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Via Hand Delivery and Electronic Mail

California Department of General Services
Real Estate Services Division
Professional Services Branch, Environmental Services Section
Attn: Valerie Namba, Senior Environmental Planner
707 Third Street, Third Floor, MS 509
West Sacramento, CA 95605-9052

Re: Draft Environmental Impact Report: Adoption of Statewide Regulations Allowing the Use of PEX Tubing

Dear Ms. Namba:

On behalf of the Plastic Pipe and Fittings Association (PPFA), this firm submits the following comments on the Draft Environmental Impact Report (EIR) for the proposed PEX regulations. PPFA appreciates the opportunity to comment and recognizes the challenges in evaluating potential effects of a product that already is in widespread use throughout California, the United States and Europe.

The Draft EIR is very thorough and takes a highly conservative approach to analyzing potential impacts. This conservative approach results in identification of potential impacts where, in fact, there are likely to be none at all. As a result, the Building Standards Commission (BSC) and consumers can be confident that the State has taken a rigorous approach to the full state-wide adoption of PEX and fulfilled its obligations under CEQA. Further, and more importantly, use of PEX will result in lesser potential public health and environmental impacts – even *without* mitigation – than the most widely used pipe material allowed under the existing regulations, copper.

1. Air Quality (Chapter 4.1) / Public Health and Hazards (Chapter 4.2)

The Draft EIR's conservative approach is particularly evident in the impact determinations that are based on potential pipe failure from exposure to continuously recirculating hot chlorinated water. These include potential impacts to air quality from mold formation (Impact 4.1-2, p. 4.1-10) and to public health (Impact 4.2-3, p. 4.2-9).

The threshold of significance identified in the Draft EIR for impacts related to public health and hazards is whether the increased use of PEX pipe would result in:

> *Substantial premature* pipe failure and flooding that would lead to *widespread* incidences of mold infestation associated with *significant* health risks. (Draft EIR, p. 4.2-5, emphasis added.)

One potential effect evaluated pursuant to this threshold is the "Risk of Premature or Unexpected PEX Failure and Flooding Potentially Increasing the Incidence of Mold." (Impact 4.2.3, p. 4.2-13.) This evaluation states that PEX pipe used in continuously recirculating hot water systems within jurisdictions that use chlorine for disinfection *may* have a shorter product life than copper, CPVC or PEX in traditional domestic applications. (Draft EIR, p. 4.2-9.) The Draft EIR thus concludes that the full adoption of PEX into the Plumbing Code would result in a "potentially significant impact" to human health. This conclusion does not appear to be supported by analysis and does not meet the threshold of significance set forth in the Draft EIR. It therefore overstates any realistic risk to human health or the environment. The Draft EIR acknowledges that the potential impact is "speculative." CEQA requires that a lead agency determine whether a project may have a significant effect based on substantial evidence "in light of the whole record." (Pub. Resources Code, § 21082.2(a); CEQA Guidelines, § 15064(a)(1).) Speculation does not constitute substantial evidence under CEQA. (See CEQA Guidelines, §§ 15064(f)(5), 15384(a); see also § 15145 for a discussion of how speculation is to be treated under CEQA.)

Based on the facts in the record, the Final EIR should reevaluate the determination that use of PEX that meets current code provisions in continuously recirculating hot chlorinated water systems would be reasonably likely to result in "substantial" "premature" failure that would lead to "widespread" incidences of mold infestation that would lead to "significant health risk." For example, the Draft EIR does not define what would constitute a "premature" pipe failure. Relying on statements by one PEX manufacturer whose product is certified to the NSF P171-Cl-R test method for chlorine resistance, the Draft EIR presumes that the more conservative design factor in that method would be preferable to the standard that is applied pursuant to California law, ASTM F876, when tested in accordance with ASTM F2023. As noted in the EIR, the estimated product lifespans under these two different approaches are purely theoretical. While applying a more conservative factor may be seen as desirable (especially by the manufacturer of products tested to that method), there is no evidence that PEX tested to the current national consensus standard will fail "prematurely" or that applying such a conservative assumption is necessary to avoid a significant impact to human health or the environment.

The Draft EIR impact analysis thus appears to be based on a comparison of purely theoretical performance conclusions among types of PEX, and not against the baseline, which includes numerous other materials, including copper. A more reasonable conclusion would be that increased use of PEX would likely result in a *reduced* incidence of pipe failure. PEX has been in use for more than 20 years with no evidence of failures

due to contact with continuously circulating hot chlorinated water. Moreover, there is evidence that chloramines are less aggressive than chlorine to PEX pipes.[1] By contrast there is substantial evidence that other code-approved materials, such as copper, fail with increasing frequency in a matter of months after being put into service, either due to corrosion or due to the effects of chloramine, the use of which is increasing.[2] Copper failures commonly take the form of pinhole leaks, which are the type of failures that lead to slow, persistent, undetected leaking and mold formation that could put human health at risk. (See Exhibit B.)

