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

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ACRONYMS

°F	degrees Fahrenheit
µg/L	micrograms per liter
AB	Assembly Bill
AB 32	California Global Warming Solutions Act
ABS	acrylonitrile butadiene styrene
ACM	asbestos-containing material
ANSI	American National Standards Institute
ARB	California Air Resources Board
ASTM	American Society for Testing and Materials
ATCM	airborne toxic control measures
BAAQMD	Bay Area Air Quality Management District
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEMA	California Emergency Management Agency
CalEPA	California Environmental Protection Agency
Cal/OSHA	California Division of Occupational Safety and Health
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CBSC	California Building Standards Commission
CCAA	California Clean Air Act
CCL	contaminant candidate list
CCR	California Code of Regulations
CCTP	California cap-and-trade program
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	methane
CHP	California Highway Patrol
CHX	cyclohexanone
CIWMB	California Integrated Waste Management Board (now the Department of Resources Recycling and Recovery, or CalRecycle)
CO	carbon monoxide

CO_2	carbon dioxide
CO_2e	CO_2-equivalents
CPVC	chlorinated polyvinyl chloride
CRHR	California Register of Historical Resources
CTR	California Toxics Rule
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
DBT	dibutyl tin
DMT	dimethyl tin
DOT	U.S. Department of Transportation
Draft EIR	Draft Environmental Impact Report
DTSC	California Department of Toxic Substances Control
DWV	drain-waste-vent
EFH	essential fish habitat
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act
FDD	(OSHPD) Facilities Development Division
GHG	greenhouse gas
GWP	global warming potential
HAP	hazardous air pollutant
HCl	hydrogen chloride
HCP	habitat conservation plan
HFCs	hydrofluorocarbons
HSWA	Hazardous and Solid Waste Amendments
IRIS	Integrated Risk Information System
IU	industrial user
LAFCO	Local Agency Formation Commission
LBP	lead-based paint
LCD	liquid crystal display
Magnuson–Stevens Act	Magnuson–Stevens Fishery Conservation and Management Act
MBT	monobutyl tin
MBTA	Migratory Bird Treaty Act
MCL	maximum contaminant level
MEK	methyl ethyl ketone
MGGRP	Mandatory Greenhouse Gas Reporting Program
MMT	million metric ton(s)
MS4	municipal separate storm sewer system
MSDS	material safety data sheets

MT	metric ton(s)
$MTCO_2e$	metric tons of carbon dioxide equivalent
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NF_3	nitrogen trifluoride
ng/L	nanograms per liter
NHPA	National Historic Preservation Act
NIOSH	National Institute for Occupational Safety and Health
NMSF	National Marine Fisheries Service
NO	nitric oxide
NO_2	nitrogen dioxide
NOP	Notice of Preparation
NO_X	combined emissions of NO and NO_2
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRHP	National Register of Historic Places
NSF	NSF International
NTR	National Toxics Rule
OSHA	Occupational Safety and Health Administration
OSHPD	California Office of Statewide Health Planning and Development
OSHPD 1	General Acute Care Hospitals and Acute Psychiatric Hospitals
OSHPD 2	Skilled Nursing Facilities and Intermediate Care Facilities
OSHPD 3	Licensed Clinics and Freestanding Outpatient Clinical Services Buildings
OSHPD 4	Correctional Treatment Centers
PFA	perfluoroalkoxy
PFCs	perfluorocarbons
PHG	public health goal
PM	particulate matter
PM_{10}	PM equal to or less than 10 micrometers in diameter (coarse PM)
$PM_{2.5}$	PM equal to or less than 2.5 micrometers in diameter (fine PM)
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
POTW	publically owned treatment works
ppb	parts per billion
PRC	Public Resources Code
Proposed Project	Revisions to the 2016 California Plumbing Code
psi	pound per square inch
PTFE	polytetrafluoroethylene

PVC	polyvinyl chloride
PVDF	polyvinylidene fluoride
RCRA	Resource Conservation and Recovery Act
Reporting Rule	Greenhouse Gas Reporting Rule
ROG	reactive organic gas
RVCM	residual vinyl chloride monomer
RWQCB	Regional Water Quality Control Board
Scoping Plan	Climate Change Scoping Plan
SDWA	Safe Drinking Water Act
SF_6	sulfur hexafluoride
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SIU	significant industrial user
SJVPCD	San Joaquin Valley Air Pollution Control District
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO2	sulfur dioxide
SPAC	single product allowable concentration
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TBT	tributyltin
TCHT	tricyclohexyltin
TCR	tribal cultural resource
THF	tetrahydrofuran
TPHT	triphenyltin
TSCA	Toxic Substances Control Act
Unified Program	Unified Hazardous Waste and Hazardous Materials Management Regulatory Program
USC	U.S. Code
UV	ultraviolet
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VOCs	volatile organic compounds
WDR	waste discharge requirement
WWTP	wastewater treatment plant

Executive Summary

The California Office of Statewide Health Planning and Development (OSHPD) reviews and inspects health facility construction projects and enforces building standards, per the California Building Standards Code, as they relate to health facilities construction, among other functions. As one of the State agencies delegated authority by the California Legislature for creation of building regulations to implement the State's statutes, OSHPD has authority to propose regulations related to the following facilities:

- General Acute Care Hospitals and Acute Psychiatric Hospitals (OSHPD 1)
- Skilled Nursing Facilities and Intermediate Care Facilities (OSHPD 2)
- Licensed Clinics and Freestanding Outpatient Clinical Services Buildings (OSHPD 3)
- Correctional Treatment Centers (OSHPD 4)

OSHPD proposes to revise the 2016 California Plumbing Code, to allow the use of the following materials in the indicated plumbing systems at OSHPD 1, 2, 3, and 4 facilities:

- Chlorinated polyvinyl chloride (CPVC) pipes, tubes, and fittings in water supply distribution systems;
- Perfluoroalkoxy (PFA) in dialysis branch lines;
- Acrylonitrile butadiene styrene (ABS) and polyvinyl chloride (PVC) pipe installations in sanitary drainage systems;
- ABS and PVC pipes and fittings for drain-waste-vent (DWV) systems; and
- ABS and PVC pipe installations for stormwater drainage systems.

The Revisions to the 2016 California Plumbing Code (Proposed Project) are needed to increase flexibility in the construction, modification, or renovation of OSHPD 1, 2, 3, and 4 facilities.

This Draft Environmental Impact Report (Draft EIR) has been prepared to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of the Proposed Project. This Draft EIR has been prepared in compliance with the California Environmental Quality Act (CEQA) of 1970 (as amended) and the State CEQA Guidelines (Title 14, California Code of Regulations Section 15000 et seq.).

Overview of the Proposed Project

Project Objectives

The objectives of the Proposed Project are as follows:

- Align California's Building Code with the national model code, which contains no prohibitions on the use of plastic pipe for plumbing;
- Increase consistency within California's Building Standards Code, for which no prohibitions on the use of plastic pipe for plumbing exist except for OSHPD 1, 2, 3 and 4 facilities;
- Possibly reduce the cost and improve the ease of installation of plumbing materials;
- Reduce the potential for corrosion of plumbing pipes from hospital wastes and/or corrosive soil types;
- Reduce the potential for infection and/or disease transmission (e.g., galvanized water lines can form bio films); and
- Allow use of nationally used and proven products at OSHPD 1, 2, 3, and 4 facilities.

Program Area

The Proposed Project would allow statewide use of the identified materials at OSHPD 1, 2, 3, and 4 facilities. The specific locations of their use that may result from the Proposed Project are unknown at this time, and would be based on the locations and construction methods for future new construction and renovation of OSHPD 1, 2, 3, and 4 facilities.

Summary of Proposed Project Activities

The Proposed Project would include removal of existing exemptions in the California Plumbing Code prohibiting use of ABS, PVC, and CPVC pipes at OSHPD 1, 2, 3, and 4 facilities, as well as other changes to the Plumbing Code to allow the use of plastic pipe at OSHPD facilities. The proposed changes to the Plumbing Code are described in Chapter 2, Project Description. Although the Proposed Project would not directly involve construction, the Proposed Project could result in construction activities because existing metal pipes in OSHPD facilities may be replaced with plastic pipe or new OSHPD facilities may be plumbed with plastic pipe, pursuant to the revised regulations.

Public Involvement Process

Public disclosure and dialogue are priorities under CEQA and for OSHPD. Accordingly, CEQA mandates two periods during the environmental impact report process, when public and agency comments on the environmental analysis of a project or program are to be solicited: during the scoping comment period, and during the review period for the Draft EIR. CEQA and the State CEQA Guidelines also allow the lead agency to hold public meetings or hearings, to obtain comments and provide the public and government agencies with an opportunity to review both the draft and final versions of an environmental impact report.

Brief descriptions of these milestones are provided below, as they apply to this document; for a more complete description, refer to Chapter 1, Introduction.

Notice of Preparation

A Notice of Preparation (NOP) for the Proposed Project was circulated on May 1, 2015. The NOP presented general background information about the Proposed Project, the scoping process, the environmental issues to be addressed in the Draft EIR, and the anticipated uses of the Draft EIR. The NOP invited the public to offer comments during the scoping period, which ended on June 5, 2015.

Scoping Comments and Meetings

During the scoping period, OSHPD conducted two scoping meetings, one in Sacramento and the other in Los Angeles. These meetings welcomed input from the public and government agencies regarding the nature and scope of the potential environmental impacts to be addressed in the Draft EIR. Scoping meeting information and notices were mailed to potentially interested parties. Verbal comments were received at the scoping meetings; in addition, one comment letter was received during the scoping period. A copy of this comment letter is provided in Appendix B, Scoping Materials.

Draft EIR Public Review and Comment Period

The Draft EIR currently is under public review for 45 days. During this period, OSHPD will hold two public meetings. The meeting will begin with a brief overview of the Proposed Project, and the analysis and conclusions set forth in the Draft EIR. This introductory presentation then will be followed by the opportunity for interested parties to provide comments to OSHPD regarding the Proposed Project and the Draft EIR. Commenters may provide verbal or written comments, or both.

The date, time, and exact location of the public meetings will be included in the Notice of Availability of this Draft EIR.

Preparation of the Final EIR and Approval of the Proposed Project

Written and verbal comments received in response to the Draft EIR will be addressed in a Response to Comments document that, together with the Draft EIR and any related changes to the substantive discussion in the Draft EIR, will constitute the Final EIR. The Final EIR, if certified by OSHPD, will inform OSHPD's exercise of its discretion as a lead agency under CEQA in deciding whether to approve, approve with modifications, or deny the Proposed Project.

Areas of Known Controversy

Section 15123(b)(2) of the State CEQA Guidelines requires that the summary of an environmental impact report identify areas of controversy known to the lead agency, including issues raised by government agencies and the public. Several potential impacts of the Proposed Project are expected to be controversial, including the following:

- Worker health impacts from cements and solvents used in installation of PVC, CPVC, and ABS pipes;
- Worker health impacts from exposure to chemicals generated during the manufacture of PVC and CPVC pipes;
- Contamination of drinking water from chemicals that may leach from PVC, CPVC, and ABS pipes and solvents;
- Contamination of State water bodies from chemicals that may leach from PVC, CPVC, and ABS pipes and solvents;
- Cumulative air quality impacts from volatile organic compound emissions, generated from solvents used in the installation and/or manufacture of PVC, CPVC, and ABS pipes;
- Increased fire hazard risk from chemicals released in burning of plastic pipe; and
- Solid waste impacts associated with the limited recyclability of plastic pipe and the potential for plastic pipe to leach/release contaminants in landfills or incinerators.

Issues to be Resolved

Section 15123(b) of the State CEQA Guidelines requires that an environmental impact report summary identify issues to be resolved, including the choice among alternatives, and indicate whether or how to mitigate the significant impacts of a proposed project. No issues were identified in the Draft EIR that would require resolution.

Alternatives Considered

The purpose of the alternatives analysis in an environmental impact report is to describe a reasonable range of potentially feasible alternatives to a project that could feasibly attain most of the objectives of the project while reducing or eliminating one or more of the project's significant impacts. The range of alternatives considered must include those that offer substantial environmental advantages over the project in question, and may be feasibly accomplished in a successful manner, considering economic, environmental, social, technological, and legal factors.

The following alternatives were evaluated for their potential feasibility and their ability to achieve most of the program objectives while avoiding, reducing, or minimizing potentially significant impacts identified for the Proposed Project:

- No Project Alternative
- No ABS Piping in Drain or Waste/Sewer Connections Alternative
- No CPVC in Water Quality Supply Distribution Systems Alternative

No Project Alternative

Under the No Project alternative, the use of the following materials in the indicated plumbing systems at OSHPD 1, 2, 3, and 4 facilities would continue to be prohibited in the California Plumbing Code:

- CPVC pipes, tubes, and fittings in water quality supply distribution systems;
- PFA in dialysis branch lines;
- ABS and PVC pipe installations in sanitary drainage systems;
- ABS and PVC pipes and fittings for DWV systems; and
- ABS and PVC pipe installations for stormwater drainage systems.

Under the No Project alternative, the purpose and objectives of the Proposed Project would not be achieved.

No ABS Pipes in Drain or Waste/Sewer Connections Alternative

In this alternative, ABS and PVC pipes would not be allowed in drain or waste/sewer connections. Instead, such connections would use metallic pipes (as allowed in the existing California Plumbing Code).

No CPVC in Water Quality Supply Distribution Systems Alternative

This alternative would not allow CPVC in OSHPD 1, 2, 3, and 4 water quality supply distribution systems. Instead, metallic pipes would be used (as allowed in the existing California Plumbing Code).

Environmentally Superior Alternative

Because neither the Proposed Project nor any of the alternatives would result in any significant environmental impacts, it is somewhat arbitrary to select the environmentally superior alternative. Based on the concerns expressed by the sole comment during the public scoping period (see Appendix B), the No Project alternative would alleviate all alleged impacts expressed by the comment, mentioned above. The No CPVC in Water Quality Supply Distribution Systems alternative may be considered the environmentally superior alternative in response to the comment mentioned above because of its reduction in alleged impacts on drinking water quality.

Overview of Environmental Topics Evaluated in the Draft EIR

This section presents the resource topics evaluated in the Draft EIR, and presents an overview of key impacts and conclusions. Environmental areas that potentially would be affected by the Proposed Project include:

- Air Quality
- Biological Resources
- Cultural Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality

Chapters 4 through 9 address each of these environmental resource topics and the potential impacts of the Proposed Project in greater detail. Table ES-1 summarizes the impacts and mitigation measures in the Draft EIR.

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Determination	Mitigation Measure
Air Quality		
Impact AQ-1: Conflict with or Obstruct Implementation of the Applicable Air Quality Plan	Less than Significant	None
Impact AQ-2: Violate any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation	Less than Significant	None
Impact AQ-3: Result in a Cumulatively Considerable Net Increase of any Criteria Pollutant for which the Project Region is a Nonattainment Area	Less than Significant	None
Impact AQ-4: Expose Sensitive Receptors to Substantial Pollutant Concentrations	Less than Significant	None
Biological Resources		
Impact BIO-1: Result in Impacts on Special-Status Plant Species	No Impact	None
Impact BIO-2: Result in Impacts on Freshwater and Saltwater Aquatic Life	Less than Significant	None
Impact BIO-3: Result in Impacts on Wetlands, Riparian Habitats, or Other Sensitive Natural Communities	No Impact	None
Cultural Resources		
Impact CR-1: Result in a Substantial Adverse Impact on Historic Resources	Less than Significant	None
Impact CR-2: Result in a Substantial Adverse Impact on TCRs	No Impact	None
Greenhouse Gas Emissions		
Impact GHG-1: Generate Direct and Indirect GHG Emissions	No Impact	None
Impact GHG-2: Conflict with GHG Reduction Plans	No Impact	None

Hazards and Hazardous Materials		
Impact HAZ-1: Cause a Temporary Chemical Exposure during the Installation of PVC, CPVC, or ABS Pipes	Less than Significant	None
Impact HAZ-2: Create a Significant Hazard during Transportation and Disposal of Asbestos-Containing Materials and Lead-Based Paint following Installation of PVC, CPVC, or ABS Pipes	No Impact	None
Impact HAZ-3: Create a Significant Hazard from Premature ABS Pipe Failure related to the Use of "Incompatible" Chemicals	Less than Significant	None
Impact HAZ-4: Cause a Potential Risk of Rupture or Failure from Use of PVC, CPVC, and ABS Pipes Outside Established Operating Criteria	Less than Significant	None
Impact HAZ-5: Cause a Potential Risk of Biofilm Accumulation and Bacterial Exposure to Dialysis Patients from Use of PFA Tubing	Less than Significant	None
Impact HAZ-6: Endanger Schools within 0.25 mile, the Public or the Environment through the Release of Hazardous Materials into the Environment under Accident Conditions	Less than Significant	None
Impact HAZ-7: Potentially Could Be Located on a Listed Hazardous Materials Site	No Impact	None
Impact HAZ-8: Create Increased Hazards from Disposal of Plastic Pipes	Less than Significant	None
Hydrology and Water Quality		
Impact HYD-1: Potentially Violate a Water Quality Standard or Degrade Water Quality because of Chemical Leaching from Pipes	Less than Significant	None
Impact HYD-2: Expose People or Structures to a Significant Risk of Loss, Injury, or Death from Flooding Impacts related to Failure of Pipe Materials	Less than Significant	None
Cumulative Impacts		
Impact CUM-1: Result in a Cumulatively Considerable Net Increase of any Criteria Pollutant for which the Project Region is a Nonattainment Area	Less than Significant	None
Impact CUM-2: Impact on Freshwater and Saltwater Aquatic Life (Less than Significant)	Less than Significant	None
Impact CUM-3: Temporary Chemical Exposure during the Installation of PVC, CPVC, or ABS Pipes	Less than Significant	None
Impact CUM-4: Potential Violations of Water Quality Standard or Degradation of Water Quality because of Chemical Leaching from Pipes	Less than Significant	None

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Chapter 1
INTRODUCTION

The California Office of Statewide Health Planning and Development (OSHPD) has prepared this Draft Environmental Impact Report (Draft EIR) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of implementation of the proposed Revisions to the 2016 California Plumbing Code (Proposed Project). The Proposed Project is described in Chapter 2. This document was prepared pursuant to the requirements of the California Environmental Quality Act (CEQA) of 1970 (as amended) and the State CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.).

1.1 Overview of CEQA Requirements

CEQA's basic purposes are to:

1. Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
2. Identify the ways that environmental damage can be avoided or significantly reduced.
3. Prevent significant, avoidable damage to the environment by requiring implementation of feasible mitigation measures or project alternatives that would substantially lessen any significant effects that a project would have on the environment.
4. Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

With certain strictly limited exceptions, CEQA requires all state and local government agencies to consider the environmental consequences of projects over which they have discretionary authority before approving or carrying out projects. CEQA establishes both procedural and substantive requirements that agencies must satisfy to meet CEQA's objectives. For example, the agency with principal responsibility for approving or carrying out a project (the lead agency) must first assess whether a project would result in significant environmental impacts. If substantial evidence exists that the project would result in significant environmental impacts, CEQA requires that the lead agency prepare an Environmental Impact Report (EIR), analyzing both the project and a reasonable range of potentially feasible alternatives.

As described in the State CEQA Guidelines (14 CCR 15121[a]), an EIR is an informational document that assesses potential environmental effects of a project and identifies mitigation measures and alternatives to the project that could reduce or avoid potentially significant environmental impacts. Other key CEQA requirements include developing a plan for implementing and monitoring the success of the identified mitigation measures and carrying out specific public notice and distribution steps to facilitate public involvement in the

environmental review process. As an informational document used in the planning and decision-making process, an EIR's purpose is not to recommend either approval or denial of a project. An EIR does not expand or otherwise provide independent authority of the lead agency to impose mitigation measures or avoid project-related significant environmental impacts beyond the authority already within the lead agency's jurisdiction.

1.1.1 Intent and Scope of this Document

In proposing to conduct the various activities identified in Chapter 2 of this Draft EIR, OSHPD is proposing to carry out and approve a discretionary project subject to CEQA (14 CCR 15378). OSHPD will use the analyses presented in this Draft EIR, the public response to the Draft EIR, and the entire administrative record to evaluate the Proposed Project's potential environmental impacts, and to further modify, approve, or deny approval of the Proposed Project.

1.1.2 Baseline Conditions

Under CEQA, the environmental setting or "baseline" serves as a gauge to assess anticipated changes to existing physical conditions that would occur as a result of a project. Per the State CEQA Guidelines (14 CCR 15125), for purposes of this Draft EIR, the environmental setting is the existing physical conditions at the time the Notice of Preparation (NOP) was published (May 1, 2015).

1.2 CEQA Process

The following discussion explains the steps in the CEQA process.

1.2.1 Initial Study/Notice of Preparation

An NOP was prepared for the Proposed Project, pursuant to the State CEQA Guidelines (14 CCR 15082), and was circulated to the Office of Planning and Research's State CEQA Clearinghouse on May 1, 2015. The scoping period continued for 30 days and concluded on June 5, 2015. The NOP, which included the Initial Study prepared for this Proposed Project, presented general background information on the Proposed Project, the scoping process, and the environmental issues to be addressed in the Draft EIR. Electronic copies of the NOP were e-mailed to a broad range of stakeholders, including State, federal, and local regulatory agencies and jurisdictions, non-profit organizations, and subscribers to OSHPD's listserv database. The NOP, along with the Initial Study, is provided in Appendix A, Notice of Preparation and Initial Study, of this Draft EIR.

1.2.2 Scoping Comments and Meetings

To provide the public and responsible and trustee agencies with an opportunity to ask questions and submit comments on the scope of the Draft EIR for the Proposed Project, two public meetings were held during the scoping period. OSHPD conducted scoping meetings in Sacramento and Los Angeles to solicit input from the public and interested public agencies. As described above, notices of the meetings were mailed or e-mailed to interested parties.

The scoping meetings were held at the following locations:

- Sacramento, CA — May 15, 2015, 10 a.m. to 12 p.m., at OSHPD Headquarters, Sacramento River Room, 400 R Street, Sacramento, CA 95811

- Los Angeles, CA — May 22, 2015, 10 a.m. to 12 p.m., at the Ronald Reagan State Building, Auditorium, 300 South Spring Road, Los Angeles, CA 90013

In addition to OSHPD and contractor staff, three individuals attended the Sacramento scoping meeting, and three individuals attended the Los Angeles scoping meeting. During the meetings, OSHPD staff discussed and answered questions about the Proposed Project and the CEQA process. Attendees were given the opportunity to provide verbal and written comments. Each of the individuals attending the meetings provided verbal comments. A sign-in sheet for the Sacramento meeting and a summary of verbal comments from the scoping meetings are provided in Appendix B, Scoping Materials, of this Draft EIR. A sign-in sheet for the Los Angeles meeting is not included in Appendix B because none of the three attendees signed in.

OSHPD accepted prepared written comments at the meetings, as well as during the 30-day scoping period. Comment forms were distributed at the scoping meetings for submission of written comments during or after the meeting; no comment forms were submitted to OSHPD. During the scoping period, one comment letter dated October 8, 2012 was referenced by Mr. Thomas A. Enslow (in attendance at the Sacramento scoping meeting) from the law firm of Adams, Broadwell, Joseph & Cardozo. This comment letter is provided in Appendix B of this Draft EIR. Supplementary reference materials provided by Mr. Enslow is available for review at the address listed in Section 1.5 below or can be provided in electronic format. No other written comments were received during the scoping period.

1.2.3 Draft Environmental Impact Report

OSHPD has prepared this Draft EIR, as informed by public meetings held during the scoping period, to disclose potentially significant environmental impacts associated with the Proposed Project. Where any such potential impacts would be significant, feasible mitigation measures and potentially feasible alternatives that would lessen or avoid such effects are identified and discussed. The public review period provided the public with an opportunity to submit input to the lead agency on the Draft EIR.

1.2.4 Public Review and Meetings

This Draft EIR is currently undergoing public review for 45 days, beginning on the date specified in the Notice of Availability of this Draft EIR. During this period, two public meetings will be held. The meetings will begin with a brief overview of the Proposed Project and the analysis and conclusions set forth in the Draft EIR. This introductory presentation will then be followed by the opportunity for interested members of the public to provide comments regarding the Proposed Project and the Draft EIR. Commenters may provide oral or written comments, or both.

The date, time, and exact location of the public meeting are included in the Notice of Availability of this Draft EIR.

1.2.5 Final EIR

Written and oral comments received in response to the Draft EIR will be addressed in a Response to Comments document which, together with the Draft EIR and any related changes to the substantive discussion in the Draft EIR, will constitute the Final EIR. The Final EIR, in turn, will inform OSHPD's exercise of its discretion as a lead agency under CEQA in deciding whether or how to approve the Proposed Project.

1.3 Organization of this Draft Environmental Impact Report

This Draft EIR contains the following components:

Executive Summary. A summary of the Proposed Project, a description of the issues of concern, Proposed Project alternatives, and a summary of potential environmental impacts and mitigation measures are presented.

Chapter 1, *Introduction*. This chapter describes the purpose and organization of the Draft EIR and its preparation, review, and certification process.

Chapter 2, *Project Description*. This chapter summarizes the Proposed Project, including a description of its purpose and objectives, a brief description of the project area, and proposed actions that would be taken under the Proposed Project.

Chapter 3, *Introduction to the Environmental Analysis*. This chapter presents an introduction to the impact analysis conducted for this Draft EIR. This chapter also identifies resource topic areas that were determined in the Initial Study not to be affected by the Proposed Project and dismissed from further analysis in the Draft EIR.

Chapters 4-9 describe specific environmental resources and potential environmental impacts on them with implementation of the Proposed Project. Each of these chapters describes the existing setting and background information for the resource topic area under consideration, to aid the reader in understanding the conditions that could be affected by the Proposed Project. In addition, each of these chapters includes a discussion of the criteria used in determining the significance levels of the Proposed Project's potential environmental impacts. Each of these chapters also includes mitigation measures to reduce, where possible, the adverse effects of any potentially significant impacts.

Chapter 10, *Other Statutory Considerations*. This chapter discusses the Proposed Project's potential to contribute to cumulative impacts of the Proposed Project in combination with related past, present, or reasonably foreseeable future projects. It also outlines the Proposed Project's potential to induce growth and identifies potentially significant, irreversible environmental changes that may result from implementation of the Proposed Project.

Chapter 11, *Alternatives Analysis*. This chapter describes the process by which alternatives to the Proposed Project were developed and screened, evaluates their likely environmental impacts, and identifies the environmentally superior alternative.

Chapter 12, *Report Preparation.* This chapter lists the individuals who prepared this Draft EIR.

Chapter 13, *References.* This chapter lists the printed references, websites, and personal communications cited in this Draft EIR.

Appendix A provides the NOP and Initial Study issued by OSHPD.

Appendix B provides materials from the scoping process, including the sign-in sheet from the Sacramento scoping meeting, a summary of comments received during the scoping meetings, and the 2012 comment letter received from Adams, Broadwell, Joseph & Cardozo that was referenced by Mr. Tom Enslow during the Sacramento scoping meeting. A sign-in sheet for the Los Angeles meeting is not included in Appendix B because none of the three attendees signed in.

1.4 Impact Terminology and Use of Language in CEQA

This Draft uses the following terminology to describe potential environmental effects of the Proposed Project:

- A finding of *no impact* is made when the analysis concludes that the Proposed Project would not affect the particular environmental resource or issue.
- An impact is termed *less than significant* if the analysis concludes that no substantial adverse change in the environment would occur and that no mitigation is needed.
- *Mitigation* refers to specific measures or activities to be implemented to avoid, minimize, rectify, reduce, eliminate, or compensate for a potential impact.
- A *cumulative impact* is one that would result when a change in the environment would be created from the incremental impact of a project when added to other related past, present, or reasonably foreseeable future projects. Significant cumulative impacts may result from individually minor but collectively significant projects. The cumulative impacts analysis in this Draft EIR focuses on whether the Proposed Project's incremental contribution to other significant cumulative impacts caused by past, present, or probable future projects is cumulatively considerable (i.e., significant).
- Because the term "significant" has a specific usage in evaluating impacts under CEQA, it is used only to describe the significance of impacts and is not used in other contexts in this document. Synonyms such as "substantial" have been used when not discussing the significance of an environmental impact.

