58. The Lead Agency disagrees with the commenters' characterization that the use of NSF standards in evaluating water quality impacts constitutes a constitutionally impermissible delegation of police power to a non-governmental entity, and with the commenters' legal analysis of this issue. The California Attorney General opinion cited by the commenters as supporting this comment has nothing to do with the reliance by a lead agency on information, testing, or standards established by non-governmental entities in environmental documents prepared under CEQA, and has nothing to do with CEQA whatsoever. *See* 63 Ops. Atty. Gen. 566 (1980). Moreover, the attorney general expressly opined that the Commission of Housing and Community Development could consider model uniform building codes prepared by non-governmental entities as a source for its regulations without violating the prohibition against an unconstitutional delegation of legislative power or of regulatory authority to nongovernmental bodies. 63 Ops. Atty. Gen. 566 (relying in part on *Kugler v. Yocum*, 69 Cal. 2d 371 (1968) ("Nor does the fact that a third party, whether private or governmental, performs some role in the application and implementation of an established legislative scheme render the legislation invalid as an unlawful delegation."). It is also important to note that the changes to the California Plumbing Code that comprise the Project do not explicitly rely on NSF standards.

Comment 12-59. Please see responses to Comments 12-53, 12-57, and 12-58.

Comment 12-60. Please see responses to Comments 12-53, 12-57, and 12-58. Additionally, the Lead Agency does not agree with the commenters' implication, based on Vol. 63, No. 40, page 10282 of the Federal Register (March 2, 1998), that the EPA's decision to place organotins on the Drinking Water Contaminant Candidate List despite comments to the contrary that this would be unnecessary in light of the NSF certification program means that a lead agency may not rely on the NSF program and standards for purposes of CEQA review. As the same Federal Register notice states, the EPA "has noted that many States require the use of NSF certified material in the construction of new buildings." In this case, the Lead Agency has determined that NSF certification is suitable for the purposes it is used in the current EIR. In addition, the same Federal Register explains that "NSF's role in the standard-setting process is administrative, that is, to bring together experts from government, industry, utilities, users, and other relevant groups so that a standard which reflects the consensus of these interests can be developed," and that "the health effects consultants have endorsed the bases of the [NSF] standards." Thus,

Volume 53, No. 130 of the Federal Register (July 7, 1988) indicates that "EPA believes that the NSF program is successfully pursuing all of its objectives. Furthermore, the program is strongly supported by user and regulatory sectors." The mere fact that the EPA determined in that it should perform its own in-depth evaluation of the occurrence of organotins and related toxicological data does not indicate that the EPA no longer supports reliance on NSF standards or certification by state agencies, or by the EPA itself in other contexts.

Finally, the comment takes the statements in Volume 53, No. 130, page 25588 of the Federal Register that "it is up to the states and the utilities to determine the suitability of any 'third-party' certification," and the purported statement in the same Federal Register that the "competency and reliability of organizations claiming to conduct evaluations under these standards" are not evaluated or warranted under the NSF Program severely out of context. The immediately preceding paragraph explains that NSF's standard-setting program and NSF's service for testing, certification, and listing are separate activities, and the EPA intended to encourage the development of competing sources for testing, certification, and listing, i.e., by entities other than NSF. Thus, such entities, rather than NSF, are the "third-party" sources of certification and "organizations" referred to in the statements the commenters' references. Moreover, the latter statement is not quoted accurately. The Federal Register merely states that "[The American Water Works Association Research Foundation] will not judge the competence or reliability of [non-NSF product certification] organizations," and does *not* state that EPA is not evaluating or warranting the competency and reliability of NSF to establish standards, or to test and certify products.

Comment 12-61. Please see responses to Comments 12-53, 12-57, 12-58, and 12-60.

Comment 12-62. The Draft EIR has been revised and recirculated. Please also see responses to Comments 12-53, 12-57, 12-58, and 12-60, to see an explanation as to the NSF standard-setting and certification programs. Substantial evidence supporting reliance on NSF's standard-setting and certification programs is found in numerous documents and sources in the record supporting this EIR, including, among many other sources, Volume 53, No. 130 of the Federal Register (July 7, 1988).

Comment 12-63. The quoted language is simply a disclaimer of liability and is not relevant to the issue of whether it is appropriate for the Lead Agency to rely upon NSF's standard-setting and certification programs in this EIR. As explained in the response to Comment 12-62, there is substantial evidence in the record supporting such reliance.

Comment 12-64. The Lead Agency disagrees with this comment. As explained in the responses to Comments 12-53, 12-57, 12-58, 12-60, and 12-62, substantial evidence in the record supporting this EIR supports reliance on NSF's standard-setting and certification programs.

Comment 12-65. Please see response to Comment 12-64. The Lead Agency disagrees with this comment. The Lead Agency chooses to rely upon NSF standards, testing, and certification, reliance upon which is supported by substantial evidence in the record, rather upon the procedures of "some foreign countries."

Comment 12-66. Please see response to Comment 12-64.

Comment 12-67. Please see response to Comment 12-64.

Comment 12-68. Please see response to Comment 12-64.

Comment 12-69. Please see response to Comment 12-64.

Comment 12-70. Please see response to Comment 12-64.

Comment 12-71. Please see responses to Comments 12-53, and 12-57 through 12-70.

Comment 12-72. Reliance in the current EIR upon the analysis set forth in the 2000 Mitigated Negative Declaration is appropriate and does not violate CEQA. As explained in Section 3.31 of the Recirculated Draft EIR, the current EIR is a subsequent EIR to the 2000 Mitigated Negative Declaration prepared pursuant to CEQA Guidelines Section 15162. The use and purpose of a subsequent EIR is fundamentally different in nature from the use of a tiered EIR prepared in reliance upon a program EIR. "Tiering" refers to the coverage of general matters and environmental effects in a broad EIR prepared for a policy, plan, program, or ordinance followed by a narrower or site specific EIR that provides a detailed study of issues specific to a later, specific project based on the earlier approval of the policy, plan, program, or ordinance. (Cal. Pub. Res. Code § 21068.5.)

The "tiering" provisions under CEQA Guidelines section 15152, however, are inapplicable to the Project analyzed in the current EIR, which consists of changes to an earlier approved code provision. Rather than the requirements for tiering under CEQA Guidelines Section 15152, changes to previously approved projects must be evaluated as required by CEQA Guidelines Section 15162, which requires preparation of a subsequent EIR if changes to a project are proposed which will require major revisions of a previously prepared EIR or negative declaration because of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. Applying CEQA Guidelines section 15162, the Lead Agency decided to prepare the current EIR after determining that the Project would change the provisions of the California Plumbing Code that were analyzed in the 2000 Mitigated Negative Declaration in a manner that could involve such new significant environmental effects or a substantial increase in the severity of previously identified significant effects. As such, the current EIR is a "subsequent EIR" and does not "tier" off the 2000 Mitigated Negative Declaration as suggested by the commenters.

Comment 12-73. As explained in the response to Comment 12-72, the current EIR is a "subsequent EIR" and does not "tier" from the 2000 Mitigated Negative Declaration. CEQA Guidelines Section 15162(b) specifically provides for the preparation of a subsequent EIR after adoption of a negative declaration. Thus, it is appropriate for the current EIR to rely on the prior analysis in the 2000 Mitigated Negative Declaration, and the record supporting it, to the extent

that the proposed changes to the California Plumbing Code that comprise the Project will not result in new or substantially more severe potentially significant environmental impacts.

Comment 12-74. As explained in the response to Comment 12-72, the Recirculated Draft EIR is a "subsequent EIR" and does not "tier" from the 2000 Mitigated Negative Declaration. CEQA Guidelines Section 15152 specifically require the preparation of a subsequent EIR when substantial changes are proposed in a project which will require major revisions of a previous negative declaration due to the involvement of new significant effects or a substantial increase in the severity of previously identified significant effects. Removal of the Findings Requirement is precisely such a change in a project. Thus, the Lead Agency determined that a subsequent EIR to the 2000 Mitigated Negative Declaration should be prepared.

The decisions in *Apartment Association of Greater Los Angeles v. City of Los Angeles*, 90 Cal. App. 4th 1162 (2001) and *Chamberlin v. City of Palo Alto*, 186 Cal.App.3d 181 (1986) do not hold, as the commenters argue, that when the scope of a project expands, it becomes a new project, and the lead agency cannot rely on a prior CEQA document. First, both of these cases are collateral estoppel decisions, where the court is evaluating whether a new CEQA lawsuit is barred by resolution of a prior lawsuit; they are not cases arising in the context of whether a subsequent EIR may properly rely on a prior CEQA document. Further, the *Apartment Association* case involved the use of a CEQA exemption for a proposed action, where the earlier action also had been approved using a CEQA exemption. The court merely held that the section 15162 subsequent EIR test did not apply where the earlier approval occurred pursuant to a CEQA exemption, rather than an EIR or negative declaration. *Apartment Association*, 90 Cal. App. 4th at 1171. Finally, both cases are distinguishable because they are based on the initial approval of temporary programs, whereas here the Lead Agency's earlier approval of CPVC was for permanent statewide use.

Sierra Club v. County of Sonoma, 6 Cal. App. 4th 1307, 1320-21 (1992) does not apply here either. The *Sierra Club* case involved the process of "tiering," where a general, program EIR governing mining on a countywide basis had been prepared. The court held that the decision whether or not to prepare a more specific, project-level EIR was subject to the "fair argument" standard, because a new area proposed for mining was outside the area where mining had been evaluated in the prior program EIR. Here, however, the prior review was not a program EIR, and the current EIR was not prepared under CEQA's provisions for tiering, but rather as a subsequent EIR. The requirement that a project-level EIR must be "within the scope" of the program EIR is a requirement for tiering under CEQA, and *Sierra Club* does not hold that this requirement applies to the determination of whether a subsequent EIR regarding modifications to a previously approved project may property rely upon an EIR or negative declaration prepared for the prior project for portions of its analysis. 6 Cal. App. 4th at 1320-21. Moreover, in all three of the cases discussed above, the lead agency in question resisted the preparation of an EIR for the project at hand. In the present instance, the Lead Agency has agreed to prepare the current EIR, which is a subsequent EIR.

Please note that the commenters' estimate that CPVC currently is installed in only one to four percent of the annual residential plumbing installations in California is based on outdated

estimates. As explained on page 27 of the Recirculated Draft EIR, CPVC pipe is estimated to be used currently for approximately 13 percent of the annual residential water plumbing installations in California. The Lead Agency does not believe that CPVC could possibly be used for 100 percent of the residential plumbing within California, as copper is likely to remain on the market. Thus, the commenters' drastically overestimate the increase in the amount of CPVC usage that potentially could result from the Project.

With respect to the comment that the proposed code changes would require local building officials to allow the use of CPVC in residential buildings, please note that the purpose of the regulatory action is to allow builders and homeowners to use of CPVC as a matter of right, without any specific approval by the local building official. All environmental and public health risks have been analyzed and addressed by the current EIR; therefore, there would be no utility to further review by local building officials.

Comment 12-75. The Project analyzed in the Recirculated Draft EIR would not require the use of low-VOC CPVC primers and cements. Instead, the proposed mitigation measures for the Project would require the use of one-step, low-VOC CPVC adhesives. Requiring the use of low-VOC, but not one-step, CPVC primers and cements is analyzed as an alternative to the Project in the Recirculated Draft EIR. Potential worker safety impacts related to low-VOC CPVC cements and primers also are discussed on pages 146-147 of the Recirculated Draft EIR. The composition of low-VOC CPVC cements and primers may be different than the 2000 Mitigated Negative Declaration but such differences would not result in a significant adverse impact to worker safety. For more discussion on this issue as it relates to worker safety, please see the response to Comment 12-167. The Recirculated Draft EIR analysis of impacts related to leachates concludes that the Project will result in less than significant impacts. (RDEIR pp. 124-129). This analysis evaluates and is applicable to regular CPVC adhesives, low-VOC adhesives, and one-step cement, all of which are required to be NSF-certified under the Project and all alternatives analyzed in the Recirculated Draft EIR.

Comment 12-76. Please see the responses to Comments 12-72 through 12-74.

Comment 12-77. The commenterscite *Security Environmental Systems v. South Coast Air Quality Management District* as supporting the commenters' argument that the current EIR may not rely on the analysis in a prior document where new circumstances or new information may impact the accuracy and validity of the prior analysis. However, in that case, the court upheld an agency decision to prepare a subsequent EIR to a negative declaration under section 15162(a) of the CEQA Guidelines on the basis that substantial evidence supported the agency's decision. *Sec. Envtl. Sys. v. S. Coast Air Mgmt. Dist.*, 229 Cal. App. 3d 110, 132-33 (1991). This holding indicates that a court will defer to an agency's determination regarding whether a subsequent EIR must be prepared. In this case, the Lead Agency made such a determination, as this EIR is a subsequent EIR to the 2000 Mitigated Negative Declaration.

The other two cases cited by the commenters are not relevant. *Mira Monte Homeowners v. County of Ventura* merely held that an agency failed to comply with CEQA when it relied on a prior EIR without preparing a subsequent EIR. 165 Cal. App. 3d 357 (1985). *Christward*

Ministry v. Superior Court held that an agency prepared to comply with CEQA when it prepared a negative declaration rather than a subsequent EIR. These cases potentially could be relevant if the Lead Agency had decided to approve the Project based solely on the 2000 Mitigated Negative Declaration without preparing a subsequent EIR, or if the Lead Agency had prepared a negative declaration for the Project rather than a subsequent EIR, but neither is the case.

Nothing in the cases cited by the commenters suggests that a subsequent EIR may not rely on anything within the analysis in the prior environmental document. If that were the case, the new document would not be a subsequent EIR, but would begin the entire CEQA process anew. Instead, these cases and the provisions of CEQA and the CEQA Guidelines for subsequent and supplemental EIRs stand for the principle that a subsequent EIR must analyze substantial changes in a project, substantial changes that have occurred with respect to the circumstances under which a project is undertaken, or new information of substantial importance, if such changes or new information involves new significant environmental impacts or a substantial increase in the severity of previously identified significant effects. The Recirculated Draft EIR does precisely that, and properly may rely on the 2000 Mitigated Negative Declaration with respect to those impacts that were addressed in the 2000 Mitigated Negative Declaration and which would not substantially increase in severity due to the current Project.

Please also see responses to Comments 12-78 through 12-81 below.

Comment 12-78. The concerns expressed in the first sentence of this comment are addressed by the Recirculated Draft EIR on page 142 which specifically describes the reduced exposure limits for acetone (ACE). The Recirculated Draft EIR analysis of potential worker exposure to ACE incorporates the lowered ACE exposure limits. (RDEIR, pp. 142-149.) The analysis of worker safety impacts in the Recirculated Draft EIR fully evaluates current formulations of CPVC adhesives.

In addition, the adoption of new particulate matter air quality standards does not affect the accuracy and validity of any of the conclusions made in the 2000 Mitigated Negative Declaration. The Recirculated Draft EIR indicates that the Project would not increase emissions of particulate matter. (RDEIR at p.33). The commentesr have not presented any evidence to the contrary and the Lead Agency is not aware of any such evidence. Moreover, the 1998 EIR explained that regulation of the solvent cements used in joining CPVC pipe by CARB and local air districts will ensure that the use of these solvents will comply with all applicable air quality standards, including standards related to particulate matter. (1998 Final EIR at 62). This 1998 analysis is part of the basis for the 2000 Mitigated Negative Declaration's conclusions that air impacts will be less than significant, as those conclusions are based on the record for the 2000 action "as well as information in the record of previous examinations of CPVC by the Lead Agency. (2000 MND, Explanations of Checklist Judgments, pp. 3, 5).

Comment 12-79. Issues of the adequacy and enforceability of the flushing mitigation measure have been considered in the 2000 Mitigated Negative Declaration and in the record supporting the 2000 Mitigated Negative Declaration. There is no new information suggesting that there will be new significant environmental impacts or a substantial increase in the severity of previously

identified significant effects based on inadequacy or failure to enforce this mitigation measure. To the contrary, the potential impacts to consumers of drinking water within residential buildings plumbed with CPVC will be the same for buildings plumbed with CPVC pursuant to the Project as for buildings plumbed with CPVC pursuant to the 2000 Mitigated Negative Declaration project, as the flushing mitigation measure would remain applicable. This mitigation measure will not be removed or altered as part of the proposed revisions to the Plumbing Code. Further, under the existing Plumbing Code provisions regarding this mitigation measure, local building officials must obtain written certification from plumbing contractors and subcontractors that they will comply with the flushing mitigation measure prior to issuance of a building permit. Additionally, under the existing Plumbing Code provisions, any contractor or subcontractor found to have failed to comply with the flushing mitigation measure is subject to penalties set forth in California Health and Safety Code sections 17955 *et seq.* These requirements of the Plumbing Code will not be changed by the Project

Comment 12-80. The concerns expressed by this comment are addressed by the response to Comment 12-176. As explained in the response to Comment 12-176, evidence in the record supports the Lead Agency's conclusion that impacts of the Project related to worker safety will be less than significant.

Comment 12-81. Please see the responses to Comment 12-124 and 12-192. Also, please see the expanded analysis of solid waste impacts in Section 4.5 of the Recirculated Draft EIR. Contrary to the commenters' suggestion that the 2000 Mitigated Negative Declaration "did not analyze the lifecycle impacts of CPVC," the 2000 Mitigated Negative Declaration analyzed solid waste impacts related to the use of CPVC that would result from the approval of CPVC subject to the Findings Requirement. (2000 MND, Explanation of Checklist Judgments, pp. 21-22).

Comment 12-82. The Lead Agency believes that the EIR satisfies the informational standards set forth in this comment.

Comment 12-83. The Draft EIR has been revised and recirculated. However, the Lead Agency disagrees with this comment. The analyses in both the Draft EIR and the Recirculated Draft EIR are based on substantial evidence, and that evidence is cited in the EIR.

Comment 12-84. See response to Comment 12-82.

Comment 12-85. The revised project description in the Recirculated Draft EIR clearly describes the Project, explaining that it consists of the deletion of the existing "finding requirement so that CPVC may be used for any residential occupancy in the State of California, subject to the existing mitigation measures, but without the requirement for a finding by the local building official." The commenters' statement that "CPVC remains barred in . . . 96% to 99% of the homes being built or re-piped in the state" is misleading because it is based on outdated estimates of CPVC's share of the residential pipe material market in California. As explained on page 27 of the Recirculated Draft EIR, CPVC pipe is estimated to be used for approximately 13 percent of the annual residential water plumbing installations in California. The Lead Agency does not

believe that CPVC could possibly be used for 100 percent of the residential plumbing within California, as copper is likely to remain on the market.

Comment 12-86. The Recirculated Draft EIR has revised the initial Draft EIR's assumption that 30 percent of the homes constructed or repiped in California will use CPVC pipe if the Project is approved. As explained on page 28 of the Recirculated Draft EIR, the revised Project Description assumes that CPVC eventually could account for 32 percent of the market share for potable water pipe sold in California if the Project is approved. Moreover, as explained on page 46 of the Recirculated Draft EIR, the air quality analysis includes calculations of ROG emissions based on both a "design value," which conservatively assumes that CPVC pipe would account for 32 percent of the California residential market, and an even more conservative "maximum value," which assumes a market share of 58 percent.

Comment 12-87. Please see the response to Comment 12-86 for a description of the revised assumptions in the Recirculated Draft EIR regarding the potential amount of use of CPVC pipe in the California residential market if the Project is approved. As explained on page 45 of the Recirculated Draft EIR, the current market share of California was factored out of the calculation used to arrive at the assumptions used in the Recirculated Draft EIR analysis. The commenters' statement that "Arkansas . . . restrict[s] the use of CPVC" is misleadingly broad. Arkansas allows the use of CPVC for above-concrete installation in residential buildings, but restricts installation under the slab or concrete of a residential building plumbing system to instances where a state agency has determined that corrosive water would have an adverse effect on metallic piping. (App. 77 to Comment Letter 12). Thus, this restriction is not nearly as severe as the current Findings Requirement in California. It is unreasonable to believe that CPVC restrictions in small jurisdictions (e.g., Lake in the Hills, IL and Nacogdoches, TX) would noticeably affect estimates of the national market share of residential plumbing materials.

Comment 12-88. Please see the response to Comment 12-86 for a description of the revised assumptions in the Recirculated Draft EIR regarding the potential amount of use of CPVC pipe in the California residential market if the Project is approved. As explained on page 27 of the Recirculated Draft EIR, these revised assumptions are based on updated information regarding the North American market for residential plumbing materials.

Comment 12-89. Please see the response to Comment 12-88.

Comment 12-90. The comment is purely speculative in nature. The commenters have provided no evidence indicating that the portion of the market that would choose to use PEX in other states would choose CPVC if PEX was not an option. This comment ignores the fact that PEX currently accounts for a significant percentage of the California market share. The same NAHB Research Center information used in the Recirculated Draft EIR to estimate the current California market shares of CPVC and copper pipe for residential plumbing use, PEX accounted for 22 percent of the California market in 2004 and 35 percent in 2005, and PEX-Al-PEX accounted for 3 percent in 2004 and 7 percent in 2005. This is because PEX is approved by many local jurisdictions as an alternate building material under the California Plumbing Code, and such approval does not require any finding. PEX also is currently proposed for being added

to the California Plumbing Code as an allowed residential plumbing material, although not during the current California Plumbing Code cycle because the environmental review process for PEX has not been completed yet. Therefore, it is quite possible that PEX will be available in California as an alternative plumbing material before the market for CPVC residential plumbing materials in California eventually reaches its mature level.

Comment 12-91. Please see the response to Comment 12-86.

Comment 12-92. The statement in the DEIR that CPVC pipe is permitted for residential water distribution in the other 49 states is accurate. As explained in the response to Comment 12-87, the commenters' statement that "Arkansas . . . restrict[s] the use of CPVC" is misleadingly broad. Arkansas allows the use of CPVC for above-concrete installation in residential buildings, but restricts installation under the slab or concrete of a residential building plumbing system to instances where a state agency has determined that corrosive water would have an adverse effect on metallic piping. (App. 77 to Comment Letter 12). Thus, CPVC is allowed to be used for residential potable water distribution in Arkansas, subject to the restriction for use under building slabs or concrete, and the statement in the DEIR is accurate. The DEIR does *not* state that CPVC is permitted without any restriction in every jurisdiction within the other 49 states.

Comment 12-93. CPVC use in other jurisdictions is outside the scope of the Project, and outside the jurisdiction of the Lead Agency. However, the record reviewed and considered by the Lead Agency, including the source documents referenced in both the DEIR and Recirculated Draft EIR, analyzing the potential impacts of leaching, worker health, and other impacts of CPVC use in many cases are based on studies of CPVC use in other jurisdictions, and generally is applicable to analyzing CPVC use in other jurisdictions.

Comment 12-94. Please see the response to comment 12-92. The Lead Agency has independently reviewed the entire record supporting the current EIR.

Comment 12-95. The Draft EIR has been revised and recirculated. The Project analyzed in the Recirculated Draft EIR no longer includes a requirement for the use of low-VOC primers and cements. Use of low-VOC CPVC adhesives is identified as a mitigation measure in the Recirculated Draft EIR, however, and requiring the use of low-VOC adhesives is also analyzed in the Alternatives chapter of the Recirculated Draft EIR. Please also see the response to Comment 12-167, which addresses the concern expressed in this comment regarding potential worker health and safety impacts related to low-VOC adhesives.

Comment 12-96. The Lead Agency acknowledges that the language quoted in the first sentence of this comment was part of the Draft EIR. The concerns expressed in the remainder of the comment are addressed by the response to Comment 12-167.

Comment 12-97. Please see the responses to Comments 12-95 and 12-96.

Comment 12-98. The Project consists of the deletion of the existing finding requirement so that CPVC may be used for any residential occupancy ion the State of California, subject to the

existing mitigation measures, but without the requirement for a finding by the local building official. The Project does not involve the approval of any other aspect of the plumbing system related to CPVC. The plumbing system components described by the commenters are part of the existing California Plumbing Code requirements for the existing use of CPVC pipe subject to the Findings Requirement, and will not be changed by the Project. Therefore, it is not necessary to include these components in the EIR project description.

Comment 12-99. The potential failure of CPVC pipe is not a new issue that is any different for the current Project than the existing use of CPVC subject to the Findings Requirement, which was the project analyzed in the 2000 Mitigated Negative Declaration. This issue was analyzed in the 1998 EIR that is part of the record supporting the 2000 Mitigated Negative Declaration, and the commenters have not provided any new information indicating that this impact would be substantially more severe than contemplated in the 2000 Mitigated Negative Declaration. The analysis in the 1998 EIR concluded that approval of CPVC pipe for statewide use in residential plumbing would not result in significant adverse impacts due to failure of the pipe. (1998 Final EIR at 40). The 1998 Final EIR explained, "[t]here is no evidence that CPVC pipe is more likely to fail than other currently approved types of pipe under the conditions of proposed use." (1998 Final EIR at 40). The 1998 EIR also explained that the physical characteristics of CPVC pipe do not suggest it has any intrinsic properties which would make it more likely to fail than materials currently in use for potable water in residential buildings, and that the history of CPVC use in mobile homes, manufactured homes, and other uses already allowed in California and other states does not suggest any patterns of failure. (1998 Final EIR at 37). Moreover, the 1998 EIR explained that CPVC pipe is tested and certified as suitable for residential use under the NSF 14 standard. (1998 Final EIR at 37).

In addition, the 1998 EIR addressed the particular concerns now raised by the commenters regarding failure of CPVC due to contact with incompatible materials, stating: "The lead agency is not aware of any situations where CPVC pipe has failed in use for reasons other than improper installation or extreme events. Improper installation includes the use of incorrect materials . . . and placing CPVC in contact with incompatible materials."
(1998 Final EIR at 38). The 1998 EIR explained that the potential for failure due to contact with incompatible materials is not unique to CPVC pipe, stating that "[i]mproper installation and contact with incompatible materials can and does cause failure of mechanical failure of metallic pipe." (1998 Final EIR at 38). The 1998 FEIR concluded as follows:

> Some measure of flooding and water damage due to the failure of piping for potable water in residential buildings, then, is part of the existing environment, and the issue is whether or not CPVC pipe use would be likely to cause a significant increase in flooding due to pipe failure. Based on the evidence discussed in this EIR, approving the use of CPVC for potable water systems in residential buildings would most likely result in a net decrease in the flooding and water damage due to the failure of pipe, not an increase.

(1998 Final EIR at 39). The analysis and conclusion described in the 1998 EIR, which is part of the record supporting the 2000 Mitigated Negative Declaration, remain applicable to and unaffected by the current Project.

Comment 12-100. This is not a new impact of the current Project, and this issue was already evaluated in the 1998 EIR that is part of the administrative record supporting the 2000 Mitigated Negative Declaration. This issue was considered by the Lead Agency before the approval of the project analyzed in the 2000 Mitigated Negative Declaration, as this issue was raised by the California Pipe Trades Council in previous comments dated September 26, 1997, which are included in the record.[10] The 1998 EIR and the 2000 Mitigated Negative Declaration indicate that the requirement of NSF certification would avoid significant impacts, if a new formulation were proposed. This evidence already in the record at the Lead Agency confirms that this issue is not new, that there is no new or substantially more severe significant impact, and that the current EIR is not required to further evaluate this issue.

Moreover, these claims are speculative. There is no proposal for a new formulation of CPVC pipe or solvent before the Lead Agency. Speculation is not substantial evidence. Cal. Pub. Res. Code § 21080(e)(2). The Project only includes the deletion of the Findings Requirement, and does not involve any proposed change in the formulation of CPVC pipe or solvent. As such, the EIR is not required to specify precisely the composition of products to be sold. The composition of CPVC, fittings, and joining materials may vary over time. The basic constituents and potential contaminants were identified and analyzed in the Recirculated Draft EIR insofar as they might contribute to potential significant environmental impacts. This is sufficient.

Moreover, even if a new formulation of CPVC pipe or adhesives were to be proposed in the future, it would undergo the same testing for public health concerns that has already been conducted for current formulations. The 1998 Final EIR explained that "[a]ny CPVC material that might be used in California under the proposed building standards would be certified as meeting [NSF] standards" established to assure the safety and suitability of substances added to drinking water and materials coming into contact with drinking water. (1998 Final EIR at 9). The Final EIR further explained that testing and certification that materials such as CPVC meet NSF standards "is performed by qualified, independent, non-governmental organizations having ANSI certification. NSF and Underwriters Laboratories Inc. are two such organizations. In California, NSF testing and certification . . . is relied upon by public agencies in several other programs related to safety and suitability of materials that come into contact with drinking water." (1998 Final EIR at 9). Please see the responses to Comments 12-57, 12-58, and 12-60 for an explanation as to why it is appropriate for the Lead Agency to rely upon NSF standards, testing, and certification with respect to CPVC pipe and adhesives.

Similarly, the 2000 Mitigated Negative Declaration indicates that "only CPVC plumbing material listed as an approved material . . . in accordance with the California Plumbing Code could be used." (2000 MND at 1-2). Additionally, the appendices to the 1998 EIR, which are also included in the record supporting the 2000 Mitigated Negative Declaration and the current

[10] Comments of California Pipe Trades Council on the Scope of CPVC EIR at 5-7 (Sept. 26, 1997).

EIR, include a letter from NSF describing NSF's process for evaluating formulation changes. (1998 Final EIR, Appendix E.3, Letter from James G. Kendzel, Vice President, Quality Assurance, NSF International to Robin Reynolds, Department of Housing and Community Development, Legal Affairs Divisions at p.8 (Oct. 19, 1998)). The letter describes this process as follows:

> NSF has an established process for determining the acceptability of formulation changes. Manufacturers of materials and ingredients are required to notify NSF prior to any change to the material or its ingredients. . . . Program Policy 31, Materials or Compounds Used in Certified Products and Program Policy 28, Use of Unauthorized Materials, Compounds or Ingredients, provide the specific NSF requirements. The proposed change is reviewed by NSF and a determination made as to its acceptability. This includes both review of the information on specific ingredients used and any testing necessary to determine compliance of the final product. It should be noted that NSF Certified products can only be produced from materials authorized by NSF. Unauthorized changes to the formulation is not permitted.

The 1998 letter from NSF also describes NSF's process for monitoring compliance with this requirement and its enforcement procedures.

The Project is the approval of revisions to the California Plumbing Code that will allow the use of CPVC pipe without the requirement that a local building official make specific findings, but with all other Code requirements and mitigation measures remaining in place. One such Code requirement is the requirement that all potable water piping products meet the NSF 61 standard. The Project, therefore, would not approve the use of imported CPVC (e.g., from the Pacific Rim) unless it is certified by NSF.

In sum, claims regarding potential health concerns raised by new formulations of CPVC pipe or solvents are speculative, they are not related to the proposed action before the Lead Agency, and they are not a new issue because they were analyzed in the record supporting the 2000 Mitigated Negative Declaration.

Comment 12-101. Please see the response to Comment 12-100.

Comment 12-102. The Lead Agency believes that the EIR satisfies the informational standards set forth in this comment.

Comment 12-103. The Draft EIR has been revised and recirculated. The thresholds of significance used in the Recirculated Draft EIR have been substantially revised.

Comment 12-104. Please see the response to Comment 12-103.

Comment 12-105. Please see the response to Comment 12-103. The threshold of significance suggested by CARB is used in the revised air quality analysis included in the Recirculated Draft EIR.

Comment 12-106. Please see the response to Comment 12-103.

Comment 12-107. The Draft EIR has been revised and recirculated. The Lead Agency believes that the Recirculated Draft EIR's discussion of Project impacts meets the requirements of CEQA.

Comment 12-108. Please see the response to Comment 12-107. The Recirculated Draft EIR includes a substantially revised analysis of air quality impacts.

Comment 12-109. Please see the response to Comment 12-107. Although they have been substantially revised in the Recirculated Draft EIR, the Draft EIR's sections analyzing various project impacts included quantification, empirical analysis and factual examination.

Comment 12-110. Please see the response to Comment 12-107.

Comment 12-111. The Lead Agency believes that the EIR satisfies the informational standards set forth in this comment.

Comment 12-112. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR includes a substantially revised analysis of air quality impacts.

Comment 12-113. Please see the response to Comment 12-112. The Lead Agency disagrees that the Draft EIR "substantially understate[d]" the scope of the Project's air quality impacts. Nevertheless, the Lead Agency believes that the revised air quality analysis in the Recirculated Draft EIR appropriately takes a more conservative approach to analyzing the Project's potential air quality impacts.

Comment 12-114. Please see the response to Comment 12-105.

Comment 12-115. Please see the response to Comment 12-112. The revised air quality analysis no longer includes a comparison of Project VOC emissions to background emissions.

Comment 12-116. Please see the response to Comment 12-112. The revised air quality analysis adequately identifies and analyzes health impacts resulting from the Project's potential adverse air quality impacts. (RDEIR at p. 34).

Comment 12-117. Please see the response to Comment 12-112. The revised air quality analysis identifies requiring the use of one-step cements as a feasible mitigation measure.

Comment 12-118. Please see the responses to Comments 12-112 and 12-113.

Comment 12-119. Please see the responses to Comments 12-112 and 12-113.

Comment 12-120. Please see the responses to Comments 12-86, 12-112 and 12-113. Moreover, the revised air quality analysis in the Recirculated Draft EIR uses a "maximum value" market share of 58% which exceeds the commenters' recommended 56% share.

Comment 12-121. Please see the response to Comment 12-112. As explained on page 44 of the Recirculated Draft EIR, the Draft EIR erroneously stated that there would be 100,000 houses per year re-piped with *CPVC* rather than with *all plumbing materials*. Therefore, the Draft EIR did not underestimate VOC emissions in the manner described by the commenters. The Recirculated Draft EIR corrects this misstatement.

Comment 12-122. Please see the response to Comments 12-112 and 12-113. As explained on pages 44-45 of the Recirculated Draft EIR, the Recirculated Draft EIR addresses the potential use of CPVC to repair slab leaks in its calculations of potential air quality impacts.

Comment 12-123. Please see the response to Comment 12-112. As explained on page 47 of the Recirculated Draft EIR, primer and cleaner are synonyms and are used interchangeably. Therefore, by accounting for VOC emissions from primers in calculating potential air quality impacts, both the Draft EIR and the Recirculated Draft EIR accounted for VOC emissions from cleaners.

Comment 12-124. The comment asserts that the increased use of CPVC will lead to new or more severe environmental impacts resulting from increased manufacturing of CPVC pipe, fittings, and adhesives. The comment itself demonstrates, however, that this issue was evaluated by the Lead Agency in the record that supports the adoption of the 2000 Mitigated Negative Declaration, because the comment cites to the 1982 initial study. This initial study was part of the 1989 EIR that was prepared by the Lead Agency, and the 1989 EIR is part of the overall record at the Lead Agency that supports the issuance of the 2000 Mitigated Negative Declaration. A comment that is based in part on analysis prepared in 1982 by definition does not demonstrate a new impact not previously considered.

Moreover, CPVC compound is not manufactured in California. Therefore, the Lead Agency disagrees with the comment to the extent that the Project likely will increase manufacturing of CPVC compound in California. However, there is one facility in California, the Harvel facility in Bakersfield, that manufactures CPVC pipe out of CPVC compound manufactured out-of-state. Additionally, some CPVC adhesives are manufactured in California. For instance, the Lead Agency is aware that IPS Corporation has manufacturing facilities located within the South Coast Air Quality Management District (SCAQMD). SCAQMD adopts, implements, and enforces rules to reduce or eliminate emissions of VOCs/ROGs, toxic air contaminants, and stratospheric ozone-depleting or global-warming compounds. Because it is considered a stationary source, the IPS manufacturing facility is limited by SCAQMD permit conditions as to

throughput and use of emission control technology to minimize emissions.[11] Any other manufacturing plants in California, including the Harvel facility that manufactures CPVC pipe, are subject to similar local air quality district permit requirements. If manufacturing at a particular facility were to exceed levels allowed under existing permits, the local air district would need to comply with the environmental review requirements of CEQA in determining whether to approve a revised or new permit.

Comment 12-125. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR includes a revised air quality analysis, with revised computations, assumptions, and statistical analysis. As explained in Section 4.2.4 of the Recirculated Draft EIR, the revised air quality analysis includes standard deviations, as well as assumptions and approximations for both design and worst-case scenarios.

Comment 12-126. The Draft EIR has been revised and recirculated. The revised air quality analysis in the Recirculated Draft EIR includes revised computations.

Comment 12-127. Please see the response to Comment 12-126.

Comment 12-128. As explained on page 48 of the Recirculated Draft EIR, the revised air quality analysis accounts for seasonal variations in construction activity. As explained on pages 44-45 of the Recirculated Draft EIR, the revised analysis also accounts for use of CPVC pipe to repair slab leaks. Please see the response to Comment 12-124 regarding indirect emissions from manufacturing.

Comment 12-129. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR includes a revised air quality impacts that the Lead Agency believes meets the disclosure requirements of CEQA. The Lead Agency disagrees with the comment that the Draft EIR "substantially understate[ed]" air quality impacts.

Comment 12-130. The revised air quality analysis in the Recirculated Draft EIR uses both the operational and construction significance thresholds for VOC, as recommended by CARB.

Comment 12-131. The revised air quality analysis in the Recirculated Draft EIR uses the quantitative thresholds of significance recommended by CARB.

Comment 12-132. The revised air quality analysis in the Recirculated Draft EIR no longer includes a comparison of Project VOC emissions to background emissions.

Comment 12-133. Natural background VOC emissions are factored into state and federal regulatory agencies' determinations as to whether or not air basins are in attainment under ozone regulations. The analysis of cumulative air quality impacts on pages 221-222 of the Recirculated Draft EIR evaluates the Project's contribution of VOCs to air basins that are classified as non-

[11] Letter from Richard B. Winn, MS, CSP, Manager – Safety & Environmental Affair, IPS Corporation re: Facts about the manufacture of CPVC Solvent Cements in California (Jan. 4, 2007).

attainment or nonattainment-transitional under state and federal ozone regulations. Therefore, the Recirculated Draft EIR's analysis of cumulative air quality impacts analyzes natural background VOC emissions in the context of the Project's cumulative impacts. The Recirculated Draft EIR fully discloses the potential magnitude of adverse impacts on air quality.

Comment 12-134. Section 4.2 of the Recirculated Draft EIR includes a discussion of the adverse health effects related to ozone, and therefore complies with the requirement under CEQA that an EIR discuss health and safety problems caused by the physical changes that the proposed project will precipitate. This discussion has been expanded in the Final EIR. Please see the revisions to page 34 of the Recirculated Draft EIR located in Section 3.0, Revisions and Errata, of this Final EIR.

Comment 12-135. The Recirculated Draft EIR identifies the use of one-step cement (without primer) as a feasible mitigation measure. The Recirculated Draft EIR evaluates an alternative that would require the use of low-VOC cements and primers and another alternative that would require the use of low-VOC, one-step cements. The Project also would maintain the existing flushing, ventilation, and glove mitigation measures that were adopted into the California Plumbing Code as part of the project analyzed in the 2000 Mitigated Negative Declaration. As such, the Recirculated Draft EIR identifies all feasible mitigation measures and evaluates all feasible project alternatives that could substantially lessen or avoid any potential significant environmental effects of the Project. Low-VOC CPVC cements and primers and one-step cements are alternative joining compounds that are analyzed in the Recirculated Draft EIR. No evidence has been presented to the Lead Agency that other feasible alternative joining compounds or methods exist that would further mitigate the Project's impacts.

Comment 12-136. Neither the Lead Agency nor the California Building Standards Commission as a responsible agency has the jurisdiction to require CPVC manufacturers and residential builders to fund research for primers and sealers with a lower VOC content. Therefore, such funding is not a feasible mitigation measure.

Comment 12-137. The Draft EIR has been revised and recirculated. The water quality analysis in the Recirculated Draft EIR includes an evaluation of potential impacts related to leachates, including the chemicals identified in the comment. The 1998 EIR, which is part of the record supporting the water quality analysis in the 2000 Mitigated Negative Declaration, also analyzed water quality impacts related to each of these chemicals. The 2000 Mitigated Negative Declaration and the 1998 EIR both concluded that the Project will result in less than significant environmental impacts related to leaching of these chemicals, as does the current EIR. (RDEIR pp. 124-129).

Comment 12-138. The analysis of potential impacts related to leachates in the Recirculated Draft EIR analyzes impacts related to potential leaching of tetrahydrofuran (THF)

Comment 12-139. The analysis of potential impacts related to leachates in the Recirculated Draft EIR analyzes impacts related to potential leaching of methyl ethyl ketone (MEK).

Comment 12-140. The analysis of potential impacts related to leachates in the Recirculated Draft EIR analyzes impacts related to potential leaching of THF, MEK, and acetone. The Recirculated Draft EIR concludes, in part due to the requirement that CPVC adhesives be tested and certified to NSF standards, that such impacts will be less than significant.

Comment 12-141. As explained in the water quality analysis in the Recirculated Draft EIR, tributyltin (TBT) is not a component of CPVC, except perhaps as a trace contaminant at extremely low concentrations with no human health or other environmental significance. The Lead Agency has been presented with no evidence that other triorganotins are present in CPVC. As explained in the 1998 EIR, which is part of the record supporting the 2000 Mitigated Negative Declaration, dibutyltin and other organotins used as stabilizers in CPVC are far less toxic than tributyltin. (1998 Final EIR at 50). As the Recirculated Draft EIR explains, all CPVC pipe allowed for use in California under the both the current California Plumbing Code and under the proposed code changes that comprise the Project must be tested and certified by NSF to meet NSF/ANSI standards, including standards for organotins.

Comment 12-142. The Draft EIR has been revised and recirculated. The water quality section of the Recirculated Draft EIR includes an evaluation of potential leaching of organotins, and determines that these leachates will be mitigated to a less than significant level. Please see the response to Comment 12-79 for additional explanation regarding the effectiveness the existing flushing mitigation measure, which was evaluated in the 2000 Mitigated Negative Declaration and in the record supporting the 2000 Mitigated Negative Declaration.

Comment 12-143. The Draft EIR has been revised and recirculated. The water quality section of the Recirculated Draft EIR includes an evaluation of potential leaching of organotins.

Comment 12-144. Please see the response to Comment 12-60, which explains in detail why the EPA's decision in 1998 to perform its own in-depth evaluation of the occurrence of organotins and related toxicological data does not indicate that the EPA no longer supports reliance on NSF standards and certification to ensure that organotins in drinking water do not exceed safe levels. Please also see the response to Comment 12-141. Tributyltins are not a component of CPVC. The revised water quality analysis in the Recirculated Draft EIR concludes that impacts related to the potential leaching of organotins will be less than significant. The commenters also mischaracterize the discussion in the EPA's March 2, 1998, Federal Register notice of potential organotin contamination from new CPVC systems by stating that "EPA cited in support of this conclusion *numerous reports* demonstrating that new CPVC systems have the potential to contaminate drinking water with organotin compounds for a significant period of time after installation." The Federal Register does make this statement, but cites only one report (Forsyth and Jay 1997) as support.

Comment 12-145. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR discusses Project impacts related to potential leaching of various chemicals, including organotins, in Section 4.3, Water Quality, pp. 124-129. NSF standards set the applicable drinking water concentration limit for organotins within the United States, pursuant to a program that was established as the result of EPA efforts, and all CPVC pipe and adhesives that would be

allowed for residential potable water use pursuant to the code changes that comprise the Project would require NSF-certification to NSF standards. Please see responses to Comments 12-57, 12-58, and 12-60 for a detailed description the NSF standard-setting and certification programs. It is unclear what assumptions and calculation methodology the study by the German Federal Institute for Health Protection of Consumers and Veterinary Medicine used in obtaining the results summarized in English-language sources, and the Lead Agency is unable to confirm that the assumptions and methodology used were reasonable. However, regardless of the assumptions and methodology used in that study, the Lead Agency declines to apply a standard recommended by the German Federal Institute for Health Protection of Consumers and Veterinary Medicine in place of the NSF standards and the Minimal Risk Levels ("MRLs") established by the Agency for Toxic Substances and Disease Registry ("ATDSR"), both of which are applicable within the United States.

As explained in Comment 14-47, the ATDSR recommended MRL for dibutyltin is 0.005 mg/kg-day, which corresponds with 175 ug/L for a 70 kg person drinking 2 L of water/day. As explained in Comment 14-49, NSF screening data for CPVC materials, pipes, and fittings for product certification indicate concentrations of dibutytltin in CPVC ranging from .0013 ug/L to 140 ug/L, with an average of 11 ug/L Thus, the Maximum Drinking Water Level ("MDWL") of 20 ug/L with a Short Term Exposure Level ("STEL") of 100 ug/L that was used in the 1998 EIR analysis of potential impacts related to leaching of dibutyltin (see 1998 Final EIR pp. 49-50) meets the ATDSR MRL of 175 ug/L. More importantly, the NSF screening data indicate that maximum concentrations of dibutyltin would be 140 ug/L, which is well below the ATDSR MRL of 175 ug/L. In addition, the average concentration of dibutytlin of 11 ug/L is even further below the ATDSR MRL.

As explained in the response to Comment 12-141, tributyltin (TBT) is not a component of CPVC. Thus, new ATDSR recommendations for tributyltin are not relevant to the analysis of the Project's potential water quality impacts.

Comment 12-146. All CPVC pipe and CPVC adhesives are certified to NSF standards. As explained in the responses to Comments 12-53, 12-57, 12-58, and 12-60, the NSF system of standards are applicable nationwide and are supported by the EPA as a program to assure the safety and suitability of substances and materials that come into contact with drinking water. These standards are recommended by the NSF Council of Public Health Consultants and are approved by the American National Standards Institute.

NSF testing and certifications to established standards is relied upon in a number of human health and safety-critical situations. For contaminants of concern in drinking water, both the U.S. EPA and the California Department of Health Services have established Maximum Contaminant Levels (MCLs) intended to protect human health with a reasonable margin of safety. The MCLs form the basis for NSF standards. For contaminants for which there is no MCL, a risk assessment (Maximum Allowable Level or MAL) is calculated by NSF, following a standard risk assessment protocol developed in concert with the EPA. There are two sets of standards- Maximum Drinking Water levels (MDWL) and Short Term Exposure Levels (STEL). The MCLs are levels at which no adverse human health impacts would be expected throughout a

lifetime of exposure. The MCL also incorporates a margin of safety. For contaminants which have an established MCL, this forms the basis for the NSF Standard. In the case of organotins, there are no U.S. EPA or California Department of Health Services established MCLs. Hence, the MDWL and STEL for mono and dibutyltin are 20 ppb and 100 ppb respectively. As explained in the response to Comment 12-141, and in the water quality analysis in the Recirculated Draft EIR, tributyltin (TBT) is not a component of CPVC, except perhaps as a trace contaminant at extremely low concentrations with no human health or other environmental significance.

Moreover, this comment relies upon Comment Letter 14, which was prepared by Thomas S.. Reid. In Comment 14-51, Mr. Reid himself explains that the NSF-61 single product allowable concentration ("SPAC") standard "is intended to account for potential contribution by multiple products or materials in the drinking water system." In other words, other potential sources of contaminants are accounted for in the NSF standards that apply to CPVC pipe and adhesives. Thus, as the Recirculated Draft EIR water quality analysis concludes, safe potable drinking water would be ensured by only using CPVC piping systems carrying the NSF certification mark, as is required by the existing code provisions that the Project will not change.

Comment 12-147. All CPVC pipe that could be used in California pursuant to the Project will be required to be certified by NSF to NSF/ANSI 61 standards. Thus, dibutyltin levels in drinking water resulting from the additional use of CPVC pipe in residential plumbing systems will not exceed the levels established by NSF/ANSI 61. As explained in the response to Comment 12-145, the Lead Agency declines to apply a standard recommended by the German Federal Institute for Health Protection of Consumers and Veterinary Medicine in place of the NSF standards and the Minimal Risk Levels established by the Agency for Toxic Substances and Disease Registry, both of which are applicable within the United States.

Comment 12-148. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR does not make the statements referenced in this comment. Nevertheless, the Lead Agency believes that it is readily apparent that a reduction in the amount of a given chemical present in CPVC adhesives would reduce the amount of the same chemical that would be discharged into wastewater. Moreover, the proposed code changes that comprise the Project analyzed in the Recirculated Draft EIR do not require the use of low-VOC adhesives, although adding such a requirement is analyzed in the Recirculated Draft EIR as an alternative to the Project.

Comment 12-149. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR does not make the statements referenced in this comment. Moreover, the proposed code changes that comprise the Project analyzed in the Recirculated Draft EIR do not require the use of low-VOC adhesives, although adding such a requirement is analyzed in the Recirculated Draft EIR as an alternative to the Project. As explained in the revised water quality analysis in the Recirculated Draft EIR, due in part to the existing flushing mitigation measure and the fact that all CPVC adhesives that could be used in California pursuant to the Project will be required to be certified by NSF to NSF/ANSI 61 standards, the Project will result in less than significant impacts related to leachates. As explained on pages 177-178 of the Recirculated Draft EIR, the same analysis applies to the Low-VOC Adhesives Alternative.

Comment 12-150. Please see the response to Comment 12-149 for a response to the comment regarding leaching of chemicals due to the use of low-VOC adhesives. Please see the response to Comment 12-167 for a response to the comment by Dr. Jim Bellows cited by the commenters. In addition, as explained in the responses to Comments 12-53, 12-57, 12-58, and 12-60, it is appropriate for the Lead Agency to rely upon NSF certification, and CEQA does not require that the Lead Agency obtain and independently analyze all data used by NSF in the testing and certification process (such as the composition of CPVC adhesives from manufactures) in order to adequately analyze potential impacts related to adhesives.

Comment 12-151. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR no longer makes this statement, and includes an analysis of potential impacts related to leaching of organotins.

Comment 12-152. Please see the response to Comment 12-100.

Comment 12-153. The evidence submitted by the commenters during the Draft Addendum proceedings is part of the record that was evaluated and considered by the Lead Agency in preparing the current EIR. Please see the response to Comment 12-79 for an explanation regarding the effectiveness the existing flushing mitigation measure, which was evaluated in the 2000 Mitigated Negative Declaration and in the record supporting the 2000 Mitigated Negative Declaration.

Comment 12-154. Please see the response to Comment 12-79.

Comment 12-155. Please see the response to Comment 12-79.

Comment 12-156. As explained in the responses to Comments 12-72 through 12-74, it is appropriate for the current EIR to rely upon the conclusions and analysis in the 2000 Mitigated Negative Declaration to the extent that the proposed changes in the Plumbing Code would not result in significant new impacts or a substantial increase in the severity of existing impacts. The flushing mitigation measure has been in place since the adoption of the code changes that were analyzed in the 2000 Mitigated Negative Declaration, and the ability of the flushing mitigation measure to reduce leaching impacts would not be affected by the current Project, which would not change this mitigation measure. Please see the response to Comment 12-79 for an explanation regarding the effectiveness the existing flushing mitigation measure, which was evaluated in the 2000 Mitigated Negative Declaration and in the record supporting the 2000 Mitigated Negative Declaration.

Comment 12-157. Please see the response to Comment 12-79 for an explanation regarding the effectiveness the existing flushing mitigation measure, which was evaluated in the 2000 Mitigated Negative Declaration and in the record supporting the 2000 Mitigated Negative Declaration. As explained in the response to Comment 12-145, the Lead Agency declines to apply a standard recommended by the German Federal Institute for Health Protection of Consumers and Veterinary Medicine in place of the NSF standards and the Minimal Risk Levels

established by the Agency for Toxic Substances and Disease Registry, both of which are applicable within the United States.

Comment 12-158. Please see the response to Comment 12-79 for an explanation regarding the effectiveness the existing flushing mitigation measure, which was evaluated in the 2000 Mitigated Negative Declaration and in the record supporting the 2000 Mitigated Negative Declaration.

Comment 12-159. The Lead Agency believes that the mitigation measures identified and relied upon in the EIR satisfy the standards set forth in this comment. Please see the response to Comment 12-79 for an explanation regarding the effectiveness the existing flushing mitigation measure.

Comment 12-160. Please see the response to Comment 12-159.

Comment 12-161. Please see the response to Comment 12-79 for an explanation regarding the effectiveness the existing flushing mitigation measure, which was evaluated in the 2000 Mitigated Negative Declaration and in the record supporting the 2000 Mitigated Negative Declaration. It is also worth noting that the flushing mitigation measure applies to all pipe products approved for use in California and, therefore, is familiar even to plumbers who have not previously installed CPVC pipe.

Comment 12-162. Please see the response to Comment 12-79 for an explanation regarding the effectiveness the existing flushing mitigation measure, which was evaluated in the 2000 Mitigated Negative Declaration and in the record supporting the 2000 Mitigated Negative Declaration. There is substantial evidence in the record supporting continued reliance on these existing mitigation measures.

Comment 12-163. The Lead Agency has evaluated and considered the comments presented during the Draft Addendum proceedings and presented by the commenters regarding the current EIR, and concludes that there is substantial evidence in the record supporting continued reliance on these existing mitigation measures, which is feasible and enforceable for the reasons indicated in the response to Comment 12-79.

Comment 12-164. Section 4.4 of the Recirculated Draft EIR evaluates potential impacts to worker safety during the installation of CPVC pipe as part of the proposed project. The 1989 study by the Department of Health Services (DHS), *Plastic Pipe Installation: Potential Health Hazards for Workers*, by Kizer, K.W. et al. (hereinafter, the "1989 DHS Study"), is first described on page 143 of the Recirculated Draft EIR and then discussed and analyzed in depth over pages 144 to 149. In particular, the Recirculated Draft EIR reviewed and analyzed the 1989 DHS Study's findings regarding short-term worker exposure (RDEIR, pp. 144-147) and full-shift worker exposure (RDEIR, pp. 147-149) to chemicals associated with CPVC solvents and cements during installation, namely acetone (ACE), cyclohexanone (CHX), methyl ethyl ketone (MEK), and tetrahydrofuran (THF).

Regarding short term exposure, the results of the 1989 DHS Study indicated that installers of CPVC pipe experienced very low levels of exposure to the solvents even though most workers did not follow safety instructions. Even the few overexposures that did occur were recorded in very low air flow areas. Thus, it is anticipated, based on data available in the record, that improvements in ventilation, as required by following proper safety procedures and the mitigation measures that were included in the California Plumbing Code as part of the Project evaluated in the 2000 Mitigated Negative Declaration would minimize or eliminate these exposure risks. Specifically, Section 301.0.2.1 of Appendix I, Installation Standards, California Plumbing Code requires mechanical ventilation to maintain exposures in enclosed spaces to below relevant exposure limits, and where mechanical ventilation is not practical, requires the use of respirators suitable for protecting against organic vapors. (RDEIR, pp. 145-146.)

The short-term exposure data in the 1989 DHS Study is supported by a June 1982 study performed by the National Institute for Occupational Safety and Health (NIOSH) to evaluate possible hazards to plumbers and pipefitters resulting from exposures during the installation of plastic pipe. (NIOSH, Health Hazards Evaluation Report No. 82-293, p. 1.) The NIOSH report also found that short-term exposure levels to tested chemicals during pipe installation were below applicable exposure criteria except for one THF sample. (NIOSH, Health Hazards Evaluation Report No. 82-293, p. 1s.) The mitigation recommendations proposed by NIOSH were similar in nature to the mitigation contained in the Recirculated Draft EIR. (*See* NIOSH, Health Hazards Evaluation Report No. 82-293, p. 20.)

Even in the event of improper installation, impacts associated with CPVC pipe installation are expected to be no more, and possibly less, than impacts associated with the improper copper pipe installation. Improper installation of copper pipe exposes workers to a number of risks. Toxic organic vapors and particles less than 10 microns in diameter can be inhaled during the soldering process, exposing workers to contaminants and respiratory harm. Lead-based or low-lead solders may present worker health hazards by causing skin, eye and lung injury, potentially resulting in respiratory irritation, fevers, chills, muscular pain, and vomiting. Other inherent hazards associated with copper pipe installation can present further risks, including burns from propane flames or molten solder and electrocution conducted through copper pipe. (RDEIR, p. 146.)

As discussed on page 146 of the Recirculated Draft EIR, the 1989 DHS study noted that the short-term "index of combined exposure" exceeded the limit for six samples. Cal/OSHA regulates exposure to contaminants that may have an additive health effect. However, the highest exposure levels experienced by installers occurred in enclosed areas with low ventilation. As such, impacts related to installation in low ventilated areas can be fully avoided or adequately minimized by following proper safety procedures and requirements in Section 301.0.2.1 of Appendix I, Installation Standards, California Plumbing Code, which require mechanical ventilation or respirators as necessary.

Full-shift worker exposure was analyzed on pages 147 to 149 of the Recirculated Draft EIR. As shown on page 148 of the Recirculated Draft EIR, none of the full-shift exposures for ACE, MEK, THF, and CHX exceeded the full-shift exposure limits set by Cal/OSHA, and the full-shift

"index of combined exposure" exceeded the limit for one worker. The highest exposure levels experienced by installers occurred in enclosed areas with low ventilation. As such, impacts related to installation in low ventilated areas can be fully avoided or adequately minimized by following proper safety procedures and requirements in Section 301.0.2.1 of Appendix I, Installation Standards, California Plumbing Code, which require mechanical ventilation or respirators as necessary. Further, as discussed above, impacts associated with improper CPVC pipe installation are expected to be no more, and possibly less, than impacts associated with the improper copper pipe installation. (RDEIR, pp. 148-149.)

The 1982 NIOSH report supports this conclusion, finding that none of the calculated "combined effects" of the tested exposure limits exceeded applicable full-shift exposure criteria during plastic pipe installation. (NIOSH, Health Hazards Evaluation Report No. 82-293, p. 14.) The 1982 NIOSH report also noted that health complaints were most often associated with working in confined places. (NIOSH, Health Hazards Evaluation Report No. 82-293, p. 15.) Thus, the NIOSH report recommended that workers install plastic pipe in properly ventilated areas or wear protective masks. (NIOSH, Health Hazards Evaluation Report No. 82-293, p. 20.)

In summary, most short-term and full-shift exposure levels associated with inhalation were well below Cal/OSHA levels, as demonstrated by data in the 1989 DHS Study. The commenters, nevertheless, suggest that the 1989 DHS Study concluded that "workers installing CPVC pipe regularly suffered significant exposure to toxic chemicals in excess of legal exposure limits." However, only one full-shift and six short-term combined exposures were identified by the study. (*See* RDEIR, pp. 146, 148.) Importantly, as stated on page 26 of the 1989 DHS study, the highest exposures were "dominated" by samples taken in "just two crawl spaces" with "very little ventilation." Thus, "air flow rate (as a measure of ventilation) was the strongest and most consistent determinant of exposure levels." Therefore, exposure impacts can be eliminated or significantly minimized by following proper safety procedures and requirements in Section 301.0.2.1 of Appendix I, Installation Standards, California Plumbing Code, which require mechanical ventilation or respirators as necessary.

Comment 12-165. The comments submitted by Dr. James Bellows are addressed separately, in their entirety. As discussed in the response to comment 12-164, the worker safety section of the Recirculated Draft EIR evaluated potential impacts associated with the proposed project and determined that, with the implementation of mitigation measures, impacts would be less than significant.

Comment 12-166. The 1989 DHS Study is first described on page 143 of the Recirculated Draft EIR and then discussed and analyzed in depth over pages 144 to 149. In particularly, the Recirculated Draft EIR summarized the 1989 DHS Study's findings regarding short-term worker exposure (RDEIR, pp. 144-147) and full-shift worker exposure (RDEIR, pp. 147-149) to chemicals associated with CPVC solvents and cements during installation.

The commenters note that the 1989 DHS Study determined that the likelihood of overexposure above the full-shift exposure limit was estimated to be 10% for a typical workday of installing CPVC pipe for potable water in residential construction and 68% for short term exposure. The

Recirculated Draft EIR specifically described the combined short and long term index exposures found in the 1989 DHS Study on pages 146 and 148, respectively. In addition, this information was disclosed and analyzed as part of the 1998 FEIR, which is part of the record for the purposes of CEQA and the preparation of the Recirculated Draft EIR. (*See* 1998 FEIR, p. 59.)

As discussed on pages 146 and 148 of the Recirculated Draft EIR, the highest exposure levels associated with the 1989 DHS Study occurred in poorly ventilated areas. The 1989 DHS Study specifically noted this fact throughout the report. (*See, e.g.,* 1989 DHS Study, pp. vi, 29, and 33.) Additionally, the 1989 DHS Study specifically concluded that the risk of exposure is "very low" for workers that work in properly ventilated areas. (1989 DHS Study, p. 30.) Therefore, risks associated with overexposure highlighted in the 1989 DHS Study can be mitigated to less than significant levels by following proper safety procedures and requirements in Section 301.0.2.1 of Appendix I, Installation Standards, California Plumbing Code, which require mechanical ventilation or respirators as necessary.

Furthermore, the 1989 DHS Study points out the highest exposure levels were dominated by samples collected in "just two crawl spaces" which had "very little ventilation," were partially underground, and very cool. (1989 DHS Study, p. 29.) Thus, under more normal working conditions, following proper safety procedures and ventilation requirements, the exposure levels would be dramatically reduced.

In addition, information in the record for the 1998 FEIR includes an opinion by Dr. Robert G. Tardiff that the 1989 DHS Study may be subject to an alternate interpretation because the short-term exposures reported are not the result solely of CPVC installation. Rather, the 1989 DHS Study describes air concentrations of chemicals from the concurrent and combined installation of two types of pipes, some made of CPVC (used to convey tap water) and other of PVC (used to convey waste and sewer lines) so that the total exposure cannot be apportioned between the two types of pipes. (Rebuttal Report of Robert G. Tardiff, Ph.D., Submitted Pursuant to the Federal Rule of Civil Procedure 26(a)(2)(B) in the case of *BF Goodrich v. Village of Lake in the Hills*, p. 5.)

The concerns addressed in the second to last sentence of the comment regarding dermal exposure are addressed in the response to Comment 12-171. The concerns addressed by the last sentence of the comment regarded the asserted carcinogenic nature of THF and MEK are addressed on pages 151 and 152 of the Recirculated Draft EIR. Based on the Lead Agency's review of the 1989 DHS Study and the lack of a citation in the comment, the Lead Agency respectfully disagrees with the commenters' assertion that the 1989 DHS Study specifically concluded that MEK and THF may cause cancer. Rather, the 1989 DHS Study concluded that the health effects of THF in particular had not been well studied at that time. (1989 DHS Study, p. 39.) However, subsequent testing and analysis summarized on pages 151 and 152 of the Recirculated Draft EIR support the Lead Agency's conclusion that THF and the other solvents associated with CPVC pipe installation are not human carcinogens.

Comment 12-167. The comments submitted by Dr. James Bellows are addressed separately, in their entirety. The commenters state that "the typical low-VOC primer and cements contain

almost ten times the amount of MEK found in cements and primer used by workers in the 1989 DHS Study." Based on available data, the Lead Agency respectfully disagrees with this assessment. Appendix E of the 1989 DHS Study lists several CPVC solvent primer and cement compositions. Based on our review, most solvent cement mixtures used in the 1989 DHS Study which contained MEK had compositions between 65.9% - 68.4% THF, 10.5% - 14.1% MEK and 6.7% - 7.3% CHX, with negligible amounts of ACE. (1989 DHS Study, Appendix E, p. 81.) Overall, primers and cements using MEK for CPVC potable water products had MEK concentrations ranging from 10.5% to 37.5%. (1989 DHS Study, Appendix E, p. 81.)

Dr. Bellows based his comment regarding a "ten times" increase on a low-VOC cement mixture that contained a MEK concentration of 2.5% and a low-VOC primer that contained a MEK concentration of 72%, which altogether led to a "bulk concentration" of 37% MEK for low-VOC products. (*See* Jim Bellows comment letter, August 27, 1998, fn. 36, pp. 19, 20.) Furthermore, Dr. Bellows stated that the "bulk concentration" of MEK used during the 1989 DHS Study was 3.5% because of a primer MEK content of 7% and a cement MEK content of 0%. (*See* Jim Bellows comment letter, August 27, 1998, fn. 36, p. 20.)

As shown above, cement mixtures used in the 1989 DHS Study contained MEK concentrations that were between 10.5% - 14.1%. (1989 DHS Study, Appendix E, p. 81.) It is true that two cements contained no MEK, but this at most would average out to a MEK content of between approximately 5% - 7%. Furthermore, of the three primers used in the 1989 DHS Study, one contained 37.5% MEK, one 12.0% MEK and one had no MEK. (1989 DHS Study, Appendix E, p. 81.) Thus, again, the "average" MEK content for primers would be 16.3%. Taken all together, the data in the 1989 DHS Study suggests that a "bulk composition" of MEK would have been approximately 10% - 12 %, rather than the 3.5% suggested by Dr. Bellows.

Our review of available low-VOC primers and cements also contain higher levels of MEK than described by Dr. Bellows. For example, the MSDS for *Oatey Lo-V.O.C. Purple Primer – NSF Listed*, 20 May 2005, lists a MEK content of between 10% - 20%, and the MSDS for *Oatey Lo-V.O.C. CPVC Heavy Duty Gray Cement – Industrial Grade*, 20 May 2005, also lists a MEK content of between 10% - 20%. (*See* MSDS for Oatey products, http://www.oatey.com/usenglish_msds/CEM350E5.pdf, (last accessed Jan. 5, 2007). Taken together, the "bulk composition" for these low-VOC primer and cements would be between 10% - 20%, with an average bulk composition of 15%.

Comparing this data to the 1989 DHS Study data generates a different result than Dr. Bellows' estimate of a "ten times" increase in MEK. Specifically, based on data available in the record, the bulk composition of MEK used in the 1989 DHS Study was approximately 11% and the bulk composition of average low-VOC primer and cement products is approximately 15%. Any increase between these bulk concentration estimates would be within the margin of error and no significant increase is identifiable. As such, the Lead Agency respectfully disagrees with the suggestion that the Recirculated Draft EIR needs to be revised in this context.

Comment 12-168. As shown on page 150, the Recirculated Draft EIR acknowledges that exposure to MEK and ACE can lead to irritation in the eyes, nose and throat as well as dizziness

and headaches. These health effects are also noted in the 1982 NIOSH report (NIOSH, Health Hazards Evaluation Report No. 82-293, p. 19) and the 1989 DHS Study (1989 DHS Study, p. 33).

However, even short term irritation is most commonly associated by pipe installation in poorly ventilated areas. (NIOSH, Health Hazards Evaluation Report No. 82-293, p. 15.) As a result, these effects can be eliminated or minimized by following proper safety procedures and requirements in Section 301.0.2.1 of Appendix I, Installation Standards, California Plumbing Code, which require mechanical ventilation or respirators as necessary.

Furthermore, the 1989 DHS Study concluded that exposure to airborne THF, MEK, CHX and ACE at the levels measured in the study may produce irritation but the exposures are "*not known to produce long-term health effects*." (1989 DHS Study, p. 33 [emphasis added].) This conclusion is also supported by the 1982 NIOSH report, which determined that despite some short-term irritation caused by exposures (typically in confined spaces), there was "no appreciable decrement over the workday...for intelligence, memory and psychomotor function." (NIOSH, Health Hazards Evaluation Report No. 82-293, p. 19.) This conclusion is also supported by evidence in the record of the 1998 FEIR. (1998 FEIR, Appendix E, Letter from Dr. Hinderer representing BF Goodrich, p. 4.) In addition, the statement cited in the comment regarding short term irritation being a material impairment of health was not part of the conclusions of the 1989 DHS Study but rather a statement contained in Appendix C as part of a summary of MEK's exposure limits and toxicities.

Building on these conclusions, along with the implementation of mitigation measures, the Recirculated Draft EIR determined that, in the context of CEQA review, exposure to THF, MEK, CHX and ACE would result in a less than significant impact to worker safety. (*See* RDEIR, pp. 144-149.)

Comment 12-169. The 1998 comments by Dr. Martyn Smith and Peggy Lopipero, M.P.H, were thoroughly responded to in the 1998 FEIR, which is part of the record for the Recirculated Draft EIR. (*See* 1998 EIR, Chapter 12.) For a discussion in the record concerning assertions made by Smith and Lopipero regarding combined health effects with CPVC cements and solvents, see Appendix E, page 95, of the 1998 FEIR. For a discussion of the Recirculated Draft EIR's review of exposure risks to worker safety from the proposed project, see Comment 12-168.

Comment 12-170. As referenced by the commenters, the FEIR does acknowledge that the "worst case" situation associated with CPVC pipe installation on worker safety occurs when workers do not follow proper installation and safety instructions. However, it is important to note that the FEIR went on to conclude that even in such a case impacts are expected to be less than significant under CEQA. (1998 FEIR, p. 61.) Moreover, the 1998 FEIR concluded that even these less than significant impacts could be reduced even further by properly following safety recommendations. (1998 FEIR, p. 61.) This conclusion mirrors the conclusion in the Recirculated Draft EIR, as discussed in Comment 12-164, above.

The commenters also note that overexposures from CPVC pipe are often associated with poor ventilation. This link was specifically discussed in the Recirculated Draft EIR and was evaluated in studies that are part of the recorded, including the 1989 DHS Study and the 1982 NIOSH report. See Comments 12-164 and 12-166 for more discussion on affects of poor ventilation. In summary, risks associated with overexposure highlighted in the 1989 DHS Study can be mitigated to less than significant levels by following proper safety procedures and requirements in Section 301.0.2.1 of Appendix I, Installation Standards, California Plumbing Code, which require mechanical ventilation or respirators as necessary. And even in cases where overexposures resulted from poor ventilation, no significant, long-term health effects resulted. (*See* 1989 DHS Study, p. 33; NIOSH, Health Hazards Evaluation Report No. 82-293, p. 19; 1998 FEIR, Appendix E, Letter from Dr. Hinderer representing BF Goodrich, p. 4.)

Comment 12-171. As discussed on page 149 of the Recirculated Draft EIR, proper installation of CPVC pipe would minimize or eliminate the risk for dermal exposure during installation of CPVC piping. Specifically, Section 301.0.2.2 of Appendix I, Installation Standards, California Plumbing Code requires use of non-latex thin gauge (4 millimeters) nitrile gloves, or other gloves providing an equivalent or better degree of protection, during the installation of CPVC plumbing systems. Of ACE, MEK, THF and CHX, regulations by Cal/OSHA only require skin protection for CHX. (Cal. Code of Regulations, Title 8, Section 5155(d); Cal. Code of Regulations, Title 8, Section 5155, Table AC-1, Permissible Exposure Limits for Chemical Contaminants.) Nitrile gloves have been shown to provide adequate short term exposure protection for CHX. (RDEIR, p. 149.)

Moreover, Section 301.0.2.2 of Appendix I, Installation Standards, California Plumbing Code, requires that nitrile gloves must be discarded and replaced upon contamination, which would make nitrile gloves adequately effective against dermal exposure. However, ACE, MEK, THF and CHX should not contaminate the gloves if daubers are properly used during installation to avoid skin contact, as is required for proper installation. (RDEIR, p. 150.) Thus, the glove mitigation measure included in Section 301.0.2.2 provides a second line of defense for workers, with the first line of defense being the use of daubers or other applicators to prevent direct contact with workers' hands.

The commenters mention that the glove mitigation measure was never analyzed. However, the Lead Agency disagrees with that conclusion. The 2000 Mitigated Negative Declaration provided complete CEQA coverage of Section 301.0.2.2 of Appendix I, Installation Standards, California Plumbing Code as an effective means for ensuring that worker safety impacts were reduced to less than significant levels. Furthermore, as part of the settlement agreement that led to the adoption of the 2000 Mitigated Negative Declaration, the Pipe Trades Council agreed to "support the formal adoption of the mitigation measures."

The commenters state that workers are *required* to use non-latex, thin gauge (4 millimeter) nitrile gloves during installation of CPVC piping. However, Section 301.0.2.2 of Appendix I, Installation Standards, California Plumbing Code allows for "other gloves providing an equivalent or better degree of protection" than nitrile gloves. Thus, while nitrile gloves have been shown to provide adequate short-term protection for CHX protection – which is the only solvent

that the California Code of Regulations require dermal protection – it is permissible to use any other glove that provides equivalent or better protection than the nitrile gloves.

The commenters also describe Dr. Bellows' comments regarding the glove mitigation measure. Dr. Bellows' comments will be responded to in their entirety separately. However, it should be noted that nitrile gloves are shown to provide adequate short-term protection for CHX protection, which is the only solvent that the California Code of Regulations require dermal protection. (RDEIR, p. 149.)

Comment 12-172. Dr. Bellows' comments will be responded to in their entirety separately. Section 301.0.2.2 of Appendix I, Installation Standards, California Plumbing Code specifically provides that the gloves "shall be replaced upon contamination." According to proper safety procedures, the gloves should be immediately discarded upon contamination. (RDEIR, p. 151.) As a result, if gloves are immediately discarded upon contamination, the concerns raised by Dr. Bellows will not occur because contaminates will not be held in intimate contact with the skin after penetrating the glove.