As a practical matter, continuously recirculating hot water systems are not likely to be found in widespread use in California. Stringent Energy Code requirements make such systems difficult to permit because continuously recirculating hot water systems can double the energy used in a hot water system due to constant heat losses in the piping.[3] Moreover, the Draft EIR acknowledges that any theoretical PEX failures would be confined to jurisdictions that have not yet switched to chloramine disinfection, which will be fewer and fewer due to the need to comply with Disinfection Byproduct Rule requirements for THMs.

Even if it is assumed that PEX might fail, however, the evaluation of this impact does not account for a key fact: such failure would be immediately noticeable. The

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[1] Note 1 to ASTM F2023-08, Standard Test Method for Evaluating the Oxidative Resistance of Cross Linked Polyethylene (PEX) Tubing and Systems to Hot Chlorinated Water states in part, "A PPI [Plastic Pipe Institute] research project examined the relative aggressiveness of free chlorine and chloramines on PEX pipes, both at the same 4.0 ppm concentration and the same test temperatures. The results of the testing showed pipe failure times approximately 40% longer when tested with chloramines compared to testing with free chlorine, at the tested conditions. Based on these test results, the data suggests that chloramines are less aggressive than free chlorine on PEX pipes." PPI Statement A, which summarizes the research project referenced in ASTM F2023-08 Note 1, is attached as Exhibit A.

[2] More information about the relationship between chloramine and pinhole leaks in copper can be found in *The Task Force Study, Final Report, Pinhole Leaks in Copper Plumbing,* Maryland Department of Housing and Community Development, December, 2004, which was prepared as a result of copper pinhole leaks in the Washington DC suburban areas (Exhibit B). This study found that chloramines are a cause of copper pipe pitting. (*Id.* at p. 23.) The corrosive effects of chloramines on copper are also recognized by U.S. EPA. (See *Information about Chloramine in Drinking Water*, at http://epa.gov/safewater/disinfection/chloramine/index/html/. (Exhibit C.)

[3] The *Residential Compliance Manual for California's 2005 Energy Efficiency Standards* (California Energy Commission Publication Number CEC – 400-2005-005-CMF, available at www.energy.ca.gov/title24/2005standards/residential_manual.html) identifies five separate recirculating systems (no control, temperature control, time, time and temperature, and demand). (See Section 5.1.4.) The continuously recirculating system would be the "no control," which is substantially penalized for energy credits. Demand recirculation systems are replacing continuous systems, and run only when activated by the user of hot water. These demand recirculation systems save water and energy and their use in California should be encouraged. As to multiple dwelling unit structures, Section 5.3.3 states, "Recirculating systems may be used as long as they have controls to turn off the pump when hot water is not needed (e.g., timer controls)." Thus, it appears that continuously recirculating systems would not be allowed at all in multiple dwelling units (over 6 units).

result of a PEX failure would be the immediate and readily apparent release of water from the pipe, which would be expected to result in other noticeable effects.[4] The reasonably foreseeable result of any such failure would be for the water service to be shut off and the system repaired. The discussion of air quality impacts from mold formation, Impact 4.1-2, acknowledges that the potential for mold formation exists where a pipe failure goes unnoticed for an "extended period of time." Because any PEX failure would be immediately noticeable, the circumstances necessary for the impact to occur would not exist. Based on these facts, it is not reasonable to assume that mold of any kind, let alone toxic mold, would form and persist undetected subjecting anyone to a "significant health risk." Because the impact is speculative at best, mitigation should not be necessary.

Under the Draft EIR's own significance criterion, for the impact to be significant, there must be substantial evidence that: (1) PEX will fail "prematurely"; (2) failures will be "substantial" in number; (3) any such failure would lead to toxic mold infestations that wealth risks. Applying the threshold of significance to the facts, it would be reasonable to conclude that assuming some theoretical risk of failure of PEX in continuously recirculating hot chlorinated water systems (unsupported by evidence in the record), the full adoption of PEX into the Code under current Code requirements that require testing to the national consensus standard of ASTM F2023 would not result in a significant impact to human health or air quality compared to the existing condition because: (1) there is no evidence that PEX has failed or will fail prematurely due to exposure to hot chlorinated water; (2) the use of chlorine in disinfection is diminishing; (3) significant use of continuously recirculating hot water systems is extremely unlikely due to Energy Code limitations; and (4) any failure of PEX would be immediately noticeable and its effects promptly mitigated, thus preventing the formation of undetected toxic mold.

In fact, the net effect of the Project could be a beneficial impact because: (1) the use of chlorine is decreasing and will continue to do so to meet regulatory requirements for THMs; (2) chloramine use is increasing, and the use of chloramines appears to be less aggressive to PEX than copper; (3) chloramines are known to adversely affect copper pipe, and (4) there is already substantial evidence of copper pipe failure. Thus there is greater potential for mold growth today than there would be if the California Plumbing Code permitted more extensive use of PEX.