1.5 Submittal of Comments

This Draft EIR is being circulating for a 45-day public review and comment period. The review period began on the date specified in the Notice of Availability and will conclude 45 days thereafter. As discussed above, two public meetings will be held during this period at which oral and written comments will be received. The purpose of public circulation and the public meetings is to provide agencies and interested individuals with the opportunity to comment on or express concerns regarding the contents of this Draft EIR. The specific date, time, and location for this meeting will be provided in the Notice of Availability, at OSHPD's website (www.oshpd.ca.gov), and through other methods intended to notify as many potentially interested individuals, agencies, and entities as reasonably possible.

Written comments concerning this Draft EIR can be submitted at the public meetings described above or throughout the Draft EIR public review period. All comments must be received by 5:00 p.m. on the final date of public review as identified in the Notice of Availability, and directed to the name and address listed below:

Glenn Gall, AIA, Project Manager
Office of Statewide Health Planning and Development
400 R Street, Suite 200
Sacramento, CA 95811
Glenn.Gall@oshpd.ca.gov

Submittal of written comments by email (attached documents in MS Word or PDF format are encouraged) would be greatly appreciated. Written comments received in response to this Draft EIR during the public review period will be addressed in a Response to Comments section of the Final EIR.

Chapter 2
PROJECT DESCRIPTION

2.1 Project Background

The California Building Standards Commission (CBSC) oversees the triennial compilation and publication of the adoptions, amendments, and repeal of administrative regulations to Title 24 of the California Code of Regulations (CCR), California Building Standards Code. Part 5 of the California Building Standards Code is known as the California Plumbing Code and incorporates, by adoption, the latest edition of the Uniform Plumbing Code of the International Association of Plumbing and Mechanical Officials with the California Amendments.

The California Building Standards Code is published in its entirety every 3 years by order of the California legislature, with supplements published in intervening years. The California Legislature has delegated authority to various State agencies, boards, commissions, and departments for creation of building regulations to implement the State's statutes. These building regulations or standards have the same force of law and take effect 180 days after their publication unless otherwise stipulated.

The California Office of Statewide Health Planning and Development (OSHPD), as one of the legislatively delegated State agencies, has authority to propose regulations related to the following facilities:

- General Acute Care Hospitals and Acute Psychiatric Hospitals (OSHPD 1);
- Skilled Nursing Facilities and Intermediate Care Facilities (OSHPD 2);
- Licensed Clinics and Freestanding Outpatient Clinical Services Buildings (OSHPD 3); and
- Correctional Treatment Centers (OSHPD 4).

These proposed regulations then are subjected to the Triennial Code Adoption Cycle review and approval process, administered by the CBSC.

OSHPD's Facilities Development Division (FDD), Building Standards Unit is responsible for development of administrative regulations and building standards for the four facility types listed above. These regulations are developed, as necessary, to implement the provisions of the Alfred E. Alquist Hospital Seismic Safety Act of 1983.

Building Standards Unit staff work in conjunction with OSHPD's architects, engineers, and construction observation staff; the Hospital Building Safety Board; and interested members of the public to develop code language for new building standards and amendments to existing standards in the California Building Standards Code. All regulatory proposals are submitted to the CBSC for approval and adoption.

The purpose of the Proposed Project is to change the 2016 California Plumbing Code, to allow the use of the following materials in the indicated plumbing systems for OSHPD 1, 2, 3, and 4 facilities:

- Chlorinated polyvinyl chloride (CPVC) pipes, tubes, and fittings in water supply distribution systems;
- Perfluoroalkoxy (PFA) in dialysis branch lines;
- Acrylonitrile butadiene styrene (ABS) and polyvinyl chloride (PVC) piping installations in sanitary drainage systems;
- ABS and PVC pipes and fittings for drain-waste-vent (DWV) systems; and
- ABS and PVC piping installations for stormwater drainage systems.

The Proposed Project is needed to increase flexibility in the construction, modification, or renovation of OSHPD 1, 2, 3, and 4 facilities.

2.2 Project Objectives

The objectives of the Proposed Project are as follows:

- Align California's Building Code with the national model code, which contains no prohibitions on the use of plastic pipe for plumbing;
- Increase consistency within California's Building Standards Code, for which no prohibitions on the use of plastic pipe for plumbing exist except for OSHPD 1, 2, 3 and 4 facilities;
- Possibly reduce the cost and improve the ease of installation of plumbing materials;
- Reduce the potential for corrosion of plumbing piping from hospital wastes and/or corrosive soil types;
- Reduce the potential for infection and/or disease transmission (e.g., galvanized water lines possibly forming bio films); and
- Allow use of nationally used and proven products in OSHPD 1, 2, 3, and 4 facilities.

2.3 Proposed Project

The Proposed Project would include making the following revisions to the 2016 California Plumbing Code. These revisions would apply to OSHPD 1, 2, 3, and 4 facilities throughout the State (see Figure 2-1). Proposed additions are shown in <u>underscore</u>, and proposed deletions are shown in ~~strikeout~~.

- **Chapter 6 – Water Supply and Distribution**

  604.0 Materials.

  604.1 Pipe, Tube, and Fittings. Pipe, tube, fittings, solvent cements, thread sealants, solders, and flux used in potable water systems intended to supply drinking water shall be in accordance with the requirements of NSF 61.

Materials used in the water supply system, except valves and similar devices, shall be of a like material, except where otherwise approved by the Authority Having Jurisdiction.

Materials for building water piping and building supply piping shall comply with the applicable standards referenced in Table 604.1.

~~***Exception: [OSHPD 1, 2 & 4]*** *Use of CPVC is not permitted for applications under authority of the Office of Statewide Health Planning and Development.*~~

- **Chapter 6 – Water Supply and Distribution**

605.0 Joints and Connections

605.3 Copper Pipe, Tubing, and Joints

605.3.3 Mechanical Joints

~~**605.3.3.2**~~ **605.1.3.2** ~~**[Not permitted for OSHPD 1, 2, 3, & 4]**~~ **Pressed Fittings.** Pressed fittings for copper pipe or tubing shall have an elastomeric O-ring that forms the joint. The pipe or tubing shall be fully inserted into the fitting, and the pipe or tubing marked at the shoulder of the fitting. Pipe or tubing shall be cut square, chamfered, and reamed to full inside diameter. The fitting alignment shall be checked against the mark on the pipe or tubing to ensure the pipe or tubing is inserted into the fitting. The joint shall be pressed using the tool recommended by the manufacturer.

614.0 Dialysis Water-Distribution Systems

6.14.1 [OSHPD 1, 2, 3, & 4] Dialysis water feedlines shall be PVC (polyvinyl chloride), glass, stainless steel, or PVDF (polyvinylidene fluoride,) and sized to provide a minimum velocity of 1.5 feet per second (0.46 m/s). The piping shall be a singleloop system with or without recirculation. Branches to dialysis machines shall be ¼ inch (6.4 mm) inside dimension and take off from the bottom of the main feedline. Branch lines may be Perfluoroalkoxy (PFA).

- **Chapter 7 – Sanitary Drainage**

701.0 Materials

~~**701.1**~~ **701.2** **Drainage Piping.** Materials for drainage piping shall be in accordance with one of the referenced standards in Table 701.1 except that:

(1) No galvanized wrought-iron or galvanized steel pipe shall be used underground and shall be kept not less than 6 inches (152 mm) aboveground.

(2) ABS and PVC DWV piping installations shall be installed in accordance with applicable standards referenced in Table 1401.1. Except for individual single-family dwelling units, materials exposed within ducts or plenums shall have a flame-spread index of a maximum of 25 and a

smoke-developed index of a maximum of 50, where tested in accordance with ASTM E 84 and UL 23.

(a) ***[HCD 1 & HCD 2]*** *ABS and PVC installations are limited to not more than two stories of areas of residential accommodation.*

~~*(b)* ***[OSHPD 1, 2, & 4]*** *ABS and PVC installations are not allowed.*~~

- **Chapter 9 – Vents**

903.0 Materials

903.1 Applicable Standards. Vent piping and fittings shall comply with the applicable standards referenced in Table 701.1, except that:

(1) No galvanized steel or 304 stainless steel pipe shall be installed underground and shall not be less than 6 inches (152 mm) aboveground.

(2) ABS and PVC DWV piping installations shall be in accordance with the applicable standards reference in Table 1401.1. Except for individual single-family dwelling units, materials exposed within ducts or plenums shall have a flame-spread index of a maximum of 25 and a smoke-developed index or not more than 50 where tested in accordance with ASTM E 84 or UL 723.

903.1.1 [HCD 1 & HCD 2] *ABS or PVC installations are limited to not more than two stories of areas of residential accommodation.*

903.1.2 [HCD 1] *All malleable iron vents shall be galvanized.*

~~***903.1.3 [OSHPD 1, 2, 3 & 4]*** *ABS and PVC installations are not allowed.*~~

- **Chapter 11 – Storm Drainage**

1101.0 General.

1101.1 Where Required. Roofs, paved areas, yards, courts, courtyards, vent shafts, light wells, or similar areas having rainwater, shall be drained into a separate storm sewer system, or into a combined sewer system where a separate storm sewer system is not available, or to some other place of disposal satisfactory to the Authority Having Jurisdiction. In the case of one- and two-family dwellings, storm water shall be permitted to be discharged on flat areas, such as streets or lawns, so long as the storm water shall flow away from the building and away from adjoining property, and shall not create a nuisance.

1101.2 Storm Water Drainage to Sanitary Sewer Prohibited. Storm water shall not be drained into sewers intended for sanitary drainage.

1101.3 Material Uses. Rainwater piping placed within the interior of a building or run within a vent or shaft shall be of cast-iron, galvanized steel, wrought iron, brass, copper, lead, Schedule 40 ABS DWV, Schedule 40 PVC DWV, stainless steel 304 or 316L [stainless steel 304 pipe and fittings shall

not be installed underground and shall be kept not less than 6 inches (152 mm) aboveground], or other approved materials, and changes in direction shall be in accordance within the requirements of Section 706.0. ABS *and* PVC DWV piping installations shall be installed in accordance within IS 5 and IS 9. Except for individual single-family dwelling units, materials exposed within ducts or plenums shall have a flame-spread index of a maximum of 25 and a smoke-developed index of a maximum of 50, where tested in accordance with ASTM E 84 and UL 723.

1101.3.1 [HCD 1 & HCD 2] *ABS or PVC installations are limited to not more than two stories of areas of residential accommodation.*

~~***1101.3.2 [OSHPD 1, 2, 3, & 4]*** *ABS and PVC installations are not allowed.*~~

1102.0 Materials

1102.1 Conductors. Conductors installed aboveground in buildings shall be in accordance within the applicable standards referenced in Table 701.1 for aboveground drain, waste, and vent pipe.

1102.1.1 Inside of Conductors. The inside of conductors installed aboveground level shall be seamless copper water tube, Type K, L, or M; Schedule 40 copper pipe or Schedule 40 copper alloy pipe; Type DWV copper drainage tube; service weight cast-iron soil pipe or hubless cast-iron soil pipe; standard weight galvanized steel pipe; stainless steel 304 or 316L [stainless steel 304 pipe and fittings shall not be installed underground and shall be kept not less than 6 inches (152 mm) aboveground]; or Schedule 40 ABS or Schedule 40 PVC plastic pipe.

1102.1.2 [HCD 1] *ABS or PVC installations are limited to not more than two stories of areas of residential accommodation.*

~~***1102.1.3 [OSHPD 1, 2, 3, & 4]*** *ABS and PVC installations are not allowed.*~~

Horizon WATER and ENVIRONMENT

Figure 2-1
Project Area

2.4 Proposed Plumbing Materials

The Proposed Project would allow use of PFA, ABS, PVC, and CPVC materials as specified above. These materials, along with key aspects of their manufacture, use, and end of life features, are described next. All of the proposed materials would be subject to various American Society for Testing and Materials (ASTM) standards as well as NSF International (NSF) 61 standards. During installation of ABS, PVC, and CPVC, each of these pipes may be connected using various pipe fittings and connectors. These fittings may use various cements and sealers for a proper, leak-free fit. (See the general discussion on pipe fittings, cements, and sealers at the end of this section.)

2.4.1 PFA

PFA was first produced by DuPont in 1972, and is called Teflon® PFA. PFA is a type of fluoropolymer and has very similar properties as the more common polytetrafluoroethylene (PTFE), which is the more popularly known form of Teflon. PFA is used for pharmaceutical, environmental, laboratory, and semiconductor applications. PFA consists of copolymers of tetrafluoroethylene and perfluoroethers, has a very high impact strength, and can be used at a higher working temperature than most plastics. PFA is inert to strong mineral acids, inorganic bases, inorganic oxidizers, aromatics, some aliphatic hydrocarbons, alcohols, aldehydes, ketones, ethers, esters, chlorocarbons, fluorocarbons, and mixtures of these substances. PFA is not considered hazardous as defined in the U.S. Code of Federal Regulations (29 CFR 1910.1200).

2.4.2 ABS

ABS is a common thermoplastic polymer. A thermoplastic polymer is a plastic material that becomes pliable or moldable above a specific temperature and solidifies on cooling. ABS is a lightweight material that exhibits high impact resistance and mechanical toughness. It is used in many consumer products, such as toys, appliances, and telephones.

ABS is synthesized from styrene and acrylonitrile in the presence of polybutadiene (synthesized from 1,3-butadiene). The resulting ABS polymer contains long chains of polybutadiene, cross-linked with shorter chains of poly(styrene-co-acrylonitrile). The polymerization process typically uses an emulsion process, a continuous mass process, or a combination of the two processes. The base monomers have the potential to be emitted in the manufacturing process; however, this is highly dependent on the process and process control technologies used. Many process control technologies capture and reuse monomers that may escape and use closed systems.

ABS plastic is recyclable and commonly is mixed with virgin ABS to make plastics for various uses.

2.4.3 PVC

PVC comes in two basic forms: rigid and flexible. The rigid form of PVC is used in construction for pipe and in profile applications, such as doors and windows. It also is used for bottles,

other non-food packaging, and cards (e.g., bank or membership cards). PVC can be made softer and more flexible by the addition of plasticizers. In this form, it also is used in plumbing, electrical cable insulation, imitation leather, signage, inflatable products, and many applications where it replaces rubber.

The basic PVC polymer typically is combined with various additives and enhancers before final product formation. These enhancers are added to improve the characteristics of the final product, such as heat stabilizers, ultraviolet (UV) stabilizers, plasticizers, processing aids, impact modifiers, thermal modifiers, fillers, flame retardants, biocides, smoke suppressors, and color pigments.

Phthalates are the most widely used plasticizer when making plastic softer and more flexible. Phthalates generally are classified according to size and the amount of branching of the molecule.

Heat stabilizers minimize the loss of hydrogen chloride (HCl) during the degradation process. Traditionally, derivatives of heavy metals (e.g. lead and cadmium) have been used; these have been phased out, and currently, metallic salts of fatty acids, such as calcium stearate, are used to achieve the desired enhancement. In rigid forms of PVC, tin-based stabilizers also may be used. Other metals may be used in flexible PVC and include stabilizers based on barium, zinc, and calcium carboxylates.

Chlorination is discussed below, under CPVC.

Recycling PVC has become possible by using the Vinyloop® process (i.e., a physical, solvent-based recycling technology, suitable for difficult-to-treat composite PVC waste).

2.4.4 CPVC

CPVC is a thermoplastic produced by chlorination of PVC resin. It is generated by chlorination of aqueous solution of PVC particles, followed by exposure to UV light that initiates the free-radical chlorination process. The increase in chlorine content provides a higher heat resistance. Common uses of CPVC include hot and cold water pipes and industrial liquid handling. CPVC shares most of the features and properties of PVC. Because of its excellent corrosion resistance at elevated temperatures, CPVC is ideally suited for self-supporting constructions where temperatures up to 200 degrees Fahrenheit exist.

The basic CPVC polymer typically is combined with various additives and enhancers before final product formation. These enhancers are added to improve the characteristics of the final product, such as heat stabilizers, UV stabilizers, plasticizers, processing aids, impact modifiers, thermal modifiers, fillers, flame retardants, biocides, smoke suppressors, and color pigments. These are similar to the ones described above for PVC.

2.4.5 PVC, CPVC, and ABS Pipe Fittings, Cements, and Sealers

To connect PVC, CPVC, and ABS pipe sections together and provide a complete seal, various fittings, cements, and sealers typically are used on-site during installation. The cements and sealers in particular may release various volatile organic compounds (VOCs), some of which

are toxic air contaminants (TACs), during the curing process. Traditionally, cements and sealers used significant quantities of methyl ethyl ketone (MEK) as a solvent. Because of restrictive VOC regulatory requirements in many California air districts, the cements and sealers are reformulated to use a larger percentage of acetone, which is less volatile, and MEK content is decreased or eliminated. Other ingredients common in PVC and CPVC cements include tetrahydrofuran, cyclohexanone, and silica, along with the polymer resin (PVC or CPVC) and minor amounts of plasticizers, fillers, color pigments, and other stabilizers. Other ingredients that are common in ABS cement include ABS resin and minor amounts of plasticizers, fillers, color pigments, and other stabilizers. A particular solvent cement often contains small quantities of proprietary formulations, used to enhance the softening and joining properties of the cement through the various plasticizers, stabilizers, and fillers. Some of this proprietary information is not available publically; however, the major constituents of the solvent cement typically can be found on material safety data sheets, if they are required to be listed.

2.5 Project Location and Setting

The Proposed Project would allow statewide use of the identified materials for the four facility types listed in Section 2.1. The specific locations of their use that may result from the Proposed Project are unknown at this time, and would be based on the locations and construction methods for future new construction and renovation of OSHPD 1, 2, 3, and 4 facilities.

2.6 Permits and Approvals

The permits and regulatory compliance requirements for the Proposed Project are described by permitting agency, as shown in Table 2-1. Activities conducted in compliance with the adopted regulations may be subject to other permitting and approvals, such as from local land use authorities. Because the specific locations of such activities are unknown at this time, the specific local or other permitting and approvals that may be applicable also are unknown.

Table 2-1. Other Permits and Regulatory Approvals

Regulatory Agency	Law/Regulation	Purpose	Permit/Authorization Type
California Business Standards Commission	Title 24 of the California Code of Regulations	California Plumbing Code, Water Supply and Distribution; Sanitary Drainage	CBSC Approval

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Chapter 3
INTRODUCTION TO THE ENVIRONMENTAL ANALYSIS

3.1 Overview

This chapter provides introductory information related to evaluation of potential environmental impacts associated with the Proposed Project. Specifically, it introduces the overall approach to the environmental setting and impacts analysis; describes how the significance of environmental impacts is evaluated; and discusses resource topics eliminated from detailed analysis in the Draft EIR.

3.2 Resources Chapter Organization

Chapters 4 through 9 of this Draft EIR address specific environmental resource topics identified in CEQA. Each of these chapters is organized as follows:

- **Environmental Setting**. This section includes a description of the environmental setting and background information related to the resource topic, to help the reader understand the types of resources that could be affected by the Proposed Project.
- **Regulatory Setting**. This section describes the federal, State, and local laws, regulations, and policies that pertain to the resource or to the assessment of impacts on the specific resource.
- **Methods of Analysis and Significance Criteria**. These sections describe the methodology and significance criteria used to identify and evaluate the potential environmental impacts that may result from implementation of the Proposed Project.
- **Environmental Impacts**. This section describes environmental impacts associated with the Proposed Project, including the significance of each potential impact.
- **Mitigation Measures**. As appropriate, mitigation measures are proposed following the discussion of potentially significant impacts. These would allow OSHPD to avoid, minimize, rectify, reduce, eliminate, and/or compensate for potentially significant impacts.

3.3 Significance of Environmental Impacts

Chapters 4 through 9 include evaluations of direct and reasonably foreseeable indirect impacts associated with implementation of the Proposed Project. Pursuant to CEQA, the "Environmental Impacts" section in each resource chapter describes potential resource-specific impacts, including a threshold of significance, mitigation measure(s) to address potentially significant impacts, and a statement of each impact's significance before and after

mitigation. The following is a brief description of the baseline environmental conditions, CEQA requirements, and approach used for evaluating impacts in this Draft EIR.

3.3.1 CEQA Thresholds of Significance

CEQA requires that an EIR defines a threshold of significance for each impact that may occur on the physical environment. A threshold of significance, or significance criterion, is an identifiable quantity, quality, or performance level of a particular environmental effect. In general, potential impacts are identified as either significant (exceeding the threshold) or less than significant (below the threshold).

Under CEQA, potential impacts of a project are assessed relative to the environmental baseline. Impacts of a project are limited to changes in the baseline physical conditions of the environment (State CEQA Guidelines Section 15125[a]) that would result directly, indirectly, or cumulatively from a project or program. CEQA does not require the lead agency to consider impacts that are speculative (State CEQA Guidelines Section 15145). In cases where the potential impacts of the Proposed Project would be speculative, a “no impact” determination is indicated in this Draft EIR.

3.3.2 Approach to the Environmental Analysis

The significance criteria used in this Draft EIR are drawn mostly from Appendix G: Environmental Checklist Form of the State CEQA Guidelines. Each environmental resource topic is evaluated in a separate chapter. Each chapter contains impact statements that identify the mechanism of the potential impact of a specific Proposed Project activity on a specific environmental attribute. Each impact statement is tied to one or more significance criteria and followed by an analysis that characterizes the potential physical change that may result from Proposed Project activities compared to the environmental baseline, relative to the relevant significance criteria.

3.4 Sections Eliminated from Further Analysis

Eleven CEQA checklist resource topics have been eliminated from further analysis, based on the nature and scope of Proposed Project activities. A brief summary and description of these resource topics is presented next.

3.4.1 Aesthetics

The use of PFA in dialysis branch lines and/or plastic pipe as part of construction or renovation of OSHPD 1, 2, 3 and 4 facilities would be unlikely to have an adverse effect on a scenic vista. Possibly some OSHPD 1, 2, 3 and 4 facilities may be visible from state scenic highways, and possibly some OSHPD facilities may be historic buildings, but the use of PFA, PVC, CPVC, and ABS pipe in plumbing applications would not affect the aesthetic quality or resources of these buildings. Installation and/or the use of PFA, PVC, CPVC, and ABS pipe

would not include any nighttime lighting or sources of glare. Therefore, no impact would occur.

3.4.2 Agricultural Resources and Forestry

The use of PFA, PVC, CPVC, and ABS pipe at OSHPD 1, 2, 3, and 4 facilities would not result in the direct or indirect conversion of agricultural or forest lands to non-agricultural use, nor would it conflict with existing zoning for agricultural use, forest land, timberland, or a Williamson Act contract. The Proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use that would significantly affect timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, or other public benefits. No impact would occur.

3.4.3 Geology/Soils

The use of PFA, PVC, CPVC, and ABS pipe at OSHPD 1, 2, 3 and 4 facilities would not expose people or structures to potential adverse effects, including the risk of loss, injury, or death involving the rupture of a known earthquake fault. PVC pipe has been found to have good hydraulic and structural integrity compared to other common materials used in water and sewer pipe applications (e.g., metal, vitrified clay) (Ohlinger 2002; Duffy 2007). Vinyl pipe's flexibility enables it to respond to excessive forces without fracturing (Ohlinger 2002) and makes it less vulnerable to earth movements than the materials currently authorized for use in OSHPD 1, 2, 3 and 4 facilities (Duffy 2007). ABS pipe has similar properties to PVC and CPVC pipe. Therefore, no reason exists to believe that PVC, CPVC, or ABS pipe would be more likely to fail in the event of a seismic-related rupture of a known earthquake fault, thereby exposing people or structures to adverse effects, than the metal pipe currently authorized for use in OSHPD 1, 2, 3, and 4 facilities. Likewise, no reason exists to believe that PVC, CPVC, or ABS pipe would be more likely to fail in the event of strong seismic ground shaking or seismic-related ground failure, including liquefaction and landslides. The Proposed Project would not result in substantial soil erosion or the loss of topsoil. No impact would occur.

3.4.4 Land Use and Planning

The use of PFA, PVC, CPVC, and ABS pipe at OSHPD 1, 2, 3, and 4 facilities would not physically divide an established community. The Proposed Project would not exempt activities from applicable land use plans or policies, or habitat conservation plans. No impact would occur.

3.4.5 Mineral Resources

The Proposed Project could result in increased use of PFA, PVC, CPVC, and ABS pipe. For example, OSHPD 1, 2, 3 and 4 facilities may choose to replace existing metal pipes with plastic pipes or use plastic pipes rather than metal pipes in new facilities. Such increased use could result in increased production and demand for base products. Some minerals, such as barium, may be used in the manufacture of PVC, CPVC, and ABS, or in extraction of base products (e.g., petroleum). Where such minerals may be obtained is unknown (many sources are likely to

exist), but increased demand for use in PFA, PVC, CPVC, and ABS pipe manufacturing could reduce the availability of such resources. However, relative to the overall consumption of minerals and the overall demand for PFA, PVC, CPVC, and ABS pipe, the Proposed Project's contribution to such demand would be negligible. For this analysis, evidence could not be found of a shortage in minerals used in production of PFA, PVC, CPVC, or ABS pipe. The impact would be less than significant.

3.4.6 Noise

Installation and the use of plumbing material at OSHPD 1, 2, 3, and 4 facilities may create short-term noise during construction, but the Proposed Project would not exempt projects using plastic pipe from compliance with applicable noise standards. Installation of plumbing materials could expose persons or structures to groundborne vibration or groundborne noise levels, but because the specific locations where such potential impacts may occur is unknown, determining whether any impacts would be substantial is infeasible. The Proposed Project would not result in permanent increases in ambient noise levels above existing levels. Installation and the use of plumbing material at OSHPD 1, 2, 3 and 4 facilities may occur within an airport land use plan area, within 2 miles of a public airport, or in the vicinity of a private airstrip. However, any noise generated by the Proposed Project would be minor and would be limited to the construction phase. The Proposed Project would not expose people residing or working in these locations to excessive noise levels. For the reasons described above, the noise impact resulting from implementation of the Proposed Project would be less than significant.

3.4.7 Population and Housing

The Proposed Project would not include housing and would not construct or expand any new infrastructure. Replacement or retrofit of plumbing in existing buildings with plastic pipe resulting from the Proposed Project could displace medical resident populations temporarily, but such patients presumably would be moved to other parts of the facility or would be transferred to another facility as necessary. Furthermore, OSHPD buildings are not considered to be housing. No impact would occur.

3.4.8 Public Services

The Proposed Project would not cause an increase in population that would affect demand for police protection, schools, parks, or other public facilities. No impact would occur.

Public concerns have been raised regarding the potential for PVC, CPVC, or ABS pipe to increase the risk of fire. Concerns have cited the potential for plastic piping, used for drain, waste and vent systems, to create a pathway for smoke, hot gases, and fire to spread through a building. This possible impact would not be substantially different from similar potential impacts arising from existing metal piping at OSHPD facilities. Therefore, the impact would be less than significant.

3.4.9 Recreation

The Proposed Project would not cause an increase in population or contribute to the deterioration of any existing recreational facilities. Furthermore, the Proposed Project would not create any new recreational facilities and would not alter any existing recreational facilities. No impact would occur.

3.4.10 Transportation and Traffic

The Proposed Project potentially could result in temporary increases in traffic from transportation of plastic pipe to project sites. However, it would be speculative to say whether and where potential traffic impacts may occur, because specific locations of project-related activities are unknown. Site-specific factors (e.g., facility layouts, adjacent roads, and existing level of service or vehicle miles travelled metrics) would determine the presence and degree of any potential traffic impacts. The choice of plumbing materials for OSHPD 1, 2, 3, and 4 facilities would not affect air traffic patterns, increase traffic hazards because of project design features, or affect alternative transportation policies, plans, or programs. Transport of PFA, PVC, CPVC, and ABS piping and equipment for installation at OSHPD 1, 2, 3, and 4 facilities would not interfere with emergency access. No impact would occur.

3.4.11 Utilities and Service Systems

The Proposed Project would not contribute to increased population, or to water or wastewater treatment demand. The Proposed Project may result in the replacement of an existing building's water and wastewater systems with plastic piping, but this would not affect the need for new water or wastewater treatment facilities or expansion of existing facilities. Public concerns have been raised that PVC, CPVC, and ABS piping may leach contaminants during use. If plastic piping leaches contaminants, these contaminants may be transported to the local wastewater treatment plant, where they may not be fully removed by treatment processes before being discharged. This potential impact is evaluated in Chapter 9, Hydrology and Water Quality of this Draft EIR.