Comment 12-173. As stated on pages 150 and 151 of the Recirculated Draft EIR, contaminated gloves should be removed and replaced immediately upon contamination. However, as discussed on page 150 of the Recirculated Draft EIR, solvents should not contaminate the gloves if daubers are properly used during installation. Thus, the glove mitigation measure included in Section 301.0.2.2 of Appendix I, Installation Standards, California Plumbing Code provides a second line of defense for workers, with the first line of defense being the use of daubers or other applicators to prevent direct contact with workers' hands.

Comment 12-174. Worker safety impacts were analyzed in both the 2000 Mitigated Negative Declaration and the Recirculated Draft EIR. The specific issue related to the glove mitigation measure was adopted by the 2000 Mitigated Negative Declaration, which satisfied the requirements under CEQA, and was the consensus of a settlement agreement to the litigation over the 1998 FEIR. The Recirculated Draft EIR addresses potential impacts related to dermal exposure on pages 149 to 151. See Comment 12-171 for more details on the effectiveness of the glove mitigation measure. As a result of the analysis provided on this issue, the Lead Agency disagrees with the commenters' assertion that the Recirculated Draft EIR is legally inadequate.

Comment 12-175. This comment describes legal requirements under CEQA and case law. The Lead Agency believes that the EIR satisfies the standards set forth in this comment. With respect to the efficacy of the existing worker safety mitigation measures, see the response to Comment 12-176 below.

Comment 12-176. The commenters suggest that evidence shows non-compliance with the ventilation and glove use mitigation measures that are part of Section 301.0.2 of Appendix I, Installation Standards, California Plumbing Code. Pages 153 to 155 of the Recirculated Draft EIR summarize potential impacts related to worker safety because of the enforceability of these mitigation measures and the Recirculated Draft EIR concludes that these impacts would be less than significant.

Existing laws and regulations require that employers provide the safety equipment recommended in label directions and safe use instruction on the Material Safety Data Sheet. Compliance with label directions and safe use instruction is enforced by Cal/OSHA, and a failure to comply exposes employers to penalties and civil liability. The Cal/OSHA enforcement unit has jurisdiction over every employment and place of employment in California to enforce and administer all occupational safety and health standards and regulations. The Cal/OSHA enforcement unit conducts inspections of California workplaces in response to a report of an industrial accident, a complaint about an occupational safety and health hazard, or as part of an inspection program targeting industries which have a high rate of occupational hazards, fatalities, injuries or illnesses. A worker may file a complaint at one of twenty-two Enforcement Unit district offices.

CEQA case law supports a finding that mitigation measures in an EIR can rely on requirements to comply with legal and regulatory obligations. (*See Leonoff v. Monterey County Bd. of Supervisors* (1990) 222 Cal. App. 3d 1337, 1355; *Sundstrom v. County of Mendocino* (1988) 202 Cal. App. 3d 296, 308.) In *Leonoff*, the court upheld a negative declaration for a contractor's service center that included, among other mitigation measures, a requirement that the project comply with environmental laws on registering hazardous materials and monitoring underground tanks. In *Sundstrom,* the court upheld certain mitigation measures, including compliance with air and water quality standards, and stated generally that conditions requiring compliance with environmental laws and standards are "common and reasonable" mitigation measures. Thus, the Recirculated Draft EIR is in line with existing California case law by concluding that it is reasonable to assume employers will meet their legal obligations to follow safety procedures and regulations by providing necessary safety equipment, training, and oversight. (RDEIR, p. 154; 1998 Final EIR, p. 188-89.)

Additional important compliance provisions also will be mandated by the California Plumbing Code. As detailed on pages 24 and 25 of the Recirculated Draft EIR, under the proposed project any contractor or subcontractor involved with CPVC pipe installation for residential potable water use must provide written certification that he or she will comply with the worker safety mitigation measures. In addition, as part of the building permit application, any contractor must include a written certification that: (1) they are aware of the health and safety hazards associated with CPVC plumbing installations; (2) they have included in their Illness and Injury Prevention Plan the hazards associated with CPVC plumbing pipe installations; and (3) the worker safety training elements of their Illness and Injury Prevention Plan meets the Department of Industrial Relations' guidelines. (RDEIR, p. 25).

In addition, building officials shall not give final permit approval of installed CPVC plumbing materials without finding that the installer has complied with the mitigation measures. Finally, contractors or subcontractors found to have failed to comply with the mitigation measures are subject to penalties under Health and Safety Code sections 17995 *et seq.*, and building officials may also cite contractors for violations. (RDEIR, p. 25.)

Based on the enforcement powers of Cal/OSHA, as well as the enforcement power of local governments and the compliance requirements in the California Plumbing Code, it is reasonable to assume that employers will meet their legal obligations to follow safety procedures and regulations by providing necessary safety equipment, training, and oversight. Failure to do so exposes employers to citations, fines and other liabilities.

Furthermore, it is important to note that safety procedures for installation of copper pipe and CPVC pipe are very similar so there is no reason to assume that safety procedures are less likely to be followed for CPVC pipe installation than copper pipe installation. (RDEIR, p. 154.) Installation of copper pipe in enclosed areas also requires proper ventilation or the use of protective masks, and gloves are needed to protect against harmful chemicals in the solder and fluxes as well as against cuts and burns. (RDEIR, p. 154; Expert Report of Robert G. Tardiff, Ph.D., at p. 22; Forest, W., Appendix E of the 1998 Final EIR [letter from DHS toxicologist regarding impacts of CPVC pipe compared to copper pipe].) Thus, it is not unreasonable to assume that enforcement and compliance with the Recirculated Draft EIR's mitigation measures will be at least as effective as enforcement and compliance with existing safety requirements for the installation of copper pipe.

Lastly, as described on page 153 of the Recirculated Draft EIR, comments dating back to the comment period for the 1998 Draft EIR have suggested that worker safety mitigation measures similar or identical to those currently included in Section 301.0, Appendix I, Installation Standards, California Plumbing Code, would not be, or are not being, properly followed or enforced, and thus, this is not a new issue related to the Project but an issue identified and analyzed as part of the record supporting the adoption of the 2000 Mitigated Negative Declaration.

Comment 12-177. Pages 153 to 155 of the Recirculated Draft EIR summarize potential impacts related to worker safety because of the enforceability of these mitigation measures and the Recirculated Draft EIR concludes that these impacts would be less than significant. See Comment 12-176 for a discussion of the legal obligations of employers to provide proper safety equipment and training and the enforcement powers of Cal/OSHA to ensure the implementation of these mitigation measures, as well as the enforcement power of local governments and the compliance requirements in the California Plumbing Code. See Comment 12-176 for a discussion regarding how the Recirculated Draft EIR is in line with existing California case law by concluding that it is reasonable to assume that employers will meet their legal obligations to follow safety procedures and regulations by providing necessary safety equipment, training, and oversight. (RDEIR, p. 154; 1998 Final EIR, p. 188-89.)

Comment 12-178. See Comment 12-176 for a discussion of the enforcement and compliance obligations of employers to provide necessary safety equipment, training, and oversight, as well as existing case law allowing mitigation measure to require compliance with existing laws and regulations.

The commenters assert that building officials felt that enforcing ventilation and glove use measure was either infeasible or ineffective. However, as discussed on page 139 of the

Recirculated Draft EIR, proper installation of copper pipe to avoid serious health risks associated with inhaling toxic vapors and dermal exposure to chemicals, burns, and cuts include the use of adequate ventilation or protective masks and wearing gloves. Thus, it is reasonable to assume that building officials would be equally as well equipped to enforce ventilation and glove use requirements associated with CPVC pipe as they would with copper pipe.

Comment 12-179. The Recirculated Draft EIR analyzes the enforceability of the mitigation measures contained in Section 301.0.2 of Appendix I, Installation Standards, California Plumbing Code and determined that impacts to worker safety would be less than significant. As such, no additional studies are required.

Comment 12-180. Comments by Dr. Bellows will be addressed separately in their entirety. Here, the commenters list mitigation measures that Dr. Bellows suggests should be considered to further reduce the risk to worker health and safety. The Recirculated Draft EIR already allows the use of one-step cements with no primers and discusses that appropriately sized daubers should be used when applying cements and solvents. (*See* RDEIR pp. 132-133, 146-147.) In addition, Mitigation Measure 4.2-1 requires the use of one-step cement to reduce impacts to air quality. (RDEIR, p. 50.) Lastly, Alternative C analyzes impacts associated with requiring the use of one-step cements. (RDEIR, p. 179.) See Comment 12-171 for a discussion on the effectiveness of the current glove mitigation measures. Lastly, see Comment 12-176 regarding the enforcement powers of Cal/OSHA and local governments to ensure employers will meet their legal obligations to follow safety procedures and regulations by providing necessary safety equipment, training, and oversight.

Comment 12-181. As stated in the response to Comment 12-176 and in other responses, and for the reasons stated in Section 4.4 of the Recirculated Draft EIR, the Lead Agency has concluded that there are no significant impacts due to a failure to enforce or implement mitigation measures.

Comment 12-182. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR no longer includes the statement that "[m]ethyl ethyl ketone has been removed from the federal air contaminant list by the U.S. Environmental Protection Agency."

Comment 12-183. The comment suggests that impacts related to the manufacture of CPVC pipe should be analyzed in the Recirculated Draft EIR. Similar comments were made during the comment period for the 1998 Draft EIR and were properly addressed. (*See* 1998 FEIR, Appendix E, Memo from Dr. Peter Kurtz.) Thus, this is not a new issue related to the Project but an issue identified and analyzed as part of the record supporting the adoption of the 2000 Mitigated Negative Declaration.

Solvents and cements associated with CPVC pipe are manufactured at existing facilities governed by existing protective regulations which are designed to mitigate impacts to worker safety. Cal/OSHA has regulatory authority over all manufacturing facilities to ensure that workers are not subjected to exposures exceeding regulatory limits. As discussed on page 141 of

the Recirculated Draft EIR, the following table shows the Cal/OSHA exposure limits for the solvents associated with CPVC installation.

Solvent	PEL		STEL		Ceiling Limit
	ppm	mg/m^3	ppm	mg/m^3	
Acetone (ACE)	500	1200	750	1780	3000 ppm
Cyclohexanone (CHX)	25	100	N/A	N/A	N/A
Methyl ethyl ketone (MEK)	200	590	300	885	N/A
Tetrahydrofuran (THF)	200	590	250	735	N/A

N/A -- No applicable Cal/OSHA regulation.

As discussed on pages 153 to 154 of the Recirculated Draft EIR, Cal/OSHA has jurisdiction over every employment and place of employment in California to enforce and administer all occupational safety and health standards and regulations, including the exposure limits for ACE, CHX, MEK, and THF listed above. Cal/OSHA enforcement units conduct inspections of manufacturing facilities, and workers may file complaints at one of twenty-two enforcement unit district offices. In addition, failure by an employer to satisfy safety requirements exposes the employer to citations or penalties. (RDEIR, p. 153.)

CEQA case law supports a conclusion that worker safety impacts resulting from manufacturing CPVC related products are minimized to less than significant levels because of employment laws and regulations governing manufacturing facilities. (*See Leonoff v. Monterey County Bd. of Supervisors* (1990) 222 Cal. App. 3d 1337, 1355; *Sundstrom v. County of Mendocino* (1988) 202 Cal. App. 3d 296, 308.) In *Leonoff*, the court upheld a negative declaration for a contractor's service center that included, among other mitigation measures, a requirement that the project comply with environmental laws on registering hazardous materials and monitoring underground tanks. In *Sundstrom,* the court upheld certain mitigation measures, including compliance with air and water quality standards, and stated generally that conditions requiring compliance with environmental laws and standards are "common and reasonable" mitigation measures.

Additional evidence in the record supports a conclusion that the manufacturing of regular and low-VOC cements do not result in impacts to worker safety. IPS Corporation has manufactured solvent-cements and primers for use with CPVC plastic pipe and fittings for more than 35 years. (See letter from Richard Winn, Manager – Safety & Environmental Affairs for IPS Weld-On (January 4, 2007).) At IPS facilities, individual workers are periodically sampled for their exposure to solvent-vapors emanating from mixtures of THF, CHX, MEK and ACE. These tests have not shown an employee to be exposed to any of these chemical vapors at or above Threshold Limit Values (TLVs) established by ACGIH (American Conference of Governmental Industrial Hygienists) or PELs established by Cal/OSHA. Furthermore, IPS has never had an

employee report symptoms consistent with those describing overexposure to these chemicals in more than 50 years of use. (See January 4, 2007 letter from Richard Winn, Manager – Safety & Environmental Affairs for IPS Weld-On.)

Furthermore, it is the opinion of the Lead Agency that the case cited to support the comment does not stand for the rule of law suggested by the comment. The comment cites *Building Code Action v. Energy Resources Conservation and Development Commission*, 102 Cal. App. 3d 577 (1980) and suggests that the case stands for a rule that the Recirculated Draft EIR violates "CEQA requirements" if "impacts of increased CPVC and related product manufacturing" resulting from the proposed project are not analyzed. However, the court in *Building Code Action* went out of its way to confirm that it was not making a holding that supported such an interpretation of CEQA. The court stated it was not holding an EIR was required for a regulation of glass production that could have an adverse impact related to increased pollution from glass factories. Instead, what the court found was that the California Energy Commission abused its discretion by failing as a matter of administrative law and not CEQA to consider the impact of a 2600 degree-day standard that the Commission adopted (instead of another standard that was originally proposed and evaluated). (103 Cal. App. 3d at 592 ("it does not follow, however, that, as the trial court concluded, an environmental impact report should have been prepared").) Thus, in *Building Code Action*, the court found that potential impacts related to manufacturing from the project did not necessarily require environmental review under CEQA.

Lastly, the comment also does not provide information regarding potential increases in manufacturing of CPVC or related solvents in California. An EIR need not review environmental impacts that occur outside of the state. Currently, the Lead Agency does not have any evidence that there will be a widespread increase in production at facilities that often produce a wide variety of products. For example, the Oatey Company Newark facility produces 50 products but only 6 of these products are used for CPVC. (*See* www.nsf.org.) Similarly, the IPS Gardena facility produces 48 products, of which only 12 are products used with CPVC. (*See* www.nsf.org.)

Comment 12-184. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR analyzes potential impacts to worker safety related to vapor exposure and determined that impacts will be less than significant. See Comments 12-164 and 12-166 for more details. See Comment 12-176 regarding the enforceability of mitigation measures contained as part of Section 301.0.2 of Appendix I, Installation Standards, California Plumbing Code.

Comment 12-185. The Draft EIR has been revised and recirculated. The analysis of solid waste impacts in the Recirculated Draft EIR fully evaluates and discloses the Project's potential solid waste impacts.

Comment 12-186. The Draft EIR made the statement that "[a]ny disposal challenges, however, must be balanced against the benefits derived from the long productive life of CPVC pipes" in its description of the environmental setting. The Draft EIR did not rely on this statement in concluding that the Project would result in less than significant solid waste impacts. Similarly, the Draft EIR has been revised and recirculated. In the Recirculated Draft EIR, this statement is

located within the discussion of current CPVC use, which is part of the description of the environmental setting related to solid waste. (RDEIR, Section 4.5.1.2, p.157). The Recirculated Draft EIR also does not rely upon this statement in its conclusions regarding the Project's potential solid waste impacts, and the Recirculated Draft EIR's solid waste analysis fully discloses the potential solid waste impacts of the Project. The Recirculated Draft EIR does not identify mitigation measures for solid waste impacts because it concludes that such impacts will be less than significant. The statement does not claim that CPVC pipes have a longer productive life than copper. The estimate in the 1989 Draft EIR that CPVC would have a service life of 20 years was made nearly two decades ago. Since CPVC pipe has been in use for much longer currently than at the time the 1989 Draft EIR was prepared, there has been a much greater opportunity to evaluate its lifespan. Thus, the Lead Agency declines to rely on the 20-year estimate stated in the 1989 Draft EIR which, as the commenters have indicated, was never completed. As explained on pages 108-109 of the Draft EIR, copper in many jurisdictions has failed in much shorter periods than 50 or even 20 years.

Comment 12-187. The solid waste analysis in the Recirculated Draft EIR explains that copper is highly recyclable. Although copper likely has reduced solid waste impacts compared to CPVC due to its high recyclability, the Recirculated Draft EIR concludes based on substantial evidence that the Project will have less than significant impacts related to solid waste. In other words, although increased use of CPVC instead of copper as a result of the Project may result in some level of increased solid waste in comparison to the amount of solid waste generated by copper uses, this increase will result in less than significant impacts.

Comment 12-188. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR does not include the discussion referred to by this comment. The Recirculated Draft EIR fully evaluates the Project's potential solid waste impacts.

Comment 12-189. The Draft EIR has been revised and recirculated. The revised analysis of solid waste impacts in Section 4.5 of the Recirculated Draft EIR compares the Project's solid waste impacts with the existing baseline, which includes the use of copper pipe. The first of the two statements in the Draft EIR cited in the comment is no longer present in the Recirculated Draft EIR. The second statement is supported by the discussion within which the statement is made, and is not a "straw argument[] with no relevance" to the analysis of the Project's potential solid waste impacts. The question CEQA requires the EIR to address is not whether the Project will result in worse solid waste impacts than the current use of copper pipe, but whether the Project will result in significant environmental impacts related to solid waste.

Comment 12-190. The Draft EIR has been revised and recirculated. The revised analysis of solid waste impacts in Section 4.5 of the Recirculated Draft EIR is supported by foundation, citation to substantial evidence, and a description of the analytic process leading to its conclusions.

Comment 12-191. CEQA does not require the preparers of an EIR to have technical expertise regarding all issues analyzed in the documents. Please see the response to Comment 12-53 for additional explanation regarding this point.

Comment 12-192. As explained on page 158 of the Recirculated Draft EIR, there is evidence supporting the statement that there is no reason to suspect that CPVC solid waste impacts will be better or worse than other non-bottle plastics. First, CPVC pipe has a long lifetime, unlike plastic water bottles that are generally used once and then thrown away. Second, CPVC pipe for potable water piping in residential buildings will not appear in the demolition debris waste stream in significant quantities until buildings employing CPVC pipe are demolished at the end of their useful lives, which likely will be well over 30 years. Finally, in general, recycling of plastics is increasing and is expected to further increase in the future.

Although the draft report by the San Francisco Department of the Environment cited by the commenters states that CPVC is considered a "contaminant" in the waste stream and has a "negative recycling profile," the Lead Agency believes that this statement is taken out of context. Table 5 on page 16 of the report, which was submitted to the Lead Agency as Appendix 21 to Comment Letter 12, indicates that PVC, which the report treats as identical to CPVC, is a contaminant in municipal bottle recycling streams. However, nothing in the report indicates that CPVC is considered a contaminant in the recycling of plastic pipe. Moreover, Table 5 in the report indicates that five companies within San Francisco accept drop off of PVC/CPVC pipe for recycling.

Comment 12-193. The concern of the OSPAR Commission of the Marine Environment of the North-East Atlantic is international cooperation on the protection of the Marine Environment of the North-East Atlantic.[12] As such, OSPAR concerns regarding specific chemicals are not relevant to the Project, which is limited in geographical scope to the state of California.

Comment 12-194. The Lead Agency has considered and evaluated the findings of the draft report referred to by the commenters in preparing the current EIR. The Draft EIR has been revised and recirculated. Please see the response to Comment 12-192 for a discussion of the evidence supporting the conclusions of the Recirculated Draft EIR.

Comment 12-195. This is a common construction industry practice and does not need additional foundation in the record.

Comment 12-196. The Lead Agency does not believe that the commenters' suggested methodology for analyzing the amount or location of the disposal of solid waste impacts would result in meaningful information. The distribution of repipes and demolished units on an annual basis are not available by county, and likely will vary over time. Even if this information were available by county, it would still be impossible to predict the relative distribution of amounts of CPVC pipe solid waste to various landfills within each county. Because the results of such analysis would involve a large degree of pure speculation, the Lead Agency believes such an analysis would not be useful in evaluating the potential solid waste impacts of the Project.

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[12] OSPAR Commission, *Welcome to the OSPAR Commission!*, at http://www.ospar.org/eng/html/content.htm (last viewed Jan. 9, 2007).

Comment 12-197. Table 5 in the 2005 draft report by the San Francisco Department of the Environment cited by the commenters indicates that five companies within San Francisco accept drop off of PVC/CPVC pipe for recycling. Thus, recycling of CPVC pipe is technically feasible. It is common knowledge that the amount of plastic recycling has been trending upward over time. The Draft EIR has been revised and recirculated, and the analysis of solid waste impacts in the Recirculated Draft EIR includes a baseline comparison between recycling of CPVC and recycling of copper.

Comment 12-198. "Down-cycling" is a form of recycling, which reduces the amount of solid waste disposed in landfills to the same extent as recycling that results in material that is of the same quality as the original material. Therefore, "down-cycling" affects the potential solid waste impacts of the Project in the same manner as any other form of recycling would. Reduction in the amount of PVC produced each year or in the total quantity of PVC existing on the planet is irrelevant to the issue of whether the Project will result in significant solid waste impacts.

Comment 12-199. The current existence of PVC and CPVC recycling demonstrates that such recycling is economically feasible. Table 5 in the 2005 draft report by the San Francisco Department of the Environment cited by the commenters also indicates that five companies within San Francisco currently accept drop off of PVC/CPVC pipe for recycling. The comment itself states that a percentage of PVC waste is currently recycled in the European Union, with an approximately three-fold increase expected by 2020. Moreover, recycling is likely to become more economically feasible as recycling technology continues to develop and mature.

Comment 12-200. The Project is the approval of code provisions allowing the use of CPVC pipe without the requirement of specific findings by a local building official. As such, the Project does not involve the approval of recycling facilities for CPVC, and permitting of such facilities is outside the jurisdiction of the Lead Agency. Moreover, analysis of impacts related to future recycling of CPVC would involve pure speculation at this time. Such analysis would require speculation about the amount of future recycling that would occur, the technology to be used, the end product to be produced, the location of new or expanded recycling facilities, and the chemicals that would be released by new methods of recycling, among other factors. Any future action by other agencies within California to approve new or expanded CPVC recycling facilities would be subject to the environmental review requirements of CEQA, and such impacts would be reviewed at the time such approval is considered.

Comment 12-201. As explained in the response to Comment 12-192, the statement that PVC is a "contaminant" is based on a discussion of municipal bottle recycling streams. There is no reason to presume that a significant amount of CPVC pipe would be placed in municipal bottle recycling streams. Residential plastics typically enter the municipal bottle recycling streams in recycling bins or containers left at the curb with other household trash. Contractors demolishing entire homes are unlikely to dispose of CPVC pipe in such household recycling bins.

Comment 12-202. The solid waste analysis in the Recirculated Draft EIR concludes that the Project will not result in solid waste impacts related to landfill capacity. (RDEIR, pp. 157-160).

Comment 12-203. As explained in Chapter 4.5 of the Recirculated Draft EIR, CPVC produces only minor quantities of CPVC pipe waste during installation, existing pipe is typically left in the structure during re-piping, and therefore most CPVC pipe would not enter the landfill, if at all, upon demolition of homes plumbed with CPVC. Moreover, the Recirculated Draft EIR concludes that the amount of CPVC entering landfills would be reduced by increased recycling of CPVC.

Due to strict State regulation of landfills, the Lead Agency has concluded that the Project is unlikely to result in contamination of groundwater due to the release of additives from the amount of CPVC pipe that eventually does reach California's landfills. The California Integrated Waste Management Board oversees this regulatory system. In selecting sites for new landfills, landfill operators must analyze and test alternative sites to show that site geology and topography will prevent water pollution. [13] Landfill siting decisions are subject to environmental review under CEQA and landfill operators are subject to waste discharge requirements to protect surface and ground water quality imposed by the Regional Water Quality Control Board.[14]

Leachate from landfills is collected by a network of perforated pipes within the landfill, which is then pumped to a treatment plant.[15] In addition, a composite liner extends entirely beneath the landfill, like a bowl, to contain any leachate.[16] The liner system consists of at least two feet of compacted clay, on top of which is a heavy sheet of tough, 60-80 mil HDPE plastic and a protective geo-textile cushion.[17] Over this is a two-foot layer of crushed rock or ravel, within which are the perforated leachate collection pipes.[18] Groundwater monitoring wells are installed around the perimeter of the landfill and are sampled periodically to detect any possible off-site migration of leachate.[19] Finally, all site operations within landfills must be supervised by qualified personnel trained in safety, health environmental controls, and emergency procedures.[20] For all of the above reasons, the Lead Agency concludes that the Project will not result in potentially significant impacts related to groundwater contamination from landfill leachate.

Comment 12-204. Although landfill fires are more common than some might expect, they are relatively rare occurrences in comparison with other activities that contribute dioxins to the environment. The California Integrated Waste Management Board has reported that in

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[13] California Integrated Waste Management Board, *Beyond 2000: California's Continuing Need for Landfills – Ensuring Environmentally Safe Landfills*, available at http://www.ciwmb.ca.gov/landfills/needfor/EnsureSafety.htm (last viewed Jan. 12, 2007).
[14] *Ibid.*
[15] California Integrated Waste Management Board, *Beyond 2000: California's Continuing Need for Landfills – Protecting Environmental Quality*, available at http://www.ciwmb.ca.gov/landfills/needfor/protection.htm (last viewed Jan. 12, 2007).
[16] *Ibid.*
[17] *Ibid.*
[18] *Ibid.*
[19] *Ibid.*
[20] California Integrated Waste Management Board, *Beyond 2000: California's Continuing Need for Landfills – Daily Operations*, available at http://www.ciwmb.ca.gov/landfills/needfor/Operations.htm (last viewed Jan. 12, 2007).

California more than 25 subsurface landfill fires have been reported during the past 15 years.[21] Most of these incidents are small fires or rapid oxidation events that are usually handled by the operating facility and the local or state regulatory agency.[22] Seldom do the subsurface events become large-scale environmental responses.[23] Thus, it is very rare that such fires release toxins into the environment in amounts sufficient to trigger significant environmental response. In addition, the Integrated Waste Management Board has recommended fire prevention and fire suppression best management practices (BMPs) that are enforced by local solid waste enforcement agencies in order to reduce the occurrence and duration of landfill fires.[24] The already rare landfill fires, which are reduced by these BMPs, are also unlikely to consume significant amounts of CPVC. As explained in the Recirculated Draft EIR section regarding solid waste impacts, the Project is expected to result in less than significant impacts related to landfill capacity due to the typical practice of leaving existing pipe in homes that are re-piped, the long performance of life of CPVC, and the likelihood of increased recycling and reuse as CPVC becomes more widely used. A landfill fire would have to occur in a portion of a landfill that contains CPVC pipe in order for CPVC to release dioxins, which is relatively unlikely due to the above factors. Finally, for the reasons set forth in the Response to Comment 16-10, the presence of CPVC in landfill fires would not result in significant impacts related to fire hazards for landfill personnel, firefighters, or others exposed to smoke from such fires. For all of these reasons, the Lead Agency concludes that the presence of CPVC within landfill fires would result in a less than significant impact on the environment.

The EPA's National Center for Environmental Assessment recently published a report inventorying sources and environmental releases of dioxin-like compounds.[25] The EPA report is a detailed compilation and description of all known U.S. sources and their associated activities that cause these compounds to be released into the environment.[26] The report analyzed sources and releases of dioxin-like compounds in the years 1987, 1995, and 2000, and determined that the total amount of environmental releases of dioxin-like compounds decreased sharply by 90% during the period between 1987 and 2000.[27] The report found that this downward trend was even sharper with respect to municipal waste combustions (MWCs), releases from which declined by greater than 99 percent between 1987 and 2000.[28] MWCs were the leading source of releases in both 1987 and 1995, contributing 64% and 40% of total releases respectively in those years.[29] The contribution of MWCs decreased to 6% of total releases in 2000.[30] The report

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[21] Cal. Integrated Waste Mgmt. Bd., *Landfill Fires Guidance Document*, available at http://www.ciwmb.ca.gov/LEACentral/Fires/LFFiresGuide/default.htm (last updated Jan. 2, 2007).
[22] *Ibid.*
[23] *Ibid.*
[24] Cal. Integrated Waste Mgmt. Bd., *Best Management Practices for Pile Fires*, available at http://www.ciwmb.ca.gov/leaCentral/Fires/default.htm#Best (last updated Jan. 2, 2007).
[25] National Center for Environmental Assessment, Office of Research & Development, U.S. Environmental Protection Agency, *An Inventory of Sources and Environmental Releases of Dioxin-Like Compounds in the United States for the Years 1987, 1995, and 2000.* (Nov. 2006).
[26] *Ibid.* at xlii.
[27] *Ibid.* at 1-42.
[28] *Ibid.* at xlv.
[29] *Ibid.*
[30] *Ibid.*

attributed the decrease in the contribution of MWCs to releases in dioxin-like compounds to strict regulatory requirements limiting dioxin emissions imposed by the EPA.[31] Moreover, as explained in the Recirculated Draft EIR section regarding solid waste impacts, the Project is expected to result in less than significant impacts related to landfill capacity due to the typical practice of leaving existing pipe in homes that are re-piped, the long performance of life of CPVC, and the likelihood of increased recycling and reuse as CPVC becomes more widely used. Finally, not all CPVC disposed of in landfills would be incinerated. Thus, CPVC would only contribute a minor amount to releases if dioxin-like compounds from a type of source that has experienced dramatic reductions in such releases due to strict EPA emissions standards (which would apply to any municipal waste combustion of CPVC), in an overall environment that has also evidenced dramatic reductions in the total amount of releases of dioxin-like compounds over approximately the past two decades. The Lead Agency concludes that this would result in a less than significant impact on the environment.

Comment 12-205. Please see the response to comment 12-192.

Comment 12-206. The Draft EIR has been revised and recirculated. Section 4.5 of the Recirculated Draft EIR provides an analysis of the Project's potential indirect solid waste impacts.

Comment 12-207. Section 4.5 of the Recirculated Draft EIR fully analyzes the Project's potential solid waste impacts, and concludes that these impacts will be less than significant. The Lead Agency notes that the 1998 EIR that was prepared following the 1997 Initial Study also concluded that the project analyzed in that EIR would result in less than significant impacts related to solid waste disposal. (1998 Final EIR pp. 73-75).

Comment 12-208. Although the 2000 Mitigated Negative Declaration stated that its finding that the approval of CPVC subject to the Findings Requirement would result in less than significant solid waste impacts based on the limited number of anticipated residential installations of CPVC, nothing in the 2000 Mitigated Negative Declaration stated or was intended to imply that a larger number of residential installations of CPVC necessarily would result in significant solid waste impacts. Approval of a larger number of anticipated residential installations of CPVC was not analyzed in the 2000 Mitigated Negative Declaration.

Comment 12-209. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR reflects the Lead Agency's evaluation and consideration of all evidence in the record, including the evidence submitted by the commenters. Based on all evidence in the record, the Lead Agency has concluded in the Recirculated Draft EIR that the Project will result in less than significant impacts related to solid waste.

Comment 12-210. Please see the response to Comment 12-209. The Lead Agency's conclusions regarding solid waste impacts in the Recirculated Draft EIR are based on substantial evidence in the record.

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[31] *Ibid.* at xlv, 1-3 to 1-4.

Comment 12-211. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR evaluates the Project's potentially significant impacts related to solid waste. However, based on the analysis of this impact in the Recirculated Draft EIR, the Lead Agency disagrees with the commenters' conclusion that the Project will result in a significant impact related to solid waste disposal.

Comment 12-212. Fire hazard impacts related to CPVC pipe were evaluated in the 2000 Mitigated Negative Declaration and the record that supported the 2000 Mitigated Negative Declaration, including the 1998 EIR. The 2000 Mitigated Negative Declaration concluded that hazard and fire protections impacts would be less than significant. The Project would not result in any fire hazard impacts that are new or substantially more severe than the fire hazards evaluated in the record supporting the 2000 Mitigated Negative Declaration.

The 1998 EIR that was prepared following the 1997 Initial Study also concluded that the project analyzed in that EIR would result in less than significant impacts related to fire hazards. The 1998 EIR indicated that CPVC itself is not flammable, and therefore its presence or absence is irrelevant with respect to the ignition or propagation of a residential fire before flashover, the abrupt point at which a single room no longer can contain a fire. (1998 Final EIR at 69-70). The 1998 EIR stated that "[t]here is no evidence to suggest, either from the results of tests or from post-fire analysis in the real world, that CPVC represents an unusual risk of fire spread." (1998 Final EIR at 70). The 1998 EIR continued by stating that "CPVC is an Underwriters' Laboratory (UL) listed material for fire sprinkler systems," within which it is "extensively used," which therefore "is proof of its physical competence in a fire environment." CPVC is also used as a plumbing material in fire-rated construction." (1998 Final EIR at 70). The 1998 EIR concluded that "[a]fter flash-over, fires in residential buildings have a marked propensity to spread beyond the compartment of origin. This is independent of the presence or absence of CPVC pipe for potable water piping." (1998 Final EIR at 72).

The 1998 EIR also determined that "[t]he presence or absence of CPVC pipe in the potable water plumbing systems of [residential] structures would not alter the fundamental reality that fire in a residential building will produce a toxic gas environment, or significantly contribute to the toxicity of a fire." (1998 Final EIR at 72). The EIR concluded that the presence or absence of CPVC pipe would not change this fundamental reality. (1998 Final EIR at 72). Additionally, "by the time a residential fire is hot enough to thermally decompose CPVC pipe, the fire has reached flashover and the fire atmosphere will already be extremely hot and incapable of supporting life. Further, because the majority of the potable water pipe in a residential building is not located in the interiors of the rooms, the majority of any toxic gases released from CPVC decomposition in a fire would not be released into a compartment capable of supporting life." (1998 Final EIR at 72). In summary, the 1998 EIR determined that "[t]he presence or absence of CPVC in a residential building . . . would not significantly change the toxicity of the fire environment." (1998 Final EIR at 72).

These evaluations in the 1998 EIR are part of the record that supports the 2000 Mitigated Negative Declaration, and it is appropriate to rely on these evaluations in determining whether

the currently Proposed Project would have any new or additional impacts. These prior evaluations were part of the basis for the Lead Agency's determinations in the 2000 Mitigated Negative Declaration, located at page 1 of the Explanation of Checklist Judgments, where the Lead Agency stated "The determinations made for this Environmental Checklist are based on information in the record for this project as well as information in the record of previous HCD examinations of CPVC for use in residential buildings." Many of the specific topical entries in that Environmental Checklist repeat this statement, and recite environmental impact conclusions that are substantially similar to the conclusions in the 1998 EIR.

In addition, the Lead Agency consulted with the Department of Forestry and Fire Protection, Office of the State Fire Marshal regarding potential fire hazards associated with the Project as well as unrelated proposals for approval of other plastic pipe materials. In a letter dated September 7, 2006, the Office of the State Fire Marshal indicated to the Lead Agency that "[t]he development of fire stopping materials and other requirements currently contained in the California Building Standards Codes and provisions proposed for adoption in the 2006 Uniform Plumbing Code, mitigate the fire spread hazard associated with the proposed materials within the structure."[32] The letter further indicated that "[t]he quantity of these materials is relatively insignificant when compared to all the other materials within the building. Therefore, the fire hazard or added toxic products of combustion generated by these materials in a fire would be comparatively minor." Thus, based on the Lead Agency's consultation with the Department of Forestry and Fire Protection, Office of the State Fire Marshal, the Lead Agency believes that the Project will not result in significant impacts related to fire hazards.

Comment 12-213. Please see the response to Comment 12-212.

Comment 12-214. Please see the response to Comment 12-212.

Comment 12-215. Please see the response to Comment 12-212.

Comment 12-216. Please see the response to Comment 12-212.

Comment 12-217. Please see the response to Comment 12-212 for a response to the comment regarding accidental home fires. Please see the responses to Comments 12-204 and 16-16 for a response to similar comments regarding incinerators and landfill fires. The Lead Agency notes that the 1997 Initial Study formed the basis of the Lead Agency's decision to prepare the 1998 EIR, and that the 1998 EIR concluded that the project analyzed in that EIR would result in less than significant impacts related to fire hazards.

Comment 12-218. The Draft EIR has been revised and recirculated. The Lead Agency has considered and evaluated all of the evidence in the record during the preparation of the Draft EIR and the Recirculated Draft EIR, including the commenters' submissions during the 2005 Draft Addendum proceedings. However, the current EIR does not address impacts related to the

[32] Letter from Kevin Reinertson, Senior Deputy State Fire Marshal, Department of Forestry and Fire Protection, Office of the State Fire Marshal, to Robin Gilb, Staff Counsel, Department of Housing and Community Development (Sept. 7, 2006).

potential premature rupture of CPVC pipe because this is not a new issue, as it was analyzed in the 1998 EIR that is part of the record supporting the 2000 Mitigated Negative Declaration, and the Coalition has not provided any new information indicating that this impact would require major revisions to the 2000 Mitigated Negative Declaration because these impacts would be substantially more severe.

The analysis in the 1998 EIR concluded that approval of CPVC pipe for statewide use in residential plumbing would not result in significant adverse impacts due to failure of the pipe. (1998 Final EIR at 40). The 1998 Final EIR explained:

> There is no evidence that CPVC pipe is more likely to fail than other currently approved types of pipe under the conditions of proposed use. On the contrary, experience with CPVC pipe in the extreme event of a major earthquake suggests that it would be expected to perform as well or better than other materials. The experience of building officials in California with both CPVC and metallic pipes does not indicate that there is a greater likelihood of failure from CPVC pipe, compared to the metallic pipe currently permitted. Rather, CPVC has been allowed by the Legislature as an alternative to metallic pipe specifically to mitigate the documented failures and leakage of metallic pipe, with no greater environmental risks than metallic pipe entails.

(1998 Final EIR at 40). The 1998 EIR also explained that the physical characteristics of CPVC pipe do not suggest it has any intrinsic properties which would make it more likely to fail than materials currently in use for potable water in residential buildings, and that the history of CPVC use in mobile homes, manufactured homes, and other uses already allowed in California and other states does not suggest any patterns of failure. (1998 Final EIR at 37). Moreover, the 1998 EIR explained that CPVC pipe is tested and certified as suitable for residential use under the NSF 14 standard. (1998 Final EIR at 37).

In addition, the 1998 EIR addressed the particular concerns now raised by the Coalition regarding failure of CPVC due to contact with incompatible materials:

> The lead agency is not aware of any situations where CPVC pipe has failed in use for reasons other than improper installation or extreme events. Improper installation includes the use of incorrect materials . . . and placing CPVC in contact with incompatible materials.

(1998 Final EIR at 38). The 1998 EIR explained that the potential for failure due to contact with incompatible materials is not unique to CPVC pipe, stating that "[i]mproper installation and contact with incompatible materials can and does cause failure of mechanical failure of metallic pipe." (1998 Final EIR at 38). The 1998 FEIR concluded as follows:

> Some measure of flooding and water damage due to the failure of piping for potable water in residential buildings, then, is part of the existing environment, and the issue is whether or not CPVC pipe use would be likely to cause a significant increase in flooding due to pipe failure. Based on the evidence discussed in this EIR, approving the use of CPVC for potable water systems in residential buildings would most likely result in a net decrease in the flooding and water damage due to the failure of pipe, not an increase.

(1998 Final EIR at 39).

Comment 12-219. Please see the response to Comment 12-218. The conclusions reached by the analysis of the 1998 Final EIR continue to apply to the information contained in the 2003 Canadian Report cited by the commenters, and are not altered as a result of anything in that report.

Comment 12-220. Please see the response to Comment 12-218.

Comment 12-221. Please see the responses to Comments 12-99 and 12-218. For the reasons stated therein, the Lead Agency does not believe that it is necessary to revise the Recirculated Draft EIR to include a discussion of impacts related to the premature failure of CPVC pipe due to incompatible materials.

Comment 12-222. The Lead Agency believes that the EIR satisfies the informational standards set forth in this comment.

Comment 12-223. The Draft EIR has been revised and recirculated. In addition to a revised analysis of cumulative air quality impacts, the Recirculated Draft EIR analyzes the Project's potential cumulative water quality impacts on pages 222-224.

Comment 12-224. The Draft EIR has been revised and recirculated. Cumulative impacts to worker safety are not specifically addressed in a separate discussion because they are addressed generally by the worker safety analysis in Section 4.4 of the Recirculated Draft EIR.

As stated on page 131 of the Recirculated Draft EIR, the Project would remove the Findings Requirement but leave intact existing worker safety measures found in Section 301.0 of Appendix I, Installation Standards, of the California Plumbing Code. Removal of the Findings Requirement may result in an increase in the number of residential units plumbed with CPVC pipe but it will not increase the extent of an individual installer's exposure to CPVC pipe adhesives during installation in an individual unit. The 2000 Mitigated Negative Declaration determined that there were no potential significant impacts on worker health and safety due to worker exposure to CPVC pipe adhesives when installations are performed pursuant to required safety standards and procedures. (2000 MND, Explanation of Checklist Judgments, pp. 10-12.) The Project would not result in any cumulatively significant impacts to worker safety because

the Project would not change the level of impact on any given individual worker during the installation of CPVC in an individual residential unit.

Comment 12-225. The concerns expressed in this comment related to potential cumulative worker safety impacts associated with the proposed adoption of regulations expanding the approval of ABS and PVC DWV pipe are addressed in the response to Comment 15-14.

Comment 12-226. The Draft EIR has been revised and recirculated. The thresholds of significance applied in the worker safety analysis in the Recirculated Draft EIR have been revised, and no longer include the threshold of significance discussed in this comment. (See RDEIR, p. 142). Please see the responses to Comments 12-224 and 12-225 for an explanation as to why a separate analysis of "cumulative" worker safety impacts is unnecessary.

Comment 12-227. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR analyzes the Project's potential cumulative water quality impacts on pages 222-224. Please also see the response to comment 12-146, for an explanation as to why reliance upon NSF testing and certification to NSF standards adequately addresses all Project impacts to individual consumers of drinking water.

Comment 12-228. The analysis of solid waste disposal issues in the Recirculated Draft EIRnecessarily considers the effect of the use of other products and disposal of other forms of waste on landfill capacity and, therefore, no separate discussion of cumulative impacts related to solid waste is necessary. Please see the response to Comment 12-192 for a response to the statement in this comment that "CPVC is considered a contaminant in the waste stream and may hinder efforts to recycle other plastics."

Comment 12-229. Please see the responses to Comments 12-204 and 16-16.

Comment 12-230. Please see the revised and expanded analysis of solid waste impacts in the Recirculated Draft EIR. As explained in the Recirculated Draft EIR, the Lead Agency has found no evidence indicating that there would be a lack of sufficient permitted landfill capacity to accommodate the Project's solid waste disposal needs. CPVC is typically not disposed in landfills during most pipe replacement jobs. Rather, existing pipe is left in the structure and not disposed. A minor amount of scraps from CPVC pipe are discarded during CPVC installation. Most disposal of CPVC pipe in landfills would occur when residential structures with CPVC plumbing are demolished. In addition, given current trends in the recycling of plastics, it is likely that recycling of CPVC will increase. For these reasons, the Lead Agency has concluded that CPVC will not significantly burden waste disposal facilities and sites throughout California. The Recirculated Draft EIR acknowledges that copper is more likely to be recycled than CPVC. This comment raises identical issues as were raised previously by the commenters as potential project-specific impacts, and the commenters have not indicated how these constitute cumulative impacts. Even if this comment did identify potential cumulative solid waste impacts, the analysis of solid waste disposal issues in the Recirculated Draft EIR necessarily considers the effect of the use of other products and disposal of other forms of waste on landfill capacity and, therefore, no separate discussion of cumulative impacts related to solid waste is necessary.

Comment 12-231. Please see the responses to Comments 12-228 through 12-230.

Comment 12-232. The Draft EIR has been revised and recirculated. Section 5.0 of the Recirculated Draft EIR identifies and discusses suitable and feasible alternatives, compares the significant effects of the alternatives with those of the Project, identifies the environmentally superior alternative, and is supported by analysis and substantial evidence.

Comment 12-233. The Draft EIR has been revised and recirculated. Section 5.0 of the Recirculated Draft EIR identifies and evaluates a reasonable range of feasible alternatives. The Recirculated Draft EIR explains how the alternatives were selected for analysis on pages 161-163.

Comment 12-234. Please see the response to Comment 12-233.

Comment 12-235. Copper is currently allowed for use in residential potable water systems in California. Therefore, copper pipe is identified and discussed as an alternative to CPVC in the analysis of the No Project Alternative located on pages 163-169 of the Recirculated Draft EIR.

Comment 12-236. The Draft EIR has been revised and recirculated. Section 5.0 of the Recirculated Draft EIR evaluates the comparative merits of the alternatives. The Lead Agency believes that the alternatives analysis in the Recirculated Draft EIR satisfies the informational standards set forth in this comment.

Comment 12-237. Please see the response to Comment 12-236.

Comment 12-238. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR identifies Alternative C – Delete the Findings Requirement and Use Low-VOC, One-Step Cement Alternative (also referred to as the "One-Step Cement Alternative") as the environmentally superior alternative. (RDEIR at p. 187).

Comment 12-239. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR no longer identifies a "preferred alternative," but does identify an environmentally superior alternative. The selection of the environmentally superior alternative is supported by substantial evidence in the record and by a description of the analytic process that led to this conclusion.

Comment 12-240. The Draft EIR has been revised and recirculated. The Final EIR includes responses to all comments received on both the Draft EIR and the Recirculated Draft EIR.

Comment 12-241. The Lead Agency has responded above to the commenters' specific comments regarding the Project's potential direct and cumulative impacts on drinking water contamination, worker health and safety, solid waste disposal, mechanical failure, and fire safety. The Draft EIR has been revised and recirculated, and the Recirculated Draft EIR includes a revised air quality analysis that concludes the potential project-specific and cumulative air quality impacts of the Project are significant and unavoidable.

Comment 12-242. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR identifies the use of one-step cement as an additional, feasible mitigation measure.

Comment 12-243. The Draft EIR has been revised and recirculated. Section 5.0 of the Recirculated Draft EIR consists of an evaluation of Project alternatives and identifies the environmentally superior alternative.

Comment 12-244. The Draft EIR has been revised and recirculated. The Lead Agency has responded above to the commenters' more specific comments regarding the alleged "deficiencies" of the Draft EIR.

Comment 12-245. This comment does not address the Draft EIR. However, the Lead Agency disagrees with this comment. Among several other reasons why the Project would result in savings to consumers, it is obvious that homeowners would benefit from more affordable pipe materials when repiping or repairing slab leaks in existing homes. Please also see the response to Comment 12-186, which explains that 1989 assumptions regarding the lifespan of CPVC are outdated.

Comment 12-246. The Draft EIR has been revised and recirculated. The Lead Agency believes that the findings set forth in the Recirculated Draft EIR are based on substantial evidence in the record and an analytic basis that is fully described in the Recirculated Draft EIR.

Comment 12-247. The Draft EIR has been revised and recirculated. The Lead Agency believes that the Recirculated Draft EIR fully and adequately discloses and analyzes the potential significant environmental impacts of the Project and satisfies the informational standards set forth in this comment.

Comment 12-248. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR reflects the Lead Agency's consideration and evaluation of the comments submitted by the commenters.

Comments
on
Draft Environmental Impact Report

Adoption of Regulations Permitting Statewide Residential Use of Chlorinated Polyvinyl Chloride (CPVC) Plastic Plumbing Pipe without First Making a Finding of Potential Premature Metallic Pipe Failure Due to Local Water or Soil Conditions

Amending Section 604.1 of the California Plumbing Code

Prepared for

Thomas Enslow
Adams Broadwell Joseph & Cardozo
1225 8th Street, Suite 550
Sacramento, CA 95814

Prepared by

Petra Pless, D.Env.
440 Nova Albion Way, Suite 2
San Rafael, CA 94903

September 12, 2006

Table of Contents

I. The Draft EIR Is Inadequate and Incomplete 2

I.A Alternatives Analysis Is Inadequate 2

I.B Thresholds of Significance 4

I.C Failure to Discuss Adverse Health Impacts 6

I.D Comparison of Project VOC Emissions to Natural Background VOC Emissions Is Irrelevant and Misleading 7

II. The Draft EIR Considerably Underestimates Potential VOC Emissions from the Proposed Project 9

II.A Reasonable Worst-case Analysis Is Required 9

II.B Potential Future Market Share of CPVC Pipe in California Is Underestimated 10

II.C Number of CPVC Re-pipes Is Underestimated 11

II.D Number of Re-piped Units Will Increase in the Future 14

II.E Use of CPVC Pipe to Repair Slab Leaks Is Not Considered 14

II.F VOC Emissions from Cleaners Are Not Included 14

II.G Indirect VOC Emissions from Manufacturing Are Not Included 15

II.H Statistical Analysis Is Flawed 15

II.H.1 Statewide and County-level Statistics for Housing Units Authorized by Permits Do Not Correspond 16

II.H.2 Propagation of Errors 18

II.H.3 Computational Errors 18

II.I Revised Potential VOC Emissions Estimate for Future CPVC Pipe Use in Riverside County 18

III. All Feasible Mitigation Is Not Required 20

IV. Cumulative Impacts Analysis Is Inadequate 21

List of Figures

Figure 1: Total number of housing units authorized by building permits by county and statewide 17

List of Tables

Table 1: Calculation of statewide average number of SF and MF units to be plumbed with CPVC pipe in 2007 and resulting VOC emissions 13

Attached Tables

Table A-1: Number of single-family and multi-family units plumbed with CPVC in California in 2007 and VOC emissions

Table A-2: Number of single-family and multi-family units plumbed with CPVC in California based on 39-year average and VOC emissions

Table A-3: Total new housing units authorized by building permits in California from 1993 to 2004

Table A-4: Revised adhesive calculations

Table A-5: Draft EIR VOC emissions estimates for 39-year average +STDEV for Riverside County

Table A-6: Revised VOC emissions estimates for Riverside County for the proposed code change

List of Exhibits

Exhibit 1: J. Phyllis Fox, Comments on Draft Addendum to Final Mitigated Negative Declaration Amending Section 604.1 of California Plumbing Code, April 22, 2005

Exhibit 2: Email from Judy Yee, CARB, to Robin Gilb, HCD, May 01, 2005

Exhibit 3: Email from Jeff Cash, Noveon, Inc., to Robin Gilb, HCD, February 23, 2006

Exhibit 4: Email from Bob Raymer, CBIA, to Robin Gilb, HCD, February 27, 2006

Exhibit 5: Email from Bob Raymer, CBIA, Email to Robin Gilb, HCD, March 22, 2006

COMMENTS

The California Department of Housing and Community Development ("HCD") has prepared a Draft Environmental Impact Report[1] ("Draft EIR") pursuant to the requirements of the California Environmental Quality Act ("CEQA") for the proposed adoption of regulations that would modify Section 604.1 of the California Plumbing Code ("CPC") to permit statewide unconditional use of chlorinated polyvinyl chloride ("CPVC") plumbing pipe as an alternate material for hot and cold water distribution systems ("potable water systems") within residential structures. (Draft EIR at pp. 1 and 10.)

The current CPC regulations restrict the use of CPVC pipe for construction of residential potable water systems to those situations where local building officials make a finding that there is or will be a premature failure of metallic pipe due to corrosive water and/or soil conditions (referred to as "the findings requirement"). This findings requirement was adopted into the CPC in November 2000 with the approval of a Mitigated Negative Declaration[2] ("2000 MND"). In March 2005, the HCD analyzed the potential environmental impacts of removing the findings requirement in a Draft Addendum[3] to the 2000 MND ("2005 AMND"). The Lead Agency found the 2005 AMND to be deficient and decided that the public would be better served by an EIR that would provide a more in-depth analysis of removing the findings requirement ("Project" or "code change"). (Draft EIR at pp. 6-9.) This Draft EIR evaluates the potential environmental impacts on air quality, water quality, worker safety, and solid waste associated with the increased use of CPVC pipe.

The removal of the findings requirement is likely to increase the amount of CPVC pipe installed in new residential construction and re-pipings (*i.e.*, replacing piping in existing residences) as a direct result of builder choice over commonly used copper pipe. Sections of CPVC pipe are joined using fittings or connectors. The pipe is chemically fused to the connector using a process called "solvent welding" or "cementing." This process uses chemicals—cleaners, primers, and cements—which are 13-1

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[1] California Department of Housing and Community Development, Draft Environmental Impact Report, Adoption of Regulations Permitting Statewide Residential Use of Chlorinated Polyvinylchloride ("CPVC") Plastic Plumbing Pipe Without First Making a Finding of Potential Premature Metallic Pipe Failure Due to Local Water or Soil Conditions, July 2006, SCH #2006012044.

[2] California Department of Housing and Community Development, Draft Negative Declaration with Mitigation Measures for Regulations for Limited Use of Chlorinated Polyvinyl Chloride (CPVC) Pipe as Potable Water Piping in Residential Buildings, September 2000.

[3] California Department of Housing and Community Development, Draft Addendum to Adopted Mitigated Declaration Amending Section 604.1 of California Plumbing Code, March 3, 2005, SCH #2000091089.

applied to the end of the pipe and the inside of the fitting socket. The pipe ends and fittings are first cleaned, primer is applied to soften the pipe, and cement is applied to bond the pipe and fitting. The primers and cements (collectively referred to as adhesives) used to join CPVC pipes contain solvents that are volatile organic compounds ("VOCs"). These VOCs evaporate during the transfer, drying, surface preparation, and cleanup, resulting in VOC emissions into the atmosphere. Volatile organic compounds, together with nitrogen oxides ("NOx"), are the main reactants in the photochemistry that produces ozone in the troposphere, also referred to as photochemical smog. **13-1 (cont.)**

As discussed in my comments below, the Draft EIR is deficient and many conclusions reached in the Draft EIR with respect to the significance of the Project's potential impacts on air quality are flawed and devoid of any real analysis. Dr. J. Phyllis Fox had submitted extensive comments on the 2005 AMND ("Fox 04/22/2005[4], attached as Exhibit 1.) Because some of these comments were disregarded or not adequately addressed, I incorporated portions of Dr. Fox's comments into this comment letter where applicable. **13-2** **13-3**

I. The Draft EIR Is Inadequate and Incomplete

The Draft EIR is inadequate and incomplete for a number of reasons as discussed in the following comments.

I.A Alternatives Analysis Is Inadequate

The CEQA Guidelines require lead agencies to analyze a range of reasonable alternatives to a project. CEQA requires that the discussion of alternatives shall focus on alternatives to the project which are capable of avoiding or substantially lessening any significant effects a project may have on the environment, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly. The CEQA Guidelines also require that an EIR evaluate the comparative merits of the alternatives, and identify the environmentally superior alternative from among those considered. (CEQA Guidelines Section 15126.6.) **13-4**

The Draft EIR presents four alternatives: 1) the no-project alternative, 2) not eliminating the findings requirement but requiring the use of low-VOC adhesives, 3) eliminating the findings requirement and requiring the use of low-VOC adhesives (the preferred alternative), and 4) eliminating the findings requirement and not requiring the use of low-VOC adhesives. The Draft EIR acknowledges the requirement

[4] J. Phyllis Fox, Comments on Draft Addendum to Final Mitigated Negative Declaration Amending Section 604.1 of California Plumbing Code, April 22, 2005.

to analyze these alternatives yet provides no evaluation, analysis or discussion whatsoever of the environmental impacts associated with any of these alternatives with the exception of Alternative 3, the Draft EIR's preferred alternative. (Draft EIR at pp. 13-15.) While an EIR need not discuss each alternative in as much detail as the preferred alternative, it must include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed Project. Here, the Draft EIR fails to provide the requisite information. **13-4 (cont.)**

The Draft EIR fails to provide any discussion how it arrived at the conclusion that Alternative 3 is, in fact, the environmentally superior and, thus, preferred alternative. It appears that Alternative 3 being the preferred alternative was a foregone conclusion and the description of other alternatives was only included as an afterthought. In fact, based on even just a brief reflection on the potential environmental impacts resulting from each of the described alternatives, it becomes clear that Alternative 3 is not the environmentally superior alternative. **13-5**

For example, the Draft EIR finds that Alternative 3, the preferred alternative, would increase the statewide use of CPVC pipe and adhesives and therefore increase emissions of VOCs, which are ozone precursor compounds. The Draft EIR concludes that these increased VOC emissions would result in significant and unavoidable adverse impacts on air quality, both individually and cumulative. (Draft EIR at pp. 47-48.) In contrast, Alternative 2, *i.e.* not eliminating the findings requirement but requiring the use of low-VOC adhesives for those applications currently permitted under the findings requirement, would result in considerably lower emissions of VOCs compared to Alternative 3 because it would not result in new uses of CPVC and would require current applications to use low-VOC adhesives statewide, not just in some jurisdictions. Therefore, from an air quality perspective, Alternative 2 is clearly environmentally superior compared to Alternative 3 and should be the preferred alternative. **13-6**

Another alternative that should have been considered in the Draft EIR's alternatives analysis is the use of one-step cements. One-step cements do not require the application of a primer. One-step cements with low-VOC contents are available and approved for use in California. The Draft EIR acknowledges the existence of such one-step cements whose use would result in lower emissions and reduced exposure of workers, to but fails to analyze their use as an alternative to the use of the proposed low-VOC primer/sealer combination or as a mitigation measure for the significant adverse impacts on air quality. (Draft EIR at pp. 11, 63, 65, and 96.) **13-7**

The Draft EIR should be revised to include a reasonable range and meaningful analysis and discussion of alternatives and to identify the environmentally superior alternative based on facts not on foregone conclusions. **13-8**

I.B Thresholds of Significance

The HCD first contemplated using local air district's quantitative CEQA thresholds of significance for construction to evaluate the Project's potential impacts on air quality. However, a number of comments received on prior CEQA documents indicating that the appropriate threshold would be an operational rather than construction threshold of significance, prompted the HCD to consult with the California Air Resources Board ("CARB"), the state agency with the authority to coordinate the efforts in the state to attain and maintain ambient air quality standards through the California Clean Air Act ("CCAA"). In response, the CARB advised HCD to evaluate emissions against both the operational and construction thresholds of significance to give "reasonable but conservative estimates of impacts." (Yee 05/11/2006[5]; Exhibit 2.) Despite this recommendation, the HCD, having no technical expertise in air quality analysis, chose to ignore the CARB's expert opinion and advice and declined to adopt either of these quantitative thresholds of significance. (Draft EIR at p. 42.) **13-9**

The Draft EIR argues that construction thresholds of significance are inappropriate for this Project. (Draft EIR at p. 42.) This statement lacks any foundation, citation to evidence or description of the analytic process that led to this conclusion. The supporting assumptions are not relevant, not supported, and do not provide an analytic path to this conclusion. For example, the Draft EIR states that "[p]ipe replacements are likely to be widely distributed, not grouped together in a "project" and that "[i]t is not reasonable for the Lead Agency to assume that all estimated CPVC plumbing installations within a county on a particular day would be part of a single construction project." The Draft EIR further emphasizes that the VOCs generated from CPVC pipe installation would be only one part of the construction project calculations. (Draft EIR at pp. 42-43.) The Draft EIR appears to misunderstand the scope of a "Project" under CEQA. The Project in this case is not an individual residential development project but rather the change in the plumbing code itself. (CEQA Guidelines 15378.) This code change will result in a large number of installations on any given day and would result in continual emissions of VOCs from many individual concurrent projects. **13-10**

With respect to operational significance thresholds, the Draft EIR emphasizes that the Project is a code change, not a site-specific "bricks and mortar" project, and argues that "[a]lthough VOCs will be released during construction which takes place pursuant to the code change, these releases are of short-term duration." The Draft EIR then concludes that because "VOC emissions will not be long-term, local air district significance thresholds for operational values are inappropriate for this project." (Draft EIR at p. 42.) Again, the Draft EIR appears to misunderstand the scope of a "Project" under CEQA. The Project is a change in the plumbing code which would result in **13-11**

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[5] Judy Yee, California Air Resources Board, Email to Robin Gilb, California Department of Housing and Community Development, Re: Thresholds of Significance for VOC Impacts, May 11, 2006.

continual emissions of VOCs from CPVC installation throughout the state, day after day, year after year. The statement that VOC emissions from the Project "will not be long-term" is clearly contrary to the fact that increased VOC emissions would occur continually over an infinite number of years. Because the Project would result in ongoing and continual emissions with resultant adverse impacts on the State's air quality, it is perfectly appropriate and common practice to evaluate emissions against local air districts' operational thresholds of significance. **13-11 (cont.)**

A building code sets forth specific conditions for individual but recurring activities. As such it is comparable to regulations issued by local air districts and their amendments. Such air district regulations and their amendments of rules are routinely evaluated against the respective local air district's operational CEQA threshold of significance. For example, Dr. Fox in her comments on the 2005 Amendment, discussed a comparable action to the Project, the South Coast Air Quality Management District ("SCAQMD")'s evaluation of potential air quality impacts resulting from relaxing limits on the VOC content allowed in primers and sealers used to weld CPVC pipes under SCAQMD Rule 1168. (Fox 04/22/2005[6], Comment I.B.2.b.) This action is very similar to the Project in that it involves a regulation that that would increase VOC emissions from the use of CPVC pipe, increases that would occur during project construction from a large number of small sources spread throughout the district. The SCAQMD concluded that the resulting increase in VOC emissions from the change to Rule 1168, reductions that would be foregone by the rulemaking, was significant because they exceeded the District's operational significance threshold of 55 lb/day. The Draft EIR failed entirely to address Dr. Fox's comment. Other examples include the CEQA Initial Study for proposed amendments to the Bay Area Air Quality Management District ("BAAQMD") Regulation 8, Rule 43: Surface Coating of Marine Vessels (BAAQMD 2001/03[7]), the SCAQMD's environmental assessment of an amendment to Rule 1157 – PM10 Emission Reductions from Aggregate and Related Operations (SCAQMD 2006/07[8]), or the SCAQMD's environmental assessment for the proposed fleet vehicle rules and related rule amendments (SCAQMD 2006/07[9]). Clearly, the Draft EIR's statements and **13-12** **13-13**

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[6] J. Phyllis Fox, Comments on Draft Addendum to Final Mitigated Negative Declaration Amending Section 604.1 of California Plumbing Code, April 22, 2005.

[7] Bay Area Air Quality Management District, CEQA Initial Study for Proposed Amendments to Bay Area Air Quality Management District Regulation 8, Rule 43: Surface Coating of Marine Vessels, March 6, 2001; http://www.baaqmd.gov/pln/ruledev/8-43/2001/0843_ceqa1_030601.pdf, accessed August 31, 2006.

[8] South Coast Air Quality Management District, Amend Rule 1157 — PM10 Emission Reductions and Related Operations, July 7, 2006; http://www.aqmd.gov/hb/2006/July/060735a.html, accessed August 31, 2006.

[9] South Coast Air Quality Management District, Final Program Environmental Assessment for: Proposed Fleet Vehicle Rules and Related Rule Amendments, June 5, 2000, SCAQMD No. 000307DWS;

conclusions regarding the applicability of local air districts' significance thresholds are contrary to the facts and inconsistent with universal practice. Moreover, the Draft EIR fails to identify any other quantitative thresholds but relies on a merely qualitative discussion of potential adverse impacts on air quality from the proposed code change. 13-13 (cont.) 13-14

I.C Failure to Discuss Adverse Health Impacts

The CEQA Guidelines, Section 15126.2(a), require that an EIR discuss health and safety problems caused by the physical changes that the proposed project will precipitate. 13-15

The Draft EIR concludes that the Project would cause significant unavoidable adverse impacts on regional air quality due to emissions of VOCs, which are ozone precursor compounds. (Draft EIR at pp. 47-48.) The human health and associated societal costs from ozone pollution are extreme. For example, the U.S. Environmental Protection Agency summarized the effects of ozone on public health as follows:

> "A large body of evidence shows that ozone can cause harmful respiratory effects, including chest pain, coughing and shortness of breath, which affect people with compromised respiratory systems most severely. When inhaled, ozone can cause acute respiratory problems; aggravate asthma; cause significant temporary decreases in lung function of 15 to over 20 percent in some healthy adults; cause inflammation of lung tissue, produce changes in lung tissue and structure; may increase hospital admissions and emergency room visits; and impair the body's immune system defenses, making people more susceptible to respiratory illnesses." (66 Fed. Reg. 5002, 5012, January 18, 2001.)

Here, the EIR offers only cursory acknowledgement that poor air quality due to increased formation of tropospheric ozone can lead to adverse impacts on human health. The Draft EIR offers only the following brief statement: "Ozone is a respiratory irritant that increases susceptibility to respiratory infections." (Draft EIR at p. 28.) However, there is no acknowledgement or analysis of the well-known connection between reduction in air quality and resultant increases in specific respiratory conditions and illnesses. (For an in-depth discussion of health impacts due to photochemical smog, refer to Fox 04/22/2005 Comment I.H.1.)

After reading the EIR, the public would have no idea of the health consequences that result when more VOCs are added to a non-attainment basin causing ozone levels to further increase. Recent court decisions have emphasized that this information is insufficient to acknowledge the well-known connection between reduction in air quality

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http://www.aqmd.gov/ceqa/documents/2000/aqmd/finalEA/1190/1190FEA.html, accessed August 31, 2006, accessed September 6, 2006.

and increases in specific respiratory conditions and illnesses. For example, one appellate court elaborates: 13-15 (cont.)

> "Guidelines section 15126.2, subdivision (a) requires an EIR to discuss, inter alia, health and safety problems caused by the physical changes that the proposed project will precipitate. Both of the EIRs concluded that the projects would have significant and unavoidable adverse impacts on air quality. It is well known that air pollution adversely affects human respiratory health. (*See, e.g.*, Bustillo, Smog Harms Childrens Lungs for Life, Study Finds, L.A. Times (Sept. 9, 2004).) Emergency rooms crowded with wheezing sufferers are sad but common sights in the San Joaquin Valley and elsewhere. Air quality indexes are published daily in local newspapers, schools monitor air quality and restrict outdoor play when it is especially poor and the public is warned to limit their activities on days when air quality is particularly bad. Yet, neither EIR acknowledges the health consequences that necessarily result from the identified adverse air quality impacts. Buried in the description of some of the various substances that make up the soup known as air pollution are brief references to respiratory illnesses. However, there is no acknowledgement or analysis of the well-known connection between reduction in air quality and increases in specific respiratory conditions and illnesses. After reading the EIRs, the public would have no idea of the health consequences that result when more pollutants are added to a nonattainment basin. On remand, the health impacts resulting from the adverse air quality impacts must be identified and analyzed in the new EIRs." (*Bakersfield Citizens for Local Control v. City of Bakersfield (2004) 124 Cal. App. 4th 1184.*)

The Draft EIR should be revised to contain an adequate discussion of health impacts resulting from the contribution of Project VOC emissions to regional ozone formation. 13-16

I.D Comparison of Project VOC Emissions to Natural Background VOC Emissions Is Irrelevant and Misleading

The Draft EIR attempts to trivialize the Project's potential impacts on air quality caused by emissions of ozone precursor compounds by comparing its potential VOC emissions to county and statewide VOC emissions from natural background sources, *i.e.* biogenic or geogenic sources or wildfires. (Draft EIR at pp. 47-48.) The Draft EIR declares that "VOC emissions projected to occur as a result of the change in the plumbing code are well below background ROG levels emitted by Natural Sources," implying that Project-related emissions would be negligible in comparison and, thus, irrelevant. (Draft EIR at p. 47.) This comparison is not only entirely immaterial in the context of a CEQA analysis, it is also deceiving. 13-17

On a state or county-wide mass emissions basis, natural background emissions of VOC, mostly biogenic emissions from vegetation, are indeed orders of magnitude

higher than potential VOC emissions attributable to the Project. However, the actual contribution of biogenic and anthropogenic VOC emissions to local or regional ozone formation is dissimilar and can not be simply inferred from absolute mass emissions. **13-17 (cont.)**

Biogenic hydrocarbon emissions from vegetation (mainly isoprene and monoterpenes) play a major role in ozone formation and accumulation in both urban and rural areas in large parts of the eastern United States, especially in the summertime. For example, in New York City, the contribution of biogenic VOCs is greater than that of anthropogenic VOCs. In contrast, in the South Coast Air Basin ("SoCAB"), the Central Valley, and other parts of California, anthropogenic VOC species are by far the largest contributor to ozone formation. (Griffin et al. 2004[10]; Martien et al. 2002[11].) **13-18**

A number of factors contribute to this phenomenon including spatial and temporal distribution patterns of biogenic and anthropogenic VOC emissions. Spatial variability is important because the location of pollutant emissions and regional meteorological transport patterns affects how and where VOC and NOx react to form ozone. Further, the timing of the biogenic emissions, which peak at midday when insolation, *i.e.* solar radiation received at the earth's surface, and temperatures are high, may also be a factor. The late release of the biogenic emissions may make them relatively less reactive compared to emissions from anthropogenic sources that peak earlier.

A recent study conducted for CARB evaluated the incremental reactivity of 30 organic compounds using 3-D photochemical air quality models. Photochemical modeling was conducted for the South Coast Air Basin ("SoCAB") and Central California (including the San Francisco Bay Area, Sacramento and the San Joaquin Valley). Hot summertime conditions that were conducive to high levels of photochemical smog formation were considered in the modeling. A consistent finding for all eight South Coast urban monitoring sites examined was that biogenic VOC have low relative incremental reactivities compared to anthropogenic VOCs. This is because most of the biogenic emissions were located downwind of the urban sites that were examined. Results for central California were similar to those for the South Coast Air Basin. (Martien et al. 2002.)

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[10] Griffin R.J, Revelle M.K., and Dabdub D, Modeling the Oxidative Capacity of the Atmosphere of the South Coast Air Basin of California. 1. Ozone Formation Metrics, Environmental Science & Technology 2004, Vol. 38, pp. 746-752; http://albeniz.eng.uci.edu/dabdub/My_papers/2004_Griffin-Revell-Dabdub_EST.pdf, accessed September 3, 2006.

[11] Martien P., Harley R., Milford J., Hakami A., and Russell A., Development of Reactivity Scales via 3-D Grid Modeling of California Ozone Episodes, Final Report, Prepared for California Air Resources Board, Contract No. 98-309, May 2002; http://www.arb.ca.gov/research/apr/past/98-309.pdf, accessed September 3, 2006.

The Draft EIR's comparison also fails to take into account that most VOC emissions from the Project would occur in addition to the existing emissions in many areas where the air quality is already severely compromised and would therefore substantially contribute to existing violations of air quality. Furthermore, the construction season coincides with the ozone season, and the additional emissions during this period would further exacerbate the already severe non-attainment problems in many urban areas in California. The Draft EIR's attempt to downplay potential emissions from the proposed code change is misleading and fails to disclose the potential magnitude of adverse impacts on air quality. **13-19** **13-20**

II. The Draft EIR Considerably Underestimates Potential VOC Emissions from the Proposed Project

The Draft EIR admits that Project emissions may contribute substantially to an existing or projected violation of ambient air quality standards for ozone "where the addition of even a small amount of ozone precursors can be considered a substantial contribution" and concludes that the Project would have significant impacts on air quality. (Draft EIR at pp. 47-48.) As discussed in the comments below, the Draft EIR fails to use reasonable worst-case assumptions to estimate potential ozone precursor emissions. Draft EIR's emissions estimates contain numerous erroneous and unsupported assumptions, computational errors, and flawed use of statistical tools, resulting in considerably underestimated potential ozone precursors emissions from the proposed Project. As a result, the Draft EIR fails to disclose the potential magnitude of proposed Project's adverse effects on air quality. **13-21**

II.A Reasonable Worst-case Analysis Is Required

It is common practice for CEQA analyses to present a reasonable worst-case scenario. A reasonable worst-case analysis, for example, accounts for variability in daily emissions that are not adequately portrayed by average daily emissions which are based on an annual average. Here, the Draft EIR Draft EIR systematically uses such annual averages or chooses low values for other factors such as market share to estimate potential emissions of VOC ozone precursor compounds from the Project. Instead of using a reasonable worst-case analysis based on conservative values for the factors involved in the calculations, as is common practice, the Draft EIR attempts to approach the potential variability in emissions with a flawed statistical analysis that does not account for many of the factors potentially being considerably higher than assumed by the Draft EIR. (*See* Comment II.F.) The Draft EIR should be revised to reflect reasonable worst-case assumptions. **13-22**

II.B Potential Future Market Share of CPVC Pipe in California Is Underestimated

The Draft EIR's estimates of potential VOC emissions resulting from the proposed Project are based on the assumption that CPVC pipe would achieve a 30 percent market share in California. (Draft EIR at pp. 12-13 and 36). This value for future market share of CPVC is neither reasonable nor adequately supported by the facts and, as a result, significantly underestimates number of homes that can reasonably be expected to be piped with CPVC in California in the future. **13-23**

The Draft EIR supports its assumption of a 30 percent "mature" market share for future CPVC pipe use in California with a citation to an email from Jeff Cash, the Business Director for Noveon, Inc., a CPVC manufacturer and patent holder for CPVC potable water pipe in the United States. (Draft EIR at pp. 36.) Yet this email provides only "ballpark estimates" for the total North American potable water pipe market of approximately 230 million pounds (as measured as CPVC). Jeff Cash estimates that about 70 million pounds or 30% of these 230 million pounds is CPVC, 40 million pounds or 17% is PEX, and the rest or 53% is copper. (Cash 02/23/2006[12], Exhibit 3.) There are a number of problems with the Draft EIR's assumption that this 30 percent market share for the North American potable water pipe market constitutes an adequate value for a "mature" market share for future CPVC pipe use in California. **13-24**

First, HCD also received a later email from Bob Raymer, the Technical Director for the California Building Industry Association ("CBIA"), which states that of the total North American market for potable water pipe of 230 million pounds, CPVC is 90 million pounds or 39%, PEX is 40 million pounds or 17%, and copper is the rest, *i.e.* 44%. (Raymer 02/27/2006[13], Exhibit 4.) The DEIR fails to explain the discrepancy between these two estimates or how it determined that 30% was the more accurate number. In fact, the Draft EIR fails to even mention Raymer's email. **13-25**

Second, the data provided by both Jeff Cash and Bob Raymer include California, which currently approves CPVC only with the findings requirement. California constitutes a considerable share of the North American housing stock. The 2005 estimate from the U.S. Census Bureau shows that about 10.4 percent of the total housing units in the U.S. are located in California.[14] (U.S. Census Bureau 06/08/2005[15].) This percentage **13-26**

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[12] Jeff Cash, Noveon, Inc., Email to Robin Gilb, California Department of Housing and Community Development, Re: One More Market Question, February 23, 2006.