The Draft EIR's conclusion that PEX is likely to result in substantial premature failure that would result in a significant widespread public health impact is highly conservative and substantially overstates any actual risk to human health or the environment. Because significant impacts are not reasonably likely to occur, mitigation should not be required. Finding that the proposed mitigation is not necessary would

[4] ASTM F2023 specifies destructive testing to test products to failure, to establish the failure mode of the product. Testing pursuant to ASTM F2023 shows that PEX failures, were they to occur, would be complete, as opposed to the more insidious pinhole leaks associated with copper pipe.

avoid potential unintended consequences for California's code process. As the Draft EIR acknowledges, P171-Cl-R is not national consensus standard. The current California Plumbing Code, and all model codes, require compliance with consensus standards.[5] The precedential effect of requiring compliance with a non-consensus standard – for an impact that is highly unlikely to occur – should be of concern both to the State and industry, as model codes are developed based on compliance with consensus standards. If the impact determination is not revised in the Final EIR, however, at a minimum Mitigation Measure 4.2-1 (p. 4.2-13) should be revised to clarify that it applies only to "continuously recirculating hot water systems."

Impact 4.2-4: Increased Safety Hazards for Plumbers (p. 4.2-14): PEX does not result in any safety hazards for plumbers, and approval of the proposed regulations is expected to result in a significant decrease in the installation of copper pipe, which presents safety hazards from cutting, airborne substances, fluxes, potential electrical shocks, fire, soldering and welding and transport of heavy pipe. This reduction in hazards from the increased use of PEX relative to the existing condition makes the more appropriate determination for this impact "beneficial impact."

2. Water Quality (Section 4.4)

The Draft EIR's highly conservative approach is also evident in the water quality effects discussion. Additional information about the regulatory context and performance of PEX over time suggests that this approach again likely overstates the risk of significant impacts, particularly on the issue of release of PEX constituents into drinking water.

As an initial matter, a fair understanding of potential water quality effects depends on a realistic identification of potential constituents of concern. Many of the chemicals listed in Table 4.4-1 (p. 4.4-11) are not found in any form of PEX piping used to convey potable water. Because the water quality effects analysis addresses potential human health effects of chemical release into drinking water, this list should be revised to include only those chemicals demonstrated to be present in PEX that is intended for use in potable water applications.

Moving on to the impact analysis, one of the Draft EIR's standards of significance states that water quality effects will be considered significant if allowing broader use of PEX pipe will:

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[5] Requiring compliance with P-171-Cl-R also is premature and likely unnecessary, because ASTM is currently in the process of updating ASTM F876 in a manner that will address the issue identified in the Draft EIR. On June 19 a ballot closed at ASTM to include the continuous recirculation requirements in ASTM F876, which will require that pipe being installed for continuous recirculating systems be certified for this application and marked on the pipe. Because the ASTM action was a subcommittee and main committee ballot, it is possible the process will be completed in as little as a few months.

> violate any water quality standards such that implementation of the proposed project would result in a level of a contaminant in drinking water that exceeds a federal or state MCL, notification or response level, or a Proposition 65 Safe Harbor or other relevant Proposition 65 level. (p. 4.4-8.)

The Draft EIR proceeds to evaluate the potential for PEX to release chemicals exceeding regulatory levels. To put the discussion of effects in proper context, it is important to recognize the purpose and effect of drinking water MCLs and action levels (ALs). Both the Office of Environmental Health and Hazard Assessment (OEHHA) and the California courts recognize that MCLs are drinking water standards designed to guard against adverse health effects due to *long-term* exposure to constituents of concern, and thus it is not appropriate to treat short-term exceedances of MCLs as violations of a water quality standard nor as posing a significant risk to human health. Neither the Safe Drinking Water Act nor State water quality regulations prohibit short-term exceedances of MCLs or ALs, and the First District Court of Appeal has specifically rejected the idea that a short-term exceedance of an MCL or AL constitutes a violation of a water quality standard. (See *In Re. Groundwater Cases* (2007) 154 Cal. App. 4th 659.)

By treating *any* potential exceedance of an established water quality standard, including regulatory guidelines that do not meet the definition of a water quality standard and have no regulatory effect (e.g., secondary MCLs, notification levels, etc.) as a significant impact, the Draft EIR employs a highly conservative approach to analysis of water quality effects from release of chemicals. Where there is evidence that the level of any constituent released from PEX would rapidly decay to below MCLs or ALs, it is unlikely that any significant health hazard would occur and thus mitigation should not be required.

In this context it is important to emphasize that MCLs are developed for the purpose of protecting the public from possible health effects associated with *long-term* exposure to contaminants. (See *In Re. Groundwater Cases*, *supra*, 134 Cal.App. 4th at p. 686.) MCLs and ALs are not intended to deal with acute risk as a result of exposure of a period of days. (*Id.*; see also 22 Cal. Code Regs., § 64400.) MCLs for carcinogenic chemicals are set at levels that are expected to pose an insignificant risk of cancer per million people exposed by drinking two liters of water per day for 70 years. (*Substantive Water Quality Opinion*, 2000 Cal. P.U.C. Lexis 722 at pp. *25-26.)