The Proposed Project may increase the use of PVC, CPVC, and ABS pipe at OSHPD 1, 2, 3, and 4 facilities relative to metal pipe. Plastic pipes are relatively bulky, have long biodegradation times, and they take up landfill space (Murphy no date). PVC and other plastic pipes also are relatively difficult to recycle, though recycling is possible and commonly is done (Murphy no date). Because Proposed Project activities could occur at various undetermined locations throughout the state, any impacts on landfill capacity would be speculative and are not evaluated further. However, potential hazardous impacts associated with disposal of plastic pipes in landfills are addressed in Chapter 10 of this Draft EIR, in the Cumulative Impacts section under Hazards and Hazardous Materials.

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Chapter 4
AIR QUALITY

4.1 Introduction

This chapter describes the air quality regulatory and environmental settings, and then evaluates the potential air quality impacts that could result from implementation of the Proposed Project. The impact evaluation identifies the air quality significance criteria and the methodology used to evaluate significance, and then presents the analysis. The topics evaluated in this analysis include construction emissions associated with the installation of new piping, off-gas emissions from pipes and installation materials, and foreseeable events that would generate air quality emissions from the proposed pipe materials.

Odor emissions was screened out in the Initial Study (see Appendix A) and this topic is not evaluated further in this analysis. Topics associated with storage, disposal, and other non-inhalation exposures to the proposed pipe materials are evaluated in Chapter 8, Hazards and Hazardous Materials, of this Draft EIR.

4.2 Regulatory Setting

4.2.1 Federal Laws, Regulations, and Policies

Clean Air Act (42 U.S. Code [USC] Section 7401 et seq.), Criteria Air Pollutants

Criteria Air Pollutants and National Ambient Air Quality Standards

The Clean Air Act (CAA) requires adoption of the National Ambient Air Quality Standards (NAAQS) to protect public health and welfare from the effects of air pollution. The U.S. Environmental Protection Agency (EPA) has identified six air pollutants as being of nationwide concern: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead, and particulate matter (PM). PM is subdivided into two classes, based on particle size: PM equal to or less than 10 micrometers in diameter (PM_{10}); and PM equal to or less than 2.5 micrometers in diameter ($PM_{2.5}$). Because the ambient air quality standards for these air pollutants are regulated using human health and environmentally based criteria, they are commonly referred to as "criteria air pollutants." EPA has established primary and secondary NAAQS (Table 4-1) that specify allowable ambient concentrations for criteria air pollutants. Primary NAAQS are established at levels necessary, with an adequate margin of safety, to protect the public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Similarly, secondary NAAQS specify the levels of air quality determined appropriate to protect the public welfare from any known or anticipated adverse effects associated with air contaminants.

Attainment Status

EPA designates areas of a state as being in attainment, nonattainment, maintenance, or unclassified designation for the various pollutant standards. An "attainment" designation for an area signifies that pollutant concentrations does not exceed the established standard. In contrast to attainment, a "nonattainment" designation indicates that a pollutant concentration has exceeded the established standard. Nonattainment may differ in severity. To identify the severity of the problem and the extent of planning and actions required to meet the standard, nonattainment areas are assigned a classification that is commensurate with the severity of their air quality problem (e.g., moderate, serious, severe, extreme). EPA, under the provisions of the CAA, requires each state with regions that have not attained the NAAQS to prepare a State Implementation Plan (SIP), detailing how these standards are to be met in each local area.

Table 4-1 National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	Primary[c,d]	Secondary[c,e]
Ozone	1 hour	0.09 ppm (180 µg/m^3)	–	Same as primary standard
	8 hours	0.070 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)	
Respirable particulate matter (PM_{10})	24 hours	50 µg/m^3	150 µg/m^3	Same as primary standard
	Annual arithmetic mean	20 µg/m^3	–	
Fine particulate matter ($PM_{2.5}$)	24 hours	–	35 µg/m^3	Same as primary standard
	Annual arithmetic mean	12 µg/m^3	12 µg/m^3	15 µg/m^3
Carbon monoxide	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	–
	8 hours	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	–
	8 hours (Lake Tahoe)	6 ppm (7 mg/m^3)	–	–
Nitrogen dioxide[f]	1 hour	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)	–
	Annual arithmetic mean	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as primary standard
Sulfur dioxide [g]	1 hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)	–

Table 4-1 National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	Primary[c,d]	Secondary[c,e]
	3 hours	–	–	0.5 ppm (1,300 µg/m^3)
	24 hours	0.04 ppm (105 µg/m^3)	0.14 ppm (for certain areas)[g]	–
	Annual arithmetic mean	–	0.030 ppm (for certain areas)[g]	–
Lead[h,i]	30-day average	1.5 µg/m^3	–	–
	Calendar quarter	–	1.5 µg/m^3 (for certain areas)[i]	Same as primary standard
	Rolling 3-month average	–	0.15 µg/m^3	
Visibility-reducing particles [j]	8 hours	See footnote j	No national standards	
Sulfates	24 hours	25 µg/m^3		
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m^3)		
Vinyl chloride [j]	24 hours	0.01 ppm (26 µg/m^3)		

Notes:
mg/m^3 = milligrams per cubic meter; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ppb = parts per billion; ppm = parts per million; µg/m^3 = micrograms per cubic meter

Source: ARB 2013a

Section 112 of the CAA (42 USC Section 7412); 40 CFR Parts 61 and 63, Hazardous Air Pollutants

Federal laws such as the National Emission Standards for Hazardous Air Pollutants (NESHAP) use the term "hazardous air pollutants" (HAPs) to refer to pollutants that may pose a health risk. EPA defines national emission standards for hazardous air pollutants to protect public health and welfare. These substances include certain volatile organic compounds (VOCs), pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Installation of the proposed pipe materials as part of the Proposed Project could generate emissions that have been identified as HAPs, and thus they would be subject to NESHAP requirements.

Of particular relevance to the Proposed Project is the classification of methyl ethyl ketone (MEK). MEK is found in adhesives (primer and cement) used in CPVC pipe installation. In 1993, it also was listed as a HAP by EPA. EPA subsequently removed MEK from the HAP list in response to a petition by industry. In its analysis, EPA weighed the potential uncertainties about the health risks of MEK and their likely significance, and found that it was appropriate to remove MEK from the HAP list. On December 19, 2005, EPA published the final rule that amended Section 112 of the CAA by removing MEK from the list of HAPs (USEPA 2005).

4.2.2 State Laws, Regulations, and Policies

California Clean Air Act, Criteria Pollutants, and Ambient Air Quality Standards

The California Air Resources Board (CARB) is the agency responsible for coordination and oversight of State and local air pollution control programs, and for implementing the California Clean Air Act (CCAA). The CCAA was adopted in 1988, and required CARB to establish the California Ambient Air Quality Standards (CAAQS). The CAAQS are, in general, more restrictive than the NAAQS (Table 4-1). California also has established standards for sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride.

The SIP is a legal agreement between each state and the Federal government to commit resources for improving air quality. It serves as the template for conducting regional and project-level air quality analysis. The SIP is not a single document, but is a compilation of new and previously submitted attainment plans, emissions reduction programs, district rules, State regulations, and federal controls. CARB is the lead agency for developing the SIP in California. Local air districts and other agencies prepare air quality attainment plans or air quality management plans, and submit them to the CARB for review, approval, and incorporation into the applicable SIP.

The CCAA requires that all local air districts endeavor to achieve and maintain the CAAQS by the earliest practical date. California's adopted 2007 State Strategy was submitted to EPA and was designed to attain federal ozone and $PM_{2.5}$ air quality standards through a combination of technically feasible, cost-effective measures and new technologies. Amendments to the 2007 State Strategy were adopted by CARB in 2012. Air quality emissions resulting from the installation of Proposed Project's new pipe materials would contribute incrementally to the state's overall emissions and affect its ability to meet the CAAQS.

Assembly Bills 1807, 2588, 2728; Senate Bill (SB) 1731, Toxic Air Contaminants

The California Health and Safety Code (Section 39655) defines TACs as air pollutants that may cause or contribute to an increase in mortality or serious illness, or that may pose a present or potential hazard to human health. These generally are the same pollutants identified as HAPs by the federal government. The State Air Toxics Program was established in 1983 by Assembly Bill (AB) 1807. A total of 243 substances have been designated TACs under California law; they include the 189 HAPs (federal) adopted in accordance with AB 2728, which required the State to identify the federal HAPs as TACs, to make use of the time and costs EPA already had invested in evaluating and identifying hazardous/toxic substances. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not

regulate air toxics emissions. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities must perform a health risk assessment and, if specific thresholds are violated, must communicate the results to the public in the form of notices and public meetings. Regulation of TACs generally is through statutes and rules at the local level, through air district rules and regulations, or at the statewide level, through airborne toxic control measures (ATCM) and source-specific emission control programs (such as those described above) that require the use of the maximum or best available control technology to limit TAC emissions.

Unlike the federal government, California has not removed MEK from its list of TACs, and MEK still is considered a TAC at present (CARB 2011).

4.2.3 Local Laws, Regulations, and Policies

Air Pollution Control and Air Quality Management Districts

CARB has delegated much of its non-vehicular air pollution control authority to local air pollution control districts and air quality management districts. For some air basins covering more than one county, a unified air district has been formed to manage air quality issues throughout the basin. In other multi-county air basins, individual county air districts manage air quality only within their county. Air pollution control districts, sometimes referred to as air quality management districts, are responsible for air quality planning and development of air quality plans within their jurisdictions. These air districts regulate air quality through planning and review activities, including adopting rules and regulations for emission sources within their jurisdictions. Construction activities of the Proposed Project would be subject to the rules and regulations of the applicable air district. See Figures 4-1 and 4-2 for a map of air basin and air district geographical boundaries, respectively.

Air Quality Plans

Air quality management plans are regional blueprints that are designed to bring an area into compliance for those pollutants that it is classified as being in nonattainment and usually contain an emissions inventory and a list of rules proposed for adoption.

General Plans

Policies found in city and county general plans regarding air quality also would apply to the Proposed Project.

Local VOC Emission Regulations

Many California air basins are in nonattainment in meeting State and federal ozone standards. Many of these air basins are made up, at least in part, of air districts that have adopted VOC rules covering adhesives, among others, in an effort to control ozone. The implementation and efficacy of local reactive organic gas (ROG) emission regulations is included in air quality management plans and the SIP. These rules have been accepted by CARB as an approved strategy to attain air quality standards and prevent projected air quality standard violations. The rules are legally enforceable standards, designed to minimize and control the generation of ROG emissions from a range of sources. Table 4-2 shows the air districts' adhesive rules.

CARB has determined Reasonable Available Control Technology for VOCs in adhesives (CARB 1998). These are the standards (e.g., 490 grams of VOC per liter for adhesives for CPVC pipes) imposed by most air districts with ROG rules, as shown in Table 4-2, but not all.

Figure 4-1: California Air Basins

1 **Figure 4-2: California Air Districts**

Table 4-2 Air District Adhesive Rules (Maximum Amount of VOCs [g/L])

Air District	Basin	Cement	Primer	Exceptions
Antelope Valley	South Coast Mojave Desert	270	250	5 ounces or less
El Dorado	Lake Tahoe Mountain Counties	250	250	5 ounces or less
Placer	Lake Tahoe Mountain Counties Sac Valley	490	650	8 ounces or less
Sacramento Metro	Sac Valley	490	650	No exception for CPVC/plastics
San Diego	San Diego	490	650	16 ounces or less
San Joaquin Valley Unified	San Joaquin Valley Mojave Desert	490	650	8 fluid ounces or less
Santa Barbara	South Central Coast	490	650	16 ounces or less
SF Bay Area	SF Bay Area North Coast	490	650	No exception for CPVC/plastics
Shasta	Sac Valley	490	650	No exception for CPVC/plastics
South Coast	South Coast Mojave Desert Salton Sea	490	650	Consumer products
Tehama	Sac Valley	490	650	Consumer products
Ventura	South Central Coast	490	650	None that are relevant
Yolo/Solano	Sac Valley SF Bay Area	490	650	No exception for CPVC/plastics

Source: California Department of Housing and Community Development 2006:Appendix A, Table 4)

4.3 Environmental Setting

4.3.1 Topography, Climate, and Meteorology

Air quality is defined by the concentration of pollutants related to human health. Concentrations of air pollutants are determined by the rate and location of pollutant emissions released by pollution sources, and by the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, and sunlight. Therefore, ambient air quality conditions in the local air basin are influenced by such natural factors as topography, meteorology, and climate, in addition to the amount of air pollutants released by stationary, mobile, and natural sources.

4.3.2 Criteria Air Pollutants

Ambient concentrations of criteria air pollutants are monitored by local air districts, CARB, and EPA to determine whether the region has met or maintained ambient air quality standards (see Table 4-1). The following section briefly describes the primary criteria air pollutants. The primary pollutant that would be affected by implementation of the Proposed Project is VOC, which is a precursor to ozone. Therefore, Table 4-3 presents the current attainment status of all areas in California with respect to the ozone standard.

Table 4-3 Area Designations for National and State Ambient Air Quality Standards for Ozone

Air Basin	County	National 8-hour Ozone Standards	California Standards
Great Basin Valleys	Alpine	Unclassified/Attainment	Unclassified
	Inyo, Mono	Unclassified/Attainment	Nonattainment
Lake County	Lake	Unclassified/Attainment	Nonattainment-Transitional
Lake Tahoe	El Dorado, Placer	Nonattainment	Nonattainment
Mojave Desert (Antelope Valley and Western Mojave Desert)	Los Angeles	Nonattainment	Nonattainment
	Kern, San Bernardino, Riverside	Nonattainment and Unclassified/Attainment	Nonattainment
Mountain Counties	Amador, Tuolumne	Unclassified/Attainment	Nonattainment
	Calaveras, El Dorado, Mariposa, Nevada, Placer	Nonattainment	Nonattainment
	Plumas, Sierra	Unclassified/Attainment	Unclassified
North Central Coast	Monterey, San Benito, Santa Cruz	Unclassified/Attainment	Nonattainment
North Coast	Del Norte, Humboldt, Mendocino, Trinity	Unclassified/Attainment	Attainment
	Sonoma	Unclassified/Attainment	Nonattainment
Northeast Plateau	Lassen, Modoc, Siskiyou	Unclassified/Attainment	Attainment
Sacramento Valley	Butte, Placer, Sacramento, Solano, Yolo	Nonattainment	Nonattainment
	Shasta, Tehama	Unclassified/Attainment	Nonattainment
	Colusa, Glenn	Unclassified/Attainment	Attainment
	Sutter, Yuba	Unclassified/Attainment	Nonattainment-Transitional
Salton Sea	Imperial	Nonattainment	Nonattainment

Air Basin	County	National 8-hour Ozone Standards	California Standards
(Coachella Valley)			
	Riverside	Nonattainment and Unclassified/Attainment	Nonattainment
San Diego	San Diego	Nonattainment	Nonattainment
San Francisco Bay Area	Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma	Nonattainment	Nonattainment
San Joaquin Valley	Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, Tulare	Nonattainment	Nonattainment
South Central Coast	San Luis Obispo	Nonattainment and Unclassified/Attainment	Nonattainment
	Santa Barbara	Unclassified/Attainment	Nonattainment
	Ventura	Nonattainment	Nonattainment
South Coast	Los Angeles, Orange, Riverside, San Bernardino	Nonattainment	Nonattainment

Source: CARB 2013b, 2015

Ozone

Ozone is a colorless, odorless gas that exists primarily as a beneficial component of the ozone layer in the upper atmosphere (stratosphere) and as a pollutant in the lower atmosphere (troposphere). Tropospheric ozone is a principal cause of lung and eye irritation in the urban environment. It is the principal component of smog, which is formed in the troposphere through a series of reactions involving ROG and NO_X in the presence of sunlight. Both ROG emissions and NO_X emissions are considered critical in ozone formation.

Carbon Monoxide

CO is a colorless and odorless gas that, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. Overall, CO emissions are decreasing, because the Federal Motor Vehicle Control Program has mandated increasingly lower emission levels for vehicles manufactured since 1973. Relatively high concentrations of CO typically are found within a short distance (300 to 600 feet) of crowded intersections and along heavily used roadways. Vehicle traffic emissions can cause localized CO impacts, and severe vehicle congestion at major signalized intersections can generate elevated CO levels ("hotspots") that can be hazardous to humans present adjacent to the intersections.

Nitrogen Dioxide

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X and reported as equivalent NO_2. Inhalation is the most common route of exposure to NO_2. The severity of the adverse health effects depends primarily on the concentration inhaled. An individual may experience a variety of acute symptoms, such as coughing, difficulty in breathing, vomiting, headache, and eye irritation, during or shortly after exposure.

Sulfur Dioxide

SO_2 is a gas that is a product of the combustion of fossil fuels, with the primary source being power plants and heavy industry that use coal or oil as fuel. SO_2 also is a product of diesel engine emissions. The human health effects of sulfur dioxide include lung disease and breathing problems for asthmatics. Relatively little combustion of coal and oil occurs in California; therefore, SO_2 is less of a concern than in other parts of the country.

Lead

Lead is a highly toxic metal that has the potential to cause a range of negative human health effects. Lead anti-knock additives in gasoline used to represent a major source of lead emissions to the atmosphere; however, lead emissions have decreased substantially as a result of the near-elimination of leaded gasoline use. Lead-based paint, banned or limited by EPA in the 1980s, is a health hazard when it deteriorates by peeling, chipping, or cracking, or when it generates lead dust when scraped, sanded, or heated, but exposure is limited to people in close contact with the dust.

Particulate Matter

PM is a complex mixture of extremely small particles and liquid droplets. PM is made up of acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. EPA is concerned about particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through the throat and nose, enter the lungs, and affect the heart and lungs. Individuals particularly sensitive to fine particle exposure include older adults, people with heart or lung disease, and children.

As previously described, EPA groups PM into two categories, coarse PM (PM_{10}), and fine PM ($PM_{2.5}$). Inhalable coarse particles (PM_{10}), such as those found near roadways and dust-generating industries, are larger than 2.5 micrometers and smaller than 10 micrometers in diameter. Sources of coarse particles include crushing or grinding operations and dust from paved or unpaved roads.

PM_{10} includes the subgroup of finer particles ($PM_{2.5}$), such as those found in smoke and haze, that have an aerodynamic diameter of 2.5 micrometers or smaller. These finer particles pose an increased health risk because they can deposit deep in the lungs and contain substances that are particularly harmful to human health. Sources of fine particles include all types of combustion activities, such as motor vehicles, power plants, wood burning, and certain industrial processes. $PM_{2.5}$ is the major cause of reduced visibility (haze) in California.

4.3.3 Toxic Air Contaminants

Ambient monitoring data are available for some TACs but are not available for diesel PM, which is the primary TAC of concern in California, because a standardized method for measuring diesel PM has not been established. However, CARB has made preliminary estimates of concentrations based on a PM exposure method. This method uses CARB's emissions inventory PM_{10} database, ambient PM_{10} monitoring data, and the results from

several studies to estimate concentrations of diesel PM. ARB also has designated lead, asbestos, and naturally occurring asbestos as TACs.

4.3.4 PFA, ABS, PVC, and CPVC Materials

Manufacturing

The proposed plastic pipe materials commonly are used in residential, commercial, and industrial applications throughout the state and country. Therefore, the Proposed Project would not trigger facilities to start manufacturing PFA, ABS, PVC, or CPVC pipe materials. Rather, the Proposed Project has the potential to affect the demand for plastic pipes for use at OSHPD 1, 2, 3, and 4 facilities. Plastic pipe manufacturing includes the use of various chemical compounds for the production process and generates byproducts, some of which are considered TACs or HAPs. Manufacturing processes include the use of chlorine gas, vinyl chloride, and chemical stabilizers such as lead, cadmium, and phthalates. In addition, plastic pipe manufacturing generates emissions of dioxin and PCB byproducts, among others.

Installation

During installation of the plastic pipe materials, cleaners, cements, and sealers are used to join piping. The use of these adhesives generates VOC emissions that typically are regulated by local air district rules and regulations. As shown in Table 4-2, many air districts have established VOC content standards for products used within their jurisdictions.

Operations

Following installation of plastic pipe materials, minimal emissions are associated with the pipes. Plastic pipe is designed to withstand typical operating conditions, including fluctuations in temperature and pressure, without generating off-gas emissions. In other words, under typical operating conditions, plastic pipe does not release air quality emissions. In most cases, installed plastic pipe is encased into the ground, walls, or other covered areas, and thus is not exposed to the external environment.

In case of a fire, plastic pipes can burn and generate secondary compounds (e.g., hydrogen fluoride, hydrogen cyanide, acrolein, styrene, hydrogen chloride gas, and dioxins), some of which are TACS. These emissions have the potential to expose sensitive receptors.

4.4 Impact Analysis

4.4.1 Methodology

The Proposed Project would not be a direct action because it would not include any specific construction or operational activities. Rather, it would allow contractors to employ different materials from current standards to construct plumbing and dialysis lines. The revisions to the plumbing code would result in indirect changes to material manufacturing, construction activities, operations, and potential emergency events related to air quality emissions. The use of PVC, CPVC, and ABS pipe at OSHPD facilities because of the Proposed Project may occur statewide, and thus all air basins in the state potentially could be affected.

The following section describes the methodology that was used to evaluate how the Proposed Project would affect these actions. As discussed above, because the Proposed Project would not be a direct action, the actual air quality impacts could not be modeled similar to a site-specific development proposal. Making quantitative assumptions on how the Proposed Project would affect manufacturing (e.g., change in supply/demand at various manufacturing facilities, which facilities would increase/decrease throughput), construction (e.g., number of projects to install plastic pipe, number of retrofits initiated by the changed regulations, installation process parameters), operations (e.g., increased temperature or pressure on proposed plastic pipe), and potential emergency events (e.g., number of fires that would combust the plastic pipe, percent of total plastics in a building that are the proposed plastic pipe) would be speculative, and thus this analysis used a qualitative approach to address these air quality topics.

Material Manufacturing

The air quality analysis evaluated how the Proposed Project potentially could cause a change in material manufacturing—primarily, the change between the current use of galvanized iron, steel, or copper compared with production emissions of plastic and PFA pipes.

Construction

Implementation of the Proposed Project may cause a change in construction activities with respect to material sourcing and origin, and installation processes.

Construction Vehicles and Equipment

The Proposed Project may indirectly affect typical construction activities for installation of plumbing lines using the proposed materials. The analysis evaluated the potential changes to construction vehicle and equipment activities associated with use of the proposed materials compared with currently allowable pipe materials.

Pipe Installation

The process of installing the proposed plastic pipe materials would differ from that of currently allowable metallic materials. This analysis considered the air quality emissions, primarily VOCs and TACs associated with the different installation methods. Specifically, installation of plastic and PFA pipes would require the use of primers, cements, sealers, and solvents for joining them, all of which would have the potential to generate VOC and TAC emissions.

Operations

The Proposed Project generally would not include a change in operational activities. Following installation of proposed piping materials as allowed under the Proposed Project, regular maintenance and inspection activities would not be expected to increase beyond existing conditions. Therefore, an increase in criteria pollutant emissions would not be expected, and therefore operations and maintenance activities are not evaluated further in this Draft EIR.

However, following installation of the proposed pipe materials, potential events such as fires and explosions that would affect the piping could generate air quality emissions from combustion. The potential air quality impacts associated with accidental combustion of the plastic and PFA pipes was considered in this analysis.

4.4.2 Significance Criteria

A significant impact would occur with respect to air quality if the Proposed Project would:

A. Conflict with or obstruct implementation of the applicable air quality plan.

B. Violate any air quality standard established by EPA or CARB, or contribute substantially to an existing or projected air quality violation, in comparison to the thresholds below.

C. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable NAAQS or CAAQS (including releasing emissions that exceed quantitative thresholds for ozone precursors).

D. Expose sensitive receptors to substantial air pollutant concentrations.

E. Create objectionable odors affecting a substantial number of people.

Criteria A, B, C, and D were evaluated in the Initial Study (see Appendix A) to have a less-than-significant impact but were to be further evaluated in this Draft EIR. Criterion E was evaluated in the Initial Study to have a less-than-significant impact, as noted in the introduction to this chapter (Section 4.1); therefore, odor impacts are excluded from the discussion below.

4.4.3 Environmental Impacts

Impact AQ-1: Conflict with or Obstruct Implementation of the Applicable Air Quality Plan *(Less than Significant)*

Consistency with an air quality plan is based on whether a project would result in an exceedance of the estimated air basin emissions used as the basis of the plan. Air districts develop air quality plans to demonstrate how the region will reduce air quality emissions and attain ambient air quality standards. Air quality plans are based on regional emissions inventories that account for projected growth and implementation of emission reduction strategies (e.g., air district rules and regulations, regional or statewide emission reduction programs), among other factors. Therefore, projects that would be consistent with regional rules, regulations, and emission reduction programs would not conflict with or obstruct implementation of the applicable air quality plan. Because the Proposed Project would not directly result in emissions, the following analysis discusses how the Proposed Project could indirectly result in emissions (i.e., from manufacturing, construction, installation, operation), which may conflict with or obstruct implementation of the applicable air quality plan.

Material Manufacturing

The Proposed Project could result in increased use of PFA, PVC, CPVC, and ABS pipe, the production of which could release air contaminants. The increased production of PFA, PVC, CPVC, and ABS pipe could occur in California or elsewhere, and such production may or may not require CEQA compliance and related air quality analysis. Any manufacturing facility (i.e., a stationary source) for PFA, PVC, CPVC, and ABS pipe in California would be regulated through local air district permitting requirements that establish limits for throughput, criteria air pollutant emissions, and TAC emissions (see Impact AQ-4 for a more detailed discussion of TAC emissions from plastic pipe manufacturing processes), for the region to plan and meet air quality standards. In the case that the Proposed Project would cause an increase in production at any manufacturing facility, all increases in air pollutants beyond currently permitted parameters would be required to be reported and regulated through the local air districts.

Under the Proposed Project, new projects or retrofits of OSHPD 1, 2, 3 or 4 facilities would have the option of using plastic pipe for plumbing; the extent to which this would result in the increased use of plastic pipe over existing conditions, and related manufacturing of such pipe, is unknown. Even if demand for pipe was to increase substantially because of the Proposed Project, manufacturing emissions may occur out of state, and any change in emissions associated with manufacturing in California would be regulated by local air district permitting requirements to avoid generating emissions that substantially would impede the region's ability to meet air quality standards. Therefore, the impact would be **less than significant**.

Construction Vehicles and Equipment

Installation of plumbing infrastructure generates construction-related emissions that contribute to regional air quality. Construction emissions are short-term and temporary, but they have the potential to represent a significant impact with respect to air quality. With respect to installation of plumbing infrastructure, construction-related emissions would be generated primarily from vehicle exhaust, earth-disturbing activities, demolition, and off-gassing from construction materials. Vehicle and equipment exhaust emissions would result from use of heavy-duty construction equipment, material delivery trucks, and construction worker vehicles. Earth-disturbing activities (e.g., trenching, excavation, and demolition to install plumbing infrastructure) would generate fugitive PM dust emissions.

The Proposed Project would not result in a substantial net change in fugitive PM dust emissions. Although different materials could be used for plumbing because of the Proposed Project, this would not alter the need to trench or excavate for underground plumbing infrastructure, or to demolish parts of buildings for retrofits. Use of plastic pipe would not necessitate excavating additional soils or demolishing additional building area for plumbing installation, compared with currently allowed metallic plumbing materials, and therefore any change in fugitive PM dust emissions because of the Proposed Project would be nominal. All construction-related activities would need to comply with a local air district's rules and regulations pertaining to fugitive dust emissions and demolition activities. Therefore, the Proposed Project would not be expected to result in a substantial net increase in construction-related fugitive dust emissions associated with pipe installation, in light of local regulations (e.g., watering exposed surfaces multiple times per day, covering disturbed surfaces when not in use, wheel washing for trucks leaving the project site). In

particular, many districts throughout the state (e.g., the Sacramento Metropolitan Air Quality Management District's [SMAQMD] Basic Construction Emission Control Practices, the Bay Area Air Quality Management District's [BAAQMD] Basic Emission Control Measures, and the San Joaquin Valley Air Pollution Control District's [SJVAPCD] Regulation VIII) require implementation of construction emission control measures. Thus, in compliance with all local air district requirements, rules, and regulations, PM emissions associated with the Proposed Project would not conflict with or obstruct implementation of applicable air quality plans. The impact with respect to fugitive PM dust would be **less than significant**.