[13] Bob Raymer, California Building Industry Association, Email to Robin Gilb, California Department of Housing and Community Development, Re: One More Question, February 27, 2006.

[14] 2004 estimates for California 12,804,702 housing units, for U.S. 122,671,734 housing units: 12,804,702/122,671,734 = 0.104

must first be extracted from the total market share for the rest of the country to determine an acceptable value for the future market share of CPVC in the potable water market. **13-26 (cont.)**

Third, the data provided by both Jeff Cash and Bob Raymer include PEX pipe, which is currently not permitted for use in potable water systems in California. It can therefore be reasonably assumed that in cases where an alternative for copper is sought 17 percent of users that would have used PEX would choose CPVC instead. This would further increase the market share of CPVC versus copper pipe in California. **13-27**

Fourth, and most importantly, according to both industry sources, there are a lot of regional differences in the proportions of CPVC, PEX, and copper market shares of the total North American market. Both sources point out that "[f]or example, Florida is a heavy CPVC user while as you imagine California is not." (Cash 02/23/2006; Raymer 02/27/2006.) The Draft EIR's assumption of a "mature" market share for California being the same as the national market share appears to be picked out of thin air and clearly not supported by any facts. **13-28**

As discussed in Comment II.A, CEQA requires a reasonable worst-case approach to assessing a project's potential environmental impacts. The Draft EIR fails to explain why it abandoned the reasonable worst-case approach used in the prior 2005 Addendum, which analyzed potential adverse impacts from the Project based on the use of 100% CPVC pipe in all new construction and re-piping of existing homes in California. (2005 AMND at p. 19.) **13-29**

II.C Number of CPVC Re-pipes Is Underestimated

The Draft EIR states that its emission calculations assume that 100,000 units per year would be re-piped with CPVC pipe in the year the code change would be adopted. (Draft EIR at p. 3.) This assumption is based on a ballpark estimate provided by Bob Raymer, CBIA. (Raymer 03/22/2006[16], Exhibit 5.) Yet review of the Draft EIR's calculations reveals that only 30 percent of these estimated 100,000 CPVC re-pipes were taken into account to estimate potential VOC emissions from the Project for both the 2007 estimate and the 39-year average projection of future emissions. **13-30**

Specifically, the Draft EIR assumes that the total number of units expected to be plumbed in California in 2007 includes 180,700 newly constructed units and 100,000 re-pipes for a total of 280,700 units. For future projections, the Draft EIR relies **13-31**

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[15] U.S. Census Bureau, State and County QuickFacts, California, June 8, 2006; http://quickfacts.census.gov/qfd/states/06000.html, accessed September 6, 2006.

[16] Bob Raymer, California Building Industry Association, Email to Robin Gilb, California Department of Housing and Community Development, Re: Information for CPVC EIR, March 22, 2006.

on a 39-year average of housing units authorized by permits of 177,719 new units and 100,000 re-piped units for a total of 277,719 units. Based on the total number of units to be plumbed and the average percentage of single-family ("SF") and multi-family ("MF") units from 2003 through 2005, the Draft EIR calculates the number of units to be plumbed with CPVC for both SF and MF units for 2007 and the 39-year average. (*See* Draft EIR Tables 12 and 18.) The Draft EIR then assumes a 30 percent market share of CPVC pipe for the entire California potable water plumbing market and applies this market share to the previously calculated numbers of SF and MF units. This procedure effectively reduces the total number of units to be re-piped from 100,000 units to 30,000 units. As a result, the Draft EIR underestimates potential VOC emissions from re-piped units. The Draft EIR fails to explain the inconsistency between its statement that 100,000 units were assumed for its emissions calculations and the fact that it reduces this number by multiplying it with the projected future market share of CPVC of 30 percent. **13-31 (cont.)** **13-32**

Based on industry information it can be assumed that the re-pipe market in California would largely use CPVC rather than copper. In an email to HCD, Bob Raymer, CBIA, in noted the following "One thing is very clear; the existing multifamily housing stock (apartments primarily) in California will be needing extensive plumbing system rehab in the coming years. The units built in the 1950's through 1970's will be needing substantial and expected rehab. Many of these rehab projects will be indefinitely postponed if allowable materials are limited to metal pipe. Regarding metal pipes, the labor costs associated with the time-extensive rehab of existing multi-family dwellings are simply too high to make many projects economically viable." (Raymer 02/27/2006.) This statement implies that the re-pipe market, at least for MF housing units, would almost exclusively be plumbed with CPVC if the code change would be adopted. **13-33**

I have re-calculated potential VOC emissions from the Project based on the Draft EIR's calculations, only eliminating the use of the 30 percent market share for the 100,000 re-pipes. Attached Table A-1 shows the detailed calculations and inset Table 1 summarizes the Draft EIR and revised calculations and results. **13-34**

Table 1: Calculation of statewide average number of SF and MF units to be plumbed with CPVC pipe in 2007 and resulting VOC emissions

13-34 (cont.)

Draft EIR*	Revised
Number of units to be plumbed with CPVC per year	
(180,700 new units + 100,000 re-piped units) × 0.30 market share = **84,210 units**	(180,700 new units × 0.30 market share = 54,210 new units) + 100,000 re-piped units = **154,210 units**
Number of SF and MF units to be plumbed with CPVC per year	
(84,210 units × 72.13% SF) = **60,741 SF units**	(54,210 new units + 100,000 re-piped units) × 72.13% SF = **111,232 SF units**
(84,210 units × 27.87% MF) = **23,469 MF units**	(54,210 new units + 100,000 re-piped units) × 27.87% MF = **42,978 MF units**
Amount of primer and sealer used per year	
(60,741 SF units × 0.27 L primer) + (23,469 MF units × 0.11 L primer) = **18,982 L primer****	(111,232 SF units × 0.27 L primer) + (42,978 MF units × 0.11 L primer) = **34,760 L primer**
(60,741 SF units × 0.81 L cement) + (23,469 MF units × 0.42 L cement) = **59,057 L cement****	(111,232 SF units × 0.81 L cement) + (42,978 MF units × 0.42 L cement) = **108,149 L cement**
VOC emissions per year	
(18,982 L primer × 550 g/L VOC) + (59,057 L cement × 490 g/L VOC) = **39,377,845 g VOC****	(34,760 L primer × 550 g/L VOC) + (108,149 L cement × 490 g/L VOC) = **72,110,883 g VOC**
VOC emissions per day	
39,377,845 g VOC / (454 g/lb) / (250 work-days) = **347 lb VOC/work-day**	72,110,883 g VOC / (454 g/lb) / (250 work-days) = **635 lb VOC/work-day**

* *Results are slightly different than results presented in Draft EIR, Table 14, due to rounding*

13-35

As Tables A-1 and 1 demonstrate, the Draft EIR considerably underestimates VOC emissions by applying a 30 percent market share to the 100,000 units estimated to be re-piped in California with CPVC in 2007. Based on this error, the Draft EIR calculates a statewide total of 347 lb/working-day of VOC emissions, whereas consideration of all 100,000 units to be re-piped results in VOC emissions of 635 lb/working-day. Thus, the Draft EIR has underestimated total average VOC emissions from the proposed Project by 288 lb/work-day[17] or 36.0 tons/year[18]. Results for the 39-year average projections are similar because the number of new housing units is similar and the number of re-pipes were assumed to be the same. Here the Draft EIR calculates a total of 343 lb/working-day instead of 632 lb/working-day of VOC emissions. (*See* Table A-2.)

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[17] (635 lb VOC/work-day) – (347 lb VOC/work-day) = 288 lb VOC/work-day

[18] (79.4 ton/year) – (43.4 ton/year) = 36.0 ton/year

It should be noted that these emission estimates only account for the incorrect application of the 30% market share. Actual emissions from the Project would be considerably higher as discussed in the following comments. **13-36**

II.D Number of Re-piped Units Will Increase in the Future

The Draft EIR uses the estimate of 100,000 units to be re-piped with CPVC as an absolute number for its future projections, *i.e.* beyond 2007. However, this estimate is not a fixed absolute number but will rise along with the total number of housing units in California that need re-pipe or rehab work as the as entire California housing stock ages. Further, it is subject to year-to-year variation (uncertainty), due to various economic and societal factors. **13-37**

II.E Use of CPVC Pipe to Repair Slab Leaks Is Not Considered

Bob Raymer, CBIA, identified another potentially large market for CPVC pipe, slab leaks in existing aging housing units. (Raymer 03/22/2006.) A large number of homes in California were built with a concrete slab foundation and soft copper hot and cold water pipes located underneath the slab. Over the years, a number of factors including internal abrasion from hard water, metal fatigue from expansion and contraction of pipes during temperature changes, and seismic activity frequently lead to leaks. Slab leaks are a growing problem in California, particularly in Southern California. Because in many cases the existence of a leak indicates that the whole system is deteriorated to a point where more leaks can be expected, many homeowners opt to partially or even completely re-pipe the entire system by bypassing the slab rather than just spot patch the existing leak. Raymer estimated that re-routing or repair "could...be a very large quantity with probable 200,000 leaks per year in southern and Northern Cal." (Raymer 03/22/2006.) **13-38**

The Draft EIR fails entirely to address the potential use of CPVC pipe for these slab leak re-pipes or repairs and, consequently, fails to include the associated VOC emissions in its emission estimates.

II.F VOC Emissions from Cleaners Are Not Included

The mating surface of CPVC pipe may contain waxy chemicals that are slippery and provide a barrier to cementing. These chemicals originate from extrusion aids and molding release agents used to manufacture the pipe. Mating surfaces must be free of dirt, dust, great, paint, water and other substances. If not removed, they "provide a serious jeopardy to the making of a successful joint." This may be done using a volatile solvent such as methyl ethyl ketone ("MEK") if deposits cannot be removed with a dry paper or cotton towel or rag. The solvents used to remove waxy, hydrocarbon-based contaminants are called cleaners. A cleaner is frequently **13-39**

used in addition to primer. An E-Z Weld (vendor of CPVC joining chemicals and source for the Draft EIR's values for cement use) Technical Note explains that: "[p]ipe cleaner is a non-aggressive mix of solvents used to remove contamination from joints and pipes prior to cementing. It will remove inks, dirt, oils and grease that could affect joint quality – and will not carry them into the plastic – as would primer." (Fox 04/22/2005 Comment I.E.6.a.) The Draft EIR failed to include VOC emissions from cleaners in its air quality analysis. **13-39 (cont.)**

II.G Indirect VOC Emissions from Manufacturing Are Not Included

CEQA requires that both primary or direct and secondary or indirect consequences of a project be evaluated. (CEQA Guidelines Sec. 15064(d).) The Project will increase the demand for CPVC pipe, fittings, and joining chemicals. It is reasonable to assume that a portion of this increase in demand will be met by existing California manufacturers. The VOC emissions originate from storing and blending solvents in tanks, mixers, and dispensers. Some of the solvents used in these processes may also be manufactured in California, further increasing indirect emissions. This would increase VOC emissions from these existing manufacturing facilities, increasing the Project's adverse impacts on air quality. Given the magnitude of the increase in CPVC use proposed by the Project, the increase from existing manufacturing facilities in California could be individually and cumulatively significant. Dr. Fox's Comments on the 2005 AMND contain a detailed analysis of VOC emissions from several manufacturers of CPVC pipe, fittings, and joining chemicals in California, yet despite this detailed information, the Draft EIR has failed to address or incorporate indirect emissions. (Fox 04/22/2005 Comment I.C.) The Draft EIR should be revised to include indirect emissions from manufacturing in its air quality analysis. **13-40**

II.H Statistical Analysis Is Flawed

The Draft EIR goes to great lengths to lay out its air quality analysis and presents 7 pages of text and 17 tables to support its calculations of potential VOC emissions from the proposed Project. (Draft EIR at pp. 35-42. and Appx. A, Tables 11 though 28.) Unfortunately, review of this air quality analysis reveals that it is riddled with computational errors, erroneous assumptions, and flawed use of statistical tools. **13-41**

To forecast the potential impacts of the Project into the future, the Draft EIR analyzes the past and predicted future permitted units in California. The Draft EIR then calculates a statewide 39-year average (177,719 units) from the number of housing units permitted in California in the years 1970 – 2005 and the projected number of units to be permitted for 2006 – 2008. The Draft EIR further calculates the average plus 1 standard deviation (+1 STDEV) and plus 2 standard deviations (+2 STDEV) to determine the upper limits of the 68% and 95% confidence intervals for the projected number of housing units in California. Assuming that the relative proportion of permitted SF and **13-42**

MF units in the preceding 3 years, 2003-2005, in each county is representative for future permitting activity[19], the Draft EIR calculates the projected number of SF and MF housing units for each county based on the California average and for the California average +1 STDEV and +2 STDEV, respectively. The Draft EIR then calculates potential annual average future VOC emissions from the Project as well as the upper limits for the 68% and 95% confidence levels based on the projected number of SF and MF housing units per year multiplied by a "mature market share" of 30 percent. The Draft EIR adds the number of re-piped housing units per year, 100,000 units, to the annual average and the annual average +1 STDEV and +2 STDEV, respectively, for each county. The Draft EIR then discusses potential impacts on air quality due to VOC emissions based on the average +2 STDEV housing unit numbers using Riverside County, the county with the largest percentage of statewide building permits, as an example. The Draft EIR calculates potential annual average VOC emissions of 58.7 lb/working-day and 85.2 lb/working-day based on a 95% confidence level. (Draft EIR at Appx. A, Tables 20 and 26.) There are a number of problems with this calculation, its results, and the Draft EIR's interpretation. **13-42 (cont.)**

The subject analysis is flawed because it mischaracterizes the degree of confidence attributable to the result of its calculation. Specifically, calculation estimates the annual average VOC emissions (pounds/year) by multiplying the annual average number of housing units built (authorized by building permits) by an estimate of the amount of VOCs emitted from use of primer and cement during plumbing each unit. Unfortunately, the only uncertainty considered in the Draft EIR's analysis is that associated with the number of units built. However, the amount of primer and cement used in building each unit is also highly uncertain, as is the number of units re-piped each year, and future market share of CPVC. Yet the analysis completely ignores these uncertainties, yielding an incorrect result. As a result, the estimate of annual VOC emissions is highly uncertain. There is much less confidence in the annual emission estimate, even though there is reasonable confidence in the number of units built per year. As a result, the Draft EIR's presentation instills an unwarranted sense of accuracy in the reader. I will illustrate these problems and provide a revised VOC emission estimate using Riverside as an example in Comments II.H.1 through II.I. **13-43**

II.H.1 Statewide and County-level Statistics for Housing Units Authorized by Permits Do Not Correspond

Using the statewide statistics for housing permits to calculate projected units at the county level is inappropriate. This is due, amongst other factors, to the counties' **13-44**

[19] The Draft EIR determines the relative proportion of single-family ("SF") and multi-family ("MF") units that would be constructed in each county in 2007 if the code change were approved based on the average percentage of permits issued for SF and MF units in the preceding three years, 2003-2005, and assuming that the number of units constructed approximately tracks the number of permits issued.

smaller population size, which results in greater uncertainty, as well as unpredictable developments in local real estate markets. As a result, counties in California have in the past 30 years experienced vastly differing levels of construction activity, with some counties having very little variation in the number of permits issued each year and other counties having extreme variations in permit activity. Riverside, in particular, is an example of a county that does not track California statistics very well. Figure 1 illustrates the number of units authorized by building permits for California from 1970 through 2004, and from 1993 through 2004 for each county. (Note that the units for California are on the right-hand y-axis and units for the counties are on the left-hand y-axis.) **13-44 (cont.)** **13-45**

Figure 1: Total number of housing units authorized by building permits by county and statewide

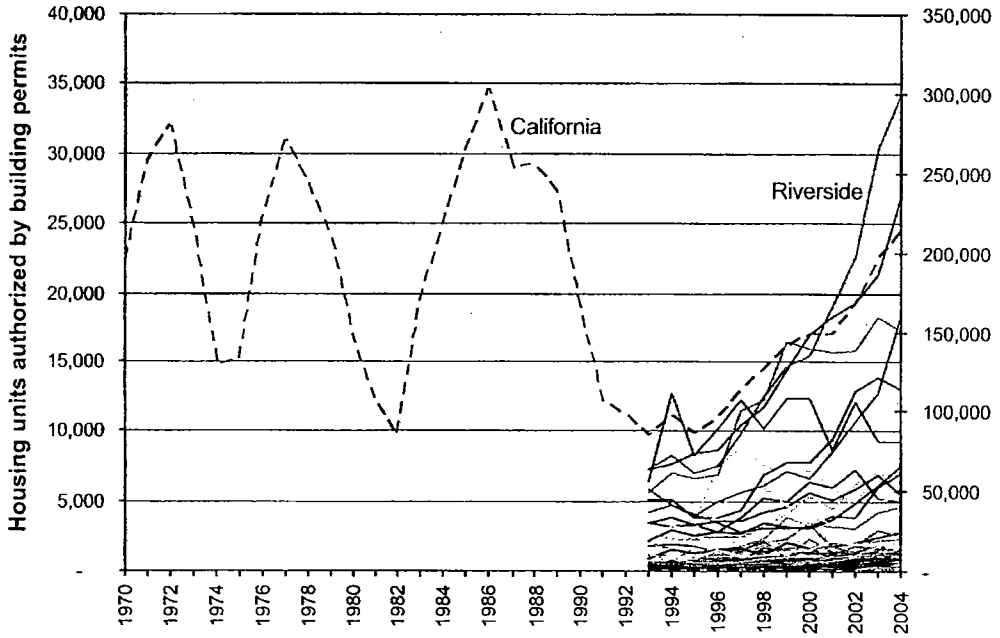

Figure 1 shows the extreme boom-and-bust cycles the construction industry has experienced in California over the past 34 years. To analyze how well counties track the statewide permit activity, I calculated the coefficient of variation, *i.e.* the ratio of the standard deviation to the average, for the number of housing units authorized by building permits in each county. Data are available for a 12-year period from 1993-2004 for California and each of its counties. (DoF 2006[20].) The coefficient of variation for **13-46**

[20] Department of Finance, Economic Research Unit, California Statistical Abstract, I. Construction, Table I-6 — Residential Construction Authorized by Permits, Units, California and Counties; http://www.dof.ca.gov/html/fs_data/STAT-ABS/sec_I.htm, accessed September 9, 2006.

California-wide housing units authorized by building permits for the time period of 1970-2004 is 0.37 and for 1993-2004 it is 0.32. (*See* attached Table A-3.) Thus on a statewide basis, the coefficient of variation (relative variability) does not differ much for these two time periods. In contrast, the coefficient of variation on the county level for the years 1993-2004 shows a wide range: from 0.16 for Nevada County to 1.28 for Yuba County. Riverside has a coefficient of variation for this time period of 0.59, considerably higher than that of California in either time period. Accordingly, the Draft EIR's use of statewide variability to a county-level estimate does not correctly characterize the uncertainty (lack of confidence) in the county estimate, in this case Riverside's. In fact, if the uncertainty inherent in the components of the analysis were correctly propagated through the analysis, the potential for a very high VOC emission rate would be apparent. Consequently, the HCD's discussion of probability on a county-wide level is flawed. It underestimates the 95% probability for the number of housing units to be plumbed, ignores the uncertainty in the primer and cement use rates and in the number of re-piped units and, therefore, underestimates the potential VOC emissions on a county-wide level. **13-46 (cont.)** **13-47**

II.H.2 Propagation of Errors

The Draft EIR ignores the uncertainty (standard deviation) inherent in most of the factors used to calculate the annual VOC emissions from CPVC pipe use. In fact, the application considers only the uncertainty in the number of new units to be constructed in the future. It ignores the uncertainty inherent in other factors: the future market share of CPVC of the potable water pipe market (*see* Comment II.B), and the number of re-piped units per year (*see* Comment II.C). Even the uncertainty in the number of units to be constructed in Riverside County is incorrect. (*See* Comment II.H.1.) As a result, the standard deviation associated with the Draft EIR's annual average VOC emissions estimate is too small because it only considers the uncertainty in the number of housing units to be built and ignores all other uncertainties. **13-48**

II.H.3 Computational Errors

The HCD provided the spreadsheets used to calculate the VOC emissions in response to a public records request. Review of the spreadsheets revealed a number of computational errors. For example, the spreadsheet used to calculate the average use of primer and cement for SF and MF housing units contains a number of incorrect input values as well as a number of incorrect cell references in the formulas calculating the averages and standard deviations. Attached Table A-4 shows the corrected values. **13-49**

II.I Revised Potential VOC Emissions Estimate for Future CPVC Pipe Use in Riverside County

I recalculated the average daily VOC emissions and the upper limit of the 95% confidence interval for Riverside County. The latter is the estimated amount that has a **13-50**

95% probability of not being exceeded, considering the uncertainty of all of the factors used in its derivation. I considered two cases: 1) I used all of the Draft EIR's assumptions, only correcting the average cement use for MF units (*see* Comment II.H.3) and propagating the errors inherent in every factor (*see* Comment II.H.2); and 2) I additionally revised the market share for CPVC for new units to 50% and for CPVC re-pipes to 100% (*see* Comment II.C). **13-50 (cont.)**

For both cases, I first, I calculated the coefficient of variation for annual new housing unit permits for Riverside County for 1993-2004 (*see* Comment II.H.1) based on data from the Department of Finance. (DoF 2006; *see* attached Table A-3.) I then calculated the average annual number of housing units permitted for Riverside County using the HCD's statewide mean for the 39-year time period and the percentage of the state total HCD attributes to Riverside County for SF and MF units. I associated with this annual average a standard deviation that is of the same relative amount as I had calculated for the 1993-2004 period. In other words, I assumed that the coefficient of variation is the same in the 39-year period from 1970-2008 as it is in the 12-year period from 1993-2004. This is reasonable because inspection of a graph of statewide annual permits over the 39-year time period reveals no peculiarities during the most recent 12-year segment of that period. As mentioned above, the statewide coefficients of variation for these two periods are very similar. For Case 1, I assumed a market share for CPVC pipe in the California potable water pipe market of 30 percent for both new and re-piped units with a reasonably conservative standard deviation of 20%. For Case 2, I assumed a market share of 50 percent with a standard deviation of 20 percent for new units and of 100% for re-piped units.

Then, I calculated the mean and standard deviation of the amounts of primer and cement consumed in building each housing unit based on the same sources used by the HCD. (The Draft EIR's spreadsheet calculating the mean and standard deviation for primer and cement quantities contained computational errors; *see* Comment II.H.3). Like the Draft EIR, I assumed that cement and primer usage would be the same for re-piped units as it would be for new units. I further assumed that the standard deviation in the estimate of re-piped units is the same relative amount as in new construction, *i.e.* has the same coefficient of variation. Finally, I calculated the annual pounds of VOC emissions in identical fashion to the Draft EIR, but taking care to propagate the uncertainties (standard deviations) of factors throughout the calculation using elementary statistical formulas.

Case 1: Draft EIR's Assumptions but Corrected Primer Use and Propagation of Errors

Because all input values were the same as those used by the Draft EIR with the exception of the minor correction to the amount of primer used for MF units, this calculation results in the same daily VOC emissions based on a 39-year annual average as the Draft EIR's calculations, 58.7 lb/working-day. However, results for the 95 percent confidence level, *i.e.* a 95 percent probability that emissions will not exceed a certain **13-51**

level result in 125.9 lb/working-day, 40.7 lb/day more than the Draft EIR's estimate of 85.2 lb/working-day. (*See* attached Table A-5.) Thus, the Draft EIR has underestimated the potential VOC emissions in Riverside County by almost 50%. This estimate does not include a number of emission sources including VOC emissions from CPVC pipe use due to slab leaks or indirect emissions from manufacturing. **13-51 (cont.)**

Case 2: Higher CPVC Market Share and Corrected Primer Use and Propagation of Errors

In contrast to the HCD's estimated annual average emissions 58.7 lb/working-day for Riverside County, this approach results in an annual average VOC emission rate of 133.1 lb/working-day and an annual average VOC emission rate of 248.6 lb/day at the upper 95 percent confidence level. Thus, the Draft EIR underestimates potential future emissions in Riverside County by more almost 50 lb/working-day and by 163 lb/working-day at the upper 95 percent confidence level. (*See* attached Table A-6.) **13-52**

Even these average emissions of 248.6 lb/working-day at the upper 95 percent confidence level understate potential peak daily emissions because they ignore daily variations throughout the year in that they characterizes the annual average rather than average daily variability. The construction sector has considerable seasonal variations in California and the peak construction season coincides with the peak ozone season. Thus VOC emissions from the proposed code change will be exacerbating an already severe problem in many areas of California. Again, this estimate does not include a number of emission sources including VOC emissions from CPVC pipe use due to slab leaks or indirect emissions from manufacturing. Including reasonable estimates for these factors revised estimates would further increase potential VOC emissions from the Project.

III. All Feasible Mitigation Is Not Required

CEQA requires a lead agency to adopt all feasible mitigation measures or feasible project alternatives that can substantially lessen or avoid any significant effects on the environment associated with a project to be approved. (Pub. Res. Code, § 21000 et seq.) Such feasible mitigation measures exist and should be required by HCD and analyzed for their potential to reduce VOC emissions from the proposed code change. **13-53**

As discussed in Comment I.A, one-step cements with low-VOC contents, which do not require the application of a primer, are available and approved for use in California. Their use instead of the proposed low-VOC primer/sealer combination would result in lower emissions and reduced exposure of workers. The Draft EIR should be revised to analyze the potential emission reductions and, if substantial reductions could be achieved, require the use of low-VOC one-step cements as a mitigation measure. **13-54**

Another potential mitigation measure would be to fund research for primers and sealers with a lower VOC content that could aid in alleviating the potential significant impacts from the proposed Project. **13-55**

IV. Cumulative Impacts Analysis Is Inadequate

The Draft EIR's cumulative impact analysis discussion consists of one short paragraph: "The project will indirectly generate ozone precursors that could lead to ozone formation. Several areas within California are classified as non-attainment for state and federal ozone regulation. Even a small addition of ozone to these areas will contribute to the problem. Even with the implementation of appropriate mitigation, the cumulative impact cannot be reduced to a less-than-significant level and will remain significant and unavoidable." (Draft EIR at p. 72.) The Draft EIR concludes that the proposed project would result in short-term air quality impacts from the proposed Project. (Draft EIR at p. 73.) **13-56**

This discussion is merely a repetition of the air quality analysis for the Project and entirely inadequate as a cumulative impact analysis. Important direction to conducting a cumulative impacts analysis is found in Section 15130(a)(1) of the CEQA Guidelines: "As defined in Section 15355, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together *with other projects* causing related impacts." (Emphasis added). The CEQA Guidelines provide two methods for an adequate analysis of cumulative impacts: 1) the List Approach, which identifies all of the past, present and probable future projects contributing to the cumulative impact; and 2) the projection approach, which relies upon the cumulative impact analysis on a summary of projections of future development and impacts contained in an adopted general planning or related planning document, or in a prior environmental document that has been certified. The Draft EIR should be revised to contain an adequate cumulative impacts discussion according to the CEQA Guidelines.

Response to Letter 13: Petra Pless

Comment 13-1. The Draft EIR has been revised and recirculated. The Project's potential air quality impacts related to VOC emissions are analyzed in Section 4.2 of the Recirculated Draft EIR.

Comment 13-2. The Draft EIR has been revised and recirculated. The revised air quality analysis in the Recirculated Draft EIR reflects the Lead Agency's consideration and evaluation of the comments made by the commenter.

Comment 13-3. The Draft EIR has been revised and recirculated. he revised air quality analysis in the Recirculated Draft EIR reflects the Lead Agency's consideration and evaluation of the entire record before the Lead Agency, including the comments submitted by Dr. J. Phyllis Fox during the 2005 Draft Addendum proceedings.

Comment 13-4. The Draft EIR has been revised and recirculated. Section 5.0 of the Recirculated Draft EIR analyzes a range of reasonable alternatives to the Project, evaluates the comparative merits of the alternatives, and identifies the environmentally superior alternative from among those considered. As explained in Section 5.0, the Recirculated Draft EIR considers three alternatives to the Project. Section 5.0 of the Recirculated Draft EIR evaluates, analyzes and discusses the potential environmental impacts associated with each of the identified alternatives. The Lead Agency believes that the alternatives analysis in the Recirculated Draft EIR satisfies the informational standards set forth in this comment.

Comment 13-5. Please see the response to Comment 12-239.

Comment 13-6. Please see the responses to Comments 12-238 and 12-239. As explained on page 162 of the Recirculated Draft EIR, "Alternative 2" as described in the Draft EIR (i.e., Do Not Remove the Findings Requirement and Require Low Emission Adhesives) was initially considered but not evaluated in detail because this alternative would not attain the most basic objectives of the Project. The projective objective is set forth in full in Section 3.4 of the Recirculated Draft EIR, and is "to remove the 'Findings Requirement' from the California Plumbing Code thereby allowing unconditional use of CPVC throughout California as an alternative pipe material for residential potable water plumbing systems." This alternative would not attain the project objective because the Findings Requirement would remain in place.

Comment 13-7. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR considers and analyzes the use of one-step cements, which is identified in the Recirculated Draft EIR as Alternative C – Delete the Findings Requirement and Use Low-VOC, One-Step Cement Alternative (also referred to as the "One-Step Cement Alternative").

Comment 13-8. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR includes a reasonable range of alternatives, a meaningful analysis and discussion of alternatives, and an identification of the environmentally superior alternative. The alternatives analysis in the

Recirculated Draft EIR is based on the analysis of substantial evidence in the record, and not on foregone conclusions.

Comment 13-9. The revised air quality analysis in the Recirculated Draft EIR uses the thresholds of significance recommended by CARB.

Comment 13-10. The revised air quality analysis in the Recirculated Draft EIR uses both the construction and operational thresholds of significance recommended by CARB. The Lead Agency believes that the Project does not fall neatly into the categories of projects to which local air district construction or operational thresholds of significance typically are applied, but nevertheless decided to utilize these thresholds of significance in the Recirculated Draft EIR in order to produce a conservative estimate of the Project's potential air quality impacts.

Comment 13-11. Please see the response to Comment 13-10. The statement that VOC emissions from the Project "will not be long-term" is not present in the revised air quality analysis in the Recirculated Draft EIR.

Comment 13-12. Please see the response to Comment 13-10.

Comment 13-13. Please see the response to Comment 13-10. The Lead Agency disagrees with the commenter's implication that it is "universal practice" to apply construction and operational thresholds of significance established by local air districts when analyzing the air quality impacts of a statewide regulatory change, particularly since there are very few, if any, comparable projects that have undergone CEQA review.

Comment 13-14. The Draft EIR has been revised and recirculated. The revised air quality analysis in the Recirculated Draft EIR uses the quantitative thresholds of significance recommended by CARB.

Comment 13-15. The Draft EIR has been revised and recirculated. Section 4.2 of the Recirculated Draft EIR includes a discussion of the adverse health effects related to ozone, and therefore complies with the requirement under CEQA that an EIR discuss health and safety problems caused by the physical changes that the proposed project will precipitate. This discussion has been expanded in the Final EIR. Please see the revisions to page 34 of the Recirculated Draft EIR located in Section 3.0, Revisions and Errata, of this Final EIR.

Comment 13-16. Please see the response to Comment 13-15.

Comment 13-17. The Draft EIR has been revised and recirculated. The revised air quality analysis no longer includes a comparison of Project VOC emissions to background emissions.

Comment 13-18. Please see the response to Comment 13-17.

Comment 13-19. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR's evaluations of both the potential project-specific and cumulative air quality impacts of the

Project take into account the Project's potential to contribute to areas of the State that experience existing air quality violations related to ozone. As explained on page 48 of the Recirculated Draft EIR, the revised air quality analysis accounts for seasonal variations in construction activity.

Comment 13-20. The Draft EIR has been revised and recirculated. The Lead Agency believes that the Recirculated Draft EIR fully discloses the Project's potential adverse impacts related to air quality.

Comment 13-21. The Draft EIR has been revised and recirculated. As explained on pages 45-46 of the Recirculated Draft EIR, the revised analysis evaluates the Project's potential air quality impacts based both on a design value estimate and a maximum value estimate of the potential future market share of CPVC pipe. The "maximum value estimate," which assumes that the Project potentially could result in CPVC eventually attaining a maximum 58 percent share of the California market for residential potable water pipe systems, is a reasonable worst-case assumption. Please also see the response to Comment 13-22 below. The revised air quality analysis in the Recirculated Draft EIR contains revised computations, assumptions, and statistical analysis.

Comment 13-22. Please see the response to Comment 13-21. The methodology used in the revised air quality analysis, which is explained on pages 42-49 of the Recirculated Draft EIR. In addition to using a maximum value estimate for the potential future market share of CPVC pipe, the revised air quality analysis applies conservative values to all factors used in calculating the Project's potential air quality impacts, as well as a safety factor for both the design and worst-case analyses.

Comment 13-23. The Draft EIR has been revised and recirculated. As explained on pages 45-46 of the Recirculated Draft EIR, the estimate in the Draft EIR that the Project could result in CPVC pipe accounting for 30 percent of the potable water pipe sold in California has been increased to 32 percent in the Recirculated Draft EIR. The "design value" calculation of potential air quality impacts in the Recirculated Draft EIR is based on the assumption that CPVC pipe potentially could achieve a mature market share of 32 percent. In addition, as explained in the response to Comment 13-21, the revised air quality analysis in the Recirculated Draft also calculations potential impacts based on a "maximum value," or worst-case, assumption that CPVC potentially could achieve a mature market share of 58 percent.

Comment 13-24. Please see the response to Comment 13-23. Please also see the explanation on pages 45-46 of the basis for the updated estimate of the potential mature market share for future CPVC pipe use in California.

Comment 13-25. Please see the responses to Comments 13-23 and 13-24.

Comment 13-26. As explained on page 45 of the Recirculated Draft EIR, the current market share of CPVC in California was factored out of the calculation used to arrive at the market share

assumptions used in the Recirculated Draft EIR analysis. Please also see the responses to Comments 13-23 and 13-24.

Comment 13-27. Please see the response to Comment 12-90.

Comment 13-28. Please see the responses to Comments 13-23 and 13-24.

Comment 13-29. The Lead Agency does not believe that CPVC could possibly be used for 100 percent of the residential plumbing within California, as copper is likely to remain on the market. Therefore, the Lead Agency does not believe that assuming 100 percent CPVC pipe use would be used in all new residential construction and re-piping of existing homes within California is not a reasonable worst-case assumption. Please also see the responses to Comments 12-90 and 13-21 through 13-24.

Comment 13-30. As explained on page 44 of the Recirculated Draft EIR, the Draft EIR erroneously stated that there would be 100,000 houses per year re-piped with *CPVC* rather than with *all plumbing materials*. Therefore, the Draft EIR did not underestimate VOC emissions in the manner described by the commenter. The Recirculated Draft EIR corrects this misstatement.

Comment 13-31. Please see the response to Comment 13-30.

Comment 13-32. Please see the response to Comment 13-30.

Comment 13-33. The Lead Agency does not believe that the quoted statement from an email Bob Raymer of CBIA implies that the Project will result in exclusive use of CPVC for re-pipings in California. For the reasons stated in the responses to Comments 13-29 and 13-30, the Lead Agency does not believe this is a reasonable assumption. The difference in labor costs between CPVC and copper pipe is present in all markets within the United States that allow both types of pipe, and CPVC pipe has never assumed a 100 percent share of the market for residential potable water systems in any state.

Comment 13-34. For the reasons explained in the responses to Comments 13-30 and 13-33, the Lead Agency declines to utilize the revised calculations offered by the commenter.

Comment 13-35. Please see the responses to Comments 13-30, 13-33, and 13-34.

Comment 13-36. Please see the responses to Comments 13-30, 13-33, and 13-34.

Comment 13-37. This comment is speculative in nature, as the comment has not submitted any evidence indicating that the number of re-pipings of existing homes in California will increase every year. The estimate is intended to account for year-to-year variation, as the Lead Agency anticipates that the number of actual re-pipings in some years may be below this number while in other years the number may be higher. Moreover, the revised air quality analysis in the Recirculated Draft EIR has incorporated safety factors and standard deviations to account for uncertainty in the various estimates used in calculation the Project's potential air quality analysis

and, as explained above, the Recirculated Draft EIR also includes a "maximum value" estimate in its analysis, which is essentially a reasonable worst-case estimate.

Comment 13-38. The Draft EIR has been revised and recirculated. As explained on pages 44-45 of the Recirculated Draft EIR, the revised air quality analysis includes an estimate of future slab repairs in calculating the Project's potential air quality impacts.

Comment 13-39. Please see the response to Comment 12-123.

Comment 13-40. Please see the response to Comment 12-124.

Comment 13-41. The Draft EIR has been revised and recirculated. The revised air quality analysis in the Recirculated Draft EIR contains revised computations, assumptions, and statistical analysis.

Comment 13-42. Please see the response to Comment 13-41.

Comment 13-43. Please see the response to Comment 13-41.

Comment 13-44. The Draft EIR has been revised and recirculated. As explained on pages 42-43 of the Recirculated Draft EIR, the revised calculations of potential air quality impacts in the Recirculated Draft EIR are based on the number of housing permits issued at the county, rather than statewide, level.

Comment 13-45. Please see the response to Comment 13-44.

Comment 13-46. Please see the response to Comment 13-44.

Comment 13-47. Please see the responses to Comments 13-37 and 13-44.

Comment 13-48. The Draft EIR has been revised and recirculated. As explained on pages 42-49 of the Recirculated Draft EIR, the revised air quality analysis has incorporated safety factors and standard deviations to account for uncertainty in the various estimates used in calculation the Project's potential air quality analysis.

Comment 13-49. The Draft EIR has been revised and recirculated. The revised air quality analysis in the Recirculated Draft EIR is based on revised computations.

Comment 13-50. The Draft EIR has been revised and recirculated. The revised air quality analysis uses the methodology described on pages 42-49 of the Recirculated Draft EIR, which the Lead Agency believes is a reasonable methodology resulting in a conservative estimate of the Project's potential air quality impacts. For that reason, the Lead Agency declines to utilize the specific calculations prepared by the commenter.

Comment 13-51. Please see the response to Comment 13-50.

Comment 13-52. Please see the response to Comment 13-50.

Comment 13-53. The Draft EIR has been revised and recirculated. The Lead Agency believes that the Recirculated Draft EIR identifies all feasible mitigation measures and analyzes a reasonable range of feasible alternatives.

Comment 13-54. The Recirculated Draft EIR identifies requiring the use of one-step cements as a mitigation measure. (See RDEIR p. 50). In addition, requiring the use of low-VOC, one-step cement is analyzed in the Recirculated Draft EIR as an alternative to the Project. (See RDEIR pp. 179-187).

Comment 13-55. Please see the response to Comment 12-136.

Comment 13-56. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR includes a revised analysis of the Project's potential cumulative air quality impacts on pages 221-222. The Recirculated Draft EIR no longer states that the Project would result in "short-term" air quality impacts. However, the Recirculated Draft EIR concludes that the Project's cumulative air quality impacts will be significant and unavoidable. The lead agency does not believe that the two approaches for analyzing cumulative impacts suggested by the commenter are appropriate for analyzing the cumulative air quality impacts of a statewide regulatory change, as both methods are designed to analyze cumulative impacts of projects that are located within a specific site or area. Therefore, the Lead Agency declines to use either the list approach or the projection approach.

TRA
ENVIRONMENTAL
SCIENCES, Inc.

545 Middlefield Road, Suite 201
Menlo Park, CA 94025-3472
Tel: (650) 327-0429
Fax: (650) 327-4024
www.TRAenviro.com

September 13, 2006
TRA File: LPPC

Thomas A. Enslow
Adams Broadwell Joseph & Cardozo
1225 8th Street, Suite 550
Sacramento, CA 95814

Re: Comments on California Department of Housing and Community Development Draft Environmental Impact Report: Adoption of Regulations Permitting Statewide Residential Use of Chlorinated Polyvinyl Chloride (CPVC) Plastic Plumbing Pipe without First Making a Finding of Potential Premature Metallic Pipe Failure Due to Local Water or Soil Conditions
SCH No. 200612044

Dear Mr. Enslow:

The California Department of Housing and Community Development ("HCD") has published a Draft Environmental Impact Report ("EIR"): Adoption of Regulations Permitting Statewide Residential Use of Chlorinated Polyvinyl Chloride (CPVC) Plastic Plumbing Pipe without First Making a Finding of Potential Premature Metallic Pipe Failure Due to Local Water or Soil Conditions (SCH No. 200612044).

I have been involved in studying the environmental effect of plumbing systems since 1980 and have been a contributor to and commentor on HCD's environmental review process for plastic pipe. On April 21, 2005 I submitted comments on the proposed (and abandoned) Addendum to the November 2000 Final Environmental Mitigated Negative Declaration ("2000 MND") SCH No. 2000091089. Those comments identified a broad range of environmental concerns for expanded use of CPVC pipe in California that are not addressed in the current document. 14-1

The current EIR attempts to dodge meaningful public consideration of most environmental issues by defining them as somehow outside the scope of the project's effects. At present, section 604.1 of the California Plumbing Code ("CPC") authorizes local building officials to approve the use of CPVC water pipe inside residential structures as an alternate material to metallic pipe if a finding was made that there is or will be a premature failure of metallic pipe because of corrosive water and/or soil conditions (referred to as the "Findings Requirement"). 14-2

In the 2000 MND, most potential impacts were dismissed due to the "limited number of anticipated residential installations of CPVC that may be approved as a result of the proposed Project [the Findings requirement]" (MND discussion of air quality p. 6) or "... any uses of CPVC that would be authorized as a result of the proposed project would not otherwise substantially degrade water quality. " (MND discussion of water quality p. 16). 14-3

The action subject to the EIR would remove the Findings Requirement, resulting in more widespread use of CVPC plumbing in dwellings. The EIR cites a Noveon representative to conclude that CPVC may expand to a 30% market share. The 2000 MND was predicated on a 2% adoption of findings. Unfortunately, the EIR ignores the issues raised previously and fails to identify adequate mitigation for potentially significant impacts. 14-4

As a practical matter, the HCD EIR seems to have involved little or no constructive input from either the plastic pipe manufacturing industries who stand to benefit from removal of the findings requirement or from NSF International, the testing organization relied upon by HCD for health impacts. Both industry and NSF could have provided actual data on formulation and exposure that would allow independent public review. 14-5

Given the long history of HCD and the California Environmental Quality Association ("CEQA") review, it is not surprising that the EIR falls into the trap of relying on outdated and incomplete data. 14-6

- While there are no new studies of leaching, newly set standards, including those adopted by the National Sanitation Foundation ("NSF"), show solvents from cement leaching at levels exceeding standards even several months after installation. This is an unavoidable adverse impact not mitigated to insignificance by the proposed one-week flushing requirement. 14-7
- Changing formulations to meet low VOC regulatory standards introduce compounds and changed proportions of solvents that will change the nature, concentration, and persistence of solvents leaching into drinking water. 14-8
- New global concern over health and environmental effects of organotin compounds used at 2% to 4% in CPVC pipe show proposed use may have a significant adverse impact on public health. 14-9
- Changes in CPVC Pipe resin manufacturing and world markets show that new constituents or constituents not formerly believed to be in use may now be present in pipe resin. These include human carcinogens or other Proposition 65 chemicals. These substances have not been previously considered and their presence is a potentially significant adverse health impact. 14-10
- Other changes indicate a possibly reduced product lifetime or other environmental effects. 14-11
- Global concern over the use of chlorinated plastics (primarily PVC and CPVC) reflect the lifecycle environmental impact of manufacture raw materials manufacture, resin manufacture, product manufacture, product use, and end-of-use disposal. 14-12

1) The EIR Project Description Is Inadequate to Fully Characterize the Potential for Environmental Impact

The environmental review in the 1980's reflected an understanding of the need to characterize the "plastic" in plastic pipe and entailed a request from the participating industries to supply relevant information to guide leaching testing and other analysis. With industry's withdrawal from the CEQA process, subsequent environmental review (the 1997 Draft EIR and the 2000 MND) essentially abandoned an effort to rigorously characterize the materials present in CPVC plumbing systems that may be installed under HCD approvals. 14-13

This problem persists with the EIR. There have been changes in manufacturing methods and resin formulations since the previous EIR and 2000 MND. HCD persists in treating "CPVC" as 14-14

inert material. The EIR Project Description states that "the terms 'CPVC' and 'CPVC pipe' refer to chlorinated polyvinyl chloride pipe, fittings, and the material used to join CPVC pipe and fittings", but the EIR provides no information in the Project Description about what CPVC pipe and cements contain that are relevant to the air, water, and public health impacts. **14-14 (cont.)**

The omission of an accurate characterization of "CPVC" in the Project description means the subsequent discussion of environmental impact is incomplete. **14-15**

The EIR introduces some information about solvent cements in the discussion of air quality (e.g. page 28). Organic compounds are listed as acetone, cyclohexanone, methyl ethyl ketone and tetrahydrofuran. In the discussion of water quality, the same list is repeated (p. 51). The EIR mentions disinfection byproducts (DBP) including trihalomethanes (THM) such as chloroform, without mentioning that chloroform and vinyl chloride monomer may be found in the pipe itself. The EIR makes no mention of organotin compounds, even though they are a significant component of CPVC resin. **14-16**

The EIR cannot rely on discussion of environmental impact in the 2000 MND unless it can show how the "CPVC" that will find expanded use in California was adequately analyzed then. In fact, there are changes in chemical composition of pipe resin and cements that have not been adequately subject to public environmental review. **14-17**

a) New Information on Pipe Composition since 2000 MND

Pipe and fittings have many constituents. A recent patent assigned to Noveon Corporation (CPVC successor to BFGoodrich) offers insight on recent or future changes. Attachment A is US patent 20030157321, "Plastic pipes and fittings for home and industrial use." Patent 20030157321 identifies the strengths (high temperature resistance) and weaknesses (low impact resistance, susceptibility to oxidation and thermal degradation at higher, extrusion temperatures). Noveon responds to these liabilities by changing the CPVC resin formulation. **14-18**

Industry refers to % by weight as "parts per hundred resin (phr)." The pipe resin described there is: **14-19**

> "[0014] Suitable **CPVC resins**
> [0018] The CPVC formulations according to the invention should contain an impact modifier
> [0019] suitable **impact modifiers** include higher rubber ("butadiene") content and high efficiency methylmethacrylate-butadiene-styrene ("MBS").... acrylonitrile-butadiene-styrene ("ABS") impact modifiers ... Suitable impact modifiers can be used in an amount of about 3 to about 15 phr, preferably about 5 to about 10 phr.
> [0023] Other components may be present in formulations of the present invention. These include, for example, antioxidants, lubricants, stabilizers, impact modifiers, tinting colorants, blueing agents, pigments, Tg enhancing additives and processing aids, all of which serve various purposes known in the PVC compounding art.
> [0024] Exemplary **lubricants** are polyglycerols of di- and trioleates, polyethylene, oxidized polyethylene, and high molecular weight paraffin waxes and mixtures thereof. Specific examples are oxidized polyethylenes such as those sold under the trade name AC 629 by Allied Signal, the paraffin waxes, such as those sold under the trade name Hostalube 165 by Hoechst Celanese. Lubricants can be used in an amount of about 0.01 to 5, preferably about 0.4 to about 2.0 parts per hundred resin ("phr").

14-19 (cont.)

[0025] Suitable **heat stabilizing** ingredients include phosphate stabilizers such as disodium phosphate, maleimides, sulfur compounds and alkyltin compounds. Tin compounds include methyltin, octyltin, mixed metal alkyltins, dialkyl tin dicarboxylates, methyl tin mercaptides, butyltin mercaptides, dialkyl tin bis (alkyl mercaptocarboxylate) including di-n-octyltin-S,S'-bis (isoctyl mercaptoacetate), butyl thiostannoic acid, and other ester tins. Di-C[sub]4-C[sub]8 alkyl tin stabilizers such as C[sub]4 to C[sub]8 alkyl tin carboxylates are preferred. A particularly preferred stabilizer is a tin thioglycolate such as that sold under the trade name Mark 292-S by Witco Chemical. Use levels can be in the range of about 1 to about 5.0, preferably about 2.0 to about 4.0, phr.
[0026] Suitable **processing aides** include acrylic polymers such as methyl acrylate copolymers. A specific acrylic process aid is the acrylate sold under the name Acryloid KM(R) 330, by Rohm and Haas, Inc. Other processing aids are disclosed in The Plastics and Rubber Institute: International Conference on PVC Processing, Apr. 26-28 (1983), Paper No. 17. There are embodiments of the invention containing no such processing aids, but if such processing aids are used they should be added in an amount of up to about 4.0, preferably 0.5 to about 3.0, phr.
[0030] Examples of **antioxidants** include Irganox 1010 (tetrakis[methylene (3,5-di-tert-butyl-4-hydroxyhydrocinnamate)] methane) sold by Ciba Geigy. These components increase thermal stability and are used in the art primarily for cosmetic reasons, i.e., for delaying color changes. If used, such components may be used in an amount ranging from 0.25 to about 5, preferably about 0.5 to about 1.0, phr.
[0031] Suitable **pigments** include, among others, titanium dioxide, calcium carbonate, talc, clay, mica and carbon black. Such pigments can be added in amounts ranging from about 0.001 to about 10.0, preferably about 0.01 to about 5.Q, and most preferably up to about 1.0 phr. " (US patent 20030157321)

14-20

These options and the claimed and preferred low and high range of use as a % by weight is shown in the Table below.

Summary of CPVC Pipe Resin Additives (as parts per hundred resin – phr)

Additive	Cited Low	Preferred Low	Preferred High	Cited High
Impact Modifier	3	5	10	15
Lubricants	0.01	0.4	2.0	5
Stabilizers	1.0	2.0	4.0	5.0
Processing Aids	0	0.5	3.0	4.0
Antioxidants	0.25	0.5	1.0	5
Pigments	0.001	0.01	5.0	10.0

Source: US patent 20030157321, Summary by TRA

14-21

Other recent patents describe other additives and novel manufacturing processes.

"The most preferred impact modifier is composed of a mixture of a polyorganosiloxane and a polyalkyl(meth)acrylate." (US 6187868)

"The amount of the block chlorinated polyolefin ("b-CPE") is desirably from about 0.1 to about 10 parts by weight, more desirably from about 0.25 to about 5 parts by weight. The amount of the high rubber graft copolymers is desirably from about 1 to about 30 parts by weight and more desirably from about 3 to about 20 parts by weight. The amount of the

randomly chlorinated polyethylene impact modifier is desirably from about 1 to about 30 parts by weight and more desirably from about 5 to about 15 parts by weight." (US 6277915) 14-21 (cont.)

"These chlorinated polyethylenes have been randomly (relatively homogeneously) chlorinated by using a swelling solvent and/or a chlorinating temperature above the crystalline melting temperature of the polyethylene. " (US 6277915)

These methods describe a pipe material that is different from the description in the 2000 MND. Nowhere in the 26-year HCD CEQA record is a listing of these formulation options nor an assessment of the potential public health and environmental impact of their use in potable water plumbing. 14-22

b) New Information on Cements since 2000 MND

Similarly, there is pressure to change the pipe bonding method. Usually a two-step primer/cement is used. The solvents of this system are introduced into the drinking water and raise health concerns that have been the subject of previous comment, particularly with regard to tetrahydrofuran ("THF"). 14-23

Industry apparently shares these concerns: "Further, tetrahydrofuran (THF), which has been a major component of PVC and CPVC adhesive compositions (typically, 25 to 75 wt %), has been found by the National Toxicology Board to have a slight carcinogenicity in animal testing. As a result, THF is under extensive investigation, both with regard to worker health (exposure during pipe assembly) and potable water issues." (US 6372821)

One example of a group of efforts at reformulating cements is "Low VOC (volatile organic compounds), dimethyl-2-piperidone solvent-based, PVC and CPVC pipe and component adhesives and primers containing minimal or no tetrahydrofuran," IPS Corporation, Gardena, CA US 6372821.

The HCD EIR states "CPVC pipe and fittings are joined together using cements and sometimes primers that contain solvents, including acetone, tetrahydrofuran, methyl ethyl ketone, and cyclohexanone." (EIR, p. 51.) This statement shows the lack of any effort to bring the project description up to date. Other solvents are being used or sought for use, largely to reduce the air quality effects of volatile organic compounds. 14-24

According to the patent literature, "many PVC and CPVC pipe adhesives are formulated with N-methyl pyrrolidone ("NMP"), a very effective solvent for PVC and CPVC resins." "Other thermoplastic pipe adhesives are formulated with large amounts of low vapor pressure solvents blends, such as di-methyladipate (available from E. I. DuPont de Nemours as DBE-6) and NMP and/or alkyl-substituted naphthalene ..." (US 6372821) and there are proposals for cyclopentanone and dimethyl-2-piperidone ("DMPD") (US 6372821).

Nowhere in the 26-year HCD CEQA record is a listing of these alternate cement materials nor an assessment of the potential public health and environmental impact of their use in potable water plumbing. 14-25

c) Proposed CPVC Approval Includes no Control of Future Change or Manufacture

In earlier comments, we raised the issue of sufficiency of NSF listing for adequate protection. Not all plumbing materials sold in California are NSF listed. Some are nominally intended for other uses, such as PVC for non-pressure use. Schedule 40 fittings are found without the NSF stamp. 14-26

CPVC is expensive. With a wider market for CPVC, we expect suppliers to enter materials that may be cheaper to manufacture, possibly involving older manufacturing methods that introduced the carcinogen, chloroform, into the pipe resin. Montgomery Laboratories measured chloroform at levels of health concern in leaching tests in 1980. 14-27

Noveon informs us in 2003 that "CPVC can be made by any commercial chlorination process or the like, such as by a solution process, a fluidized bed process, water slurry process, thermal process, or a liquid chlorine process. (US patent 20030157321 [0015]) Some of these methods have been associated with the use of swelling solvents.

CPVC is now being manufactured in Taiwan and in China. Hangzhou Xiaoshan Qianjin Chemical Co., Ltd. apparently makes CPVC resin "from PVC resin chlorinated by chlorine gas in solvent surrounding." (http://www.made-in-china.com/products/show/freemember/prod/TAwMDExNTI0N/mic/Chemicals_Rosin_Forest_Chemical_CPVC_Resin.html). Dandong Decheng Chemical Co., Ltd. and Zhejiang Yonggao Plastic Industry Development Co., Ltd. also manufacture CPVC resin, and the latter CPVC plumbing materials.

A flaw in HCD CEQA process all along is the association of the "project" with the materials supplied by only one manufacturer, BFGoodrich, now Noveon. The current CEQA compliance process began in the early 1980's when BFGoodrich was one of a few active industry participants. All the studies and all the subsequent CEQA analysis are based on BFGoodrich's technology. With expanding California markets, that will no longer be an adequate basis for the state's proposed action. 14-28

d) Significance of New Information

This information shows that additives may comprise 10% to 20% of the weight of the pipe resin, governed by the need to meet mechanical performance tests. Noveon , the only North American manufacturer, says, "CPVC compounds are approximately 85% CPVC resin and 15% additives." (http://www.corzancpvc.com/pdfs/FactSheet.pdf.) This is significant new information for the State's CEQA review: 14-29

1. These substances are not minor constituents – there is significant leaching potential.
2. Some of the additives raise public health concerns. Unreacted monomer from impact modifiers may contain butadiene or acrylonitrile, which are carcinogens.
3. The new deliberate additives raises questions about NSF testing sufficiency.
4. The ongoing emphasis on product improvement raises concerns over product reliability and mechanical failure.

It is also significant that this information was not produced by industry during the earlier phase of environmental review leading to the (abandoned) Draft EIR. Our earlier comments about the futility of the state's environmental review of a "project" which was being kept secret by industry is still relevant. Does HCD know what "CPVC" pipe is? Does HCD have any way to 14-30

track changes in the CPVC plumbing system that may affect public health, worker safety, consumer protection, or other potential environmental effects? 14-30 (cont.)

2) Reliance on NSF International Is Insufficient to Meet CEQA Purpose of Full Disclosure and Public Review

Chemicals present in the CPVC plumbing system may leach out into drinking water. HCD's CEQA record defers in-depth consideration of public health effects to the NSF International listing process. NSF has emerged as the main third party listing organization for plumbing materials. NSF sets or references standards for mechanical performance for pipes, fittings, and cements. NSF undertakes a limited chemical testing program for potential leaching. 14-31

NSF is a legitimate and valuable organization. Without its equivalent, the public's health would be ill served. That does not mean that NSF product listing is sufficient to substitute for independent review by the state. NSF includes government and consumer participants, but is fundamentally organized around its industry clients and substantially operates out of public view. 14-32

As an example of disclosure needs, NSF does not release the results of leaching tests (what compounds were found); NSF does not identify which products do not pass testing; and NSF's method of setting levels for non-regulated compounds (e.g. organotin) is not subject to adequate disclosure and certainly unknown to California and is not disclosed in the EIR. 14-33

This industry orientation causes NSF to take a reactionary approach to water quality, public health and leaching issues. Many of the tests now done routinely were instigated only because of outside pressure – from the US EPA and from the California CEQA process. 14-34

NSF originally listed plastic pipe with no leaching tests. Concern over possible vinyl chloride monomer ("VCM") as a carcinogen was late in prompting industry and ultimately NSF testing. The concern over chloroform in CPVC in the 1980's finally led to NSF enquiring of manufacturers regarding its use and its explicit leaching testing. The concern over organotin compounds led NSF to begin leaching testing for that, despite its long known use in PVC and CPVC.

The State of California could use the NSF process if NSF disclosed information relevant to public health on an ongoing basis. Then the state could subject the information to the state's independent review, determine its adequacy and any additional information needed, and demonstrate to the public that the NSF process was sufficient. Merely citing the NSF listing code reference is not independent review. 14-35

As it turns out, available information shows that the NSF process is not a sufficient basis for the findings in the EIR. 14-36

NSF has a limited test protocol for pipe compound and possible drinking water leaching. As far as can be determined, NSF does <u>not</u> test CPVC leachate for butadiene or acrylonitrile, even though those known carcinogens are used in impact modifiers in CPVC pipe resin (see comments on project description above).

There is a growing global concern over the health and environmental effects of organotin compounds used as stabilizers in PVC and CPVC plastic. The main concern so far has been on

the trialkyl tin compounds. NSF does not test for the presence of trialkyl tin because the manufactures' information only lists the dialkyl form as an additive. The trialkyl form is always present as a contaminant of the dialkyl product and is present in CPVC pipe leachate. NSF does not report this. 14-36 (cont.)

NSF tests cements for some material, such as dimethylformamid, but does not test for organotin or its potential for leaching from cemented joints. CPVC cement contains added CPVC resin as a component to thicken and fill gaps in the joint. The added resin is fully formulated CPVC pipe resin and hence contains the additives found in pipe resin, including the organotin compounds. This is a significant additional source of organotin exposure.

NSF tests pipe for leaching in a test assembly, not with solvent-cemented joints. Obviously NSF does not want to test multiple products at once (pipe, fitting, cement), but it appears to be the case that solvent in water may mobilize organotin additives in the pipe. The role of solvent should at least be evaluated in NSF setting action levels for organotin. The organotin leaching potential may be understated. 14-37

3) The Project Would Result in Significant Public Health Impacts From Drinking Contaminated Water

The EIR ignores the issue of what substances and at what levels leach into drinking water in CPVC plumbing. The EIR concludes that "The 2000 MND analyzed the impacts associated with conditional CPVC use ... That analysis included potential impacts on water quality." (EIR p. 51). 14-38

The 2000 MND does not actually analyze potential impacts on water quality and public health. It mentions solvents and organotins (MND p. 13); it concludes that the flushing requirement is adequate mitigation without reference to the abundant data that shows solvent and organotin levels persisting way beyond the one-week flush period.

The only analysis of the public health impacts of leachates apparent in the HCD CEQA record is an analysis in the 1983 Environmental Assessment ("1983 EA"), the 1987 Risk Assessment (CH2M Hill, Inc., Metal v. Plastic Pipe: A Comparative Health Risk Assessment on Drinking Water Quality, 1987, prepared for industry), and a summary of the 1987 RA in the 1998 EIR. The EIR and the 2000 MND that it relies on do not contain any analysis, apparently relying on these earlier documents.

There is now new information on both the chemicals present in leachate and the levels at which they cause significant public health impacts that were not known and could not have been known with reasonable diligence in September 2000 when the prior analyses that the 2000 MND relies on were conducted. 14-39

The new information comprises reduced, more protective standards for leachate chemicals and more information about the amount of leaching. Based on this information, CPVC pipe systems exceed adopted standards or guidelines that would reasonably be used by HCD as a threshold of significance if it were to analyze project impacts under current conditions.

Ongoing study since the 2000 MND has produced a longer list of potential leachates. In 2003, the American Water Works Association Research Foundation identified materials and chemicals 14-40

that imparted tastes and odors to drinking water are identified. "The exhaustive list of chemicals found by NSF to leach from system components is provided below. PVC/CPVC. 1,3-butadiene; antimony; calcium carbonate; calcium stearate; carbon black; chlorophenol; cyclohexanone; dibutyltin; diethylhexylphthalate; disononyl phthalate; ethyl acrylate; formaldehyde; monobutyltin; paraffin wax; polyethylene wax; titanium dioxide; tributyltin; vinyl chloride monomer." ("Materials used in drinking water distribution systems: contribution to taste-and-odor"; P. Tomboulian*, L. Schweitzer*, K. Mullin*, (Oakland University, Rochester, MI, USA), J. Wilson NSF International, Ann Arbor, MI, USA and D. Khiari; Water Science and Technology Vol 49 No 9 pp 219–226 © IWA Publishing 2004). 14-40 (cont.)

The potential public health impacts of these new chemicals and new health-based thresholds should have been evaluated in the EIR. As discussed below, the concentrations of some chemicals leached from CPVC-piped systems exceed drinking water standards and other metrics set to protect public health. This is a new impact not disclosed in the EIR. The HCD should conduct additional studies on the leaching potential of CPVC and evaluate the public health impacts. 14-41

a) Organotins Leached From CPVC Drinking Water Systems Would Result in Significant Public Health Impacts

The HCD EIR does not acknowledge the health risk from organotin leaching. Although organotin compounds, typically dibutyltin in North America, have long been used as stabilizers in the 2% to 4% range, the industry information did nothing to alert HCD to this potential public health issue. For this reason, the Cooper study and others did not look at organotin leaching. 14-42

The June 1998 DEIR (pp. 39-40) is the first discussion. The 1998 DEIR evaluated mono- and dibutyltin compounds using a maximum drinking water level ("MDWL") of 20 ug/L and a short-term exposure level ("STEL") of 100 ug/L, based on information from NSF Standard 61. (1998 DEIR, pp. 22, 40.) However, I have found no analysis of any other organotin compounds, most notably the highly toxic tributyltin compounds. This class of compounds was cavalierly dismissed as "just not there" (1998 DEIR). 14-43

At the time the 1998 DEIR was published, the EPA had questioned the NSF's organotin exposure levels and concluded that there were concerns that warranted continuing to list organotins as contaminants of concern in drinking water. In its announcement of the Drinking Water Contaminant Candidate List ("CCL") and response to comments that organotin compounds should be delisted, EPA wrote: 14-44

> "The Agency is aware of the NSF certification program, and has noted that many States require the use of NSF-certified material in the construction of new buildings. The Agency agrees with the NDWAC Working Group recommendation that an assessment of the toxicological data underlying the action levels established by the NSF needs to be made along with assessment of other available information on organotins, before these compounds can be disregarded as of concern. The Agency requested this information from the NSF, and learned that due to confidentiality agreement, NSF cannot disclose this information, therefore we have not yet been able to assess the toxicological data.

"There are numerous concerns about the occurrence and toxicological significance of various species of organotins in drinking water. A recent report indicates that unlike PVC systems, new CPVC systems have the potential to contaminate drinking water with organotin compounds for a longer period of time after installation []. There has been a report concerning tributyltin contamination of drinking water from PVC pipes, and tributyltin is of far more toxicological significance than mono- and di-organotins []. There is also concern about the recent reports of teratogenic potential of dibutyltin []. The Canadian Government is concerned about organotin contamination of drinking water and has launched a national survey. **14-44 (cont.)**

"In view of these concerns, the Agency believes that organotins, including mono- and diorganotins, should remain on the CCL until the Agency can perform its own in-depth evaluation of the occurrence and toxicological data of the contaminants of this class."

(Federal Register, Announcement of the Drinking Water Contaminant Candidate List; Notice, March 2, 1998, v. 63, no. 40, pp 10274-10278 (references omitted).)

It is not clear how HCD could conclude that organotin compounds were not a concern in drinking water in the 2000 MND when the Agency responsible for drinking water regulation could not make this conclusion. Since the March 1998 Federal Register notice, governmental agencies have lowered the level of organotins judged to be safe in drinking water, compared to those evaluated in the 1998 EIR. **14-45**

The most recent data indicates that the concentrations of organotin compounds in CPVC-piped drinking water systems exceed the levels judged to be safe. Therefore, based on this new information, drinking water impacts of the proposed Project are significant. The basis for this conclusion is set out below.

1. Public Health Standards Have Been Lowered

There are no formal drinking water standards for tin compounds in water. However, organotin compounds remain on the CCL. Drinking water goals, equivalent to NSF-61's total allowed concentration ("TAC"), can be calculated from reference doses published by other agencies. Reference doses are reported in mass of material ingested per amount of body weight per day. **14-46**

The German Federal Institute for Health Protection of Consumers and Veterinary Medicine published a tolerable daily intake of 0.25 micrograms per kilograms of body weight per day ("ug/kg-day") in March of 2000, which it recommends for both dibutyltin and tributyltin compounds. (BgVV, Risikoabschätzung zu Tributylzinn ("TBT") und anderen zinnorganischen Verbindungen in Lebensmitteln und verbrauchernahen Produkten, March 6, 2000; http://www.bgvv.de/cm/208/tributylzinn_tbt_und_andere_zinnorganische_verbindungen.pdf, accessed April 18, 2005.) This value was reported in an English-language journal for the first time in 2003. (Heinz Rudel, Case Study: Bioavailability of Tin and Tin Compounds, Ecotoxicology and Environmental Safety, v. 56, 2003, pp. 180-189.)

A TDI of 0.25 ug/kg-day corresponds to a drinking water concentration of 8.75 ug/L for a 70 kg human drinking 2 liters of water per day, based on the same procedure recommended by NSF-61. This is two times lower than the value of 20 ug/L that was relied on in the 1998 DEIR. The drinking water concentration that would be protective of an infant is even lower, about 4.9 ug/L.

The Agency for Toxic Substances and Disease Registry ("ATSDR") publishes peer-reviewed toxicological profiles for chemicals. (42 U.S.C. 9604.) These profiles identify the adverse health effects of hazardous substances and present MRLs. An MRL is an estimate of the daily human exposure to a hazardous substance that is likely to be without appreciable risk of adverse noncancer health effects over a specified duration of exposure. 14-47

The 1993 toxicological profile for tin, which was the applicable version when the 1998 FEIR was certified and the 2000 MND was adopted, concluded that there was not sufficient information to establish an MRL for organotin compounds. (Agency for Toxic Substances and Disease Registry, Toxicological Profile for Tin, September 1992.) The ATSDR recommended MRLs for organotin compounds in September 2003. (http://www.atsdr.cdc.gov/mrls.html.) The current intermediate-duration (15-364 days) oral MRL for dibutyltin is 0.005 mg/kg-day. (Ibid.). This corresponds to a drinking water concentration of 175 ug/L for a 70 kg adult drinking 2 L per day of water. The chronic-duration oral MRL for tributyltin is 0.0003 mg/kg-day. (Ibid.) This corresponds to a drinking water concentration of 10.5 mg/L for a 70 kg adult. The concentrations would be lower for an infant, 5.9 ug/L.

In sum, since 1998 when the FEIR was published and September 2000 when the MND was sent to the State Clearinghouse, agencies have lowered the levels of organotin that they consider to be safe for humans to consume. Thus, the HCD should have re-evaluated the drinking water risks of approving up to 100% use of CPVC pipe in residential construction. The concentrations of organotin compounds that have been measured in drinking water exceed these thresholds, even after flushing. (See Comment below.) Therefore, public health impacts of the Project are significant. 14-48

2. Levels of Organotin in Drinking Water Exceed Safe Intake Levels

NSF screening data for CPVC materials, pipes, and fittings for product certification indicate that the concentration of dibutyltin ranged from 0.0013 ug/L to 140 ug/L and averaged 11 ug/L (values "normalized" by NSF to reflect actual exposure). (Clifton J. McLellan, Director of Toxicology Services, NSF International, The Decrease of Tin Extraction from Chlorinated Polyvinyl and Polyvinyl Chloride Pipe, Fittings and Materials After Continuous Exposure to Potable Water, Organotin Environmental Programme – World Meeting, Japan, April 19, 2002.) NSF-61 screens products by measuring total tin and converts it to dibutyltin, based on molecular weights, assuming 100% of the tin is in the dibutyl form. 14-49

The data reported by NSF, when screened using the German tolerable intake level of 0.25 ug/kg-day for dibutyltin, indicates that leaching of organotin compounds could result in a significant public health impact. The average concentration of dibutyltin exceeds the German tolerable daily intake level of 8.75 ug/L in 6% of the samples after 21 days of leaching. (Ibid.) Thus, the proposed flushing mitigation measure would not eliminate this impact.

3. Levels of Organotins in Drinking Water Are Cumulatively Significant

The exposure levels discussed above (MRL, STEL, TDI) assume that 100% of the exposure is from drinking water. There are many other sources of organotin compounds, including packaged foods (leached from plastic containers), seafood (highly bioaccumulated), bottled drinks (leached 14-50

from plastic containers), and swimming in contaminated waters (many receiving waters in California have elevated levels). 14-50 (cont.)

A threshold applicable to a single product can be derived based on NSF-61. This standard establishes requirements for the testing and evaluation of contaminants that are extracted (leached) from water that has been exposed to products that convey potable water. It sets two significance thresholds for drinking water. The TAC is the maximum concentration allowed in a public drinking water supply from all sources of contamination. A single product allowable concentration ("SPAC") is the maximum concentration that a single product is allowed to contribute. The SPAC is intended to account for potential contribution by multiple products or materials in the drinking water system. 14-51

The single product allowable concentration, based on NSF-61, is designed to account for potential contribution by other sources. (NSF-61, Sec. A.7.4, p. A13.) For dibutyltin compounds, the NSF calculated the SPAC by multiplying the TAC by 20%. NSF-61, Table E1. Using the same approach, the SPAC for dibutyltin, based on the German TDI value would be 1.75 ug/L for an adult and 0.59 ug/L for an infant. The leaching data reported by the U.S. EPA (0.8 – 2.6 ug/L) and by TRA (33 ug/L) indicate that dibutyltin levels in drinking water in CPVC-piped systems can exceed these levels, for both adults and infants.

b) Solvents Leached From CPVC Drinking Water Systems Would Result in Significant Adverse Public Health Impacts

A number of solvent chemicals are present at very high concentrations in the primers and cements that are used to join CPVC. The Material Safety Data Sheets ("MSDS") and product labels indicate that the principal ingredients are: methyl ethyl ketone (30-85%); cyclohexanone (5-15%); tetrahydrofuran (4-40%); and acetone (0-1%). 14-52

The HCD previously relied on MDWLs and short-term exposure levels ("STEL") to evaluate the public health impact of these contaminants in drinking water (1998 DEIR, p. 36, citing HCD 1982). These values were apparently based on NSF-61. The NSF and the 1998 EIR, amazingly, rely on the TAC to assess single products. This assumes that 100% of the chemical comes from a single source which is nonsensical.