> Because the MCL for carcinogenic chemicals is set based on the assumption that an individual drinks two liters of water per day from a contaminated source over a 70 year lifetime, the theoretical cancer risk will very often overstate the *actual* risk, since it is unlikely that most people will drink two liters of water per day from the same contaminated source for 70 years. (*In Re. Groundwater Cases*, *supra*, 134 Cal.App. 4th at p. 686, citing

Office of Environmental Health Hazard Assessment, A Guide to Health Risk Assessment (2001), p. 10.)

As the First District Court of Appeal has stated:

> DHS sets these numerical limits to guard against the possible health risks of prolonged exposure to contaminants. To call any exceedance of an MCL or AL a "violation" would convert these numerical limits from measures designed to protect the public from long-term risks of exposure to contaminants into acute risk standards. This is simply not their intended function. (*In Re. Groundwater Cases*, *supra*, 154 Cal.App. 4th at p, 687.)

Thus, "[w]here levels of contamination are below an MCL or an AL or temporarily exceed these levels, no health hazard is reasonably expected to occur." (*Id.*, citing Substantive Water Quality Opinion, *supra*, 2000 Cal. P.U.C. Lexis 722 at p. *104.) BSC and consumers thus can be assured that short-term exceedances of MCLs and ALs would not constitute a significant impact under CEQA.

Impact 4.4-1: Water Quality – Noncompliance with Drinking Water Standards Resulting from Leaching) (p. 4.4-8):

The Draft EIR acknowledges the potential for some forms of PEX to release two constituents at levels that exceed California regulatory levels. However, preliminary extraction results from NSF indicate that the two PEX constituents that initially exceed California regulatory levels (MTBE and TBA) will decay to below these levels within a relatively short time.[6] For example, the majority of samples is below the secondary MCL for MTBE on day one and predicted to be below the primary MCL within 90 days. (See Draft EIR Appendix F.) For TBA, levels are predicted to fall below the applicable level anywhere from 48 to 136 days. (*Id.*) Because any exposure to constituents that exceeds regulatory levels likely will be temporary, and not long-term, it would be appropriate to find that such short-term exceedances do not constitute violations of water quality standards. Thus, no mitigation should be required. Additionally, as discussed below, the TBA notification level is not a valid threshold for assessing a significant impact to human health because it is not based on a sufficient health risk assessment.

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[6] The Draft EIR states: "PEX manufacturers have *suggested* that levels of MTBE and TBA that leach from PEX decline over time." (P. 4.4-10.) In fact, *NSF*, the independent entity charged by the State with certification of the safety of California plumbing products, has provided test results and analysis (contained in Appendix F to the Draft EIR) that demonstrate that MTBE and TBA levels released from PEX decline relatively rapidly to below regulatory levels. PPFA endorses the findings of NSF, which are the product of independent testing to the standards of NSF 61 (the health effects standard required by the California Plumbing Code).

The Draft EIR treats the potential exceedance of the Department of Public Health notification level for TBA as a significant impact. As noted in the Draft EIR (pp. 4.4-3-4.4-4):

> Notification levels are nonregulatory, health-based advisory levels established by the Department of Public Health for contaminants in drinking water for which MCLs have not been established. . . . Chemicals for which notification levels are established may eventually be regulated by MCLs (after a formal regulatory process), depending on the extent of contamination, the levels observed, and the risk to human health. Notification levels *may be revised* to reflect new risk assessment information. . . . *Notification levels are not drinking water standards* but are generally supported by a health risk assessment prepared by OEHHA."

A review of the health risk information used to set the TBA notification level (Exhibit D) indicates that information is inappropriate and insufficient to be relied on for regulatory purposes. Rather than base the notification level on a full risk assessment based on accepted methods, DPH relied on an "interim assessment" of TBA by OEHHA staff that itself was based on "limited data availability."[7] The result of this back-of-the-envelope extrapolation was "an *interim* assessment with *preliminary* calculations" that "by no means represents a full risk assessment." (*Id.*, emphasis added.) In fact, OEHHA staff could not definitively endorse the evaluation for standards setting purposes but expressed only its qualified opinion that the limited evaluation "may" be suitable for setting a notification level. (*Id.*)

Not only is the notification level not an adopted regulatory standard, and lacking in peer review, but it is based on limited and highly questionable evidence. As such, the DPH notification level is not an appropriate threshold of significance for evaluation of PEX. There is no need to measure PEX against this dubious threshold, however, because the current regulatory requirements of the State adequately protect human health from the potential effects of TBA in drinking water.