Similar to fugitive PM dust emissions, the Proposed Project would not result in a substantial net change in construction-related exhaust emissions. Exhaust emissions would be generated from material delivery trucks bringing pipe to the project site, construction equipment for earth-moving and excavation, and construction workers coming to and leaving the project site. Regardless of the type of pipe to be used, construction activities would be fairly constant because trenches still would need to be excavated using construction equipment, and a comparable number of construction workers would be required to install the pipe, regardless of whether the pipe was plastic or metallic. Although the source and location of where the pipe originated could change with implementation of the Proposed Project, it would be speculative to assume that the location of all plastic pipe would be substantially closer or farther from future project sites than under existing conditions. Rather, more realistically on average, plastic pipe materials would be located at a comparable distance from OSHPD 1, 2, 3, and 4 facility sites as existing, allowable pipe materials. Therefore, the Proposed Project is not anticipated to result in a substantial net increase in construction-related exhaust emissions associated with pipe transport and excavation and/or demolition for installation. Accordingly, exhaust emissions associated with the Proposed Project would not conflict with or obstruct implementation of applicable air quality plans. The impact would be **less than significant**.

Pipe Installation

During the plastic pipe installation process, connections between pipes require treatment so that the pipes are properly sealed. Under current practice, metal pipes require welding to connect them. The welding process typically includes the combustion of a fossil fuel (e.g., propane, acetylene), which can result in criteria air pollutants (and greenhouse gas emissions), depending on combustion parameters (e.g., ratio of oxygen to fuel and combustion percentage). The Proposed Project would use plastic pipe that would require cements and sealers, which could emit VOCs. Because several areas in California are designated as nonattainment with respect to ozone, this net increase in VOC emissions (an ozone precursor) could affect regional air quality plans.

Typical VOCs and TACs associated with cements and sealers that are used to join plastic pipes include phenolics, phthalates, and various types of monomers. The concentrations of VOCs in adhesives used for PVC, CPVC, and ABS in construction are regulated through adhesives rules by some of the local air districts, which limit the VOC content of those products. Although all cements and sealers would be required to comply with a local air district's VOC limits (used to model regional VOC emissions), these emissions may affect regional air quality. When combined with the other construction-related emissions (i.e., exhaust emissions), these additional VOC emissions conceivably could contribute to an

exceedance of the significance threshold. However, off-gas VOC emissions from cements to connect pipes would be a relatively small proportion of total construction-related VOC emissions, which also would include VOC emissions from construction equipment, delivery trucks, and construction worker vehicles. In compliance with local air district VOC content limits for adhesives and proper application practices (e.g., closing containers when not in use), the addition of adhesives for joining plastic pipes are not anticipated to contribute a substantial amount of VOC emissions. In addition, when considering the small surface area (i.e., the ends of pipes) to which adhesives would be applied, compared with that for architectural coatings (e.g., interior and exterior walls) and asphalt paving applications, plastic pipe installation would make a nominal contribution to overall construction-related VOC emissions.

Therefore, although the Proposed Project may result in a net increase of VOC emissions from plumbing pipe installation at OSHPD 1, 2, 3 and 4 facilities, these emissions would be extremely low compared to total construction emissions and are not expected to substantially increase overall construction emissions or to cause a construction project to exceed a significance threshold if it would not already be exceeded it because of the other construction activities that emitted much larger quantities of VOCs. Accordingly, VOC emissions associated with the Proposed Project would not conflict with or obstruct implementation of applicable air quality plans. Therefore, the impact with respect to regional VOC off-gas emissions would be **less than significant**.

Impact AQ-2: Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation *(Less than Significant)*

In addition to the air quality plans described under Impact AQ-1, air districts develop thresholds of significance that represent an allowable amount of daily or annual emission over which emissions would be considered to generate or contribute substantially to a potential air quality violation. Projects that generated construction or operational emissions that exceeded applicable thresholds of significance would potentially violate an air quality standard or contribute substantially to an existing or projected air quality violation.

Material Manufacturing

As described above, any changes to plastic pipe manufacturing facilities in California resulting from the Proposed Project would be regulated through local air district permits. Permit requirements would be enforced to prevent permitted facilities from violating or substantially contributing to an air quality violation. In addition, permitted stationary sources and their allowable emissions limits are used in a region's air quality plan to demonstrate attainment. Therefore, even if a manufacturing facility would increase its throughput and emissions, if the increase was allowable in the original permit, those increases still would be accounted in air quality planning efforts. Because the Proposed Project would not result in an immediate, mandatory retrofit of all plumbing infrastructure throughout the state, the proposed revisions would affect manufacturing over a period of time, would not be likely to cause a substantial increase in production, and the location (i.e., air basin) in which an increase in production would occur is unknown. In addition, in the case that plastic pipe manufacturing facilities were to increase production substantially because of the Proposed Project in a given air basin, manufacturing facilities for existing

plumbing materials (e.g., galvanized iron, steel, and copper) also would decrease production in that same air basin or another.

Determining the magnitude of potential increase or decrease in manufacturing air emissions because of the Proposed Project would be speculative. In other words, determining the extent to which the Proposed Project could increase plastic pipe manufacturing throughput at a particular facility above baseline conditions is not possible. Under current conditions, both existing plumbing materials (i.e., galvanized iron, steel, and copper) and plastic pipes are used commonly in a variety of applications in California and throughout the country. Therefore, a supply baseline of both plumbing material types already is established. The Proposed Project would allow the use of plastic pipe in plumbing and dialysis lines at OSHPD 1, 2, 3, and 4 facilities, one of many uses for plastic pipe. Therefore, the Proposed Project's indirect actions are not anticipated to substantially affect the supply chain of galvanized metal and plastic pipe manufacturing, sufficient to cause an exceedance of or contribute substantially to an air quality violation. Based on local air district permitting regulations and the anticipated small change in manufacturing demand, the potential of the Proposed Project to result in a violation of or substantially contribute to an exceedance of an ambient air quality standard would be speculative. Therefore, with respect to material manufacturing, **no impact** would occur.

Construction Vehicles and Equipment

As described under Impact AQ-1, implementation of the Proposed Project would not result in substantial changes to construction-related fugitive dust and exhaust emissions. Although future construction projects that use the proposed pipe materials possibly could exceed a local air district's thresholds of significance, this would not be the result of the type of pipe material that would be used, and the Proposed Project would not cause those exceedances. In addition, local air district rules, regulations, and CEQA requirements would help minimize construction-related fugitive dust and exhaust emissions. Therefore, implementation of the Proposed Project would not result in a substantial net increase in construction emissions that would exceed applicable thresholds of significance. Accordingly, with respect to construction-related fugitive dust and exhaust, **no impact** would occur.

Pipe Installation

As described under Impact AQ-1, installation of the proposed plastic pipes would include the use of cements and sealers that could generate VOC and TAC emissions. The localized use and subsequent emissions associated with cements and sealers for plastic pipe connections are anticipated to be extremely small with respect to total construction emissions. The use of adhesives and resultant VOC emissions would be regulated by local air district rules and regulations (see Table 4-2). Similar to the exhaust and fugitive dust emissions discussed above, the additional cement and sealer use resulting from the Proposed Project individually would be unlikely to cause an exceedance of an applicable threshold of significance. Therefore, the impact would be **less than significant**.

Impact AQ-3: Result in a Cumulatively Considerable Net Increase of any Criteria Pollutant for which the Project Region is a Nonattainment Area *(Less than Significant)*

Individual projects that generate air pollutant emissions would incrementally contribute to cumulative air quality impacts. Typically, most air districts consider projects generating significant air pollutant emissions on a project level also to be generating a considerable contribution to cumulative air quality impacts. Some of the major air districts that employ this type of cumulative analysis include the SMAQMD, BAAQMD, and SJVAPCD (SMAQMD 2014; BAAQMD 2012; SJVAPCD 2002). Thus, projects that generate emissions exceeding a project-level threshold of significance also would be considered to make a considerable contribution to cumulative air quality impacts in the region.

As described under Impacts AQ-1 and AQ-2, the Proposed Project could result indirectly in net increases in plastic pipe manufacturing, construction, and pipe installation. However, for construction and pipe installation, these net increases likely would be extremely small and would not be considered to be a cumulatively considerable contribution to total construction emissions in regions that are in non-attainment.

As described under Impacts AQ-1 and AQ-2, any changes in pipe manufacturing facilities would be regulated by the permitting process of local air districts. Although plastic pipe manufacturing in the state conceivably could increase with implementation of the Proposed Project, these changes would occur gradually over time as new or renovated buildings install CPVC, PVC, or ABS plastic pipe. In addition, as plastic pipe manufacturing increases, this also could result in a decrease of manufacturing emissions associated with production of the current alternative material, metallic pipes.

Determining in which air basins these increases and decreases could occur, if they would occur in the same air basins, or if they would occur in California at all, is not possible. Nevertheless, the Proposed Project's indirect effect on pipe manufacturing is not anticipated to result in a cumulatively considerable net increase in air pollutant emissions. The impact would be **less than significant**.

Impact AQ-4: Expose Sensitive Receptors to Substantial Pollutant Concentrations (*Less than Significant*)

The Proposed Project would have indirect effects on regional emissions, as discussed under Impacts AQ-1, AQ-2, and AQ-3; however, some of the effects would occur on a local level. Pollutant concentrations that exceeded allowable levels could lead to a health risk impact on sensitive receptors. People most likely to be affected by air pollutants would include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Sensitive receptors would include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health-care facilities, rehabilitation centers, convalescent centers, and retirement homes.

The Proposed Project could result in TAC emissions because of the use of plastic materials and construction-related TACs. The primary sources of TAC emissions would be the occurrence of CO hotspots (i.e., exceedance of CO CAAQS) where traffic congestion occurs; diesel PM from construction equipment and haul trucks; emissions from plastic pipe and

installation processes (i.e., off-gas, cement and sealers, and pipe fitting); and TAC emissions from manufacturing processes and emergency events (e.g., fires). The impacts on sensitive receptors from these TAC emission sources are evaluated further, next.

Carbon Monoxide Hotspots

The primary mobile-source pollutant of local concern would be CO. Local mobile-source CO emissions and concentrations near roadway intersections are a direct function of traffic volume, speed, and delay. Transport of CO is extremely limited because it disperses rapidly with distance from the source, under normal meteorological conditions. However, under specific meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels with respect to local sensitive receptors, such as residential units, hospitals, schools, and childcare facilities.

The Proposed Project could affect the location from which pipe materials are delivered for projects throughout California. The exact location of pipe materials and roadway routes that could be used for delivery cannot be predetermined. However, the use of plastic pipe compared to currently allowable metal pipe materials would not require substantially larger volumes of material that would result in increased material delivery truck trips. In addition, installation of plastic pipe would not require a larger construction work force than metal pipe, resulting in a net increase of construction worker vehicles. Although the Proposed Project could result in the rerouting of material delivery trucks based on the location of the pipe manufacturer, because the proposed plastic pipes would require a comparable amount of cargo space as currently allowable metal pipes, this would not cause a substantial net increase in truck trips delivering pipes that could affect local intersections. Therefore, the impact on local sensitive receptors with respect to CO hotspots would be **less than significant**.

Construction-Related Toxic Air Contaminants

Diesel PM

Construction of new plumbing infrastructure would require the use of diesel-fueled construction equipment for trenching and excavation activities. Diesel PM has been classified as a TAC by CARB. With respect to currently allowable plumbing materials, the use of plastic pipe is not anticipated to require substantially larger trenches, more demolition for retrofits, or more construction activities from diesel-fueled construction equipment for installation. Therefore, the Proposed Project would not result in a net change of diesel PM exhaust emissions from construction equipment to which sensitive receptors could be exposed. Although construction activities associated with plumbing installation possibly could expose sensitive receptors to substantial diesel PM concentrations, the Proposed Project would not increase diesel PM emissions beyond those associated with currently allowable installation of metal pipe materials. Thus, the impact with respect to diesel PM emissions would be **less than significant**.

Lead-Based Paint and Asbestos-Containing Materials

During retrofits and installation of the proposed plumbing materials that would be permitted with implementation of the Proposed Project, construction activities could encounter lead-based paint (LBP) and asbestos-containing material (ACM) when

demolishing parts of buildings or trenching. However, this would be the case regardless of whether the currently approved metal plumbing materials or proposed plastic pipe materials are used, because the same demolition and trenching activities would be required for installation of water, wastewater, and drainage lines. Therefore, implementation of the Proposed Project would not result in a net increase of potential LBP or ACM exposure.

All demolition and trenching activities for plumbing retrofits or new installation would be required to comply with local air district rules and regulations pertaining to demolition and handling of LBP and ACM. On the statewide level, CARB has adopted its Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations, to limit naturally occurring asbestos exposures during trenching activities. For renovation and demolition activities involving ACM, CARB has developed its Asbestos NESHAP Notification Form, so that all responsible parties are notified and proper handling procedures are followed for ACM. Exposure to LBP and ACM would be minimized by compliance with the California Division of Occupational Safety and Health Cal/OSHA Regulations Standard 1926.62 (Lead) and 1926.1101 (Asbestos), which establish exposure thresholds, administrative requirements, and control measures for limiting worker exposure. See Chapter 8, Hazards and Hazardous Materials, for additional discussion of LBP and ACM handling regulations.

Because the Proposed Project would not increase exposures to LBP or ACM beyond existing conditions, and because all renovation, demolition, and trenching activities involving plumbing pipe retrofits or installations at OSHPD 1, 2, 3 and 4 facilities would comply with State and local LBP and ACM regulations, the Proposed Project is not anticipated to result in workers', patients' or nearby sensitive receptors' exposure to substantial amounts of LBP or ACM. Therefore, the impact with respect to LBP and ACM would be **less than significant**.

Pipe Installation

During installation, conditioning, and connection of the proposed plastic pipe, TAC emissions could be generated from the cements, sealers, and cleaners used to join pipe sections. In addition, for PFA pipe, connections sometimes are performed by heating and molding pipe ends. The heating of the PFA pipes potentially could generate TAC emissions, depending on the temperature used to create the pipe connections. These TAC emissions likely would be generated in very small quantities relative to total construction emissions and would disperse and dilute rapidly into the ambient air. In addition, these adhesives would not be exposed to the atmosphere (i.e., opened from their container), thereby creating more VOC emissions, in large quantities. Rather, typical practices specified in the Material Safety Data Sheets, manufacturer's specifications, and by Cal/OSHA would include workers using only the adhesives necessary to join the pipes, and then closing and sealing the containers to avoid further generating VOC emissions. However, because some of the emissions have been classified as TACs, even short-term exposure to construction workers could cause health risks impacts.

Cleaners, polymers, and cements used to join sections of CPVC, PVC, and ABS pipe include tetrahydrofuran (THF), MEK, cyclohexanone (CHX), and acetone. MEK has been identified as a TAC by CARB (CARB 2011). With implementation of the Proposed Project, construction workers, specifically those specializing in plumbing and dialysis line installation, are anticipated to be exposed to these TAC and VOC emissions at a higher frequency and greater concentrations than under existing conditions. As discussed above, Cal/OSHA requirements

(e.g., Cal/OSHA Regulations Standard 1926.57 [Ventilation], and the safety precautions identified in Chapter 8, Hazards and Hazardous Materials [Impact HAZ-1]) establish allowable pollutant concentration thresholds, ventilation design requirements, and safety equipment needs (e.g., respirators) for job sites. Cal/OSHA is responsible for ensuring safe and healthful working conditions, and adherence to its requirements and standards would minimize any substantial worker exposure to TAC concentrations. In addition, Cal/OSHA requirements (e.g., ventilation design requirements) also would help limit exposing other indoor sensitive receptors if construction includes indoor renovations and retrofits.

Plastic pipe currently is allowed and actively used in various other types of development besides OSHPD 1, 2, 3 and 4 facilities (e.g., residential, commercial, industrial). Thus, any construction worker specializing in pipe installation likely already would have experience and contact with plastic pipe installation and familiarity with implementing Cal/OSHA's safety requirements and standards. Determining the net increase in plastic pipe installation exposure for any particular worker would be speculative because the variety of projects that could involve plastic and metal pipes. Nevertheless, all uses of plastic pipe would be required to comply with the safety and work requirements described above, to minimize worker exposure.

Considering the foregoing information, compliance with Cal/OSHA requirements would avoid exposing sensitive receptors—whether they are workers, patients, or nearby receptors—to substantial TAC emissions. Thus, the impact with respect to installation TAC emissions would be **less than significant**.

Material Manufacturing

Increases in plastic pipe manufacturing throughput and TAC emissions would be regulated by the permitting process of the local air district, as described under Impacts AQ-1, AQ-2, and AQ-3. Air districts are responsible for permitting stationary sources for criteria air pollutants as well as TAC emissions. Therefore, any increases in dioxins, PCBs, hexachlorobenzene, or other TACs generated during manufacturing processes would be evaluated through the facilities' permitting processes to avoid exposing nearby sensitive receptors to substantial pollutant concentrations. In addition, if the increase in throughput would expose manufacturing workers to an increased amount of TAC emissions (e.g., THF, MEK, and CHX), additional ventilation or indoor emission control technology would be required to meet Cal/OSHA standards (Regulations Standard 1926.57 [Ventilation]). Compliance with local air district permitting regulations and Cal/OSHA standards would ensure that any increase in plastic pipe manufacturing and subsequent TAC emissions would be controlled sufficiently to avoid exposing workers and nearby residents to substantial pollutant concentrations. Therefore, the impact with respect to material manufacturing and TAC emissions would be **less than significant**.

Emergency Events during Project Operation

During normal operating conditions, the proposed plastic pipes (i.e., PVC, CPVC, ABS, and PFA) would not off-gas substantial pollutant emissions. The proposed pipe materials are designed to withstand typical fluctuations in temperature and pressure without compromising their structure. However, in the event of fire or a natural emergency that would cause a fire in a facility equipped with the proposed plastic pipe, the combustion of PFA, PVC, CPVC, and ABS pipes would generate TAC emissions in the form of hydrogen

fluoride, hydrogen cyanide, acrolein, styrene, hydrogen chloride gas, and dioxins, among others.

Although the proposed plastic pipe would generate TAC emissions in the event of a fire, a variety of plastics and other materials in the building, particularly in a medical facility, would also be expected to be combusted. These other plastics and building materials also would be likely to generate TAC emissions that would be in addition to or similar to those of the proposed plastic pipe materials. Therefore, although the proposed pipe has the potential to generate TACs in the event of a fire, those emissions would be an indistinguishable and small component of the overall mix of TACs, PM, and other air pollutants generated during the fire. In other words, implementation of the Proposed Project would not be the sole, or even primary, source of TAC emissions.

Because each OSHPD facility would vary in terms of the mass amount of proposed plastic pipe and composition of other plastics and building materials, it would be speculative to conclude that the Proposed Project would generate an incrementally substantial amount of TAC emissions in the event of a fire that would expose sensitive receptors. Rather, any addition of plastic pipe resulting from the Proposed Project would add an extremely small amount (compared with the other materials in a building) of materials that could emit TAC emissions when combusted. Therefore, the impact with respect to emergency events would be **less than significant**.

Chapter 5
BIOLOGICAL RESOURCES

5.1 Introduction

This chapter describes federal, state, and local regulations relevant to vegetation and wildlife resources, the existing environmental setting of the State of California (the project area), and potential impacts of the Proposed Project on biological resources. It specifically discusses the potential for the Proposed Project to affect wetland, riparian, and upland habitats, and the special-status plant and wildlife species that may use these habitats.

5.2 Regulatory Setting

5.2.1 Federal Laws, Regulations, and Policies

Clean Water Act

The Clean Water Act (CWA) is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. CWA Sections 401 and 404 are the key sections that pertain to biological resources.

Section 401

Section 401 of CWA allows for evaluation of water quality when a proposed activity requiring a federal license or permit could result in a discharge to waters of the U.S. In California, the State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs) issue water quality certifications. Each RWQCB is responsible for implementing Section 401, in compliance with the CWA and its water quality control plan (also known as a Basin Plan). Applicants for a federal license or permit to conduct activities that may result in the discharge to waters of the U.S. (including wetlands) also must obtain a Section 401 water quality certification so that any such discharge will comply with the applicable provisions of the CWA. Compliance with Section 401 is required for all projects that have a federal component and may affect state water quality.

Section 404

Section 404 of the CWA regulates the discharge of dredged and fill materials into waters of the U.S., which include all navigable waters, their tributaries, and some isolated waters, as well as some wetlands adjacent to the aforementioned waters (33 Code of Federal Regulations [CFR] Section 328.3). Areas typically not considered to be jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools, and water-filled depressions (33 CFR Part 328). Areas meeting the regulatory definition of waters of the U.S. are subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE), under the provisions of Section 404. Construction

activities involving placement of fill into jurisdictional waters of the U.S. are regulated by USACE through permit requirements. No USACE permit is effective in the absence of state water quality certification, pursuant to Section 401 of the CWA.

Endangered Species Act

The federal Endangered Species Act (ESA) (16 U.S. Code [USC] Section 1531 et seq.; 50 CFR Parts 17 and 222) provides for conservation of species that are endangered or threatened throughout all or a substantial portion of their range, as well as protection of the habitats on which they depend. The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) share responsibility for implementing the ESA. In general, USFWS manages terrestrial and freshwater species, whereas NMFS manages marine and anadromous species.

Section 9 of the ESA and its implementing regulations prohibit the "take" of any fish or wildlife species listed under the ESA as endangered or threatened, unless otherwise authorized by federal regulations. The ESA defines the term "take" to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 USC Section 1532). The ESA outlines the procedures for federal interagency cooperation to conserve federally listed species and designated critical habitats. Section 10(a)(1)(B) of the ESA provides a process by which nonfederal entities may obtain an incidental take permit from USFWS or NMFS for otherwise lawful activities that incidentally may result in "take" of endangered or threatened species, subject to specific conditions. A habitat conservation plan (HCP) must accompany an application for an incidental take permit.

Magnuson–Stevens Fishery Conservation and Management Act

The Magnuson–Stevens Fishery Conservation and Management Act (Magnuson–Stevens Act) of 1976 is the primary ordinance that governs federal management of fisheries in federal waters, from the 3-nautical mile state territorial sea limit to the outer limit of the U.S. Exclusive Economic Zone. It establishes exclusive U.S. management authority over all fishing within the Exclusive Economic Zone; all anadromous fish throughout their migratory range, except when in a foreign nation's waters; and all fish on the continental shelf. The Magnuson–Stevens Act establishes eight Regional Fishery Management Councils, responsible for the preparation of fishery management plans to achieve the optimum yield from U.S. fisheries in their regions. The Magnuson–Stevens Act also requires federal agencies to consult with NMFS on actions that could damage essential fish habitat (EFH). EFH includes those habitats that support the different life stages of each managed species. A single species may use many different habitats throughout its life to support breeding, spawning, nursery, feeding, and protection functions. EFH can consist of both the water column and the underlying surface (e.g., streambed) of a particular area.

Marine Mammal Protection Act

All marine mammals are protected under the Marine Mammal Protection Act of 1972 (16 USC Chapter 31). The Marine Mammal Protection Act prohibits, with certain exceptions, the take of marine mammals in U.S. waters and by U.S. citizens on the high seas, as well as import of marine mammals and marine mammal products into the U.S.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC, Chapter 7, Subchapter II) protects migratory birds. Most actions that result in take, or the permanent or temporary possession of, a migratory bird constitute violations of the MBTA. The MBTA also prohibits destruction of occupied nests. USFWS is responsible for overseeing compliance with the MBTA.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC Section 668; 50 CFR Part 22) prohibits take of bald and golden eagles, and their occupied and unoccupied nests. USFWS administers the Bald and Golden Eagle Protection Act.

5.2.2 State Laws, Regulations, and Policies

California Fish and Game Code

The California Fish and Game Code includes various statutes that protect biological resources, including the Native Plant Protection Act of 1977 (NPPA) and the California Endangered Species Act (CESA). The NPPA (California Fish and Game Code Sections 1900–1913) authorizes the Fish and Game Commission to designate plants as endangered or rare and prohibits take of any such plants, except as authorized in limited circumstances.

CESA (California Fish and Game Code Sections 2050–2098) prohibits State agencies from approving a project that will jeopardize the continued existence of a species listed under CESA as endangered or threatened. Section 2080 of the California Fish and Game Code prohibits the take of any species that is State-listed as endangered or threatened, or that is designated as a candidate for such listing. The California Department of Fish and Wildlife (CDFW) may issue an incidental take permit, authorizing take of listed and candidate species, if that take is incidental to an otherwise lawful activity, subject to specified conditions.

California Fish and Game Code Sections 3503, 3513, and 3800 protect native and migratory birds, including their active or inactive nests and eggs, from all forms of take. In addition, Sections 3511, 4700, 5050, and 5515 identify species that are fully protected from all forms of take. Section 3511 lists fully protected birds, Section 5515 lists fully protected fish, Section 4700 lists fully protected mammals, and Section 5050 lists fully protected amphibians.

5.2.3 Local Laws, Regulations, and Policies

Because the Proposed Project addresses revisions to the State's Plumbing Code, local laws, regulations, and policies are not discussed.

5.3 Environmental Setting

The environmental setting of the Proposed Project includes existing OSHPD 1, 2, 3, and 4 facilities and locations of new facilities, to the extent that these existing or new facilities could be subject to installation of CPVC, PVC or ABS plastic pipes. The setting also includes water bodies receiving wastewater and drainage from such facilities.

These facilities are found in a variety of geomorphic provinces, and California can be classified into seven provinces: the North Coast and Klamath, Cascades and Modoc Plateau, Central Valley and Sierra Nevada, Bay Delta and Central Coast, South Coast, Deserts, and Marine geomorphic provinces. Each province is defined by distinct vegetation and geophysical features, as described further in the following sections.

North Coast and Klamath Province

The North Coast and Klamath Province extends from the Pacific Coast and the California–Oregon border south to the northern portion of the San Francisco Bay watershed. It is characterized by large expanses of coastal mountains, ranging in elevation from 200 feet to 8,000 feet. The climate varies across the province; overall, it has a fairly wet climate, receiving more rainfall than any other part of the state. Within the province is part of the Klamath River system. The upper portion of the watershed was rived in alluvial valleys that historically supported freshwater marshes before being converted to agriculture. Below this, most of the rivers flow westerly between mountain slopes, creating canyons and supporting narrow riparian habitats. East flowing streams make their way inland to the Sacramento River, along with water diverted by dams on the Trinity River. The Klamath River's dams store water used for local agriculture.

Many rivers in the province that flow into the ocean widen, forming alluvial floodplains and deltas. These floodplains, some of which have been converted for agricultural use and rural developments, support mixed conifers, black cottonwood, and willow and red alder forests. In the undeveloped portions of the province, these forests are separated by wetlands, riparian forests, and chaparral stands. Along the central and south-eastern borders of the province are valley and foothill grassland and woodland communities. The coastline is distinguished by its coastal wetlands and marshes.

Cascades and Modoc Plateau Province

The Cascades and Modoc Plateau Province is located in the far northeastern corner of California. Elevations range from 3,000 feet to over 14,000 feet.

The Modoc Plateau is situated in the northeastern corner of the state, framed by the Warner Mountains and Surprise Valley along the Nevada border, and the southern Cascade Range to the east and west. The Modoc Plateau supports high desert plant communities, while the higher elevations of the Warner Mountains support conifer forests. Throughout the province, wetland, springs, meadow, vernal pools, riparian, and aspen communities create a diversity of wildlife species. The major drainage of Modoc Plateau is the Pit River, which flows through the Cascade Mountains and provides 20 percent of the water flowing to the Sacramento River. Creeks and runoff from Warner Mountain drains into the Goose Lake watershed. Another important watershed is the Eagle Lake watershed, one of the few alkaline lakes in California. Creeks of the northern Modoc Plateau drain into Clear Lake, whose outlet is Lost River, which circles into Oregon.