The safe levels of these solvent chemicals, both the TACs and SPACs, have been lowered significantly – nearly 100-fold -- since they were previously evaluated by the HCD, as summarized below:

Acetone: NSF-61 TAC = 6 ppm; SPAC = 0.6 ppm (adopted 5/29/03)

Cyclohexanone: NSF-61 TAC=30 ppm; SPAC=3 ppm (adopted 4/26/02)

Methyl ethyl ketone: NSF-61 TAC=4 ppm; SPAC=0.4 ppm (adopted 9/10/03)

Tetrahydrofuran: NSF-61 TAC =1 ppm; SPAC =0.37 ppm (issued 1/26/96)

Studies have demonstrated that these chemicals leach into drinking water for long periods of time. The SPAC is the most relevant standard because the solvents are deliberately and clearly in a mixture.

The only longer-term studies are McKesson, conducted for the Vinyl Institute, and Cooper, conducted for the HCD EIR. Each found concentrations of THF and MEK are well above the new NSF-61 SPACs well after the 7-day flush proposed to mitigate drinking water impacts. 14-53

Cooper found levels of THF and MEK above the respective SPAC until day 50 in some test cells. McKesson, using the same test procedure, found that THF levels never fell below the SPAC in the 75 days of testing and levels of MEK stayed below its SPAC only after 30 days. These are relevant studies; the test protocol agreed to by industry (BFGoodrich as CPVC manufacturer) had 20 pipe volumes flushed each day, with the sample taken after only a 24-hour dwell. These results are strongly indicative of the persistent leaching and the insufficiency of current HCD flushing as mitigation.

Thus, the public health impacts of drinking water supplied by CPVC-pipe systems are cumulatively significant. NSF adopted all of these SPACs after the 1987 Risk Analysis, upon which all subsequent documents rely, indeed all but THF were adopted after the 2000 MND was sent to the State Clearinghouse. In light of the expanded CPVC use, the current relevant standards should be used – these show an unavoidable adverse impact on public health. 14-54

New products are under development that attempt to reduce the use of THF, but these themselves contain a cocktail of other solvent chemicals that have not been tested for their public health impacts. 14-55

c) The current EIR includes a state-wide requirement of Low VOC cements and primers but contains no health analysis of those materials

Low VOC cements and primers achieve regulatory limits by replacing VOC constituents with exempt acetone. They add other solvents to maintain performance, notably dimethyl-2-piperidone or N-Methyl-2-pyrrolidone (Hercules CPVC Cement, MATERIAL SAFETY DATA SHEET # 95, Last Reviewed: 23-Jan-02, bears the annotation "This MSDS is for LOW VOC Product") (IPS Corporation, Low VOC (Volatile Organic Compounds), Dimethyl-2-piperidone Solvent-based, PVC and CPVC Pipe and Component Adhesives and Primers Containing Minimal or No Tetrahydrofuran, June 30, 2004.) 14-56

The 2000 MND does not address low VOC cements or primers. The regulatory changes since 2000 make these materials more important. The low VOC formulation changes the proportion of solvents present which will change the concentration and persistence of compounds leaching into drinking water. These changes in composition have not been considered in the HCD record and are missing from the current draft EIR.

d) Polyvinyl Chloride or Other Monomers Leached From CPVC Drinking Water Systems Would Result in Significant Public Health Impacts

Other studies have demonstrated that PVC, the parent compound of CPVC, leaches vinyl chloride monomer ("VCM") into drinking water. This compound is listed as a carcinogen by California, as well as the Occupational Safety & Health Administration ("OSHA") and the National Institute of Environmental Health ("NIH"). (National Institute of Environmental Health, Eighth Report on Carcinogens, Perspectives, v. 105, no. 9, September 1997.) Vinyl 14-57

chloride has been associated with tumors of the liver, brain, lung, lymphatic and haematopoietic system. **14-57 (cont.)**

Polyvinyl chloride is produced from VCM via a polymerization process; the reaction is terminated when about 90% of the VCM has polymerized. The leftover gaseous and highly volatile VCM is drawn off using a vacuum and subsequently air-stripped to remove most of the residual monomers. However, traces of VCM are found in all PVC materials, with most outgassing occurring right after the polymerization reaction.

A study found that after 30 days of exposure, vinyl chloride concentrations leached from PVC pipe were generally greater than 2.5 ug/L. (M.H. Al-Malack, Effect of Water Quality Parameters on the Migration of Vinyl Chloride from Unplasticized PVC Pipes, Water, Air & Soil Pollution, v. 120, no. 1-2, 2000.) The concentrations reported in these studies [range] exceed California drinking water standards (0.5 ug/l), and significantly exceed California public health guidelines and goals (0.05 ug/L). Some exceed the federal primary drinking water standard of 2 ug/L.

NSF now tests for the presence of residual VCM in pipe. Other monomers may be introduced by newer formulations described in these comments. If NSF does not specifically show these substances to be absent, there may be yet another leaching chemical concern.

4) Proposed Expansion of Use Relies on Inadequate Flushing Protocol

The obvious and intended effect of the proposed project is to expand use of CPVC in California. The HCD CEQA record clearly establishes the high chemical leaching rates after installation and relies on a simple flushing protocol as mitigation. The protocol is a flush after installation, a one-week static dwell (water sitting in the pipe), followed by one flush. Even apart from the problem of whether this simple protocol is in fact used, the one-week flush is not sufficient to protect public health. **14-58**

a) Original 1986 Industry Proposal Was 2 Weeks, Not Current 1 Week

In the CEQA process of the 1980's, industry was an active participant. The preliminary test results from Montgomery Laboratories (1980) and common sense told the state that some initial flushing was needed. The leaching test protocol established by the state with industry cooperation used a <u>two-week</u> pre-occupancy period with flushing, not a one-week flush as now relied on by the state. This two-week period is clearly established in the 1987 Draft EIR and in the tests it reports (Cooper). **14-59**

HCD should explain how the one-week mitigation protocol was determined to be sufficient.

b) Actual Data on Short Term Leaching Clearly Indicate a Much Longer Period Is Needed

Occupancy simulation results from Cooper and McKesson show levels of solvent many times above the NSF SPAC at the end of one week. Levels of MEK are unacceptable for a month or more; levels of THF were still unacceptable after 75 days of testing. This persistent phenomenon is reported in 2-Butanone and Tetrahydrofuran Contamination in the Water Supply" (T.C. Wang and J.L. Bricker, Bull. Environm. Contam. Toxicology 23,620-623 (1979)), which found THF at 1.0 ppm in water that was standing only 4 hours in pipe, 6 months after installation of PVC pipe. **14-60**

THF levels for 24-hr dwell were 8.9 ppm at 6 months and 3.7 ppm at 8 months. The solvent behavior in CPVC will be similar to PVC: one week is clearly not enough. **14-60 (cont.)**

The only longer term organotin leaching test is from NSF, reported in a presentation to the Organotin Environmental Programme – World Meeting, April 19, 2002, The Decrease of Tin Extraction from Chlorinated Polyvinyl Chloride Pipe, Fittings and Materials After Continuous Exposure to Potable Water, C.J. McLellan, Director of Toxicology Services, NSF International. This report shows results from 49 CPVC tin samples. After 21 days of flushing, organotin levels had fallen between 80% and 90% in 3 samples and more than 90% in the rest. This still produced lab samples for over two-thirds of the samples with organotin levels above 1 ppb at 21 days, and 6% with organotin levels above 10 ppb. These are clearly too high and show that even a three-week preoccupancy flushing would not mitigate public health impacts to insignificance.

HCD should use a rational method to determine a mitigation requirement that would be health protective under a wide range of conditions. This method would use the more conservative results of Cooper and NSF to establish a safe, outside limit on pre-occupancy flushing. **14-61**

5) Uncertainty in Composition and Leaching Has Potential Environmental Effects on Wastewater Discharge

The toxicology of solvents, organotin compounds or other leachates focuses on the dose delivered to the public due to consumption of a certain amount of potable water (usually 2 liters for an adult). Note, however, that essentially all water use within a residence will be discharged to the sewer and, therefore a much higher dose of contaminants will enter treatment plants, persist in treated effluent and pass into receiving waters. **14-62**

6) CPVC Will Frustrate Efforts to Increase Recycling of Construction Materials and Impact Solid Waste Management in California

Theoretically, waste CPVC pipe can be ground up and remelted and hence be recycled, but it will not occur in practice. Copper pipe is routinely recycled so that a large portion of new copper pipe is made from recycled material; this is so-called closed-loop recycling where a raw material is largely captured in a cycle of use-reuse. This is not true for PVC or CPVC pipe. **14-63**

"Using a lifecycle framework, several stages are worth noting. For raw material feedstock, recycled content as a single attribute reveals a range ... about 64 percent recycled content for copper pipe, ... Using virgin feedstock, PVC is distinguished as being the only chlorinated compound, representing unique environmental and health exposures including the unavoidable dioxin releases during manufacture of the raw material feedstocks and in the event of combustion." (Greening Divisions 15 & 16; Gail Vittori, Presented at GreenBuild Conference Pittsburgh, PA November 2003)

Recycled materials are inevitably less than 100% pure. Used CPVC would have undergone degradation during the high temperature forming process and during aging. The impurities would make such material unsuitable for reuse as plastic pipe and probably unsuitable for any other use that seeks the higher performance of CPVC as opposed to cheaper plastics. **14-64**

This effect is noted the state's own review of recycling: "Contaminants such as other resin grades (especially PVC), ... require extensive sorting and cleaning. If not removed, the

contaminants reduce the value of recycled plastics." ("Plastics White Paper, Optimizing Plastics Use, Recycling, and Disposal in California"; May 2003; Integrated Waste Management Board P. 15) CPVC would pose the same problem as PVC. 14-64 (cont.)

In US patent 20030157321, Noveon addresses blending: "Again, however, no amount should be added which would affect properties of the resin .... It is preferred that a blend of CPVC resins not be used." Because of the great difficulty of CPVC meeting its engineering objectives, it is extremely unlikely that a responsible manufacturer would use recycled pipe in making new material.

HCD should ask industry if it would be able to use "old" CPVC pipe and still meet reliability standards for new CPVC pipe. 14-65

Conversely, CPVC waste cannot be recycled by use in the less demanding applications of PVC. Bits of CPVC waste pipe would not melt at the temperature of PVC and would affect normal product extrusion. Because the included CPVC would likely interfere with the extrusion process, CPVC in the waste stream may actually frustrate a growing effort to recycle PVC. 14-66

Interestingly, there is an industry estimate of plumbing system life that is substantially shorter than the values relied on in the HCD CEQA review process. "This provides a high degree of long-term durability for the piping system, often up to 30 to 40 years of useful life. This is essential for these systems which are built into the structures of homes and buildings, or are buried underground." 14-67

This suggests that the problem of replacement and disposal of old CPVC pipe may be more significant than previously considered. The EIR takes the position that there is so much plastic in the waste stream and so little is recycled that the increment from CPVC is insignificant. CPVC (as separate from PVC) has not been addressed by the recycling community and poses new issues that may aggravate rather than ameliorate a significant problem for California. 14-68

7) CPVC has broad global effects, including potential impacts on California

Chlorinated plastic resins, notably PVC and CPVC have a broad range of lifecycle environmental effects; the lack of recycling is only a part of the problem. From manufacture through disposal, chlorinated plastics produce persistent toxic wastes. Although the primary site of CPVC manufacture is outside of California, environmental concerns such as mercury and dioxin are global in extent and reach California and Californians through the air, the water, and food, notably mercury in ocean fish. The EIR needs to acknowledge this issue in the same way that it needs to acknowledge CPVC's cumulative impact on solid waste management. 14-69

Numerous sources have documented the impact of PVC, and by extension CPVC. "Environmental Impacts of Polyvinyl Chloride Building Materials" Joe Thornton, Ph.D., A Healthy Building Network Report; http://www.healthybuilding.net/pvc/ Thornton_Enviro_Impacts_of_PVC.pdf provides a good summary. The problems include the chlor-alkalai industry which produces chlorine for the raw materials of CPVC and mercury emissions, vinyl chloride monomer manufacture and hazardous organochlorine by-products, disposal and combustion of PVC and CPVC producing dioxin and other chlorinated waste products.

8) Mechanical Failure Is a Risk

The real question of CPVC plumbing system lifetime has been raised before. The increase in additives, compared with previous formulations, strongly suggests the manufacturer's concern over the long-term performance of the pipe. We note the inclusion of antioxidants for "cosmetic" purposes on a product that is always hidden from view when installed. Irganox 1010 is the same antioxidant that is mandatory in protecting polyethylene tubing. **14-70**

CPVC and PVC used in pipe is "rigid" contrasted with the same resin "plasticized" by admixture with low volatility organic "oils" such as diethylhexylphthalate ("DEHP"). Plasticized CPVC loses the pressure and temperature resistance of rigid CPVC that make it suitable for use in plumbing. If rigid CPVC is exposed to any of a large class of oils they may be incorporated into the pipe matrix, effectively platicizing the rigid CPVC and adversely affecting lifetime.

Noveon offers a long list of substances which are incompatible with CPVC pipe. Examples are oil-based caulk, plasticized PVC (electric wire insulation), or carriers for pesticides. The patent literature shows Noveon trying to modify CPVC pipe resin to improve impact resistance and cautioning how sensitive the mechanical properties are to the admixture of other materials. These new impact resistant resin formulae may in fact be less chemically resistant to oils and adverse effects of construction materials.

* * *

Given the history of plastic pipe in California, HCD would be prudent to heed these comments and take the time to get a full disclosure on the material subject to the expanded use approval and formulate effective mitigation to minimize public health and environmental impacts. **14-71**

Sincerely,

Thomas S. Reid

Response to Letter 14: Thomas S. Reid, TRA Environmental Sciences, Inc.

Comment 14-1. The Draft EIR has been revised and recirculated. The Lead Agency has considered and evaluated all of the evidence in the record during the preparation of the Draft EIR and the Recirculated Draft EIR, including the commenter's submissions during the 2005 Draft Addendum proceedings.

Comment 14-2. The current EIR analyzes all potentially significant environmental issues that would be caused by the Project, which is the deletion of the Findings Requirement in order to allow unrestricted use of CPVC pipe for use in residential potable water systems. CPVC pipe is currently allowed in residential potable water systems in California, subject to the requirement that a local building official must find that there is or will be premature failure of metallic pipe due to corrosive water or soil conditions. Please also see the responses to Comments 12-72, 12-73, 12-74, and 12-77. As explained in the responses to those comments, it is appropriate for the current EIR, which is a subsequent EIR to the 2000 Mitigated Negative Declaration, to rely upon the conclusions and analysis in the 2000 Mitigated Negative Declaration to the extent that the proposed changes in the Plumbing Code would not result in significant new impacts or a substantial increase in the severity of existing impacts.

Comment 14-3. Please see the response to Comment 14-2 and the responses to other Comments referenced therein. The current EIR analyzes all potentially significant environmental issues that would be caused by the Project due to the increased number of anticipated residential installations of CPVC that may be approved as a result of the Project.

Comment 14-4. The Draft EIR has been revised and recirculated. Nothing in the 2000 Mitigated Negative Declaration states that its analysis of the potential impacts of the project before the Lead Agency at that time was "predicated on a 2% adoption of findings," and the commenter has not presented any citation or evidence to support this claim. As explained on page 27 of the Recirculated Draft EIR, CPVC pipe is estimated to be used currently for approximately 13 percent of the annual residential water plumbing installations in California, pursuant to the California Plumbing Code provisions that were analyzed in the 2000 Mitigated Negative Declaration. As explained on page 28 of the Recirculated Draft EIR, the estimate in the Draft EIR that the Project could result in CPVC pipe accounting for 30 percent of the potable water pipe sold in California has been increased to 32 percent in the Recirculated Draft EIR.

Comment 14-5. Please see the responses to Comments 12-53, 12-57, and 12-58. For the reasons set forth in those responses, the Lead Agency believes that it is appropriate for the Lead Agency to rely upon NSF standards, testing, and certification of CPVC pipe and adhesives, and that it is unnecessary for the Lead Agency or the public to review the precise formulations of CPVC pipe and adhesives.

Comment 14-6. The Lead Agency has considered and evaluated the entire record during the preparation of the current EIR. The Lead Agency disagrees with the commenter's statement that the EIR relies on outdated and incomplete data.

Comment 14-7. Under existing California Plumbing Code provisions, which the Project will not change, all CPVC adhesives are required to be certified by NSF to current NSF standards. Thus, all CPVC adhesives that will be used in connection with additional CPVC pipe installation that occurs due to the Project will comply with all new NSF standards for solvents. Please see the response to Comment 12-79 regarding the effectiveness of the existing one-week flushing mitigation measure.

Comment 14-8. The Project analyzed in the Recirculated Draft EIR would not require the use of low-VOC CPVC primers and cements. Instead, the proposed mitigation measures for the Project would require the use of one-step, low-VOC CPVC adhesives. Requiring the use of low-VOC, but not one-step, CPVC primers and cements is analyzed as an alternative to the Project in the Recirculated Draft EIR. The Recirculated Draft EIR analysis of impacts related to leachates concludes that the Project will result in less than significant impacts, due in part to the existing flushing mitigation measure and the fact that all CPVC adhesives that could be used in California pursuant to the Project will be required to be certified by NSF to NSF/ANSI 61 standards. (RDEIR pp. 124-129). As explained on pages 177-178 of the Recirculated Draft EIR, the same analysis applies to the Low-VOC Adhesives Alternative, and the One-Step Cement Alternative, both of which also would require NSF-certification to NSF/ANSI standards for solvents.

Comment 14-9. The Recirculated Draft EIR analyzes potential impacts related to leaching of organotins from CPVC pipe. Please refer to the responses to Comments 10-3, 10-4, 12-141, 12-144, 12-145, 12-146, and 12-147 for a detailed response to concerns regarding organotins.

Comment 14-10. Please see the response to Comment 12-100.

Comment 14-11. The commenter's detailed comments regarding these issues are addressed below in the responses to Comment 14-70.

Comment 14-12. Please see the response to Comment 12-124 and the discussion of energy impacts on pages 217-220 of the Recirculated Draft EIR for a response to manufacture of CPVC. Please see Sections 4.2, 4.3, 4.4, 4.5, and 6.0 of the Recirculated Draft EIR for analysis of the potential environmental impacts related to product use and disposal, as well as the responses to the numerous specific comments received from the commenters and other commenters regarding impacts related to CPVC pipe use and disposal.

Comment 14-13. Please see the responses to Comments 12-57, 12-58, and 12-60 for an explanation as to why it is appropriate for the Lead Agency to rely upon NSF standards, testing, and certification with respect to CPVC pipe and adhesives. For the reasons explained in the responses to those comments, the Lead Agency believes it is not necessary for the Lead Agency to conduct its own analysis of the specific formulations used in the materials that comprise CPVC plumbing systems.

Comment 14-14. Please see the response to Comment 12-100, as well as the response to Comment 14-13 and the responses to comments referenced therein.

Comment 14-15. Please see the responses to Comments 12-98 and 12-100.

Comment 14-16. The Draft EIR has been revised and recirculated. The water quality analysis in the Recirculated Draft EIR includes a discussion of potential impacts related to organotin compounds. (See RDEIR pp. 124-129). The water quality analysis in the Recirculated Draft EIR also analyzes potential impacts related to DBPs on pages 129-130. The 1998 Final EIR, which is part of the record supporting the 2000 Mitigated Negative Declaration, indicates on page 51 that "chloroform could conceivably be formed during the chlorination steps of CPVC manufacture, and chloroform, has been (but is no longer) used during manufacture of CPVC resin." The 1998 Final EIR discusses chloroform in further detail on pages 166-167. The presence of vinyl chloride within CPVC pipe obviously has been disclosed in the EIR, as CPVC is the abbreviation for Chlorinated Poly*vinyl Chloride*, as indicated on the title pages of both the Draft EIR and the Recirculated Draft EIR. Moreover, as the commenter himself indicates in Comment 14-57, NSF tests for the presence of vinyl chloride monomer in pipe. Thus, this is not significant new information that was not in the record that the Lead Agency considered and evaluated during preparation of the current EIR, and it does not change the conclusions of the analysis in the Recirculated Draft EIR regarding potential impacts related to leaching of DBPs. However, the discussion of DBPs in the Recirculated Draft EIR has been expanded in the Final EIR to include this information. Please see the revisions to pages 129-130 of the Recirculated Draft EIR located in Section 3.0, Revisions and Errata, of this Final EIR.

Comment 14-17. Please see the responses to Comments 12-72, 12-73, 12-74, 12-77, and 15-12 for an explanation as to why it is appropriate for the current subsequent EIR to rely upon the analysis in the 2000 Mitigated Negative Declaration and the record supporting that analysis, to the extent that the current Project would not result in significant new or substantially more severe impacts. Please also see the responses to Comments 12-98 and 12-100.

Comment 14-18. Please see the response to Comment 12-100. NSF standards, testing, and certification will continue to apply to all new formulations of CPVC plumbing system components, including CPVC pipe, fittings, and adhesives.

Comment 14-19. Please see the responses to Comments 12-100 and 14-18.

Comment 14-20. Please see the responses to Comments 12-100 and 14-18.

Comment 14-21. Please see the responses to Comments 12-100 and 14-18.

Comment 14-22. Please see the responses to Comments 12-100 and 14-18.

Comment 14-23. Please see the responses to Comments 12-100 and 14-18.

Comment 14-24. Please see the responses to Comments 12-100, 14-8, and 14-18.

Comment 14-25. Please see the responses to Comments 12-100, 14-8, and 14-18.

Comment 14-26. Please see the responses to Comments 12-57, 12-58, and 12-60 for an explanation as to why NSF listing provides adequate protection to drinking water. Under existing California Plumbing Code provisions, which the Project will not change, only CPVC pipe, fittings, and appurtenances carrying the NSF certification mark are approved for use in potable water systems, regardless of the physical dimensions.

Comment 14-27. The commenter does not cite any evidence supporting the statement that "CPVC is expensive." To the contrary, all evidence in the record before the Lead Agency indicates that CPVC is less expensive than copper pipe.[33] Please also see the response to Comment 12-100.

Comment 14-28. Please see the response to Comment 12-100. NSF standards, testing, and certification would apply to CPVC manufactured by companies other than Noveon.

Comment 14-29. This is not new information. Additives have comprised a certain percentage of CPVC compounds throughout the history of CPVC. A similar manufacturer's brochure published in 1997, prior to both the 1998 EIR and the 2000 Mitigated Negative Declaration, indicates the presence of a similar percentage of additives.[34] A graphic in the brochure that schematically illustrates the CPVC production process shows that 0.14 kg of compounding additives are used to produce 1.0 kg of CPVC compound. This results in additives comprising approximately 14 percent of CPVC compound, with remaining 86 percent comprised of CPVC resin.

Additionally, the Recirculated Draft EIR analyzes potential water quality impacts related to leaching on pages 124-129. The Lead Agency believes it is appropriate to rely upon NSF standards, testing, and certification of CPVC pipe in order to ensure that additives in CPVC compounds used in California residences pursuant to the Project will not result in significant water quality impacts. Please see the responses to Comments 12-57, 12-58, and 12-60 for an explanation as to why NSF standards, testing, and certification provide adequate protection to drinking water. A manufacturer's desire and attempts to continually improve its products does not raise any concerns regarding the reliability or potential mechanical failure of its products. Continued efforts to develop improved projects are typical throughout industry and a manufacturer's lack of such efforts generally would be more likely to result in unreliability or mechanical failure of its products. Please also see the responses to Comments 12-99 and 12-218 through 12-221 for responses to similar comments regarding potential impacts associated with premature mechanical failure.

Comment 14-30. Please see the responses to Comments 14-13 through 14-17 and 14-29, as well as the responses to other comments referred to therein.

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[33] *See, e.g.,* Plastic Pipe & Fittings Association, *CPVC Products – Frequently Asked Questions*, available at http://www.ppfahome.org/cpvc/faqcpvc.html (last viewed Jan. 18, 2007).
[34] Noveon, *The Facts About TempRite CPVC: How It Impacts the Environment and Our Everyday Lives*, p. 4, (The B.F. Goodrich Co. 1997).

Comment 14-31. The Draft EIR has been revised and recirculated. Please see Section 4.3, Water Quality, in the Recirculated Draft EIR and the responses to Comments 12-57, 12-58, and 12-60 for an explanation as to why NSF standards, testing, and certification provide adequate protection to drinking water and why it is appropriate to rely on NSF standards, testing, and certification.

Comment 14-32. Please see the responses to Comments 12-57, 12-58, and 12-60.

Comment 14-33. Please see the responses to Comments 12-57, 12-58, and 12-60. The responses to these comments include discussion of NSF's methodology for setting standards. Detailed information regarding the NSF methodology for setting drinking water quality standards is provided in Appendix E(8) to the 1998 EIR, which is part of the record supporting the analysis in the 2000 Mitigated Negative Declaration.

Comment 14-34. Please see the responses to Comments 12-57, 12-58, and 12-60.

Comment 14-35. Please see the responses to Comments 12-53, 12-57, 12-58, and 12-60.

Comment 14-36. The Lead Agency disagrees with the comment that "[a]s far as can be determined, NSF does not test CPVC leachate for butadiene or acrylonitrile, even though those known carcinogens are used in impact modifiers in CPVC pipe resin." Impact modifiers are some of the additives used in CPVC compounds. However, there are many classes of impact modifiers. As a result, not all CPVC compounds use impact modifiers that possibly could contain residual levels of acrylonitrile or butadiene left over during polymerization.

All NSF-pw certified pipe, fittings or appurtenances that can be used in potable water applications must meet the requirements of NSF-61- Drinking Water Systems Components Health Effects. This standard follows a strict protocol for testing products. For all water contact materials, the formulation must be submitted to NSF for review as to establish the selection of extractants. From NSF-61, "The criteria for the selection of a formulation dependent analyte shall include, but not limited to, the following: 1) known or suspected toxicity of the substance or by-product(s), high water solubility, monomer(s) of polymeric ingredients, high probability of extraction of a substance or its byproduct(s) at toxicologically significant concentrations and extraction or migration information for the substance provided by the manufacturer." In order to obtain the NSF-pw mark, the extractant levels must be below levels established by the U.S. EPA. In the case of CPVC compounds containing impact modifiers manufactured from acrylonitrile or butadiene components, the NSF-61 certification process would specifically look for these ingredients since they are "monomers of polymeric ingredients."

Please see the responses to Comments 10-3, 10-4, 2-53, 12-57, 12-58, 12-60, 12-141, 12-144, 12-145, 12-146, and 12-147 regarding organotin compounds. The 1998 EIR and the Recirculated Draft EIR indicate that triaklyl tin compounds, such as tributyltin, are not present in CPVC pipe except perhaps as trace contaminants at extremely low concentrations with no human health or other environmental significance. (1998 Final EIR p. 50; RDEIR p. 126).

Comment 14-37. The comment is purely speculative in nature. The commenter has not cited any evidence supporting the comment that "solvent in water may mobilize organotin additives in the pipe. Moreover, as the commenter himself states in Comment 14-51, the single product allowable concentration ("SPAC") standard used by NSF "is intended to account for potential contribution by multiple products or materials in the drinking water system." Thus, the Lead Agency believes that it is appropriate to rely upon the separate NSF standard-setting, testing, and certification procedures for CPVC pipe and CPVC solvent cements and primers.

Comment 14-38. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR analyzes the Project's potential impacts related to leachates on pages 124-129. The analysis in the 2000 Mitigated Negative Declaration appropriately relied upon the entire record before the Lead Agency, including the 1998 EIR and the studies referred to in this comments, and it is appropriate for the current EIR to rely upon the analysis in the 2000 Mitigated Negative Declaration.

Comment 14-39. Please see the responses to Comments 12-145 and 14-7.

Comment 14-40. NSF standards are not static. New NSF standards continually are developed and existing standards are continually revisited in order to address impacts of chemicals such as those listed in this comment. Please see the responses to Comments 12-57, 12-58, and 12-60 for an explanation as to why NSF standards, testing, and certification provide adequate protection to drinking water and why it is appropriate to rely on NSF standards, testing, and certification. Additional detailed information regarding the NSF methodology for setting drinking water quality standards is provided in Appendix E(8) to the 1998 EIR, which is part of the record supporting the analysis in the 2000 Mitigated Negative Declaration.

Comment 14-41. Please see the responses to Comments 12-145 and 14-40.

Comment 14-42. The Draft EIR has been revised and recirculated. The Recirculated Draft EIR analyzes potential impacts related to leachates, including organotins, on pages 124-129.

Comment 14-43. Please see the response to Comment 14-36.

Comment 14-44. The Drinking Water Contaminant Candidate List referred to by the commenter is a list of contaminants that are known or anticipated to occur in public water systems, and "which *may* require regulation under the [Safe Drinking Water Act] [section 1412(b)(1)]." (Fed. Reg., Vol. 63, No. 40, p. 10275 (Mar. 2, 1998)). The Contaminant Candidate List is intended as "a first step toward improving risk assessment, strengthening science and data, and achieving better decision-making and future priority." (Ibid.). "The list is divided among priorities for drinking water research, priorities for additional occurrence data collection, and those contaminants which are priorities for consideration for [EPA] determinations of whether or not to regulate specific contaminants by August 2001." (Ibid.).

More specifically, the announcement of the Contaminant Candidate List in the Federal Register also stated, "[i]t should be emphasized that retaining organotins on the CCL does not necessarily

mean that they will be regulated. The [EPA] believes that organotins, including mono- and di-organotins which are used as heat stabilizers in PVC and chlorinated polyvinyl chloride (CPVC) pipes, are of sufficient concern to warrant further investigation." (Ibid. p. 10282). The quote from the Federal Register that appears in the comment has been taken out of this context, which would make it apparent that while the placement of organotins on the Contaminant Candidate List means that EPA is considering further study of organotins, EPA may ultimately decide not to regulate organotins under the Safe Drinking Water Act. The Lead Agency also notes that EPA has not determined that regulation of organotins was necessary, although the August 2001 deadline for contaminants of the highest priority for such a determination passed more than five years ago.

The comment may indicate that there is the possibility that organotins may become subject to regulation under the Safe Drinking Water Act at a future date. However, under the relevant thresholds of significance under Appendix G of the CEQA Guidelines, which are the thresholds of significance used in the Recirculated Draft EIR's analysis of the Project's potential water quality impacts, the question is whether the Project would violate any water quality standards or would otherwise substantially degrade water quality. As the above description of the Contaminant Candidate List indicates, placement of organotins on the list is not the equivalent of a water quality standard, but rather indicates that there is some possibility such a standard may be developed at some unspecified time in the future. Placement of organotin compounds on the list also does not mean that the EPA has determined that organotins will substantially degrade water quality, but rather indicates that further investigation may occur at some unspecified future time to determine what water quality impacts organotin compounds may have. Thus, the mere placement of organotin compounds on the Contaminant Candidate List does not demonstrate that the Project will result in significant water quality impacts related to organotins.

Please also see the response to Comment 12-60.

Comment 14-45. Please see the responses to Comments 14-44 and 12-60. NSF standards for safe levels of organotin compounds in CPVC-piped drinking water systems are consistent with current levels established by applicable governmental agencies. Please also see the response to Comment 14-46 below.

Comment 14-46. As explained in the response to Comment 12-145, the Lead Agency declines to apply a standard recommended by the German Federal Institute for Health Protection of Consumers and Veterinary Medicine in place of the NSF standards and the Minimal Risk Levels established by the Agency for Toxic Substances and Disease Registry, both of which are applicable within the United States.

Comment 14-47. Please see the response to Comment 12-145.

Comment 14-48. Please see the response to Comment 12-145.

Comment 14-49. Please see the response to Comment 12-145.

Comment 14-50. Please see the responses to Comments 12-145 and 12-146. As explained in the response to Comment 12-145, the Lead Agency declines to apply a standard recommended by the German Federal Institute for Health Protection of Consumers and Veterinary Medicine in place of the NSF standards and the Minimal Risk Levels established by the Agency for Toxic Substances and Disease Registry, both of which are applicable within the United States. As the commenter himself explains in Comment 14-51, the single product allowable concentration ("SPAC") used by NSF accounts for exposure from other sources of organotins.

Comment 14-51. Please see the responses to Comments 12-145, 12-146, and 14-51.

Comment 14-52. Please see the response to Comment 14-7.

Comment 14-53. Please see the response to Comment 14-7. The studies referred to by the commenter were conducted before the new NSF-61 SPAC standards existed. Therefore, the CPVC adhesives analyzed in those studies were not tested or certified by NSF to the new NSF-61 SPAC standards. CPVC adhesives that would be used in CPVC plumbing system installations allowed due to the Project are required to be tested and certified by NSF to the new NSF-61 SPAC standards. Please also see the response to Comment 12-79 regarding the effectiveness of the existing flushing mitigation measure.

Comment 14-54. Please see the response to Comment 14-53.

Comment 14-55. Please see the response to Comment 12-100.

Comment 14-56. Please see the response to Comment 14-8.

Comment 14-57. As this comment itself states, NSF tests for the presence of vinyl chloride monomer in pipe. Please also see the response to Comment 12-100.

Comment 14-58. Please see the response to Comment 12-79.

Comment 14-59. The mitigation measures included in the existing California Plumbing Code provisions analyzed in the 2000 Mitigated Negative Declaration were discussed and negotiated with the commenting parties at that time, including representatives of many of the same groups that now object to that mitigation. The commenter submitted comments in the 2000 Mitigated Negative Declarations in conjunction with the same law firm that represented many of the groups objecting to the use of CPVC at that time and that now represents the Coalition for Safe Building Materials. The one-week flushing mitigation measure is not being changed by the current Project, and the 2000 Mitigated Negative Declaration that analyzed the adoption of the Plumbing Code changes that included the flushing mitigation measure is presumed by statute to be legally adequate. Please also see the response to Comment 12-79.

Comment 14-60. Please see the responses to Comments 12-145 and 14-53.

Comment 14-61. Please see the responses to Comments 12-79, 12-145, and 14-53. For the reasons set forth in those responses, the Lead Agency believes the Cooper and NSF results do not indicate that the current flushing mitigation measure is insufficiently protective of human health.

Comment 14-62. The analysis of cumulative water quality impacts concludes that the use of the flushing mitigation measure will result in less than significant impacts to receiving waters. The quantities of contaminants that would be released into the sewer during the residential use of CPVC pipe after the initial one-week flushing period has been completed will be even less than the quantities that would be released during the flushing period. Therefore, the potential impact suggested by this comment would be less than significant.

Comment 14-63. The Draft EIR has been revised and recirculated. Please see the revised analysis of the Project's potential solid waste impacts in Section 4.5 of the Recirculated Draft EIR. In addition, CPVC recycling does already occur in practice. For instance, as indicated in Table 5 on page 16 of the draft report by the San Francisco Department of the Environment submitted to the Lead Agency as Appendix 21 to Comment Letter 12, five companies within San Francisco accept drop off of PVC/CPVC pipe for recycling.

Comment 14-64. Please see the response to Comment12-198 addressing this issue, which has been characterized by other commenters as "down-cycling" of CPVC.

Comment 14-65. Please see the response to Comment 12-198. For the reasons set forth therein, the commenter's suggestion is not relevant to the analysis of the environmental impacts of the Project.

Comment 14-66. The comment is purely speculative in nature. The commenter has not cited any evidence supporting this comment, and contrary evidence exists in the record. As indicated in Table 5 on page 16 of the draft report by the San Francisco Department of the Environment submitted to the Lead Agency as Appendix 21 to Comment Letter 12, five companies within San Francisco accept drop off of PVC/CPVC pipe for recycling.

Comment 14-67. The Draft EIR has been revised and recirculated. The analysis of solid waste impacts in Section 4.5 of the Recirculated Draft EIR does not rely upon estimates of plumbing system life that are longer than the 30 to 40 years cited by the commenter, and is applicable if a 30-40 year plumbing system life is assumed.

Comment 14-68. Please see the response to Comment 14-66.

Comment 14-69. Please see the response to Comment 12-124, which addresses similar concerns regarding potential impacts associated with the manufacturing of CPVC pipe, fittings, and adhesives.

Comment 14-70. Please see the responses to Comments 12-99, 12-218 through 12-221, and 14-29, which address similar comments regarding potential impacts associated with premature mechanical failure of CPVC plumbing systems.

Comment 14-71. The Draft EIR was revised and recirculated in order to provide additional disclosure regarding the Project's potential public health and environmental impacts.

Jim Bellows, PhD, MPH 510.654.6787 5000 Manila Avenue, Oakland, California 94609

September 8, 2006

Thomas A. Enslow
Adams, Broadwell, Joseph, and Cardozo
1225 Eighth Street, Suite 550
Sacramento, California 95814-4810

Dear Mr. Enslow:

Attached are my comments on the draft Environment Impact Report (draft EIR) recently produced by the California Department of Housing and Community Development. At your request I have reviewed the worker health and safety elements of these documents, as well as relevant associated materials, and my comments address their technical accuracy and validity.

I appreciate the opportunity to participate in this review. As the lead investigator for a 1989 Department of Health Services study of health hazards associated with CPVC pipe installation, I focused particular attention on whether that study's findings were interpreted appropriately and whether the data from that study were used in the draft EIR to fully and accurately inform the policy making process. In some cases the draft EIR's interpretations and applications of our 1989 data were inappropriate; my comments outline these areas and indicate the appropriate interpretations. My review and my comments built on my earlier review in 1998 of the Draft Environmental Impact Report and of the 2000 Mitigated Negative Declaration and 2005 Addendum.

In my professional opinion, the findings of the current draft EIR are not consistent with available data and with established practices of industrial hygiene and health risk assessment. Workers installing CPVC potable water pipe can be expected to regularly experience exposures in excess of established exposure limits. Such exposures can be expected under conditions of normal use. Exposures will not uncommonly be in the range previously associated with adverse health effects in humans and with cancer in laboratory animals. These exposures, and their potential health effects, must be considered significant.

My detailed comments, analyses, and conclusions are attached.

Sincerely,

Jim Bellows, PhD, MPH

Comments on July 2006 Draft Environmental Impact Report – Statewide Residential Use of CPVC Pipe

Based on a thorough review of the Draft Environmental Impact Report on Adoption of Regulations Permitting Statewide Residential Use of Chlorinated Polyvinyl Chloride (CPVC) Plastic Plumbing Pipe without First Making a Finding of Potential Premature Metallic Pipe Failure Due to Local Water or Soil Conditions" ("Draft EIR"), along with supporting documents and other relevant materials, my analysis, comments, and conclusions are as follows.

1. **The draft EIR fails to acknowledge existing evidence that CPVC pipe installation exposes workers to dermal and inhalation health hazards during typical use.**

The best available information regarding worker exposures during CPVC installation remains that from a 1989 study by the California Department of Health Services (DHS), of which I was the principal author.[1] The 1989 study included observation of CPVC pipe installation at 35 construction sites, extensive environmental and biological monitoring, and a review of relevant toxicity information then available. **15-1**

The report concluded that workers installing CPVC pipe are exposed above legal limits to the combination of solvents in CPVC primer and cement – including tetrahydrofuran (THF), methyl ethyl ketone (MEK), cyclohexanone (CHX) and acetone (ACE). Workers installing CPVC pipe had inhalation exposures 1.8-8.5 times higher than workers installing over types of plastic pipe. The likelihood of overexposure above the full-shift exposure limit was estimated to be 10% for a typical work day of installing CPVC pipe for potable water in residential construction. The likelihood of overexposure above the short-term exposure limit at least once in a typical eight-hour work day was estimated to be 68%. Urine monitoring provided strong evidence that dermal absorption contributed substantially to some workers' overall exposure. **15-2**

The 1989 DHS study also included exposure monitoring during installation of copper water pipe, and found that exposures to copper, tin, silver, antimony, and lead – the agents of principal concern during soldering – ranged from 0.2% to 4% of established exposure limits. **15-3**

In the course of analyzing the incomplete 1998 Environmental Impact Report (EIR), the 2000 Mitigated Negative Declaration (MND), and the 2005 **15-4**

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[1] Bellows, et al., 1989; California Department of Health Services.

MND Addendum, I reviewed all available information and found no evidence that contradicted the original DHS conclusion that worker exposures above the legal limits must be expected frequently during installation of CPVC pipe using typical products and work practices. I have now once again reviewed all available information, including a literature search of on-line databases. Once again I find no evidence that contradicts the original DHS conclusion that overexposures above legal limits must be expected. The exposure limits for CPVC primer and cement solvents have not changed since the 1989 report except in the case of acetone, the exposure limit for which has been lowered, and knowledge about the toxicity of these solvents has evolved little. No new information about actual exposure levels during CPVC installation has become available. **15-4 (cont.)**

In the 1998 Draft EIR regarding CPVC pipe installation, the Department of Housing and Community Development (HCD) at least acknowledged the potential health impact of CPVC installation, stating: "Workers not following safe use recommendations or using improper materials can be injured, and the Lead Agency considers this to be the worst case situation."[2] This was responsive to input from DHS, whose experts then advised HCD: "Case reports point to the likelihood that overexposure related to poor ventilation has already led to illness in pipe workers."[3] The current draft EIR fails to even acknowledge the 1989 DHS study, still the best available information regarding workers exposures, and is apparently not based on any current expert opinion from DHS. **15-5**

2. The draft EIR bases its worker safety findings on the unrealistic assumption that workers will consistently follow recommended safety procedures.

Like the incomplete 1998 EIR, the 2000 MND, and the 2005 MND Addendum, the current draft EIR anchors its thresholds of significance and its findings to exposures expected to occur where workers are following safety and precaution recommendations on material labels and Material Safety Data Sheets as well as the regulations in the CPC." These recommended safety precautions include minimizing skin contact with adhesives, using nitrile gloves, and ventilating enclosed spaces. **15-6**

Existing evidence indicates that these safety precautions are generally not followed in actual use. Use of gloves or forced ventilation was rare at the time of the 1989 DHS study, and extensive skin contact with adhesives was common.

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[2] 1998 Draft EIR, p. 69.

[3] Comments of Elizabeth Katz, MPH, Acting Chief, Hazard Identification System and Information Service, Department of Health Services; June 11, 1998.

Not much has changed since that time, despite some of the recommended safety practices having been incorporated into regulations. **15-6 (cont.)**

A survey conducted in 2005 revealed that the overwhelming majority of building officials fail to enforce ventilation and glove-use mitigation measures even in the very limited situations in which CPVC is currently approved.[4] Not one of the 33 jurisdictions surveyed fully enforced the ventilation and glove use measures. Six out of thirty-three jurisdictions required contractors to certify that they were aware of these regulations, but did not conduct any inspections to verify compliance. Twenty-seven of the thirty-three jurisdictions (82%) failed to enforce *any* of the mitigation measures. Moreover, a 2005 investigative report has shown that most workers do not follow the worker safety provisions.[5] I am not aware of any contradicting evidence suggesting that recommended safety precautions are widely implemented. **15-7**

The reasons underlying limited impact of safety recommendations and regulations are well established. Many workers find wearing chemical protective gloves to be uncomfortable and to slow their work. Some workers believe incorrectly that any type of gloves, including permeable cotton work gloves, will provide adequate protection. Workers under pressure to complete a job quickly may not take care to minimize or clean up spills, or to set up ventilation when their CPVC installation must be done in enclosed spaces. Regulatory agencies must stretch constrained enforcement resources.

In light of the ineffectiveness of existing recommendations and regulations in changing actual work practices during plastic pipe installation, basing the draft EIR findings on an assumption that safety precautions will be followed is extremely unrealistic. The point is not that safety recommendations and regulations have no useful role. Indeed, they are essential in preventing overexposure to toxic substances. Rather, the point is that new regulations cannot simply be assumed to be effective in changing work practices, especially when previous regulations have been ineffective. Further study is needed to understand exactly why the previous measures had limited success and what, if anything, can be done to improve the effectiveness of future mitigation measures. **15-8**

Until the effectiveness of any proposed mitigation measures is demonstrated, the significance of worker health effects must be judged on the **15-9**

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[4] Mark Capitolo, 2005, Health and Safety Measure Survey Report.

[5] Robert Calone, 2005; investigative report.

basis of observed work practices and exposure levels. As noted above, in the single most reliable study available, the 1989 DHS study, observed work practices rarely aligned with safety recommendations and observed exposure levels regularly exceeded established exposure limits. 15-9 (cont.)

3. **The protective gloves specified by safety recommendations and regulations would not be effective in controlling dermal exposures.**

The worker safety findings in the current draft EIR rely on an assumption that specified nitrile gloves will block dermal absorption of adhesive solvents. Blocking dermal absorption is important, because biological monitoring in the 1989 DHS study suggested that dermal absorption contributed significantly to some workers' total exposure. The regulations the draft EIR relies upon to control dermal absorption (CCR title 24, part 5, appendix I, section 1.2) specify use of 4 mm nitrile gloves. The current draft EIR cites no evidence that such gloves provide adequate protection against dermal absorption of THF, MEK, ACE, or CHX. In fact, the National Institute for Occupational Safety and Health *Recommendations for Chemical Protective Clothing*,[6] does not indicate that nitrile gloves can be recommended for any of these solvents. Numerous other references specifically cite the failures of nitrile gloves for these solvents. For example, Tom Shelley's monograph Hand Protection and Glove Selection reports that ACE breaks through nitrile gloves in just four minutes, and that THF permeates 4 mm nitrile gloves "almost instantaneously".[7] Similarly, the MicroFlex Chemical Resistance Guide indicates that nitrile gloves are not recommended for protection against ACE, CHX, MEK, or THF.[8] 15-10 15-11

Given the inappropriateness of specifying nitrile gloves for use with these solvents, it is perhaps a good thing that workers have not generally been following the regulation. Use of improperly selected chemical protective clothing has been shown to actual increase exposures, by holding contaminants in intimate contact with the skin after they have penetrated the protection.

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[6] Available at http://www.cdc.gov/niosh/ncpc/ncpc1.html; accessed September 2, 2006.

[7] Shelley T, 1999. Hard Protection and Glove Selection, Including Gove Selection for Some Specific Chemicals. Available at http://people.ccmr.cornell.edu/~cober/complete.chemical.hygiene.plan.2000.pdf (section 11); accessed September 2, 2006.

[8] Available at http://www.microflex.com/distributor/images/support/misMaterials/miscpdfs/ChemChartLatexNitrile.pdf; accessed September 2, 2006.

4. **The draft EIR inappropriately extrapolates conclusions from the 2000 Mitigated Negative Declaration, failing to consider the impact of increased exposures likely to result under the recommended alternative.**

The current draft EIR relies heavily on the 2000 MND for its worker safety findings (e.g. "The Mitigated Negative Declaration analyzed the health impacts of CPVC installation on pipe workers."[9]) This reliance is inappropriate in several respects. First, as I noted in my analysis of the 2005 Addendum, the 2000 MND contained no new evidence or meaningful analysis. Instead, the 2000 MND relied heavily on the analysis in the incomplete 1998 EIR, which was itself flawed and withdrawn. **15-12**

Second, the current draft EIR fails to realistically consider the worker safety impact of a large increase in CPVC use. Based on existing evidence that workers installing CPVC pipe under typical working conditions are regularly exposed above legal exposure limits, regulatory action that expands CPVC use greatly must be expected to result in an increase in the number of workers overexposed. Any realistic analysis would include an estimate of the number of overexposures that are likely to result, and their health consequences. The current draft EIR fails to provide any such analysis. **15-13**

Third, the current draft EIR fails to consider exposures from concurrent installation of CPVC pipe for drinking water and ABS or PVC pipe for drain, waste, and vent. The 1989 DHS study found that concurrent installation resulted in high exposures. Concurrent installation of CPVC and ABS/PVC has been unlikely under the 2000 MND, with CPVC use sharply limited, but would certainly increase under the recommended alternative of the current draft EIR. As a result, a proportion of newly-allowed CPVC installations would be concurrent with ABS/PVC installation, so the proposed regulatory action would not only increase the number of routine exposures but also the number of concurrent installations and the associated high exposures. **15-14**

5. **The draft EIR inappropriately indicates that use of low-VOC primers and cements will reduce exposures, without any supporting evidence.**

The draft EIR states that "changes in the safety profiles of some CPVC products... should result in reduced worker exposure to chemical contaminants,"[10] citing especially the reduction in volatile organic carbon (VOC) **15-15**

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[9] 2006 Draft EIR, p. 65.

[10] 2006 Draft EIR, page 63.

content in response to air quality regulations. However, the draft EIR provides no data on changes in primer or cement composition, and no evidence or substantive analysis to support its claim that formulation changes have reduced exposures since the 1989 DHS study or that they will do so in the future. In my comments on the 1998 draft EIR, I showed how use of a low-VOC product then on the market could actually increase workers' combined exposure index for all four solvents, largely because the low-VOC product contained more MEK, compared with products in use during the 1989 DHS study. While formulations may well have changed further since 1989, the 1998 analysis illustrates that predicting exposure levels from bulk concentrations is neither simple nor intuitive. The use of higher ACE concentrations in low-VOC adhesives, together with a lowering of the permissible exposure limit for ACE, further complicates the issues. The current draft EIR, however, overlooks these pitfalls and boldly asserts conclusions in the absence of data or analysis. **15-15 (cont.)** **15-16**

The one bit of information provided by HCD is that it "is not aware of any regulatory reports of workers being exposed to acetone levels in excess of the new acetone PEL standard."[11] Absent any description of how acetone exposures have been assessed by regulatory agencies, the significance of no "regulatory reports" cannot be meaningfully evaluated. Given the evidence regarding scant enforcement efforts, however, the existence of no reports of overexposure most likely is an indication that exposure levels during CPVC installation have simply not been measured, not that the exposures are below permissible limits. Relying on the absence of overexposure reports as a basis for findings regarding worker safety impacts is illogical and inappropriate. **15-17**

A better approach to determining whether low-VOC formulations reduce worker exposures would be to go out and measure the exposures at a sample of installation sites under conditions of normal use. This, of course, would follow the model of the 1989 DHS study – replace unfounded assertions and legal positioning with straightforward science. If HCD is truly so confident that exposures have been reduced since 1989, it could demonstrate this quite simply by replicating the 1989 DHS study. Relying instead on unsupported assertions suggests a lack of such confidence. **15-18**

6. Additional mitigation measures could further reduce the frequency and severity of overexposures.

Any review of worker safety hazards associated with CPVC installation merits consideration of measures that could at least prevent the most severe **15-19**

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[11] Draft EIR, p. 65.

overexposures. The 2000 MND and ensuing experience with its mitigation measures provide useful information about the limitations of those measures. The following measures have been proposed previously and have not yet been acted upon, or else build on experience with the mitigation measures in the 2000 MND. While each of the following can be expected to reduce exposures, the extent of reduction – particularly whether they reduce exposures below a threshold of significance – would require empirical study. **15-19 (cont.)**

a. *Require one-part no-primer cements.*

The 1989 DHS study noted that the highest worker exposures occurred with heavy use of primers. The incomplete 1998 EIR asserted that one-part cements eliminated the need for primers and thus could reduce worker exposures during CPVC installation, but did not take the obvious step of requiring such cements as a mitigation measure. As a result, primers continue to be used, and associated exposures continue.[12] Banning primers would seem to be an obvious step to take to protect workers from undue health impacts. **15-20**

b. *Require small containers and small daubers.*

The 1989 DHS study also noted that high exposure sometimes occurred when workers used large daubers for primer or cement – because large daubers transport more solvents out of their containers into workers' breathing zones – and that high exposures sometimes occur when containers spill. But neither the incomplete 1998 EIR nor the 2000 MND specifically required small containers or small daubers. Requiring small containers and small daubers is unlikely to have dramatic effect on worker exposures, but at least would have the advantage of being enforceable without observation of work practices. A local building official or Cal/OSHA compliance officer would only need to inspect a contractor's supplies to assure compliance. **15-21**

c. *Require Use of chemical protective gloves, providing that gloves can be identified that give reliable lasting protection.*

It is now clear that the use of 4 mil nitrile gloves do not provide reliable protection against liquid THF, MEK, CHX and ACE. Indeed, the use of these gloves may worsen the problem. Further study is necessary to determine appropriate glove use measures, if any. **15-22**

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[12] Robert Calnone, 2005; investigative report.

The DEIR should determine if chemical protective gloves exist that would, in fact, give reliable, lasting protection against liquid THF, MEK, CHX and ACE. The DEIR should also determine if current glove use practices increase worker exposure to these contaminants. If feasible and effective protective glove use practices can be identified, these practices should be required. 15-23

d. Improve and expand worker training.

Most other mitigation measures, including use of gloves and ventilation or respiratory protection, will ultimately be most effective if the affected work force understands the hazards associated with CPVC installation and the importance of following all required or recommended worker safety provisions. The best path to understanding is regular, high-quality worker safety training. The training provisions of the 2000 MND were laudable, but they were apparently inadequate to accomplish the objective of getting workers sufficiently trained that they comply with the worker safety provisions. One option for improving the quality of worker safety training programs would be to set specific minimum standards for the content of training programs and require that the programs be certified. This approach has been used in regulating training for exposures associated with lead paint abatement, another toxic exposure that occurs in dispersed construction sites rather than a fixed manufacturing facility. 15-24

e. Establish adequate funding or personnel to ensure genuine enforcement of required mitigation measures.

To date of neither Cal/OSHA nor local building officials have apparently been successful in changing worker practices during CPVC installation, even though both have regulations requiring improved practices. In all likelihood, a key limitation is that Cal/OSHA and local building officials face the challenge of trying to enforce many regulations with severely constrained resources. If HCD truly intends to reduce worker health impacts by improving compliance with worker safety provisions, it will need to assure that adequate enforcement resources are make available. 15-25

f. Establish a monitoring system to improve enforcement of all relevant standards, especially those regarding gloves and ventilation.

One lesson of experience with the 2000 MND mitigation measures is that the may not have the desired impact, regardless of how well intentioned they may be. To the extent that any new action allowing expanded use of CPVC relies on mitigation measures to control worker health impacts, it will be essential to establish a mechanism for monitoring the measures' effectiveness over time and 15-26

for making any modifications that may be necessary to achieve the measures' objectives. 15-26 (cont.)

7. Conclusion

Understanding of the worker health impacts associated with CPVC pipe installation has evolved little over the sixteen years since comprehensive 1989 DHS study. Legal arguments and expert opinions have accumulated, but there is little new evidence and there have been no subsequent in-depth investigations or analyses. The most significant new evidence available since the incomplete 1998 EIR and the 2000 MND is that mitigation measures – written into IAPMO standards and the California Plumbing Code – seem to have had little effect in changing typical CPVC installation practices. 15-27

As a result, conclusions based on this evidence can be no different than in previous analyses: Workers who install CPVC pipe are likely to be overexposed to toxic primer and cement solvents above the legal limits on a regular basis. These overexposures above legal limits must be considered significant.

The mitigation measures imposed by the 2000 MND have not been effective in changing work practices to date, and there exists no evidence that they will be more effective in the future. Use of nitrile gloves as specified in the worker safety standards would provide no real protection against dermal exposure to ACE, CHX, MEK, or THF, and could actually increase absorption of contaminants. The draft EIR fails to consider an important impact of the recommended alternative – namely a substantial increase in the number of workers who will be overexposed to toxic chemicals on a regular basis during conditions of normal use, and the health effects of their more-frequent exposure. The draft EIR inappropriately indicates, without any supporting data or substantive analysis, that use of low-VOC formulations will reduce worker exposures, when in fact they may not. And the draft EIR draws inappropriate conclusions from the absence of "regulatory reports" of overexposure during CPVC installation. 15-28

As in the previous versions, the current draft EIR fails to cite relevant evidence of worker overexposures during normal use, reaches conclusions that are not supported by existing data or analysis, and fails to provide any new data or analyses. 15-29

Response to Letter 15: Jim Bellows

Comment 15-1. The concerns raised this comment are addressed by the response to Comment 12-164.

Comment 15-2. The concerns raised by this comment are addressed by the response to Comments 12-164, 12-166 and 12-171.

Comment 15-3. The Lead Agency acknowledges these data were produced by the 1989 DHS Study.

Comment 15-4. The Recirculated Draft EIR on page 142 discusses the lowered exposure limits for ACE. The Recirculated Draft EIR incorporates these new regulatory requirements into its worker safety analysis. For a discussion on potential worker exposure to inhaled vapors during the installation of CPVC pipe and mitigation measures to avoid such exposure, see the response to Comments 12-164 and 12-166 and pages 142 to 149 of the Recirculated Draft EIR.

Comment 15-5. On pages 142 to 154, the Recirculated Draft EIR evaluates potential impacts to worker safety during the installation of CPVC in residential construction as part of the Proposed Project. The 1989 DHS Study is first described on page 143 of the Recirculated Draft EIR and then discussed and analyzed in depth over pages 144 to 149.

The Recirculated Draft EIR considers impacts associated with both the proper and improper installation of CPVC and copper pipe. See the response to Comments 12-164 and 12-166 for a detailed discussion of worker safety concerns regarding the improper installation of CPVC pipe, as well as pages 142 to 149 of the Recirculated Draft EIR.

Comment 15-6. The concerns raised by this comment are addressed by the response to Comment 12-176.

Comment 15-7. The concerns raised by this comment are addressed by the response to Comment 12-176.

Comment 15-8. The concerns raised by this comment are addressed by the response to Comment 12-176.

Comment 15-9. The concerns raised by this comment are addressed by the response to Comment 12-176.

Comment 15-10. The concerns raised by this comment are addressed by the response to Comment 12-171.

Comment 15-11. The concerns raised by this comment are addressed by the response to Comment 12-171. However, it should be noted that nitrile gloves are shown to provide adequate short-term protection for CHX protection, which is the only solvent that the California Code of

Regulations require dermal protection. (RDEIR, p. 149.) Furthermore, Section 301.0.2.2 of Appendix I, Installation Standards, California Plumbing Code allows for "other gloves providing an equivalent or better degree of protection" than nitrile gloves. Thus, while nitrile gloves have been shown to provide adequate short-term protection for CHX protection – which is the only solvent that the California Code of Regulations require dermal protection – it is permissible to use any other glove that provides equivalent or better protection than the nitrile gloves.

Comment 15-12. The Lead Agency disagrees with this comment, and believes that it is appropriate to rely on the 2000 Mitigated Negative Declaration, for several reasons. The mitigation measures included in the 2000 Mitigated Negative Declaration were discussed and negotiated with the commenting parties at that time, including representatives of many of the same groups that now object to that mitigation. Also, the adequacy of the 2000 Mitigated Negative Declaration is not at issue here, as that document is presumed by statute to be legally adequate. The 2000 Mitigated Negative Declaration relied on data in the record before the Lead Agency at that time, and that data included information gathered in the process of preparing the 1998 EIR as well as the 1998 EIR itself. In other words, even though the certification of the 1998 EIR had been withdrawn and the Lead Agency had agreed that the 1998 EIR was "incomplete," the information in the 1998 EIR remained part of the analysis and evidence in the record before the Lead Agency that supported the 2000 Mitigated Negative Declaration. Based on the prior adoption of the 2000 Mitigated Negative Declaration, and the direction provided in CEQA Guideline 15162 *et seq.*, the Recirculated Draft EIR was prepared as a subsequent EIR.

Comment 15-13. The Recirculated Draft EIR specifically analyzes potential impacts to worker safety because of exposure to CPVC solvents and cements on pages 142 to 151. Based on this analysis and information in the record, the Recirculated Draft EIR concludes that the proposed project will not result in a significant impact to worker safety. See Comments 12-164 and 12-166 for more discussion on this issue.

Comment 15-14. As stated on page 131 of the Recirculated Draft EIR, the current EIR focuses its review on the removal of the Findings Requirement as specified by the 2000 Mitigated Negative Declaration. The Project would remove the Findings Requirement but leave existing worker safety measures intact, which would continue to apply to all installation of CPVC pipe within residential structures. Removal of the Findings Requirement may result in an increase in the number of residential units plumbed with CPVC pipe. However, an increase in the overall number of units plumbed with CPVC pipe will not increase an individual installer's exposure to CPVC pipe adhesives during installation in an individual unit.

The issue raised by this comment was fully addressed by the 2000 Mitigated Negative Declaration, which analyzed impacts associated with the installation of CPVC pipe for residential potable water use. The 2000 Mitigated Negative Declaration determined that such installation – where allowed under the Findings Requirement – would not result in a significant adverse impact to worker safety. (2000 MND, Explanation of Checklist Judgments, pp. 10-12). No new information on this issue has been presented that was not available for review during the preparation of the 2000 Mitigated Negative Declaration. In summary, impacts to individual plumbers during the installation of CPVC pipe in an individual unit in instances where CPVC

pipe is installed concurrently with ABS or PVC pipe will be the same as analyzed under the 2000 Mitigated Negative Declaration.

Comment 15-15. The concerns raised by this comment have been addressed by the Recirculated Draft EIR which no longer uses the language quoted in this comment.

Comment 15-16. The concerns raised by this comment are addressed by the response to Comment 12-167.

Comment 15-17. The concerns raised by this comment have been addressed by the Recirculated Draft EIR which no longer uses the language quoted in this comment.

Comment 15-18. Please see the response to Comment 12-167 for a discussion of why potential worker safety impacts related to low-VOC CPVC adhesives and one-step cements will be less than significant. Under the CEQA Guidelines and case law, an EIR need not conduct every recommended test or perform all requested research. (CEQA Guidelines § 15204(a); *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.*, 47 Cal. 3d 376, 410 (1988)). Based on the discussion in the response to Comment 12-167, the Lead Agency believes that the additional testing required by the commenter is unnecessary.

Comment 15-19. Additional worker safety mitigation measures are not necessary, since the Project will result in less than significant impacts related to worker safety, as explained in Section 4.4 of the Recirculated Draft EIR.

Comment 15-20. As discussed on pages 146 to 147 of the Recirculated Draft EIR, one-step cements are allowed for use during the installation of CPVC pipe. Thus, workers can choose to use the one-step cement as appropriate. In addition, Alternative C of the Recirculated Draft EIR considers impacts to worker safety if one-step cements are required instead of being optional. As noted on page 186 of the Recirculated Draft EIR, the requirement to use one-step cements would likely reduce worker exposure even further than the proposed project, even though the proposed project would not result in a significant impact to worker safety. Also, one-step cements are required under Mitigation 4.2-1 to reduce air quality impacts. (RDEIR, p. 50.)

Comment 15-21. As discussed on pages 132 to 133 of the Recirculated Draft EIR, a solvent or primer applicator or dauber should be used when applying the materials to CPVC pipe. Safety instructions cited by the Recirculated Draft EIR as part of the record recommend using a dauber that is appropriately sized for the pipe being installed. (*See, e.g., Working With Plastic Pipe*, ACE Hardware, http://www.acehardware.com/sm-working-with-plastic-pipe--bg-1280920.html (last accessed Jan. 8, 2007.)

Comment 15-22. The concerns raised by this comment are addressed by the response to Comment 12-171.

Comment 15-23. The concerns raised by this comment are addressed by the response to Comment 12-171.

Comment 15-24. As discussed on page 153 of the Recirculated Draft EIR, all employers employing installers of CPVC would be required to provide their employees with proper safety training and safety equipment. Compliance with label directions and safe use instruction is enforced by Cal/OSHA, and a failure to comply exposes employers to penalties and civil liability. The California Plumbing Code also contains compliance requirements for contractors to verify proper safety procedures and training occurred. As such, additional safety requirements are not required in order to reduce the Project's potential impacts below a significant level.

Comment 15-25. The concerns raised by this comment are addressed by the response to Comment 12-178.

Comment 15-26. The concerns raised by this comment are addressed by the response to Comment 12-171.

Comment 15-27. The concerns raised by this comment are addressed by the response to Comments 12-164, 12-166 and 12-171.

Comment 15-28. The concerns raised by this comment are addressed by the response to Comments 12-167, 12-171, and 12-176. In addition, concerns raised by the last sentence of this comment have been addressed by the Recirculated Draft EIR which no longer uses the language quoted.

Comment 15-29. As explained in the responses to the commenter's other comments, the Lead Agency believes that the Recirculated Draft EIR complies with CEQA and provides the required good faith disclosure to decisionmakers regarding worker safety and other issues.

OFFICE OF THE CITY ATTORNEY
ROCKARD J. DELGADILLO
CITY ATTORNEY

October 23, 2006

Thomas L. Morrison
Deputy Executive Director
California Building Standards Commission
2525 Natomas Park Drive, Suite 130
Sacramento, CA 95833

RE: Opposition to Proposed Changes to the California Plumbing Code Regarding CPVC, PVC, ABS, PEX or PEX-AL-PEX Plastic Pipe

Dear Mr. Morrison:

The City of Los Angeles respectfully requests the California Building Standards Commission ("Commission"), the Department of Housing and Community Development ("HCD"), and the Division of the State Architect ("DSA") (collectively "the Agencies") to set aside for further study the proposed adoption of building standards expanding the approved uses of CPVC potable water pipe and PVC and ABS drain, waste and vent ("DWV") pipe and approving the use of PEX and PEX-AL-PEX potable water pipe. The specific proposals that would approve or expand approval of these materials are contained in the proposed changes to California Plumbing Code sections 604.1, 604.1.1, 604.1.2, Table 6-4, 604.11, 604.11.1, 604.11.2, 604.13, 604.13.1, 604.13.2, 701.1.2.2, 903.1.2.2, 1101.3.1, 1101.3.3, and 1102.1.2. 16-1

We oppose adoption of these plastic pipe materials because they have been proposed for approval without adequate examination of the potential public health and safety impacts associated with the use of these products. Approval of these products without first resolving the numerous concerns associated with their use is bad public policy and is inconsistent with the requirements of the California Environmental Quality Act ("CEQA"). 16-2 16-3

Prior to approving or expanding the approval of CPVC, PVC, ABS, PEX or PEX-AL-PEX plastic pipe, CEQA requires that public agencies and the public be fully informed about the potential impacts of these products on public health and the environment. CEQA's purpose is to inform the public and its responsible officials of the environmental consequences of their decisions *before* they are made. (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564.) 16-4

The applicability of CEQA to the approval of proposed building standards was affirmed in the case *Plastic Pipe and Fitting Association v. California Building Standards Commission*, (2004) 124 Cal.App. 4th 1390. The City of Los Angeles participated as amicus curiae in that case. 16-4 (cont.)

The City of Los Angeles has a direct interest in ensuring environmental review of potentially hazardous building materials. Once approved at the state level, local governments are limited in their authority to restrict the use of building materials at the local level. Our building department would thus be required to allow the use of CPVC, PVC, ABS, PEX and PEX-AL-PEX even if the Commission adopted these regulations without adequate environmental review. 16-5

California Building Standards Law states that proposed building standards may not be approved where their adoption would not be in the "public interest" or would be "unreasonable, arbitrary, unfair or capricious." (Health & Safety Code § 18930.) The approval and expanded approval of these plastic pipe materials without first fully complying with CEQA and adequately evaluating and mitigating the potential impacts on workers, consumers and the general public would be both contrary to the "public interest" and "unreasonable, arbitrary, unfair or capricious." We urge the Commission to "disapprove" or set aside for "further study" these proposed regulations. 16-6

I. PROPOSED EXPANDED APPROVAL OF CPVC

HCD proposes greatly expanding the approved use of CPVC potable water pipe. Current use of CPVC potable water pipe is limited to the few areas of the state where metal pipe has been shown to prematurely fail due to aggressive water or soil conditions. In addition, the approval of CPVC in these limited situations is at the sole discretion of the local jurisdiction.

HCD's proposal would require all cities and local jurisdictions to approve the use of CPVC in any home or other residential building in the state. The City would thus have no authority to review CPVC on a case-by-case basis, or to deny approval based on environmental or public health risks. 16-7

HCD prepared a draft Environmental Impact Report ("draft EIR") on the proposed expanded approval of CPVC potable water pipe. While a step in the right direction, the CPVC draft EIR inadequately evaluates or fails altogether to evaluate numerous potential environmental, health and safety impacts associated with the expanded approval of CPVC. The draft EIR also fails to adequately analyze project alternatives as required under CEQA. 16-8 16-9

Rather than actually evaluating the evidence of potential worker health impacts, toxic leaching impacts and fire hazard impacts associated with the 16-10

expanded use of CPVC, HCD argues that it is not legally required to evaluate these impacts. HCD asserts that it may instead rely upon the evaluation of similar impacts contained in the Mitigated Negative Declaration prepared in 2000 on the restricted, discretionary approval of CPVC. This attempt to tier off of a prior mitigated negative declaration violates CEQA and needlessly puts the public at risk. 16-10 (cont.)

CEQA only allows a project to rely upon the evaluation of a prior project when the later project is a narrower project that falls within the scope of the earlier, broader project. (CEQA Guidelines § 15152.) In the case at hand, however, the restricted, discretionary approval of CPVC evaluated in the 2000 Mitigated Negative Declaration was significantly narrower in scope than the proposed expanded, mandatory approval evaluated in the draft EIR. 16-11

Moreover, CEQA only permits a lead agency to tier off a prior CEQA document "when the sequence of analysis is from an EIR . . . to an EIR or negative declaration." (CEQA Guidelines § 15152.) In the case at hand, the draft EIR improperly attempts to tier from a prior mitigated negative declaration. 16-12

The draft EIR's failure to evaluate these potential impacts is significant because substantial evidence exists that the mitigation measures relied upon in the 2000 Mitigated Negative Declaration are not effective. We have reviewed, for example, the September 8, 2006 comments of Dr. Jim Bellows who concludes that workers who install CPVC pipe are likely to be overexposed to toxic primer and cement solvents above the legal limits on a regular basis despite the ventilation and glove use requirements imposed as conditions of the 2000 Mitigated Negative Declaration. He also concludes that the requirement that workers use 4-mil nitrile gloves may actually *increase* worker exposure to contaminants. In other words the draft EIR may be relying upon mitigation measures that actually increase the danger to workers. The Commission should set aside the proposed expanded approval of CPVC until the claims of Dr. Bellows are evaluated in a revised draft EIR. 16-13 16-14

The EIR also ignores the difficulties cities have faced in recycling and disposing CPVC. A 2005 "Plastic Pipe Alternatives Assessment" by the San Francisco Department of the Environment examined the solid waste disposal problems posed by plastic piping and found that CPVC is considered a "contaminant" in the waste stream and has a "negative recycling profile." The same report found that CPVC pipe may make residential fires, waste incinerators and landfill fires significantly more dangerous through its release of dioxins when burned. 16-15 16-16

We urge the California Building Standards Commission to set aside for further study the proposed regulations expanding the approval of CPVC pipe on the grounds that the CPVC draft EIR fails to adequately evaluate and mitigate potential impacts on workers, consumers, and the general public. 16-17

II. PROPOSED EXPANDED APPROVAL OF PVC & ABS DRAIN, WASTE AND VENT PIPE

Currently HCD restricts the use of ABS and PVC DWV pipe to buildings no more than two stories in height. HCD now proposes to remove this long-standing restriction. To date, however, no environmental review has been prepared to evaluate the potential impacts of this proposal. The *PPFA v. CBSC* case, which we participated in, makes clear that CEQA applies to the expanded approval of building materials such as PVC and ABS DWV pipe.

The current PVC and ABS restrictions were put in place, in part, due to concerns that these flammable pipes may increase the risk of fire spread to other rooms in a dwelling. Both ABS and PVC also release thick, choking smoke when burned. In addition, PVC releases cancer-causing dioxins when burned.

ABS also has a well-documented history of degrading and rupturing prematurely. During the 1980's, numerous brands of ABS failed prematurely, causing extensive damage to homes. Both PVC and ABS are also susceptible to failure if certain substances are disposed down the drains. DWV failures are significant because they may result in the release of sewer gas and human waste in walls and living spaces.

ABS and PVC are joined with cements that contain chemicals harmful to workers and the environment. As with CPVC, the increased use of these cements may result in cumulatively significant impacts on air quality and worker health within our jurisdiction.

Further study is required under CEQA to fully evaluate the potential impacts of these materials and to identify appropriate mitigations and alternatives. The proposed regulations expanding the approved use of PVC and ABS DWV pipe should be disapproved until such impacts are adequately evaluated in an EIR.

III. PROPOSED APPROVAL OF PEX AND PEX-AL-PEX

HCD has released a Negative Declaration on the proposed regulations approving PEX and PEX-AL-PEX potable water pipe. Reliance upon this Negative Declaration, however, is improper because substantial evidence of potential impacts exists that require the preparation of an EIR.

A negative declaration may be prepared instead of an EIR when, after preparing an initial study, a lead agency determines that a project "would not have a significant effect on the environment." (Pub. Res. Code § 21080(c).)

However, such a determination may be made only if there is "*no* substantial evidence in light of the whole record before the lead agency" that such an impact may occur. (Pub. Res. Code § 21080(c)(1).) If a lead agency is presented with a fair argument that a project may have a significant effect on the environment, the lead agency shall prepare an EIR even though it may also be presented with other substantial evidence that the project will not have a significant effect. (CEQA Guidelines § 15064(f)(1).)