The State of California requires that drinking water system components be tested and certified to NSF 61. (22 Cal. Code Regs., § 64591.) The California Plumbing Code (Section 604.1) requires all pipe, tube and fittings carrying water used in potable water systems intended to supply drinking water to meet the requirements of NSF 61. NSF 61 evaluates the health effects of chemical extraction from drinking water system components. As reflected in Table 4.4-1 of the Draft EIR, there are no federal drinking water standards for TBA; however, NSF has established various peer-reviewed, health

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[7] It further appears the State arrived at the TBA notification level by applying EPA's 1996 "Proposed" Guidelines for Carcinogen Risk Assessment (Federal Register 60:17960-18011, April 23, 1996). We understand these guidelines, if they ever were adopted, may not reflect currently accepted methods for risk assessment and thus merit scrutiny as to the appropriateness of their use for setting any regulatory levels.

effects-based action levels in NSF 61. Because the NSF 61 levels are peer-reviewed and based on accepted EPA non-cancer and cancer risk assessment procedures, and an *actual* risk assessment, not just a risk "evaluation" as was done for the State's TBA notification level, and because NSF 61 is the relevant health effects standard in the California Plumbing Code, the NSF levels should be applied for purposes of determining risk of a significant impact from the potential release of TBA. Because existing law requires that PEX comply with NSF 61, and NSF test results demonstrate that TBA levels released from PEX are below relevant NSF 61 levels (Draft EIR Appendix F), the Final EIR should find that no significant impact to human health will occur and no mitigation is needed.

If the Final EIR retains the determination that this impact is potentially significant and mitigation is required, the mitigation approach should be revisited.[8] Rather than requiring single-product certification that is unique to specified California drinking water criteria, the BSC should consider adopting regulatory language in the California Plumbing Code that requires that all plumbing products conveying water intended primarily for human consumption must comply with all applicable State laws and regulations. The regulatory language should further specify that compliance must be clearly demonstrated, and for all products must be based on a uniform test methodology and criteria. This approach would protect water quality and promote consistency and fairness in the regulatory scheme.

Regulatory amendments that require compliance with State law and regulations would further the Safe Drinking Water Act mandate to reduce to the lowest level feasible all concentrations of toxic chemicals that may be present in drinking water. The adoption of comprehensive, rather than product-specific, regulatory compliance language that will ensure the broadest protection of water quality is consistent with the State's duty to protect water resources under the Public Trust doctrine. This approach also would help BSC provide building standards that are consistent and minimize the need for future product-specific code amendments.

Finally, and not insignificantly, adoption of comprehensive regulatory language that applies consistent standards to all plumbing products will serve the State, consumers and manufacturers of plumbing products by ensuring consistency and predictability in the regulatory scheme. There is no rational basis for holding different products to different standards when it comes to protection of human health and the environment. Uniform standards likely will remove potential obstacles to the development of future plumbing products, and avoid the need for product-specific CEQA review on issues such as water

[8] Mitigation Measure 4.1-1 (p. 4.4-16) requires that "[b]efore using PEX for human consumption uses, PEX must receive NSF certification that any leached concentrations of MTBE, TBA or Proposition 65 chemicals is below the relevant MCL, notification, or Safe Harbor level or other applicable Proposition 65 level for those chemicals."

quality effects, as manufacturers, consumers and the State will know that the Code provides a mechanism for ensuring protection of water quality.

This action thus would further the State's objective of providing an alternative plastic hot and cold water plumbing material for use in California without unfairly burdening manufacturers of a single product that is sold worldwide with a separate California certification. It also would help implement BSC's vision, as set forth on its web site, to "ensure that the statewide building code development and adoption process is efficient and effective." In sum, uniform regulation will ensure that public health and aesthetic preferences are fully protected regardless of consumer choice in plumbing product.

Impact 4.4-2: Water Quality – Adverse Taste and Odor Impacts (p. 4.4-16):

The Draft EIR concludes that increased use of PEX would result in a "substantial" number of people being affected by adverse tastes and odor in drinking water on a "frequent" basis. (p. 4.4-16.) This conclusion is based on evidence that 25 percent of PEX pipe (in one test) released MTBE above California's secondary MCL. The impact discussion should clarify whether these test results were obtained after manufacture or after use. The discussion also should reflect the fact that MTBE levels released from PEX decline dramatically over time, as evidenced by preliminary extraction test study results submitted by NSF and included in Draft EIR Appendix F. As demonstrated by those results, any impacts would likely be short-term and limited, based on extraction testing results that show that only 24% of the pipe exceeds the five parts per billion initially, and that for the great majority of PEX, levels fall below the secondary MCL within 90 days.