The Cascade Province is a volcanic mountain range that stretches from South British Colombia through Washington and Oregon into northern California, where it merges south of Mount Lassen with the Sierra Nevada. Streams on the western slope merge into the Klamath, Pit, McCloud, and Sacramento rivers. Eastern Slope streams drain into the Modoc

Plateau and Great Basin Region. Snow melt and runoff from the Mount Lassen area flow into Battle Creek and empty into the Sacramento River. A large diversity in soil and other environmental conditions provides wildlife diversity. Conifer habitats, made up mainly of ponderosa pine, white fir, red fir and lodge pole pine, are a common community found in the Cascades. Mid to low elevations are populated by canyon live oaks.

Bay Delta and Central Coast Province

The Bay Delta includes the San Francisco Bay and Delta, which together form the second largest estuary in the nation. This estuary drains 40 percent of the state's fresh water, primarily coming from the Sacramento and San Joaquin rivers. The Bay has both deep and shallow estuarine environments that support diverse marine wildlife. The Bay Area has cool, often foggy summers and cool winters, with rainfall averaging between 15 and 25 inches. Agricultural and urban development has led to loss, degradation, and fragmentation of Bay Delta habitats.

The Central Coast encompasses the coast from the San Francisco Bay lowlands south to the southern boundary of the Los Padres National Forest. The landscape is made up of rugged coastlines, small mountain ranges paralleling the coast, rich soil, and dry interior valleys and hills. Coastal habitats include estuaries, sand dunes, and wetlands, along with coastal scrub and maritime chaparral and grasslands. The moist air on the coastal mountains, including the Santa Cruz and the Santa Lucia, allows for many streams to run perennially. Streams from the Santa Lucia Mountains provide most of the water supply to the Salinas River.

Central Valley and Sierra Nevada Province

The Central Valley contains most of the low-lying land of central California and is divided into the Sacramento Valley to the north and the San Joaquin Valley to the south. Water, falling as either rain or snow in the northern and central parts of the state, accumulates in the Sacramento and San Joaquin rivers and drains to the Delta. The Central Valley experiences hot, dry summers and foggy, rainy winters, with an average rainfall between 5 and 25 inches. Most of the Central Valley's natural habitat of annual grasslands, valley oaks on floodplains, and vernal pools has been converted to agricultural land, while the southern Joaquin Valley contains desert habitats. The Sacramento River now is controlled by levees and its flood waters have been diverted into large bypasses, to avoid damage to agriculture and development. The San Joaquin Valley is split into two drainages, the northern containing the San Joaquin River, which flows north to the Delta, and the southern isolated from the ocean and draining into the closed Tulare Basin, where most of the water is diverted to agriculture.

The Sierra Nevada is a predominately granite mountain range that extends along the eastern boundary of this province, approximately 400 miles from north to south. The west side of the Sierra Nevada rises from near sea level to elevations of 6,000 to 14,000 feet. Habitat begins with chaparral and oak woodlands in the foothills, changes to lower and upper montane forests as the elevation rises, and transitions to alpine plant communities at the highest elevations. Roughly 40 percent of California's runoff flows off of the Sierra Nevada and the Cascades. Most of the water is collected in reservoirs and later is used for agriculture or drinking water.

South Coast Province

The South Coast Province stretches from Santa Barbara County in the north to the Mexican border in the south. Landscapes in this region vary, from wetlands and beaches to hillsides, mountains, deserts, and metropolitan areas. The largest river drainages include the Tijuana, San Diego, San Luis Rey, Santa Margarita, Santa Ana, San Gabriel, Los Angeles, Santa Clara, Santa Ynez, and Ventura rivers.

Desert Province

The Desert Province extends from Topaz Lake on the California-Nevada border in the north, southeast to the Colorado River, and then south to the California–Mexico border. The Desert Province is divided into five subregions, each with a unique climate, topography, ecology, and land-use pattern. The regions are the Mono subregion, the Southeastern Great Basin, Mojave Desert, Sonoran Desert, and Colorado Desert. In the north, the climate is cooler and wetter, and the south is hotter and drier. Water comes from groundwater springs and runoff from seasonal rains. Major lakes and rivers include the Owens River, Owens Dry Lake, Crowley Lake, Mono Lake, and Walker River.

Marine Province

California's Marine Province is the portion of the Pacific Ocean within the state's 3-mile territorial limit. Its marine ecosystems vary greatly, including estuaries, lagoons, intertidal zones, nearshore subtidal zones, mid-depth zones, deep zone, and offshore rocks and islands.

5.4 Impact Analysis

5.4.1 Methodology

For terrestrial biological resources, this section qualitatively evaluates the Proposed Project's potential to result in ground-disturbing activities or other activities that potentially could affect such resources. The majority of activities resulting from the Proposed Project are anticipated to be performed within a building, which would not be anticipated to support any terrestrial habitats or biological species. Limited changes may occur outside a building but within an OSHPD 1, 2, 3, and 4 facilities' property, which also generally would be unlikely to contain habitat for special status species or sensitive natural communities. For example, potential ground-disturbing activities would be likely to occur within areas that already are paved or disturbed.

For aquatic resources, publically available documents and scientific literature were reviewed to qualitatively assess the Proposed Project's potential to contribute pollutants from the proposed material types, evaluate the potential for any pollutants to be discharged into surface waters, determine whether those potential pollutants could be toxic to aquatic organisms, and assess if any potentially significant impacts on aquatic biological resources would occur as a result. The analysis of aquatic resources relies on the methodology, analysis, and impact conclusions of Chapter 9, Hydrology and Water Quality, because of the relationship between the water quality of aquatic habitats and the health of aquatic organisms living in those habitats. For further details on the process used to identify potential

pollutants of concern or impacts on water quality, please refer to Chapter 9, Hydrology and Water Quality.

5.4.2 Significance Criteria

The Proposed Project would result in a significant impact on biological resources if it would meet one or more of the following criteria:

A. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW, USFWS, or NMFS;

B. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW, USFWS, or NMFS;

C. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including marsh, vernal pool, coastal) through direct removal, filling, hydrological interruption, or other means; or

D. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

E. Conflict with local policies or ordinances protecting biological resources, or conflict with the provisions of an adopted HCP or Natural Community Conservation Plan.

Criteria C, D, and E were evaluated in the Initial Study and were determined to have no significant impacts. Therefore, impacts relating to these criteria are not discussed further.

5.4.3 Environmental Impacts

Impact BIO-1: Result in Impacts on Special-Status Plant Species *(No Impact)*

An extensive literature review revealed no specific link between the use of PFA, CPVC, PVC, and ABS plastics and impacts on special-status plant species. The type of pipe materials to be used at OSHPD 1, 2, 3 and 4 facilities (e.g., metal versus plastic) would not affect the location or extent of ground disturbance associated with pipe installation, would not require herbicide application, and would not require any other actions that could affect special-status plant species. For this reason, **no impact** on special-status plant species would occur.

Impact BIO-2: Result in Impacts on Freshwater and Saltwater Aquatic Life *(Less than Significant)*

As discussed under Impact HYD-1 in Chapter 9, Hydrology and Water Quality, the use of CPVC, PVC, and ABS pipes and associated pipe materials at OSHPD 1, 2, 3 or 4 facilities potentially could result in contaminants leaching into fluids transported in these pipes, and ultimately could be discharged to freshwater or saltwater habitats. These potential contaminants would result in a potentially significant impact on aquatic life if they were transferred in such quantities or concentrations to surface waters that they (a) degraded the quality of aquatic habitats, and/or (b) were directly toxic to aquatic organisms. As detailed under Impact HYD-1, potential contaminants that could be leached from these materials could include vinyl

chloride, organotins (including tributyltin or TBT), styrene, metals[1], acetone, dimethylformamide, methyl ethyl ketone, methyl isobutyl ketone, tetrahydrofuran, cyclohexanone, phenols, and phthalates. This list is not all encompassing because some product information may be confidential, and the specific product composition, particularly of fillers, stabilizers, sealants, and cements, may vary. However, the list is representative of the primary contaminants of concern, and the discussion would be applicable to other potential chemicals that may come into contact with fluids/water as a result of the Proposed Project.

Some of the chemicals listed above have been identified as potentially toxic to freshwater or saltwater aquatic species, and have established water quality criteria for the protection of aquatic life. Specifically, EPA has identified freshwater or saltwater aquatic life criteria for arsenic, cadmium, chromium, copper, lead, mercury, selenium, TBT, and zinc, as detailed in Table 9-2 in Chapter 9, Hydrology and Water Quality. In addition, as shown in Table 9-3, California has existing surface water quality impairments for arsenic, cadmium, chromium, copper, lead, mercury, phenols, selenium, thallium, sediment and water toxicity, and zinc. Potential sources of these impairments are discussed in Chapter 9, Hydrology and Water Quality, and include a variety of non-point and point sources, such as urban runoff, wastewater discharges, agriculture, and the use of TBT in antifouling ship paints. The analysis in Chapter 9 found that product standards established by NSF International (NSF), an independent, non-profit, non-governmental organization, potentially were not protective of aquatic life (i.e., the NSF standard exceeded at least one aquatic life criteria) for cadmium and copper. A comparison was not performed for phenols, zinc, and thallium because the constituents do not have aquatic life criteria or an NSF requirement.

However, as described under Impact HYD-1 in Chapter 9, Hydrology and Water Quality, use of plastic pipe at OSHPD 1, 2, 3 or 4 facilities would not degrade water quality substantially or exceed applicable surface water quality criteria, including aquatic life criteria, from the potential leaching of the above or other contaminants into sanitary sewer or stormwater discharges for the following reasons:

- The relatively small quantity of wastewater discharged from OSHPD 1, 2, 3 and 4 facilities compared to the total wastewater inputs from all other municipal, commercial, and industrial sources.
- In particular, PVC, CPVC, and ABS pipes and their related pipe materials currently are used statewide at many different residential, commercial, public, and industrial facilities for similar water supply, wastewater, stormwater, or drain/waste/vent purposes as at the OSHPD 1, 2, 3 and 4 facilities. The quality of wastewater from the OSHPD 1, 2, 3, and 4 facilities that could result from the Proposed Project is anticipated to be equal to or better than the quality from other or similar wastewater sources because the proposed CPVC, PVC, ABS, and PFA pipes are held to newer, more conservative, product quality standards. Thus, wastewater from the OSHPD 1, 2, 3 and 4 facilities would be expected to make an indistinguishable incremental contribution to the overall level of these contaminants in the waste stream.

From the foregoing, the Proposed Project would not result in substantial degradation or impairment of aquatic habitat, and would not have a significant adverse effect on saltwater

[1] Metals could include antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, selenium, and thallium.

and freshwater aquatic life. Therefore, the impact from the use of PVC, CPVC, and ABS pipes at OSHPD 1, 2, 3 and 4 facilities would be **less than significant**.

Impact BIO-3: Result in Impacts on Wetlands, Riparian Habitats, or Other Sensitive Natural Communities *(No Impact)*

The proposed revisions in the State Plumbing Code would not result in direct development of any facilities. Rather, they would allow for a change in the type of allowable pipe materials to be used at OSHPD 1, 2, 3 and 4 facilities. Because the Proposed Project by itself would not lead to any development, it would not result in any fill, alteration, grading, or disturbance of wetlands, riparian habitats, or other sensitive natural communities. **No impact** would occur.

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Chapter 6
CULTURAL RESOURCES

6.1 Introduction

This chapter describes the regulatory and environmental setting associated with cultural and paleontological resources of the Proposed Project on cultural resources. Furthermore, it evaluates potential impacts of the Proposed Project related to cultural resources, including prehistoric archaeological sites, historic-era archaeological sites, traditional cultural properties, and tribal cultural resources, as well as historic buildings, structures, landscapes, districts, and linear features. Archaeological sites are places where Native Americans lived or carried out activities during the prehistoric period. Prehistoric and historic-era sites may contain one or more of the following: artifacts, cultural features, subsistence remains, and/or human burials.

6.2 Regulatory Setting

6.2.1 Federal Laws, Regulations, and Policies

National Historic Preservation Act of 1966

The National Historic Preservation Act (NHPA) of 1966 (16 U.S. Code [USC] Section 470), as amended, is the primary federal law governing the preservation of cultural and historic resources in the United States. The NHPA establishes the federal government policy on historic preservation and the programs through which this policy is implemented. Section 106 of NHPA (16 USC Section 470f) requires federal agencies to take into account the effects of their undertakings on any district, site, building, structure, or object that is included in or determined eligible for inclusion in the National Register of Historic Places (NRHP), and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings (36 Code of Federal Regulations [CFR] Section 800.1). Under Section 106, the significance of any adversely affected cultural resource are to be assessed and mitigation measures are to be proposed to reduce any impacts to an acceptable level. Significant cultural resources ("historic properties") are those resources that are listed in, or are eligible for listing in the NRHP per the criteria listed in 36 CFR Section 60.4. Section 101(d)(6)(A) of the NHPA allows properties of traditional religious and cultural importance to a Native American tribe to be determined eligible for inclusion in the NRHP. Section 106 also directs federal agencies to involve consulting parties, including the State Historic Preservation Officer (SHPO), Native American tribes, and local governments, and to provide an opportunity for public involvement during the compliance process (800 CFR Section 800.2[4][c]).

To be eligible for the NRHP, cultural resources must possess integrity and meet at least one of the following four criteria, delineated in 36 CFR Section 60.4:

- Are associated with events that have made a significant contribution to the broad patterns of our history (Criterion A);
- Are associated with the lives of persons significant in our past (Criterion B);
- Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction (Criterion C), or
- Have yielded, or may be likely to yield, information important in prehistory or history (Criterion D).

Under Section 106, impacts of a project on historic properties that affect the characteristics that qualify the property for NRHP inclusion are considered a significant effect on the environment. Examples of adverse effects on historic properties are listed in 36 CFR Section 800.5(a)(2) and include physical destruction or damage to all or part of a property, change of the character of the use of a property or physical feature within the setting of the property that contribute to its significance, or introduction of visual, atmospheric, or audible elements that diminish the integrity of significant features of a property. If an adverse effect is found, the agency is to act pursuant to 36 CFR Section 800.6 (36 CFR Section 800.5[d][2]) to resolve the adverse effect by developing and evaluating alternatives or modifications to the undertaking that "could avoid, minimize or mitigate adverse effects on historic properties" (36 CFR Section 800.6[a]). Cultural resources that have been determined ineligible for the NRHP, in consultation with the SHPO and interested parties, require no further consideration unless new discoveries trigger re-evaluation.

6.2.2 State Laws, Regulations, and Policies

California Environmental Quality Act

The California Environmental Quality Act (CEQA) is the principal regulatory control addressing impacts on historical and paleontological resources in California. Projects with the potential to adversely affect significant cultural resources undertaken, funded or approved by public agencies must be reviewed through the CEQA process. As the designated CEQA lead agency for approval of a project, OSHPD is responsible for complying with CEQA's requirements regarding the identification of feasible measures to mitigate significant adverse effects on historical and paleontological resources.

Further direction on cultural resources can be found in the State CEQA Guidelines (14 California Code of Regulations [CCR] Section 15064.5), "Determining the Significance of Impacts to Archaeological and Historical Resources." Subsection (a) defines the term "historical resources." Subsection (b) explains when a project may be deemed to have a significant effect on historical resources and defines terms used in describing those situations. Subsection (c) describes CEQA's applicability to archaeological sites and

provides a bridge between the application of the terms "historical resource" and a "unique" archaeological resource.

The term "historical resource" is similar to but more inclusive than the NRHP criteria. Under CEQA, a historical resource includes:

- A resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in the California Register of Historical Resources (CRHR) (Public Resources Code [PRC] Section 5024.1; 14 CCR Section 4852),
- A resource included in a local register of historical resources (as defined by PRC Section 5020.1[k]), or identified in a historical resource survey meeting the requirements of PRC Section 5024.1(g) (presumption of historical significance), and:
  - Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage (Criterion 1);
  - Is associated with the lives of persons important in our past (Criterion 2);
  - Embodies the distinctive characteristics of a type, period, region, or method of installation, represents the work of an important creative individual, or possesses high artistic values (Criterion 3); or
  - Has yielded, or may be likely to yield, information important in prehistory or history (Criterion 4).
- A resource that the lead agency otherwise determines is a historical resource as defined by PRC Section 5020(j) or Section 5024.1.

As defined in PRC Sections 5097.9 and 5097.993, Native American historic, cultural, or sacred sites may be listed or be eligible for listing in the CRHR, pursuant to PRC Section 5024.1.

Assembly Bill 52

AB 52 was approved in September 2014 and went into effect on July 1, 2015. This bill requires that lead agencies consult with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of a project, if so requested by the tribe. The bill, chaptered in Section 21084.2 of the PRC, also specifies that a project with an effect that may cause a substantial adverse effect in the significance of a tribal cultural resource (TCR) is a project that may have a significant effect on the environment. AB 52 also specifies that revisions to the State CEQA Guidelines Appendix G checklist would be made on or before July 1, 2016, to include a consideration of substantial adverse change to TCRs.

As defined in Section 21074 (a) of the PRC, TCRs are:

(1) Sites, features, places, cultural landscapes, sacred places and objects with cultural value to a California Native American tribe that are either of the following:

a. Included or determined to be eligible for inclusion in the CRHR;

b. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

(2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

TCRs are further defined under Section 21074 as follows:

> A cultural landscape that meets the criteria of subdivision (a) is a TCR to the extent that the landscape is geographically defined in terms of the size and scope of the landscape; and
>
> A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

Mitigation measures for TCRs are developed in consultation with the affected California Native American tribe, pursuant to Section 21080.3.2 or according to Section 21084.3. Section 21084.3 identifies mitigation measures that include avoidance and preservation of TCRs, and treating TRCs with "culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource."

6.2.3 Local Laws, Regulations, and Policies

The Proposed Project could result in activities in a number of locations where local laws, regulations, and policies may apply. However, because the specific locations of such future activities under the Proposed Project are unknown and it would be difficult to list every conceivable applicable local law, regulation, or policy, they are not discussed further.

6.3 Environmental Setting

Prehistoric Overview

California was occupied by different prehistoric cultures, dating to at least 12,000 to 13,000 years ago. Evidence for the presence of humans during the Paleoindian period prior to about 8,000 years ago is relatively sparse and scattered throughout the state; most surface finds of fluted Clovis or Folsom projectile points or archaeological sites left by these highly mobile hunter-gatherers are associated with Pleistocene lakeshores, the Channel Islands, or the central and southern California coast (Rondeau et al. 2007:63–69). Archaeological evidence from two of the Northern Channel Islands located off the coast of Santa Barbara indicates that the islands were colonized by Paleoindian peoples at least 12,000 years ago, likely via seaworthy boats (Erlandson et al. 2007:56–57). By 10,000 years ago, inhabitants

of this coastal area were using fishhooks, weaving cordage and basketry, traveling in seaworthy boats, hunting marine mammals and sea birds, and producing ornamental shell beads for exchange with people living in the interior of the state (Erlandson et al. 2007:60–62). This is the best record of early maritime activity in the Americas, and combined with the fluted points, indicates that California was colonized by both land and sea during the Paleoindian period (Jones and Klar 2007b:303).

With climate changes between 10,000 and 7,000 years ago at the end of the Pleistocene and into the early Holocene, Lower Archaic peoples adjusted to the drying of pluvial lakes, rise in sea level, and substantial alterations in vegetation communities. By about 6,000 years ago, vegetation communities similar to those of present-day were established in the majority of the state, while the changes in sea level also affected the availability of estuarine resources (Jones and Klar 2007b:300–301). The archaeological record indicates subsistence patterns during the Lower Archaic and subsequent Middle Archaic period shifted to an increased emphasis on plant resources, as evidenced by an abundance of milling implements in archaeological sites dating between 8,000 and 3,000 years ago.

The addition of milled wild grass seeds, acorns, or pine nuts, depending on geographic location, supplemented a diet procured as part of a seasonal foraging pattern, one that incorporated a wide range of natural resources including game animals, wild plants, waterfowl, fish, and other plant parts, such as berries and greens. Subsistence patterns varied somewhat as groups throughout the state became better adapted to their regional or local environments, moving seasonally between lower and higher elevations, or between the coast and inland riverine systems. As these seasonally mobile groups became better adapted locally or regionally, they developed distinct cultural patterns that have been defined by archaeologists working in different regions of the state, and synthesized in three major publications produced over the past three decades (Moratto 1984; Chartkoff and Chartkoff 1984; Jones and Klar 2007a).

After approximately 3,000 years ago during the Upper Archaic and Late Prehistoric periods, the complexity of the prehistoric archaeological record reflects increases in specialized adaptations to locally available resources, such as acorns and salmon, in permanently occupied settlements, and in the expansion of regional populations and trade networks (Moratto 1984; Chartkoff and Chartkoff 1984; Jones and Klar 2007a). During the Upper Archaic, marine shell beads and obsidian continued to be the hallmark of long-distance trade and exchange networks, developed during the preceding period (Hughes and Milliken 2007:259–270). Large shell midden/mounds at coastal and inland sites in central and southern California, for example, attest to the regular reuse of these locales over hundreds of years or more, from the Upper Archaic into the Late Prehistoric period. In the San Francisco Bay region alone, over 500 shell mounds were documented in the early 1900s (Moratto 1984:226–227).

Changes in the technology used to pursue and process resources are some of the hallmarks of the Late Prehistoric period. These include an increase in the prevalence of mortars and pestles, a diversification in types of watercraft and fishhooks, and the earliest record for the bow and arrow in the state, which occurred in both the Mojave Desert and northeast California nearly 2,000 years ago (Jones and Klar 2007b:305–307). The period also

witnessed the beginning of ceramic manufacture in the southeast desert region, southwest Great Basin, and parts of the Central Valley.

During the Late Prehistoric period, the development of social stratification and craft specialization accompanied the increase in sedentism, as indicated by a variety of artifacts, including bone tools, coiled and twined basketry, obsidian tools, marine shell beads, personal ornaments, pipes, and rattles, by the use of clamshell disk beads and strings of dentalium shell as a form of currency, and by variation in burial types and associated grave goods (Moratto 1984; Chartkoff and Chartkoff 1984; Jones and Klar 2007a). Pictographs, painted designs that likely are less than 1,000 years old, and other non-portable rock art created during this period likely had a religious or ceremonial function (Gilreath 2007:278). Osteological evidence points to intergroup conflict and warfare in some regions during this period (Jones and Klar 2007b:313), and a decline or disruption in the long-distance trade of obsidian and shell beads also appears to have occurred approximately 1,200 years ago in parts of the state (Hughes and Milliken 2007:270).

The number of changes in subsistence, foraging, and land use patterns characteristic of the Late Prehistoric period are reflective of the patterns known from historic-period Native American groups. The end of the Late Prehistoric period generally is recognized as 1769, although direct contact with non-indigenous peoples by many interior groups did not occur until the early to mid-1800s, when the Spanish mission system and subsequent historic events had their greatest effect on native California populations (see e.g., Castillo 1978:99–109; Cook 1978:91–93).

Historic Overview

Post-contact history for California generally is divided into the Spanish period (1769–1822), Mexican period (1822–1848), and American period (1848–Present). The establishment of Fort Ross by Alaska-based Russian traders also influenced post-contact history for a short period (1809–1841) in the region north of San Francisco Bay. Although brief visits occurred along the Pacific coast by European explorers (i.e., Spanish, Russian, and British) between 1529 and 1769 in territory claimed by Spain, those expeditions did not journey inland.

Spanish Period (1769–1822)

Spain's colonization of California began in earnest in 1769, with overland expeditions from San Diego to San Francisco Bay by Lt. Colonel Gaspar de Portolá, and the establishment of a mission and settlement in San Diego. Between 1769 and 1823, the Spanish and the Franciscan Order established a series of 21 missions, paralleling the coast along El Camino Real between San Diego and Sonoma (Rolle 1969:74). Between 1769 and 1782, Spain built four presidios (i.e., San Diego, Monterey, San Francisco, and Santa Barbara) to protect the missions, and by 1871 had established two additional pueblos at Los Angeles and San José.

Under Spanish law, large tracts of land, including cattle ranches and farms, fell under the jurisdiction of the missions. Native Americans were removed from their traditional lands, were converted to Christianity, were relocated to the missions, and were used for labor on

mission farms and ranches (Castillo 1978:100–102). Because the mission friars had civil as well as religious authority over their converts, they held title to lands in trust for indigenous groups. The lands were to be repatriated after the native peoples learned Spanish laws and culture.

Russian Period (1809–1841)

In 1809, Alaska-based Russians started exploring the northern California coast, with the goal of hunting otter and seal to feed their Alaskan colonies. The first Russian settlement, reconstructed at Fort Ross State Historic Park, was established in 1811–1812 by the Russian–American Fur Company, to protect the lucrative marine fur trade, and to grow produce for their Alaskan colonies. In 1841, because of the decline in the local sea otter population and the failure of their agricultural colony, combined with a change in international politics, the Russians withdrew from California (Schuyler 1978:75).

Mexican Period (1822–1848)

Following independence from Spain in 1822, the economy during the Mexican period depended on the extensive rancho system, carved from the former Franciscan missions and at least 500 land grants awarded in the state's interior to Mexican citizens (Beck and Haase 1974:24; Staniford 1975:98–99). Captain John Sutter, who had married into an established *Californio* family, received the two largest land grants in the Sacramento Valley. In 1839, Sutter founded the trading and agricultural empire named New Helvetia that was headquartered at Sutter's Fort, now a State Historic Park, near the divergence of the Sacramento and American rivers in the present-day city of Sacramento (Hoover et al. 2002:302).

Mexico also opened California to exploration by American fur trappers and mountain men. In 1826, Jedediah Smith was the first American trapper to enter California; his party explored along the Sierra Nevada and entered the Sacramento Valley (Gunsky 1989:9–11). Other fur trappers and mountain men, some with the Hudson's Bay Company, entered California in the late 1820s and 1830s (Hoover et al. 2002:xiii–xiv). By the mid-1840s, a number of American settlers had arrived in California via overland routes. These included the ill-fated Donner Party, whose tragic attempt to cross the Sierras during winter 1846-1847 is preserved at Donner Memorial State Park.

Following adoption of the Secularization Act of 1833, the Mexican government privatized most Franciscan lands, including holdings of their California missions. Although secularization schemes had called for redistribution of lands to Native American neophytes who were responsible for construction of the mission empire, instead the vast mission lands and livestock holdings were redistributed by the Mexican government through several hundred land grants to private, non-indigenous ranchers (Castillo 1978:104–105; Hoover et al. 2002:xiii). Most Native American converts returned to traditional lands that had not been colonized yet or found work with the large cattle ranchos being carved out of the mission lands.

With the end of the mission system, the entire Mexican economy shifted to the owners of the large ranchos. Landowners mainly focused on the cattle industry and devoted large tracts to grazing and dry farming of wheat (Staniford 1975:100–101, 103). Cattle hides and tallow became a primary southern California export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. Cuyamaca Rancho State Park in San Diego County preserves about two-thirds of the 35,501-acre land grant awarded to Augustin Olvera by Governor Pío Pico in 1845, and the 5-acre Pío Pico State Historic Park contains the restored adobe home of the last governor of Mexican California, within his former 9,000-acre Rancho Paso de Bartolo.

American Period (1848–Present)

In 1848, shortly after California became a territory of the United States with the signing of the Treaty of Guadalupe Hidalgo ending Mexican rule, gold was discovered on the American River at Sutter's Mill in Coloma—now a National Historic Landmark in Marshall Gold Discovery State Historic Park. The resulting Gold Rush era influenced the history of the state and the nation. Thousands of people flocked to the gold fields in the Mother Lode region that stretches along the western Sierra foothills, and to the areas where gold also was discovered in other parts of the state, such as the Klamath and Trinity river basins (Caltrans 2008:9–12). In 1850, California became the 31st state, mainly because of the Gold Rush. Known today as the "Golden State," California continues to honor its Gold Rush heritage.

Many of the historic-era trails that were used by the Spanish, Mexicans, military, explorers and trappers, gold miners, settlers, and others who entered California were established by Native Americans (Schneider 2011). The Southern Overland Trail, which connected water sources and traditional Native American use areas in the Colorado Desert, generally remains intact in Anza-Borrego Desert State Park (Wade 2011). Between 1857 and 1861, the same route was used by the San Antonio to San Diego Mail and the Butterfield Stage, and continued to be used by cattle and wagons, and later by automobiles. In the early 1870s, the 20-mule teams followed a Native American trade route past the colorful formations of Red Rock Canyon State Park. Anza-Borrego Desert State Park also preserves segments of the 1,200-mile Juan Bautista de Anza National Historic and Millennium Trail, which was the first National Historic Trail designated in the country.