Substantial evidence of potential impacts from the use of PEX and PEX-AL-PEX has been submitted to HCD during several past proceedings to which we have been participants, including the proceedings reviewed in the *Plastic Pipe and Fitting Association v. California Building Standards Commission* case.

In its opinion in that case, the court found that a report by chemist Thomas Reid raised grave concerns about the potential dangers posed by the use of PEX, "including the potential for (1) chemical leaching of substances from the pipes; (2) permeation of the pipes by toxic substances contained in the surrounding soil and groundwater; (3) mechanical failure of the pipes; and (4) rupturing of the pipes when exposed to high heat, which may create openings that could contribute to the spread of fire." (*PPFA v. CBSC* (2004) 124 Cal.App. 4th 1390, 1407.) The court then concluded that "the Reid letter is substantial evidence . . . that PEX potentially may present an unreasonable risk of harm." (*Id.*) In light of this holding, an EIR must be prepared.

Furthermore, HCD admits in the Negative Declaration that PEX and PEX-AL-PEX are susceptible to permeation, leaching of MTBE at "high levels", biofilm formation, and mechanical failure. The Negative Declaration states that:

- Tests have shown that PEX and PEX-AL-PEX pipe may leach high levels of MTBE and that PEX should not be used in areas of the state with MTBE water contamination. (Negative Declaration at pp. 7-8.)

- PEX pipe that meets ASTM standards for exposure to sunlight "may fail in the field before 50 years, especially if it has suffered stabilizer loss due to other factors." (Negative Declaration at p. 8.)

- PEX is subject to permeation by toxic chemicals when exposed to contaminated soils or when sprayed with termiticides or pesticides. (Negative Declaration at p. 10.)

- PEX may increase the risk of exposure to Legionella due to biofilm formation for at least the first two years of its use. (Negative Declaration at p. 14.)

Despite these admissions, the Negative Declaration fails to impose any mitigation measures to address these issues. Moreover, the Negative

Declaration improperly dismisses these impacts by weighing competing evidence and concluding that the risk from these impacts is "not of such magnitude that the state ought to limit the consumer's choice in plumbing materials." (Negative Declaration at p. 11.)

Under CEQA, the admission of potential impacts requires the preparation of an EIR even if the Negative Declaration concludes that other factors may argue against the likelihood of such impacts occurring. An EIR must be prepared to properly evaluate the evidence of these impacts and to determine if feasible alternatives exist or if mitigation measures can be imposed to reduce these risks. Approval of PEX and PEX-AL-PEX without proper evaluation of these impacts would not be in the public interest.

IV. CONCLUSION

We urge you to set aside for further study the proposed changes to the California Plumbing Code to approve or expand the approved uses of CPVC, PVC, ABS, PEX or PEX-AL-PEX plastic pipe. Further compliance with CEQA is necessary to ensure the protection of homeowners, workers and residents in our jurisdiction. 16-18

Thank you for taking our comments into consideration.

Sincerely,

Rockard J. Delgadillo
City Attorney

Response to Letter 16: City of Los Angeles

Comment 16-1. The Lead Agency disagrees with this comment. The Lead Agency believes that there is no need to set the Project aside for further study because the current EIR fully complies with CEQA and adequately evaluates and mitigates the potential impacts of the Project.

Comment 16-2. The Lead Agency believes that the Recirculated Draft EIR adequately examines the potential public health and safety impacts associated with the Project.

Comment 16-3. The Lead Agency believes that the Recirculated Draft EIR complies with the requirements of CEQA.

Comment 16-4. The Lead Agency has prepared the current EIR pursuant to CEQA, and the Lead Agency believes that the EIR satisfies the informational standards set forth in this comment.

Comment 16-5. The Lead Agency believes that an adequate environmental review of the proposed deletion of the Findings Requirement has been conducted. The Lead Agency also notes that CPVC pipe has already been "approved at the state level" and the proposed action is the deletion of the Findings Requirement currently contained in the code.

Comment 16-6. The Lead Agency disagrees with this comment. The Lead Agency believes that there is no need to set the Project aside for further study because the current EIR fully complies with CEQA and adequately evaluates and mitigates the potential impacts of the Project.

Comment 16-7. The purpose of the regulatory action is to allow builders and homeowners to use of CPVC as a matter of right, without any specific approval by the local building official. All environmental and public health risks have been analyzed and addressed by the Recirculated Draft EIR; therefore, there would be no utility to further review by local building officials.

Comment 16-8. The initial Draft EIR has been revised and recirculated. The Lead Agency believes that the R Recirculated Draft EIR adequately evaluates the potentially significant environmental impacts associated with the Project.

Comment 16-9. The initial Draft EIR has been revised and recirculated. The Recirculated Draft EIR includes an analysis of project alternatives.

Comment 16-10. The initial Draft EIR has been revised and recirculated. The Recirculated Draft EIR includes a revised and expanded section analyzing worker safety impacts. The Recirculated Draft EIR's revised and expanded water quality section includes an analysis of impacts related to leaching. Fire hazard impacts related to CPVC pipe were evaluated in the 2000 Mitigated Negative Declaration and the record that supported the 2000 Mitigated Negative Declaration, including the 1998 EIR. The 2000 Mitigated Negative Declaration concluded that hazard and fire protections impacts would be less than significant. The Project would not result

in any fire hazard impacts that are new or substantially more severe than the fire hazards evaluated in the record supporting the 2000 Mitigated Negative Declaration.

The 1998 EIR indicated that CPVC itself is not flammable, and therefore its presence or absence is irrelevant with respect to the ignition or propagation of a residential fire before flashover, the abrupt point at which a single room no longer can contain a fire. (1998 Final EIR at 69-70). The 1998 EIR stated that "[t]here is no evidence to suggest, either from the results of tests or from post-fire analysis in the real world, that CPVC represents an unusual risk of fire spread." (1998 Final EIR at 70). The 1998 EIR continued by stating that "CPVC is an Underwriters' Laboratory (UL) listed material for fire sprinkler systems," within which it is "extensively used," which therefore "is proof of its physical competence in a fire environment." CPVC is also used as a plumbing material in fire-rated construction." (1998 Final EIR at 70). The 1998 EIR concluded that "[a]fter flash-over, fires in residential buildings have a marked propensity to spread beyond the compartment of origin. This is independent of the presence or absence of CPVC pipe for potable water piping." (1998 Final EIR at 72).

The 1998 EIR also determined that "[t]he presence or absence of CPVC pipe in the potable water plumbing systems of [residential] structures would not alter the fundamental reality that fire in a residential building will produce a toxic gas environment, or significantly contribute to the toxicity of a fire." (1998 Final EIR at 72). The EIR concluded that the presence or absence of CPVC pipe would not change this fundamental reality. (1998 Final EIR at 72). Additionally, "by the time a residential fire is hot enough to thermally decompose CPVC pipe, the fire has reached flashover and the fire atmosphere will already be extremely hot and incapable of supporting life. Further, because the majority of the potable water pipe in a residential building is not located in the interiors of the rooms, the majority of any toxic gases released from CPVC decomposition in a fire would not be released into a compartment capable of supporting life." (1998 Final EIR at 72). In summary, the 1998 EIR determined that "[t]he presence or absence of CPVC in a residential building . . . would not significantly change the toxicity of the fire environment." (1998 Final EIR at 72).

These evaluations in the 1998 EIR are part of the record that supports the 2000 Mitigated Negative Declaration, and it is appropriate to rely on these evaluations in determining whether the currently Proposed Project would have any new or additional impacts. These prior evaluations were part of the basis for the Lead Agency's determinations in the 2000 Mitigated Negative Declaration, located at page 1 of the Explanation of Checklist Judgments, where the Lead Agency stated "The determinations made for this Environmental Checklist are based on information in the record for this project as well as information in the record of previous HCD examinations of CPVC for use in residential buildings." Many of the specific topical entries in that Environmental Checklist repeat this statement, and recite environmental impact conclusions that are substantially similar to the conclusions in the 1998 EIR.

In addition, the Lead Agency consulted with the Department of Forestry and Fire Protection, Office of the State Fire Marshal regarding potential fire hazards associated with the Project as well as unrelated proposals for approval of other plastic pipe materials. In a letter dated

September 7, 2006, the Office of the State Fire Marshal indicated to the Lead Agency that "[t]he development of fire stopping materials and other requirements currently contained in the California Building Standards Codes and provisions proposed for adoption in the 2006 Uniform Plumbing Code, mitigate the fire spread hazard associated with the proposed materials within the structure."[35] The letter further indicated that "[t]he quantity of these materials is relatively insignificant when compared to all the other materials within the building. Therefore, the fire hazard or added toxic products of combustion generated by these materials in a fire would be comparatively minor." Thus, based on the Lead Agency's consultation with the Department of Forestry and Fire Protection, Office of the State Fire Marshal, the Lead Agency believes that the Project will not result in significant impacts related to fire hazards.

The reliance upon the analysis set forth in the 2000 Mitigated Negative Declaration is appropriate and does not violate CEQA. As explained in Section 3.3.1 of the Recirculated Draft EIR, the current EIR is a subsequent EIR to the 2000 Mitigated Negative Declaration prepared pursuant to CEQA Guidelines Section 15162. A subsequent EIR does not involve "tiering." As explained in more detail in the responses to Comments 16-11 and 16-12, the preparation of a "tiered" EIR is fundamentally different in nature than the preparation of a subsequent EIR, and the CEQA Guidelines specifically allow the use of a subsequent EIR to a prior mitigated negative declaration.

Comment 16-11. CEQA Guidelines section 15152, which the commenter cites as standing for the proposition that "CEQA only allows a project to rely upon the evaluation of a prior project when the later project is a narrower project that falls within the scope of the earlier, broader project," applies to "tiering" of EIRs, which is fundamentally different in nature from the use and purpose of a subsequent EIR. "Tiering" refers to the coverage of general matters and environmental effects in a broad EIR prepared for a policy, plan, program, or ordinance followed by a narrower or site specific EIR that provides a detailed study of issues specific to a later, specific project based on the earlier approval of the policy, plan, program, or ordinance. Cal. Pub. Res. Code § 21068.5.

The current EIR instead involves a change to an earlier approved code provision (which is analogous to an ordinance). Rather than CEQA Guidelines Section 15152, changes to previously projects must be evaluated as required by CEQA Guidelines Section 15162, which requires preparation of a subsequent EIR if changes to a project are proposed which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. The Lead Agency decided to prepare the current EIR after determining that the Project would change the provisions of the California Plumbing Code that were analyzed in the 2000 Mitigated Negative Declaration in a manner that could involve such new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

[35] Letter from Kevin Reinertson, Senior Deputy State Fire Marshal, Department of Forestry and Fire Protection, Office of the State Fire Marshal, to Robin Gilb, Staff Counsel, Department of Housing and Community Development (Sept. 7, 2006).

Comment 16-12. As explained above in the responses to Comments 16-10 and 16-11, the current EIR is not a tiered EIR prepared in reliance upon a program EIR, and does not involve the process of "tiering." Instead, the Project is a subsequent EIR prepared due to changes to a previously approved project pursuant to CEQA Guidelines Section 15162. CEQA Guidelines Section 15162(b) specifically provides for the preparation of a subsequent EIR after adoption of a negative declaration.

Comment 16-13. The initial DEIR has been revised and recirculated. Section 4.4 of the Recirculated Draft EIR evaluates potential impacts to worker safety during the installation of CPVC pipe as part of the proposed project. As requested in this comment, the revised worker safety analysis in the Recirculated Draft EIR reflects the Lead Agency's review and consideration of the comments made by Dr. Jim Bellows on September 8, 2006 regarding the Draft EIR.

The Recirculated Draft EIR analyzed in depth the potential impacts to worker safety from exposure to CPVC solvents. In particular, the Recirculated Draft EIR reviewed and analyzed findings from the 1989 study by the Department of Health Services (DHS), *Plastic Pipe Installation: Potential Health Hazards for Workers*, by Kizer, K.W. et al. (hereinafter, the "1989 DHS Study") regarding short-term worker exposure (RDEIR, pp. 144-147) and full-shift worker exposure (RDEIR, pp. 147-149) to chemicals associated with CPVC solvents and cements during installation, namely acetone (ACE), cyclohexanone (CHX), methyl ethyl ketone (MEK), and tetrahydrofuran (THF).

Regarding short term exposure, the results of the 1989 DHS study indicated that installers of CPVC pipe experienced very low levels of exposure to the solvents even though most workers did not follow safety instructions. Even the few overexposures that did occur were recorded in very low air flow areas. Thus, it is anticipated, based on available data in the record, that improvements in ventilation, as required by following proper safety procedures and the mitigation measures that were included in the California Plumbing Code as part of the Project evaluated in the 2000 Mitigated Negative Declaration would minimize or eliminate these exposure risks. Specifically, Section 301.0.2.1 of Appendix I, Installation Standards, California Plumbing Code requires mechanical ventilation to maintain exposures in enclosed spaces to below relevant exposure limits, and where mechanical ventilation is not practical, requires the use of respirators suitable for protecting against organic vapors. (RDEIR, pp. 145-146.)

The short-term exposure data in the 1989 DHS Study is supported by a June 1982 study performed by the National Institute for Occupational Safety and Health (NIOSH) to evaluate possible hazards to plumbers and pipefitters resulting from exposures during the installation of plastic pipe. (NIOSH, Health Hazards Evaluation Report No. 82-293, p. 1.) The NIOSH report also found that short-term exposure levels to tested chemicals were below applicable exposure criteria except for one THF sample. (NIOSH, Health Hazards Evaluation Report No. 82-293, p. 1s.) The mitigation recommendations proposed by NIOSH were similar in nature to the mitigation contained in the Recirculated Draft EIR. (*See* NIOSH, Health Hazards Evaluation Report No. 82-293, p. 20.)

As discussed on page 146 of the Recirculated Draft EIR, the 1989 DHS study noted that the short-term "index of combined exposure" exceeded the limit for six samples. Cal/OSHA regulates exposure to contaminants that may have an additive health effect. Nevertheless, the highest exposure levels experienced by installers occurred in enclosed areas with low ventilation. As such, impacts related to installation in low ventilated areas can be fully avoided or adequately minimized by following proper safety procedures and requirements in Section 301.0.2.1 of Appendix I, Installation Standards, California Plumbing Code, which require mechanical ventilation or respirators as necessary.

Full-shift worker exposure was analyzed on pages 147 to 149 of the Recirculated Draft EIR. As shown on page 148 of the Recirculated Draft EIR, none of the full-shift exposures for ACE, MEK, THF, and CHX exceeded the full-shift exposure limits set by Cal/OSHA, and the full-shift "index of combined exposure" exceeded the limit for one worker. Nevertheless, the highest exposure levels experienced by installers occurred in enclosed areas with low ventilation. As such, impacts related to installation in low ventilated areas can be fully avoided or adequately minimized by following proper safety procedures and requirements in Section 301.0.2.1 of Appendix I, Installation Standards, California Plumbing Code, which require mechanical ventilation or respirators as necessary.

The 1982 NIOSH report supports this conclusion, finding that none of the calculated "combined effects" of the tested exposure limits exceeded applicable full-shift exposure criteria. (NIOSH, Health Hazards Evaluation Report No. 82-293, p. 14.) The 1982 NIOSH report also noted that health complaints were most often associated with working in confined places, and as a result recommended that workers install plastic pipe in properly ventilated areas or wear protective masks. (NIOSH, Health Hazards Evaluation Report No. 82-293, pp. 15, 20.)

The Recirculated Draft EIR also analyzed potential impacts to worker safety through dermal exposure. As discussed on page 149 of the Recirculated Draft EIR, proper installation of CPVC pipe would minimize or eliminate the risk for dermal exposure during installation of CPVC piping. Specifically, Section 301.0.2.2 of Appendix I, Installation Standards, California Plumbing Code requires use of non-latex thin gauge (4 millimeters) nitrile gloves, or other gloves providing an equivalent or better degree of protection, during the installation of CPVC plumbing systems. Of ACE, MEK, THF and CHX, Cal/OSHA regulations only require skin protection for CHX. (Cal. Code of Regulations, Title 8, Section 5155(d); Cal. Code of Regulations, Title 8, Section 5155, Table AC-1, Permissible Exposure Limits for Chemical Contaminants.) Nitrile gloves have been shown to provide adequate short term exposure protection for CHX. (RDEIR, p. 149.)

Moreover, Section 301.0.2.2 of Appendix I, Installation Standards, California Plumbing Code, requires that nitrile gloves must be discarded and replaced upon contamination, which would make nitrile gloves adequately effective against dermal exposure. However, ACE, MEK, THF and CHX should not contaminate the gloves if daubers are properly used during installation to avoid skin contact, as is required for proper installation. (RDEIR, p. 150.) Thus, the glove mitigation measure included in Section 301.0.2.2 provides a second line of defense for workers,

with the first line of defense being the use of daubers or other applicators to prevent direct contact with workers' hands.

Given the foregoing, the Recirculated Draft EIR is not relying on mitigation measures that would actually increase dangers to workers. To the contrary, with the application of the mitigation measures and safety procedures discussed in the Recirculated Draft EIR, impacts to worker safety would be less than significant.

Comment 16-14. Please see response to Comment 16-13. The referenced claims have been evaluated.

Comment 16-15. Please see the revised and expanded analysis of solid waste impacts in the Recirculated Draft EIR. As explained in the Recirculated Draft EIR, the Lead Agency has found no evidence indicating that there would be a lack of sufficient permitted landfill capacity to accommodate the Project's solid waste disposal needs. CPVC is typically not disposed in landfills during most pipe replacement jobs. Rather, existing pipe is left in the structure and not disposed. A minor amount of scraps from CPVC pipe are discarded during CPVC installation. Most disposal of CPVC pipe in landfills would occur when residential structures with CPVC plumbing are demolished.

Although the draft report by the San Francisco Department of the Environment cited by the commenter states that CPVC is considered a "contaminant" in the waste stream and has a "negative recycling profile," the Lead Agency believes that this statement is taken out of context. Table 5 on page 16 of the report, which was submitted to the Lead Agency as Appendix 21 to Comment Letter 12, indicates that PVC, which the report treats as identical to CPVC, is a contaminant in municipal bottle recycling streams. However, nothing in the report indicates that CPVC is considered a contaminant in the recycling of plastic pipe. Moreover, Table 5 in the report indicates that five companies within San Francisco accept drop off of PVC/CPVC pipe for recycling.

This is consistent with the analysis of solid waste impacts in the Recirculated Draft EIR, which concludes that recycling and reuse of CPVC pipe is both technically feasible and, given current trends in plastic recycling, likely to become more prevalent by the time residential structures plumbed with CPVC pipe are demolished. Thus, the Recirculated Draft EIR concludes that Project will result in less than significant effects related to landfill capacity.

Comment 16-16. Please see the response to Comment 16-10. As stated in that response, based on evidence such as the consultation with the State Fire Marshal, the Lead Agency has determined that the Project does not make fires more dangerous.

The EPA's National Center for Environmental Assessment recently published a report inventorying sources and environmental releases of dioxin-like compounds.[36] The EPA report is

[36] National Center for Environmental Assessment, Office of Research & Development, U.S. Environmental Protection Agency, *An Inventory of Sources and Environmental Releases of Dioxin-Like Compounds in the United States for the Years 1987, 1995, and 2000.* (Nov. 2006).

a detailed compilation and description of all known U.S. sources and their associated activities that cause these compounds to be released into the environment.[37] The report analyzed sources and releases of dioxin-like compounds in the years 1987, 1995, and 2000, and determined that the total amount of environmental releases of dioxin-like compounds decreased sharply by 90% during the period between 1987 and 2000.[38] The report found that this downward trend was even sharper with respect to municipal waste combustions (MWCs), releases from which declined by greater than 99 percent between 1987 and 2000.[39] MWCs were the leading source of releases in both 1987 and 1995, contributing 64% and 40% of total releases respectively in those years.[40] The contribution of MWCs decreased to 6% of total releases in 2000.[41] The report attributed the decrease in the contribution of MWCs to releases in dioxin-like compounds to strict regulatory requirements limiting dioxin emissions imposed by the EPA.[42] Moreover, as explained in the Recirculated Draft EIR section regarding solid waste impacts, the Project is expected to result in less than significant impacts related to landfill capacity due to the typical practice of leaving existing pipe in homes that are re-piped, the long performance of life of CPVC, and the likelihood of increased recycling and reuse as CPVC becomes more widely used. Finally, not all CPVC disposed of in landfills would be incinerated. Thus, CPVC would only contribute a minor amount to releases if dioxin-like compounds from a type of source that has experienced dramatic reductions in such releases due to strict EPA emissions standards (which would apply to any municipal waste combustion of CPVC), in an overall environment that has also evidenced dramatic reductions in the total amount of releases of dioxin-like compounds over approximately the past two decades. The Lead Agency concludes that this would result in a less than significant impact on the environment.

Although landfill fires are more common than some might expect, they are relatively rare occurrences in comparison with other activities that contribute dioxins to the environment. The California Integrated Waste Management Board has reported that in California more than 25 subsurface landfill fires have been reported during the past 15 years.[43] Most of these incidents are small fires or rapid oxidation events that are usually handled by the operating facility and the local or state regulatory agency.[44] Seldom do the subsurface events become large-scale environmental responses.[45] Thus, it is very rare that such fires release toxins into the environment in amounts sufficient to trigger significant environmental response. In addition, the Integrated Waste Management Board has recommended fire prevention and fire suppression best management practices (BMPs) that are enforced by local solid waste enforcement agencies in order to reduce the occurrence and duration of landfill fires.[46] The already rare landfill fires,

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[37] *Ibid.* at xlii.
[38] *Ibid.* at 1-42.
[39] *Ibid.* at xlv.
[40] *Ibid.*
[41] *Ibid.*
[42] *Ibid.* at xlv, 1-3 to 1-4.
[43] Cal. Integrated Waste Mgmt. Bd., *Landfill Fires Guidance Document*, available at http://www.ciwmb.ca.gov/LEACentral/Fires/LFFiresGuide/default.htm (last updated Jan. 2, 2007).
[44] *Ibid.*
[45] *Ibid.*
[46] Cal. Integrated Waste Mgmt. Bd., *Best Management Practices for Pile Fires*, available at http://www.ciwmb.ca.gov/leaCentral/Fires/default.htm#Best (last updated Jan. 2, 2007).

which are reduced by these BMPs, are also unlikely to consume significant amounts of CPVC. As explained in the Recirculated Draft EIR section regarding solid waste impacts, the Project is expected to result in less than significant impacts related to landfill capacity due to the typical practice of leaving existing pipe in homes that are re-piped, the long performance of life of CPVC, and the likelihood of increased recycling and reuse as CPVC becomes more widely used. A landfill fire would have to occur in a portion of a landfill that contains CPVC pipe in order for CPVC to release dioxins, which is relatively unlikely due to the above factors. Finally, for the reasons set forth in the Response to Comment 16-10, the presence of CPVC in landfill fires would not result in significant impacts related to fire hazards for landfill personnel, firefighters, or others exposed to smoke from such fires. For all of these reasons, the Lead Agency concludes that the presence of CPVC within landfill fires would result in a less than significant impact on the environment.

Comment 16-17. The Lead Agency disagrees with this comment. The Lead Agency believes that there is no need to set the Project aside for further study because the current EIR fully complies with CEQA and adequately evaluates and mitigates the potential impacts of the Project.

Comment 16-18. The initial Draft EIR has been revised and recirculated. The Lead Agency believes that the Recirculated Draft EIR adequately complies with CEQA.[47]

[47] The comments contained in this letter relating to PVC, ABS, PEX and PEX-al-PEX do not relate to the DEIR or to the proposed deletion of the findings requirement for CPVC.

CITY AND COUNTY OF SAN FRANCISCO

DENNIS J. HERRERA
City Attorney

OFFICE OF THE CITY ATTORNEY

KATE HERRMANN STACY
Deputy City Attorney

DIRECT DIAL: (415) 554-4617
E-MAIL: kate.stacy@sfgov.org

October 23, 2006

Mr. Dave Walls
Executive Director
Mr. Thomas L. Morrison
Deputy Executive Director
California Building Standards Commission
2525 Natomas Park Drive, Suite 130
Sacramento, CA 95833

Re: Approval of CPVC, PEX, PEX-AL-PEX, ABS and PVC Piping in the 2007 California Plumbing Code

Dear Mr. Walls and Mr. Morrison:

The City and County of San Francisco ("San Francisco") urges the California Building Standards Commission to study further the proposed adoption of building standards approving the use of PEX and PEX-AL-PEX drinking water pipe and expanding the approved uses of CPVC drinking water pipe and PVC and ABS drain, waste and vent ("DWV") pipe. The specific proposals that would approve or expand approval of these materials are contained in the proposed amendments to California Plumbing Code sections 316.1.6, 604.1, 604.1.1, 604.1.2, 604.11, 604.11.1, 604.11.2, 604.13, 604.13.1, 604.13.2, 701.1.2.2, 903.1.2.2, 1101.3.1, 1101.3.3, 1102.1.2 and Table 6-4. 17-1

We are concerned that these plastic pipe plumbing materials have been proposed for approval without adequate examination of the potential public health and safety impacts associated with the use of these products. We are also concerned that the approval of these products without adequate environmental review violates the California Environmental Quality Act ("CEQA"). 17-2 17-3

In considering whether to approve or expand the approved uses of PEX, PEX-AL-PEX, CPVC, ABS or PVC plastic pipe or any other potentially hazardous building material, CEQA requires that public agencies be fully informed about the potential impacts of these products on public health and the environment. The California Court of Appeal recently upheld the applicability of CEQA to the approval of proposed building standards in the *Plastic Pipe and Fitting Association v. California Building Standards Commission* (2004), 124 Cal. App. 4th 1390 ("*PPFA v. CBSC*") case. San Francisco was involved in that case as amicus curiae. 17-4

San Francisco has a direct interest in ensuring environmental review of these plastic pipe components because the proposed regulations require local entities to allow their use within each jurisdiction, unless specific findings can be made. Accordingly, we believe that it is critical that state agencies be fully informed of a new building material's potential impacts before deciding on a course of action. Once approved at the state level, local governments are limited in their authority to restrict the use of building 17-5 17-6

materials at the local level. Our building department would thus be required to allow the use of CPVC, PEX, PEX-AL-PEX, ABS and PVC even if the Commission adopted these regulations without adequate environmental review. 17-6 (cont.)

1. The Environmental Impact Report Prepared on CPVC Fails to Adequately Evaluate Numerous Significant Impacts.

In support of the proposed regulations to expand the approved use of CPVC potable water pipe, the Department of Housing and Community Development ("HCD") has prepared a Draft Environmental Impact Report ("DEIR"), dated July 2006. We believe the CPVC DEIR inadequately evaluates or fails altogether to evaluate numerous potential impacts associated with the expanded approval. In addition, the DEIR fails to adequately assess alternatives or identify sufficient mitigation measures to address these impacts. 17-7 17-8

For example, the DEIR ignores the difficulties cities have faced in recycling and disposing of CPVC. The DEIR concludes that recycling and reuse of CPVC pipe is both technically feasible and likely given current trends in plastic recycling. This conclusion fails to take into account the well-documented difficulties in recycling CPVC. 17-9

The DEIR must also be revised to evaluate evidence that the expanded approval of CPVC may result in significant worker health and safety impacts. Dr. Jim Bellows provided comments on September 8, 2006, concluding that "workers who install CPVC pipe are likely to be overexposed to toxic primer and cement solvents above the legal limits on a regular basis." He also concludes that the current requirement that workers use nitrile gloves fails to mitigate these impacts and "could actually increase absorption of contaminants." 17-10

Rather than evaluating the evidence of potential worker health impacts, the lead agency claims that it is not legally required to evaluate this issue. HCD claims that the 2000 Mitigated Negative Declaration on the restricted, discretionary approval of CPVC pipe provides safe harbor from having to evaluate this issue in the context of the proposed expanded, non-discretionary approval of CPVC pipe. This position is both legally incorrect and bad public policy. 17-11

Tiering, or relying on an earlier environmental document, is appropriate "when the sequence of analysis is from an EIR . . . to an EIR or negative declaration." (CEQA Guidelines § 15152(b).) The DEIR, however, improperly attempts to tier from a prior mitigated negative declaration. An EIR may not tier from a narrower project of lesser scope. (CEQA Guidelines § 15152(a) and (b).) There can be no dispute that the restricted use of CPVC evaluated in the 2000 Mitigated Negative Declaration was significantly narrower in scope than the proposed expanded approval evaluated in the DEIR. 17-12

In addition, refusing to evaluate credible evidence that the proposed regulations may potentially expose workers to toxic chemicals is bad public policy. HCD's refusal to evaluate this issue needlessly and unreasonably puts the health and safety of the workers in our jurisdiction at risk. 17-13

Finally, the DEIR admits that the expanded approval of CPVC will result in significant air quality impacts, yet fails to evaluate environmentally preferred alternatives to CPVC. The DEIR states that the solvents used to install CPVC pipe are significant sources of ozone and smog. Ozone and smog pollution are serious health issues in our air basin. Smog exposure is known to cause numerous serious illnesses and deaths. It results in permanent deficits to children's lung development and is linked to the development of asthma in healthy children. 17-14 17-15

The current approved use of CPVC potable water pipe is both limited and discretionary; thus mitigating the potential impact on air quality. The proposed expanded approval of CPVC, however, eliminates these feasible mitigation measures. 17-16

In addition, the DEIR fails to evaluate and identify environmentally superior alternatives to the expanded approval of CPVC. The DEIR identifies several Project alternatives, yet fails to take the required step of evaluating which alternative is the environmentally superior option. (DEIR at p. 3; CEQA Guidelines § 15126.6.) The DEIR must be revised and recirculated to evaluate potential alternatives that may eliminate or reduce air quality and other impacts. 17-17

Under the nine point criteria of Health and Safety Code section 18930, proposed building standards may not be approved where their adoption would not be in the "public interest" or would be "unreasonable, arbitrary, unfair or capricious." The expanded approval of CPVC pipe without first complying with CEQA and adequately evaluating and mitigating the potential impacts on workers, consumers and the general public would be both "unreasonable, arbitrary, unfair or capricious" and contrary to the "public interest." Accordingly, we urge the California Building Standards Commission to "disapprove" or "hold for further study" the proposed regulations expanding the approval of CPVC pipe. 17-18

2. An EIR Must Be Prepared Prior to the Approval of PEX and PEX-AL-PEX.

In support of the proposed regulations approving PEX and PEX-AL-PEX potable water pipe, HCD has released a Negative Declaration, dated September 2006. This Negative Declaration, however, is insufficient to meet the requirements of CEQA and to ensure the protection of the public. A negative declaration is improper, and an EIR is required, whenever substantial evidence in the record supports a "fair argument" that significant impacts may occur. (Pub. Resources Code § 21080.)

Substantial evidence of potential impacts from the use of PEX and PEX-AL-PEX has been submitted to HCD during several past proceedings, including the proceedings reviewed by the court in the *PPFA v. CBSC* case. The court in that case found that a letter by plastic pipe expert Thomas Reid raised grave concerns about the potential dangers posed by the use of PEX, "including the potential for (1) chemical leaching of substances from the pipes; (2) permeation of the pipes by toxic substances contained in the surrounding soil and groundwater; (3) mechanical failure of the pipes; and (4) rupturing of the pipes when exposed to high heat, which may create openings that could contribute to the spread of fire." (*PPFA v. CBSC*, 124 Cal. App. 4th at 1407.) The court then concluded that "the Reid letter is substantial evidence . . . that PEX potentially may

present an unreasonable risk of harm." (*Id.*) In light of this holding, an EIR must be prepared.

Moreover, approval of PEX and PEX-AL-PEX without proper environmental review would not be in the public interest. There is substantial evidence that the approval of PEX and PEX-AL-PEX piping for potable water plumbing systems may result in significant public health and environmental impacts. The Negative Declaration fails to adequately evaluate or mitigate these impacts.

For example, the negative declaration fails to evaluate the potential increased solid waste disposal impacts due to the potential switch from recyclable copper pipes to non-recyclable PEX pipes. The 2005 draft "Plastic Pipe Alternatives Assessment" found that the recycling market for PEX pipe is "very limited" and that PEX "can never be closed loop recycled." (Rossi, et al, Draft Plastic Pipe Alternatives Assessment (2/11/2005) at p. 17.) The Assessment also found that PEX pipe was the only plastic not accepted by any of the regional plastic recyclers in the Bay area. (*Id.* at p. 16.)

The limited discussion of solid waste impacts contained in the Negative Declaration is also inadequate because it limits its analysis to "tear-downs." This analysis fails to account for the potentially much larger source of waste resulting from the re-piping of homes that are not being torn down.

The Negative Declaration also fails to adequately evaluate concerns over permeation, leaching, biofilm, fire and premature rupture impacts. The Negative Declaration admits that each of these issues is a concern with PEX and PEX-AL-PEX, yet then summarily dismisses these concerns without adequate evaluation or mitigation. For example, the Negative Declaration concludes that no substantial evidence exists that the approval of PEX may result in significant impacts despite its admissions that:

- Tests have shown that PEX and PEX-AL-PEX pipe may leach high levels of MTBE and that PEX should not be used in areas of the state with MTBE water contamination. (Id. at pp. 7-8.)
- PEX pipe that meets ASTM standards "may fail in the field before 50 years, especially if it has suffered stabilizer loss due to other factors." (Id. at p. 5.)
- PEX is subject to permeation by toxic chemicals when exposed to contaminated soils or when sprayed with termiticides or pesticides. (Id. at p. 7.)
- PEX may increase the risk of exposure to Legionella due to biofilm formation for at least the first two years of its use. (PEX Initial Study/Negative Declaration at p. 11.)

The conclusory dismissal of these concerns is logically inconsistent with the admissions of fact in the Negative Declaration. Moreover, while admitting that PEX is subject to each of these concerns, the Negative Declaration fails to impose any mitigation measures to address these issues.

CEQA requires the preparation of an EIR where any substantial evidence exists of potential impacts, even where contrary evidence may exist. (*Stanislaus Audubon v.*

County of Stanislaus (1995) 33 Cal.App.4th 144, 150-151) Accordingly, the admission of potential impacts requires the preparation of an EIR even if the Negative Declaration concludes that other factors may argue against the likelihood of such impacts occurring. An EIR must be prepared to evaluate the evidence of these impacts and to determine if feasible alternatives exist or if mitigation measures can be imposed to reduce these risks.

Approval of PEX and PEX-AL-PEX pipe without first preparing an EIR would be contrary to CEQA and the nine point criteria of Health and Safety Code section 18930. Such approval would be both "unreasonable, arbitrary, unfair or capricious" and contrary to the "public interest." Accordingly, we urge the California Building Standards Commission to "disapprove" or "hold for further study" the proposed regulations allowing the use of PEX and PEX-AL-PEX plastic pipe.

3. An EIR Must Be Prepared Prior to the Approval of PVC and ABS Drain, Waste and Vent Pipe.

HCD has proposed lifting its restrictions on the use of PVC and ABS DWV pipes. To date, no environmental review has been prepared to evaluate the potential impacts of this proposed approval.

We believe that an EIR must be prepared prior to the expanded approval of PVC and ABS DWV pipe. The current restrictions on PVC and ABS DWV pipe are, in part, due to concerns over the increased risk of fire spread these materials may pose. DWV pipes are large in diameter, increasing the risk of fire spread to other rooms in a dwelling. ABS is considered particularly flammable and releases thick choking smoke when burned. Like CPVC, PVC releases cancer-causing dioxins when burned.

ABS also has a history of premature failure. In addition, both PVC and ABS are susceptible to degradation if certain substances are disposed down the drains. Failure of DWV pipes presents a significant health hazard because they carry sewer gas and human waste.

Like CPVC, ABS and PVC are installed using toxic solvents. The expanded use of these solvents may have cumulatively significant impacts on air quality and worker health and safety.

We urge the California Building Standards Commission to ensure that an adequate EIR is prepared to evaluate the proposed regulations expanding the approved use of PVC and ABS DWV pipe. Until such an EIR is prepared, these proposed regulations are not appropriate for adoption under the nine point criteria of Health and Safety Code section 18930. Such approval would violate CEQA and be both "unreasonable, arbitrary, unfair or capricious" and contrary to the "public interest." We respectfully request the California Building Standards Commission to "disapprove" or "hold for further study" the proposed regulations expanding the allowed use of PVC and ABS DWV pipe.

Conclusion

We are concerned that the proposals before the California Building Standards Commission to approve or expand the approved uses of CPVC, PEX, PEX-AL-PEX, ABS or PVC plastic pipe may needlessly put the workers, homeowners, and residents of the City and County of San Francisco at risk. Approval of these products without first resolving the numerous concerns associated with their use is bad public policy and is inconsistent with the requirements of CEQA. 17-19

The City and County of San Francisco respectfully asks the Commission to reject the proposed regulations permitting the use of CPVC, PEX, PEX-AL-PEX, ABS and PVC plastic pipes until full environmental review is completed. 17-20

Thank you for considering our comments.

Very truly yours,

DENNIS J. HERRERA
City Attorney

Kate H. Stacy
Deputy City Attorney

cc: Lynn Jacobs,
Director, Department of Housing and Community Development

Response to Letter 17: City and County of San Francisco

Comment 17-1. The Lead Agency disagrees with this comment. The Lead Agency believes that there is no need to set the Project aside for further study because the current EIR fully complies with CEQA and adequately evaluates and mitigates the potential impacts of the Project.

Comment 17-2. The Lead Agency believes that the Recirculated Draft EIR adequately examines the potential public health and safety impacts associated with the Project.

Comment 17-3. The Lead Agency believes that the Recirculated Draft EIR complies with the requirements of CEQA.

Comment 17-4. The Lead Agency has prepared the current EIR pursuant to CEQA, and the Lead Agency believes that the EIR satisfies the informational standards set forth in this comment.

Comment 17-5. The proposed regulations that comprise the Project provide that local jurisdictions shall allow the use of CPVC, and do not authorize local jurisdictions to make specific findings that CPVC should not be allowed.

Comment 17-6. The Lead Agency believes that an adequate environmental review of the proposed deletion of the Findings Requirement has been conducted. The Lead Agency also notes that CPVC pipe has already been "approved at the state level" and the proposed action is the deletion of the Findings Requirement currently contained in the code.

Comment 17-7. The initial Draft EIR has been revised and recirculated. The Lead Agency believes the Recirculated Draft EIR adequately evaluates all potentially significant environmental impacts associated with the Project.

Comment 17-8. The initial Draft EIR has been revised and recirculated. The Recirculated Draft EIR includes a new section analyzing project alternatives and additional mitigation measures.

Comment 17-9. Please see the revised and expanded analysis of solid waste impacts in the Recirculated Draft EIR (Sec. 4.5, pp. 155 et seq.). As explained in the Recirculated Draft EIR, the Lead Agency has found no evidence indicating that there would be a lack of sufficient permitted landfill capacity to accommodate the Project's solid waste disposal needs. CPVC is typically not disposed in landfills during most pipe replacement jobs. Rather, existing pipe is left in the structure and not disposed. A minor amount of scraps from CPVC pipe are discarded during CPVC installation. Most disposal of CPVC pipe in landfills would occur when residential structures with CPVC plumbing are demolished.

The Lead Agency believes that substantial evidence supports the conclusion of the Recirculated Draft EIR that recycling and reuse of CPVC is technically feasible and likely. For instance, a draft report by the San Francisco Department of the Environment submitted to the Lead Agency as Appendix 21 to Comment Letter 12, indicates on Table 5 on page 16 that five companies

within San Francisco accept drop off of PVC/CPVC pipe for recycling. As the analysis of solid waste impacts in the Recirculated Draft EIR explains, given current trends in plastic recycling, recycling of CPVC is likely to become more prevalent by the time residential structures plumbed with CPVC pipe are demolished.

Comment 17-10. The initial Draft EIR has been revised and recirculated. Section 4.4 of the Recirculated Draft EIR evaluates potential impacts to worker safety during the installation of CPVC pipe as part of the proposed project. As requested in this comment, the revised worker safety analysis in the Recirculated Draft EIR reflects the Lead Agency's review and consideration of the comments made by Dr. Jim Bellows on September 8, 2006 regarding the Draft EIR.

The Recirculated Draft EIR analyzed in depth the potential impacts to worker safety from exposure to CPVC solvents. In particular, the Recirculated Draft EIR reviewed and analyzed findings from the 1989 study by the Department of Health Services (DHS), *Plastic Pipe Installation: Potential Health Hazards for Workers*, by Kizer, K.W. et al. (hereinafter, the "1989 DHS Study") regarding short-term worker exposure (RDEIR, pp. 144-147) and full-shift worker exposure (RDEIR, pp. 147-149) to chemicals associated with CPVC solvents and cements during installation, namely acetone (ACE), cyclohexanone (CHX), methyl ethyl ketone (MEK), and tetrahydrofuran (THF).

Regarding short term exposure, the results of the 1989 DHS study indicated that installers of CPVC pipe experienced very low levels of exposure to the solvents even though most workers did not follow safety instructions. Even the few overexposures that did occur were recorded in very low air flow areas. Thus, it is anticipated, based on available data in the record, that improvements in ventilation, as required by following proper safety procedures and the mitigation measures that were included in the California Plumbing Code as part of the Project evaluated in the 2000 Mitigated Negative Declaration, would minimize or eliminate these exposure risks. Specifically, Section 301.0.2.1 of Appendix I, Installation Standards, California Plumbing Code requires mechanical ventilation to maintain exposures in enclosed spaces to below relevant exposure limits, and where mechanical ventilation is not practical, requires the use of respirators suitable for protecting against organic vapors. (RDEIR, pp. 145-146.)

The short-term exposure data in the 1989 DHS Study is supported by a June 1982 study performed by the National Institute for Occupational Safety and Health (NIOSH) to evaluate possible hazards to plumbers and pipefitters resulting from exposures during the installation of plastic pipe. (NIOSH, Health Hazards Evaluation Report No. 82-293, p. 1.) The NIOSH report also found that short-term exposure levels to tested chemicals were below applicable exposure criteria except for one THF sample. (NIOSH, Health Hazards Evaluation Report No. 82-293, p. 1s.) The mitigation recommendations proposed by NIOSH were similar in nature to the mitigation contained in the Recirculated Draft EIR. (*See* NIOSH, Health Hazards Evaluation Report No. 82-293, p. 20.)

As discussed on page 146 of the Recirculated Draft EIR, the 1989 DHS study noted that the short-term "index of combined exposure" exceeded the limit for six samples. Cal/OSHA

regulates exposure to contaminants that may have an additive health effect. Nevertheless, the highest exposure levels experienced by installers occurred in enclosed areas with low ventilation. As such, impacts related to installation in low ventilated areas can be fully avoided or adequately minimized by following proper safety procedures and requirements in Section 301.0.2.1 of Appendix I, Installation Standards, California Plumbing Code, which require mechanical ventilation or respirators as necessary.

Full-shift worker exposure was analyzed on pages 147 to 149 of the Recirculated Draft EIR. As shown on page 148 of the Recirculated Draft EIR, none of the full-shift exposures for ACE, MEK, THF, and CHX exceeded the full-shift exposure limits set by Cal/OSHA, and the full-shift "index of combined exposure" exceeded the limit for one worker. Nevertheless, the highest exposure levels experienced by installers occurred in enclosed areas with low ventilation. As such, impacts related to installation in low ventilated areas can be fully avoided or adequately minimized by following proper safety procedures and requirements in Section 301.0.2.1 of Appendix I, Installation Standards, California Plumbing Code, which require mechanical ventilation or respirators as necessary.

The 1982 NIOSH report supports this conclusion, finding that none of the calculated "combined effects" of the tested exposure limits exceeded applicable full-shift exposure criteria. (NIOSH, Health Hazards Evaluation Report No. 82-293, p. 14.) The 1982 NIOSH report also noted that health complaints were most often associated with working in confined places, and as a result recommended that workers install plastic pipe in properly ventilated areas or wear protective masks. (NIOSH, Health Hazards Evaluation Report No. 82-293, pp. 15, 20.)

The Recirculated Draft EIR also analyzed potential impacts to worker safety through dermal exposure. As discussed on page 149 of the Recirculated Draft EIR, proper installation of CPVC pipe would minimize or eliminate the risk for dermal exposure during installation of CPVC piping. Specifically, Section 301.0.2.2 of Appendix I, Installation Standards, California Plumbing Code requires use of non-latex thin gauge (4 millimeters) nitrile gloves, or other gloves providing an equivalent or better degree of protection, during the installation of CPVC plumbing systems. Of ACE, MEK, THF and CHX, Cal/OSHA regulations only require skin protection for CHX. (Cal. Code of Regulations, Title 8, Section 5155(d); Cal. Code of Regulations, Title 8, Section 5155, Table AC-1, Permissible Exposure Limits for Chemical Contaminants.) Nitrile gloves have been shown to provide adequate short term exposure protection for CHX. (RDEIR, p. 149.)

Moreover, Section 301.0.2.2 of Appendix I, Installation Standards, California Plumbing Code, requires that nitrile gloves must be discarded and replaced upon contamination, which would make nitrile gloves adequately effective against dermal exposure. However, ACE, MEK, THF and CHX should not contaminate the gloves if daubers are properly used during installation to avoid skin contact, as is required for proper installation. (RDEIR, p. 150.) Thus, the glove mitigation measure included in Section 301.0.2.2 provides a second line of defense for workers, with the first line of defense being the use of daubers or other applicators to prevent direct contact with workers' hands.

Given the foregoing, the Recirculated Draft EIR is not relying on mitigation measures that would actually increase dangers to workers. To the contrary, with the application of the mitigation measures and safety procedures discussed in the Recirculated Draft EIR, impacts to worker safety would be less than significant.

Comment 17-11. The Lead Agency has thoroughly evaluated potential impacts to worker safety related to the Project in Section 4.4 of the Recirculated Draft EIR. The Recirculated Draft EIR fully evaluates worker safety impacts based on all available evidence and does not, as the commenter suggests, try to avoid a proper review by claiming a "safe harbor" under the 2000 Mitigated Negative Declaration. However, as explained below in the response to Comment 17-12, relying on the prior analysis in the 2000 Mitigated Negative Declaration, and the record supporting it, is appropriate to the extent that the proposed changes to the California Plumbing Code that comprise the Project will not result in new or substantially more severe potentially significant environmental impacts.

Comment 17-12. The reliance upon the analysis set forth in the 2000 Mitigated Negative Declaration is appropriate and does not violate CEQA. As explained in Section 3.3.1 of the Recirculated Draft EIR, the current EIR is a subsequent EIR to the 2000 Mitigated Negative Declaration prepared pursuant to CEQA Guidelines Section 15162. A subsequent EIR does not involve "tiering." The preparation of a "tiered" EIR is fundamentally different in nature than the preparation of a subsequent EIR, and the CEQA Guidelines specifically allow the use of a subsequent EIR to a prior mitigated negative declaration.

CEQA Guidelines section 15152, which the commenter cites as standing for the proposition that "[a]n EIR may not tier from a narrower project of lesser scope," applies to "tiering" of EIRs, which is fundamentally different in nature from the use and purpose of a subsequent EIR. "Tiering" refers to the coverage of general matters and environmental effects in a broad EIR prepared for a policy, plan, program, or ordinance followed by a narrower or site specific EIR that provides a detailed study of issues specific to a later, specific project based on the earlier approval of the policy, plan, program, or ordinance. Cal. Pub. Res. Code § 21068.5.

The current EIR instead involves a change to an earlier approved code provision (which is analogous to an ordinance). Rather than CEQA Guidelines Section 15152, changes to previously projects must be evaluated as required by CEQA Guidelines Section 15162, which requires preparation of a subsequent EIR if changes to a project are proposed which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. The Lead Agency decided to prepare the current EIR after determining that the Project would change the provisions of the California Plumbing Code that were analyzed in the 2000 Mitigated Negative Declaration in a manner that could involve such new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

Comment 17-13. The initial Draft EIR has been revised and recirculated. The Lead Agency has thoroughly evaluated potential impacts to worker safety related to the Project in Section 4.4 of

the Recirculated Draft EIR. The Recirculated Draft EIR fully evaluates worker safety impacts based on all available evidence.

Comment 17-14. The initial Draft EIR has been revised and recirculated. The Recirculated Draft EIR evaluates and identifies an environmentally superior alternative to the Project. However, the Recirculated Draft EIR does not evaluate "environmentally preferred alternatives *to CPVC*," because such alternatives would fail to attain the most basic objectives of the Project. The projective objective is set forth in full in Section 3.4 of the Recirculated Draft EIR, and is "to remove the 'Findings Requirement' from the California Plumbing Code thereby allowing unconditional use of CPVC throughout California as an alternative pipe material for residential potable water plumbing systems."

Comment 17-15. This comment is informational in nature and does not include a specific issue with the DEIR. No response is necessary. However, the Lead Agency wishes to clarify that the solvents used to install CPVC pipe are sources of reactive organic gases ("ROGs"), which contribute to the formation of ozone and smog, rather than a direct source of ozone and smog.

Comment 17-16. Maintaining the existing Findings Requirement is not a feasible mitigation measure, as such a "mitigation measure" would prevent the most basic objectives of the Project from being attained. The projective objective is set forth in full in Section 3.4 of the Recirculated Draft EIR, and is "to remove the 'Findings Requirement' from the California Plumbing Code thereby allowing unconditional use of CPVC throughout California as an alternative pipe material for residential potable water plumbing systems."

Comment 17-17. The initial Draft EIR has been revised and recirculated. The Recirculated Draft EIR includes a new chapter analyzing alternatives to the Project, which identifies an environmentally superior alternative as required by CEQA.

Comment 17-18. The initial Draft EIR has been revised and recirculated. The Lead Agency believes that the Recirculated Draft EIR complies with CEQA, adequately evaluates all potentially significant environmental impacts, and identifies all feasible mitigation measures. Therefore, the Lead Agency believes that further study is unnecessary.

Comment 17-19. The initial Draft EIR has been revised and recirculated. The Lead Agency believes that the Recirculated Draft EIR complies with CEQA, adequately evaluates all potentially significant environmental impacts, and therefore resolves the concerns that have been raised regarding the Project.

Comment 17-20. The initial DEIR has been revised and recirculated. Full environmental review of the Project has been completed.[48]

[48] The comments contained in this letter relating to PVC, ABS, PEX and PEX-al-PEX do not relate to the DEIR or to the proposed deletion of the Findings Requirement for CPVC.

P.O. Box 940, Franklin, IN 46131-0940
Tel: (317) 346-6442 Fax: (866) 206-8110
akiretajr@cda.copper.org

18

CDA
Copper Development Association Inc.

December 20, 2006

Department of Housing and Community Development
Robin Gilb, Staff Counsel
P.O. Box 952052
Sacramento, CA 94252-2052

RE: Public Comment on the Recirculated Draft Environmental Impact Report (RDEIR) *Adoption of Regulations Permitting Statewide Residential Use of Chlorinated Polyvinyl Chloride (CPVC) Plastic Pluming Pipe without First Making a Finding of Potential Premature Metallic Pipe Failure Due to Local Water or Soil Conditions* (State Clearinghouse No. 2006012044) – Prepared by the State of California Department of Housing and Community Development, November 2006.

Department of Housing and Community Development:

The Copper Development Association Inc., as representatives of the U.S. copper industry, has no intention to unnecessarily or arbitrarily limit the use and acceptance of competing products in the California market. However, thorough review of the above referenced RDEIR on the use of CPVC piping demands comment on the overall document and some of its specific contents.

We will not attempt to dissect the technical or scientific merit or credibility of each specific finding of the RDEIR or the referenced documents on which it is based. Rather, we will address findings and conclusions that represent assumptions or opinions based on referenced information primarily submitted by the manufacturers of CPVC products in support of their materials. While many of these referenced documents may be technical in nature, they present themselves as not much more than marketing materials developed to support a predetermined conclusion. It would be prudent to evaluate the scientific merit and credibility of these documents, as well as what bias they may contain, before accepting them for consideration. **18-1**

Throughout the RDEIR, the current use of copper piping systems in residential construction in California is considered the current environmental setting upon which the adoption of CPVC for statewide use is based (notwithstanding a finding of potential premature metallic pipe failure). However, rather than assessing the actual environmental impacts associated with this additional use of CPVC, much of this RDEIR is written to negatively position current copper installation and use. **18-2**

For example, in Section 4.3.1.1 at page 107, a reference to the installation of CPVC pipe and fittings states, "The 2000 MND took the installation requirements one step further for CPVC pipe within residential structures by incorporating specific worker safety measures into the regulation <u>and also requiring that the pipe be flushed prior to first use by the resident.</u> *{emphasis added}*" This is presented as a positive attribute related to limitation of environmental impacts associated with the use and installation of CPVC piping without regard to, or mention of, the hazardous materials that this procedure is meant to remove from the system in order to prevent their introduction to the consumer. **18-3**

However, on page 114 of Section 4.3.1.2, the author discusses the initial flushing of copper systems and states, "The materials in water-soluble fluxes, and the pipe, fitting, and solder

Main Office: 260 Madison avenue, New York New York 10016-2401 Tel: (212) 251-7200 Fax: (212) 251-7234
http://www.copper.org

components dissolved by the corrosive materials in flux, will likely be present in very high concentrations in the first water drawn from a newly installed or repaired system." And, at page 115, the author specifically portrays "solder dross" and initial flushing residue from copper piping installation as hazardous waste without any relevant supporting evidence or information. **18-3 (cont.)**

This is presented as a specific example of numerous instances throughout the RDEIR where the potential and yet unknown environmental impacts of the use of CPVC are positioned in the best possible light, and the worst case examples of current copper use are used to position copper in the worst possible light to better the case for the adoption of CPVC without solid evidence of lessened environmental impact. **18-4**

Another example of this is shown in Section 4 at pages 139 and 146 and again in Section 5.3.1. Here, in discussion of potential risks of the installation of copper piping systems, the author states "Copper pipe also poses a risk of electrocution because it is an excellent conductor of electricity." The author then proceeds to state, "Pressure testing of the piping system also presents a rare but dangerous risk where piping failure results in pieces of failed pipe being propelled outward. Such events can pose risk of very serious injury to anyone struck by the propelled pipe." **18-5**

These can hardly be seen as risks related to the installation of copper piping systems that are either valid, likely or copper-specific. We can think of no likely jobsite scenarios at which the usual and proper jobsite safety procedures are followed where the installation of copper piping would present a credible risk of electrocution to workers that would not be considered a "freak" accident. As for the second finding, this scenario is not unique to copper piping systems. In fact, failure during pressure testing would be of greater concern when testing CPVC piping systems. **18-6** **18-7**

Pressure testing is a common method of testing piping systems, regardless of material. Failures other than simple pressure leaks can generally occur in two ways. First, improperly made joints in the system, or joints that were not completed, could separate and possibly cause individual piping components to be propelled from the system. This is an unusual occurrence, and is not material or copper-specific. A plastic valve in a CPVC piping system is just as likely to fail and cause damage in this manner as a brass valve in a copper system, or a steel valve in a steel system. Regardless of the material, this would be considered and uncommon occurrence because most piping components, with the possible exception of pipe caps or test plugs are generally restrained on both sides by piping and would not be likely to be ejected from the system.

The second potential mode of failure would be catastrophic failure of the pipe, fitting or system component. In such case, copper piping system components would be considered superior to CPVC due to copper's higher pressure ratings and its actual mode of failure. Copper tube and fittings generally have burst pressures that exceed those of CPVC piping by a factor of 2, 3, 4 or more times, thus making copper <u>less</u> likely than CPVC to fail in this manner. In the event of catastrophic pressure failure of copper components, copper is a ductile material that would fail through ductile deformation of the tube or fitting wall, ending in a longitudinal split in the component (due to the nature of the "hoop-stress" failure). Once this split occurred, excess pressure would be relieved leaving the component intact. Conversely, CPVC materials under excess pressure can either split in a ductile manner, or exhibit brittle failures where the subject component can essentially explode ejecting pieces of the subject component. It is for this reason that air testing of plastic piping systems is not generally recommended, required or even allowed by many plumbing codes, while copper can be safely pressure tested using either water or air. **18-8** **18-9**

Throughout this RDEIR, the author repeatedly and specifically discusses lead leaching in potable water systems and worker exposure to lead in solders during copper piping installation as an inherent environmental risk associated with the current environmental setting. This is inappropriate in an evaluation of the current environmental setting, as the author recognizes that the USEPA Safe Drinking Water Act, all nationally recognized plumbing codes, the California Plumbing Code and thus specifically California law prohibits the use of solders and fluxes that contain more than 0.2 percent lead in the installation of copper piping systems. Nonetheless, the author makes the case that this is appropriate, since the use of lead-bearing solders and fluxes are available and can be used illegally without adequate enforcement of these California provisions specifically enacted to protect the consumer. **18-10**

However, throughout the evaluation of materials, the author fails to apply similar logic in the evaluation of the materials used to join CPVC pipe and fittings. It is recognized that the solvent cements used to install CPVC systems contain a number of toxic and carcinogenic materials. The analysis of the environmental impact of the use of these materials is based on the legal and proper use of approved solvent cements, not the improper or excessive use of the materials, or the illegal use of nonapproved solvent cements, cleaners and/or primers for use in joining other plastic materials, products and systems. **18-11**

The basic environmental analysis of CPVC pipe and fittings themselves is based on the use of approved and therefore "legal" pipe and fitting products. From the public health standpoint, this approval is based on products meeting the requirements of the NSF 61 standard. It is therefore assumed, and taken for granted in the environmental impact analysis of the use of CPVC, that all CPVC piping products meet NSF 61, or that the requirement mandated by California law that all potable water piping products meet NSF 61 is sufficient to insure that noncompliant products are not manufactured, sold or installed in California. **18-12**

However, much of the analysis of copper as the current environmental setting assumes just the opposite — that the regulations requiring these products to meet NSF 61 requirements does not ensure the same level of environmental protection. This is misleading and, in our opinion improper, considering the potential environmental and health impacts associated with toxic compounds from which CPVC materials are made. While the author repeatedly portrays the basic components of CPVC as common table salt and ethylene in an attempt to downplay the environmental impact of the materials, in reality, the basic building block of this material is vinyl chloride. Vinyl chloride is a known human carcinogen[1] that has been linked to angiosarcoma of the liver and other cancers of the liver, brain, lung, lymphatic and hematopoietic systems (organs and tissues involved in production of blood). While it is recognized and reported that copper in high, acute doses is considered toxic with potential acute human health effects, it is not bioaccumulative or carcinogenic. It is our opinion that the subject environmental analysis is unduly weighted towards promulgation of negative perceptions of the current environmental setting without similar or due treatment of the impacts of the use of CPVC. **18-13** **18-14**

Much of the technical aspects of the RDEIR supporting the use of CPVC, and quantifying and evaluating the impacts of its use are taken from the 1998 EIR. However, it is evident in the analysis of the use of copper as the current environmental setting that the scientific evidence published with the 1998 EIR as public comment related to the environmental impact of copper in general and to specific watersheds of California were neglected. We will not reproduce those **18-15**

[1] 11th Report on Carcinogens, U.S. Department of Health and Human Services, Public Health Service, National Toxicology Program: Substance Profile, Vinyl Chloride CAS No. 75-01-4

comments here; however, those original comments, as well as data developed in working with specific California Regional Water Quality Control Boards since 1998 on the environmental impacts of copper in specific California water bodies, provide a firm, scientific foundation related to these impacts that are opposite those portrayed in the subject RDEIR. 18-16

For example, on page 116, the author states, "Of the copper contributed to the Lower South SF Bay by wastewater, a large percentage is believed to be from copper pipe corrosion." Taken at face value, and as referenced, this statement could be considered true. However, in evaluation of the true environmental impact of the use of copper piping as the current environmental setting this treatment is out of context and inadequate. It does not attempt to consider or even acknowledge that the overall copper contribution from wastewater point sources is small in comparison to copper accumulation in these water bodies from non-point sources such as automotive brake pad dust and agricultural chemicals. 18-17

Chapter 6.0 exhibits numerous examples where valid, credible, scientific information submitted and published in comment to the frequently referenced 1998 EIR were selectively neglected. More importantly, this existing data, known to the author, is neglected in favor of numerous referenced documents submitted and published by Noveon Inc. and the Plastics Pipe and Fittings Association as manufacturers and proponents of plastic piping systems, respectively. The discussion does not reference unbiased third-party data or even consideration of alternative data submitted in support of copper systems. Alone, this referenced data should be considered nothing more than technical marketing information designed specifically to support the acceptance of the material. 18-18

In this chapter at page 220, it is assumed and taken as fact that CPVC systems have an estimated service life of 50–75 years, and, for comparison purposes, 50 years is assumed reasonable. This assumption has no basis in fact. While various iterations of CPVC systems and products have been in existence for 50 years, their use until recently has been highly limited and cannot reasonably be expected to be an estimate of true service life. Plastic piping systems and CPVC systems, in particular, can and do fail in service. However, due to their limited use and market share at this stage of their product life, it is normal, as with any product, that these failures are not easily found or identified. The pictures below (Figure 1 and Figure 2) are representative of CPVC piping removed from a condominium complex in Washington State. All of the CPVC piping was removed from this complex upon failure and replaced. These pictures were taken as the piping was removed and was on its way to the landfill. 18-19 18-20

On the other hand, copper piping systems have been in widespread use in the USA for more than 75 years, with the dominant market share in water distribution for more than 50 years beginning in the 1950s. With such ubiquitous use, it is no surprise that evidence of copper piping failures are more readily and publicly available. But this also means that knowledge based on actual product usage and peer-reviewed scientific research on the causes and prevention of these failure modes are also publicly and readily available, due in no small part the copper industry's long-standing practice of educating consumers on the positive benefits of the use of copper piping systems as well as the common causes for product failure and proper recommendations for consideration of appropriate use. 18-21

With the widespread, long-term use of copper piping systems and the industry's efforts to conduct appropriate failure research in the public arena, it is understandable that the perception exists that copper piping failures are prevalent, when, in fact, this is not true. Current research being conducted as a part of several American Water Works Association Research Foundation (AWWARF) studies indicates that, while copper failures do occur, the number of failures in 18-22 18-23

comparison to the actual amount of total installed piping is small, on the order of less than 1%. With this in mind, perhaps the State of California would be better served in assessing the environmental impacts of this material by asking the producers of CPVC to present information on known product failures rather than just marketing information supporting its use. 18-23 (cont.) 18-24

Figure 1: Sample of CPVC Piping Removed from Condominium Complex after Failure

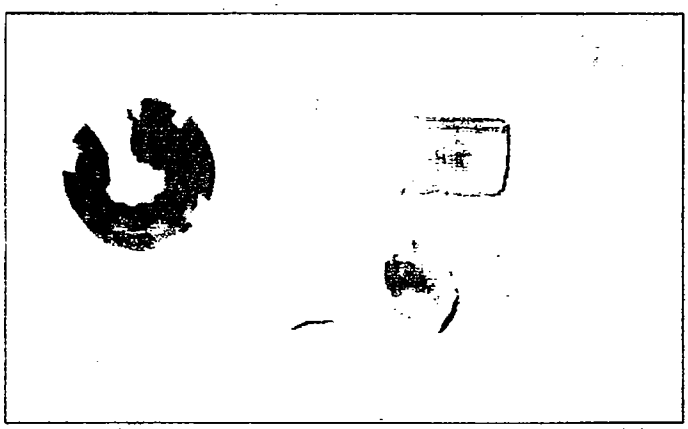

Figure 2: Sample of CPVC Piping Removed from Condominium Complex after Failure

Chapter 6.0 also presents information related to a comparison of the life-cycle energy savings of the use of CPVC piping in comparison with the use of copper piping as the current environmental setting. The assertion that CPVC piping has much lower heat loss than metal piping due to its lower coefficient of heat transfer is true. But, considering the current California regulations dictating that all hot water piping in new construction be insulated, the comparison of insulated copper systems versus insulated CPVC systems shown in the last half of the paragraph at page 218 is the only applicable comparison. This indicates that the difference in associated energy costs between the materials is marginal, and, in these types of analyses, differences this small are heavily affected by the assumptions made in performing the calculations and the actual system configurations used in the calculations. While this study shows a marginal energy savings in favor of CPVC systems, a similar comparison submitted and published with the 1998 EIR indicates the opposite. 18-25 18-26

Of greater importance is the misrepresentation of the results of this study at page 219, Here, the first three bullet point scenarios in each case do not present like-for-like comparisons of CPVC versus copper as the current environmental setting. These scenarios portray a comparison of an optimized CPVC system (called demand recirculation) versus. a standard copper system. This is like comparing apples to oranges. The large energy savings shown in these comparisons are solely attributable not to the piping material, but to the use of a demand recirculation system. These are systems that incorporate the use of a recirculating loop, pump and control systems to circulate hot water throughout the piping on demand (through appropriate switches, sensors and controls). 18-27

This type of system can be plumbed using any piping material, and comparable energy savings would be expected. Portrayal of these scenarios in this report is grossly misleading as a comparison of the acceptance of CPVC versus the current environmental setting. The only like-for-like comparison that is relevant in consideration of the approval of CPVC is represented by the fourth bullet point in each of the water use patterns shown at page 219.

Also in this chapter, the treatment and comparison of life-cycle costs of the production of CPVC versus copper are based wholly on assumptions and data presented by the manufacturers of CPVC products both in this RDEIR and the 1998 EIR. Once again, data contradicting this that were submitted and published as comments to the 1998 EIR were apparently neglected in this analysis. At page 200, the author states that, "CPVC and copper pipe have roughly the same energy content per residential unit" and "CPVC has lower thermal conductivity than the other materials approved for this use in California. Thus, overall, CPVC uses non-renewable resources and energy more efficiently than copper pipe." With consideration of the information above that many of the scenarios related to comparisons of energy consumption considered in this analysis are a function of system design rather than materials choice, this assumption is at the least overstated, if not entirely incorrect. 18-28 18-29

Finally, though common table salt may not be scarce, it is indeed a nonrenewable natural resource. This, however, is incidental. Of greater importance is the fact that 30%–40% of the product is not made from salt, but from ethylene a byproduct of oil or natural gas. While the author minimizes the importance of this component at page 217 by stating that, in relation to other plastics, the 30%–40% petroleum content in CPVC is considered low, it is 30%–40% higher than the petroleum content of copper piping, the current environmental setting to which this product is being compared (not other plastics). 18-30

Viewed in this light, the fact that 30%–40% of the content of the product under consideration is taken from an increasingly scarce, nonrenewable natural resource in the form of petroleum, this 18-31

18-31 (cont.)

impact should be accorded greater weight and consideration than was afforded in this brief assessment. Furthermore, while common table salt is the base natural resource for the other 60% of the product, it is in the form of chlorine, not table salt.

18-32

According to the Chlorine Institute, the largest percentage of all chlorine production in the United States is geared toward use in manufacturing plastics resins. The production and transportation of chlorine in the United States is an area of recent increased scrutiny and concern for the Department of Homeland Security and the National Transportation Safety Board due to its potential dangers in relation to terrorism, since chlorine gas generates large, lethal clouds within minutes of its release and can affect large geographic areas quickly. It is not known what impact this increased scrutiny and potential regulation may have on the availability and cost of chlorine as a component of CPVC plastics; however, there should be some concern related to the potential environmental impacts of this raw material, rather than a simple analysis based on the fact that it is derived from common table salt.

18-33

In conclusion, we would like to thank you for consideration of these comments on the subject RDEIR as well as the many technical comments we submitted on the 1998 EIR related to the comparison of CPVC versus copper piping as the current environmental setting. In consideration of the issues presented here, we strongly urge that more scrutiny be placed on the actual environmental impacts of CPVC in this analysis rather than the attempt to negatively position copper piping systems that have served California and the nation well for more than 75 years. We also ask HCD to consider that, in approving and publishing the RDEIR with unproven, potentially false and misleading claims against copper piping systems, it becomes the author of a publicly accepted testament which, undoubtedly, will be used in marketing material to denigrate a time-proven material.

Should you require further information or assistance, please can contact me at the phone number or address listed on this letterhead.

Sincerely,

COPPER DEVELOPMENT ASSOCIATION INC.

Andrew G. Kireta Jr.

Andrew G. Kireta, Jr.
National Program Manager
Tube, Pipe and Fittings

cc: A.G. Kireta Sr., President & CEO (CDA)
M. Martin, Chadbourne & Parke, LLP (CDA Legal Counsel)

Response to Letter 18: Copper Development Association Inc.

Comment 18-1. The Lead Agency has exercised its independent judgment in independently reviewing all materials considered and evaluated in the EIR.

Comment 18-2. This comment is largely unrelated to potentially significant impacts of the Project at had, and relates instead to the existing environmental setting and the No Project Alternative. The Lead Agency believes that the Recirculated Draft EIR is accurate, presents a balanced picture and fully and adequately analyzes the potential environmental impacts associated with the Project. However, as described below in the responses to several of the commenter's more specific comments, the Lead Agency has edited and revised portions of the Recirculated Draft EIR text in order to address the commenter's concerns. These revisions are located in Chapter 3.0 of this Final EIR.

It is not the intent of the Lead Agency to convey an impression that the continued use of copper pipe is generally undesirable, or that copper pipe is an inferior product that should be regulated or constrained by the State of California. Except in those areas where copper pipe, based on actual service history or water or soil conditions, has an expected service life significantly less than the useful life of a residential building, or would be used contrary to NSF 61 certification or manufacturer's use instructions, copper pipe appears to be highly suited to potable water conveyance. The evaluation of the potential significant impacts of the Project must be made in the context of the existing environment. Copper is the most widely used pipe material in residential potable water plumbing systems and, therefore, is a significant part of the existing environment as it relates to such systems. For that reason, it is inescapable that the existing use of copper pipe be considered in the EIR. It is necessary to address the potential environmental impacts of CPVC in relative terms, and this means in relation to the use of copper pipe. The Lead Agency has concluded, based on careful consideration and evaluation of the entire record, that CPVC pipe is as safe as copper pipe for potable water use in residential buildings.

One of the reasons why the Lead Agency found it necessary to discuss aspects of copper pipe which are not related to significant impacts in the context of CEQA is that similar issues have been raised concerning the use of CPVC pipe. For example, both CPVC and copper pipe can have trace contaminants. Some levels of these trace contaminants could be very harmful to humans and the environment at high levels of exposure. In both cases, however, the exposures from piping materials are so miniscule that there is no impact. The EIR refers to and relies upon toxicological information and formal risk assessment, and the Lead Agency has also applied logic to reach the conclusion that the trace contaminants in neither CPVC nor copper present any significant human health or environmental risks. However, the sciences of medical and environmental toxicology and the public policy realm of risk assessment are highly specialized and complex. One can always argue for more data when the issue is the introduction of a new product that would compete with existing products. Arguments on the risks and hazards of environmental contaminants are easy to frame. Arguments raising highly speculative concerns are often best understood by comparing them to known and widely accepted risks. The preponderance of the evidence suggests that CPVC pipe is as safe for humans and the environment as soldered copper pipe.

Comment 18-3. The contaminants the flushing mitigation measure is intended to remove from the system are described on page 107 of the Recirculated Draft EIR and consist of organotins, acetone, tetrahydrofuran, methyl ethyl ketone, and cyclohexanone. Potential leaching of these contaminants is also analyzed on pages 124-129 of the Recirculated Draft EIR.

Comment 18-4. Please see the response to Comment 18-2.

Comment 18-5. The Lead Agency acknowledges that this language was used as quoted in the Recirculated Draft EIR. It should be noted, this Final EIR reflects minor changes to the Recirculated Draft EIR that do not alter any of its conclusions, including removal of language on pages 139, 146 and 149 of the Recirculated Draft EIR related to worker safety impacts potentially associated with pressure testing of copper pipes. These revisions are located in Chapter 3.0 of this Final EIR.

Comment 18-6. Please see the response to Comment 18-5.

Comment 18-7. This Final EIR includes minor changes to the Recirculated Draft EIR that do not alter its conclusions, including removal of certain language on pages 139, 146 and 149 of the Recirculated Draft EIR related to worker safety impacts potentially associated with pressure testing of copper pipes. The revisions made to the Recirculated Draft EIR address the concerns raised by this comment. These revisions are located in Chapter 3.0 of this Final EIR. Moreover, the statement on page 139 of the Recirculated Draft EIR about the risk of pieces of failed copper pipe being propelled outward during pressure testing indicates that this risk is "rare." As such, it is consistent with the commenter's statement that this is "an unusual occurrence."

Comment 18-8. This Final EIR reflects minor changes to the Recirculated Draft EIR that do not alter its conclusions, including removal of language on pages 139, 146 and 149 of the Recirculated Draft EIR related to worker safety impacts potentially associated with pressure testing of copper pipes. The revisions made to the Recirculated Draft EIR address the concerns raised by this comment. These revisions are located in Chapter 3.0 of this Final EIR.

