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GOVERNMENT OPERATIONS AGENCY
CALIFORNIA BUILDING STANDARDS COMMISSION
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Office Use Item No. _____

PARTICIPATION COMMENTS FOR THE NOTICE DATED OCTOBER 9, 2015
Written comments are to be sent to the above address.

WRITTEN COMMENT DEADLINE: NOVEMBER 23, 2015 (no later than 5:00 pm)

Date: 10/28/15

From:

Forest Hampton III
Name (Print or type)


(Signature)

Lubrizol Advanced Materials, Inc.

Agency, jurisdiction, chapter, company, association, individual, etc.

<u>9911 Brecksville Road</u>	<u>Cleveland</u>	<u>Ohio</u>	<u>44141</u>
Street	City	State	Zip
<u>Forest.hampton@lubrizol.com</u>	<u>216-447-7239</u>		
Email address	Phone number		

We do agree with:

The Agency proposed modifications As Submitted on Section No. 604.1

and request that this section or reference provision be recommended:

Approve Disapprove Further Study Approve as Amended

Suggested Revisions to the Text of the Regulations:

Reason: [The reason should be concise if the request is for "Disapprove," "Further Study Required," or "Approve As Amended" and identify at least one of the 9-point criteria (following) of Health and Safety Code §18930.]

Attached is a letter of support for OSHPD's proposed code change to the 2016 California Plumbing Code that will remove the exception for OSHPD 1, 2, 3 & 4 stating that CPVC is not permitted for applications under the authority of the Office of Statewide Health Planning and Development. We are submitting this letter in response to unfounded comments on the safety of CPVC drinking water pipe in California that were made during the September 9th and 10th Plumbing, Electrical, Mechanical and Energy (PEME) 2015 Code Advisory Committee review meeting.



October 12th, 2015

Glenn S. A Gall
AIA, Project Manager
OSHPD
400 R Street, Suite 200
Sacramento, CA 95811

Subject: Response to 'Attachement 1' section Appendix B. Scoping Summary of 'Revisions to the 2016 California Plumbing Code to Allow the Use of Perfluoroalkoxy in Dialysis Branch Lines and Plastic Pipe in Plumbing Applications in OSHPD 1, 2, 3, and 4 Facilities' – Draft Environmental Impact Report (SCH# 2015042077) in support of the use of CPVC plastic pipe in OSHPD plumbing applications.

Dear Mr. Gall:

The Lubrizol Corporation (Lubrizol) is submitting comments in support of the proposed Plumbing Code Amendment to remove the current prohibition of the installation of chlorinated polyvinyl chloride (CPVC) drinking water pipe and polyvinyl chloride (PVC) and acrylonitrile butadiene styrene (ABS) drain, waste, and vent (DWV) pipe in buildings under the jurisdiction of the Office of Statewide Health Planning and Development. More specifically, Lubrizol is responding to the unfounded allegations of Adams Broadwell Joseph & Cardozo in their October 8, 2012 comments on the proposed amendment that were prepared by Thomas A. Enslow and is providing information documenting the acceptability and safety of CPVC drinking water pipe in California.

The safety and acceptability of CPVC drinking water pipe has been well studied. In January 2007 the State of California Department of Housing and Community Development (HCD) published the certification of the CPVC Plastic Pipe Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) for the Adoption of Regulations Permitting Statewide Residential Use of CPVC Plastic Plumbing Pipe Without First Making a Finding of Potential Premature Metallic Pipe Failure Due to Local Water and Soil Conditions (the "Project"). The certification of the EIR was the culmination of over 20 years of review of the health, environmental, safety, and regulatory information. The certification process and the final EIR provided an exhaustive review and assessment of all these areas of concern and potential impacts considering comments. Proponents and opponents of the Project were given the opportunity to support their positions. The Coalition for Safe Building Materials (the "Coalition") submitted comments on the adverse impact of the Project covering Air Quality, Worker Health & Safety, Drinking Water, Manufacturing, Solid Waste, Fire Hazard, Mechanical Failure, and Statutory Law. HCD reviewed the comments for the Coalition and other in detail and provided hundreds of detailed responses as part of the *Final Environmental Impact Report, Responses to Comments*. The following excerpts from the EIR respond to the issues raised by the Coalition and the current comments from Adams Bradwell Joseph & Cardozo (October 12, 2009), which are in essence a repackaged reiteration of the Coalition comments.

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Air Quality Impacts

"The revised analysis of air quality impacts in the Recirculated Draft EIR used a conservative approach and does not substantially understate such impacts,--"(Comment 12-5)

Worker Health & Safety

Inhalation Exposure

"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 12-164)

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, 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." (Comment 12-171)

Contamination of Drinking Water

Organotins (including tributyltin)

"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 12-11 referencing Comment 10-3)

"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 12-144)

Drinking Water Safety

"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 12-146)

Manufacturing Impacts

"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. 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 12-124)

Solid Waste Impacts

Disposal and Recycling

"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 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." (Comment 12-192)

Dioxins

"The EPA's National Center for Environmental Assessment recently published a report inventorying sources of environmental release of dioxin-like compounds.³⁶ 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.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 of 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 12-20 referencing Comment 16-16)

Note: The EPA inventory lists a wide range of sources of dioxin-like compounds including incinerators (municipal, hospital, etc.), motor fuel combustion, wood burning, coal combustion, accidental fires (including forests, backyard burning, etc.), and primary and secondary copper smelting and refining.