Prior to construction of the railroads, ocean and river routes also were commercial lifelines during the Gold Rush era. San Francisco was a major port of entry for thousands of immigrants who sailed from foreign lands. A central location to the foothill mining districts, Sacramento was a burgeoning river transportation hub that became the state capital 4 years after statehood. Sacramento also was the westernmost point of the Pony Express (1860–1861), having 12 stage lines by 1853, and by 1856, it was the terminal of the first California railroad that ran 22 miles east to Folsom (Beck and Haase 1974:51, 53, 68). On the North Coast, the towns of Arcata and Eureka on Humboldt Bay provided a supply line to the region's gold mines and growing lumber industry (Hoover et al. 2002:105–106). Places like nearby Trinidad State Beach also served as chief supply points for the Klamath and Trinity region mines.

With the completion of the transcontinental railroad in 1869, settlers and immigrants continued to pour into the state. Thousands of miles of railway lines were constructed throughout the state in the 1870s—along the coast, in southern California, and in the Central Valley (Caltrans 2007:98). In 1885, San Diego was connected to the Atchison, Topeka, and Santa Fe Railway transcontinental line, which extended to Chicago. The remains of the Del Norte & Southern Railroad along the Trestle Loop Trail in Del Norte Coast Redwoods State Park are an example of the lines built to transport lumber and other commodities to the main railways or shipping points.

The increasing demand for commodities and foodstuffs by miners during the Gold Rush era was met by enterprising individuals and businesses (Staniford 1975:176–177). The demand boosted the expansion and success of the agriculture industry, as well as fostered an increase in ranching and raising beef and dairy cattle, pigs, sheep, turkeys, and chickens to feed thousands of hungry miners. The manufacture of all types of goods and clothing, the ore processing industry, lumber production, and the beginning of a fishing industry also were prompted during this period in California's history.

The completion of the transcontinental railroad created new markets for the state's agricultural products, including citrus. Oranges had been introduced during the Spanish Mission era, and the first trainload was shipped to Saint Louis in 1877 (Rolle 1969:358–359). By 1890, oranges, lemons, and limes were a substantial part of the Californian economy. California Citrus State Historic Park provides a glimpse of the flourishing citrus industry circa 1880–1935.

Through the first decade of the Gold Rush, horticulture and livestock, based primarily on cattle as the staple of the rancho system, continued to dominate the southern California economy (Staniford 1975:184–185). During the 1850s cattle boom, rancho vaqueros drove large herds from southern to northern California to feed that region's mining and commercial boom. Cattle were driven along major trails or roads, such as the Southern Overland Trail, and were later transported by trains where available. The cattle boom ended for southern California when neighboring states and territories drove herds to northern California at reduced prices, operation of the huge ranchos became increasingly difficult, and droughts in the early 1860s severely reduced livestock numbers. Grazing activities in southern California were refocused on sheep, with sales of mutton to the miners and wool to San Francisco.

To the north, California's dairy industry developed in the greater San Francisco Bay region, Humboldt County, and the central coast, in response to Gold Rush-era population demands (Rolle 1969:353–354; Caltrans 2007:87–88). The Jersey was the dominant breed of dairy cattle in the state until it was replaced by Holstein-Friesians during the 1880s. By the 1900s, the dairy industry also was an important economic component in parts of southern California, particularly in Los Angeles County, and it spread into the San Joaquin Valley alongside the development of agricultural irrigation, essential for year-round growing of cattle feed in drier regions. A mid-to-late 1800s dairy ranch complex, including water-powered workshops, is preserved at Wilder Ranch State Park, and Anderson Marsh State Historic Park contains a 1949 dairy barn and associated interpretive displays.

The lumber industry kept pace with the state's rapid growth during the Gold Rush era. The northwest coast became the state's leading producer of redwood timber for mushrooming settlements and industry (Staniford 1975:191–193). Redwood lumber was shipped by boat or wagon, and later by rail, from sawmills on the coast to San Francisco and Sacramento. The lumber industry also flourished in the Santa Cruz Mountains, the Sierras and Lake Tahoe region, and the San Gabriel and San Bernardino Mountains in southern California. The cove at Greenwood Creek State Beach in Mendocino County was one of the small, dog-ports used along the coast to ship timber in the late 1800s to early 1900s. In 1864, the transfer by Congress of Yosemite Valley to California for a public park preserved the area from lumbering or settlers, while commercial logging of the old-growth Northwest Coast redwood forests eventually led to conservation efforts and establishment of state parks like Del Norte Coast Redwoods, Jedediah Smith Redwoods, and Prairie Creek Redwoods. These parks preserve the forests as well as the cultural and historic landscapes, and early logging roads associated with this period.

As the placer gold disappeared along the rivers and other waterways, the mining shifted toward more industrialized methods of extraction (Caltrans 2008:50–59). Developed in the mid-1850s, hydraulic mining used water directed from low pressure nozzles or high pressure "monitors" that also destroyed the contours of the land. The method was outlawed in 1884, although it continued on a smaller scale in parts of the state. Malakoff Diggings State Historic Park in Nevada County preserves the steep cliffs that formed from washing away entire mountains at the world's largest former hydraulic gold mile. The development of dredge mining in 1898 renewed gold mining as a major industry in the state. Dredgers were massive machines, capable of processing tons of riverbed gravels that left behind tailing piles still visible today along the American, Feather, and Yuba rivers, where dredge mining continued into the mid-1960s, but on a smaller scale than during the Gold Rush era. Underground mines also were established during the Gold Rush era, and are represented by the historic structures and buildings preserved at Empire Mine and Plumas-Eureka State Parks in the Sierras. In the southeastern part of the state, the mines and abandoned equipment in the Last Chance Canyon Archaeological District at Red Rock Canyon State Park also are valuable examples of early industrial mining techniques and technology. Continuation of expensive hard-rock operations into the twentieth century, even with improvements in technology, fluctuated substantially with the price of gold.

The development of water conveyance systems accompanied the growth and variety of techniques employed for gold mining (JRP and Caltrans 2000:33–39). Ditches were dug in the early 1850s, to get water to the "dry diggings," and companies soon were organized and building ditches, canals and flumes to supply water to miners, using sluices to extract gold from the river gravels. With the advent of hydraulic mining, the demand for water increased, and its supply by ditch companies became even more lucrative. Networks of ditches or canals, many longer than 20 miles, blossomed across the Mother Lode and the Klamath and Trinity basins. Major companies also dug tunnels and dammed streams or lakes to create storage reservoirs. By 1865, over 5,300 miles of mining ditches and canals had been recorded officially in the Mother Lode region. Of these, many are still used for agricultural irrigation, municipal water services, and hydroelectric power systems, and they remain an important feature of the state's cultural landscape (JRP and Caltrans 2000:53).

Some, such as the gold mining-era water ditch at South Yuba River State Park in Nevada County, have been converted to hiking trails.

The first extensive agricultural irrigation canal in the state, the 67-mile San Joaquin and Kings River Canal in the San Joaquin Valley, was completed in 1878 by Miller and Lux Company, a cattle company with vast land holdings in the West (Clough and Secrest 1984:187). A pioneer of larger-scale irrigation projects, Miller and Lux also organized mutual canal companies to control water in drier regions. This prompted the formation of irrigation districts and the passage of the Wright Act in 1887. Turlock Irrigation District was the first such district to be formed under the Wright Act. The district created Turlock Lake, now a State Recreation Area, to provide year-round crop irrigation.

The formation of irrigation districts and related canal development, as well as the extensive levee systems constructed after passage of the Swampland Act of 1850 to prevent flooding of prime agricultural lands and settlements in the greater Sacramento–San Joaquin Delta region, foreshadowed the extensive twentieth century, federally funded water projects like the All-American Canal that brings Colorado River water to the Imperial Valley and the Central Valley Project, delivering Sacramento River water to the arid San Joaquin Valley (JRP and Caltrans 2000:30, 74). Irrigation and related flood control management became an integral component of the history of the productive agricultural and livestock economy of the state. The waters at San Luis Reservoir State Recreation Area were impounded when the storage reservoir was built in the 1960s as part of the federal Central Valley Project and the California State Water Project.

6.4 Impact Analysis

6.4.1 Methodology

This section discusses the methods used to analyze potential cultural resources impacts resulting from installation and use of PVC, CPVC, and ABS pipes at OSHPD 1, 2, 3, and 4 facilities and the use of PFA in dialysis branch lines at these facilities.

6.4.2 Significance Criteria

The significance criteria used for this impact analysis represent a combination of the State CEQA Guidelines Appendix G criteria and professional judgment that considers current regulations, standards and/or consultation with agencies having knowledge of the area. For the purposes of this analysis, the Proposed Project would cause a significant impact if it would result in any of the following:

A. A substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines section 15064.5.

B. A substantial adverse change in the significance of a historical resource of the built environment as defined in CEQA Guidelines section 15064.5.

C. Direct or indirect destruction of a unique paleontological resource or site or unique geological feature.

D. Disturbance of any human remains, including those interred outside of formal cemeteries.

E. Cause a substantial adverse change in the significance of a TCR.

Criteria A, C, and D were evaluated in the Initial Study and were determined to have no significant impacts. Therefore, impacts relating to archaeological and paleontological resources, and human remains, are excluded from the following discussion.

6.4.3 Environmental Impacts

Impact CR-1: Result in a Substantial Adverse Impact on Historical Resources (*Less than Significant*)

Implementation of the Proposed Project could result in the installation of CPVC, PVC, and ABS pipes in health facilities that may be listed or eligible for listing in the CRHR. The use of such pipes likely would not be similar to the existing materials used in older health facilities that may be historically significant.

However, because the locations for future use of the proposed pipe materials are unknown, the extent to which the Proposed Project could have an impact on historically significant resources also is unknown, and thus would be speculative. Furthermore, the techniques used to install the proposed pipe materials would not be meaningfully different from those using currently authorized materials, and therefore the choice of material type would not cause any impacts. In addition, impacts on a historic building's interior that would result from remodeling generally are not considered to constitute a significant impact on the environment under CEQA (see, for example, Martin III v. City and County of San Francisco, 2005). Therefore, replacement of metal pipes with CPVC, PVC, and ABS pipes and the use of PFA in the dialysis branch lines in potentially historic health facilities would not be a significant impact under CEQA. For these reasons, any Project-related impact on historical resources would be **less than significant**.

Impact CR-2: Result in a Substantial Adverse Impact on TCRs (*No Impact*)

The proposed revisions to the California Plumbing Code that would allow the use of PFA, CPVC, PVC, and ABS pipes would not result in any potential ground-disturbing activities outside existing, developed facilities. Any new pipe installation for a specific project, whether metallic or plastic, would be subject to CEQA review unless exempt, and the impact would be the same regardless of the type of pipe materials used (e.g., metal versus plastic). Therefore, the Proposed Project would not have the potential to cause adverse effects on subsurface TCRs.

The Proposed Project is not anticipated to result in impacts on sites, features, places, cultural landscapes, sacred places, or objects with cultural value to a California Native American tribe.

Therefore, **no impact** would occur.

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Chapter 7
GREENHOUSE GAS EMISSIONS

7.1 Introduction

Greenhouse gas (GHG) emissions have the potential to adversely affect the environment because such emissions contribute cumulatively to global climate change. The proper context for addressing this issue in an EIR is in an assessment of cumulative impacts; it is unlikely that a single project would individually contribute substantially to climate change, but cumulative emissions from many projects could affect global GHG concentrations and the climate system. Unlike the locations of criteria air pollutants and toxic air contaminants (TACs), which are pollutants of localized or regional concern, the specific location of GHG emissions are of limited concern. The total amount and types of GHG emissions ultimately have the greatest effect on climate change.

7.2 Regulatory Setting

7.2.1 Federal Laws, Regulations, and Policies

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for implementing the federal Clean Air Act (CAA). EPA has the authority to regulate GHGs because GHGs fit within the CAA's definition of a pollutant. This enables State or federal governments to regulate GHG emissions.

U.S. Environmental Protection Agency "Endangerment" and "Cause or Contribute" Findings

On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA, as follows:

- *Endangerment Finding:* The current and projected concentrations of the regulated six key GHGs—carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)—in the atmosphere threaten the public health and welfare of current and future generations.

- *Cause or Contribute Finding:* The combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

These findings enabled state and federal governments to regulate GHG emissions. The manufacturing and installation of plastic pipes that could be used at OSHPD facilities would generate GHG emissions as a result of the Proposed Project.

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, EPA released its final Greenhouse Gas Reporting Rule (Reporting Rule). The Reporting Rule is a response to the fiscal year 2008 Consolidated Appropriations Act (House of Representatives Bill 2764; Public Law 110-161), which required EPA to develop "… mandatory reporting of GHGs above appropriate thresholds in all sectors of the economy." The Reporting Rule applies to most entities with on-site emissions of 25,000 metric tons (MT) of CO_2-equivalents (CO_2e) or more per site and per year. It does not apply to an entity's off-site or indirect emissions. Since 2010, facility owners have been required to submit an annual GHG emissions report with detailed calculations of the facility's GHG emissions. The Reporting Rule also mandates compliance with recordkeeping and administrative requirements, to enable EPA to verify annual GHG emissions reports. This Reporting Rule enables state or federal governments to require reporting of GHG emissions. The manufacturing of plastic materials that could be used at OSHPD facilities as a result of the Proposed Project would generate GHG emissions during production and would be subject to this Reporting Rule.

7.2.2 State Laws, Regulations, and Policies

The legal framework for GHG emission reductions has evolved through Executive Orders, legislation, and regulations. The major components of California's climate change initiative are reviewed next.

Executive Order S-3-05 and B-30-15

Executive Order S-3-05, issued in recognition of California's vulnerability to the effects of climate change, set forth the following target dates by which statewide GHG emissions are to be progressively reduced: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

Executive Order B-30-15, issued in April 2015, establishes an interim GHG emission reduction target of 40 percent below 1990 levels by 2030. It requires agencies to prepare an implementation plan by September 2015. The California Natural Resources Agency is instructed to update Safeguarding California, the State's climate adaptation strategy, every 3 years, identify vulnerabilities to climate change for each sector, outline primary risks, and identify a lead agency or group to lead adaptation efforts in each sector.

These orders enabled State governments to regulate GHG emissions by establishing thresholds that are aimed at achieving emission reduction targets. The potential increased generation of GHG emissions through the manufacturing and installation of the allowed pipe materials that could be installed at OSHPD facilities would be subject to these established target reductions.

Assembly Bill 32

In 2006, the California Legislature passed AB 32 (California Health and Safety Code Section 38500 et seq.), also known as the Global Warming Solutions Act. Under AB 32, CARB must design and implement feasible and cost-effective emissions limits, regulations, and other measures, to reduce statewide GHG emissions to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions (i.e., cap-and-trade program) that started in January 1, 2012, with an enforceable compliance obligation beginning with 2013 GHG emissions.

AB 32 requires that the California Air Resources Board (ARB) adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms so that the state achieves the reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions. This legislation has enabled State agencies to regulate GHG emissions by establishing thresholds of significance, designed to achieve emission reduction targets. The potential increase in production and installation GHG emissions that could result from the Proposed Project would adhere to the established GHG emission reduction targets.

Climate Change Scoping Plan

Pursuant to AB 32, CARB adopted the Climate Change Scoping Plan (Scoping Plan) in December 2008, outlining measures to meet the 2020 GHG reduction goals. To meet these goals, California must reduce its GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels. The Scoping Plan recommends measures that are worth studying further, and that the State of California may implement, such as new fuel regulations. It estimates that a reduction of 174 million metric tons (MMT) of CO_2e (about 191 million U.S. tons) from transportation, energy, agriculture, forestry, and other sources could be achieved if the State implements all of the measures in the Scoping Plan. The Scoping Plan relies on the requirements of Senate Bill 375 (discussed below) to implement the carbon emission reductions anticipated from land use decisions.

CARB is required to update the Scoping Plan at least once every 5 years, to evaluate progress and develop future inventories that may guide this process. CARB approved the First Update to the Climate Change Scoping Plan: Building on the Framework in June 2014 (CARB 2014b). The Scoping Plan update includes a status of the 2008 Scoping Plan measures and other State, federal, and local efforts to reduce GHG emissions in California between 2008 and 2013, with respect to the 2020 GHG reduction target. The Scoping Plan Update determined that the State is on schedule to achieve the 2020 target; however, an accelerated reduction in GHG emissions is required to achieve the 2050 reduction target. The Scoping Plan provides a guiding framework for the State to regulate GHG emissions by ensuring consistency with applicable GHG reduction plans through the CEQA significance criterion. The potential increase in GHG emissions from the production, installation, and disposal of plastic materials that could be installed at OSHPD facilities as a result of the Proposed Project would adhere to the established GHG reduction plans.

Mandatory Greenhouse Gas Reporting Program

Reporting of GHG emissions by major sources is required by the California Global Warming Solutions Act (AB 32). Pursuant to AB 32, CARB implemented the Mandatory Reporting of Greenhouse Gas Emissions. This originally was approved in 2007, and was revised in 2010, 2012, 2013, and 2014. The Mandatory Reporting regulation is applicable to industrial facilities, fuel suppliers, and electricity importers. All GHG emissions data reports must comply with the regulatory requirements and be submitted. This program requires industrial facilities to report GHG emissions and enables the State to regulate GHG emissions associated with the manufacturing, fuel, and electricity used for pipe production and during construction. Therefore, manufacturing facilities that would produce plastic pipes for possible installation at OSHPD facilities as a result of the Proposed Project would be subject to these regulations.

California's Cap and Trade Program

The AB 32 Scoping Plan identifies a cap-and-trade program as one of the strategies California will employ to reduce GHG emissions. Under cap-and-trade, an overall limit on GHG emissions from capped sectors is established by the cap-and-trade program, and facilities subject to the cap will be able to trade permits (allowances) to emit GHGs. CARB has designed a California cap-and-trade program (CCTP) that is enforceable and meets the requirements of AB 32. The program started on January 1, 2012, and runs through 2020, with an enforceable compliance obligation beginning with 2013 GHG emissions. An extension beyond 2020, working towards the 2030 target of EO B-30-15 is expected. This program currently applies to most entities with on-site emissions of 25,000 MT CO2e or more per site and per year, as well as utility companies and transportation fuel sales. This program reduces GHG emissions requiring the industrial sector to meet established limits on GHG emissions. This enables the State to regulate GHG emissions associated with pipe production. Therefore, manufacturing facilities that would produce plastic pipes for possible installation at OSHPD facilities as a result of the Proposed Project would be subject to these regulations.

7.2.3 Local Laws, Regulations, and Policies

Refer to Chapter 4, Air Quality, for a list of all air districts in California. Some air districts and local jurisdictions have established significance thresholds for GHG emissions for new projects. Some of the air districts have their own GHG thresholds for operational and sometimes construction impacts associated with development. When the local municipality does not have a threshold, the air district significance thresholds can be used. Sometimes these significance thresholds are found in a GHG Reduction Plan or the State CEQA Guidelines.

Some local municipalities have developed Climate Action Plans, Greenhouse Gas Reduction Plans, Sustainable Communities Strategies, Regional Transportation Plans, or other policy documents to locally reduce and address GHG emissions.

7.3 Environmental Setting

7.3.1 Overview of the Greenhouse Effect and Primary GHG Emission Sources

GHGs play a critical role in determining the Earth's surface temperature. A portion of the solar radiation that enters the Earth's atmosphere is absorbed by the Earth's surface, and a smaller portion of this radiation is reflected back toward space. This infrared radiation (i.e., thermal heat) is absorbed by GHGs in the Earth's atmosphere. Thus, infrared radiation released from the Earth that otherwise would have escaped back into space is "trapped" instead, resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on the Earth.

GHGs are present in the atmosphere naturally, are released by natural and anthropogenic (human-caused) sources, and are formed from secondary reactions taking place in the atmosphere. Natural sources of GHGs include the respiration of living organisms; decomposition of organic matter; volcanic activity; and water evaporation from the oceans. Anthropogenic sources include the combustion of fossil fuels by stationary and mobile sources, waste treatment, and agricultural processes. The following GHGs are widely accepted as the principal contributors to human-induced global climate change:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF_6)
- Nitrogen trifluoride[1] (NF_3)

Carbon dioxide is emitted by natural sources, such as decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus, and wild fires; anthropogenic sources include burning of coal, oil, and natural gas.

Methane is emitted by natural sources, such as wetlands, as well as by human activities, such as leakage from natural gas systems, the raising of livestock, and use of landfills.

Nitrous oxide is naturally present in the atmosphere as part of the Earth's nitrogen cycle and has a variety of natural sources. Human activities such as agriculture, fossil fuel combustion, wastewater management, and industrial processes are increasing the amount of N_2O in the atmosphere.

Hydrofluorocarbons are synthetic chemicals used as a substitute for chlorofluorocarbon refrigerants, and are used in cooling systems, appliances, air conditioners, and certain aerosol cans.

[1] Nitrogen trifluoride is recognized as a GHG by the State of California (California Health and Safety Code Section 38505[g]).

Perfluorocarbons are synthetic chemicals produced as a byproduct of various industrial processes associated with aluminum production and the manufacturing of semiconductors.

Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, and in semiconductor manufacturing.

Nitrogen trifluoride is used in the manufacturing processes of consumer items, including photovoltaic solar panels and liquid crystal display (LCD) computer monitors and television screens.

Global warming potential (GWP) is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to CO_2. The GWP of a GHG is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the gas's "atmospheric lifetime" (i.e., the length of time that the gas remains in the atmosphere). The reference gas for GWP is CO_2, which has a GWP of 1. The GWPs of other GHG pollutants are then determined relative to CO_2. For example, the other main GHGs that have been attributed to human activity include methane, which has a GWP of 28, and nitrous oxide, which has a GWP of 265 (IPCC 2013). Thus, 1 ton of methane has the same contribution to the greenhouse effect as approximately 28 tons of CO_2. GHGs with lower emission rates than CO_2 still may contribute to climate change because they are more effective at absorbing outgoing infrared radiation than CO_2 (i.e., they have a high GWP). The CO_2e is used to account for the different GWP potentials of GHGs to absorb infrared radiation.

7.3.2 Climate Change Trends

Global surface temperatures have increased approximately 1.53 degrees Fahrenheit over the last 140 years (IPCC 2013). The causes of this warming have been identified as both natural processes and human actions. The IPCC concluded that variations in natural phenomena, such as solar radiation and volcanoes, produced most of the warming from preindustrial times to 1950, and this has had a small cooling effect afterward. However, since 1950, increasing GHG concentrations resulting from human activity, such as fossil fuel burning and deforestation, have been determined with 95 percent certainty to be responsible for most of the observed temperature increase (IPCC 2013).

7.3.3 Climate Change Effects

During the same period when increased global warming has occurred, many changes have occurred in other natural systems. These changes also are predicted to occur in other natural systems in the near future. Sea levels have risen; precipitation patterns throughout the world have shifted, with some areas becoming wetter and others drier; snowlines have risen, resulting in changes to the snowpack, runoff, and water storage; increased drought and wildfire risks have occurred; and numerous other conditions have been observed. Although it is difficult to prove a definitive cause-and-effect relationship between global warming and other observed changes to natural systems, a high level of confidence exists in the scientific community that these changes are a direct result of increased global temperatures, caused by the increased presence of GHGs in the atmosphere (IPCC 2013).

According to the Climate Change Scoping Plan Update (ARB 2014a), climate change is expected to affect California in the following ways:

- variable precipitation patterns, with the possibility of reduced average rainfall;
- reduced snowpack and snowline at higher elevations;
- earlier, hotter, more frequent, and longer heat waves;
- more frequent and extreme storm events and associated flood risk;
- diminished air quality;
- sea level rise;
- ocean acidification;
- increased pressure on water supplies and diminished water quality;
- increase in wildfires;
- increased climate-related illnesses (from factors such as extreme heat, air quality, and disease-bearing vectors);
- loss of natural habitat and agricultural productivity; and
- compromised energy supply and security.

7.3.4 Greenhouse Gas Emission Sources

To account and regulate GHG emissions from human activity, sources of GHG emissions are grouped into emission categories by CARB, as follows:

- **Transportation:** On-road motor vehicles, recreational vehicles, aviation, ships, and rail.
- **Electric Power:** Use and production of electrical energy.
- **Industrial:** Mainly stationary sources (e.g., boilers and engines) associated with process emissions.
- **Commercial and Residential:** Area sources, such as landscape maintenance equipment, fireplaces, and consumption of natural gas for space and water heating.
- **Agriculture:** Agricultural sources that include off-road farm equipment; irrigation pumps; crop residue burning (CO_2); and emissions from flooded soils, livestock waste, crop residue decomposition, and fertilizer volatilization (methane and nitrous oxide).
- **High-GWP Gases:** Refrigerants for stationary- and mobile-source air conditioning and refrigeration, electrical insulation (e.g., sulfur hexafluoride), and various consumer products that use pressurized containers.
- **Recycling and Waste:** Waste management facilities and landfills, primarily CO_2 emissions from combustion and methane from landfills and wastewater treatment.

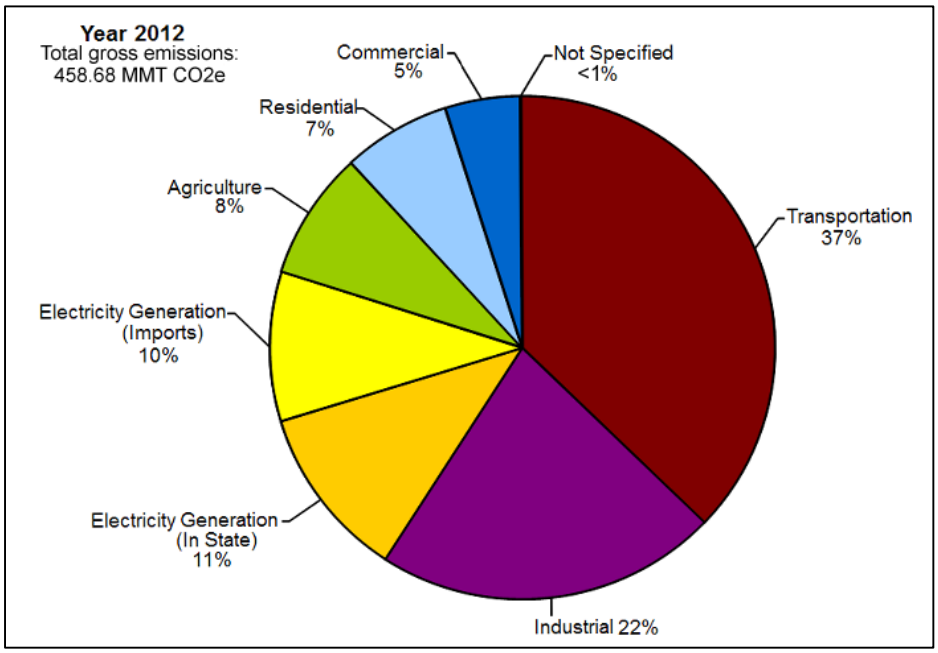
7.3.5 State Greenhouse Gas Emissions Inventory

CARB performs an annual GHG inventory for emissions of the major GHGs. As shown in Figure 7-1, California produced 458 MMT of CO_2e in 2012 (CARB 2014b). Combustion of fossil fuels in the transportation category was the single largest source of California's GHG

emissions in 2012, accounting for 37 percent of total GHG emissions in the state. The transportation category was followed by the industrial category, which accounted for 22 percent of total GHG emissions in California, and the electric power category (including in- and out-of-state sources), accounted for 21 percent of the state's total GHG emissions.

According to CARB's annual GHG inventory for emissions of the major GHGs, the industrial sector accounts for 22 percent (100.56 MMT of CO_2e) of total GHG emissions in California. Manufacture of metals and plastics is accounted within the industrial sector. The estimated GHG emissions from manufacturing plastic in California was 0.09 MMT of CO_2e in 2012, compared to primary metal manufacturing, 0.51 MMT of CO_2e in 2012 (CARB 2014c). Combined, these two industries accounted for 0.60 percent of GHG emissions in the industrial sector and 0.13 percent of all GHG emissions in California.