Significantly, notwithstanding the enormous amount of PEX that has been and currently is being installed in California, there is no evidence in the record that any person, let alone a substantial number of persons, has experienced frequent taste and odor impacts that are attributable to PEX. At the June 6 hearing on the Draft EIR in Los Angeles, Kim Nielson from Griffin Homes testified that they have had zero call backs complaining about taste and odor from PEX. By contrast, according to the testimony, Griffin Homes used to get calls complaining about taste and odor in copper systems, but those calls no longer exist since they switched to PEX. Additionally, Bob Payne and Rick Banner from Keyline Sales testified that there are more than 100 million feet of Uponor Corporation PEX installed in Southern California for potable water applications and there have been no callbacks or complaints of taste and odor or failures. Significant impacts must be based on evidence in the record. Here, there is no evidence to support a finding that a *substantial* adverse effect would occur. If PEX had the potential to result in substantial and frequent taste and odor impacts, surely complaints would have been made.

The Draft EIR defines the current market share of PEX in California as 37%, and assumes that share will increase to 45% if the Project is approved. (Draft EIR, pp. 3-7, 4.3-2.) The Draft EIR further states that 24% of PEX exceeds taste and odor standards (albeit without any evidence of actual complaints or adverse effects on aesthetic preference). Assuming that statement may be accurate, the projected total increase in market share of PEX that might arguably exceed taste and odor standards is approximately 2%. In light of the minor increase in market share of pipe that might exceed taste and odor thresholds, and lack of evidence of taste and odor problems or complaints by consumers notwithstanding the millions of feet of PEX already installed in California, the Draft EIR's conclusion that impacts on aesthetic properties of drinking water could be significant seems unjustified.

If notwithstanding this evidence the Final EIR retains the draft significance conclusion, the mitigation approach should be revisited consistent with the approach discussed above for Mitigation Measure 4.4-1. A single regulatory amendment would adequately address both potential impacts with the added advantage of ensuring the broadest protection of water quality.

Impact 4.4-3: Water Quality – Noncompliance with Drinking Water Standards Resulting From Permeation:

It should be noted that polyethylene (PE) water service pipe is approved in California without need for sleeving, and PEX piping will be at least as impervious to permeation as PE.

Mitigation Measure 4.4-3 (p. 4.4-19): This measure does not specify requirements to determine permeability. To be consistent with other Code provisions, the second bullet point provision of this measure should be revised to read: "The PEX is sleeved with a material that is code-approved for underground installation."

3. Cumulative Impacts to Water Quality (Section 5.3.4, pp. 5-5 – 5-6.):

The Draft EIR treats any detectable contribution of MTBE or TBA in areas where there is any detectable amount of MTBE or TBA in a drinking water source as a cumulatively considerable contribution to a significant cumulative impact. This approach appears to be more conservative than necessary to prevent significant adverse impacts and raises a number of questions about the underlying cumulative impact, the project's potential contribution to that impact, and the Draft EIR's suggested mitigation.

Just because it is possible to detect MTBE or TBA in a source, especially in small amounts, does not mean it is reasonable to assume that any detected amount (including trace amounts) is evidence of a significant cumulative impact. Analytical detection limits are technology based and are likely to become increasingly sensitive. For example, NSF has recently lowered its detection limit for TBA in water. And the California DPH

detection level for purposes of reporting, 3 micrograms per liter, is significantly lower than applicable drinking water standards. Thus the mere detection of MTBE or TBA in a drinking water source should not be deemed substantial evidence of a significance cumulative impact.

Moreover, available data contradict the suggestion that MTBE contamination is a significant impact in California, and the Draft EIR presents no evidence to demonstrate that TBA contamination of drinking water has resulted in a significant cumulative impact. Data available on the California Department of Public Health web site show that the vast majority of California water sources are non-detect for MTBE, and virtually all sources are below applicable drinking water standards. (See Exhibit E, available at http://ww2.cdph.ca.gov/certlic/drinkingwater/PGAGES/MTBE.aspx.) In fact, as of November 1, 2006, analytical results for 14,351 sources showed only 89 sources with MTBE detections greater than the detection level for purposes of reporting, or 0.06 percent. (*Id.*) Even more significantly, only 0.02 percent of all results (32 sources out of 14,351) exceeded the primary MCL, and only 28 sources had a peak level higher than the secondary MCL but lower than the primary MCL. (*Id.*) The Final EIR should explain how a total detection rate of just 0.06 percent, where only 0.04 percent of all results exceed any MCL, constitutes a significant cumulative impact.

For the impact to be cumulatively significant, one of two conditions must occur: (1) there must already be a cumulative impact (exceedance of an MTBE or TBA standard in delivered drinking water) and PEX would have to contribute considerably to that impact; or (2) the contribution of MTBE or TBA from PEX would be reasonably likely to cause, when added to the existing MTBE or TBA levels, an exceedance of the applicable standards. In each case, there must be substantial evidence to support the determination. Where drinking water levels of MTBE or TBA are below applicable water quality standards, not only does it seem unreasonable to presume the existence of a cumulative impact, but also it seems purely speculative to assume that any detectable contribution from PEX would constitute a cumulatively considerable contribution to such impact. As noted, the vast majority of MTBE detections are far below standards. The Draft EIR contains evidence that MTBE concentrations released from the majority of PEX products decay to very low levels (well below drinking water standards) in a short time. These facts are important to the determination of whether the contribution of MTBE or TBA from increased use of PEX is likely to result in a "cumulatively considerable" contribution to a significant cumulative impact.