Comment 18-9. This Final EIR reflects minor changes to the Recirculated Draft EIR that do not alter its conclusions, including removal of language on page 139 of the Recirculated Draft EIR related to worker safety impacts potentially associated with pressure testing of copper pipes. The revisions made to the Recirculated Draft EIR address the concerns raised by this comment. These revisions are located in Chapter 3.0 of this Final EIR.

Comment 18-10. The discussion of leaching of lead from copper pipe solder and fluxes on pages 112-113 of the Recirculated Draft EIR clearly indicates the current federal and California standards restricting lead content in solders and fluxes used in the installation of copper piping systems. However, these standards do not completely prohibit solders and fluxes from containing amounts of lead below the levels established by these standards. Moreover, evidence suggesting that there may be some illegal use of lead solder and fluxes is appropriate to consider

because such use is part of the existing environmental setting that comprises the baseline against which the potential impacts of the Project must be measured.

Comment 18-11. Please see the response to Comment 18-10. The reason the potential illegal use of lead in solder and fluxes is appropriate to consider is that it is part of the existing environmental setting. On the other hand, the proposed action that comprises the Project involves the elimination of the Findings Requirement that currently applies to the use of CPVC pipe, fittings, and adhesives that are certified as meeting the requirements of the NSF 61 standard. The existing requirement that all CPVC pipe, fittings, and adhesives be certified by NSF would not be changed by the Project. Thus, approval of the Project does not involve the approval of any use of CPVC that is not certified as meeting NSF 61 standards. For this reason, environmental impacts related to improper use of these materials would not be environmental impacts *of the Project*. The Lead Agency also notes that unlike the case with illegal use of lead in solder and fluxes used in copper installation, there is no evidence in the record suggesting that there is currently any illegal use of CPVC pipe, fittings, or solvents that do not meet NSF 61 certification standards. If such evidence had existed, then it would have been appropriate and necessary to consider such illegal use in the discussion of current CPVC use in the environmental setting section of the Recirculated Draft EIR's water quality analysis.

Comment 18-12. Please see the responses to Comments 18-10 and 18-11.

Comment 18-13. Please see the responses to Comments 18-2, 18-10 and 18-11. Nothing in the Recirculated EIR states or is intended to imply that NSF 61 standards are not appropriate to rely upon in analyzing the potential environmental impacts related to the use of copper pipe in residential plumbing systems, except in areas where corrosive water conditions exist that are outside the range of pH levels within which NSF tests and certifies copper pipe as safe for drinking water use, or areas where similarly corrosive soil conditions exist. As the Recirculated Draft EIR explains on page 115, the NSF certification of copper pipe as safe for potable water use has a restriction statement providing that copper tube is certified to the NSF/ANSI 61 standard for public water supplies meeting, or in the process of meeting, the U.S. EPA Lead and Copper Rule, and that water supplies with pH less than 6.5 may require corrosion control to limit copper solubility in drinking water. In addition, the Recirculated Draft EIR states on page 111 that the use of NSF certifications for materials used in copper corrosion control treatments provides a reasonable assurance that the addition of corrosion-control chemicals to drinking water would not result in significant adverse effects on consumers. The presence of vinyl chloride within CPVC pipe obviously has been disclosed in the EIR, as CPVC is the abbreviation for Chlorinated Poly*vinyl Chloride*, as indicated on the title pages of both the Draft EIR and the Recirculated Draft EIR. Moreover, as indicated in Comment 14-57, NSF tests for the presence of vinyl chloride monomer in pipe.

Comment 18-14. Please see the response to Comment 18-2. The Lead Agency believes that the Recirculated Draft EIR fully and adequately analyzes the potentially significant environmental impacts related to the additional use of CPVC that would occur if the Project is approved.

Comment 18-15. The Lead Agency considered and evaluated the entire record during the preparation of the current EIR, including the materials submitted by the commenter during the 1998 EIR proceedings.

Comment 18-16. Please see the response to Comment 18-15. Based on the consideration of all of the evidence in the record, the Lead Agency disagrees with the commenter and believes that the Recirculated Draft EIR's discussion of the environmental setting related to the current use of copper is supported by substantial evidence and rests upon a firm, scientific foundation.

Comment 18-17. The referenced statement in the Recirculated Draft EIR indicates that "Of the copper contributed to the Lower South SF Bay *by wastewater*, a large percentage is believed to be from copper pipe corrosion." As such, this comment does not indicate anything that contradicts the commenter's statement that the overall copper contribution from wastewater point sources is small in comparison to the contribution from non-point sources. The comment itself states that "this statement could be considered true." Moreover, it is difficult to impose regulatory controls on non-point sources and such regulation typically is outside of the jurisdiction of federal, state, and local agencies with authority to impose and enforce regulations affecting water quality. The commenter neglects the practical reality that regulation of point sources, including wastewater point sources, often is the only effective method of reducing water quality pollution.

Comment 18-18. Please see the responses to Comments 18-2 and 18-15.

Comment 18-19. The statement on page 220 of the Recirculated Draft EIR that "CPVC has an *estimated* service life of 50-75 years" clearly indicates on its face that it represents an estimate, rather than a fact. As the commenter acknowledges, CPVC pipe is a relatively new product, as compared to copper, and has not yet been existence for much longer than 50 years. However, given the history of CPVC pipe use to date, the Lead Agency believes this to be a reasonable estimate. This same estimate was included in the 1998 EIR, which is part of the record supporting the 2000 Mitigated Negative Declaration. (1998 Final EIR p. 66).

Comment 18-20. Please see the responses to Comments 12-99, 12-218 through 12-221, and 14-29, which address similar comments regarding potential impacts associated with premature mechanical failure of CPVC plumbing systems. The Lead Agency has considered and evaluated the pictures submitted by the commenter as representing CPVC pipe removed from a single condominium complex in Washington State, and this anecdotal evidence that CPVC pipe has failed in at least one instance does not alter the Lead Agency's conclusions regarding the potential impacts associated with premature mechanical failure of CPVC plumbing systems, particularly since there is no evidence in the record indicating whether or not the CPVC plumbing system at issue was installed following proper procedures.

Comment 18-21. Please see the response to Comments 18-2 and 18-13. The Lead Agency believes that copper pipe is highly suited to potable water conveyance, except in those areas where copper pipe, based on actual service history or water or soil conditions, has an expected service life significantly less than the useful life of a residential building, or would be used

contrary to NSF 61 certification or manufacturer's use instructions. The evidence in the record regarding copper pipe failures is consistent with this belief.

Comment 18-22. Please see the response to Comment 18-21.

Comment 18-23. Please see the response to Comment 18-21.

Comment 18-24. Please see the response to Comment 18-20 and the responses to the other comments referenced therein. The Lead Agency has considered and evaluated all evidence in the record related to the potential mechanical failure of CPVC plumbing systems, including both the evidence presented by the manufacturers of CPVC and the evidence submitted by commenters opposing or expressing concerns regarding the more widespread use of CPVC pipe that the Project would allow.

Comment 18-25. This Final EIR includes revisions to the Recirculated Draft EIR that do not alter its conclusions, including revisions to portions of the discussion of the Project's energy impacts on pages 217-220. These revisions are located in Chapter 3.0 of this Final EIR. As the commenter states, and as page 218 of the Recirculated Draft EIR indicates, insulation of all hot water pipes is required in new construction in California. However, the insulation requirement does not apply to repairs and, therefore, does not apply to re-piping of hot water pipe systems within existing residential buildings.[49] Therefore, the results of studies comparing uninsulated systems are relevant in considering energy impacts of the use of CPVC for re-pipings to the use of copper. The revisions to page 218 made in this Final EIR are intended to provide clarification regarding this point, but do not change the Recirculated Draft EIR's conclusion that the Project would not result in significant energy impacts.

Comment 18-26. The Lead Agency acknowledges that there are conflicting studies in the record regarding the energy savings associated with CPVC systems. However, the Lead Agency believes it is reasonable to rely upon the more recent study cited on pages 218 and 220, as this study constitutes substantial evidence in the record and which is less likely to be outdated than the prior study.

Comment 18-27. This Final EIR includes revisions to the Recirculated Draft EIR that do not alter its conclusions, including revisions to portions of the discussion of the Project's energy impacts on pages 218-220. The revisions made to the Recirculated Draft EIR address the concerns raised by this comment, but do not change the Recirculated Draft EIR's conclusion that the Project would not result in significant energy impacts. These revisions are located in Chapter 3.0 of this Final EIR.

Comment 18-28. The Lead Agency has considered and evaluated all evidence in the record during the preparation of the current EIR, and the treatment and comparison of life-cycle costs of the production of CPVC versus copper are based on substantial evidence in the record, including

[49] California Energy Commission, *Residential Compliance Manual for California's Energy Efficiency Standards*, p. 1-14, available at http://www.energy.ca.gov/title24/2005standards/residential_manual.html (Mar. 2005).

the 2004 Oak Ridge National Laboratory study reference on page 218 of the Recirculated Draft EIR.

Comment 18-29. This Final EIR includes revisions to the Recirculated Draft EIR that do not alter its conclusions, including revisions to portions of the discussion of the Project's energy impacts on pages 218-220. The revisions made to the Recirculated Draft EIR address the concerns raised by this comment, but do not change the Recirculated Draft EIR's conclusion that the Project would not result in significant energy impacts. These revisions are located in Chapter 3.0 of this Final EIR.

Comment 18-30. The Lead Agency believes that the statement on page 217 of the Recirculated Draft EIR that "[t]here is an almost limitless supply of common table salt" is accurate and does not imply that common table salt is a renewable natural resource. This Final EIR includes revisions to the Recirculated Draft EIR that do not alter its conclusions, including a revision to the discussion of the composition of CPVC on page 217 of the Recirculated Draft EIR. The revisions made to the Recirculated Draft EIR address the concern raised by this comment, but do not change the Recirculated Draft EIR's conclusion that the Project would not result in significant energy impacts. These revisions are located in Chapter 3.0 of this Final EIR.

Comment 18-31. Please see the response to Comment 18-30.

Comment 18-32. Please see the response to Comment 12-124. Because CPVC compound is not manufactured in California, the Project will not have any potential environmental impacts in California related to the production and transportation of chlorine to CPVC manufacturing plants.

Comment 18-33. Please see the response to Comment 18-2.

Supplemental Comments of

COALITION FOR SAFE BUILDING MATERIALS

(California Pipe Trades Council, California Professional Firefighters, Consumer Federation of California, Planning and Conservation League, Center for Environmental Health, Sierra Club of California and Communities for a Better Environment)

on the

RECIRCULATED DRAFT ENVIRONMENTAL IMPACT REPORT
FOR
ADOPTION OF REGULATIONS PERMITTING STATEWIDE RESIDENTIAL USE OF CHLORINATED POLYVINYL CHLORIDE (CPVC) PLASTIC PLUMBING PIPE WITHOUT FIRST MAKING A FINDING OF POTENTIAL PREMATURE METALLIC PIPE FAILURE DUE TO LOCAL WATER OR SOIL CONDITIONS
STATE CLEARINGHOUSE NO. 2006012044

COMMENTS PREPARED BY:

Daniel L. Cardozo
Thomas A. Enslow
Adams Broadwell Joseph & Cardozo
520 Capitol Mall, Suite 350
Sacramento, CA 95814

Thomas S. Reid
TRA Environmental Sciences, Inc.
545 Middlefield Road, Suite 201
Menlo Park, CA 94025

Jim Bellows, Ph.D., MPH
5000 Manila Avenue
Oakland, CA 94609

December 29, 2006

ADAMS BROADWELL JOSEPH & CARDOZO
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
520 CAPITOL MALL, SUITE 350
SACRAMENTO, CA 95814-4715
TEL: (916) 444-6201
FAX: (916) 444-6209
tenslow@adamsbroadwell.com

DANIEL L. CARDOZO
RICHARD T. DRURY
THOMAS A. ENSLOW
TANYA A. GULESSERIAN
MARC D. JOSEPH
OSHA R. MESERVE
SUMA PEESAPATI
GLORIA D. SMITH

OF COUNSEL
THOMAS R. ADAMS
ANN BROADWELL

SO. SAN FRANCISCO OFFICE
601 GATEWAY BLVD., SUITE 1000
SO. SAN FRANCISCO, CA 94080
TEL: (650) 589-1660
FAX: (650) 589-5062

December 29, 2006

VIA HAND DELIVERY

Robin Gilb
Staff Counsel
Department of Housing
and Community Development
P.O. Box 952052
Sacramento, CA 94252-2052

Re: Recirculated Draft Environmental Impact Report on Statewide Approval of CPVC; State Clearinghouse No. 2006012044

Dear Ms. Gilb:

The following supplemental comments on the Recirculated Draft Environmental Impact Report on the statewide approval of CPVC, State Clearinghouse No. 2006012044, are respectfully submitted on behalf of the Coalition for Safe Building Materials ("Coalition"). The members of the Coalition include the California Pipe Trades Council, California Professional Firefighters, Consumer Federation of California, Planning and Conservation League, Center for Environmental Health, Sierra Club of California and Communities for a Better Environment, along with their individual members.

The Coalition's comments also include and incorporate by reference the Coalition's September 14, 2006 Comments submitted in response to the July 2006 Draft Environmental Impact Report on the statewide approval of CPVC, including all of its accompanying exhibits and appendices.

We thank you and the Department for this opportunity to comment.

Sincerely,

Thomas A. Enslow

TAE:cnh

1626-183d

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Supplemental Comments of

COALITION FOR SAFE BUILDING MATERIALS

(California Pipe Trades Council, California Professional Firefighters, Consumer Federation of California, Planning and Conservation League, Center for Environmental Health, Sierra Club of California and Communities for a Better Environment)

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COMMENTS PREPARED BY:

Daniel L. Cardozo
Thomas A. Enslow
Adams Broadwell Joseph & Cardozo
520 Capitol Mall, Suite 350
Sacramento, CA 95814

Thomas S. Reid
TRA Environmental Sciences, Inc.
545 Middlefield Road, Suite 201
Menlo Park, CA 94025

Jim Bellows, Ph.D., MPH
5000 Manila Avenue
Oakland, CA 94609

December 29, 2006

TABLE OF CONTENTS

I. INTRODUCTION 1

II. HCD PROPOSES TO AMEND CPC SECTIONS 604.1, 604.1.1, AND 604.1.2 TO ALLOW STATEWIDE APPROVAL OF CPVC 4

III. THE RDEIR FAILS TO CORRECT THE VAST MAJORITY OF THE ERRORS IN THE DEIR; ACCORDINGLY, THE COMMENTS SUBMITTED BY THE PUBLIC ON THE JULY 2006 DEIR REMAIN APPLICABLE 5

IV. THE RDEIR'S RELIANCE UPON THE CONCLUSIONS IN THE RESCINDED AND DISCREDITED 1998 CPVC FEIR IS IMPROPER, ARBITRARY AND LACKS FOUNDATION 5

V. THE RDEIR DOES NOT REFLECT AN INDEPENDENT REVIEW AND ANALYSIS BY THE LEAD AGENCY 9

VI. THE RDEIR FAILS TO REMEDY HCD'S IMPROPER RELIANCE ON NSF CERTIFICATION 11

VII. THE RDEIR IS BASED UPON UNSUPPORTED AND INACCURATE STATEMENTS 13

VIII. THE RDEIR PROVIDES AN INADEQUATE AND MISLEADING PROJECT DESCRIPTION 14

A. The RDEIR Misrepresents the Proposed Project's Relation to Copper Pipe Failures in Areas of the State with Corrosive Conditions 15

B. The RDEIR Fails to Adequately Describe the Low-VOC Solvents Required Under the Project 15

IX. THE THRESHOLDS OF SIGNIFICANCE RELIED UPON IN THE RDEIR REMAIN ARBITRARY, LACK FOUNDATION AND CONTINUE TO IGNORE CRITICAL CONTRARY EVIDENCE 16

X. INADEQUATE ANALYSIS OF POTENTIAL IMPACTS 16

A. The RDEIR Substantially Improves the Evaluation of Project Air Quality Impacts 17

B. The RDEIR Fails to Adequately Disclose and Analyze the Correlation between the Project's Air Quality Impacts and Specific Respiratory Conditions and Illnesses 17

C. The RDEIR Still Fails to Disclose or Evaluate Substantial Evidence of Water Quality Impacts 18

D. The RDEIR Fails to Improve its Inadequate Evaluation of Worker Health and Safety Impacts 21

1. The RDEIR Again Fails to Evaluate Substantial Evidence of Worker Health and Safety Impacts 21

2. The RDEIR's Analysis of Copper Pipe Installation Impacts Is Misleading, Misplaced and Incomplete 24

(a) The RDEIR Must Evaluate and Mitigate the Risks Associated with the Installation of CPVC Pipe Regardless of Any Risks Associated with Copper Pipe Installation 24

(b) The Claim that Workers Installing New Copper Pipe Systems May Be Exposed to Lead Is Speculative and Misleading 25

(c) The New Report on Toxic Vapors From Copper Pipe Installation Is Misleading, Fails to Provide any Meaningful Information, and Is Rebutted by the 1989 DHS Study 26

(d) The RDEIR's Comparison of CPVC and Copper Installation Hazards Is Inaccurate and Misleading 26

3. The Regulatory Powers of Cal/OSHA and Local Governments Are Insufficient to Ensure the Safety of Workers Installing CPVC 28

4. The RDEIR Continues to Disregard the Increased Risk to Workers Manufacturing CPVC Pipes and Solvents 29

E. The RDEIR's Analysis of the Project's Solid Waste Impacts Remains Inadequate 30

F. The RDEIR Again Fails to Evaluate Fire and Mechanical Failure Impacts 32

G. The RDEIR's Analysis of Energy Impacts Lacks Foundation 32

XI. The RDEIR's Revised Alternative Analysis Lacks Foundation and Is Impermissibly Narrow 33

A. The Project Objectives Are Impermissibly Narrow 34

B. The Conclusions in the Alternatives Analysis Lack Foundation and Are Contrary to the Evidence 35

1. Air Quality 35
2. Water Quality 36
3. Worker Health and Safety 37
4. Solid Waste 37
5. Other Impacts 38

XII. A NEW RDEIR MUST BE RECIRCULATED FOR PUBLIC REVIEW 38

XIII. CONCLUSION 39

I. INTRODUCTION

On behalf of the Coalition for Safe Building Materials ("Coalition"), this letter provides supplemental comments on the November 2006 Recirculated Draft Environmental Impact Report[1] ("RDEIR") for the proposed adoption of regulations that would amend the California Plumbing Code ("CPC") to authorize the statewide approval of Chlorinated Poly-Vinyl Chloride ("CPVC") drinking water pipe for all residential construction ("Project"). The Department of Housing and Community Development ("HCD") has prepared the RDEIR as the lead agency under the California Environmental Quality Act ("CEQA"). The RDEIR amends and replaces the July 2006 Draft Environmental Impact Report for the Project ("the July 2006 DEIR" or "DEIR").

On September 14, 2006, the Coalition submitted comments in response to the July 2006 DEIR. The September 14, 2006 Coalition Comments, including all accompanying exhibits and appendices, are hereby resubmitted in response to the RDEIR. Except where indicated below, the September 14, 2006 Coalition Comments apply in their entirety to the RDEIR. The following comments and attached exhibits and appendices supplement the September 14, 2006 Coalition Comments.

The Coalition members include the California Pipe Trades Council, the California Professional Firefighters, the Sierra Club, the Planning and Conservation League, Communities for a Better Environment, the Consumer Federation of California and Center for Environmental Health. The environmental, consumer, public health and labor organizations that make up the Coalition represent literally millions of Californians concerned about the safety of new building materials.

During the scoping period for the DEIR, we commended HCD for finally agreeing to complete an environmental impact report ("EIR") for the Project. The Coalition stated that it hoped the document would address the public's concerns, fully evaluate and disclose the Project's potential impacts, and be an open, impartial decisionmaking document based on real science. The July 2006 DEIR failed in all of these respects. 19-1

The Coalition then submitted extensive comments detailing the impacts and evidence that required further evaluation. We identified numerous factual errors and unsupported assertions in the DEIR. We identified relevant studies and reports that had not been evaluated. We also identified additional data or research needed from industry in order to adequately evaluate their product. In sum, we provided HCD a roadmap for 19-2

[1] State Clearinghouse No. 2006012044.

producing a legally adequate EIR that would address, once and for all, the long-standing concerns over the potential environmental, health and safety impacts of CPVC. 19-2

Regrettably, the RDEIR failed to take advantage of this roadmap. Instead, HCD has chosen, once again, to resist a meaningful analysis of the issues that have been identified in exhausting detail during past proceedings.

The RDEIR, does correct a few of the prior document's errors. In particular, it corrects a number of the glaring mistakes in its prior air quality analysis. However, the vast majority of the errors in the DEIR remain unaddressed.

The evidence in the record overwhelmingly demonstrates that the proposed statewide approval of CPVC may have significant impacts on health, safety and the environment that have not been adequately disclosed or evaluated in the RDEIR. As discussed in more detail later in the September 14, 2006 Coalition Comments, these impacts include: 19-3

- **Air Quality Impacts**
  - Widespread use of CPVC solvents and cements will result in Volatile Organic Compound ("VOC") emissions in exceedance of standards of significance. 19-4
  - The RDEIR's analysis substantially understates the scope of the Project's air quality impacts. 19-5
- **Worker Health & Safety Impacts**
  - 1989 Department of Health Services Study ("1989 DHS Study") concluded that workers installing CPVC pipe were regularly exposed to toxic chemicals such as tetrahydrofuran ("THF"), methyl ethyl ketone ("MEK"), cyclohexanone ("CHX") and acetone ("ACE") at levels exceeding established workplace standards. 19-6
  - Worker exposure occurs through inhalation and dermal absorption. 19-7
  - Most gloves offer no protection against dermal absorption of any of these chemicals. The use of gloves may actually make the problem worse. 19-8
  - Ventilation and glove-use requirements will not reduce these risks below a level of significance. 19-9
  - Recent studies have determined that where CPVC has been approved on a limited basis, enforcement and 19-10

implementation of ventilation and glove-use requirements has been virtually non-existent. 19-10

- **Contamination of drinking water**
  - o CPVC pipe leaches chemicals such as THF, MEK, ACE, CHX and organotins (including tributyltin) into drinking water. 19-11
  - o Proposed flushing mitigation is inadequate and unenforceable.
  - o The public is exposed through consumption and through inhalation and skin exposure during bathing. 19-12
  - o Aquatic toxicity concerns – organotins (and particularly tributyltin) are toxic to many aquatic animals. Most water treatment plants leave significant amounts of organotins in the effluent discharged into receiving waters. 19-13 19-14
- **Manufacturing Impacts**
  - o CPVC pipe, fittings, cements and solvents are manufactured in California. 19-15
  - o Increased manufacturing of these products will result in significant air quality and worker health and safety impacts. 19-16
  - o The manufacture of CPVC pipe and fittings results in the release of dioxins and other highly toxic chemicals. 19-17
- **Solid Waste Impacts**
  - o CPVC pipe is extremely difficult to recycle and is considered a "contaminant" in the waste stream. 19-18
  - o Copper piping is completely recyclable. 19-19
- **Fire Hazard Impacts**
  - o CPVC pipe releases dioxins and toxic smoke when burned. 19-20
  - o CPVC pipe makes residential fires, plastic incinerators and landfill fires significantly more dangerous. 19-21
- **Premature Mechanical Failure Impacts**
  - o CPVC may prematurely rupture when exposed to numerous common household substances, including termiticides, fungicides, WD-40, oil-based caulk and plastic electric wire insulation. 19-22

The RDEIR must be revised to correct its remaining deficiencies and recirculated for public review and comment. 19-23

Attached as Exhibits A and B are the supplemental technical comments of Thomas Reid and Dr. James Bellows. In addition, the technical comments on the July 2006 DEIR submitted by Mr. Reid, Dr. Bellows and Dr. Petra Pless, as Exhibits A, B and C of the September 14, 2006 Coalition Comments, are hereby resubmitted in response to the RDEIR. These technical comments are submitted in addition to the comments in this letter. Accordingly, they must be addressed and responded to separately. 19-24

II. HCD PROPOSES TO AMEND CPC SECTIONS 604.1, 604.1.1, AND 604.1.2 TO ALLOW STATEWIDE APPROVAL OF CPVC

Under HCD's proposed statewide approval, all local building officials would be required to permit the use of CPVC potable water pipe in any residential building. This represents a massive expansion of the authorized allowable use of CPVC potable water pipe in California. 19-25

Currently, CPC section 604.1.2 strictly limits the use of CPVC to the few areas of the state where a finding can be made that metallic pipe has prematurely failed or will prematurely fail due to existing water or soil conditions. CPC section 604.1.2 and CPC Appendix I, sections 301.0.1.1 and 301.0.2.1 also impose flushing, ventilation, glove-use and inspection requirements where such limited approval is granted. 19-26

The current regulations restricting where CPVC drinking water pipe may be installed were adopted in 2000 after the preparation of Mitigated Negative Declaration State Clearinghouse No. 2000091089 ("2000 MND"). The 2000 MND expressly and repeatedly stated that its findings were based upon the limited nature of the approval.

HCD now proposes to amend the CPC to remove the restriction limiting the use of CPVC drinking water pipe to the few areas of the state where metallic pipe is proven to corrode prematurely due to water or soil conditions.[2] HCD also proposes to amend the CPC to require the use of Low-VOC, One-Step Cement for joining all CPVC pipe and fittings ½ inch through 2 inches in diameter. HCD proposes defining low-VOC, one-step cement for CPVC as cement with a VOC content of less than or equal to 490 g/l.[3] 19-27

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[2] See July 2006 DEIR at pp.18-20.
[3] July 2006 DEIR at p. 16.

III. THE RDEIR FAILS TO CORRECT THE VAST MAJORITY OF THE ERRORS IN THE DEIR; ACCORDINGLY, THE COMMENTS SUBMITTED BY THE PUBLIC ON THE JULY 2006 DEIR REMAIN APPLICABLE

The RDEIR makes a couple of substantive improvements to the July 2006 DEIR, but generally its revisions are merely cosmetic. The RDEIR contains a greatly improved, albeit still flawed, air quality analysis. It also adds a new section that evaluates Project alternatives. The alternatives analysis is impermissibly narrow and lacks foundation, but is still an improvement over the DEIR. The July 2006 DEIR failed to include any analysis of alternatives at all. 19-28 19-29

While these two sections are flawed, they at least show improvement. Unfortunately, the RDEIR fails to put forth the same effort to correct the rest of the DEIR's numerous deficiencies. 19-30

Once again, HCD fails to evaluate relevant evidence, fails to apply appropriate standards of significance, repeats the same factual errors and misstatements, focuses on irrelevant issues, and reaches conclusions that lack foundation and are contrary to the evidence in the record. Moreover, the revised document creates a number of new deficiencies through numerous additional misstatements and unsupported assertions.

As a result, the Coalition's September 14, 2006 Comments remain applicable in their entirety, with the exception of our comments on air quality and alternatives. In Sections X and XI, *infra*, we revise our comments on air quality and alternatives to reflect the substantive changes made to these sections in the RDEIR. The portions of our September 14, 2006 Comments on air quality and alternatives that remain applicable are identified in these sections. 19-31

IV. THE RDEIR'S RELIANCE UPON THE CONCLUSIONS IN THE RESCINDED AND DISCREDITED 1998 CPVC FEIR IS IMPROPER, ARBITRARY AND LACKS FOUNDATION

The ultimate conclusions contained in the July 2006 DEIR were speculative and arbitrary because they lacked evidentiary foundation and were not based upon the evaluation of relevant evidence. Rather than correct this fundamental error and actually evaluating the evidence in the record, the RDEIR instead attempts to support its conclusions by citing to the findings in the rescinded and "incomplete" 1998 CPVC FEIR.[4] 19-32 19-33

[4] See "Rescinding of the Certification and Notice of Determination for the Final

Like the July 2006 DEIR, the 1998 CPVC FEIR was widely condemned as hastily prepared, lacking foundation and utterly incomplete.[5] HCD hurriedly prepared the 1998 FEIR in the final days of the Wilson Administration. Internal memos from HCD and the Business, Transportation and Housing Agency ("BTH") released in response to public records requests revealed the clear instruction to HCD that CPVC be *approved* before the end of the Wilson Administration irrespective of any requirements for environmental review.[6] This politically imposed deadline precluded HCD from conducting any genuine analysis of potential impacts. 19-34 19-35

During the 1998 proceeding, HCD recognized its lack of technical competence to evaluate the environmental issues and the public and worker health issues associated with the Project.[7] Due to this lack of relevant expertise, the General Counsel of the California Resources Agency, the state's chief legal authority on CEQA, advised HCD to retain an independent consultant to prepare the EIR.[8] HCD, however, rejected the advice, citing the potential delays involved in hiring an independent consultant. 19-36

As a result, the hastily prepared 1998 EIR contained almost no new analysis from the abandoned and universally discredited 1989 EIR. Furthermore, it concluded that *no* safety measures were required with CPVC installation and use, even though HCD's 1989 EIR (which had been prepared with independent technical consultants) concluded that such safety measures were *essential*. Particularly troubling were the failure of the 1998 EIR to evaluate relevant evidence and its reliance upon numerous facially incorrect or unsupported assumptions. 19-37

Environmental Impact Report Entitled Chlorinated Polyvinyl Chloride (CPVC) Pipe Used for Potable Water Piping in Residential Buildings," State Clearinghouse No. 970820040; see also Sept. 14, 2006 Coalition Comments, Appendix 1.

[5] See, e.g., Exhibits A, C, D, E & F; Sept. 14, 2006 Coalition Comments, Appendices 24, 28 & 100.

[6] After the then-director of HCD reported to BTH of HCD's proposal to engage technical experts and develop a plan for the environmental analysis, the HCD Director was called to a meeting with BTH officials. An internal Agency memorandum reported that the purpose of the meeting was to ensure that HCD understood that its mission was to ensure CPVC approval by December 1998. The BTH representative reported that he "just had a come to Jesus meeting with [the HCD Director]." (Sept. 14, 2006 Coalition Comments, Appendix 18.) The memorandum reported that the HCD Director indicated that he had been specifically told by BTH "that he [HCD Director] was individually and personally on the line to manage and make this thing work. That his job, reputation and [expletive] would be ground into nothingness if he failed .... [HCD Director] also apologized if he misunderstood his role, and is ready and willing to cooperate to make plastic pipe for residential use a reality." (*Id.*)

[7] Sept. 14, 2006 Coalition Comments, Appendix 58.

[8] *Id.*

The public comments on the 1998 EIR were highly critical of the cursory and biased treatment of the serious health and environmental issues associated with CPVC drinking water pipe.[9] Nonetheless, HCD followed its orders and certified the obviously inadequate EIR. Not surprisingly, this led to a lawsuit.[10] 19-38

Given the blatant deficiencies of the 1998 EIR, HCD agreed to settle the lawsuit in 2000. As part of that settlement, HCD rescinded the certification of the EIR and expressly found that the document was "incomplete."[11] 19-39

The RDEIR's wholesale reliance on the rescinded 1998 FEIR turns CEQA on its head. The RDEIR is essentially playing a shell game. It is trying to hide its lack of analysis and lack of factual investigation by citing to an earlier document that suffered from the exact same deficiencies. The RDEIR's reliance upon a document so flawed that it was rescinded and declared incomplete violates CEQA and is arbitrary and capricious. 19-40

An EIR may incorporate by reference all or a portion of another document that is a matter of public record or is generally available to the public.[12] However, such incorporation is only appropriate for long, descriptive, or technical materials that provide general background, not for matters that contribute directly to the analysis of problems to be addressed in the EIR.[13] 19-41

In the case at hand, the RDEIR's references to the rescinded FEIR are improper because the RDEIR references the FEIR for matters that contribute directly to the analysis of problems to be addressed in the EIR.

Where appropriate, CEQA does permit the incorporation of the *analysis* from a prior EIR under its provisions for tiering.[14] However, tiering is only permitted when the prior document was a certified EIR. The 1998 EIR, however, was decertified and declared "incomplete." Accordingly, the RDEIR may not tier from the 1998 EIR. 19-42

Furthermore, the analysis contained in the FEIR lacks foundation and thus does not meet the standard for substantial evidence. The entire FEIR was rescinded and deemed "incomplete" by HCD. In rescinding the FEIR, 19-43

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[9] See, e.g., Exhibits A, C & E; Sept. 14, 2006 Coalition Comments, Appendices 24 & 100.
[10] Exhibit F (*Cuffe v. California Department of Housing and Community Development* (Sup. Ct. San Francisco County, 1998, No. 300221) Petition for Writ of Mandate filed Dec. 30, 1998).
[11] Sept. 14, 2006 Coalition Comments, Appendix I (Letter of Settlement Terms at p. 1, art. 2).
[12] Pub. Resources Code § 21061; 14 Cal. Code Regs. ("CEQA Guidelines") § 15150, subd. (a).
[13] CEQA Guidelines § 15150, subd. (f); see also Pub. Resources Code § 21061.
[14] CEQA Guidelines § 15152; see also CEQA Guidelines § 15130.

HCD did not identify certain sections as complete and others as incomplete.[15] Accordingly, each and every section and analysis must be considered incomplete. The RDEIR, however, arbitrarily picks and chooses between the conclusions in the 1998 EIR. 19-43

Moreover, the public comments submitted during the preparation of the FEIR and the writ of mandate challenging the FEIR's certification demonstrate that the FEIR was, in fact, incomplete and inadequate.[16] The 1998 FEIR conclusions were arbitrary and capricious, failed to evaluate relevant evidence and comments, lacked factual support, and were based upon numerous misstatements and unsupported assumptions. 19-44

Even if the FEIR had not been rescinded, reliance upon its conclusions would be improper because it does not evaluate significant new information that has subsequently been presented to HCD.[17] An EIR may not rely on a prior EIR's evaluation of impacts where new circumstances or new information may impact the accuracy and validity of the prior analysis.[18] 19-45

In the case at hand, the acceptable workplace exposure limits for ACE have been significantly lowered since the 1998 FEIR.[19] Also, new formulations of CPVC cements and primers have been introduced to the market.[20] These changes impact the accuracy and validity of the conclusions made in the 1998 FEIR. 19-46

In addition, new evidence has been submitted demonstrating that mitigation measures to prevent drinking water contamination adopted in the 2000 MND and proposed for adoption in the RDEIR are not sufficiently adequate, feasible or enforceable to eliminate the potential for significant impacts from leaching.[21] New evidence has also been submitted of actual, systematic non-compliance with the proposed ventilation and glove-use 19-47 19-48

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[15] Sept. 14, 2006 Coalition Comments, Appendix 1.

[16] Exhibits A, C, D, E & F; Sept. 14, 2006 Coalition Comments, Appendices 24, 28 & 100.

[17] The same analysis also applies to the RDEIR's improper reliance on the 2000 MND. Our Sept. 14, 2006 Comments describe in detail the numerous reasons why the RDEIR's reliance on the 2000 Mitigated Negative Declaration is also improper.

[18] *Security Environmental Systems v. South Coast Air Quality Management District ("Security Environmental Systems v. SCAQMD")* (1991) 229 Cal.App.3d 110, 124; *Mira Monte Homeowners Association v. County of Ventura* (1985) 165 Cal.App.3d 357 (EIR required because impacts on wetlands would be more severe than previously believed); See also *Christward Ministry v. Superior Court* (1986) 184 Cal.App.3d 180 (prior CEQA document did not analyze previously unidentified significant effects, and therefore new EIR required); see also Pub. Resources Code § 21166 & CEQA Guidelines §§ 15130, subd. (d); 15153, subd. (d), 15162.).

[19] Dr. Bellows Comments (Sept. 8, 2006); see also July 2006 DEIR at p. 65.

[20] Reid Comments (Sept. 13, 2006); Dr. Bellows Comments (Sept. 8, 2006).

[21] See Sept. 14, 2006 Coalition Comments, Section XI.C.

mitigation measures.[22] This evidence demonstrates that these measures fail to reduce adverse impacts "to a point where clearly no significant effect" will result.[23] 19-48

Finally, new reports have demonstrated that CPVC is considered among the dirtiest of all plastics when lifecycle impacts, including manufacturing and disposal impacts, are considered.[24] Recent reports have also determined that CPVC is considered a "contaminant" in the waste stream.[25] The 1998 EIR did not analyze the lifecycle impacts of CPVC and thus may not be relied upon to evaluate these reports. 19-49

V. THE RDEIR DOES NOT REFLECT AN INDEPENDENT REVIEW AND ANALYSIS BY THE LEAD AGENCY

The RDEIR again fails to comply with CEQA's requirement that the document reflect the lead agency's *independent* review and analysis of potential environmental effects.[26] CEQA requires that the lead agency independently review and analyze the issues identified in an EIR.[27] It also requires that an EIR reflect the lead agency's independent judgment.[28] CEQA Guidelines specify further that a lead agency must subject information submitted by others to the lead agency's own review and analysis before using that information in an EIR.[29] 19-50

In order to fulfill CEQA's mandate for an independent review and analysis of potential environmental effects, the lead agency must have the technical capability to conduct such review and analysis.[30] Accordingly, the courts have required that agencies possess the appropriate expertise or seek expert assistance when analyzing issues or making determinations under CEQA that demand specialized knowledge.[31]

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[22] See Sept. 14, 2006 Coalition Comments, Section XI.D.

[23] See *Oro Fino Gold Mining Corp. v. County of El Dorado* (1990) 225 Cal.App.3d 872 at 876, 883 (evidence of past failure to enforce the mitigation measures for noise impacts imposed in a prior MND demonstrated that there may still be a significant impact even with the proposed mitigation measures).

[24] See Sept. 14, 2006 Coalition Comments, Appendices 21, 53 & 67-74.

[25] See, e.g., Sept. 14, 2006 Coalition Comments, Appendix 21.

[26] Pub. Resources Code § 21082.1, subd. (c).

[27] Pub. Resources Code § 21082.1, subd. (c)(1).

[28] Pub. Resources Code § 21082.1, subd. (c)(2).

[29] CEQA Guidelines § 15084, subd. (e).

[30] See, e.g., CEQA Guidelines § 15142.

[31] See *Sundstrom v. Mendocino County* (1988) 202 Cal.App.3d 296, 312; *Greenebaum v. City of Los Angeles* (1984) 153 Cal.App.3d 391, 413; *Stanislaus Audubon Soc'y v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 153.

The proposed statewide approval of CPVC pipe to carry potable water raises highly technical issues involving several disciplines and specialized fields, including, at a minimum, chemistry, toxicology, industrial hygiene, drinking water quality, air quality, solid waste disposal, and fire safety. HCD's statutory responsibilities for state housing programs and policies do not require staff with technical capabilities in these areas.[32] HCD has repeatedly recognized that its independent review and analysis of the technical issues raised by the Project would require technical expertise outside HCD.[33] 19-50

The RDEIR, however, fails to meet the independent review requirements of CEQA. In preparing this revised document, HCD once again: (1) did not retain qualified, independent consultants to review the evidence regarding water quality impacts, worker health impacts, manufacturing impacts, solid waste impacts, fire hazard impacts or premature mechanical failure impacts; (2) did not have the in-house expertise to review and analyze independently the technical issues associated with the proposed project; and (3) did not involve state technical experts in the substantive review. 19-51

The Coalition's counsel requested access to all supporting materials and correspondence related to the preparation of the RDEIR.[34] The documents provided in response revealed that no other agency or outside experts substantively reviewed and evaluated the current evidence in the record regarding any of the Project impacts aside from air quality impacts.[35] 19-52

The RDEIR again states that it was prepared by HCD staff attorney Robin Gilb.[36] A prior public record request for Ms. Gilb's resume revealed that she has no technical expertise in worker health, air quality, leaching, fire, solid waste or any other potential impacts that had previously been identified by commentators.[37] 19-53

In addition, the RDEIR also states that four outside consultants helped Ms. Gilb to prepare this revised document: (1) Joe Broadhead; (2) Tim Rimpo; (3) Tony Held; and (4) Marina Pelosi.[38] The qualifications of these four consultants are unknown. In response to a public record request for the 19-54

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[32] *See* Health & Saf. §§ 50400, *et seq.*
[33] See Sept. 14, 2006 Coalition Comments, section V.B.
[34] Exhibit G (copies of document requests and correspondence).
[35] Exhibit H (Declaration of Thomas A. Enslow (Dec. 27, 2006)).
[36] RDEIR at p. 226.
[37] In addition to her law degree, Ms. Gilb has a B.S. in Agriculture. Sept. 14, 2006 Coalition Comments, Appendix 26.
[38] RDEIR at p. 226.

consultant's resumes or curriculum vita, HCD stated that they did not have this information in their possession.[39] 19-54

Moreover, a further public record request to HCD revealed that HCD had no contract or contact with these four consultants.[40] In a subsequent email, HCD confirmed that it has no contracts with these consultants, no correspondence with these consultants, no reports from these consultants or any other documents related to the use of these consultants.[41]

The statement that these consultants "prepared" the RDEIR thus lacks foundation or meaning. Without evidence of any communication between HCD and the four outside consultants listed in the RDEIR, there is no evidence that these consultants reviewed or evaluated the relevant evidence or provided HCD with any "expert" opinions or analysis. There is also no evidence that the consultants concurred with the conclusions or analyses contained within the RDEIR. 19-55

The mere listing of these names does not rectify HCD's failure to seek expert assistance in evaluating the evidence of Project impacts. Without a description of the consultants' qualifications, their scope of work, the documents they reviewed, and their relationship to the preparation of the RDEIR, their participation in the preparation of the RDEIR lacks relevance.

As discussed fully in our September 14, 2006 Coalition Comments, HCD's reluctance to commit to genuine participation by state experts or qualified independent outside consultants appears motivated once again by a determination to stay on schedule and not jeopardize the approval timeline set for the Project. As a result, the RDEIR fails to adequately assess the Project's impacts and its ultimate determinations are arbitrary and lack foundation. 19-56

VI. THE RDEIR FAILS TO REMEDY HCD'S IMPROPER RELIANCE ON NSF CERTIFICATION

Our September 14, 2006 Comments describe in detail the failure of HCD to adequately review and analyze the adequacy of NSF standards and testing. They further describe in detail the evidence that NSF certification is inadequate to rebut the evidence presented that the Project may result in significant drinking impacts. They also describe in detail the incorrect and 19-57

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[39] Exhibit H (Declaration of Thomas A. Enslow (Dec. 27, 2006)).
[40] *Id.*; see also Exhibit G.
[41] *Id.*

unsupported assumptions that HCD makes about NSF certification and why these errors invalidate the ultimate conclusions in the DEIR. 19-57

The RDEIR repeats these errors verbatim. No new evaluation of NSF standards, testing or certification is provided. Nor was any additional evaluation undertaken by HCD between its preparation of the July 2006 DEIR and the November 2006 RDEIR. 19-58

On November 17, 2006, counsel for the Coalition sent HCD a request for all documents referenced in, or relied upon, to support the conclusions in the RDEIR, including:

> All correspondence, reports, studies, expert opinions, e-mails, memos, notes of meetings, notes of telephone conversations, all other notes, and any other documents consulted in the preparation of the RDEIR, including any notes, correspondence or other documents obtained as a result of HCD's consultation with any consultants, experts, state agencies, local agencies, federal agencies, organizations, manufacturers, trade groups or any other persons or entities with whom HCD has consulted in preparation of the RDEIR.[42]

On November 28, 2006, counsel for the Coalition sent HCD an additional public records request for all documents relating to CPVC or the preparation of the RDEIR in the possession or control of HCD.[43] Both of these requests were limited to documents not previously provided to the Coalition in response to prior document requests.

The documents provided in response to this request revealed that HCD neither requested nor obtained any new information regarding NSF standards, testing or certification of CPVC pipes, fittings or solvents.[44] No additional evaluation was undertaken. No underlying toxicity studies, data or calculations were obtained. No new consultation or correspondence with NSF ensued. And the maximum levels of chemical leaching from CPVC permitted under NSF standards were not disclosed.

The RDEIR contains no new analysis or information regarding NSF standards, testing or certification. It also repeats the same errors of the DEIR verbatim. Accordingly, our September 14, 2006 Comments regarding these errors remain applicable, in their entirety, to the RDEIR.

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[42] Exhibit G (copies of document requests and correspondence).
[43] *Id.*
[44] Exhibit H (Declaration of Thomas A. Enslow (Dec. 27, 2006)).

VII. THE RDEIR IS BASED UPON UNSUPPORTED AND INACCURATE STATEMENTS

As discussed in detail in our September 14, 2006 Comments, the July 2006 DEIR was largely based upon conclusory assumptions, opinions and factual assertions that lack any foundation or evidentiary basis. The RDEIR fails to correct this error. 19-59

Conclusions in an EIR must be supported by substantial evidence in the record.[45] An EIR must present some explanation to supply the logical step between its conclusions and the facts in the record.[46] Substantial evidence includes facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts.[47] Substantial evidence is not synonymous with "any" evidence. "The evidence considered must be reasonable, credible, and of solid value...."[48]

This requirement also applies to expert opinions. Expert opinion does not constitute substantial evidence when it is "based on speculation and conjecture, and accordingly ... not supported by substantial evidence in light of the whole record."[49] Additionally, "opinion testimony of expert witnesses does not constitute substantial evidence when it is based upon conclusions or assumptions not supported by evidence in the record."[50]

The RDEIR, however, repeats the vast majority of the DEIR's unsupported and inaccurate statements verbatim. Moreover, the revised document relies upon numerous additional misstatements and unsupported assertions. A partial list of unsupported statements contained in the RDEIR is attached as Exhibit L to this Comment. The Coalition, however, objects to each and every unsupported assumption, statement and conclusion contained in the RDEIR.

The RDEIR claims that it is being criticized for using estimates and assumptions.[51] This is not accurate. The RDEIR's deficiency is not that it is relying on estimates and assumptions *per se*. Instead, the RDEIR is deficient 19-60

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[45] Pub. Resources Code, section 21081.5; CEQA Guidelines, section 15091, subd. (b).
[46] *Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506; See also CEQA Guidelines § 15091.
[47] Pub. Res. Code § 21082.2(c).
[48] *Newman v. State Personnel Board* (1992) 10 Cal.App.4th 41, 47.
[49] *Coastal Southwest Dev. Corp. v. California Coastal Zone Conserv. Comm'n* (1976) 55 Cal.App.3d 525, 532.
[50] *Hongsathavij v. Queen of Angels/Hollywood Presbyterian Med. Ctr.* (1998) 62 Cal.App.4th 1123, 1137.
[51] RDEIR at p. 5.

because it relies upon estimates and assumptions that are speculative, pure conjecture, lack any factual basis, or are contrary to the evidence in the record. 19-60

The sheer number of unsupported and inaccurate statements in the RDEIR renders the document essentially meaningless. Without disclosure of the underlying evidentiary support and the critical analytical details, the public is denied an opportunity to meaningfully consider and comment on the RDEIR's conclusions. The RDEIR must be withdrawn and revised to ensure that it is based upon scientific analysis and concrete substantial evidence. The RDEIR must then be recirculated to allow the public a meaningful opportunity for comment.[52] 19-61

VIII. THE RDEIR PROVIDES AN INADEQUATE AND MISLEADING PROJECT DESCRIPTION

The RDEIR continues to provide an inadequate and misleading Project description. The definition of the project under review in an EIR is critically important since it informs the public and government decisionmakers of the nature of the proposed activity and determines the scope and content of the analysis that follows. The courts have declared that "[a]n accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR."[53] 19-62

The RDEIR again fails to describe the complete plumbing system proposed for authorization. It also continues to lack a description of the various manufacturing formulas for CPVC pipe and solvents. The RDEIR also continues to falsely claim that California is the only state where the use of CPVC is restricted. Accordingly, the Coalition's September 14, 2006 Comments on these failures remain applicable in their entirety.

The RDEIR also contains several revisions that further misrepresent and distort the Project description.

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[52] See CEQA Guidelines § 15088.5, subd. (a).

[53] *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 193; *see also City of Santee v. County of San Diego* (1989) 214 Cal.App.3d 1438; *Rural Land Owners Association v. Lodi City Council* (1983) 143 Cal.App.3d 1013, 1024-1025; *Santiago County Water District v. County of Orange* (1981) 118 Cal.App.3d 818, 829-830.

A. The RDEIR Misrepresents the Proposed Project's Relation to Copper Pipe Failures in Areas of the State with Corrosive Conditions

The RDEIR misleadingly suggests that the Project is necessary to reduce copper corrosion and failure in areas of the state with corrosive water and soil conditions. The vast majority of the new information contained in the RDEIR relates to the corrosion and failure of copper pipes in areas of the state with corrosive water and soil conditions.[54] 19-63

This new information is irrelevant and misleading because it suggests that the proposed Project will provide an alternative to the use of copper in corrosive environments. The CPC, however, already permits the use of CPVC in the few areas of the state where corrosive soil or water conditions will cause significant corrosion to metal pipes.[55]

The Project does not expand the approval of CPVC pipe in these areas. Instead, it seeks to allow the use of CPVC in the areas of the state where corrosion of copper pipes is *not* a problem. The RDEIR's emphasis of the problems of copper pipe installed in corrosive soil or water conditions improperly misrepresents the true nature of the Project.

B. The RDEIR Fails to Adequately Describe the Low-VOC Solvents Required Under the Project

The RDEIR's Project description is further deficient because it fails to include a sufficient description of the low-VOC one-step cements that it proposes to require. As part of its proposed expanded approval of CPVC potable water pipe, HCD proposes to require the use of low-VOC one-step cements. As discussed in detail in the September 14, 2006 Comment letter, the proportion of ingredients in low-VOC solvents may differ significantly from the regular CPVC primers and cements reviewed in the 1989 DHS Study on worker health and safety impacts. 19-64

HCD admits in the July 2006 DEIR that "reduction in VOC content also has generally resulted in an increase in acetone concentrations."[56] In addition, one of the authors of the 1989 DHS study observed in his 1998 report that low-VOC solvents may contain ten times the amount of MEK, resulting in significantly increased worker exposure impacts.[57] 19-65 19-66

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[54] See, e.g., RDEIR at pp. 107-120, 129-130, 134-139, 146-147, 164-169.
[55] CPC § 604.1.2.
[56] July 2006 DEIR at p. 63.
[57] Sept. 14, 2006 Coalition Comments, Appendix 28 at pp. 18-22, 28.

The RDEIR, however, fails to disclose the actual proportions of ingredients found in low-VOC solvents. Without the disclosure of this significant information, the public is unable to meaningfully evaluate their potential impacts. 19-67

IX. THE THRESHOLDS OF SIGNIFICANCE RELIED UPON IN THE RDEIR REMAIN ARBITRARY, LACK FOUNDATION AND CONTINUE TO IGNORE CRITICAL CONTRARY EVIDENCE

The RDEIR continues to rely upon thresholds of significance that are arbitrary and fail to address substantial evidence showing that the environmental impact of the Project might be significant despite the significance standard.[58] A lead agency may formulate standards of significance for use in an EIR as long as a reasonable basis exists for using those standards. 19-68

This requires that the agency make a policy judgment about where the line should be drawn for distinguishing adverse impacts deemed substantial from those that are not deemed substantial.[59] This judgment must, however, be based on scientific information and other substantial evidence.[60] "If evidence is submitted tending to show that the environmental impact might be significant despite the significance standard used in the EIR, the agency must address that evidence."[61]

The RDEIR's thresholds of significance for water quality, worker safety and solid waste impacts are inadequate because these thresholds arbitrarily ignore the substantial evidence submitted during prior proceedings that indicate that these impacts may be significant.

X. INADEQUATE ANALYSIS OF POTENTIAL IMPACTS

Aside from its air quality analysis, the RDEIR fails to make any substantive revisions to its analysis of potential impacts. Some Project impacts are still not discussed *at all*, while others are still treated in cursory 19-69

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[58] See Sept. 14, 2006 Coalition Comments, Section X, for a more complete discussion of this error.

[59] CEQA Guidelines § 15064, subd. (b); *Mira Mar Mobile Community v. City of Oceanside* (2004) 119 Cal.App.4th 477.

[60] Kostka & Zischke, *Practice Under the California Environmental Quality Act*, § 13.2, p. 621.

[61] Kostka & Zischke, *Practice Under the California Environmental Quality Act*, § 13.2, p. 624; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1111.

fashion. The only issue evaluated in any detail is air quality. Not surprisingly, this is the one issue that the RDEIR admits is significant. 19-69

A. The RDEIR Substantially Improves the Evaluation of Project Air Quality Impacts

The RDEIR significantly improves the DEIR's flawed air quality analysis. The RDEIR takes into consideration a number of significant variables that the DEIR had simply ignored. The RDEIR also corrects the DEIR's puzzling failure to apply the thresholds of significance recommended by the California Air Resources Board. Furthermore, the RDEIR commendably recommends requiring low-VOC one-step cement to partially mitigate the Project's significant air quality impacts. 19-70

The RDEIR admits that, even with the proposed mitigation measures, the increased VOC emissions from the Project will result in significant and unavoidable adverse impacts on air quality.[62] This admission underscores the fallacy of relying upon the discredited and incomplete 1989 and 1998 CPVC EIRs. The 1989 and 1998 CPVC EIRs both claimed, without analysis or foundation, that the installation of CPVC would have no impact on air quality.

This admission also underscores the need to evaluate the rest of the Project's impacts in similar detail. The current DEIR process represents the first time that HCD actually disclosed and evaluated the evidence of air quality impacts. For the first time, HCD has quantified the Project's air quality impacts and compared them with relevant thresholds of significance. Moreover, for the first time HCD has recognized the need to identify feasible mitigation measures to help mitigate this impact. 19-71

Unfortunately, HCD fails to put the same effort into its analysis of the Project's other impacts. HCD must revise the RDEIR to evaluate the rest of the Project's impacts in similar detail.

B. The RDEIR Fails to Adequately Disclose and Analyze the Correlation between the Project's Air Quality Impacts and Specific Respiratory Conditions and Illnesses

Despite its major improvements, the air quality analysis remains inadequate. While the RDEIR admits that the Project will result in significant and unavoidable air quality impacts related to VOC emissions, it fails to adequately identify and analyze the health impacts that result from these VOC emissions. VOCs are ozone precursor compounds. Ozone 19-72

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[62] RDEIR at p. 50.

pollution is a principal component of smog and is a major source of respiratory illness in California.

CEQA requires that an EIR discuss health and safety problems caused by the physical changes that the proposed project will precipitate.[63] An EIR that fails to "correlate the identified adverse air quality impacts to resultant adverse health effects" is legally inadequate.[64] 19-72

The RDEIR, however, offers only cursory acknowledgement that poor air quality due to increased VOC emissions can lead to adverse impacts on human health. The RDEIR contains only the following brief statement hidden it its preliminary discussion of the environmental setting: "[Ozone] is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. [Ozone] is a severe eye, nose, and throat irritant."[65] Such a brief reference to respiratory illnesses is not sufficient, particularly given its location in the document.[66]

There is no acknowledgement or analysis of the connection between ozone pollution and resultant increases in specific respiratory conditions and illnesses. After reading the RDEIR, the public would have no idea of the health consequences that may result from approval of the Project. The RDEIR must be revised to contain an adequate discussion of health impacts resulting from the contribution of Project VOC emissions to regional ozone formation.

C. The RDEIR Still Fails to Disclose or Evaluate Substantial Evidence of Water Quality Impacts

The RDEIR makes no substantive revisions to the analysis of water quality impacts contained in the July 2006 DEIR. Accordingly, the Coalition's August 14, 2006 Comments remain applicable, in their entirety, to HCD's "revised" evaluation of water quality impacts. 19-73

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[63] CEQA Guidelines § 15126.2, subd. (a); *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1216.

[64] *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1216.

[65] RDEIR at p. 34.

[66] *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1216 ("brief references to respiratory illnesses" are insufficient to disclose the "health consequences that result when more pollutants are added to a nonattainment basin. . . .[T]he health impacts resulting from the adverse air quality impacts must be identified and analyzed in [a revised EIR]").

HCD continues to resist requiring CPVC manufacturers to disclose what chemicals leach from CPVC potable water systems, in what quantities, and for how long. Without disclosure of such basic information, it is impossible to evaluate the Project's potential impacts and the effectiveness of any proposed mitigation measures. It is also impossible for the public to discern the basis for the agency's findings. 19-74

The available studies that do disclose this information reveal that CPVC leaches chemicals in significant amounts for much longer than the one week period assumed by the currently proposed flushing mitigation measures.[67] In addition, recent studies demonstrate that the current, inadequate one-week flushing requirement is not enforced, implemented or monitored.[68] As a result, residents are exposed to these leached chemicals from the time of installation. The RDEIR's continued failure to evaluate this information prevents the consideration of more appropriate and effective mitigation measures. 19-75

Furthermore, new data or testing is required to adequately evaluate this impact.[69] New formulations of CPVC pipe and solvents have since entered the market. Low-VOC solvents have changed their formulations to reduce their contribution to ozone. One-step cements have also entered the market. While these formulations have reduced the amount of some chemicals, they have increased the amount of other chemicals.[70] Accordingly, the RDEIR's assumption that these new formulations will reduce leaching impacts lacks foundation. New testing is required to determine the actual impact on leaching from these changes. 19-76

Rather than correct these errors, the RDEIR instead revises its water quality analysis by adding a long, irrelevant and misleading discussion about leaching from copper pipes. The RDEIR's discussion of water quality impacts associated with copper is misleading and irrelevant because it focuses on issues that have no relation to the Project. 19-77

The RDEIR talks extensively about the leaching of lead from the solder used to join copper pipes in existing installations. The RDEIR then claims that the proposed statewide approval of CPVC will actually reduce the

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[67] Sept. 14, 2006 Coalition Comments, Exhibit B, Appendices 7, 19 & 100.

[68] Sept. 14, 2006 Coalition Comments, Appendix 25 (Capitolo Survey) & Appendix 27 (Calone Field Investigation).

[69] See *Citizens to Preserve the Ojai v. County of Ventura* (1985) 176 Cal.App.3d 421.

[70] See July 2006 DEIR at p. 63 (low-VOC solvents contain increased amounts of ACE); Dr. Bellows Comments (Aug. 27, 1998) at pp. 18-20 (finding that low-VOC solvents may contain up to ten times the levels of MEK found in the solvents evaluated in the 1989 DHS study).

leaching of lead from copper pipe installations.[71] This claim is false and lacks foundation.

19-77

Historically, solder used to join copper pipe contained up to 50% lead. However, "lead-free" pipe, solder and flux for the installation of potable water systems has been required throughout the United States for over 20 years.[72] In fact, one of the members of the Coalition, the California Pipe Trades Council, was a leading proponent for removing lead from solder as part of its ongoing efforts to protect plumbing installers. As a result, new copper pipe installations or re-pipes do not leach significant amounts of lead.

19-78

The RDEIR also misleadingly claims that the Project will reduce the water quality impacts associated with the leaching of significant amounts of copper where copper pipe is exposed to corrosive conditions.[73] The CPC, however, already permits the use of CPVC pipe in areas of the state where copper pipe is exposed to corrosive water or soil conditions.[74] The Project, on the other hand, proposes expanding CPVC approval to the areas of the state that *do not* have corrosive water or soil conditions.

19-79

The RDEIR's analysis of the Project's relationship to copper water quality impacts is thus misleading and incorrect. This error distorts the Project description and prevents a meaningful analysis of Project impacts and Project alternatives. "Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal (i.e., the 'no project' alternative) and weigh other alternatives in the balance."[75] The RDEIR must be revised to correct this error.

19-80

In addition to its long irrelevant discussion of copper impacts, the RDEIR also supplements its water quality analysis with a long explanation for its failure to evaluate the leaching of organotins. Rather than actually disclose how long and in what quantities organotins are leached from CPVC pipe, the RDEIR spends its entire analysis arguing that this "is not a new issue" because it was evaluated in the 1998 EIR. As discussed in detail in Section IV, *supra*, the RDEIR's reliance upon the 1998 EIR is improper and lacks foundation.

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[71] RDEIR at pp. 129, 155-156.

[72] 42 U.S.C. § 300g-6. California restrictions on the lead content of pipe, solder and flux are even more restrictive than federal restrictions. See Health & Saf. Code § 116875.

[73] RDEIR at pp. 129, 155-156.

[74] CPC § 604.1.2.

[75] *County of Inyo v. City of Los Angeles, supra*, 71 Cal.App.3d at 193; *see also City of Santee v. County of San Diego, supra*, 214 Cal.App.3d at 1450-1455.

The RDEIR also cites to an old 1983 United States Environmental Protection Agency ("EPA") report on organotins. This report, however, involves the Toxic Substances Control Act, not drinking water standards. It is also 23 years out of date and does not take into account the numerous new studies and information on organotins that are now available. These new studies and information are discussed in detail in our September 14, 2006 Coalition Comments. 19-81

By failing to evaluate relevant evidence and by improperly relying on the rescinded, incomplete 1998 EIR, the RDEIR's conclusions regarding the significance of organotin leaching from CPVC pipes lack foundation. 19-82

The RDEIR must be revised and recirculated to disclose and evaluate the evidence that the CPVC may leach chemicals such as organotins, THF, MEK, ACE and CHX into drinking water. It must also disclose and evaluate evidence that the proposed one-week flushing mitigation measure is inadequate, systematically ignored, and unenforced. 19-83

D. The RDEIR Fails to Improve its Inadequate Evaluation of Worker Health and Safety Impacts

1. The RDEIR Again Fails to Evaluate Substantial Evidence of Worker Health and Safety Impacts

The RDEIR fails to address any of the issues or evidence presented in the Coalition's August 14, 2006 Comments regarding the Project's worker health and safety impacts. Accordingly, the Coalition's August 14, 2006 Comments remain applicable, in their entirety, to HCD's "revised" evaluation of worker health and safety impacts. 19-84

The RDEIR also continues to misrepresent and minimize the findings of the 1989 DHS study. The RDEIR repeatedly characterizes the 1989 DHS as concluding that "few overexposures" occur as a result of CPVC installation.[76] This representation is contrary to the findings in the 1989 DHS study. 19-85

The 1989 DHS study examined worker exposure to the chemicals in the solvents used to join the pipes and concluded that workers installing CPVC pipe *regularly* suffered significant exposure to toxic chemicals in excess of the legal exposure limits for those chemicals.[77] The 1989 DHS study concluded that the likelihood of overexposure above the full-shift exposure limit was estimated to be 10% for a typical workday of installing

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[76] See RDEIR at p. 145.
[77] *Id.*

CPVC pipe for potable water in residential construction. The likelihood of overexposure above the short-term exposure limit at least once in a typical eight-hour workday was estimated to be 68%. 19-85

The study found that chemicals such as THF, CHX, ACE and MEK enter the bloodstream of workers through vapors, solvent skin contact and through permeation of gloves and clothes. The DHS experts advising HCD on the preparation of the incomplete 1998 EIR stated: "Case reports point to the likelihood that overexposure related to poor ventilation has already led to illness in pipe workers."[78]

Even at levels lower than recommended exposure limits, MEK and ACE produce irritation of the eyes, nose and throat.[79] Indeed a substantial percentage of plumbers report experiencing irritation during the installation of CPVC pipes.[80] DHS has stated clearly that short-term irritation is a material impairment to health.[81] Furthermore repeated irritation may contribute to chronic illness.[82]

In addition, all four solvents used in CPC primers and cements – THF, MEK, CHX and ACE – may lead to the depression of central nervous system functions. Dizziness was the second most common symptom of ill health reported by workers participating in the 1989 DHS study, followed by headaches.[83]

The RDEIR continues to assume that current ventilation and glove-use requirements are sufficient to reduce these worker health and safety impacts to a level of insignificance. The expert comments and evidence submitted with the September 14, 2006 Coalition Comments demonstrate that this assumption is false. 19-86

The 4-mil nitrile gloves required under current regulations offer no protection against dermal absorption of any of the chemicals contained in CPVC solvents. According to Dr. Jim Bellows, the use of gloves may actually make the problem worse. 19-87

Moreover, recent studies have determined that enforcement and implementation of the current ventilation and glove-use requirements has 19-88

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[78] Comments of Elizabeth Katz, MPH, Acting Chief, Hazard Identification System and Information Service, Department of Health Services (June 11, 1998).
[79] Sept. 14, 2006 Coalition Comments, Appendix 24 at p. 23.
[80] *Id.*
[81] Sept. 14, 2006 Coalition Comments, Appendix 28 at p. 25.
[82] *Id.*
[83] *Id.* p. 36.

been virtually non-existent.[84] When successful implementation of a proposed mitigation measure is uncertain, an agency cannot reasonably determine that significant effects will not occur."[85] Evidence of past failure to vigorously monitor and enforce compliance with similar or identical mitigation measures is substantial evidence that adverse impacts may occur.[86] 19-88

Further study is needed to determine exactly why these mitigation measures are failing and what measures may be imposed to improve the effectiveness of future mitigation measures. 19-89

Furthermore, new data or testing is required to adequately evaluate this impact.[87] New formulations of CPVC solvents have entered the market since the completion of the 1989 DHS study. Low-VOC solvents have changed their formulations to reduce their contribution to ozone pollution. One-step cements have also entered the market. While these formulations have reduced the amount of some chemicals, they have increased the amount of other chemicals.[88] The RDEIR's assumption that these new formulations will significantly reduce impacts lacks foundation and is not based upon any empirical data. New testing is required to determine the actual impact on worker health from these changes. 19-90

In his comments on the July 2006 DEIR, Dr. Bellows listed a number of additional mitigation measures that should be considered to further reduce the risk to worker health and safety.[89] The RDEIR fails to consider any of these measures. 19-91

The RDEIR's continued failure to acknowledge and evaluate the Project's worker health impacts renders it legally inadequate. Moreover, the decision to ignore this issue prevents the implementation of potentially more effective mitigation measures. 19-92

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[84] Sept. 14, 2006 Coalition Comments, Appendix 25 & Appendix 27.
[85] *Federation of Hillside and Canyon Associations v. City of Los Angeles* (2000) 83 Cal.App.4th 1252, 1260; *Oro Fino Gold Mining Corp. v. County of El Dorado* (1990) 225 Cal.App.3d 872, 882.
[86] *Oro Fino Gold Mining Corp. v. County of El Dorado, supra*, 225 Cal.App.3d at 882.
[87] See *Citizens to Preserve the Ojai v. County of Ventura* (1985) 176 Cal.App.3d 421.
[88] See July 2006 DEIR at p. 63 (low-VOC solvents contain increased amounts of ACE); Dr. Bellows Comments (Aug. 27, 1998) at pp. 18-20 (finding that low-VOC solvents may contain up to ten times the levels of MEK found in the solvents evaluated in the 1989 DHS study).
[89] Dr. Bellows Comments (Sept. 8, 2006).

2. The RDEIR's Analysis of Copper Pipe Installation Impacts Is Misleading, Misplaced and Incomplete

Rather than evaluate relevant evidence, the RDEIR instead adds a long, irrelevant, and misleading discussion about worker health impacts associated with the improper installation of copper pipes. 19-93

(a) The RDEIR Must Evaluate and Mitigate the Risks Associated with the Installation of CPVC Pipe Regardless of Any Risks Associated with Copper Pipe Installation

The RDEIR seems to assume that if it identifies the worker health and safety risks associated with the installation of copper pipe, it need not evaluate and mitigate the worker health and safety risks associated with the installation of CPVC pipe. This assumption is incorrect. 19-94

An EIR prepared by the lead agency must include a detailed statement setting forth *all* significant effects of the proposed project.[90] Its purpose is "to provide the public and governmental decision-makers . . . . with *detailed information* of the project's likely effect on the environment; to describe ways of minimizing significant effects; to point out alternatives to the project."[91]

A lead agency may not disregard a Project's significant impacts simply because the Project may have some environmental benefit.[92] CEQA requires the identification of all project impacts, even if the project as a whole is environmentally preferable to the no-project alternative. An EIR is even required to discuss the impacts of mitigation measures if the inclusion of a mitigation measure would itself create new significant effects.[93]

Moreover, the worker health and safety risks associated with copper installation are qualitatively different than the worker health and safety risks associated with CPVC installation. Workers installing CPVC pipe will be exposed to toxic chemicals that they would not be exposed to if they were installing copper pipe. Accordingly, worker impacts associated with the installation of copper are relevant only in evaluating the no-project alternative. 19-95

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[90] Pub. Resources Code § 21100, subd. (b)(1).
[91] *County of Inyo v. City of Los Angeles, supra*, 71 Cal.App.3d at p. 192; emphasis added.
[92] See, e.g., *Dunn-Edwards Corp. v. Bay Area Quality Management District* (1992) 9 Cal.App.4th 644; *Building Code Action v. Energy Resources Conservation and Development Commission* (1980) 102 Cal.App.3d 577.
[93] CEQA Guidelines § 15126.4, subd. (a)(1)(D).

(b) The Claim that Workers Installing New Copper Pipe Systems May Be Exposed to Lead Is Speculative and Misleading

The RDEIR discusses at great length the risk to workers installing copper pipe from the use of lead solder. This discussion is irrelevant and misleading. As discussed fully, *supra*, "lead-free" pipe, solder and flux for the installation of potable water systems has been required throughout the United States for over 20 years.[94] 19-96

The RDEIR speculates that workers may still use lead solder despite the current restrictions against such use. This claim is based solely on a statement in the 1989 DHS study that lead solder was found in the workboxes of two workers. However, the 1989 DHS study went on to suggest that the lead solder was for other uses.[95] 19-97

Moreover, the study found no evidence that lead solder was being used to install copper pipe potable water systems. DHS found that lead-free solder was used in *every* copper pipe installation they examined.[96] In addition, this discovery occurred just a couple years after the ban on lead solder was instituted and does not indicate that workers are continuing to purchase and use this out-dated product.

Nonetheless, the RDEIR insinuates that the likelihood that workers installing CPVC will be exposed to harmful levels of chemicals is the same as the likelihood that workers installing new copper pipe systems will be exposed to dangerous levels of lead.[97] This claim lacks foundation.

There is no evidence that workers installing new copper pipe installations in California use lead solder. On the other hand, substantial evidence, including field studies and surveys, demonstrates that workers installing CPVC are regularly exposed to harmful levels of chemicals.

This claim is false, lacks foundation and taints the RDEIR's entire worker health impact analysis.

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[94] 42 U.S.C. § 300g-6.
[95] 1989 DHS Study at p. 25.
[96] *Id.*
[97] RDEIR at pp. 129, 155-156.

(c) The New Report on Toxic Vapors From Copper Pipe Installation Is Misleading, Fails to Provide any Meaningful Information, and Is Rebutted by the 1989 DHS Study

The RDEIR further taints its worker health and safety analysis by referencing repeatedly a September 2006 test of organic vapors generated during soldering of copper pipes.[98] This test was commissioned and submitted by the CPVC manufacturer Noveon.[99] While the test identifies *trace* chemicals contained in copper soldering vapor, it fails to provide any meaningful information about the risk to worker health and safety.[100] 19-98

Nonetheless, the RDEIR assumes, without foundation, installers of copper may be exposed to these trace chemicals in significant amounts. 19-99

This assumption is not supported by the September 2006 Study. The September 2006 Study does not determine the amount of vapors potentially inhaled by workers during soldering. Moreover, it does not evaluate whether any of the toxic chemicals in the vapors are found in significant amounts. In other words the study presents no evidence that the vapors produced from soldering copper pipe present any health risk to installers of copper.

Furthermore, this assumption is contrary to the evidence in the record. The 1989 DHS study also evaluated the risk to workers from installing copper pipe. The study found that "Exposures associated with installation of copper ... were found to be well below the established workplace exposure limits for all substances monitored."[101]

Instead of spending resources preparing this irrelevant study, Noveon should have spent their money to study the risk to workers from the installation of CPVC pipe with new low-VOC solvents. 19-100

(d) The RDEIR's Comparison of CPVC and Copper Installation Hazards Is Inaccurate and Misleading

The RDEIR concludes that the risk to workers from *improperly* installing CPVC pipe is no greater and perhaps is less than the risk to workers from *improperly* installing copper pipe. This conclusion lacks foundation, is inaccurate and is misleading. 19-101

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[98] RDEIR at pp. 136, 167.
[99] RDEIR at Appendix D.
[100] *Id.*
[101] 1989 DHS Study at p. vi.

First, the RDEIR has failed to adequately disclose or evaluate the worker health and safety impacts associated with the manufacture and installation of CPVC pipe.[102] Without proper evaluation of the Project's worker health and safety impacts, the claim that the no-project alternative (copper pipe installation) would result in greater impacts lacks any foundation. 19-102

Second, the RDEIR's evaluation of the impacts associated with copper pipe installation lacks foundation due to its unsupported assumption that copper pipe soldering results in significant worker exposure of lead and other toxic substances. As discussed above, this assumption lacks foundation and is contrary to the evidence in the record. 19-103

Third, the RDEIR fails to compare the likelihood of improper CPVC installations to the likelihood of improper copper pipe installations. CPVC worker installation impacts are qualitatively different from copper pipe installations because there is overwhelming evidence that CPVC installers almost never comply with the safety requirements for installing CPVC pipe.[103] The evidence in the record also demonstrates that CPVC installers who do follow HCD's regulatory glove-use requirements may, in fact, increase their exposure to toxic chemicals.[104] 19-104

On the other hand, no evidence exists that installers of copper pipe ignore safety measures at anywhere near the same rate as CPVC installers. Installers of copper pipe tend to be more experienced, skilled and better trained. A study published in the Journal of Occupational and Environmental Medicine found that over 75% of workers installing copper pipe received safety and training orientation.[105] Moreover, it found that this resulted in a "significant reduction in injuries." This study suggests that safety measures for installing copper pipe are much more likely to be implemented and have been proven effective. 19-105

Accordingly, the RDEIR lacks foundation for its conclusion that the no-project alternative (copper installation) would result in equivalent or greater worker health and safety impacts than the Project. 19-106

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[102] See Sept. 14, 2006 Coalition Comments.