Figure 7-1. 2012 California Greenhouse Gas Emissions by Sector



Source: CARB 2014b

7.4 Impact Analysis

7.4.1 Methodology

The typical method to determine the significance of GHG emissions is to compare the estimated emissions to an appropriate State or federal standard. Most of the local air districts have developed CEQA guidelines and GHG thresholds for evaluating new projects and their operational and construction impacts. Significance thresholds for project-related emissions typically are divided into construction and operational values. Construction values generally are for short-term emissions that occur during the construction-phase of a project. Operational emissions occur after construction is completed and structures are occupied. Operational values generally are for land use development projects that would result in permanent, year-round (365 days), long-term GHG emissions.

As mentioned previously, the Proposed Project would revise the existing California Plumbing Code to allow plastic materials at OSHPD plumbing installations. Thus, it would not be a site-specific, "bricks and mortar" project. Therefore, the analysis focuses on the potential general statewide impacts that the code change may have on GHG emissions and weighs them against the thresholds of significance in the State CEQA Guidelines, presented next. The analysis also discusses the potential GHG impacts associated with the potential increase in manufacture and use of plastic materials as a result of the Proposed Project.

7.4.2 Significance Criteria

A significant impact would occur with respect to GHG emissions if the Proposed Project would:

A. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

B. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs.

7.4.3 Environmental Impacts

Impact GHG-1: Generate Direct and Indirect GHG Emissions *(No Impact)*

The Proposed Project's code revisions would not directly cause GHG emissions. However, by allowing the use of plastic pipes and tubing, the code revisions potentially would indirectly result in GHG emissions through the potential future use of plastic pipes and plastic tubing at new and remodeled or renovated OSHPD 1, 2, 3 and 4 facilities.

GHG Emissions Associated with Installation and Operation of Pipe Materials. Installation and conditioning of PVC, CPVC, and ABS pipes under the Proposed Project would generate GHG emissions associated with construction equipment used during installation. These emissions would be similar in quantity to existing GHG emissions from the installation of other, currently allowed pipe materials, such as galvanized iron, steel, or copper. Although GHG emissions would be released during construction from truck, vendor, and worker trips, these emissions would be similar to those occurring during current installation of pipes. Because plastic pipes are lighter per unit length and may result in use of lighter-duty vehicles, GHG emissions are expected to be less with the installation of plastic materials than with the installation of metallic pipes. Therefore, during construction, the revisions to the Plumbing Code as part of the Proposed Project, to allow plastic pipes would not be expected to alter GHG emissions from existing conditions.

During normal operational use of PFA, PVC, CPVC, and ABS pipes, no emissions of GHGs would occur, because these chemical materials are inert and would not be included in any chemical reaction that would trigger release of GHGs. No GHG emissions would occur during their operation beyond existing conditions.

The installation and operation of the plastic pipes and tubing material would not increase GHG emissions beyond existing conditions. Therefore, **no impact** would occur.

GHG Emissions Associated with Manufacture and Production of Pipe Materials. Based on publicly available, peer-reviewed databases, production and manufacture of PVC and ABS pipes appear to emit GHG emissions that may be similar to the GHG emissions used in the manufacturing of existing pipe materials (see Table 7-1). As shown in Table 7-1, no data exists for CPVC pipes and PFA tubing. The data indicate that copper and PVC pipe do not differ significantly in terms of GHG emissions from metal pipe manufacturing for small diameter

pipes (less than 12 inches), and that the new materials may result in slightly less emissions than galvanized and steel pipe for larger diameters.

Table 7-1. Global Warming Effect of Piping Production

Pipe Material	GHG Factor (kilogram CO_2e per kilogram of pipe)
PVC [A]	2.72
CPVC	No data
ABS [A]	3.89
Copper [A]	0.95
Galvanized Steel [A]	3.19
Carbon Steel [A]	2.36
Iron [B]	2.03
PFA [1]	No data

Notes:

[1] Although PFA is not a pipe material but a tubing material, it is included in the table for informational purposes.

* 1 kilogram equals 0.001 metric ton.

** The units are greenhouse gas per weight of pipe. A foot of copper or PVC pipe is lighter than a foot of the same diameter galvanized steel or carbon steel pipe.

Sources: AECOM 2015 [A]; Hammond and Jones 2011 [B]

The current plumbing code requirements result in GHG emissions associated with the mining, fabrication, and recycling processes to produce metallic pipes. The proposed revisions to the plumbing code requirements under the Proposed Project would increase GHG emissions associated with the formulation of petrochemicals into pipes, such as PFA, PVC, CPVC, and ABS from petroleum, but would reduce GHG emissions associated with the manufacture of metallic pipes. To derive a statewide net difference in GHG emissions from those numbers would be speculative and highly variable, because although the Proposed Project would encourage the use of plastic pipes at OSHPD 1, 2, 3, and 4 facilities, the traditional materials would not be precluded from continued use. How many future or renovated OSHPD facilities

would prefer the new pipe materials over the traditional ones, when such installations may occur, how many linear feet of pipe of a particular diameter may be installed, and whether certain facilities may elect to upgrade only their potable water distribution lines, waste lines, or drainage lines, are all unknown factors. Similarly, it would be speculative to say how many facilities may choose to switch to PFA tubing for their dialysis units.

The "upstream" manufacturing of plastic pipes resulting in GHG emissions is either comparable to those for copper pipes or less than those for galvanized or steel pipes, as shown in Table 7-1. To determine the amount of pipe material manufactured and produced in California would be speculative. In cases where the factories are outside California, they would not be subject to California regulations to reduce GHG emissions. Furthermore, the facilities and operations that supply metallic pipes likely would experience a reduction in GHG emissions because demand for these products may be reduced.

Therefore, **no impact** related to GHG emissions emitted during the manufacture and production of plastic pipe materials would occur.

Disposal GHG Emissions. The impact of the proposed plumbing code revisions would not have a significant impact on GHG emissions related to the disposal, recycling, and reuse of the new pipe materials. Currently used metallic pipe materials are subject to the same industrial disposal and recycling processes as plastic pipe materials, which requires the same energy resources tied to GHG emissions. Therefore, use of plastic plumbing pipe at OSHPD 1, 2, 3, and 4 facilities is not expected to result in substantial new GHG emissions. **No impact** would occur.

Impact GHG-2: Conflict with GHG Reduction Plans *(No Impact)*

Although the Proposed Project would allow the use of new materials and potentially would cause GHG emissions, the GHG emissions associated with the manufacture, installation, operation, and disposal of these materials would be regulated by CARB. CARB would regulate the manufacture, installation, operation, and disposal of these materials with the intent of achieving the emission reduction targets identified in existing regulations (i.e., Executive Orders, AB 32). Because these phases and the related activities are regulated in a manner to comply with the established reduction goals in existing plans and regulations, the manufacture, installation, operation, and disposal of plastic pipe and tubing materials would not be expected to impede, thwart, or otherwise conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions. More specific discussion is presented next.

Operations and Construction Conformance. As previously stated, during normal operational use of PFA, PVC, CPVC, and ABS pipes, no GHG emissions would occur because the materials are inert. Therefore, during operations, after the new pipes have been installed, **no impact** would occur with respect to implementation and attainment of plans and policies to reduce GHG emissions.

With respect to whether the Proposed Project would conform to GHG reduction plans and policies during construction, the specific locations where use of PFA, PVC, CPVC, or ABS pipes (instead of metallic pipes) would occur are not known at this time. Consequently,

determining which local GHG plans, policies, or regulations may apply during construction and installation of the new materials is not possible. However, installation of plastic pipes and tubing material is anticipated to be similar to installation of metallic materials, and thus, a minimal change to GHG emissions during construction would occur, relative to existing conditions. Thus, during installation of new plastic pipes in water, wastewater, and drainage lines and during the replacement of existing dialysis branch lines with those that contain PFA as a result of the Proposed Project, construction operations are anticipated to conform with and adhere to existing GHG reduction plans, policies, and regulations, as established by local jurisdictions and municipalities. **No impact** would occur.

Disposal Conformance. The impact of the proposed plumbing code revisions would not have a significant impact on GHG emissions related to the disposal, recycling, and reuse of the new pipe material. The disposal of plastic pipes and plastic tubing would adhere to established regulations, whether the material is disposed in a landfill, recycled, or reused. Therefore, the disposal of plastic materials is not anticipated to conflict with existing GHG plans, policies, or regulations. **No impact** would occur.

Manufacture and Production Conformance. Major chemical and petrochemical plants in California are subject to CARB's Mandatory Greenhouse Gas Reporting Program (MGGRP), if they emit annual emissions equal or greater than 10,000 metric tons of carbon dioxide equivalent ($MTCO_2e$). An increase in production or refinery operations may increase a plant's GHG emissions beyond the 25,000 $MTCO_2e$ threshold, which would result in that facility becoming subject to the CCTP. The CCTP would require these facilities to achieve GHG emissions reductions, consistent with AB 32 reduction goals, which is the policy basis for regulating GHG emissions under CEQA. These applicable facilities already may be reporting and reducing their GHG emissions via the MGGRP and CCTP, depending on their current emission levels. GHG emissions from the production of plastic pipe materials are expected to be lower than the manufacture and production of metallic materials and, therefore, to achieve a general reduction in GHG emissions. In addition, any increase in plastic materials would result in a decrease in the use of metallic materials for water, wastewater, and drainage lines at OSHPD facilities. Estimating the net increase or decrease of GHG emission because of the manufacture and production of plastic or metallic materials would be speculative. However, any increase in manufacture and production of plastic pipe and tubing because of the Proposed Project would require adherence to existing plans, polices, and regulations to reduce GHG emissions. Thus, no conflicts with applicable plans, policies, or regulations would happen. Therefore, **no impact** would occur.

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Chapter 8
HAZARDS AND HAZARDOUS MATERIALS

8.1 Introduction

This chapter describes the regulatory and environmental setting associated with hazardous materials and wastes, the significance criteria and the methodology used to evaluate significance, and the potential impacts related to hazardous materials and wastes that would occur if the Proposed Project is approved and implemented. Hazards related to the proximity to airports, wildland fires, and emergency responses were discussed in the Initial Study for this Proposed Project and were determined to be less than significant. Consequently, these particular hazards are not evaluated further in this Draft EIR. For potential hazardous effects related to emissions from the Proposed Project, see Chapter 4, Air Quality. Chapter 9 discusses potential impacts and hazards of the Proposed Project related to water quality.

8.2 Regulatory Setting

Federal agencies that regulate hazardous materials include the U.S. Environmental Protection Agency (EPA), the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), and the U.S. Department of Transportation (DOT). At the state level, agencies such as the California Department of Industrial Relations, the California Division of Occupational Safety and Health (Cal/OSHA), and the California Emergency Management Agency (CalEMA) have primary responsibilities administering regulations governing the use of hazardous materials.

Generation, transportation, and disposal of hazardous wastes also are regulated by different agencies. The lead federal agency is EPA. The California Department of Toxic Substances Control (DTSC) has primary state regulatory responsibility but may delegate enforcement authority to local jurisdictions that enter into agreements with the State agency.

The following is a review of federal, State, and local regulations that are potentially pertinent to the Proposed Project. State and local agencies often have either parallel or more stringent rules than federal agencies. In most cases, State law prevails over federal law, and enforcement of these laws is the responsibility of the State or a local agency to which enforcement powers are delegated. A brief description of codes and standards applicable to the manufacture and/or use of ABS, PVC, and CPVC plastics also is provided.

8.2.1 Federal Laws, Regulations, and Policies

Title 40 of the Code of Federal Regulations

Title 40 of the Code of Federal Regulations (CFR) encompasses mainly environmental regulations that were promulgated by EPA, based on the provisions of federal laws (statutes

of the U.S. Federal Code). The following subsections summarize specific sections of Title 40 that are relevant to the Proposed Project.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also known as Superfund) provides EPA with the regulatory authority to seek out parties responsible for uncontrolled or abandoned hazardous-waste sites, and for accidents, spills, and other emergency releases of pollutants and contaminants into the environment, and to ensure their cooperation in cleanup efforts. EPA and state environmental protection or waste management agencies coordinate identification, monitoring, and response activities for Superfund sites. Implementation of the Proposed Project may result in the handling, transport, and temporary storage of hazardous materials during the installation process and eventual disposal of nonhazardous waste (i.e., PVC, CPVC, and ABS pipes); such activities would be subject to the regulations set forth under CERCLA.

Resource Conservation and Recovery Act of 1976

Under the Resource Conservation and Recovery Act (RCRA), EPA regulates hazardous waste from "cradle to grave," which includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also provides a framework for the management of nonhazardous solid wastes. Implementation of the Proposed Project may result in the generation, transportation, temporary storage, and disposal of hazardous wastes (e.g., resins, primers, cements, and solvents), as well as the generation, transportation, and disposal of nonhazardous solid wastes (i.e., PVC, CPVC, and ABS pipes). Such activities would be required to adhere to the regulations set forth under RCRA.

Hazardous and Solid Waste Amendments

The Hazardous and Solid Waste Amendments (HSWA) amended RCRA in 1984, affirming and extending the "cradle to grave" system of regulating hazardous wastes. The amendments specifically prohibit the use of certain techniques for the disposal of some hazardous wastes, focusing on waste minimization and phasing out land disposal of hazardous wastes, as well as providing corrective action for releases. Additional HSWA mandates include enhanced enforcement authority for EPA, stricter hazardous waste management standards, and a comprehensive underground storage tank program. As discussed under RCRA, the Proposed Project may result in the generation, transportation, treatment, temporary storage, and disposal of hazardous wastes, as well as the generation, transportation, and disposal of nonhazardous solid wastes; such activities would be subject to the regulations set forth by the HSWA.

Title 49 of the Code of Federal Regulations

Under Title 49 of the CFR, DOT has the regulatory responsibility for the safe transportation of hazardous materials. DOT regulations govern all means of transportation, except packages shipped by mail. Implementation of the Proposed Project may result in the transportation of hazardous materials to and from OSHPD 1, 2, 3 and 4 facilities. Such activities would be required to conform to all of the regulations set forth under Title 49.

Title 29 of the Code of Federal Regulations

Occupational safety standards are established in Title 29 of the CFR, to minimize worker safety risks from both physical and chemical hazards in the workplace. The installation of PVC, CPVC, and ABS pipes would require the use of hazardous solvent cements that would be subject to Title 29 regulations. OSHA is the agency with primary responsibility for assuring worker safety in the workplace. Under 29 CFR 1910.1200 (Hazard Communication Standard), construction workers must be informed about hazardous substances that they may encounter. Among other provisions, the regulations require that employers identify and label hazardous substances and communicate hazard information relating to hazardous substances and their handling.

The hazard communication program also requires that material safety data sheets (MSDS) detailing the safety of various materials be available to employees, and that employee information and training programs be documented. MSDS are prepared by the manufacturer or importer of a chemical, and they describe the physical and chemical properties, health hazards, exposure pathways, permissible exposure limits, proper handling and use, emergency and first aid, and control measures. Workers rely on MSDS for information about chemical hazards and how to work safely with specific chemical products.

Title 29 regulations also require employers to prepare emergency action plans (including escape and evacuation procedures, rescue and medical duties, alarm systems, and training in emergency evacuation).

Compliance with 29 CFR 1926 Subpart B (General Safety and Health Provisions) requires that workers be trained to recognize workplace hazards and what steps to take to reduce potential risks caused by such hazards. To protect workers from exposure to potential hazards, a site health and safety plan must be prepared before any work may start at a site that is contaminated, or where work requires disturbance of building materials containing hazardous substances. OSHA includes extensive, detailed requirements for worker protection, applicable to any activity that can disturb materials containing asbestos, including maintenance, renovation, and demolition. These regulations also are designed so that persons working near the maintenance, renovation, or demolition activity are not exposed to asbestos.

Title 29 includes special provisions for communicating about hazards to employees in research laboratories, including training employees on chemical work practices. Specific, more detailed training and monitoring is required for the use of carcinogens, ethylene oxide, lead, asbestos, and certain other chemicals listed under Title 29. Emergency equipment and supplies, such as fire extinguishers, safety showers, and eye washes, also must be provided and maintained in accessible workplaces.

The Interim Final Rule under 29 CFR 1926.62 covers construction work where employees may be exposed to lead during such activities as demolition, removal, surface preparation for repainting, renovation, cleanup, and routine maintenance. The OSHA-specified method of compliance includes respiratory protection, protective clothing, housekeeping, hygiene facilities, medical surveillance, and training.

Emergency Planning and Community Right-to-Know Act

Enacted in 1986, the Emergency Planning and Community Right-to-Know Act (EPCRA), also known as Superfund Amendments and Reauthorization Act Title III, provides State and local-level guidance to plan for chemical emergencies. Under the EPCRA, facilities that store, use, or release certain chemicals may be subject to several reporting requirements. Facility-reported information then is made publicly available so that interested parties have access to this information and may become more informed about potentially deleterious chemicals present in their communities. The Proposed Project may result in the storage and use of chemicals regulated under the EPCRA. Such activities would be required to adhere to the regulations set forth under the EPCRA, including notifying surrounding communities regarding potentially deleterious chemicals present at OSHPD 1, 2, 3, and 4 facilities.

Toxic Substances Control Act of 1976

The Toxic Substances Control Act (TSCA) provides EPA with the regulatory authority to implement requirements for reporting, recordkeeping, testing, and restrictions associated with chemical substances and/or mixtures. Specifically, under the TSCA, EPA regulates the production, importation, use, and disposal of specific chemicals, such as PCBs, asbestos, radon, and lead-based paint (LBP). Demolition and construction activities associated with the Proposed Project may require the disposal of chemicals, such as asbestos or LBP. Such activities would be subject to the regulations set forth under the TSCA.

8.2.2 State Laws, Regulations, and Policies

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

In January 1996, the California Environmental Protection Agency (CalEPA) adopted regulations implementing a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program). The program has six elements: Hazardous Materials Release Response Plans and Inventories; California Accidental Release Prevention Program; Underground Storage Tank Program; Aboveground Petroleum Storage Act Program; Hazardous Waste Generator and Onsite Hazardous Waste Treatment (tiered permitting) Programs; and California Uniform Fire Code: Hazardous Material Management Plans and Hazardous Material Inventory Statements. The Unified Program is implemented at the local level, and the Certified Unified Program Agency (CUPA) is the local agency that is responsible for its implementation. A total of 83 CUPAs throughout the state administer the Unified Program. Because of the various types and quantities of chemical materials transported, used, stored, and disposed at OSHPD 1, 2, 3, and 4, facilities throughout the state and the quantities that may be needed for the Proposed Project, regulations and reporting requirements of the Unified Program would be applicable.

Public Resources Code Section 21151.4 (Consultation with a School District)

The Public Resources Code (PRC) requires the lead agency to consult with any school district with jurisdiction over a school within 0.25 mile of a project about potential impacts on the school if the project may reasonably be anticipated to emit hazardous air emissions, or handle an extremely hazardous substance or a mixture containing an extremely hazardous substance. The Proposed Project could be subject to this regulation if changes to

the plumbing installations at an OSHPD 1, 2, 3, or 4 facility is within 0.25 mile of a school and the installation involves the use of an extremely hazardous substances, as defined under 40 CFR, Part 355 Appendix A or Appendix B (Emergency Planning and Notification).

Hazardous Waste Control Act (California Health and Safety Code Section 25100 et seq.)

Similar to RCRA, the Hazardous Waste Control Act regulates identification, generation, transportation, storage, and disposal of materials that the State deems hazardous. This act is administered by the California Department of Toxic Substances Control (DTSC). The Proposed Project would be subject to this regulation for the same reasons cited earlier for the parallel federal act.

California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act)

This act, administered by DTSC, requires that any business handling hazardous materials prepare a business plan, which must include the following:[1]

- details, including floor plans, of the facility and business conducted at the site;
- an inventory of hazardous materials that are handled or stored on the site;
- an emergency operations plan; and
- a safety and emergency response training program for new employees with annual refresher courses.

Businesses, including medical facilities, must prepare these plans if the quantities of hazardous materials on-site exceed amounts specified in the act.

Title 26 of the California Code of Regulations (Hazardous Materials Transportation); California Vehicle Code Section 32000

The State has adopted DOT regulations (49 CFR) for the intrastate movement of hazardous materials. State regulations are contained in Title 26 of the California Code of Regulations (CCR). In addition, the State regulates the transportation of hazardous waste originating in the state and passing through the state. Both federal and State regulatory programs apply in California.

The two State agencies that have primary responsibility for enforcing federal and State regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans). CHP enforces the labeling of hazardous materials, hazardous wastes, and packing regulations to prevent leakage and spills of material in transit, and to provide detailed information to cleanup crews in the event of an accident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of CHP, which conducts regular inspections of licensed transporters to assure regulatory compliance.

[1] Hazardous Materials Release Response Plans and Inventory Law, California Health and Safety Code, Chapter 6.95.

Caltrans has teams to respond to and identify emergency chemical spills. A total of 72 locations throughout the state can respond quickly in the event of a spill. In addition, the State regulates the transportation of hazardous waste originating or passing through the state. Common carriers of hazardous waste are licensed by CHP, in accordance with California Vehicle Code Section 32000. Every type of hazardous waste package used by a hazardous materials shipper must undergo tests that imitate some of the possible rigors of travel.

California Health and Safety Code Section 25503.5 (Handling of Hazardous Materials and Waste); California Health and Safety Code, Chapter 6.5, Article 2

The management of hazardous materials and waste is regulated by a number of agencies at the State level, including CalEPA, DTSC, the Regional Water Quality Control Boards, Caltrans, CHP, and Cal/OSHA.

Hazardous Materials Use during Operation of OSHPD 1, 2, 3, and 4 Facilities

Hazardous materials are required to be stored in designated areas, designed to prevent accidental release to the environment. California Building Code requirements prescribe safe accommodations for materials that present a moderate explosion hazard, high fire or physical hazard, or health hazards. The Hazardous Materials Management Act (California Health and Safety Code Section 25503.5) requires that businesses handling or storing certain amounts of hazardous materials prepare a hazardous materials business plan, which includes an inventory of hazardous materials stored on-site (above specified quantities), an emergency response or operations plan, and an employee training program. Businesses that use, store, or handle 55 gallons of liquid, 500 pounds of a solid, or 200 cubic feet of a compressed gas at standard temperature and pressure require this business plan.

Hazardous Waste Management during Construction of OSHPD 1, 2, 3, and 4 Facilities

Hazardous waste may be generated at OSHPD facilities during installation of the proposed plastic pipes and would need to be transported to a treatment, storage, and disposal facility that is permitted to accept such waste. DTSC is authorized by EPA to enforce the requirements of RCRA. Under the State's Hazardous Waste Control Law, DTSC has adopted extensive regulations governing the generation, transportation, treatment, and disposal of hazardous wastes, which are more stringent than the requirements of RCRA. The State requirements for hazardous waste management are specified under Chapter 6.5, Article 2 of the California Health and Safety Code.

Title 8 of the California Code of Regulations (Worker Safety during Construction and Operation) and 22 CCR Chapter II, Division 4.5 (Lead and Lead-Based Paint)

Occupational safety standards have been established in federal and State laws to minimize worker safety risks from both physical and chemical hazards in the workplace. Cal/OSHA and OSHA are the agencies with primary responsibility for assuring worker safety in the workplace. Cal/OSHA has primary responsibility for developing and enforcing standards for safe workplaces and work practices in California, in accordance with regulations specified under Title 8. California has a federally approved OSHA program and is required to adopt regulations that are at least as stringent as those under Title 29 of the CFR. Cal/OSHA

standards generally are more stringent than federal regulations. These regulations apply to OSHPD facilities and provide worker protection from exposure to hazards, both during construction and operations.

During installation of the new plumbing materials allowed by the Proposed Project, hazardous building materials may be encountered and would pose a risk for construction workers, users of the OSHPD facility, and the general public. Therefore, the following regulations would be relevant to construction activities that could result from the Proposed Project:

Asbestos in Structures and Buildings (8 CCR Sections 1529 and 5208): Asbestos represents a risk to human health when asbestos fibers become airborne ("friable") and are inhaled into the lungs. Asbestos is regulated both as a hazardous air pollutant under the federal Clean Air Act regulations and as a potential worker safety hazard under the authority of Cal/OSHA. These regulations prohibit emissions of asbestos from asbestos-related manufacturing, demolition, or construction activities; require medical examinations and monitoring of employees engaged in activities that can disturb asbestos-containing building materials; specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos fibers; and require notice to federal and local government agencies before the start of renovation or demolition that could disturb asbestos-containing building materials. The agencies with primary responsibility for asbestos safety are the local air quality management districts, Cal/OSHA, OSHA, and EPA.

Cal/OSHA regulates asbestos removal to ensure the health and safety of workers removing materials containing asbestos, and it must be notified of asbestos abatement activities. Cal/OSHA requires that abatement and removal of asbestos be conducted by contractors certified and registered under the Cal/OSHA training program.

Cal/OSHA, like OSHA, includes extensive, detailed requirements for worker protection applicable to any activity that could disturb materials containing asbestos (8 CCR 5208), including maintenance, renovation, and demolition. These regulations are also designed to ensure that persons working near the maintenance, renovation, or demolition activity are not exposed to asbestos.

Lead and Lead-Based Paint (22 CCR Chapter II, Division 4.5): This regulation considers waste soil with concentrations of lead to be hazardous if it exceeds a total concentration of 1,000 parts per million and a soluble concentration of 5 parts per million. Typically, building materials with LBP attached are not considered hazardous waste unless the paint is chemically or physically removed from the building debris. Both OSHA and Cal/OSHA regulate worker exposure during construction activities that include exposure to LBP.

Hazard Communication (8 CCR Section 5194): Under this regulation, construction workers must be informed about hazardous substances that they may encounter.

Training (8 CCR Section 3203): These requirements ensure that workers are properly trained, to recognize workplace hazards and take appropriate steps to reduce and/or report potential risks caused by such hazards. This is particularly important if a construction worker encounters previously unidentified contamination or buried hazards.

Health and Safety Plans (8 CCR Section 5192): If additional investigation or remediation is determined to be necessary, those individuals involved in the investigation or cleanup work must comply with Cal/OSHA standards for hazardous waste operations. To protect workers from exposure to potential hazards, a site health and safety plan must be prepared before any work may begin at a site that is contaminated or where work requires disturbance of building materials containing hazardous substances.

The following regulations would be relevant to worker safety during operation of the Proposed Project:

Hazard Communication Program (8 CCR): Cal/OSHA regulations (8 CCR) concerning the use of hazardous materials in the workplace require employee safety training, safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces regulations governing hazard communication programs. Among other provisions, the regulations require that employers identify and label hazardous substances and communicate hazard information relating to hazardous substances and their handling. The hazard communication program also requires that data sheets detailing the safety of various materials be available to employees and that employee information and training programs be documented. These regulations also require preparing emergency action plans (including escape and evacuation procedures, rescue and medical duties, alarm systems, and training in emergency evacuation).

State laws, like federal laws, include special provisions for hazard communication to employees in research laboratories, including training in chemical work practices. Specific, more detailed training and monitoring is required for the use of carcinogens, ethylene oxide, lead, asbestos, and certain other chemicals (listed in 29 CFR). Emergency equipment and supplies, such as fire extinguishers, safety showers, and eye washes, must also be provided and maintained in accessible places.

Emergency Response Plan (8 CCR): California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local governments and private agencies. Responding to hazardous materials incidents is one part of this plan. The plan is administered by the California Emergency Management Agency (formerly Governor's Office of Emergency Services), which coordinates the responses of other agencies, including CalEPA, CHP, the California Department of Fish and Wildlife, the Regional Water Quality Control Boards, and local emergency response teams, typically fire departments.

Hospitals

OSHPD is a department of the California Health and Human Services Agency. OSHPD monitors the construction, renovation, and seismic safety of hospitals and skilled nursing facilities. OHSPD's primary goal is to provide access to safe, quality healthcare environments that meet California's diverse and dynamic needs. OSHPD's Facilities Development Division reviews and inspects health facility construction projects, and also enforces building standards, per the California Building Standards Code, as they relate to health facilities construction.

California Department of Resources Recycling and Recovery

The California Department of Resources Recycling and Recovery (CalRecycle) is responsible for monitoring municipal solid waste and promoting recycling in California (CalRecycle 2015). California adopted its first comprehensive solid waste management program in 1989. The California Integrated Waste Management Act (Assembly Bill 939, Sher, Chapter 1095, Statutes of 1989) established a full-time California Integrated Waste Management Board (CIWMB, now the Department of Resources Recycling and Recovery, or CalRecycle). The act also created a comprehensive statewide system for permitting, inspecting, and enforcement requirements for solid waste facilities to ensure public and environmental health and safety. The Proposed Project would be subject to AB 939 regulations for disposal of non-hazardous and hazardous wastes.