Fire Hazard Impacts

Fire Spread

"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 Underwriter 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 "[O]ne 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 12-21 referencing Comment 16-10)

Firestopping

Concerns have been raised as to the suitability of firestop materials with CPVC pipe. Firestop materials have been tested with CPVC pipe and meet the requirements of UL 1479 (or ASTM E814). It is required that all penetrations in a fire-rated wall or floor are protected by sealing or "firestopping" thereby allowing a building structure to be restored to its original fire-rated condition to contain the spread of a fire. The fire stopping materials safeguard that fire, smoke and toxic gases are contained within a compartment.

In this testing, a building section or compartment is built with the pipe and fire stop material installed within the structure. The assembly is subjected to a fire test. By passing this testing, the fire stopping materials are UL tested, approved and listed for use with CPVC pipe. During a fire, the CPVC or plastic pipe may soften, however the fire stopping materials are intumescent materials meaning they expand in the presence of heat, thereby sealing the penetration. The expansion of the fire stop material blocks the spread of fire, smoke and toxic gases. Moreover, all materials including metal pipe are required to meet these compartment penetration fire stop approvals.

In addition to having these approvals, the building inspector, Code Official or project engineer must approve the construction. Requirements are addressed in the building codes. Various fire stop materials are available for CPVC including but not limited to firestop cast-in device, collar, self-leveling sealant, plug, board, wrap strip, sleeve kit, drop-in device and intumescent sealant. Thus, there are many choices for the approved fire stopping of CPVC pipe based on the building design. In summary, there are no concerns with the use of CPVC with regards to wall penetrations based on these approvals.

Premature Mechanical Failure

"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 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)." (Comment 12-218)

Based on all the review and assessment of all the information and comments, the CDHCD came to the following overriding conclusions regarding the significance of the impacts and mitigation measures. The less than-significant areas of impact and conclusions were:

1. Water Quality:

- The potential impact of leachates from CPVC plastic plumbing pipe will be less than significant.
- No new impacts from leachates are expected to occur.
- The leachates will violate any water quality standards or waste discharge requirements or substantially degrade water quality.
- Mitigation measures to minimize or eliminate impacts are currently in place under the California Plumbing Code.
- CPVC plastic plumbing pipe will not significantly contribute quantities of disinfection byproducts or their precursors.

2. Worker Safety:

- The potential impact of inhalation exposure to vapors from the instillation of CPVC plastic plumbing pipe will be less than significant.
- Neither short-term nor long-term exposures during the instillation of CPVC plastic plumbing pipe present a significant impact to worker safety when the safety procedures and requirements under the California Plumbing Code are followed.
- The impacts from improper instillation are expected to be no more, and possibly less significant than the impacts from the improper instillation of copper pipe.
- The potential impact of dermal exposure to the pipe joining adhesive will be less than significant based on the existing provisions of the California Plumbing Code requiring gloves with a prescribed protection factor and the discarding and replacement of contaminated and based on the unlikely occurrence of skin contact when the adhesive application daubers are properly used.

- The potential impact from carcinogenic effects from the pipe joining adhesive will be less than significant because the toxicology data does not indicate that any of the solvents in the adhesive are human carcinogens.
- The potential impact related to the enforcement of California Plumbing Code regulations and mitigation measures will be less than significant because 1) existing law and regulations require employers to provide safety equipment and training on safe use, 2) the requirements are enforced by Cal/OSHA, 3) the California Plumbing Code prohibits the issuance of a permit without finding that the installer has complied with required safety procedures, and 4) the contractor must verify that all safety and training requirements were followed.

3. Solid Waste:

- The potential impact of landfill capacity from the disposal of CPVC plastic plumbing pipe will be less than significant.
- CPVC plastic plumbing pipe is durable and has a long life.
- Most disposal in landfills would not occur until the time of residential demolition.
- The need for replacement of the pipe and corresponding waste (wet carpet, etc.) that would have occurred from leaking copper pipes is expected to be reduced.
- Recycling and reuse of CPVC plastic plumbing pipe is technically feasible and likely to become more prevalent.
- Then potential impact related to compliance with statutes and regulations will be less than significant because it will not violate or cause noncompliance with any federal, state, or local laws.

The only impact that was determined to be significant an unavoidable was the concern that reactive organic gas emissions in several air districts could increase exceeding established significance thresholds. While the use of one-step joining cement (without primer) was expected to reduce this impact, emissions were still expected to exceed the most restrictive significant thresholds in some districts. However, this remaining potential unavoidable significant impact was overridden by the CDHCD determination of the following overriding consideration:

- The economic, legal, social, technological, environmental, and other considerations and benefits outweigh this remaining impact.
- The Project allows the current statewide use of CPVC plastic plumbing pipe without first making a finding of potential premature metallic pipe failure due to local water and soil conditions recognizing that many California consumers had to replace copper pipe a number of times and that the findings will increase consumer options and improve quality and affordability.
- The Project will improve the affordability of housing by providing a less expensive alternative to copper pipe both in terms of materials and labor and reduce repair costs from corrosion-related copper pipe failures.
- The Project will reduce the water quality impact of dissolved copper from the corrosion of copper plumbing systems.
- Finally, the Project will foster competition that will lead to lower prices and improved quality.



In conclusion, the findings of the Draft Environmental Impact Report on CPVC Plastic Pipe provides an adequate and sound technical and scientific basis to support OSHPD's revisions to the 2016 California Plumbing Code to allow the use of CPVC in plumbing applications in OSHPD 1, 2, 3 and 4 facilities.

Sincerely,

A handwritten signature in blue ink that reads "Christopher D. Zook".

Christopher D. Zook, Senior R&D Chemist

TempRite® Engineered Polymers
Lubrizol Advanced Materials