[103] Sept. 14, 2006 Coalition Comments, Appendix 25 (Capitolo Survey) & Appendix 27 (Calone Field Investigation).

[104] Dr. Bellows Comments (Sept. 8, 2006).

[105] Steven Kinn, et al., Evaluation of Safety Orientation and Training Programs for Reducing Injuries in the Plumbing and Pipefitting Industry, Journal of Occupational and Environmental Medicine, Vol. 42, Number 12 (December 2000) at p. 1142.

3. The Regulatory Powers of Cal/OSHA and Local Governments Are Insufficient to Ensure the Safety of Workers Installing CPVC

The RDEIR improperly assumes that the regulatory authority of Cal/OSHA and local governments will ensure worker safety. The RDEIR concludes that: 19-107

> Based on the enforcement powers of Cal/OSHA, as well as the enforcement power of local governments, it is reasonable to assume that employers will meet their legal obligations to follow safety procedures and regulations by providing necessary safety equipment, training and oversight.[106]

It further concludes that:

> Therefore, because of governmental enforcement power and employer's obligations to follow the law, worker safety impacts of the Proposed Project related to failure to enforce existing worker safety mitigation measures are less than significant.[107]

The RDEIR's reliance upon the enforcement powers of Cal/OSHA and local governments in lieu of actually evaluating the Project's potential worker health and safety impacts violates CEQA. A lead agency may not avoid disclosure and evaluation of potential impacts of a project by simply assuming that compliance with regulations would prevent impacts from occurring.[108]

Moreover, the assumption that "governmental enforcement power and employer's obligations to follow the law" will mitigate worker health and safety impacts to a level of insignificance lacks foundation. It is also contrary to the evidence in the record.

Recent surveys and field investigations demonstrate that CPVC worker safety mitigation measures are almost never enforced or implemented. Not one of the 33 jurisdictions surveyed fully enforced the ventilation and glove use measures.[109] Twenty-seven of the thirty-three jurisdictions (82%) failed to enforce *any* of the mitigation measures.[110] In 19-108

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[106] RDEIR at p. 154.
[107] *Id.*
[108] *Californians for Alternatives to Toxics v. Department of Food & Agric.* (2005) 136 Cal.App.4th 1, 15.
[109] Sept. 14, 2006 Coalition Comments, Appendix 25 (Capitolo Survey) at p. 4.
[110] *Id.*

addition, field investigations have found almost universal non-compliance with the ventilation and glove-use mitigation measures.[111] The only worksite observed that actually complied with safety standards did so only *after* a serious accident.[112] 19-108

The RDEIR's analysis also demonstrates a fundamental misunderstanding of Cal/OSHA's enforcement practices. Cal/OSHA has no jurisdiction over independent contractors who install CPVC and thus may not be relied upon to ensure implementation of safety mitigation measures.[113] 19-109

Moreover, documents obtained from HCD reveal that the California Department of Health Services recommended that the proposed ventilation measures should be evaluated by the Cal/OSHA Consultation Service or Research and Standards group in order to determine if the current worker safety measures were effective.[114] HCD, however, failed to follow this recommendation. 19-110

4. The RDEIR Continues to Disregard the Increased Risk to Workers Manufacturing CPVC Pipes and Solvents

Throughout the manufacture of CPVC, dioxins, furans, hexachlorobenzene, and PCBs are unavoidably produced, primarily because of CPVC's chlorine content.[115] When evaluated in relation to other plastics used to make pipe, CPVC is considered "worst in class" for use of harmful substances and earned a recommendation of "avoid" in the Plastic Pipe Alternatives Assessment produced by the San Francisco Department of the Environment.[116] 19-111 19-112

As a result, the manufacturing of CPVC can result in significant worker exposures to toxic and carcinogenic chemicals.[117] In her 2005 Comments, Dr. Phyllis Fox calculated that dioxin emissions alone may expose workers to a cancer risk of over 5 per million – five times above relevant significance thresholds.[118] In addition, workers are exposed to a wide range of other toxic chemicals, including THF, MEK and CHX.[119] The 19-113

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[111] Sept. 14, 2006 Coalition Comments, Appendix 27 (Calone Field Investigation).
[112] *Id.*
[113] Exhibit J (Email from Elizabeth Katz (DHS) to Robin Gilb (HCD) (May 31, 2006)).
[114] *Id.*
[115] Sept. 14, 2006 Coalition Comments, Appendix 21; See also Dr. Fox Comments (Apr. 22, 2005).
[116] Sept. 14, 2006 Coalition Comments, Appendix 21 at p. 4.
[117] Dr. Fox Comments, §II.B (Apr. 22, 2005).
[118] *Id.*
[119] *Id.*

Vinyl Chloride industry in particular has a very disturbing record of manufacturers knowingly exposing workers to serious and life-threatening workplace conditions.[120] 19-113

The RDEIR continues to disregard the worker health impacts associated with the increased manufacturing of CPVC resins, CPVC pipe and fittings, and CPVC solvent cements and primers. Moreover, the RDEIR incorrectly states that CPVC is not produced in California.[121] The RDEIR's continued failure to address the impacts of increased CPVC and related product manufacturing in response to the project approval is a violation of CEQA requirements.[122] 19-114

E. The RDEIR's Analysis of the Project's Solid Waste Impacts Remains Inadequate

Except for an irrelevant discussion of the premature failure of copper pipe exposed to corrosive conditions, the RDEIR's solid waste evaluation is identical to the inadequate solid waste evaluation contained in the July 2006 DEIR. The RDEIR continues to disregard relevant evidence, makes the same unsupported assumptions, and reaches the same arbitrary conclusions. Accordingly, the September 14, 2006 Coalition Comments remain applicable, in their entirety, to the RDEIR's evaluation of solid waste impacts. 19-115

The RDEIR's evaluation of solid waste also contains one additional error. The RDEIR now claims that, copper creates more solid waste than CPVC because it fails quickly in aggressive soil conditions. As discussed throughout these comments, this claim is irrelevant and misleading. 19-116

The CPC currently permits the use of CPVC in those areas of the state where copper is likely to fail prematurely due to corrosion.[123] The Project, on the other hand, proposes to expand the approval of CPVC to those areas of the state where copper does not prematurely fail.

In normal conditions, copper pipe will last much longer than CPVC.[124] In addition, copper normally causes less damage when it fails than CPVC. Copper tends to sprout pinhole leaks, while CPVC tends to rupture and

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[120] Sept. 14, 2006 Coalition Comments, Appendix 36.
[121] RDEIR at p. 225; Sept. 14, 2006 Coalition Comments, Appendix 52 (the NSF's product database and other sources indicate that CPVC pipe, fittings and solvents are manufactured in California at eight facilities).
[122] See *Building Code Action v. Energy Resources Conservation and Development Commission* (1980) 102 Cal.App.3d 577.
[123] CPC § 604.1.2.
[124] Exhibit A, Reid Comments (Dec. 27, 2006).

release great quantities of water.[125] The RDEIR's claim that copper creates more solid waste is thus contrary to the evidence and misleads decisionmakers and the public. 19-116

CPVC pipe, on the other hand, is universally considered to pose serious waste disposal concerns. The RDEIR's conclusion to the contrary lacks foundation and credibility. CPVC is extremely difficult to recycle, is rarely recycled and is considered a "contaminant" in the plastic recycling waste stream.[126] Recent reports on CPVC have stated bluntly, "there is no safe way to get rid of it, and no good way to recycle it."[127] 19-117

Because of its higher chlorine content, CPVC is recycled even less than PVC. PVC is also not recycled in any meaningful quantities. Of an estimated 7 billion pounds of PVC thrown away in the U.S., only 18 million – barely one quarter of 1% – is recycled.[128] The American Association of Postconsumer Plastics Recyclers has declared efforts to recycle PVC a failure.[129]

CPVC also presents significant disposal risks when disposed in landfills or burned in waste incinerators. First, the persistence of CPVC, which typically lasts for centuries in a landfill, presents a significant burden in terms of the demand for landfill space.[130] Second, the release of additives in CPVC may contaminate groundwater.[131] Third, combustion of CPVC in incinerators or landfill fires may release hazardous substances into the air, including dioxins, metals and toxic gases.[132] PVC burning in landfill fires may now be the single largest source of dioxin releases to the environment.[133] 19-118 19-119

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[125] *Id.*

[126] See Sept. 14, 2006 Coalition Comments, Appendix 21 (Rossi, et al., Plastic Pipe Alternatives Assessment (2/11/2005)); see also Sept. 14, 2006 Coalition Comments, Appendices 53 & 67-74.

[127] Sept. 14, 2006 Coalition Comments, Appendix 69 (Dr. Sandra Steingraber, Update on the Environmental Health Impacts of Polyvinyl Chloride (PVC) as a Building Material: Evidence from 2000-2004 (April 2, 2004) at p. 17).

[128] *Id.*

[129] Sept. 14, 2006 Coalition Comments, Appendix 67 (Joe Thorton, Ph.D., Healthy Building Network, "Environmental Impacts of Polyvinyl Chloride Building Materials" (2002) at p. 55).

[130] *Id.* at p. 56; see also Sept. 14, 2006 Coalition Comments, Appendix 21 (Rossi, et al., Plastic Pipe Alternatives Assessment (2/11/2005)).

[131] *Id.*

[132] *Id.*

[133] Exhibit K (Healthy Building Network, PVC in Buildings: Hazards and Alternatives (Jan. 11, 2006)); see also Sept. 14, 2006 Coalition Comments, Appendix 67 (Joe Thorton, Ph.D., Healthy Building Network, "Environmental Impacts of Polyvinyl Chloride Building Materials" (2002) at p. 56 ("PVC is the predominant source of dioxin-generating chlorine in these facilities. In municipal waste incinerators, PVC contributes at least 80 percent of the organically-bound chlorine and 50 to 67 percent of the total chlorine (organochlorines plus inorganic chloride) in the waste stream—although it makes up only about 0.5 percent of the

Solid waste disposal is a potentially significant adverse environmental impact of the proposed statewide approval of CPVC. This significant impact must be disclosed and evaluated in a revised RDEIR. 19-120

F. The RDEIR Again Fails to Evaluate Fire and Mechanical Failure Impacts

Like the July 2006 DEIR before it, the RDEIR fails to address *at all* the potential risk of fire propagation and toxic smoke posed by the increased use of CPVC.[134] It also again fails to address *at all* the issue of potentially catastrophic premature ruptures of CPVC pipe. Despite the submittal of substantial evidence that these impacts may be significant, the RDEIR contains no mention of or discussion of them. 19-121 19-122 19-123

As a result, the September 14, 2006 Coalition Comments on these issues remain applicable in their entirety. These impacts must be reviewed and analyzed in a revised RDEIR.

G. The RDEIR's Analysis of Energy Impacts Lacks Foundation

The RDEIR's new evaluation of the Project's energy impacts is misleading and relies on irrelevant comparisons. 19-124

First, the RDEIR states that "Compared to most other plastics, CPVC has a relatively low petroleum content and, therefore, its production process uses less of our non-renewable oil reserves."[135] The comparison to other plastics is not relevant. The Project proposes CPVC as an alternative to copper pipe, not "other plastics."

Second, the RDEIR repeatedly states that "the primary raw material for CPVC production, common salt, is not a scarce non-renewable resource"[136] This misleading emphasis on table salt obscures the fact that at least a third of CPVC's content is derived from oil resources.[137] It also fails to acknowledge that the chlorine content in CPVC actually makes this product dirtier to produce and harder to dispose.[138] 19-125 19-126

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trash stream by weight.").

[134] See Exhibit I.

[135] RDEIR at p. 217.

[136] See, e.g., RDEIR at p. 220.

[137] RDEIR at p. 217.

[138] See, e.g., Sept. 14, 2006 Coalition Comments, Appendices 21 & 67.

Third, the RDEIR argues that the use of copper pipe in areas of California with aggressive soil or water conditions is an inefficient and wasteful use of non-renewable resources.[139] As discussed in detail, *supra*, this claim is both irrelevant and misleading. Because CPVC is already allowed in these areas, the proposed Project does not address this problem. 19-127

Moreover, the evidence is irrefutable that Copper pipe is recyclable and CPVC is not. It is thus inaccurate and misleading to label CPVC a renewable resource and recycled copper as an unrenewable resource. 19-128

Fourth, the RDEIR contains a long, irrelevant, and misleading discussion of the relative loss of heat from *uninsulated* copper pipe and *uninsulated* CPVC pipe systems.[140] This discussion is irrelevant because California requires that all new hot water piping systems be insulated.[141] The RDEIR admits that the heat loss difference between insulated copper pipe and insulated CPVC pipe systems is minimal.[142] 19-129

These inaccurate, irrelevant and misleading statements taint the entire energy analysis and render it incomprehensible to the public. The RDEIR must be revised to provide an accurate and comprehensible comparison of energy impacts. 19-130

XI. THE RDEIR'S REVISED ALTERNATIVE ANALYSIS LACKS FOUNDATION AND IS IMPERMISSIBLY NARROW

The RDEIR greatly improves its alternatives analysis. The July 2006 DEIR failed to provide *any* comparison of alternatives and neglected to identify an environmentally preferred alternative. The RDEIR corrects both of these glaring errors. 19-131

Nonetheless, the RDEIR's Project alternative section remains inadequate even with these improvements. The RDEIR improperly narrows the Project objectives to prevent any meaningful evaluation of alternatives. Moreover, the RDEIR's conclusion that the no-project alternative would not have reduced impacts in comparison to the Project lacks foundation and is contrary to the evidence in the record. 19-132

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[139] RDEIR at p. 220.
[140] RDEIR at pp. 218-220.
[141] RDEIR at p. 218.
[142] *Id.*

A. The Project Objectives Are Impermissibly Narrow

The Project proposes to amend the CPC to authorize the statewide approval of CPVC drinking water pipe for all residential construction in California. Currently, CPVC drinking water is restricted to those areas of the state where a building official makes a finding that aggressive water or soil conditions cause premature failure of metallic pipe. 19-133

The RDEIR states that the Project objectives is "to remove the 'Findings Requirement' from the California Plumbing Code thereby allowing unconditional use of CPVC throughout California as an alternative pipe material for residential potable water plumbing systems."[143] This stated objective is improper because it describes the Project rather than the underlying objectives of the Project. As a result it preordains the outcome of the alternatives analysis.

CEQA requires evaluation of feasible alternatives to a proposed Project. However, an EIR need not evaluate alternatives that fail to attain most of the basic objectives of the Project.[144] By defining the objectives of the Project as the Project description, rather than the underlying policy objectives, HCD prevents any alternatives other than the proposed Project from being considered.

A lead agency may not preordain the outcome of the alternatives analysis by defining the Project's objectives in an unreasonably restrictive manner. In *Citizens Against Burlington, Inc. v. Busey* (D.C.Cir.1991) 938 F.2d 190, the federal court said "an agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative from among the environmentally benign ones in the agency's power would accomplish the goals of the agency's action."[145]

The rescinded 1998 CPVC FEIR underscores the narrowness of the RDEIR's stated Project objective. The 1998 CPVC FEIR (incompletely) evaluated essentially the same Project proposal. However, its statement of the Project objective was as follows: "to permit Californians to use a corrosion-resistant potable water piping material as an alternative in the interiors of residential buildings and to facilitate the provision of affordable, safe, and decent housing to all Californians."[146] 19-134

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[143] RDEIR at p. 22.
[144] CEQA Guidelines § 15126.6.
[145] *Citizens Against Burlington, Inc. v. Busey* (D.C.Cir.1991) 938 F.2d 190, 196.
[146] 1998 FEIR at p.1 (emphasis provided).

The revisions contained in the RDEIR suggest that the objective of the Project is to address the corrosion of copper pipe. However, if this is indeed the objective, the EIR fails to evaluate if the current restricted approval of CPVC pipe adequately addresses this problem and, if not, why not. 19-135

Without such an analysis, the lead agency is unable to evaluate whether environmentally preferable alternatives exist that may equally or more effectively address any remaining problems with corrosion of new copper plumbing systems. Such alternatives may include clarifying where CPVC pipe may be used or streamlining the approval of CPVC pipe in areas identified by the agency as having corrosive soil or water conditions.

The low-VOC and one-step cement Project alternatives that are discussed by the RDEIR are actually proposed mitigation measures disguised as Project alternatives. The Project proposes allowing the statewide approval of CPVC and removing the current limitations on where CPVC may be installed. The low-VOC cement alternative and the one-step cement alternative do not propose any alternatives to full statewide approval. 19-136

The RDEIR must be revised to identify the underlying Project objectives and to consider actual alternatives to the Project. 19-137

B. The Conclusions in the Alternatives Analysis Lack Foundation and Are Contrary to the Evidence

The RDEIR lacks foundation for its conclusion that the no-project alternative is not environmentally preferable to the Project or to the one-step cement alternative. Moreover, this conclusion is contrary to the evidence in the record. 19-138

The RDEIR states, without foundation, that both the proposed Project and the one-step cement alternative would improve water quality and worker safety impacts over the current status quo.[147] In addition it incorrectly suggests that the one-step cement alternative would not result in significant air quality impacts when compared to the no-project alternative.[148] 19-139

1. Air Quality

The RDEIR admits that air quality impacts will be significant under both the proposed Project and the one-step cement alternative.[149] The RDEIR's analysis of the no-project alternative, however, dismisses the 19-140

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[147] RDEIR at p. 188.
[148] *Id.*
[149] RDEIR at p. 50.

significance of this finding and then spends the bulk of its analysis arguing that the Project would decrease air quality impacts related to the use of copper. 19-140

The RDEIR's argument that the copper pipe soldering process results in significant air quality impacts has no foundation. The RDEIR cites only to a study that lists all of the trace chemicals that may be released as vapor during the copper soldering process, but that does not quantify the amount of chemicals released.[150] No analysis or evidence is provided that even suggests that the copper soldering process releases any of the listed chemicals in amounts that result in any significant degradation of air quality.[151] The RDEIR, itself, does not even make this claim. 19-141

However, by spending the bulk of this section discussing copper soldering vapors, the RDEIR misleadingly suggests that air quality impacts from copper soldering are more significant than air quality impacts from CPVC installation. The RDEIR's no-project alternative analysis must be revised to eliminate this unsupported assertion. The RDEIR must be revised to disclose unambiguously that the one-step cement alternative will result in significantly greater air quality impacts than the no-project alternative. 19-142

2. Water Quality

The RDEIR is further deficient because it concludes, without foundation, that the Project would result in less contamination of drinking water and water bodies than the no-project alternative. This conclusion lacks foundation for two reasons. 19-143

First, the RDEIR has failed to adequately disclose or evaluate the water quality impacts associated with CPVC pipe installations.[152] Without proper evaluation of the Project's water quality impacts, the claim that the no-project alternative would result in worse impacts lacks any foundation.

Second, the claim that the Project would significantly reduce water quality impacts from the current use of copper lacks foundation. The RDEIR makes this claim based upon leaching from old copper pipe installations and the installation of copper pipe in areas with conditions of low pH or other aggressive water.[153] 19-144

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[150] RDEIR at p. 164.
[151] *Id.*; see also RDEIR at Appendix D.
[152] See Sept. 14, 2006 Coalition Comments.
[153] RDEIR at pp. 165-166.

The Project, however, would not affect existing copper pipe installations. It would only impact new copper pipe installations. New copper pipe installations do not use solder containing lead or other chemicals that may leach in significant amounts.[154] 19-144

Moreover, the current regulatory framework already allows the use of CPVC in areas with aggressive water conditions. Consequently, the Project does not have an effect on the installation of copper pipes in such areas. 19-145

3. Worker Health and Safety

The RDEIR also lacks foundation for its conclusion that the no-project alternative would result in greater worker health and safety impacts than the other Project alternatives. 19-146

First, the RDEIR has failed to adequately disclose or evaluate the worker health and safety impacts associated with the installation and manufacture of CPVC pipe.[155] Without proper evaluation of the Project's worker health and safety impacts, the claim that no-project alternative would result in greater impacts lacks any foundation.

Second, the RDEIR assumes, without foundation, that installers of copper pipe fail to follow safety procedures at anywhere near the rate of CPVC installers. 19-147 The evidence in the record demonstrates that CPVC installers almost never follow the proper safety procedures.[156] 19-148 The evidence in the record also demonstrates that CPVC installers who do follow HCD's regulatory glove-use requirements may, in fact, increase their exposure to toxic chemicals.[157] 19-149 Accordingly, the RDEIR lacks foundation for its conclusion that the no-project alternative would result in greater worker health and safety impacts than the Project or the other discussed alternatives. 19-150

4. Solid Waste

The RDEIR also lacks foundation for its conclusions regarding the relative solid waste impacts of the Project and no-project alternative. As discussed in detail above, the RDEIR again fails to disclose or evaluate the solid waste impacts associated with the widespread use of CPVC potable 19-151

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[154] See Section X.D.2.(c), *supra*.
[155] See Sept. 14, 2006 Coalition Comments.
[156] Sept. 14, 2006 Coalition Comments, Appendix 25 (Capitolo Survey) & Appendix 27 (Calone Field Investigation).
[157] Dr. Bellows Comments (Sept. 8, 2006).

water pipe.[158] Without proper evaluation of the Project's solid waste impacts, the RDEIR lacks foundation for its analysis of Project alternatives. 19-151

The RDEIR's conclusion regarding the relative solid waste impacts of the Project and no-project alternative is further deficient because it erroneously assumes that the Project will reduce premature failure of copper in areas with corrosive water or soil conditions.[159] As discussed above, the proposed Project would not affect the installation of copper pipes in areas where copper may prematurely fail due to corrosive conditions. By expressly relying on this erroneous assumption, the RDEIR's conclusion regarding relative solid waste impacts lacks foundation. 19-152

5. Other Impacts

The RDEIR's alternatives analysis is also inadequate because it fails to evaluate the relative fire, manufacturing, and mechanical failure impacts of the project and the alternatives. 19-153

XII. A NEW RDEIR MUST BE RECIRCULATED FOR PUBLIC REVIEW

A Draft EIR must be recirculated if: (1) it reveals new substantial environmental impacts not disclosed in the draft EIR; (2) it reveals a substantial increase in the severity of impacts (unless mitigated); (3) comments have been received that identify new feasible mitigation measures, but the feasible mitigation measures are not adopted; or (4) it is so fundamentally and basically inadequate and conclusory in nature that public comment on the draft EIR was essentially meaningless.[160] 19-154

The courts have held that the failure to recirculate an EIR turns the process of environmental evaluation into a "useless ritual" which could jeopardize "responsible decision-making."[161] Both the opportunity to comment and the preparation of written responses to those comments are crucial parts of the EIR process.

These comments have identified substantial environmental impacts that were not discussed at all in the RDEIR or were not meaningfully considered. These include direct and cumulative impacts on drinking water contamination, worker health and safety, solid waste disposal, mechanical

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[158] See Sept. 14, 2006 Coalition Comments.
[159] RDEIR at pp. 168-169.
[160] CEQA Guidelines § 15088.5, subd. (a).
[161] *Sutter Sensible Planning v. Sutter County Board*, (1981) 122 Cal.App.3d 813, 822.

failure and fire safety. The RDEIR must be withdrawn, revised and recirculated to properly evaluate these impacts.[162] The RDEIR must also be revised and recirculated to address its failure to meaningfully evaluate Project alternatives. 19-154

We have also identified feasible mitigation measures that have not been evaluated or proposed for adoption by the RDEIR. Under CEQA Guidelines, the RDEIR must be revised and recirculated to allow for public comment on these unadopted feasible mitigation measures.[163] 19-155

Finally, the RDEIR must be withdrawn and revised because its numerous deficiencies preclude meaningful public comment.[164] 19-156

The combined deficiencies in the RDEIR reflect a document "so fundamentally inadequate and conclusory in nature that public comment on the draft was in effect meaningless."[165] The omission of numerous analytical details or factual explanations for the critical conclusions contained within the RDEIR denied the public an "opportunity to test, assess, and evaluate the data and make an informed judgment as to the validity of the conclusions to be drawn therefrom."[166] Under these circumstances, recirculation is required under the *Laurel Heights II* test.

XIII. CONCLUSION

Despite finally quantifying air quality impacts in a meaningful manner, the RDEIR remains profoundly inadequate. It once again fails to meet the minimum requirements of CEQA. 19-157

The document repeatedly fails to provide substantial evidence or an analytic basis to support its findings. Further, the RDEIR ignores a vast body of evidence demonstrating that the expanded statewide approval of CPVC may have numerous significant impacts on public health and the environment. As a result, it fails in significant aspects to perform its function as an informational document that is meant "to provide public agencies and the public in general with detailed information about the effect which a proposed

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[162] CEQA Guidelines § 15088.5, subd. (a).
[163] *Id.*
[164] *Id.*
[165] *Laurel Heights Improvement Association v. Regents of the University of California* (1993) 6 Cal.4th 1112, 1130.
[166] *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 131; CEQA Guidelines § 15088.5.

project is likely to have on the environment" and "to list ways in which the significant effects of such a project might be minimized."[167] 19-157

The Coalition for Safe Building Materials respectfully requests that HCD withdraw the RDEIR and revise it to fully and completely address the issues and evidence that we have presented. The revised RDEIR must then be recirculated for public review.

[167] *Laurel Heights Improvement Association v. Regents of the University of California* (1988) 47 Cal.3d 376, 391.

Response to Letter 19: Coalition for Safe Building Materials

Comment 19-1. The Lead Agency disagrees with many of the assertions in this comment. The Lead Agency prepared the Draft EIR based on substantial evidence including scientific information. However, following the release of the Draft EIR, the Lead Agency determined that further information was required and the Recirculated Draft EIR was prepared and circulated.

Comment 19-2. The Lead Agency acknowledges that the commenters submitted extensive comments on the Draft EIR. A separate response to those comments has been prepared (please see responses to Comment Letter 12). The Lead Agency disagrees with the assertion that it has resisted a meaningful analysis of the issues that have been identified. Substantial analysis was added to the Recirculated Draft EIR, and that added analysis was based on the Lead Agency's own review as well as the comments that were submitted.

Comment 19-3. The Recirculated Draft EIR evaluates impacts on health, safety, and the environment. The Lead Agency disagrees with the comment that these issues have not been adequately disclosed or evaluated.

Comment 19-4. This comment is consistent with the analysis in the Recirculated Draft EIR. VOC emissions are evaluated in Section 4.2 of the Recirculated Draft EIR. This comment is also identical to a previous comment raised by the same commenters concerning the Draft EIR. Please also see the response to Comment 12-4.

Comment 19-5. The Lead Agency disagrees with the comment that the Recirculated Draft EIR's analysis substantially understates the Project's air quality impacts. This comment is also identical to a previous comment raised by the same commenters concerning the Draft EIR. Please also see the response to Comment 12-5.

Comment 19-6. This comment is identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-6.

Comment 19-7. The Recirculated Draft EIR analyzes potential impacts related to worker exposure occurring through inhalation on pages 142-149, and occurring through dermal exposure on pages 149-151. This comment also is identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-7.

Comment 19-8. This comment is identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-8.

Comment 19-9. This comment is identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-9.

Comment 19-10. This comment is identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-10.

Comment 19-11. The Recirculated Draft EIR analyzes potential water quality impacts related to leaching of chemicals including THF, MEK, ACE, CHX, and organotins on pages 124-129. As explained in that analysis, tributyltin is not a component of CPVC, except perhaps as a trace contaminant at extremely low concentrations with no human health or other environmental significance. Please also see the response to Comments 10-1, 10-3, 10-4, 12-60, 12-141, 12-144, 12-145, and 12-146 for additional discussion of issues related to organotin leaching. Please see the response to Comment 12-79 for a response to similar comments regarding the effectiveness of the flushing mitigation measure. The flushing mitigation measure is part of the existing California Plumbing Code provisions regulating the use of CPVC pipe in residential potable water systems, and is not "proposed" as part of the Project. The Project will not change the existing flushing requirement in any way. This comment also is identical to previous comments raised by the same commenters concerning the Draft EIR. Please also see the responses to Comments 12-11 and 12-12.

Comment 19-12. This comment is identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-13.

Comment 19-13. This comment is identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-14.

Comment 19-14. This comment is identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-14.

Comment 19-15. This comment is identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-15.

Comment 19-16. This comment is identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-16.

Comment 19-17. This comment is identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-17.

Comment 19-18. This comment is identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-18.

Comment 19-19. This comment is identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-19.

Comment 19-20. This comment is identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-20.

Comment 19-21. This comment is identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-21.

Comment 19-22. This comment is similar to previous comments raised by the same commenters concerning the Draft EIR. Please see the responses to Comments 12-99 and 12-218 through 12-221 for responses to similar comments regarding potential impacts associated with premature mechanical failure. Please also see the response to Comment 14-29.

Comment 19-23. The Lead Agency believes that the Recirculated Draft EIR is legally adequate and does not need to be recirculated again for public review and comment.

Comment 19-24. Separate responses have been prepared to the comments submitted by Thomas Reed and Dr. James Bellows. (See responses to Comment Letters 20 and 21). Also, separate responses have been prepared to the comments that were submitted on the Draft EIR. (See responses to Comment Letters 13, 14, and 15).

Comment 19-25. CPVC is already approved for statewide use. The proposed action is to remove the requirement of a finding regarding premature failure of metallic pipe. The proposed project does not require local building officials to permit the use of CPVC but allows such use without the requirement of any finding by a local official. Thus the purpose of the proposed action is to allow builders and homeowners to use CPVC as a matter of right, without the need for any specific approval for the local building official. While this would be an expansion of CPVC pipe use compared to current levels, the Lead Agency believes it is unreasonable to characterize this increase in 19% of the market share as "massive."

Comment 19-26. This comment describes the proposed Project and refers to the 2000 Mitigated Negative Declaration.

Comment 19-27. This comment generally describes the proposed action but slightly mischaracterizes the current Findings Requirement. The current California Plumbing Code does not restrict CPVC to areas of the State "where metallic pipe is *proven* to corrode prematurely" (emphasis added). Rather, CPVC is restricted to those areas where a local building official makes a determination that there is or will be a premature failure of metallic pipe due to existing water or soil conditions.

Comment 19-28. The Lead Agency does not agree with the characterization of the information added to the Recirculated Draft EIR as "cosmetic." Substantial analysis and information was added to the Recirculated Draft EIR.

Comment 19-29. The comment correctly points out that the Draft EIR did not evaluate alternatives. That was one of the reasons that the Lead Agency decided to recirculate the EIR. The Lead Agency does not agree with the comment that the alternatives analysis is impermissibly narrow and lacks foundation. The range of alternatives is appropriate given the limited nature of the proposed action.

Comment 19-30. The Lead Agency agrees with the comment that the Recirculated Draft EIR shows improvement over the Draft EIR. The Lead Agency does not agree with the comment that

the Recirculated Draft EIR contains numerous deficiencies. The analyses in the Recirculated Draft EIR are based on substantial evidence, and that evidence is cited in the EIR.

Comment 19-31. The Lead Agency has prepared a separate response to all of the Coalition's September 14, 2006, comments. (Please see the responses to Comment Letter 12).

Comment 19-32. The Lead Agency does not agree with the comment that the conclusions in the Draft EIR were speculative and arbitrary. Please refer more specifically to the Lead Agency's responses to the Coalition's prior set of comments on this point, in the responses to Comment Letter 12.

Comment 19-33. This Recirculated Draft EIR does refer to some of the information and analysis in the 1998 CPVC EIR. That 1998 EIR was rescinded and determined to be incomplete as part of a prior settlement agreement, but some of the information in that EIR remains relevant and accurate.

Comment 19-34. Opponents of CPVC pipe use submitted comments on both the Draft EIR and the prior 1998 CPVC EIR. Whether those comments indicate that the EIR was "widely condemned" is a matter of opinion. The Lead Agency also received many comments supporting both the 1998 EIR and the Draft EIR issued in July 2006.

Comment 19-35. This comment provides the commenters' interpretation of the events leading up to the 1998 CPVC EIR. The Lead Agency does not agree that a politically imposed deadline precluded it from conducting any genuine analysis in the 1998 EIR, but various opinions about the 1998 EIR and its status are not at issue now. The Lead Agency has used some of the information that was used in the 1998 EIR, to the extent such information was relevant to the analysis in this Recirculated Draft EIR.

Comment 19-36. Please see the response to Comment 19-35. Whatever the merits of this claim with respect to the prior EIR, independent consultants did participate in the preparation of this Recirculated Draft EIR, and the Lead Agency also consulted with state officials and others with expertise in the areas evaluated.

Comment 19-37. These comments relate to the 1998 EIR, and not to the Recirculated Draft EIR. There are numerous differences between the 1998 EIR and the Recirculated Draft EIR. The Recirculated Draft EIR includes substantial additional information and analysis, and the proposed Project preserves in place safety measures in connection with the installation of CPVC that were imposed after the 2000 Mitigated Negative Declaration was adopted. Those safety measures were negotiated with representatives of the California Pipe Trades Council, which is one of the members of the Coalition for Safe Building Materials.

Comment 19-38. This comment offers the commenters' interpretation of comments on the 1998 EIR. The Lead Agency made the decision following the filing of a lawsuit challenging the 1998 EIR to rescind its certification of the EIR, and the Lead Agency found in its settlement agreement that the 1998 EIR was incomplete. Those actions were taken to settle the litigation on

mutually agreeable terms, and the Lead Agency did not then determine that the 1998 EIR was biased or obviously inadequate.

Comment 19-39. See response to comment 19-38. The Lead Agency's decision to settle the litigation over the 1998 was not based on a determination that the 1998 EIR had "blatant deficiencies."

Comment 19-40. The Lead Agency disagrees with this comment. The Recirculated Draft EIR uses some of the information from the 1998 EIR, and uses some of the same source documents as were used in the 1998 EIR. The Recirculated Draft EIR relies on substantial additional documentation, analysis, and consultation in addition to what was conducted in connection with the 1998 EIR. This includes consultation with the State Fire Marshal for the analysis of fire risk related to the current Project, the preparation of the substantial additional air quality analysis in the Recirculated Draft EIR, and the additional analysis of alternatives.

Comment 19-41. This Recirculated Draft EIR does not incorporate information from the 1998 EIR by reference. Instead, this EIR refers to and cites to information from the 1998 EIR, in addition to other information.

Comment 19-42. This Recirculated Draft EIR is not tiered from the 1998 EIR. As explained in Section 1.4.2, this Recirculated Draft EIR is a subsequent EIR to the 2000 Mitigated Negative Declaration.

Comment 19-43. The Lead Agency disagrees with this comment. This Recirculated Draft EIR relies on some of the information from the 1998 EIR, and some of the same source documents as were used or referred to in the 1998 EIR. The Lead Agency has independently reviewed this analysis and determined that the information that has been included in this Recirculated Draft EIR is appropriate to explain and support the conclusions reached in this Recirculated Draft EIR. The fact that the Lead Agency rescinded the 1998 EIR as incomplete (as part of the settlement leading to the 2000 Mitigated Negative Declaration) does not mean that all of the information in that 1998 EIR is incomplete.

Comment 19-44. This comment offers the commenters' interpretation of comments on the 1998 EIR, and the commenters' arguments about the legal validity of the 1998 EIR. These opinions about the 1998 EIR and its status are not at issue now. The Lead Agency has used some of the information that was used in the 1998 EIR, to the extent such information was relevant to the analysis in this Recirculated Draft EIR.

Comment 19-45. The Recirculated Draft EIR does not rely on the 1998 EIR's conclusions without evaluating new information or new circumstances. Instead, some of the information in the 1998 EIR, and some of the source documents for the 1998 EIR, are part of the body of substantial evidence that supports the conclusions reached in the Recirculated Draft EIR.

Comment 19-46. The workplace exposure limits for ACE, and the current formulations of CPVC cements and primers, have been considered in this Recirculated Draft EIR. See pages 131 and 141 of the Recirculated Draft EIR, among other discussions.

Comment 19-47. The mitigation measures that remain in place to prevent significant impacts from leaching are discussed in the Recirculated Draft EIR at section 4.3.4. The new evidence cited by this comment consists of the commenters' previously submitted comments on the Draft EIR. The Lead Agency has prepared a separate response to those comments, and the commenters are directed to those responses for the response to this comment.

Comment 19-48. The mitigation measures referenced in this comment are discussed in the Recirculated Draft EIR at section 4.4.4. The new evidence cited by this comment consists of the commenters' previously submitted comments on the Draft EIR. The Lead Agency has prepared a separate response to those comments, and the commenters are directed to those responses for the response to this comment. The commenters also cite the *Oro Fino* case as establishing a standard that an impact must be reduced "to a point where clearly no significant effect" will result. That standard, however, applies to the evaluation of mitigation measures in a negative declaration. As stated in the Recirculated Draft EIR and in responses to the commenters' earlier set of comments, the Lead Agency has determined that the mitigation measures will avoid a significant impact and that determination is supported by substantial evidence.

Comment 19-49. This comment also refers back to the commenters' previously submitted set of comments, and separate responses have been prepared to those comments.

Comment 19-50. The Lead Agency disagrees with this comment. Both the Draft EIR and the Recirculated Draft EIR reflect the Lead Agency's independent judgment. The Draft EIR was prepared by Lead Agency staff based on evidence that was submitted to it or obtained by it, including evidence from environmental regulatory agencies, evidence from the State Fire Marshal, and evidence submitted by proponents of CPVC pipe. Much of the Recirculated Draft EIR was prepared by consultants, and the information added to the Recirculated Draft EIR included both new analysis and information (such as the air quality chapter prepared by Jones & Stokes) as well as new text summarizing evidence that was already before the Lead Agency. The Lead Agency's staff independently reviewed all of the submitted information and suggested text.

The comment also cites CEQA Guideline 15142, which states that an EIR shall be prepared using an interdisciplinary approach, considering both qualitative and quantitative factors, and that an EIR shall be prepared by competent individuals but that no single discipline shall be designated or required to prepare an EIR. Also, CEQA Guideline 15149 states that an EIR is not a technical document that can be prepared only by a registered professional. Finally, Guideline 15084(d) specifically authorizes the preparation of an EIR by agency staff. In this case, the Recirculated Draft EIR reflects a combination of work by the Lead Agency's staff and text and analysis submitted by consultants. All of the submitted text and analysis was independently reviewed by the Lead Agency's staff before being circulated for public comment, and reflects the Lead Agency's independent judgment.

The Lead Agency has relied on a variety of sources of substantial evidence in drafting the EIR and in reaching the stated conclusions regarding significant impacts. This evidence includes published information from environmental regulatory agencies and commonly accepted testing agencies, information from independent consultants such as the air quality analysis, and information from other state agencies with regulatory authority and expertise, such as the State Fire Marshal.

Comment 19-51. The Lead Agency disagrees with this comment. See Response 19-50 above.

Comment 19-52. The air quality analysis was prepared by an outside consulting firm, as the comment notes. The other analyses in the EIR are based on a variety of sources of substantial evidence. In some cases, this evidence includes consultation with other agency staff, such as the consultation with the State Fire Marshal regarding fire safety impacts.

Comment 19-53. Ms. Gilb prepared the Draft EIR, and independently reviewed the information that was submitted for the Recirculated Draft EIR. She reviewed the air quality chapter submitted by Jones & Stokes. She also reviewed the other evidence that is cited in the EIR, and evaluated whether the conclusions in the EIR are supported by substantial evidence. This is a proper role for agency staff in preparing an EIR.

Comment 19-54. The Lead Agency did not possess the resumes of the named consultants when the Public Records Act request was submitted. Those resumes have since been submitted to be part of the Lead Agency's administrative record supporting this action, and copies of those resumes have been or will be made available to the commenters.

The commenters correctly state that the Lead Agency did not have a contract with these consultants. These consultants were retained by Noveon, Inc., a maker of CPVC pipe. Noveon decided to retain these consultants to submit information to assist the Lead Agency in preparing the Recirculated Draft EIR. Noveon's counsel also submitted suggested text for the Recirculated Draft EIR, along with documents and evidence supporting the conclusions in that text that was submitted. Noveon's counsel and Noveon's technical experts also submitted some of the proposed text for the responses to comments, and some of the responses were prepared by Ms. Gilb. The Lead Agency independently reviewed the information that was provided. This review was conducted both by Ms. Gilb and by the Lead Agency's counsel, Dennis Beddard, on behalf of the Lead Agency.

Comment 19-55. Pleas see the response to Comment 19-54, above.

Comment 19-56. The Lead Agency disagrees with the comment that it has been motivated primarily by schedule and timing concerns. Before the Draft EIR had been prepared, the Lead Agency had prepared a proposed Draft Addendum to the 2000 Mitigated Negative Declaration, and was proposing to proceed with recommending deletion of the findings requirement based on that Draft Addendum. Had schedule and timing been the primary concern, the Lead Agency would have proceeded based on that Draft Addendum, as proponents of expanded usage of

CPVC pipe had urged. The Lead Agency instead decided to take a more cautious approach and prepare the Draft EIR, and when the Lead Agency's review of comments indicated that further information was required, the Lead Agency prepared and circulated the Recirculated Draft EIR.

Based on its independent review, the Lead Agency believes that the EIR complies with CEQA and provides sufficient analysis so that decision-makers can make a decision with intelligently takes account of environmental consequences. *See* CEQA Guideline 15151 (summarizing the standards for adequacy of an EIR). The conclusions reach in the EIR are supported by substantial evidence. The commenters have submitted comments and evidence that support the commenters' position, and the Lead Agency has considered those comments and prepared a good faith response to those comments.

Comment 19-57. This comment is similar to previous comments submitted by the same commenters regarding the Draft EIR. Please see the responses to Comments 12-53, and 12-57 through 12-71. The responses to those previous comments include discussion of NSF's methodology for setting standards. Detailed information regarding the NSF methodology for setting drinking water quality standards also is provided in Appendix E(8) to the 1998 EIR, which is part of the record supporting the analysis in the 2000 Mitigated Negative Declaration. For the reasons set forth in those responses, the Lead Agency believes that it is appropriate for the Lead Agency to rely upon NSF standards, testing, and certification of CPVC pipe and adhesives. For the reasons explained in the responses to those previous comments, reliance upon NSF standards does not invalidate the conclusions in either the Draft EIR or the Recirculated Draft EIR, and it was not necessary to include additional evaluation of NSF certification in the Recirculated Draft EIR.

Comment 19-58. Please see the response to Comment 19-57.

Comment 19-59. The Lead Agency disagrees with this comment. The analyses in both the Draft EIR and the Recirculated Draft EIR are based on substantial evidence, and that evidence is cited in the EIR.

Comment 19-60. The Lead Agency disagrees with this comment. The estimates and assumptions used in the Recirculated Draft EIR are based on substantial evidence, and that evidence is cited in the EIR.

Comment 19-61. Please see the responses to Comments 19-59 and 19-60. The Recirculated Draft EIR contains accurate statements based on substantial evidence, which is cited in the EIR. Section 3.0 of this Final EIR includes revisions to the text and errata in order to correct a few inaccurate statements in the Recirculated Draft EIR and to provide additional clarification. However, these revisions reflect only minor changes to the Recirculated Draft EIR and do not alter any of its conclusions. The Lead Agency believes that the Recirculated Draft EIR has provided the public an opportunity to meaningfully consider and comment on the Recirculated Draft EIR's conclusions. The public has had the opportunity to comment on the 2005 Draft Addendum, the Draft EIR, and the Recirculated Draft EIR, as well as on the earlier CEQA documents prepared to date, and the Lead Agency has received voluminous comments on each

of these documents. For these reasons, the Lead Agency declines to revise and recirculate the EIR for an additional public review period.

Comment 19-62. This comment is similar to previous comments raised by the same commenters concerning the Draft EIR. Please see the response to Comments 12-84 to 12-101. Please see the responses below to the commenters' more specific comments regarding revisions to the Project Description contained in the Recirculated Draft EIR.

Comment 19-63. The current Findings Requirement does not restrict the use of CPVC to "the few areas of the state where corrosive soil or water conditions will cause significant corrosion to metal pipes." It requires a local building official to make a finding that there is a risk of premature corrosion. In many instances, local building officials have been unwilling or have neglected to make such a finding despite evidence of a risk of premature failure of copper pipes or evidence of actual copper pipe failure. In addition, even in areas where there is little risk of premature failure of copper pipe, it is possible that the use of copper pipe nevertheless may contribute to violations of water quality standards for copper in areas where there is little risk of premature failure.

More importantly, however, the Project Description does not emphasize the fact that the Project will provide an alternative to the use of copper *in corrosive environments*, as the commenters suggest. Section 3.4 of the Project Description, "Project objectives," states:

> The current Uniform Plumbing Code permits the unrestricted use of CPVC pipe for hot and cold water distribution within residential buildings. The current California Plumbing Code conditions the use of CPVC to those situations where the local building official makes a finding that there is or will be a premature failure of metallic pipe due to existing water or soil conditions (referred to as the "Findings Requirement"). The project objective is to remove the "Findings Requirement" from the California Plumbing Code thereby allowing unconditional use of CPVC *throughout California as an alternative pipe material* for residential potable water plumbing systems.

(RDEIR p. 22). Thus, the Project objectives in the Project Description simply indicate that the Project would approve the unconditional use of CPVC statewide, rather than only in areas with a risk of premature copper failure, as alternative pipe material. The Project objectives also clearly indicate that currently local building officials may make a finding that there is or will be a premature failure of metallic pipe.

Copper pipe generally is discussed in the Recirculated Draft EIR in two contexts, both of which recognize the fact that copper pipe currently is more widely used in California residential potable water systems than any other pipe material. First, impacts related to existing copper use are described in the environmental setting discussions within the Recirculated Draft EIR sections analyzing specific potential impacts as the Project. This is necessary because the existing use of

copper pipe comprises a large part of the environmental baseline against which the Project's impacts must be measured. Second, existing copper use is analyzed in the analysis of the No Project Alternative, as the current level of copper use is expected to continue if the Project is not approved. The discussions of copper in these contexts are relevant, are not misleading, and do not result in a misrepresentation of the true nature of the Project.

Comment 19-64. This comment is virtually identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-95.

Comment 19-65. This comment is virtually identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-96.

Comment 19-66. This comment is virtually identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-96.

Comment 19-67. This comment is virtually identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-97.

Comment 19-68. The Lead Agency disagrees with the comment that the thresholds of significance relied upon in the Recirculated Draft EIR's analysis of water quality, worker safety, and solid waste impacts are inadequate. The thresholds of significance relied upon in the Recirculated Draft EIR's analysis of water quality and solid waste impacts are those specifically recommended for use in analyzing such impacts in Appendix G of the CEQA Guidelines. Although the CEQA Guidelines do not set forth applicable thresholds of significance for evaluating worker safety impacts of a proposed project. However, the Lead Agency believes that the thresholds of significance used in the worker safety analysis are reasonable, are similar to those recommended in Appendix G of the CEQA Guidelines for evaluation other types of potential impacts, and are supported by substantial evidence in the record, including information regarding existing regulatory standards for workplace exposures, existing regulations of the California Plumbing Code, and existing safety and precaution recommendations on material labels and Material Safety Data Sheets.

Comment 19-69. The Lead Agency disagrees with this comment. The Recirculated Draft EIR includes numerous substantive revisions to its analysis of potential impacts, and evaluates all potentially significant impacts of the Project in detail.

Comment 19-70. The Lead Agency disagrees with the statement in this comment that the conclusion in the Recirculated Draft EIR that the Project's air quality impacts will be significant and unavoidable implies that is fallacious to rely on any of the information contained in the 1989 and 1998 EIRs. Some of the information in both of those prior EIRs remains relevant and accurate, whereas other information needed to be updated in order to prepare the current EIR.

Comment 19-71. The Lead Agency disagrees with the implication in the comment that previous CEQA analysis of air quality impacts failed to disclose and evaluate the potential air quality impacts associated with the use of CPVC pipe. The Lead Agency believes the Recirculated

Draft EIR adequately analyzed all potentially significant environmental impacts of the Project. Therefore, it is not necessary to revise the Recirculated Draft EIR, except to the extent that Section 3.0 of this Final EIR makes certain minor revisions to the text of the Recirculated Draft EIR.

Comment 19-72. Section 4.2 of the Recirculated Draft EIR includes a discussion of the adverse health effects related to ozone, and therefore complies with the requirement under CEQA that an EIR discuss health and safety problems caused by the physical changes that the proposed project will precipitate. This discussion has been expanded in the Final EIR. Please see the revisions to page 34 of the Recirculated Draft EIR located in Section 3.0, Revisions and Errata, of this Final EIR.

Comment 19-73. The Lead Agency disagrees with the comment that the Recirculated Draft EIR made no substantive revisions to the analysis of water quality impacts contained in the Draft EIR. However, the Lead Agency has responded to each of the commenters' previous comments regarding the Draft EIR, which were submitted on September 14, 2006, rather than August 14, 2006. Please see the responses to Comment Letter 12.

Comment 19-74. This comment is similar to previous comments raised by the same commenters concerning the Draft EIR. Please see the responses to Comments 12-53, 12-57, and 12-58. For the reasons explained in the responses to those comments, the Lead Agency believes it is sufficient to rely upon disclosure by CPVC manufactures of such information to NSF, and that it is unnecessary for the Lead Agency to disclose this information directly to the public or to the Lead Agency.

Comment 19-75. This comment is similar to previous comments raised by the same commenters concerning the Draft EIR. Please see the responses to Comments 12-79, 12-142, and 12-153 through 12-163. Please also see the responses to Comments 14-58 through 14-61.

Comment 19-76. This comment is similar to previous comments raised by the same commenters concerning the Draft EIR. Please see the responses to Comments 12-53, 12-57, 12-58, 12-148 through 12-152. Please also see the responses to Comments 14-18 through 14-37, 14-55, and 14-56.

Comment 19-77. Please see the response to Comment 19-63. As explained in the response to that comment, a description of impacts associated with existing copper use in the environmental setting discussion within the Recirculated Draft EIR analysis of potential water quality impacts is necessary because the existing use of copper pipe comprises a large part of the basis for the environmental baseline against which the Project's impacts must be measured. Please also see the responses to Comments 18-3, 18-4, and 18-10 through 18-18.

Comment 19-78. Please see the responses to Comments 19-63 and 19-77.

Comment 19-79. Please see the responses to Comments 19-63 and 19-77. For the reasons set forth in the responses to those comments, and in the responses to other comments identified in

those comments, the Lead Agency believes that the Recirculated Draft EIR's analysis of the Project's relationship to copper water quality impacts is accurate and is not misleading, does not prevent a meaningful analysis of Project impacts and alternatives, and meets the informational standards described in the comment. Therefore, it is not necessary to revise the Recirculated Draft EIR, except to the extent that Section 3.0 of this Final EIR makes certain minor revisions to the text of the Recirculated Draft EIR.

Comment 19-80. Please see the responses to Comments 10-1, 10-3, 10-4, 12-60, 12-141, 12-144 through 12-147, 14-38 through 14-51, and 19-32 through 19-49.

Comment 19-81. Please see the responses to Comments 12-60, 12-61, and 12-144, and the responses to the commenters' numerous other previous comments regarding the Draft EIR in Comment Letter 12 regarding new and supposedly new studies and information regarding organotins.

Comment 19-82. Please see the responses to Comments 19-80 and 19-81. As explained in those responses, and in the responses to the other comments identified therein, there is substantial evidence in the record supporting the Recirculated Draft EIR's conclusions regarding potential impacts related to organotin leaching.

Comment 19-83. The Recirculated Draft EIR does disclose and evaluate potential impacts related to leaching of chemicals such as organotins, THF, MEK, ACE, and CHX into drinking water. (See RDEIR pp. 124-129). Please see the responses to Comments 12-79 and 19-11 for responses to similar comments regarding the effectiveness of the flushing mitigation measure.

Comment 19-84. The Recirculated Draft EIR has made a number of revisions based on the Lead Agency's evaluation and consideration of the comments made to the Draft EIR.

Comment 19-85. The 1989 DHS Study is first described on page 143 of the Recirculated Draft EIR and then discussed and analyzed in depth over pages 144 to 149. In particular, the Recirculated Draft EIR summarized the 1989 DHS Study's findings regarding short-term worker exposure (RDEIR, pp. 144-147) and full-shift worker exposure (RDEIR, pp. 147-149) to chemicals associated with CPVC solvents and cements during installation. Please see the response to Comment 12-164 for more discussion on the Recirculated Draft EIR's analysis of the 1989 DHS Study.

As discussed in more detail in Comment 12-164, most short-term and full-shift exposure levels associated with inhalation were well below Cal/OSHA levels, as demonstrated by data in the 1989 DHS Study. The commenters, nevertheless, suggest that the 1989 DHS Study concluded that "workers installing CPVC pipe regularly suffered significant exposure to toxic chemicals in excess of legal exposure limits." However, only one full-shift exposure and six short-term combined exposures exceeding legal exposure limits were identified by the study. (*See* RDEIR, pp. 146, 148.) Importantly, as stated on page 26 of the 1989 DHS study, the highest exposures were "dominated" by samples taken in "just two crawl spaces" with "very little ventilation." Thus, "air flow rate (as a measure of ventilation) was the strongest and most consistent

determinant of exposure levels." Therefore, exposure impacts can be eliminated or significantly minimized by following proper safety procedures and requirements in Section 301.0.2.1 of Appendix I, Installation Standards, California Plumbing Code, which require mechanical ventilation or respirators as necessary.

The commenters note that the 1989 DHS Study determined that the likelihood of overexposure above the full-shift exposure limit was estimated to be 10% for a typical workday of installing CPVC pipe for potable water in residential construction and 68% for short term exposure. As discussed in the response to Comment 12-166, the Recirculated Draft EIR specifically described the combined short and long term index exposures found in the 1989 DHS Study on pages 146 and 148, respectively. In addition, this information was disclosed and analyzed as part of the 1998 EIR, which is part of the record for the purposes of CEQA and the preparation of the Recirculated Draft EIR. (*See* 1998 Final EIR, p. 59.)
As discussed on pages 146 and 148 of the Recirculated Draft EIR, the highest exposure levels associated with the 1989 DHS Study occurred in low ventilation areas. The 1989 DHS Study specifically noted this fact throughout the report. (*See, e.g.,* 1989 DHS Study, pp. vi, 29, and 33.) Additionally, the 1989 DHS Study specifically concluded that the risk of exposure is "very low" for workers that work in properly ventilated areas. (1989 DHS Study, p. 30.) Therefore, risks associated with overexposure highlighted in the 1989 DHS Study can be mitigated to less than significant levels by following proper safety procedures and requirements in Section 301.0.2.1 of Appendix I, Installation Standards, California Plumbing Code, which require mechanical ventilation or respirators as necessary.

Furthermore, the 1989 DHS Study points out the highest exposure levels were dominated by samples collected in "just two crawl spaces" which had "very little ventilation," were partially underground, and very cool. (1989 DHS Study, p. 29.) Thus, under more normal working conditions, following proper safety procedures and ventilation requirements, the exposure levels would be dramatically reduced.

In addition, information in the record for the 1998 FEIR includes an opinion by Dr. Robert G. Tardiff that conclusions of the 1989 DHS Study may be subject to alternate interpretations because the short-term exposures reported are not the result solely of CPVC installation. Rather, the 1989 DHS Study describes air concentrations of chemicals from the concurrent and combined installation of two types of pipes, some made of CPVC (used to convey tap water) and other of PVC (used to convey waste and sewer lines) so that the total exposure cannot be apportioned between the two types of pipes. (Rebuttal Report of Robert G. Tardiff, Ph.D., Submitted Pursuant to the Federal Rule of Civil Procedure 26(a)(2)(B) in the case of *BF Goodrich v. Village of Lake in the Hills*, p. 5.)

As discussed in Comment 12-168, the Recirculated Draft EIR acknowledges that exposure to MEK and ACE can lead to irritation in the eyes, nose and throat as well as dizziness and headaches. These health effects are also noted in the 1982 NIOSH report (NIOSH, Health Hazards Evaluation Report No. 82-293, p. 19) and the 1989 DHS Study (1989 DHS Study, p. 33).

However, even short term irritation is most commonly associated by pipe installation in poorly ventilated areas. (NIOSH, Health Hazards Evaluation Report No. 82-293, p. 15.) As a result, these effects can be eliminated or minimized by following proper safety procedures and requirements in Section 301.0.2.1 of Appendix I, Installation Standards, California Plumbing Code, which require mechanical ventilation or respirators as necessary.

Furthermore, the 1989 DHS Study concluded that exposure to airborne THF, MEK, CHX and ACE at the levels measured in the study may produce irritation but the exposures are "*not known to produce long-term health effects*." (1989 DHS Study, p. 33 [emphasis added].) This conclusion is also supported by the 1982 NIOSH report, which determined that despite some short-term irritation caused by exposures (typically in confined spaces), there was "no appreciable decrement over the workday...for intelligence, memory and psychomotor function." (NIOSH, Health Hazards Evaluation Report No. 82-293, p. 19.) This conclusion is also supported by evidence in the record of the 1998 FEIR. (1998 FEIR, Appendix E, Letter from Dr. Hinderer representing BF Goodrich, p. 4.) The statement, however, cited by the commenters regarding short term irritation being a material impairment of health was not part of the conclusions of the 1989 DHS Study but rather a statement contained Appendix C as part of a summary of MEK's exposure limits and toxicities.

Building on these conclusions, along with the implementation of mitigation measures, the Recirculated Draft EIR determined that, in the context of CEQA review, exposure to THF, MEK, CHX and ACE would result in a less than significant impact to worker safety. (*See* RDEIR, pp. 144-149.)

Comment 19-86. This comment is addressed in detail by the response to Comments 12-164, 12-166, and 12-171.

Comment 19-87. This comment is addressed in detail by the response to Comment 12-171. It should be noted that 4-mil nitrile gloves have been shown to provide adequate short-term protection for CHX protection, which is the only solvent that the California Code of Regulations require dermal protection, and it is permissible to use any other glove that provides equivalent or better protection than the nitrile gloves pursuant to Section 301.0.2.2 of Appendix I, Installation Standards, California Plumbing Code.

Comment 19-88. This comment has been addressed in detail by the response to Comment 12-176.

Comment 19-89. This comment is virtually identical to a previous comment raised by the same commenters concerning the Draft EIR. Please see the response to Comment 12-179.

Comment 19-90. The Recirculated Draft EIR does not rely on the assumption that low-VOC solvents will "significantly reduce impacts," as the commenters have suggested. The Recirculated Draft EIR on pages 146-147 merely notes that these alternatives have been developed as part of a program to reduce emissions of volatile organic compounds and are approved for use. The Recirculated Draft EIR does not, however, rely on this fact to conclude

that impacts would be less than significant to worker safety. Please see the response to Comment 12-167 for a discussion of why potential worker safety impacts related to low-VOC CPVC adhesives and one-step cements will be less than significant. Under the CEQA Guidelines and case law, an EIR need not conduct every recommended test or perform all requested research. (CEQA Guidelines § 15204(a); *Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.*, 47 Cal. 3d 376, 410 (1988)). Based on the discussion in the response to Comment 12-167, the Lead Agency believes that the additional testing required by the commenter is unnecessary.

Comment 19-91. This comment is fully addressed by the response to Comment 12-180.

Comment 19-92. Section 4.4 of the Recirculated Draft EIR addresses potential impacts associated with the proposed project on worker safety. The Recirculated Draft EIR concludes that the proposed project would not result in any significant impacts to worker safety.

Comment 19-93. The Lead Agency respectfully disagrees with the suggestion that the discussion of copper pipe installation is improper. An EIR must describe the existing environmental setting prior to approval of a proposed project. Currently, CPVC pipe is not allowed in most jurisdictions in California for residential potable water use so copper pipe is used. As such, the Recirculated Draft EIR analyzes potential impacts associated with the Project against the existing environmental setting. In this case, the existing environmental setting includes the use of copper pipes for most residential potable water use in California. Therefore, impacts related to the use of copper pipe must be disclosed as part of the EIR process.

Comment 19-94. The Recirculated Draft EIR discloses and discusses impacts associated with copper pipe as part of the environmental setting of the proposed project. The remainder of this comment describes legal requirements under CEQA and is informational in nature, not associated with a specific issue with the Recirculated Draft EIR. As such, no response is necessary.

Comment 19-95. The Lead Agency agrees that the installation of copper pipe is relevant in the context of evaluating the no-project alternative. However, the Lead Agency respectfully disagrees that impacts related to copper pipe installation are entirely different than impacts related to CPVC pipe installation. First, the safety procedures associated with the installation of copper pipe are very similar to those for CPVC pipe. (RDEIR, p. 154.) For example, expert opinion by Robert G. Tardiff, Ph.D., notes the "striking similarities between the recommendations for proper installation of CPVC and copper pipe (i.e., avoidance of skin by contact by using gloves, wearing goggles to prevent eye injury, and the limiting of inhaled vapors and fumes by extensive ventilation or the use of a half-mask with appropriate filter)." (Expert Report by Robert G. Tardiff, p. 3.) Thus, it is reasonable to assume that the likelihood of safety procedures being followed for CPVC pipe during installation will be similar to copper pipe installation. Second, and more importantly, evidence in the record suggests that risks associated with improper CPVC pipe installation are no greater, and perhaps less, than risks to worker health related to improper copper pipe installation. (RDEIR, p. 154.)

Comment 19-96. As shown on page 135 of the Recirculated Draft EIR, the Lead Agency agrees with the commenters that lead-free pipe, solder and flux are required for the installation of potable water systems.

Comment 19-97. The Lead Agency respectfully disagrees with the commenters' suggestion that the Recirculated Draft EIR relies solely on the 1989 DHS Study to determine that lead contamination during copper pipe installation may pose a risk to worker safety. The record contains several references regarding concerns about lead contamination other than the 1989 DHS Study. (*See, e.g.,* Appendix D of the 1998 Final EIR, Letter from Elizabeth Katz, MPH, Acting Chief, HESIS, Department of Health Services, June 11, 1998; Appendix E of the 1998 Final EIR, Letter from William Forest, Associate Toxicologist, Department of Health Services, October 20, 1998; Expert Report by Robert G. Tardiff, p. 8.)

The Lead Agency also notes that the Recirculated Draft EIR does not state that the only danger or risk to worker health associated with copper pipe installation is lead exposure. To the contrary, the Recirculated Draft EIR outlines several other potentially significant risks, including inhalation of toxic fumes, exposure to chemicals in solder and fumes, burns and cuts. (RDEIR, p. 134-139.) Of course, the Recirculated Draft EIR notes that health risks associated with copper pipe installation are not expected to occur for installers that adhere to recommended installation practices.

Comment 19-98. On page 138 of the Recirculated Draft EIR, the Recirculated Draft EIR specifically states that the study of organic vapors derived from solders used during copper pipe installation provided "a qualitative view of potential inhalation hazards." The test demonstrates that installers of copper pipe may be exposed to toxic vapors if proper safety procedures such as proper ventilation or the use of mask protection are not followed.

Comment 19-99. The Recirculated Draft EIR does not state that the study of organic vapors derived from solders used during copper pipe installation demonstrates a significant health risk associated with copper pipe installation. Rather, the study discloses information about the types of chemical vapors released during the copper pipe soldering process that could be inhaled by copper pipe installers that are not properly following safety instructions.

The Lead Agency acknowledges that the 1989 DHS Study found that exposures associated with the installation of copper were below the established workplace standards. However, the study primarily focused on potential health risks associated with plastic pipe.

Comment 19-100. The Lead Agency disagrees with the commenters that the study referred to in this comment is irrelevant. For the reasons set forth in the response to Comment 19-90, the Lead Agency believes that additional studies regarding worker safety impacts related to the use of new low-VOC CPVC adhesives are unnecessary.

Comment 19-101. The Lead Agency respectfully disagrees with the suggestion that the Recirculated Draft EIR lacks foundation in concluding that the risk to workers for improperly installing CPVC pipe is no greater and perhaps is less than the risk to workers from improperly

installing copper pipes. Pages 14 and 21 of the expert opinion by Robert G. Tardiff, Ph.D., which is part of the record, directly support this conclusion. In addition, a similar conclusion was reached by representatives of DHS in reviewing the 1998 Final EIR. (*See* Appendix D of the 1998 Final EIR, Letter from Elizabeth Katz, MPH, Acting Chief, HESIS, Department of Health Services, June 11, 1998; Appendix E of the 1998 Final EIR, Letter from William Forest, Associate Toxicologist, Department of Health Services, October 20, 1998.)

Comment 19-102. Please see the response to Comment 12-183 for a discussion of potential impacts of the Project associated with the manufacturing of CPVC pipe. Please see the response to Comment 19-101 for a discussion of the support in the record concerning potential adverse impacts to worker safety from the installation of copper pipe.

Comment 19-103. The Lead Agency wishes to clarify that the Recirculated Draft EIR does not claim or make the assumption that copper pipe soldering results in a significant worker exposure to lead and other toxic substances. Rather, the Recirculated Draft EIR discloses potential impacts related to copper pipe installation when proper safety procedures are not followed.

Comment 19-104. As shown on page 139 of the Recirculated Draft EIR, evidence in the record supports a conclusion that safety procedures are very similar for the installation of copper pipe and CPVC piping. For example, expert opinion by Robert G. Tardiff, Ph.D., notes the "striking similarities between the recommendations for proper installation of CPVC and copper pipe (i.e., avoidance of skin by contact by using gloves, wearing goggles to prevent eye injury, and the limiting of inhaled vapors and fumes by extensive ventilation or the se of a half-mask with appropriate filter)." (Expert Report by Robert G. Tardiff, p. 3.)

The concerns raised by the last sentence of this comment are addressed by the response to Comment 12-171.

Comment 19-105. The Lead Agency disagrees with the assertion that the installation of copper pipe is safer than CPVC pipe installation because copper pipe installers receive greater safety training. To support this claim, the comment cites a study prepared by Steven Kinn *et al.*, published in the Journal of Occupational and Environmental Medicine (December 2000), at pages 1142 to 1147, titled *Evaluation of Safety Orientation and Training Programs for Reducing Injuries in the Plumbing and Pipefitting Industry* (the "Kinn Study"). The Kinn Study researched Occupational Safety and Health Administration (OSHA) injury data and training records for six plumbing and pipefitting employers in northwestern Ohio during the period of 1996 to 1998. (Kinn Study, p. 1142.)

The Kinn Study does not support the assertion in the comment because there is no evidence that the study is restricted to copper pipe installers. To the contrary, the Kinn Study focuses on the "plumbing and pipefitting industry" as a whole in northwestern Ohio, and does not differentiate between training received for the installation of copper pipe as compared to the installation of CPVC or other piping materials. (*See* Kinn Study, p. 1142.)

CPVC pipe is currently allowed under the Ohio Plumbing Code for installation in residential potable water piping systems and was also allowed in the years 1996 to 1998 when the Kinn Study took place. The Ohio Plumbing Code is based on the 2003 International Plumbing Code, which allows CPVC use in residential piping systems, and all previous versions of the International Plumbing Code since 1982 have allowed such use of CPVC. As such, the results of the Kinn Study appear to have been based on all types of plumbing and pipefitting installations, presumably including CPVC pipe as well as copper pipe. However, as stated above, the Kinn Study does not indicate that its conclusions and data regarding worker training apply only to installation of copper pipe. Therefore, it is reasonable to presume that the worker training statistics apply to the installation of both copper and CPVC pipe installations. Consequently, there is no reason to believe, based on the Kinn Study, that copper pipe installers receive greater safety training than CPVC installers.

Moreover, substantial evidence in the record supports a conclusion that safety procedures associated with CPVC installation and copper pipe installation are very similar. (*See* RDEIR, p. 154.) For example, expert opinion by Robert G. Tardiff, Ph.D., notes the "striking similarities between the recommendations for proper installation of CPVC and copper pipe (i.e., avoidance of skin by contact by using gloves, wearing goggles to prevent eye injury, and the limiting of inhaled vapors and fumes by extensive ventilation or the use of a half-mask with appropriate filter)." (Expert Report by Robert G. Tardiff, p. 3.) Thus, it is reasonable to assume that the likelihood of safety procedures being followed for CPVC pipe during installation will be similar to copper pipe installation. (RDEIR, p. 154.) The Kinn Study does nothing to refute this conclusion and, in fact, supports it since its conclusions appear to apply equally to installation of copper and CPVC pipe.

Comment 19-106. The concerns raised by this comment are addressed by the response to Comment 19-104.

Comment 19-107. Pages 153 to 155 of the Recirculated Draft EIR summarize potential impacts related to worker safety because of the enforceability of these mitigation measures and the Recirculated Draft EIR concludes that these impacts would be less than significant. See Comment 12-176 for a complete discussion of this issue.

To summarize, as discussed in Comment 12-176, CEQA case law supports a finding that a CEQA document can rely on requirements to comply with the law and regulatory obligations. (*See Leonoff v. Monterey County Bd. of Supervisors* (1990) 222 Cal. App. 3d 1337, 1355; *Sundstrom v. County of Mendocino* (1988) 202 Cal. App. 3d 296, 308.) In *Leonoff*, the court upheld a negative declaration for a contractor's service center that included, among other mitigation measures, a requirement that the project comply with environmental laws on registering hazardous materials and monitoring underground tanks. In *Sundstrom,* the court upheld certain mitigation measures, including compliance with air and water quality standards, and stated generally that conditions requiring compliance with environmental laws and standards are "common and reasonable" mitigation measures. Thus, the Recirculated Draft EIR is in line with existing California case law by concluding that it is reasonable to assume that employers will meet their legal obligations to follow safety procedures and regulations by providing

necessary safety equipment, training, and oversight. (RDEIR, p. 154; 1998 Final EIR, p. 188-89.)

Based on existing case law and the analysis provided in the Recirculated Draft EIR, as summarized in Comment 12-176, the Lead Agency respectfully disagrees with the assertion that the Recirculated Draft EIR has not satisfied the requirements under CEQA.

Comment 19-108. The concerns raised by this comment are addressed by the response to Comment 12-176.

Comment 19-109. Enforcement of the worker safety mitigation measures are not solely based on Cal/OSHA enforcement. As discussed in Comment 12-176, additional compliance provisions also are mandated by the California Plumbing Code. As detailed on pages 24 and 25 of the Recirculated Draft EIR, under the proposed project, any contractor or subcontractor for CPVC pipe installation for residential potable water use must provide written certification that he or she will comply with the worker safety mitigation measures. In addition, as part of the building permit application, any contractor must include a written certification that: (1) they are aware of the health and safety hazards associated with CPVC plumbing installations; (2) they have included in their Illness and Injury Prevention Plan the hazards associated with CPVC plumbing pipe installations; and (3) the worker safety training elements of their Illness and Injury Prevention Plan meets the Department of Industrial Relations' guidelines. (RDEIR, p. 25.)

In addition, building officials shall not give final permit approval of installed CPVC plumbing materials without finding that the installer has complied with the mitigation measures. Finally, contractors or subcontractors found to have failed to comply with the mitigation measures are subject to penalties under Health and Safety Code sections 17995 et seq., and building officials may also cite contractors for violations. (RDEIR, p. 25.)

As shown, the requirements in the California Plumbing Code apply to independent contractors, which would ensure that the worker safety mitigation measures are properly applied prior to installation of CPVC pipe in residential structures for potable water use. In addition, independent contractors have a general obligation to stay abreast of and comply with applicable laws and regulations in their field of expertise.

Comment 19-110. The email correspondence cited by this comment does not contain a formal recommendation from DHS to the Lead Agency that the Cal/OSHA Consultation Service or Research and Standards group evaluate the proposed ventilation measures. To the contrary, the May 31, 2006 email from Elizabeth Katz at DHS to Robin Gild with the Lead Agency contains language that the Lead Agency may "possibly" wish to contact the Cal/OSHA Consultation Service or Research and Standards group because they "could help" evaluate the worker safety mitigation measures. The nature of language suggests that Elizabeth Katz merely offered a means for gathering information and did not making a formal recommendation on behalf of DHS.

Comment 19-111. This comment is informational in nature and, as such, no response is necessary.

Comment 19-112. The concerns raised by this comment are addressed by the response to Comment 12-183.

Comment 19-113. The concerns raised by this comment are addressed by the response to Comment 12-183.