The mitigation proposed for this minimal impact also raises concerns. Mitigation measure 5-1 states: "For water service areas that have detectable levels of MTBE or TBA in drinking water or where there is known MTBE or TBA contamination of a source of drinking water, PEX piping installed for human consumption uses must be certified not to leach detectable levels of MTBE and TBA." This mitigation measure raises a number of questions and problems as to its scope, interpretation and feasibility.

First, more specificity is needed to define the requirement that this measure applies "where there is known MTBE or TBA contamination of a source of drinking water." "Sources" of drinking water may include both raw and treated drinking water wells, groundwater aquifers and surface water sources, distribution systems, blending reservoirs, and other sampled entities. This measure should be clarified to provide that it applies only where a drinking water supplier has detected MTBE or TBA at concentrations that exceed or are near (e.g., within some accepted margin, such as 10%, as is done for calculating allowable contributions to Total Daily Maximum Loads) California drinking water quality standards in water that is actually supplied to consumers for drinking water purposes. For example, drinking water agencies often blend more than one source of water to produce treated drinking water that is supplied to consumers, so blending reservoirs should not be included in the definition of sources, nor should unused or inactive potential sources.

Second, for the reasons noted above, the mitigation should apply only where active sources show MTBE or TBA levels that meet or exceed the applicable drinking water standard. Applying mitigation where a source has merely a detectable level of MTBE or TBA is more conservative than necessary to avoid significant effects.

Third, the requirement that PEX be certified not to release detectable levels of MTBE or TBA begs the question of how this will be ascertained. Detection methods are technology driven and thus likely to become increasingly sensitive. As such, setting a code requirement based on an indefinable and likely ever-changing level would be unworkable. Also, it is unclear how this measure would be implemented. How will the presence of detectable levels of MTBE or TBA be ascertained, by whom and when? Who would be responsible for demonstrating whether there is MTBE or TBA in source water, and how frequently would this information have to be provided to building officials, and by whom?

As previously discussed, requiring compliance with all applicable water quality laws and regulations would provide a feasible means of protecting human health and the environment that would avoid significant environmental impacts. This approach would adequately address the potential for significant cumulative impacts by avoiding a cumulatively considerable contribution to any significant cumulative impact. Requiring that PEX products be certified to release non-detectable amounts of water quality constituents is unnecessary to protect human health and the environment (especially because any releases are likely to be short-term) and is likely infeasible.

4. Alternatives (Section 7)

The Draft EIR's discussion of the environmentally superior alternative (Sections 1.5.3 and 7.5) states that the No Project Alternative would be environmentally superior to the project with respect to public health and hazards, leaching of chemical compounds

into drinking water, and indoor air quality. This conclusion is both mystifying and unjustified in light of the record. Rather than provide a reasoned analysis and comparison of the realistic and tangible risks and benefits of increased use of PEX, it appears the Draft EIR simply "counted" potential impacts. In fact, substantial evidence and reasoned analysis supports a finding that increased use of PEX is environmentally superior to the existing condition in each of these areas and more.

With regard to public health hazards and indoor air quality, these are in effect the same theoretical impact, not two distinct impacts, as both relate to the health risks from potential for toxic mold formation. As discussed above, they are a phantom risk. Comments made during the NOP process by plumbing professionals and building officials, along with data in the Draft EIR, provide substantial evidence that copper pipe is failing at high rates throughout California, and that such failures can be expected to occur with increased frequency as drinking water providers switch to chloramine disinfection. Moreover, the record contains evidence that copper pipe is subject to accidental perforation during construction, and that the resulting unnoticeable pinholes lead to persistent, undetected leaking, which is the type of failure that leads to the formation of mold. The Draft EIR contains only a hypothetical discussion of the potential for PEX to fail, unsupported by evidence of actual PEX failures when used in continuously recirculating hot chlorinated water systems, despite its widespread use over the past two decades in California and elsewhere. Because copper is subject to a higher likelihood of failure, and pinhole leaks of copper present a much more tangible risk of toxic mold formation, indoor air quality issues and associated health risk, mold and premature failure issues should be of greater concern for the No Project Alternative.