Comment 19-114. The Lead Agency acknowledges that CPVC related products are manufactured in California. However, the concerns raised by this comment are partially addressed by the response to Comment 12-183. As such, the Lead Agency respectfully disagrees with the commenters' assertion that the Recirculated Draft EIR does not adequately address impacts to worker safety as required under CEQA.

Comment 19-115. Please see the response to Comment 19-63. As explained in the response to that comment, a description of impacts associated with existing copper use in the environmental setting discussion within the Recirculated Draft EIR analysis of potential solid waste impacts is necessary because the existing use of copper pipe comprises a large part of the basis for the environmental baseline against which the Project's impacts must be measured. The Recirculated Draft EIR includes a substantially revised analysis of solid waste impacts and the discussion of issues other than existing use of copper pipe in the Recirculated Draft EIR is not "identical" to the analysis in the Draft EIR. The assumptions, analysis, and conclusions regarding solid waste impacts in the Recirculated Draft EIR are based on substantial evidence in the record, and the Lead Agency has considered and evaluated all evidence in the record during preparation of the EIR. The commenters' previous comments regarding the Draft EIR are responded to separately. (See responses to Comment Letter 12).

Comment 19-116. Please see the response to Comment 19-63. For the reasons explained in that comment, copper pipe failures continue to occur in California despite the existence of the California Plumbing Code changes allowing the use of CPVC pipe subject to the Findings Requirement, which were adopted following the certification of the 2000 Mitigated Negative Declaration. Consequently, solid waste created by copper pipe failure is a relevant part of the environmental baseline against which the potential solid waste impacts of the Project must be measured. Please also see the responses to Comments 12-186 and 12-187. The Recirculated Draft EIR does not claim that copper creates more solid waste than CPVC. To the contrary, the Recirculated Draft EIR concludes that the No Project Alternative, which would result in a greater amount of copper pipe use than would occur under the Project, would be somewhat superior to the Project in terms of solid waste impacts.

Comment 19-117. This comment is similar to previous comments raised by the same commenters concerning the Draft EIR. Please see the responses to Comments 12-192, 12-193, 12-201, and 12-202.

Comment 19-118. This comment is similar to previous comments raised by the same commenters. Please see the responses to Comments 12-203 and 12-204.

Comment 19-119. Please see the responses to Comments 5-7, 12-204 and 16-16.

Comment 19-120. The potentially significant environmental impacts of the Project related to solid waste disposal are disclosed and evaluated in Section 4.5 of the Recirculated Draft EIR. Therefore, it is not necessary to revise the Recirculated Draft EIR, except to the extent that Section 3.0 of this Final EIR makes certain minor revisions to the text of the Recirculated Draft EIR.

Comment 19-121. This comment is similar to previous comments raised by the same commenters. Please see the responses to Comments 12-212 through 12-217.

Comment 19-122. This comment is similar to previous comments raised by the same commenters. Please see the responses to Comments 12-218 through 12-221.

Comment 19-123. Please see the responses to Comments 19-121 and 12-122. The commenters' previous comments regarding these issues are addressed in the responses to Comments 12-212 through 12-221. For the reasons set forth in those responses, the Lead Agency has determined that these are not potentially significant impacts of the Project, and it is not necessary to review and analyze these impacts in a revised Recirculated Draft EIR.

Comment 19-124. Please see the response to Comment 18-30.

Comment 19-125. Please see the responses to Comments 18-30 and 18-31. The Recirculated Draft EIR clearly states on page 217 that "30-37% of the finished product" is derived from ethylene, "which comes from oil or natural gas. Thus, the Recirculated Draft EIR does not obscure the fact that at least a third of CPVC's content is derived from oil resources.

Comment 19-126. Please see the response to Comment 12-124. Manufacturing impacts related to the chlorine content in CPVC compound are not analyzed in the EIR for the reasons explained in the response to that comment. Solid waste disposal impacts related to the Project are analyzed in section 4.5 of the Recirculated Draft EIR. Neither of these issues are relevant to the discussion of energy impacts related to the Project.

Comment 19-127. Please see the response to Comment 19-63. As explained in the response to that comment, a description of impacts related to inefficient and wasteful use of non-renewable resources related to the existing copper use in areas with aggressive is necessary because the existing use of copper pipe comprises a large part of the environmental baseline against which the Project's impacts must be measured.

Comment 19-128. The Recirculated Draft EIR explains on page 220 that copper is recyclable, and that copper pipe contains a high recycled material content. The Lead Agency disagrees with the commenters' statement that "the evidence is irrefutable that . . . CPVC is not [recyclable]."

Table 5 in the 2005 draft report by the San Francisco Department of the Environment submitted by the same commenters as Appendix 21 to Comment Letter 12 indicates that five companies within San Francisco accept drop off of PVC/CPVC pipe for recycling. Thus, evidence in the record submitted by the commenters demonstrates that CPVC is recyclable. However, as the Recirculated Draft EIR explains on pages 158 and 159, the percentage of CPVC recycled will probably never approach the recycling of copper due in part to the large difference in value of the two materials. The Recirculated Draft EIR does not label CPVC as a "renewable resource." Furthermore, it would be inaccurate and misleading to label copper as an "unrenewable resource." As explained on page 220 of the Draft EIR, copper is mined as ore. There is a difference between highly recyclable resources and renewable resources. Copper is an unrenewable, but highly recyclable resource.

Comment 19-129. Please see the response to Comment 18-25.

Comment 19-130. Please see the responses to Comments 19-124 through 19-129. For the reasons explained in the responses to those comments, and in the responses to other comments identified in those comments, the Lead Agency believes that the Recirculated Draft EIR's analysis of energy impacts generally is accurate and does not include irrelevant or misleading information. However, some revisions to the Recirculated Draft EIR's analysis of energy impacts have been made in Section 3.0 of this Final EIR, in order to address some of the concerns raised by the commenters and one other commenter. These revisions do not change the conclusion of the analysis that the Project will not result in significant energy impacts.

Comment 19-131. The comment correctly points out that the Draft EIR did not evaluate alternatives and neglected to identify an environmentally preferred alternative. That was one of the reasons that the Lead Agency decided to recirculate the EIR. The Lead Agency does not agree with the comment that the alternatives analysis is inadequate and impermissibly narrow. The range of alternatives is appropriate given the limited nature of the proposed action. The project objectives similarly are appropriate given the limited nature of the proposed action, which is the removal of a findings requirement in a regulation that allows the use of CPVC pipe in residential potable water systems.

Comment 19-132. Please see the responses to the commenters' more specific comments regarding the Recirculated Draft EIR's conclusions regarding the No Project Alternative below. For the reasons set forth in those responses, the Recirculated Draft EIR's conclusions regarding the No Project Alternative are supported by substantial evidence in the record and do not lack foundation.

Comment 19-133. The project objectives stated in the Recirculated Draft EIR are appropriate given the limited nature of the proposed action, which is the removal of a findings requirement in a regulation that allows the use of CPVC pipe in residential potable water systems. The project objectives do not preordain the outcome of the alternative analysis, as is demonstrated by the facts that the alternatives analysis in the Recirculated Draft EIR evaluates three alternatives other than the Project itself and that the analysis selects one of the project alternatives as the environmentally superior alternative. The project objectives are not identical to the Project

description, as neither the objective of allowing unrestricted use of CPVC nor the objective of making CPVC available as an alternative pipe material are expressed in or are the only conceivable objectives of the Plumbing Code changes that comprise the Project. The Project is the elimination of the Findings Requirement. The project objectives state the reasons why the elimination of the Findings Requirement is being considered.

Comment 19-134. Please see the response to Comment 19-133. This comment is irrelevant. The somewhat different statement of project objectives in the prior 1998 EIR does not necessarily mean that the statement of project objectives in the current EIR is impermissibly narrow, even if the project objectives stated in the 1998 EIR conceivably could be interpreted as broader than the current project objectives.

Comment 19-135. The project objectives of the Recirculated Draft EIR are stated on page 22 of the Recirculated Draft EIR, and do not include addressing copper pipe corrosion. Please see the response to Comment 19-63 for an explanation as to the reasons copper pipe corrosion is discussed in the Recirculated Draft EIR. The alternatives suggested by the commenters would fail to meet the most basic objectives of the Project.

Comment 19-136. The low-VOC and one-step cement Project alternatives involve changes to the proposed code changes that comprise the Project and, as such, are project alternatives. The fact that these alternatives also could be imposed as mitigation measures does not negate the validity of evaluating these proposed changes to the Project as alternatives. In many projects typically evaluated under CEQA, there are potential changes to the project that could be evaluated as either project alternatives or identified as mitigation measures. For instance, for a project consisting of a housing development, the number of units to be allowed could be reduced either as a mitigation measure or as a reduced-density alternative to the project.

Comment 19-137. For the reasons set forth in the responses to Comments 19-133 through 12-136, the Lead Agency declines to revise the statement of project objectives in the Recirculated Draft EIR. The Lead Agency believes that the Recirculated Draft EIR considers a reasonable range of feasible alternatives to the Project, each of which is an "actual alternative" to the Project.

Comment 19-138. The Recirculated Draft EIR does not include a conclusion as to whether or not the No Project Alternative is environmentally preferable to the Project on an overall basis, but does conclude that the No Project Alternative is superior to the Project in terms of air quality impacts and somewhat superior in terms of solid waste impacts (although inferior with respect to water quality impacts and somewhat inferior with respect to worker safety impacts). (See RDEIR, Table 5.4-1, pp. 187-188). The Recirculated Draft EIR does conclude that the One-Step Cement Alternative, as opposed to the No Project Alternative, is the environmentally superior alternative. Both of those conclusions are based on substantial evidence in the record, and that evidence is cited in the EIR. Please also see the responses to Comments 19-39 through 19-153 below.

Comment 19-139. Please see the discussion of water quality impacts related to the No Project Alternative on pages 165-166 and the discussion of worker safety impacts related to that alternative on pages 166-168 of the Recirculated Draft EIR. As explained on pages 165-166, existing water quality impacts from the current use of copper piping, which are described in Section 4.3.1 of the Recirculated Draft EIR would not be reduced under the No Project Alternative. On the other hand, Section 4.3 of the Recirculated Draft EIR concludes that the Project will have less than significant impacts related to water quality. Thus, the No Project Alternative is inferior to both the Project and the One-Step Cement Alternative with respect to water quality impacts. As explained on pages 166-168 of the Recirculated Draft EIR, existing worker safety impacts related to the installation of copper pipe would not be reduced under the No Project Alternative. On the other hand, Section 4.4 of the Recirculated Draft EIR concludes that the Project will have less than significant impacts related to worker safety. Section 4.4 also concludes that worker safety risks related to the proper installation of both CPVC and copper pipe are less than significant, but also indicates that the potential worker safety risks related to the improper installation of copper pipe may exceed the risks associated with improper installation of CPVC. Thus, the No Project Alternative is somewhat inferior to both the Project and the One-Step Cement Alternative with respect to worker safety impacts. These conclusions are based on substantial evidence in the record, and that evidence is cited in the EIR.

Comment 19-140. The Recirculated Draft EIR concludes that the No Project Alternative is environmentally superior to the Project in terms of air quality impacts. (See RDEIR, Table 5.4-1, pp. 187-188). The air quality analysis in Section 4.2 of the Recirculated Draft EIR also clearly concludes that the potential air quality impacts of the Project will be significant and unavoidable. Thus, the Recirculated Draft EIR's analysis of the No Project Alternative does not dismiss the significance of the Project's air quality impacts. The statement in the analysis of the No Project Alternative that the Project would reduce emissions of different chemicals associated with the installation of copper pipe is supported by substantial evidence in the record, and that evidence is cited in the EIR.

Comment 19-141. The Recirculated Draft EIR does not conclude that the copper pipe soldering process results in significant air quality impacts. As the commenter states, the Recircluated Draft EIR does not claim that these emissions result in any significant degradation of air quality. The Recirculated Draft EIR only indicates that there are emissions during this process that potentially can contribute to air quality impacts, and that these emissions would be reduced by the Project. (See RDEIR pp. 163-165). The discussion of such emissions is supported by substantial evidence in the record, which is cited in the EIR. Thus, the Recirculated Draft EIR does not suggest that air quality impacts from copper soldering are more significant than air quality impacts from CPVC installation. To the contrary, the Recirculated Draft EIR concludes that the No Project Alternative is superior to the Project with respect to air quality impacts. (See RDEIR, Table 5.4-1, pp. 187-188). Thus, the "unsupported assertion" that the commenter suggests is present in the Recirculated Draft EIR's analysis of the No Project Alternative simply is not there.

Comment 19-142. The Recirculated Draft EIR compares each of the project alternatives to the Project, to determine which alternative is environmentally superior in comparison to the Project.

Thus, the alternatives analysis in the Recirculated Draft EIR is legally adequate and does not need to be revised.

Comment 19-143. Please see the responses to Comments 19-73 through 19-83. For the reasons discussed in the responses to those comments, and in the responses to other comments referenced therein, the Lead Agency believes that the Recirculated Draft EIR fully and adequately discloses and evaluates the potential water quality impacts associated with the Project. The water quality analysis in Section 4.3 of the Recirculated Draft EIR is supported by substantial evidence in the record, and that evidence is cited in the EIR.

Comment 19-144. Please see the responses to Comments 19-63 and 19-139. As explained in the response to Comment 19-63, he current California Plumbing Code provisions regarding CPVC require a local building official to make a finding that there is a risk of premature corrosion. In many instances, local building officials have been unwilling or have neglected to make a finding that there is a risk of premature corrosion of copper pipe despite evidence of a risk of premature failure of copper pipes or evidence of actual copper pipe failure. Moreover, in areas where there is little risk of premature failure of copper pipe, it is possible that the use of copper pipe nevertheless may contribute to violations of water quality standards for copper in areas where there is little risk of premature failure. As explained in the response to Comment 19-139, the claim that the Project would reduce water quality impacts from the current use of copper is support by substantial evidence in the record, and that evidence is cited in the EIR. Please also see Comment Letters 4, 8, and 9. The Lead Agency agrees that properly installed, NSF-certified new copper pipe installations will not result in leaching of lead in significant amounts. However, the relative affordability of CPVC may result in homeowners deciding to replace old copper pipes that leach more significant quantities of lead earlier than they would if more expensive copper pipe were the only available pipe material for residential potable water systems, leading to a decrease in water quality impacts from existing copper pipe installations. For this reason, the Lead Agency disagrees with the commenters' statement that the Project "would not affect existing copper pipe installations" in terms of their water quality impacts.

Comment 19-145. Please see the responses to Comments 19-63 and 19-144.

Comment 19-146. Please see the responses to Comments 19-84 through 19-114. For the reasons discussed in the responses to those comments, and in the responses to other comments referenced therein, the Lead Agency believes that the Recirculated Draft EIR fully and adequately discloses and evaluates the potential worker safety impacts associated with the Project. The worker safety analysis in Section 4.3 of the Recirculated Draft EIR is supported by substantial evidence in the record, and that evidence is cited in the EIR.

Comment 19-147. Please see the response to Comment 19-105. As explained therein, substantial evidence in the record demonstrates that it is reasonable to assume that installers of copper pipe and CPVC pipe follow safety procedures at approximately the same rate.

Comment 19-148. Please see the response to Comment 12-176.

Comment 19-149. Please see the responses to Comments 12-171 and 19-87.

Comment 19-150. Please see the responses to Comments 19-139 and 19-147 through 19-149. As explained in those comments, and in the other comments referred to therein, the conclusion that the No Project Alternative would be somewhat inferior to the Project with respect to worker safety impacts is supported by substantial evidence in the record, and that evidence is cited in the EIR.

Comment 19-151. Please see the responses to Comments 19-115 through 19-120. For the reasons discussed in the responses to those comments, and in the responses to other comments referenced therein, the Lead Agency believes that the Recirculated Draft EIR fully and adequately discloses and evaluates the potential solid waste impacts associated with the Project. The solid waste analysis in Section 4.3 of the Recirculated Draft EIR is supported by substantial evidence in the record, and that evidence is cited in the EIR.

Comment 19-152. Please see the response to Comments 19-63 and 19-116.

Comment 19-153. Please see the responses to Comments 12-124, 12-212 through 12-221, 19-121, and 19-122. The Project will have no significant impacts related to fire, manufacturing, or mechanical failure for the reasons explained in those comments and in the other comments referred to therein. Thus, it is not necessary for the alternatives analysis to evaluate the relative fire, manufacturing, or mechanical failure impacts related to the project and the alternatives.

Comment 19-154. The Lead Agency believes none of the circumstances requiring additional recirculation of the EIR are present. The current EIR discloses and meaningfully considers all potentially significant impacts of the Project, and meaningfully evaluates project alternatives. Moreover, the public has had many opportunities to comment regarding the Project and prior projects and proposed projects related to CPVC pipe, and the Lead Agency has received voluminous public comments regarding each. Therefore, the Lead Agency declines to recirculate the EIR for yet another period of public review and comment.

Comment 19-155. Please see the responses to Comments 12-135 and 12-136.

Comment 19-156. Please see the response to Comment 19-154.

Comment 19-157. The Lead Agency believes that the Recirculated Draft EIR is legally adequate, complies with the requirements of CEQA, and satisfies the informational standards set forth in this comment. The analyses and conclusions in the Recirculated Draft EIR are supported by substantial evidence in the record, and that evidence is cited in the EIR. The Lead Agency does not believe it is necessary to revise the Recirculated Draft EIR or to recirculate the EIR for additional public review. Please also see the response to Comment 19-154.

TRA ENVIRONMENTAL SCIENCES, Inc.

545 Middlefield Road, Suite 201
Menlo Park, CA 94025-3472
Tel: (650) 327-0429
Fax: (650) 327-4024
www.TRAenviro.com

December 27, 2006
TRA File: LPPC

Thomas A. Enslow
Adams Broadwell Joseph & Cardozo
1225 8th Street, Suite 550
Sacramento, CA 95814

Re: Comments on California Department of Housing and Community Development Recirculated Draft Environmental Impact Report: Adoption of Regulations Permitting Statewide Residential Use of Chlorinated Polyvinyl Chloride (CPVC) Plastic Plumbing Pipe without First Making a Finding of Potential Premature Metallic Pipe Failure Due to Local Water or Soil Conditions
SCH No. 200612044

Dear Mr. Enslow:

The California Department of Housing and Community Development ("HCD") has published a Recirculated Draft Environmental Impact Report ("RDEIR"): Adoption of Regulations Permitting Statewide Residential Use of Chlorinated Polyvinyl Chloride (CPVC) Plastic Plumbing Pipe without First Making a Finding of Potential Premature Metallic Pipe Failure Due to Local Water or Soil Conditions (SCH No. 200612044).

Previous comments apply in full.

The RDEIR replaces the June 2006 Draft EIR. On September 13, 2006, I sent you comments on the June 2006 Draft EIR. In the introduction to the current document, HCD claims that "the Lead Agency is planning to respond to all of the comments previously submitted and commenters should limit their submissions regarding this Recirculated Draft EIR to new comments that are additional to comments previously submitted. The comments previously submitted have been considered in the preparation of this RDEIR but specific responses to all comments submitted during both public review periods will be included in the Final EIR." 20-1

Accordingly, I will not repeat the main body of my previous comment. The RDEIR has been reorganized and given expanded treatment of air quality and alternatives. I note that very little information responding to the substance of my comments has been added and for HCD to use "see RDEIR" as a blanket response to any of my September 13, 2006 comments will not be valid. 20-2

RDEIR cannot rely on the decertified 1998 EIR.

Not only does the RDEIR add little new material, it commits the grave error of incorporating large, verbatim chunks of the defunct, rescinded 1998 EIR. The 1998 EIR was decertified and declared incomplete by the Lead Agency (HCD) and has no basis whatsoever for the current 20-3

RDEIR. I reviewed both the 1998 DEIR and FEIR. The conclusions in 1998 FEIR lacked foundation, failed to evaluate all of the available evidence at the time and were contrary to unrebutted expert opinion and research. As a result, a lawsuit was filed challenging the 1998 FEIR and that lead to decertification of the 1998 FEIR and the formal declaration by HCD that the 1998 FEIR was "incomplete." 20-3 (Cont.)

The failings of the 1998 EIR were numerous: it was an advocacy document, using plastic industry conclusions without independent scrutiny, it did not take into account significant new research, evidence and expert opinion, and it substituted lengthy discussions of copper pipe for actual analysis of the impacts of CPVC. The RDEIR adopts conclusions from the 1998 EIR without subjecting them to fresh, independent analysis and repeats the same errors.

RDEIR cannot rely on the 2000 MND.

After HCD rescinded the 1998 EIR, it began the CEQA process anew with a Mitigated Negative Declaration ("2000 MND"). On April 21, 2005 I submitted comments on the proposed (and abandoned) Addendum to the November 2000 Final Environmental Mitigated Negative Declaration ("2000 MND") SCH No. 2000091089. Those comments identified a broad range of environmental concerns for expanded use of CPVC pipe in California that are not addressed in the current document. 20-4

The RDEIR, like the June 2006 Draft EIR evades meaningful public consideration of most environmental issues by defining them as somehow outside the scope of the project's effects because they have already been disposed of by the 2000 MND. The 2000 MND addressed a practically limited use of CPVC. The current project would remove the findings limitation and allow a roughly 16-fold increase in use beyond what was contemplated by the 2000 MND. The analysis in the 2000 MND is inadequate to support the current project because 1) the extent of use would be greater, and 2) new information is available since the 2000 MND was prepared that needs to be analyzed.

Additional specific comment:

The new text in the RDEIR includes some remarkably misleading and self-serving conclusions. Although the RDEIR has expanded the treatment of alternatives, the wholesale incorporation of the 1998 EIR actually confuses the analysis. I only illustrate these flaws in this letter; my previous comments on the DEIR apply to the RDEIR, and where made relevant by incorporation of 1998 text in the RDEIR, my comments on the 1998 EIR apply to the November 2006 RDEIR. 20-5

Inadequate analysis of solvent toxicity and need for flushing as mitigation.

20-6

The RDEIR continues to ignore the need to assess and mitigate the solvent leaching into drinking water. The 2000 MND incorporated a one-week flushing regime as partial mitigation. The record shows that the one week flushing is not enforced. The record also shows that persistent high levels of MEK and other solvents leach at considerable levels past one week. The RDEIR ignores this substantial evidence of significant water quality impacts and fails to disclose or evaluate this evidence whatsoever.

New toxicology studies have led to a lowering of the acceptable levels of solvents leached from CPVC pipe joints. The RDEIR states, "Given that the allowable levels were lowered and not

raised and that CPVC products will thus be subject to more stringent standards there is not likely to be a significant adverse environmental impact associated with this new information." (page 128). 20-6 (Cont.)

This ignores the leaching results of the State's own studies conducted for the 1989 EIR. The State sponsored leaching study showed persistent levels of solvents. Merely lowering (tightening) the standard does not reduce leaching. HCD needs to acknowledge past results. 20-7

HCD as Lead Agency needs to assess the new cements that would be required under the proposed air quality impact mitigation measures. HCD needs to disclose what compounds will leach, at what levels and for how long. HCD then must formulate a flushing protocol or other measure that will reduce public health risk. 20-8

Perhaps HCD is unaware of the chronic toxicology of CPVC adhesive solvents. The RDEIR dismisses the incremental exposure by the argument that, "The solvents in these primers and cements used in public systems are the same solvents that would be used to join CPVC pipe in residential buildings. Thus these materials are already part of the existing environment and are currently in contact with the state's drinking water."(p. 126-127) This admission should prompt a quantitative analysis of the cumulative impact of increasing solvent exposure in drinking water. 20-9

The RDEIR incorrectly applies the Federal Water Pollution Control Act (FWPCA, which the RDEIR inexplicably calls "FWOCA") as a standard of significance for public health and environmental effects of solvent leaching. Referring to the part of FWPCA that applies to reporting of one-time accidental releases, the RDEIR concludes "During CPVC plumbing installation, the CPVC Adhesives are not reasonably anticipated to be discharged into surface water in the quantities listed. Discharging thousands of pounds of solvents would require quantities of CPVC Adhesives that are not ordinarily encountered in residential construction." (p. 121) But the RDEIR never actually estimates the quantities that would be discharged or defines what period of time for discharge applies to FWPCA reporting. Looking at the air quality analysis, the RDEIR appears to estimate total solvent use as 50 to 100 tons/year as VOC, which excludes exempt acetone. (RDEIR Table 4.2.4.12) Some portion of the solvent is directly released to the air; some portion enters the water in the pipe. Even if only a few percent of total THF goes into the water, the statewide annual total will likely exceed reportable quantities, particularly when CPVC use is considered cumulatively with other adhesives. 20-10

Inability to address organotin environmental and public health concerns.

The RDEIR use of old text from the defunct 1998 EIR compounds its failure to address the potential public health and environmental impact of organotin compounds. Organotin compounds are deliberately added to CPVC resin as stabilizers at 2% to 4% by weight. The RDEIR estimates CPVC market share, but does not estimate the actual amount of CPVC that would be installed as a result of the project. For a rough order of magnitude estimate, 10 million feet of potable water CPVC installed annually would carry 50,000 to 100,000 pounds of organotin compounds, some of which would leach into the water and all of which would eventually end up in California's landfills. 20-11

The 1998 EIR dismissed the broad environmental and public health concerns over organotins by focusing solely on the tri-alkyl form of organotin, particularly tributyltin (TBT). CPVC and PVC plastic resin uses technical di-alkyl forms of organotin. The majority of the older literature 20-12

dealt with tri-alkyl tin use in anti-fouling coatings, as a fungicide, or for other pesticide uses. The toxicity of tri-alkyl tin lead to its general withdrawal from those uses. 20-12 (Cont.)

The RDEIR relies on the old 1983 EPA report without looking for recent, relevant studies, as noted in my earlier comments on the DEIR. Indeed the RDEIR makes a virtue of its ignorance of recent literature review claiming that the 1983 EPA work is evidence that the organotin issue is "old" and not worthy of further study. The RDEIR states, "The 1998 EIR concluded that TBT is not a component of CPVC and that significant environmental contamination from organotins would not occur as a result of CPVC use. This evidence already in the record at the Lead Agency confirms that this issue is not new, that there is no new or substantially more severe significant impact, and that no further analysis of this issue is required in this Subsequent EIR." (p. 125) This conclusion overlooks the facts: 1) the 1998 EIR is not certified and has no standing, and 2) that the 1998 EIR and thus the 2006 RDEIR ignore the effects of the tons of dialkyl organotins that will be introduced into California under the project. 20-13

Inappropriate reliance on NSF.

The RDEIR continues HCD's unquestioning reliance on NSF International. "Based on review of the NSF standards and testing, the Lead Agency considers NSF testing and certification to meet existing standards to provide a reasonable and conservative presumption and assurance of safety." (page 128). Despite two decades of comment on this topic, HCD has never requested industry to release confidential records held by NSF and HCD has never had the test results and the toxicology protocol subjected to independent review. Please refer to my comments on the 1998 EIR. Considering the extreme reliance HCD places on NSF, it is obvious that HCD needs to have access to actual CPVC test results. 20-14

Incorrect comparison to copper, incorrect analysis of No-Project Alternative.

The RDEIR purports to expand treatment of alternatives, particularly the No-Project Alternative by including a broad discussion of copper pipe, drawn entirely from the defunct 1998 EIR. By harking back to the 1998 EIR, the 2006 RDEIR repeats the one-sided comparison of CPVC and copper piping. The RDEIR is supposed to analyze the impacts of expanding CPVC. In RDEIR Section 5.2.3 and 5.3.1 copper pipe is defined to be part of the environmental setting and continuation of copper use is analyzed under the No Project alternative. The problem with this approach is that a great deal more is known about copper pipe and the RDEIR uses problems with copper as an excuse to truncate discussion of CPVC. 20-15

This bias is illustrated by the RDEIR discussion of water quality impacts where the RDEIR goes on about lead toxicity associated with lead solder which has been banned nationwide for twenty years. The RDEIR cites higher permissible lead content in "pipes and fittings" without stating that those include the point of service fixtures (e.g. faucet) common to both copper and to CPVC plumbing systems. Recommendations that residents let water run before drinking it are prompted by the tendency of fixtures to leach lead in the water. 20-16

The RDEIR does not describe the health effects of CPVC solvents that leach into drinking water, perhaps leaving the reader with the impression that solvent effects (neurotoxicity) are merely a pleasant buzz. There are only a few sentences on the potential leachates from CPVC on page 107 and no mention of their toxicity. 20-17

RDEIR section 4.3 Water Quality, 4.3.1 Environmental Setting, however, goes on from page 107 to page 120 to discuss copper. It describes copper toxicity, "The acute toxic effects of copper include gastrointestinal disturbances with vomiting, epigastric burns, and diarrhea. Chronic copper poisoning has not been described in normal human beings. However, systemic effects, especially hemolysis, liver and kidney damage, have been reported after ingestion of large amounts of copper salts." (page 110) This description of copper toxicity is misleading and taints the RDEIR's entire analysis. None of these effects are remotely associated with water normally found in water supply. 20-18

The bias is evident in the RDEIR use of 1998 EIR language in the environmental setting when the RDEIR concludes a discussion of copper aquatic toxicity, "CPVC has been identified as a feasible pollution prevention tool for copper contamination by the City of Palo Alto. The Lead Agency concludes that this pollution prevention tool should be available to all Californians." (p. 120) Such conclusory language is more appropriate for an industry public relations piece than for the environmental setting of an EIR. 20-19

Most importantly, the 2006 RDEIR fails to acknowledge that the majority of possibly harmful effects of copper use are already dealt with under the current findings requirement and that the No Project Alternative effectively eliminates the potentially significant effects for copper raised by the 1998 discussion. 20-20

This bias is illustrated by the RDEIR discussion of solid waste impacts. Rather than evaluating relevant evidence, the RDEIR reproduces misleading and erroneous material from the defunct 1998 EIR. 20-21

For example, the RDEIR now claims that copper creates more solid waste than CPVC because it fails quickly in aggressive soil conditions. This claim is irrelevant and prejudicial. The code currently permits the use of CPVC where copper is likely to fail prematurely due to corrosion. The Project, on the other hand, proposes to expand the approval of CPVC to those areas of the state where copper does not prematurely fail. In normal conditions, copper pipe will last much longer than CPVC. The RDEIR's claim that copper creates more solid waste is thus contrary to the evidence and misleads decision makers and the public.

The RDEIR also incorrectly suggests that copper creates significantly more water damage when it fails than CPVC. This claim lacks foundation and is contrary to the facts. Copper pipe failures are more likely to result in pinhole leaks, while CPVC tends to rupture spectacularly and release great quantities of water. 20-22

This bias is illustrated by the RDEIR discussion of energy impacts. The RDEIR devotes pages to misleading and irrelevant comparisons: 20-23

The RDEIR states that "Compared to most other plastics, CPVC has a relatively low petroleum content and, therefore, its production process uses less of our non-renewable oil reserves." This ignores the energy cost to proudce the chlorine and other raw materials for resin. The comparison to other plastics is not relevant. The Project proposes CPVC as an alternative to copper pipe, not "other plastics."

The RDEIR repeatedly states that "the primary raw material for CPVC production, common salt, is not a scarce non-renewable resource" This misleading emphasis on table salt obscures the fact 20-24

that at least a third of CPVC's content is derived from oil resources. It also fails to acknowledge that the chlorine content in CPVC actually makes this product dirtier to produce and harder to dispose. 20-24 (Cont) 20-25

The RDEIR argues that the use of copper pipe in areas of California with aggressive soil or water conditions is an inefficient and wasteful use of non-renewable resources. Because CPVC is already allowed in these areas, the proposed Project does not address this problem. Moreover, the evidence is irrefutable that copper pipe is recyclable and CPVC is not. It is thus inaccurate and misleading to label CPVC a renewable resource and recycled copper as an unrenewable resource. 20-26 20-27

The RDEIR contains a long discussion of heat loss from uninsulated copper pipe and uninsulated CPVC pipe systems. This discussion is irrelevant because California requires that all new hot water piping systems be insulated. The RDEIR's comparison of insulated copper pipe and insulated CPVC pipe systems demonstrates that the heat loss difference is minimal. Why does the RDEIR seek to confuse the reader? 20-28

I will close with a final example of the upside-down analysis in the RDEIR. The RDEIR is nominally about expanded use of CPVC. Commenters, myself included, have raised scientifically founded concerns over the public health and environmental impacts of expanding CPVC use. The RDEIR includes only one technical document, Appendix D, "Study Results", which is a 42 page report from Research Triangle Park Laboratories of test results on fumes from solder used on copper pipe. Absolutely nothing in Appendix D is relevant to the proposed expanded use of CPVC, or even relevant to the alternatives, since no alternative would restrict the use of solder or copper pipe in California. 20-29

It seems that the RDEIR includes the Study Results and a long list of toxic compounds to support the discussion of the existing conditions, but the RDEIR actually fails to make the Study Results relevant. The RDEIR admits that it offers no estimate of the actual quantity of emissions from soldering copper and can make no comparison of the amounts found in the study and the levels of concern as toxic air contaminants. No conclusion can be drawn. Why is Appendix D included in the RDEIR when it has no relevance to the project? Why does the RDEIR seek to confuse the reader?

* * *

The public has a reasonable expectation that an EIR will be an objective document prepared by persons of sufficient technical expertise. The November 2006 RDEIR adds Chapter 7.0, Report Preparation, which lists one attorney from the lead agency, one person from Environmental Data Systems, apparently a new consulting firm, and three persons from Jones & Stokes Associates, an established consulting firm. The RDEIR does not say what part of the document was prepared by these persons or what technical expertise they contributed. I know Jones & Stokes Associates' professional work; I am surprised to see their name on this document. 20-30

HCD should objectively evaluate the issues raised and formulate effective mitigation to minimize public health and environmental impacts before approving expanded use of CPVC. The RDEIR has taken HCD backwards. 20-31

Sincerely,

Thomas S. Reid

Response to Letter 20: Thomas S. Reid

Comment 20-1. The previous comments submitted by the commenter are each responded to separately. Please see the responses to Comment Letter 14.

Comment 20-2. Please see the response to Comment 20-1.

Comment 20-3. Please see the responses to Comments 19-32 through 19-49.

Comment 20-4. Please see the responses to Comments 12-72 through 12-81.

Comment 20-5. The Recirculated Draft EIR does not incorporate the entire 1998 EIR. Instead, this EIR refers to and cites to information from the 1998 EIR, in addition to other information. The previous comments submitted by the commenter regarding the Recirculated Draft EIR are responded to separately. Please see the responses to Comment Letter 14. The previous comments submitted by the commenter regarding the 1998 EIR are not responded to in this Final EIR, because they were not submitted as comments regarding the current EIR, but are part of the record that the Lead Agency has considered and evaluated during the preparation of the current EIR.

Comment 20-6. This comment is similar to previous comments submitted by the same commenter regarding the Draft EIR. Please see the responses to Comments 14-7, 14-39, 14-41, 14-52 through 14-54, and 14-58 through 14-61, as well as the responses to other comments referenced in those responses.

Comment 20-7. This comment is similar to previous comments submitted by the same commenter regarding the Draft EIR. Please see the responses to Comments 14-7, 14-39, 14-41, and14-52 through 14-54, as well as the responses to other comments referenced in those responses.

Comment 20-8. This comment is similar to previous comments submitted by the same commenter regarding the Draft EIR. Please see the responses to Comments 14-8 and 14-56, as well as the responses to other comments referenced in those responses..

Comment 20-9. Cumulative water quality impacts related to leaching of chemicals from CPVC pipe and solvents are analyzed in the Recirculated Draft EIR. (See RDEIR pp. 222-224).

Comment 20-10. The Federal Water Pollution Control Act ("FWPCA"), also known as the Clean Water Act, is a federal statute regulating water quality, and therefore applies to leaching of solvent chemicals from CPVC pipe. The reference to the Federal Water Pollution Control Act as "FWOCA" is not "inexplicable," but is a typographical error, which has been corrected. Please see the revisions to page 121 of the Recirculated Draft EIR located in Section 3.0, Revisions and Errata, of this Final EIR. Estimating the precise quantities of solvent chemicals discharged is unnecessary due to the existing requirement that all CPVC adhesives be tested and certified by NSF to meet NSF/ANSI standards, as explained in section 4.3.1. NSF/ANSI standards. As NSF

certification ensures that the amount of solvent present in drinking water meets applicable standards for human consumption, it is unreasonable to assume that the portion of solvents leaching from CPVC pipe contained in water that enters sewer systems, which then receives treatement at municipal waste treatment plants before being released into the water bodies of the State, would contain solvents that exceed reportable quantities. The commenter has not provided any evidence supporting his statement to the contrary. Cumulative water quality impacts related to leaching of chemicals from CPVC pipe and solvents are analyzed in the Recirculated Draft EIR. (See RDEIR pp. 222-224).

Comment 20-11. This comment is similar to previous Comments submitted by the same commenter regarding the Draft EIR. Please see the responses to Comments 14-9 and 14-42 through 14-51, as well as the responses to other comments referenced in those responses. Please also see the response to Comment 20-3.

Comment 20-12. Please see the responses to Comments 10-3 and 12-147. As explained in those comments, di-alkyl forms of organotin are less toxic than tri-alkyl forms. All CPVC pipe that could be used in California pursuant to the Project will be required to be certified by NSF to NSF/ANSI 61 standards. Thus, levels of di-alkyl forms of organotin in drinking water, such as dibutyltin, resulting from the additional use of CPVC pipe in residential plumbing systems will not exceed the levels established by NSF/ANSI 61.

Comment 20-13. Please see the response to Comment 19-81, and the responses to other comments referred to in that response, which addresses a similar comment regarding the 1983 EPA report. Please see the response to Comment 20-3 and the responses to other comments referred to in that response, regarding the reliance upon information contained in the 1998 EIR. Please see the response to Comment 20-12, and the responses to other comments referred to in that response, regarding issues related to di-alkyl organotins. The analysis of leachates from CPVC pipe on pages 124-129 includes an analysis of potential impacts related to organotins, and that analysis applies to all organotins, including di-alkyl organotins.

Comment 20-14. This comment is similar to previous Comments submitted by the same commenter regarding the Draft EIR. Please see the responses to Comments 14-31 through 14-37, as well as the responses to other comments referenced in those responses.

Comment 20-15. Please see the response to Comment 19-77, as well as the responses to other comments referenced in that response. The Recirculated Draft EIR analyzes the potential water quality impacts of the Project on pages 124-130. As explained in the response to Comment 19-63, the Recirculated Draft EIR properly discusses the existing use of copper pipe as part of the environmental setting and analyzes the existing use of copper pipe under the No Project Alternative. However, the Recirculated Draft EIR's summary of information known about copper pipe use, about which a great deal is known, as the commenter indicates, was not intended to and does not truncate the Recirculated Draft EIR's analysis of water quality impacts related to the additional use of CPVC pipe that would occur if the Project is approved. Please note that the discussion of existing water quality issues related to current copper use in the Recirculated Draft EIR is not "drawn entirely from" the 1998 EIR, but relies upon other

substantial evidence in the record, including information from sources that are more recent than the 1998 EIR. However, the Lead Agency acknowledges that this information also refers to information contained in the 1998 EIR and is similar in many respects to the analysis of then-current copper use in the 1998 EIR. Please also see the response to Comment 20-3 regarding the appropriateness of reliance upon information contained in the 1998 EIR.

Comment 20-16. The Final EIR includes a revision to the Recirculated Draft EIR clarifying that the pipes and fittings for which a higher permissible lead content is allowed include the point of service fixtures common to both copper and CPVC plumbing systems. Please see the revision to footnote 48 on page 112 of the Recirculated Draft EIR located in Section 3.0, Revisions and Errata, of this Final EIR.

Comment 20-17. The Recirculated Draft EIR's water quality analysis discusses potential solvent leachates from CPVC not only on page 107, but also on pages 121, 122, 125, 128, and 129. The discussion on pages 121 to 122, which indicated that the NSF standards that apply to solvent chemicals are maximum allowable levels established based on toxicology data, among other criteria.

Comment 20-18. The Recirculated Draft EIR's discussion of copper toxicity is based on substantial evidence in the record, and that evidence is cited in the EIR.

Comment 20-19. The Lead Agency disagrees with the commenter's characterization of the language in the EIR discussed in the comment.

Comment 20-20. Please see the response to Comments 19-63 and 19-144, which explain that the current use of CPVC subject to the Findings Requirement has not eliminated all water quality issues related to current copper use.

Comment 20-21. Please see the response to Comment 20-3, and the responses to other comments referred to in that response, for an explanation as to why it is appropriate to rely on information contained in the 1998 EIR. Please also see the response to Comment 19-116, which addresses similar comments regarding the discussion of copper in the Recirculated Draft EIR's analysis of solid waste impacts.

Comment 20-22. The Recirculated Draft EIR does not state and is not intended to imply that failure of copper pipe results in significantly more water damage than failure of CPVC pipe.

Comment 20-23. Please see the response to Comment 18-30.

Comment 20-24. Please see the response to Comment 19-125, which is virtually identical to this comment.

Comment 20-25. Please see the response to Comment 19-126, which is virtually identical to this comment.

Comment 20-26. Please see the response to Comment 19-127, which is similar in nature to this comment.

Comment 20-27. Please see the response to Comment 19-128 which is virtually identical to this comment.

Comment 20-28. Please see the response to Comment 19-129, which is virtually identical to this comment. As explained in that response, the information provided is relevant. The Lead Agency does not intend the Recirculated Draft EIR to be confusing to the reader.

Comment 20-29. The study that is included as Appendix D to the Recirculated Draft EIR is included because it is relevant to the discussion of current copper use in the environmental setting discussions in various sections of the Recirculated Draft EIR analyzing potential impacts of the Project. It is also relevant to the analysis of project alternatives. The Recirculated Draft EIR relies upon substantial evidence in the record, including numerous other technical documents, and that evidence is cited in the EIR. The Lead Agency does not intend the Recirculated Draft EIR to be confusing to the reader.

Comment 20-30. Please see the response to Comment 19-50.

Comment 20-31. The Lead Agency believes that the Recirculated Draft EIR objectively evaluates the issues raised and identifies all feasible mitigation measures to minimize public health and environmental impacts related to the Project.

Jim Bellows, PhD, MPH 510.654.6787 5000 Manila Avenue, Oakland, California 94609

December 22, 2006

Thomas A. Enslow
Adams, Broadwell, Joseph, and Cardozo
520 Capitol Mall, Suite 350
Sacramento, California 95814

Dear Mr. Enslow:

I have reviewed the Recirculated Draft Environment Impact Report (RDEIR) recently produced by the California Department of Housing and Community Development (HCD), on expanded use of plastic pipe. At your request I focused on the worker health and safety elements of the RDEIR, as well as previous related documents and my own earlier comments. My comments below summarize my analysis of the technical accuracy and validity of the RDEIR.

The short version is that the document fails to address the shortcomings I noted in the August draft. Despite the many years of controversy on this matter, and despite clear evidence that workers who install CPVC pipe are likely to be overexposed to toxic solvents, above the legal limits and on a regular basis, HCD continues to misrepresent this evidence in the DEIR, and offers little new evidence regarding the safety of CPVC installation. The RDEIR continues to rely on mitigation measures introduced in the 2000 Mitigated Negative Declaration (MND), which have not been effective to date and for which there is no reason to believe they will be more effective in the future. Use of nitrile gloves as specified in the worker safety standards would provide no real protection against dermal exposure to ACE, CHX, MEK, or THF, and could actually increase absorption of contaminants. The draft EIR inappropriately indicates, without any supporting data or substantive analysis, that use of low-VOC formulations will reduce worker exposures, when in fact they may not. My conclusions based on available evidence are the same as in my previous analyses: Workers who install CPVC pipe are likely to be overexposed to toxic primer and cement solvents above the legal limits on a regular basis. The proposed action – looser restrictions on use of CPVC pipe – will result in a substantial increase in the number of workers who will be overexposed to toxic chemicals on a regular basis during conditions of normal use. These overexposures above legal limits must be considered significant and should be addressed in the DEIR.

21-1
21-2
21-3
21-4
21-5

Some specific shortcomings of the RDEIR include the following:

- The RDEIR misrepresents the findings of the 1989 Department of Health Services (DHS) study, which I led. For example, the RDEIR cites evidence about exposures to individual solvents but gives much less attention to combined solvent exposures, which were the most significant exposures identified. The RDEIR's statement that "installers of CPVC pipe experienced very low levels of exposure to the solvents" is not consistent with the report's own conclusion, that full-shift exposure limits for solvents are likely to be exceeded on 10% of days in which workers install CPVC for potable water. 21-6

- The RDEIR carries forward mitigation measures from the MND, such as use of nitrile gloves. As I documented in my previous comments, nitrile gloves do not provide suitable protection against the solvents involved in CPVC installation. In the 1989 DHS study, we showed, through biological monitoring, that dermal absorption contributes significantly to total exposure for tetrahydrofuran (THF), yet the RDEIR only references the protective potential of nitrile gloves against cyclohexanone exposure, neglecting the evidence that THF penetrates nitrile gloves "almost instantaneously." 21-7

- The RDEIR carries forward the assertion that low-VOC primers and solvents can reduce worker exposures, but offers no evidence. In my previous comments, I have shown, using accepted industrial hygiene modeling techniques, how some low-VOC adhesives might actually increase worker exposures relative to exposure limits, by using a higher proportion of methyl ethyl ketone. HCD could easily put this matter to rest by developing empirical data and introducing it into the record, but instead it continues to rely on unsupported assertions. 21-8

- The RDEIR continues to base its conclusion on the unrealistic scenario that workers installing CPVC pipe follow a series of recommended safety practices. While the safe work practice recommendations are commendable (I have recommended many of them myself), there is substantial evidence that they are rarely followed in actual practice. And while the RDEIR cites Cal/OSHA's enforcement authority, it overlooks the reality, supported by evidence in the record, that this enforcement authority has not previously resulted in elimination of hazards associated with CPVC installation. The RDEIR offers no further mitigation strategy in this regard, so the most reasonable assumption would be that the work practice recommendations would rarely be followed if the Project is approved. Assessment of hazards must be based on the conditions most likely to prevail, not on HCD's idealized conditions. 21-9

- The RDEIR revives a comparison between the relative hazards of CPVC and copper pipe installation. As I have indicated in my previous comments, such a comparison of relative hazards cannot be validly made without a thorough quantitative assessment of relative risks. Instead, the RDEIR offers only a suite of assumptions and assertions. Regardless of whether or not this comparison has legal significance, it cannot be considered to have any scientific significance in the absence of adequate data and analysis. 21-10

In my professional opinion, the findings of the RDEIR are not consistent with available data and with established practices of industrial hygiene and health risk assessment. The mitigation measures cannot, in their current form, be expected to protect workers against overexposure to toxic substances; the overexposures and their potential health effects must be considered significant risks. 21-11

Sincerely,

Jim Bellows, PhD, MPH

Response to Letter 21: Jim Bellows, PhD, MPH

Comment 21-1. The concerns raised by this comment are addressed by the responsesto Comments 12-164 and 12-166. As such, the Lead Agency respectfully disagrees with Commenter's assertion that the Recirculated Draft EIR does not adequately address impacts to worker safety as required under CEQA.

Comment 21-2. The concerns raised by this comment are addressed by the response to Comment 12-176.

Comment 21-3. The concerns raised by this comment are addressed by the response to Comment 12-171.

Comment 21-4. The concerns raised by this comment are addressed by the response to Comment 12-167.

Comment 21-5. The concerns raised by this comment are addressed by the response to Comment 12-164 and 12-166.

Comment 21-6. The concerns raised by this comment are addressed by the response to Comments 12-164 and 166.

Comment 21-7. The concerns raised by this comment are addressed by the response to Comment 12-171.

Comment 21-8. The concerns raised by this comment are addressed by the response to Comment 12-167.

Comment 21-9. The concerns raised by this comment are addressed by the response to Comment 12-176. As such, the Lead Agency respectfully disagrees with the assertion that the Recirculated Draft EIR does not adequately address impacts to worker safety as required under CEQA.

Comment 21-10. The concerns raised by this comment are addressed by the responses to Comments 19-193 to 19-195. As such, the Lead Agency respectfully disagrees with the assertion that the Recirculated Draft EIR does not adequately address impacts to worker safety as required under CEQA.

Comment 21-11. The concerns raised by this comment are addressed by the responses to Comments 12-164, 12-166, 12-171 and 12-176. As such, the Lead Agency respectfully disagrees with the assertion that the Recirculated Draft EIR does not adequately address impacts to worker safety as required under CEQA.

From: Sandra Cleisz [mailto:scleisz@ci.american-canyon.ca.us]
Sent: Friday, December 29, 2006 5:25 PM
To: CPVC 2006
Subject: Proposed Adoption of regs permitting use of CPVC plumbing pipe

To whom it may concern:
I have not had the time to review the Draft or revised EIR for the proposed adoption of the regulations permitting CPVC plumbing pipe in residences, especially affordable units, so I cannot comment on specific sections of the EIR. Nevertheless, it is widely known that PVC pipe/aka CPVC, is one of the most toxic substances on earth, both in the manufacturing of it, and its use and end of use (landfilling), as it is known to leak toxicity. 22-1

Allowing this product to be used in residences without making a finding of necessity first will permit it to be used as a first choice for homebuilders, as the product appears cheaper when its toxicity and manufacture is not taken into account. In this time of "greening" products and improving our footprint on the earth, this action appears to be a major step backwards, and potentially increases the danger for families depending on the affordable housing that cities are required to provide per State (HCD) direction, as they have no choice in the matter. This is akin to the use of lead paint in the past, and will clearly disproportionately affect poorer people. Not a good idea. I just hope the EIR looked at all aspects of its toxicity, as well as its potential to disproportionately affect the less advantaged/lower income. 22-2 22-3 22-4

Thanks for the opportunity to respond.
Sandra Cleisz, Interim Planning Director
Planning & Building Department
City of American Canyon
3423 Broadway, Suite D-2
American Canyon, CA 94503
Tel: 707.647.4337 Fax: 707.552.8564
scleisz@ci.american-canyon.ca.us

Response to Letter 22: Sandra Cleisz, Interim Planning Director, City of American Canyon

Comment 22-1. The Lead Agency disagrees with the commenter's statement that it is "widely known that . . . CPVC, [sic] is one of the most toxic substances on earth." CPVC is widely approved for use as a pipe product, and is so approved in California, subject to the Findings Requirement. The proposed action evaluated in the Recirculated Draft EIR is the deletion of the Findings Requirement associated with the use of CPVC in residential structures. Solid waste impacts related to CPVC are analyzed in Section 4.5 of the Recirculated Draft EIR, and water quality impacts related to leachates are analyzed in Section 4.3.

Comment 22-2. The Lead Agency disagrees with the implication that claims about the toxicity of CVPC have not been taken into account. This EIR has evaluated concerns about the safety and toxicity of CPVC.

Comment 22-3. The analysis of various potential impacts in the Draft EIR indicates that the Project will have less than significant impacts on families residing in housing plumbed with CPVC pipe. Please also see the response to Comment 22-4.

Comment 22-4. The Recirculated Draft EIR has analyzed all potentially significant environmental impacts of the Project, including impacts related to toxicity. Because the analysis of various potential impacts in the Draft EIR indicates that the Project will have less than significant impacts on families residing in housing plumbed with CPVC pipe, the proposed action (the deletion of the findings requirement) will not disproportionately affect the poor. The reduced cost of CPVC pipe when compared with other pipe products is one of the benefits of the proposed action.

CHAPTER 3.0 REVISIONS AND ERRATA TO THE RECIRCULATED DRAFT EIR

This chapter presents a compilation of each of the changes to the text of the Recirculated Draft EIR deemed necessary and appropriate as a result of the public comments, as noted in individual responses provided in Chapter 2.0 of this Final EIR. Text that has been added is shown in underlined formatting. Text that has been deleted is shown in ~~strikethrough~~ formatting.

Page 34, the second paragraph is revised and expanded into two paragraphs as follows:

Ozone Health Effects

O_3 is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections, and can cause substantial damage to vegetation and other materials. O_3 is a severe eye, nose, and throat irritant. The U.S. EPA has indicated that O_3 can cause harmful respiratory effects, including chest pain, coughing, and shortness of breath, which affect people with compromised respiratory systems most severely. When inhaled, ozone can cause acute respiratory problems; aggravate asthma; cause significant temporary decreases in lung function of 15 to over 20 percent in some healthy adults, cause inflammation of lung tissue; produce changes in lung tissue and structure; may increase hospital admissions and emergency room visits; and impair the body's immune system defenses, making people more susceptible to respiratory illnesses. (66 Fed. Reg. 5002, 5012 (Jan. 18, 2001)).

O_3 also attacks synthetic rubber, textiles, plants, and other materials and causes extensive damage to plants by leaf discoloration and cell damage. O_3 is not emitted directly into the air; it is formed by a photochemical reaction in the atmosphere. O_3 precursors—reactive organic gases (ROGs) and oxides of nitrogen (NO_X)—react in the atmosphere in the presence of sunlight to form O_3. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, O_3 is primarily a summer problem.

Pages 90-91:

The data in Table 4.2.4.15 was erroneously printed twice in the Draft EIR, both in Table 4.2.4.14 and in Table 4.2.4.15. This point was not raised by any of the commenters, but was noted by the Lead Agency in its independent review of the Final EIR. Table 4.2.4.14 is revised to read as follows. The conclusions and analysis in the air quality section of the Recirculated Draft EIR remain the same.

Table 4.2.4.14: Comparison of Annual District Emissions to the Most Restrictive District Threshold

Air District	Annual Summary (tons/year)								Most Restrictive Annual Standard (tons/year)								
	Design[1]				Max				Threshold	Design[1]				Max			
	Cement Only		Cement + Primer		Cement Only		Cement + Primer			Cement Only		Cement + Primer		Cement Only		Cement + Primer	
	No S.F.	With S.F.	No S.F.	With S.F.	No S.F.	With S.F.	No S.F.	With S.F.	tons/year	No S.F.	With S.F.	No S.F.	With S.F.	No S.F.	With S.F.	No S.F.	With S.F.
Amador County APCD	0.1	0.1	0.1	0.2	0.1	0.3	0.2	0.4	25								
Bay Area AQMD	5.3	10.5	7.1	14.2	12.7	25.4	17.1	34.2	15						Y	Y	Y
Butte County AQMD	0.3	0.5	0.4	0.7	0.7	1.3	0.9	1.8	-								
Calaveras	0.1	0.2	0.2	0.3	0.3	0.6	0.4	0.8	10								
Colusa	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	10								
El Dorado County APCD	0.3	0.6	0.4	0.9	0.8	1.6	1.1	2.1	-								
Feather River AQMD	0.4	0.8	0.5	1.1	1.0	1.9	1.3	2.6	-								
Glenn	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	-								
Great Basin	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.4	-								
Imperial County APCD	0.3	0.6	0.4	0.8	0.7	1.4	1.0	1.9	10								
Kern County APCD	1.1	2.2	1.5	3.1	2.7	5.4	3.7	7.4	25								
Lake County AQMD	0.1	0.2	0.1	0.2	0.2	0.4	0.3	0.5	-								
Lassen	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	-								
Mariposa County APCD	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	100								
Mendocino County AQMD	0.1	0.1	0.1	0.2	0.2	0.4	0.2	0.5	40								
Modoc County APCD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	250								
Mojave Desert South Coast AQMD	7.2	14.4	9.8	19.6	17.5	35	23.8	47.7	10		Y		Y	Y	Y	Y	Y
Monterey Bay Unified APCD	0.6	1.1	0.8	1.5	1.3	2.7	1.8	3.6	-								
North Coast Unified AQMD	0.1	0.2	0.2	0.3	0.3	0.6	0.4	0.8	10								
Northern Sierra AQMD	0.2	0.5	0.3	0.7	0.6	1.2	0.8	1.6	50								
Placer County APCD	0.8	1.6	1.1	2.2	1.9	3.8	2.6	5.2	-								

Table 4.2.4.14: Comparison of Annual District Emissions to the Most Restrictive District Threshold																	
	Annual Summary (tons/year)								Most Restrictive Annual Standard (tons/year)								
	Design[1]				Max				Threshold	Design[1]				Max			
	Cement Only		Cement + Primer		Cement Only		Cement + Primer			Cement Only		Cement + Primer		Cement Only		Cement + Primer	
Air District	No S.F.	With S.F.	No S.F.	With S.F.	No S.F.	With S.F.	No S.F.	With S.F.	tons/year	No S.F.	With S.F.	No S.F.	With S.F.	No S.F.	With S.F.	No S.F.	With S.F.
Sacramento Metropolitan AQMD	1.8	3.6	2.5	4.9	4.4	8.8	6.0	12.0	10								Y
San Diego APCD	3.1	6.2	4.1	8.3	7.4	14.8	10.0	19.9	-								
San Joaquin Valley APCD	5.1	10.3	7.0	14.0	12.5	25.0	17.0	34.1	10		Y		Y	Y	Y	Y	Y
San Luis Obispo County APCD	0.4	0.7	0.5	1.0	0.8	1.7	1.2	2.3	10								
Santa Barbara County APCD	0.3	0.5	0.4	0.7	0.7	1.3	0.9	1.8	-								
Shasta County AQMD	0.2	0.4	0.3	0.6	0.5	1.1	0.7	1.5	-								
Siskiyou County APCD	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.3	40								
South Coast AQMD	14.0	27.9	18.9	37.7	33.7	67.4	45.6	91.1	-								
Tehama County APCD	0.1	0.2	0.1	0.3	0.2	0.4	0.3	0.6	10								
Tuolumne County APCD	0.1	0.2	0.1	0.3	0.2	0.4	0.3	0.6	100								
Ventura County APCD	0.8	1.5	1.0	2.0	1.8	3.6	2.5	4.9	5								
Yolo Solano AQMD	0.8	1.6	1.1	2.2	1.9	3.9	2.6	5.3	25								

Y - Indicates a standard is exceeded

Page 112, footnote 48 is revised as follows:

[48] 42 U.S.C. section 300g(d)(2). The pipes and fittings for which a content of 8.0 lead is allowed include the point of service fixtures common to both copper and CPVC plumbing systems.

Pages 120-121, the paragraph that begins at the bottom of the page on 120 and Table 1 on page 121 are revised as follows:

The solvent discharges of CPVC Adhesives do not rise to the level of a "Hazardous Substance" under Porter-Cologne. A "Hazardous Substance" under Porter-Cologne does not include a substance that is discharged to a surface water in a quantity less than a reportable quantity as determined by regulations issued pursuant to Section 311(b)(4) of the Federal Water Pollution Control Act (**FW~~O~~PCA**). Regulations for these quantities are found in 40 Code of Federal Regulations part 302.4 (2005). Table 2 lists the chemicals that may be expected to be released for a short time following CPVC pipe installation and the FW~~O~~PCA reportable quantity limits.

Table 1: FW~~O~~PCA Reportable Quantities

CHEMICAL	REPORTABLE QUANTITY (POUNDS)
Acetone	5000
Cyclohexanone	5000
Methyl ethyl ketone	5000
Tetrahydrofuran	1000

Pages 129-130, the discussion of Impact 4.3-2: Disinfection Byproducts (DBPs) is revised as follows:

Freshly installed CPVC plumbing systems can leach organics into drinking water that may serve as DBP precursors. In the past, chloroform was used during the manufacture of CPVC resin, but chloroform is no longer used in CPVC resin and has not been used in CPVC resin for many years. However, it is at least conceivable that trace amounts of chloroform could be formed during the chlorination steps of CPVC manufacture. Some amount of vinyl chloride monomer also may be found in CPVC pipe. As discussed in the Regulatory Setting section of this chapter, the EPA has promulgated new rules relating to disinfection byproducts, but those rules do not change the MCLs of THM or HAA5 that were established in 1998. Disinfection byproducts standards are based on lifetime exposures and CPVC plumbing is not expected to have long-term leaching of chemicals that may be precursors to disinfection byproducts. The regulatory limits for DBPs also include margins of safety to protect human health.

The NSF/ANSI Standard 61 regulates TTHM leachates from CPVC products (pipe and cement) and sets a limit that is 10 percent of the EPA MCL. Thus, the EPA allows water to have up to 0.08 mg/L of TTHM and 0.06 mg/L of HAA5, but NSF/ANSI certified CPVC products can only contribute up to 0.008 mg/L of TTHM and 0.006 mg/L of HAA5. NSF/ANSI also establishes standards and NSF tests and certifies CPVC pipe for the presence of vinyl chloride monomer and chloroform and related compounds. Since the NSF/ANSI standards ~~is~~ are based on ~~the~~ EPA

standards, any future change in the EPA standards will result in a corresponding change in the NSF/ANSI standards.

Given the nature of the regulatory controls for DBPs as well as the assurances of NSF/ANSI certified CPVC products, CPVC products used in California will meet the current standards and not significantly contribute quantities of indicator DBPs or DBP precursors. NSF/ANSI 61 certification requires testing against established, health-conservative standards and provides assurance that CPVC products used in California will meet the current standards and not significantly contribute to exceeding the MCL for THMs. Moreover, the use and installation of CPVC plumbing for potable water is not expected to contribute significantly to the formation of disinfection byproducts. Therefore, the Project will not violate any water quality standards or waste discharge requirements related to disinfection byproducts or otherwise substantially degrade water quality, and impacts of the Proposed Project related to disinfection byproducts will be less than significant.

Page 139, the first paragraph is revised as follows:

In addition to the foregoing, the installation and repair of copper pipe has other inherent hazards. Hot materials, pipe, fittings, molten solder, flux and the heat source can cause serious thermal burns. The heat source can also start fires, potentially creating immediate safety hazards to workers, residents and firefighters. Incisions, cuts and abrasions result from cutting and de-burring pipe. Copper pipe also poses a risk of electrocution because it is an excellent conductor of electricity. ~~Pressure testing of the piping system also presents a rare but dangerous risk where piping failure results in pieces of failed pipe being propelled outward. Such events can pose risk of very serious injury to anyone struck by the propelled pipe.~~

Page 145, the existing text in footnote 158 is replaced in its entirety by the following text:

Kizer, K.W., *Plastic Pipe Installation: Potential Health Hazards for Workers*, p. 43, Table 6 (DHS 1989).

Page 146, the first paragraph is revised as follows:

Further, even in the event of improper installation, impacts associated with CPVC pipe installation are expected to be no more, and possibly less, than impacts associated with improper copper pipe installation. Improper installation of copper pipe exposes workers to a number of risks. Toxic organic vapors and particles less than 10 microns in diameter can be inhaled during the soldering process, exposing workers to contaminants and respiratory harm. Lead-based or low-lead solders may present worker health hazards by causing skin, eye and lung injury, potentially resulting in respiratory irritation, fevers, chills, muscular pain, and vomiting. Other inherent hazards associated with copper pipe installation can present further risks, including burns from propane flames or molten solder, and electrocution conducted through copper pipe~~, and impact injuries resulting from pipe failures~~.

Pages 148-149, the final paragraph that begins on page 148 is revised as follows:

Further, as discussed above, impacts associated with improper CPVC pipe installation are expected to be no more, and possibly less, than impacts associated with ~~the~~ improper copper pipe installation. Improper installation of copper pipe exposes workers to a number of risks. Toxic organic vapors and particles less than 10 microns in diameter can be inhaled during the soldering process, exposing workers to contaminants and respiratory harm. Lead-based or low-lead solders may present worker health hazards by causing skin, eye and lung injury, potentially resulting in respiratory irritation, fevers, chills, muscular pain, and vomiting. Other inherent hazards associated with copper pipe installation can present further risks, including burns from propane flames or molten solder, and electrocution conducted through copper pipe~~, and impact injuries resulting from pipe failures~~.

Page 163, the following paragraphs are inserted immediately before Section 5.3:

5.2.4 Continue to Apply the Findings Requirement in Air Districts Where the Project Has Been Determined to Result in Significant Air Quality Impacts Related to ROG Emissions.

Under this alternative, the Lead Agency would recommend that the California Building Standards adopt California Plumbing Code provisions that would continue to apply the Findings Requirement to local air districts where the air quality analysis in section 4.2 of this RDEIR determined that the Project could result in significant impacts related to ROG emissions, but that would also provide that the Findings Requirement would no longer apply to those local air districts that are not listed as having significant impacts in section 4.2 of this RDEIR. In other words, under this alternative, the Findings Requirement would continue to apply to the Bay Area Air Quality Management District, Feather River Air Quality Management District, Mojave Desert Air District, Sacramento Metropolitan Air Quality Management District, San Luis Obispo County Air Pollution Control District, and South Coast Air Quality Management District, but would no longer apply to other air districts.

Even though this alternative was not suggested during the scoping process for the EIR or in any of the comments received on the July 2006 Draft EIR or the RDEIR, the Lead Agency has considered this alternative during its independent review of the EIR. However, the Lead Agency has not analyzed this alternative in detail because it does not feasibly attain most of the basic objectives of the Project. The project objective set forth in Section 3.4 of this RDEIR is reproduced below:

> The current Uniform Plumbing Code permits the unrestricted use of CPVC pipe for hot and cold water distribution within residential buildings. The current California Plumbing Code conditions the use of CPVC to those situations where the local building official makes a finding that there is or will be a premature failure of metallic pipe due to existing water or soil conditions (referred to as the "Findings Requirement"). The project objective is to remove the "Findings Requirement" from the California Plumbing Code

thereby allowing unconditional use of CPVC throughout California as an alternative pipe material for residential potable water plumbing systems.

Section 15126.6(a) of the CEQA Guidelines states that an "EIR shall describe a range of reasonable alternatives to the project ... which would feasibly attain most of the basic objectives of the project." In this case, the alternative would not attain the project objective because the Findings Requirement would remain in place throughout a large portion of California, including several of the air districts with the largest populations and the greatest amounts of new residential construction. In 2005, 74.20 percent of the new housing units authorized by building permits in California were authorized in counties that are in non-attainment for ozone.[1] Thus, this alternative would not "allow unconditional use of CPVC pipe *throughout California*," and would make CPVC available as an alternative pipe material only for approximately 25 percent of new residential construction. This alternative is essentially a variant of the No Project Alternative because it maintains the status quo for most of the State. Because this alternative would not feasibly attain most of the basic objectives of the Project, and is thus not a feasible alternative to the Project, it is not evaluated in detail in this EIR.

Pages 216-225:

The header on the pages within Chapter 6.0 of the Recirculated Draft EIR incorrectly is shown as "8.0 Biography" instead of "6.0 Other Considerations".

Page 217, the final sentence in the first paragraph is revised as follows:

This prior analysis ~~were~~ was part of the basis for the Lead Agency's determinations in the 2000 MND, located at page 1 of the Explanation of Checklist Judgments, where the Lead Agency stated, "The determinations made for this Environmental Checklist are based on information in the record for this project as well as information in the record of previous HCD examinations of CPVC for use in residential buildings."

Page 217, the second paragraph is revised as follows:

At the outset, it is important to note that neither CPVC compound nor copper is produced in California. The energy inputs and other environmental effects associated with the primary production of both of these materials is beyond the scope of this EIR, since the impacts do not occur in California and it is speculative to establish where such impacts might occur. CEQA

[1] Department of Finance, Economic Research Unit, *Total New Housing Units Authorized by Building Permits, California, 1994 to 2005*, available at http://www.dof.ca.gov/HTML/FS_DATA/STAT-ABS/documents/l6.xls (Source: Construction Industry Research Board). More specifically, Department of Finance data indicates that out of 208,972 building permits authorized in 2005, 27,599 (13.21%) of the permits were authorized in Bay Area counties, 33,731 (16.14%) were authorized in Central Valley counties, and 93,713 (44.85%) of the permits were authorized in Southern California counties. Together, 155,043 total building permits were authorized in these three areas during 2005, comprising 74.20% of the total 208,972 permits authorized statewide. The total of 155,043 building permits does not include the Feather River and Sacramento Metropolitan Air Quality Management Districts and, therefore, the percentage of new residential construction that would remain subject to the Findings Requirement under this alternative would likely be greater than 75%.

generally does not require analysis of impacts outside of California. Nevertheless, in order to provide additional disclosure to the public, this EIR includes the following information regarding potential energy impacts associated with the Project. CPVC is derived from chlorine (63-70% of the finished product), which comes from common table salt, and ethylene (30-37% of the finished product), which comes from oil or natural gas. Although common table salt is not a nonrenewable natural resource, ~~T~~there is an almost limitless supply of ~~common table salt~~ it. Compared to most other plastics, CPVC has a relatively low petroleum content and, therefore, its production process uses less of our non-renewable oil reserves. The overall energy requirements of CPVC production also are quite low in comparison to other plastics. Due to the durability and long life of CPVC pipe, the Lead Agency considers this not to be a wasteful or inefficient use of non-renewable resources when compared to the use of these resources for combustion as fuel. On the contrary, it is an efficient and productive use of these resources.

Page 218, the first paragraph is revised as follows:

After CPVC is manufactured and installed, energy usage over the life of the pipe is a function of the heat loss of hot water conveyed by it. Compared to the metal pipe materials currently in use, CPVC has a much lower heat loss, due to the extremely high thermal conductivity of metals in relation to plastics. The thermal conductivity of a copper system is 2500 times that of a CPVC system. The results of a 2004 study indicate that the use of CPVC for residential hot water systems resulted in significantly less energy waste than copper. For instance, the study found that a conventional slab hot water system in a new 2,010-square foot, three-bedroom, two-bath home would result in an annual energy waste (measured in terms of dollars) of $273.00 in electricity and $85.20 in gas if copper were used, and $224.04 in electricity and $69.96 in gas using CPVC. In order to achieve a reasonable level of energy efficiency, many residences have plastic insulation installed on copper pipes, and insulation of all hot water pipes is required in new construction in California. The insulation requirement does not apply to repairs and, therefore, does not apply to re-piping of hot water pipe systems within existing residential buildings. Therefore, the study results comparing uninsulated systems are relevant in considering energy impacts of the use of CPVC for re-pipings to the use of copper for re-pipings, but are not relevant in comparing the use of CPVC versus copper in new residential construction. Insulated CPVC pipe would have lower heat loss than insulated copper pipe, although the differences would be less dramatic. For example, the same 2004 study indicated that the system described above, if insulated, in the same residence described above would result in an annual energy waste of $60.12 in electricity and $18.72 using copper, or $55.80 in electricity and $17.40 in gas using CPVC. The same study concluded from a cost/benefit viewpoint, an uninsulated conventional CPVC hot water system located in the attic was the most superior system in comparison to an uninsulated, conventional copper hot water system located in the attic.

Page 219 is revised as follows:

- ~~Substituting demand recirculation, CPVC, in attic, uninsulated systems for conventional, copper, in attic, uninsulated systems in 20,000 single-family, three-bedroom, two-bath, one-story, 2,010 square foot (s.f.) housing units per year would result in an annual savings of 116,580 million British thermal units (MBTU).~~

- ~~Substituting demand recirculation, CPVC, in attic, uninsulated systems for conventional, copper, in attic, uninsulated systems in 10,000 single-family, four-bedroom, two-and-a-half-bath, one story, 3,080 s.f. housing units per year would result in an annual savings of 63,780 MBTU.~~

- ~~Substituting demand recirculation, CPVC, in attic, uninsulated systems for conventional, copper, in attic, uninsulated systems in 15,000 single-family, four-bedroom, three-bath, two story, 2,810 s.f. housing units per year would result in an annual savings of 77,760 MBTU.~~

- Substituting conventional, CPVC, in attic, uninsulated systems for conventional, copper, in attic, uninsulated systems in 25,000 two-bedroom, two-bath, one story, 960 s.f. apartment or condominium housing units per year would result in an annual savings of 7,675 MBTU.

Assuming a clustered water use pattern, the study indicated the following results:

- ~~Substituting demand recirculation, CPVC, in attic, uninsulated systems for conventional, copper, in attic, uninsulated systems in 38,250 single-family, three-bedroom, two-bath, one-story, 2,010 square foot (s.f.) housing units per year would result in an annual savings of 3,420 MBTU.~~

- ~~Substituting demand recirculation, CPVC, in attic, uninsulated systems for conventional, copper, in attic, uninsulated systems in 10,000 single-family, four-bedroom, two-and-a-half-bath, one story, 3,080 s.f. housing units per year would result in an annual savings of 21,980 MBTU.~~

- ~~Substituting demand recirculation, CPVC, in attic, uninsulated systems for conventional, copper, in attic, uninsulated systems in 30,000 single-family, four-bedroom, three-bath, two story, 2,810 s.f. housing units per year would result in an annual savings of 13,470 MBTU.~~

- Substituting conventional, CPVC, in attic, uninsulated systems for conventional, copper, in attic, uninsulated systems in 15,000 two-bedroom, two-bath, one story, 960 s.f. apartment or condominium housing units per year would result in an annual savings of 1,965 MBTU.

Page 220, the first sentence of the first paragraph is revised as follows:

Given ~~all of~~ the results discussed above, the study recommended removing barriers to the use of CPVC when appropriate quality and durability can be demonstrated.

Page 227 – Chapter 8.0

Chapter 8.0 of the Recirculated Draft EIR is incorrectly titled "Biography" instead of "Bibliography".