With regard to release of chemical compounds, the Draft EIR fails to acknowledge well-documented evidence of significant health risks associated with copper leaching from copper pipes. In its November 27, 2007 comments in response to the Notice of Preparation for the PEX EIR, the California Professional Association of Specialty Contractors (CAPASC) provided evidence of the adverse health effects of copper pipe leaching, including a 2005 California Housing and Community Development Department document titled "Summary of Literature Search on Copper Leaching into Drinking Water From Copper Pipe" and other studies regarding the effects of copper leaching on health. (Exhibit F.) This evidence demonstrates a significant risk to human health from copper pipe leaching that is greater than any potential risk of PEX. For example, the HCD document cites test results showing copper concentrations from 22 homes in Murrieta, California ranging from a low of 146 ppb to a high of 2,400 ppb. According to HCD, "The Public Health Goal for copper in drinking water as established by CalEPA's Office of Environmental Health Hazard Assessments is 170 ppb." (HCD literature search, Exhibit C to CALPASC NOP comments, at pp. 5-6.) Moreover, 21 of the 22 homes tested exceeded the public health goal. (*Id.*) The HCD report further notes that "Copper leaching continues from installation until about 10 year of service." (*Id.* at p. 5.)

By contrast, NSF test results show that any release of constituents into drinking water from PEX would be very limited, with levels of constituents decaying below drinking water standards in a matter of days or month and with no significant increase in the risk of adverse health effects, based on cancer risk assumptions regarding exposure. Based on the evidence in the record, the Final EIR should recognize that approval of the proposed PEX regulations is likely to *reduce* the risk to public health from the release of chemical constituents compared to the No Project Alternative.

Significantly, the Draft EIR comparison of alternatives fails to acknowledge that the project would be superior to the No Project Alternative with respect to water and energy use, as well as greenhouse gas (GHG) emissions. The Draft EIR itself finds that the project would result in a *reduction* in GHG emissions compared to the existing condition, which was estimated to result in substantially higher GHG emissions over the life cycle of piping. (Draft EIR p. 5-4.) Compared to copper, PEX also results in substantial savings in water use as well as the energy associated with pumping and treating that water (both before and after use) and with heating the water, by reducing heat loss as well as hot water wait times. (See *Evaluation of Residential Hot Water Distribution Systems by Numeric Simulation, Final Report* – March 2004, Robert Wendt, et al. (Exhibit G) and *Performance Comparison of Residential Hot Water Systems*, National Association of Home Builders Research Center, Inc. (Exhibit H).)

It is well recognized that water shortages and the need for increased conservation of this precious resource are an ongoing concern for California. PEX is especially popular in Southern California (over 100,000,000 feet of Uponor Corporation product alone has been installed there), where the need to conserve water is especially acute. Moreover, there is no question that energy use contributes significantly to the formation of GHG emissions, as the vast majority of energy is produced through the burning of fossil fuels, which is the source of GHG emissions. Reports from California state agencies and others describe current and projected environmental, economic and health impacts on the State from global warming.[9] It is thus highly significant that increased use of PEX will result in *a reduction in GHG emissions.*

Another adverse effect associated with the No Project Alternative is the ongoing problem of copper theft in California. This problem has been acknowledged in newspaper articles as well as in comments on the NOP for the PEX EIR. (See, e.g., November 14, 2007 letter from Richard Shields, CBO, Building Official, City of Grand Terrace, to Valerie Namba.) As further evidence of the increasing problem of copper theft, the California Assembly recently unanimously approved AB 2724, which substantially increases penalties for metal theft. (Exhibit I.) It has been reported that in

[9] Many of these reports, from the California Department of Water Resources, Environmental Protection Agency, Energy Commission, and Union of Concerned Scientists, among others, are available at http://www.climatchange.ca.gov/documents/index/html.

Riverside County in 2007 there were over 1,000 crimes involving metal theft. (*Id.*) The same source reported that in San Bernardino County, metal theft has increased five-fold in the past seven years, now accounting for one third of property crimes. (*Id.*) Theft of copper pipe results not only in increased cost and inconvenience but also could be expected to result in additional vehicle miles traveled (and associated GHG emissions) due to the need to replenish supplies at job sites.

There is substantial evidence that full PEX adoption can save Californians money, energy and water.[9] When any theoretical risks from the increased use of PEX are compared against the very tangible benefits in energy and water savings, and GHG emission reductions, all major issues of concern to California, PEX is clearly the superior choice for the environment. Because increased use of PEX, *without mitigation*, will result in improved environmental conditions, the Final EIR should present a revised comparison of impacts of the project and No Project alternative that recognizes that approval of the proposed PEX regulations would be environmentally superior to business as usual.

5. Conclusion

Thank you for the opportunity to comment on the Draft EIR. PPFA's comments identify several areas where we feel BSC and consumers would benefit from additional information or clarification about the potential effects of allowing expanded use of PEX. Increasingly PEX is the plumbing product of choice in California because it has been proven to be more reliable, cost effective (with little risk of theft) and environmentally superior to other plumbing options. The facts and analysis in the Draft EIR, along with the entire record, confirm the wisdom of that choice, and support the Commission's adoption of the proposed regulations authorizing full use of PEX.

Sincerely,

SOMACH SIMMONS & DUNN

Kelley M. Taber

Kelley M. Taber

cc: David Walls, Building Standards Commission

Exhibits