8.2.3 Local Laws, Regulations, and Policies

Activities conducted as a result of the Proposed Project would be required to comply with local CUPAs in combination with local emergency responders and hazardous materials teams that administer the state programs and regulations at the local level. In addition, such activities would need to be compliant with the requirements of local environmental health and building departments.

8.2.4 Codes and Standards

National Institute for Occupational Safety and Health

The National Institute for Occupational Safety and Health (NIOSH) Pocket Guide to Chemical Hazards provides general industrial hygiene information on several hundreds of chemical/classes for workers, employers, and occupational health professionals to help identify and control occupational chemical hazards. The Proposed Project may result in the use of resins, primers, cements, or solvents that contain chemicals that are subject to NIOSH standards.

NSF International and the American National Standards Institute

Activities conducted under the Proposed Project would need to comply with the California Plumbing Code Table 604.1 f and the National NSF/ANSI Standard 61 for water distribution and Table 701.1 for drain, waste, and vent lines. NSF International and the American National Standards Institute are third-party product testing, inspection, and certification organizations that verify whether industrial materials meet public health and safety

standards. NSF/ANSI 61 sets health effects criteria for many drinking water system components. (NSF 2015)

American Society for Testing and Materials

The American Society for Testing and Materials (ASTM) is one of the world's largest organizations responsible for establishing manufacturing and other standards. ASTM provides a forum for the development and publication of international voluntary consensus standards and technical documents that are a basis for manufacturing, management, procurement, codes and regulations. Activities conducted under the Proposed Project would be expected to follow established temperature and pressure specifications, developed by ASTM for use related to PVC, CPVC, and ABS pipes.

8.3 Environmental Setting

The Proposed Project would allow use of PVC, CPVC, and/or ABS pipes for water, wastewater and drainage lines and the use of PFA for dialysis branch lines. The Proposed Project would not mandate that these materials be used exclusively nor establish a time frame within which use of the new materials should occur. Decisions about the type of pipes to be used would be made on a project-specific basis at the time of design, construction, or renovation of an OSHPD 1, 2, 3, or 4 facility. Therefore, the existing conditions in which metallic piping is used for water, wastewater, and drainage lines are likely to continue for many existing OSHPD 1, 2, 3 and 4 facilities, and may continue for new facilities as well.

Existing plumbing systems at OSHPD 1, 2, 3 and 4 facilities use galvanized iron, steel, and copper pipes, in accordance with the existing plumbing code. Installation of water, wastewater, and drainage lines using these metallic pipes generally require welding or soldering and flux. Welding is a method of tightly bonding two metals by melting them where they join. Soldering is the process of joining two metal pieces together. Flux is a chemical cleaning agent that helps with soldering and welding by removing oxidation from the metals to be joined. In particular, flux helps to remove rust from pipe sections being soldered, it seals out air that reduces further rusting, and it improves the wetting characteristics of the liquid solder. Highly active fluxes are often acidic and/or corrosive. Fumes may be released during soldering that can have adverse human health effects (through inhalation), and volatile organic compounds can be outgassed during processing.

Plumbers installing water, wastewater, and drainage lines at existing OSHPD 1, 2, 3, and 4 facilities, as well as other individuals in the vicinity of the construction work, may be exposed to a variety of chemicals used during construction, including lead, adhesives, solvents, solder, sulfur dioxide, and other toxic substances. Some older OSHPD 1, 2, 3 and 4 facilities (constructed prior to 1978) where the plumbing is being installed or upgraded may contain hazardous building materials, such as asbestos, LBP, and mold, which can pose a risk for construction workers. Galvanized pipes generally are threaded and do not require the use of bonding agents.

OSHA and Cal/OSHA worker safety regulations during construction and operations, and facility-specific hazardous materials business plans are the primary instruments for managing hazardous materials and reducing health risks for those working in, receiving health care in, or visiting OSHPD 1, 2, 3, and 4 facilities.

8.4 Impact Analysis

8.4.1 Methodology

The MSDS for commonly used resins, primers, cements, and solvents (e.g., acetone, cyclohexanone, methyl ethyl ketone [MEK], and tetrahydrofuran) associated with installation of PVC, CPVS, and ABS pipes and manufacturing guides for industrial materials (i.e., PVC, CPVC, and ABS pipes) were reviewed to identify potential impacts on worker safety, public health, and the environment. The MSDS indicate acute and chronic effects from exposure to these chemicals that would require mitigation to minimize the health risks if exposure limits exceed Cal/OSHA or NIOSH standards.

The Department of Housing and Community Development's Draft Environmental Impact Report, Adoption of Regulations Permitting Statewide Residential Use of Chlorinated Polyvinyl Chloride (PVC) Plastic Plumbing Pipe without First Making a Finding of Potential Metallic Pipe Failure Due to Local Water or Soil Conditions (HCD 2006) evaluated, among other things, the potential impacts of adhesives on worker safety, and it was considered during the preparation of the analysis for this Draft EIR.

8.4.2 Significance Criteria

The Proposed Project would have a significant effect related to hazards and hazardous materials if it would:

A. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or the reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

B. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or wastes within 0.25 mile of an existing or proposed school.

C. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to California Government Code section 65962.5, and as a result, create a significant hazard to the public or the environment.

D. Result in a safety hazard for people residing or working in the project area if the project is within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public-use airport or private airstrip.

E. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

F. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

G. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Criteria A, B, and C were evaluated in the Initial Study (Appendix A) and were determined to be less than significant, but they are further evaluated in this Draft EIR. Criteria D, E, F, and G also were evaluated in the Initial Study; however, as noted in the introduction to this chapter (Section 8.1), they would have a less-than-significant impact and are excluded from the following discussion.

8.4.3 Environmental Impacts

Impact HAZ-1: Cause a Temporary Chemical Exposure during the Installation of PVC, CPVC, or ABS Pipes (*Less than Significant*)

During the installation of PVC, CPVC, and ABS pipes, carcinogenic components (vinyl chloride monomer) and specialized resins, primers, cements, and solvents may be used. If unregulated or used improperly, these chemicals have been associated with potential health risks, such as skin irritation and/or dizziness. EPA does not designate PVC, CPVC, and ABS pipes as hazardous materials or wastes; however, the resins, primers, cements, and solvents used to connect the pipes are listed as hazardous materials and wastes in Section 302.4 or RCRA Section 261, Title 40 of the CFR, respectively. Accordingly, the use of these materials in sufficient quantities in uncontrolled conditions may affect construction workers and possibly employees, patients, and visitors at OSHPD 1, 2, 3, and 4 facilities.

Although the specific resins, primers, cements, or solvents that may be used during future installations (if the Proposed Project is approved) are unknown, this impact analysis focuses on the four most common chemicals (i.e., acetone, cyclohexanone, MEK, and tetrahydrofuran) found in resins, primers, cements, or solvents that would be used to connect the pipes, and thus would be representative of the products used. Furthermore, these chemicals are known to emit VOCs during the curing process.

Eye and respiratory tract irritation, headaches, dizziness, visual disorders, and memory impairment are among the immediate symptoms that some people have experienced soon after exposure to some of these chemicals. Dermal absorption of the hazardous constituents in the resins, primers, cements, and solvents may result in effects from an acute exposure, defined as a single exposure to a harmful substance (not lasting more than a day), which may include skin and eye irritation. The effect from chronic exposure is defined as repeated, continuous exposure to a hazardous substance over an extended period, usually from 7 to 70 years, and may include target organ damage, coma, or death.

To reduce the level of exposure to workers transporting, installing, or disposing these chemicals, each facility would provide appropriate training (e.g., use of personal protective equipment, first aid, proper labeling and storage of hazardous materials, and work zone designation) before allowing workers to handle these materials, in accordance with Section 302.4, Title 40 of the CFR as well as OSHA federal, State, and local laws and regulations. In addition, protocols in the MSDS and manufacturer's instructions prescribe the proper and safe use of these chemicals. Furthermore, proper ventilation or respirators would be required during the installation of PVC, CPVC, and ABS pipes. Compliance would be enforced by Cal/OSHA.

According to the MSDSs for products used in current plumbing installations, the health effects are similar to those for chemicals used to bond PVC, CPVC, and ABS pipes (e.g., acetone, cyclohexanone, MEK, and tetrahydrofuran) and require OSHA compliance. Therefore, the potential health effects and the administrative and management measures to

avoid potentially significant health exposures that could occur if the Proposed Project is implemented would be similar to those associated with the existing conditions, and the Proposed Project would not be expected to substantially increase the risk of exposure to hazardous chemicals during the installation of any plastic pipes and tubes.

Use of solvent cements in the installation of PVC, CPVC, and ABS pipes already is common practice for non-OSHPD facilities and uses. The following safety precautions would be followed as standard procedure and would be required during installation of pipes under the Proposed Project. These measures would be enforced by Cal/OSHA so that the chemicals would be used properly and safely, and would avoid potentially significant impacts.

a. Only resins, primers, cements, and solvents, and other sealants may be used that are approved by pipe manufacturers, or that are identified in the California Plumbing Code for use in potable water, sewer, drain, waste, and vent systems;

b. Solvent cement manufacturer's instructions and material-specific MSDS will be followed, including:

- avoid breathing vapors by use of an air purifying respirator (e.g., P95 mask), or equivalent, when applying the bonding agent;
- use only with adequate ventilation, as needed;
- avoid frequent contact with skin;
- avoid contact with eyes;
- eliminate all ignition sources;
- store primer and solvent cement in the shade between 40 and 110 degrees Fahrenheit (°F);
- close containers tight when not in use, and cover as much as possible during use; and
- follow all manufacturer-recommended precautions when using power tools; and

c. Plumbing systems will be flushed for a minimum of 10 minutes after pressure testing to remove trace amounts of solvents or other system components.

The above measures would effectively reduce worker and public health risks from exposure to solvent cements. In addition, occasions may occur when OSHPD could implement alternative joining techniques that would not require resins, primers, cements, or solvents but, instead, would include threaded, compression, or quick snap connections. Use of these types of pipes would eliminate the need for resins, primers, cements, and solvents, and thus would eliminate the potential for exposure of resins, primers, cements, or solvents to workers and others near a construction area. When such installations are technically feasible and cost effective, OSHPD would consider such joints as an option.

Existing requirements to protect the safety of workers and others near a construction area would continue to be applied for activities conducted under the Proposed Project; these requirements would be adequate so that exposure to these chemicals would not result in significant human health impacts. Therefore, the impact would be **less than significant**.

Impact HAZ-2: Create a Significant Hazard during Transportation and Disposal of Asbestos-Containing Materials and Lead-Based Paint following Installation of PVC, CVPC, or ABS Pipes (*No Impact*)

The Proposed Project would allow PVC, CPVC, and ABS pipes to be installed at OSHPD 1, 2, 3, and 4 facilities that were constructed prior to 1978. During the installation, construction at an OSHPD facility may encounter hazardous building materials, such as asbestos-containing materials (ACM) and LBP. Improper care and handling of these materials may result in health effects to construction workers, users of the medical facility, and the public during transport of construction wastes.

Cal/OSHA regulations governing worker safety provide worker protection in the event that workers may be exposed to hazardous conditions (see Title 8 and Title 22 of the CCR). DTSC classifies ACM as hazardous if it is friable and contains 1 percent or more of asbestos under Section 66261.24 of the CCR. DTSC requires hazardous ACM and LBP to be properly contained and labeled during transportation to a regulated hazardous waste disposal facility. Transportation and disposal of ACM and LBS would occur only during the replacement of aging plumbing systems and not routinely. Because of these existing regulations, adequate protection exists to avoid health hazards from construction and installation of plastic pipes and tubing that would be permitted under the Proposed Project.

Furthermore, encountering hazardous building components during the renovation and installation of water, wastewater, and drainage lines or PFA for dialysis branch lines could occur under existing conditions. This potential to encounter hazardous building components when installing or upgrading pipes with metallic materials already exists and would continue to exist regardless of whether the proposed revisions to the plumbing code are approved and implemented. Consequently, the Proposed Project would not increase the potential risk associated with encountering hazardous building components relative to existing conditions.

From the foregoing, the Proposed Project would not expose construction workers, OSHPD 1, 2, 3 and 4 facility users, and the public to ACM, LBP, and other building materials and components that contain hazardous materials. **No impact** would occur.

Impact HAZ-3: Create a Significant Hazard from Premature ABS Pipe Failure related to the Use of "Incompatible" Chemicals (*Less than Significant*)

The introduction of disinfectant chemicals into plumbing infrastructure at an OSHPD 1, 2, 3 or 4 facility would occur only in drainage or waste sewer connections. Such chemicals would not be used in potable water distribution lines. Consequently, this impact analysis does not address water lines, and premature pipe failure from the use of PVC and CPVC piping materials because of the Proposed Project would not occur.

By contrast, potential premature failure of ABS pipes used in the drain or waste/sewer connections may occur if "incompatible" chemicals are used in these pipes. ABS pipe is resistant to most household chemicals and many corrosive industrial liquids. However, ABS pipes may be incompatible with some chemicals in high concentrations or purity and with

higher temperatures. These incompatible chemicals are those that can cause accelerated pipe deterioration or degradation. The effect on the pipe can vary from negligible, if the discharge occurs within temperature specifications, to minor swelling or elongation, to a 50 percent loss in strength, as identified in standard chemical resistance guides (e.g., The Plastic Pipe Institute 2007).

It is not practical to evaluate the incompatibility of all chemicals that could be used in ABS pipes at OSHPD 1, 2, 3, and 4 facilities, which could be affected by the Proposed Project. However, as part of facility design and construction, construction contracts and specifications would be required to conform to and/or reference applicable sections from the California Plumbing Code and from industrywide chemical resistance guides, such as The Plastic Pipe Institute's publication TR-19/2007 and ASTM specifications for ABS pipes.

Because the selection of piping materials would consider their tolerance for the types of chemicals that may be used in them, the potential for incompatibility and premature failure would be low. The impact would be **less than significant**.

Impact HAZ-4: Cause a Potential Risk of Rupture or Failure from Use of PVC, CPVC, and ABS Pipes Outside Established Operating Criteria (*Less than Significant*)

ASTM Standards F441/F441M-02 and ASTM D2846/D2846M-06 establish temperature and pressure specifications for a variety of sizes and schedules for PVC and CPVC pipes for water distribution and ABS piping for waste discharge. These standards indicate that under typical operating conditions, PVC and CPVC would not fail when temperatures are less than 120°F and operating pressure is less than 90 pound per square inch (psi). ABS piping can withstand temperatures up to 100°F and 80 psi (Engineering Toolbox 2015). Because the maximum temperature to prevent scalding is 120°F (and likely would be the maximum water temperature at OSHPD 1, 2, 3 and 4 facilities), PVC and CPVC pipes would not fail under standard operating conditions. For ABS pipes, sewer and drain conditions would be atmospheric temperatures (typically less than 120°F) and pressure, and where a force main application or elevated vent temperature would be encountered, appropriate pipe material would be selected by the designer and would be subject to applicable building codes. Therefore, because the proper material would be selected for the intended use, failure of plastic pipes would not be anticipated. The impact would be **less than significant**.

Impact HAZ-5: Cause a Potential Risk of Biofilm Accumulation and Bacterial Exposure to Dialysis Patients from Use of PFA Tubing (*Less than Significant*)

Biofilm and bacterial growth occur in dialysis water systems constructed of various piping materials (e.g., PVC) that could be dangerous for dialysis patients. The Proposed Project would allow use of PFA materials in the dialysis branch lines. PFA tubing is accepted by the U.S. Department of Health and Human Services, Centers for Medicare and Medicaid Services, and the Association for the Advancement of Medical Instrumentation for use in dialysis branch lines (Mar Cor 2014). In addition, PFA tubing complies with relevant manufacturing and application standards, including U.S. Pharmacopoeia Class VI for safeguarding the quality of medicines and other health care technologies; 3-A sanitary standards for the advancement of hygienic equipment design for the food, beverage, and pharmaceutical industries; and the National Fire Protection Association Life Safety Code 101 for strategies to protect people based on building construction, protection, and occupancy features that minimize the effects of fire and related hazards. PFA is chemically inert and has been shown to be more resistant to biofilm than traditional PVC pipes (Renal Business Today 2013).

Because PFA tubing uses smooth walls to prevent biofilm accumulation and involves fewer and cleaner fittings/couplings, the Proposed Project, which would permit PFA in dialysis water systems, would not be expected to have an effect on public health. The impact would be **less than significant.**

Impact HAZ-6: Endanger Schools within 0.25 mile, the Public or the Environment through the Release of Hazardous Materials into the Environment under Accident Conditions (*Less than Significant*)

Accidental conditions could include spills during transport or during on-site use that would release resins, primers, cements, and solvents. However, these materials are viscous and if spilled, they would not be expected to migrate far from the accidental release and would be readily containable. In-house emergency response and clean-up activities are part of the routine standard operating procedures that are followed at each OSHPD 1, 2, 3, and 4 facility. Transport of hazardous materials that may occur under the Proposed Project would follow all manufacturers' guidance, laws, and regulations set forth by the EPA in Section 28, Title 40 of the CFR and enforced by Caltrans and CHP, including proper training, storage, labeling, and emergency protocols.

The potential risk from an accidental release of hazardous materials used in the installation of plastic pipes or in transport to and from an OSHPD 1, 2, 3 and 4 facility would not be expected to be substantially different from existing conditions involving the use of metallic pipes. Therefore, the impact would be **less than significant**.

Impact HAZ-7: Potentially Could Be Located on a Listed Hazardous Materials Site (*No Impact*)

Existing or new OSHPD 1, 2, 3 and 4 facilities could be on a site of environmental contamination and included on the State's hazardous materials list, pursuant to Government Code Section 65962.5. However, the choice of piping material would not affect this circumstance in any way. Thus, changes to the materials used in plumbing installations that would be allowed under the Proposed Project would have no effect on potential risks associated with being on a hazardous materials site. **No impact** would occur.

Impact HAZ-8: Create Increased Hazards from Disposal of Plastic Pipes (Less than Significant)

The Proposed Project eventually may result in a change in the type of construction debris to be disposed, because plastic pipe installed as part of the Proposed Project ultimately could require disposal, instead of the previously approved materials (e.g., copper or galvanized), which are recyclable and would avoid landfill disposal (American Galvanizers Association 2015). A CIWMB report indicated that plastics used in construction accounts for 75 percent of all PVC consumption (CIWMB 2006). Of these materials, piping, ducting, flooring, window casings, cladding, roof membranes, and wall coverings represent more than 65 percent of that total.

The CIWMB report evaluated available disposal methods, including landfilling, incineration, and recycling of PVC under various conditions. The potential for leaching hazardous materials from plastic pipes disposed in landfills into water resources is discussed in Chapter 9, Water Quality. Incineration of plastic pipes could release corrosive hazardous materials, dioxins, and other toxic air contaminants, the impacts of which are described in Chapter 4, Air Quality. Recycling by grinding the pipes into a powder base for reuse in new

products would not necessarily remove the existing hazardous materials within the pipes, although when combined with the new product materials, the concentration of the hazardous materials would be reduced.

Although human health impacts associated with plastic pipe disposal are conceivable, the extent to which the piping material would be used and eventually disposed because of the Proposed Project is unknown, and this would be unlikely to constitute a substantial portion of the existing or future waste stream related to these materials. Thus, the Proposed Project would be unlikely to result in significant human health impacts relative to this issue, and in any case it would be speculative to conclude otherwise. Therefore, the impact would be **less than significant**.

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Chapter 9
HYDROLOGY AND WATER QUALITY

9.1 Introduction

This chapter describes the regulatory setting, environmental setting, and potential impacts of the Proposed Project related to hydrology and water quality.

9.2 Regulatory Setting

9.2.1 Federal Laws, Regulations and Policies

Clean Water Act

The Clean Water Act (CWA) is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The key sections pertaining to water quality regulation for the Proposed Project are CWA Sections 303(d) and 402.

Section 303(d)

Under CWA Section 303(d), states are required to identify "impaired water bodies" (those not meeting established water quality standards), identify the pollutants causing the impairment, establish priority rankings for waters on the list, and develop a schedule for development of control plans to improve water quality. EPA then approves the state's recommended list of impaired waters or adds and/or removes water bodies. Identified 303(d) impairments in California's water bodies are highly variable and dependent on numerous factors, including hydromodifications, and existing and historic land uses (e.g., agriculture, mining) in the watershed and their resulting point source or non-point source pollutant discharges. Pollutants identified in the current 303(d) list generally include: metals, organic and inorganic compounds, sediment or water toxicity, sedimentation/siltation, pH, pesticides, nutrients, temperature, dissolved oxygen, invasive species, fish consumption or shellfish harvesting advisory, habitat alterations, pathogens, and trash (SWRCB 2011). Additional information on 303(d) impairments in California is provided in Section 9.3.3, Surface Water Quality.

Section 402

CWA Section 402 regulates the discharge of pollutants from point sources (e.g., wastewater treatment plants, industrial/commercial uses) and non-point sources (e.g., stormwater) to surface waters through the National Pollutant Discharge Elimination System (NPDES). The NPDES officially is administered by EPA. In California, EPA has delegated its authority to the SWRCB; the SWRCB in turn has delegated implementation responsibility to the nine

Regional Water Quality Control Boards (RWQCBs) in California, as per the Porter-Cologne Water Quality Control Act discussion, below.

The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual permits (activity- or project-specific). In California, NPDES permits also are referred to as waste discharge requirements (WDRs) that regulate discharges to waters of the United States. General stormwater-related permits that may be applicable to the Proposed Project are discussed further below.

For individual permits, the permitting authority (RWQCB or SWRCB) develops a permit for a particular facility based on the information contained in the application (e.g., type of activity, nature of discharge, receiving water quality). The permitting authority issues the permit to the facility for an effective period, not to exceed 5 years (SWRCB 2014a). For example, wastewater treatment plants (WWTPs), which process and treat sanitary sewage, are typically regulated by individual NPDES permits.

Municipal Stormwater Permitting Program

The SWRCB regulates stormwater discharges from municipal separate storm sewer systems (MS4s) through its Municipal Storm Water Permitting Program (SWRCB 2013). Permits are issued under two phases, depending on the size of the urbanized area/municipality. Phase I MS4 permits are issued for medium (population between 100,000 and 250,000 people) and large (population of 250,000 people or more) municipalities, and often are issued to a group of co-permittees within a metropolitan area. Phase I permits have been issued since 1990. Beginning in 2003, the SWRCB began issuing Phase II MS4 permits for smaller municipalities (population less than 100,000). Because the OSHPD 1, 2, 3, and 4 facilities likely would discharge to municipal stormwater drainage systems, the OSHPD facilities may be subject to requirements in the Phase I and Phase II permits, including discharge prohibitions, effluent limitations, receiving water limitations, and/or provisions applicable to all traditional small MS4 permittees.

Pretreatment Program

Publically owned treatment works (POTWs or WWTPs) typically are designed to treat domestic sewage waste and conventional pollutants, and are less capable of removing non-conventional pollutants that are discharged by industrial or commercial dischargers (called industrial users [IUs]) (EPA 2011). Thus, the General Pretreatment Regulations (40 CFR Part 403) were established to define the responsibilities of government agencies, industries, and the public to implement pretreatment standards to control industrial or commercial pollutants that may pass through[1] or interfere with POTWs, or may contaminate sewage sludge (EPA 2011). Although the General Pretreatment Regulations apply to all

[1] Pass through is defined as a discharge that exits the POTW into waters of the United States, in quantities or concentrations that, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit. Interference is defined as a discharge that, alone or in conjunction with a discharge or discharges from other sources, both (1) inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use, or disposal, and therefore (2) is a cause of a violation of any requirement of the POTW's NPDES permit. (EPA 2011)

nondomestic sources that introduce pollutants into a POTW, POTWs can designate significant IUs (SIUs), based on defined criteria, and generally apply more stringent pretreatment regulations to those dischargers. Pretreatment standards required by the General Pretreatment Regulations include prohibited discharge standards, categorical pretreatment standards, and local limits, which address the specific needs of a particular POTW, its sludge, and its receiving waters (EPA 2011). Although hospitals do not have defined categorical pretreatment standards (EPA 2011), they can be considered by a POTW to be an IU and subject to pretreatment standards.

Hospital Point Sources

A hospital point source category (40 CFR Part 460) has been established to regulate wastewater discharges from hospitals with 1,000 occupied beds. Discharges from these facilities would be required, using best practicable control technology currently available, to meet defined effluent limits for biochemical oxygen demand, total suspended solids, and pH.

Federal Antidegradation Policy

The EPA implemented the federal antidegradation policy and has established a three-tiered antidegradation program to maintain and protect existing uses and water quality conditions in water bodies (EPA 2012a). Surface waters are classified into the various tiers based on their suitability to support fishing, swimming, or other uses, and are afforded different protection against the lowering of water quality (EPA 2012a). In no case can surface waters have degraded quality so that they can no longer support existing and designated uses (EPA 2012a).

Safe Drinking Water Act

In 1974, Congress passed the Safe Drinking Water Act (SDWA) to regulate the nation's public drinking water supply and protect public health (EPA 2004). The SDWA, which is applicable to every public water system in the United States, has been amended (1996) to ensure the quality of drinking water from source to tap, by (EPA 2004):

- protecting drinking water sources (surface waters and groundwater wells),
- mandating minimum operator training requirements for the operation and maintenance of public water systems,
- establishing funding for water system improvements, and
- requiring public water suppliers to provide drinking water quality information to their customers.

Under the SDWA, EPA provides guidance, assistance, and public information about drinking water, collects drinking water data, oversees state drinking water programs, and sets national health-based standards for drinking water (EPA 2004).

Drinking Water Contaminants

Under the authority of the SDWA, EPA has established National Primary Drinking Water Regulations (primary standards) that are legally enforceable standards applicable to public

water systems. These primary standards protect public health by setting maximum contaminant levels (MCLs) for naturally occurring or human-made drinking water contaminants (EPA 2014a). In addition, EPA has identified non-enforceable National Secondary Drinking Water Regulations (secondary MCLs) for drinking water, based on a contaminant's potential to result in cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color). Although the secondary MCLs are recommended by EPA to drinking water purveyors and are not required, some states have chosen to adopt them as enforceable standards. Potentially applicable national primary MCLs for the Proposed Project are summarized along with state MCLs and other human health guidelines in Table 9-1 (located at the end of Section 9.2, Regulatory Setting, in this document).

In addition to these established MCLs, EPA has identified a drinking water contaminant candidate list (CCL) for unregulated contaminants that are known or anticipated to occur in public water systems and may require regulation under the SDWA but are not subject to any national primary drinking water regulation (EPA 2014a). Per the requirements of the SDWA, EPA publishes a CCL every 5 years after consideration of the health effects and occurrence information for unregulated contaminants. Contaminants on the list present the greatest public health concern related to exposure from drinking water (EPA 2015a). After a CCL is published, via a process called "Regulatory Determinations," EPA then determines whether to regulate (or not) at least five contaminants from the CCL.

As of February 4, 2015, EPA had published a draft CCL 4, finalized three other CCLs since 1998[2], and was in the process of finalizing a regulatory determination on CCL 3 (EPA 2014b, 2015b). Contaminants of concern have altered between lists, with some new contaminants being added (ex. manganese) and others dropping off the list (ex. organotins) (EPA 2014c, 2014d, 2014e, 2015c). The draft CCL 4 list includes 100 chemicals and 12 microbial contaminants (EPA 2015b). The draft CCL 4 list evaluation and selection process considered: (1) carrying forward CCL 3 contaminants (except those with regulatory determinations; (2) seeking and evaluating nominations from the public for additional contaminants to be considered; and (3) evaluating any new available data for those contaminants with previous negative regulatory determinations from CCL 1 or CCL 2 (EPA 2015d).

National Toxics Rule

In 1992, EPA promulgated the National Toxics Rule (NTR) to establish numeric water quality criteria for 12 states and two territories, including parts of California, that had failed to comply with Section 303(d) of the CWA. These water quality criteria became the water quality standards for California, effective February 5, 1993 (Federal Register 2013). Since that time, EPA promulgated the California Toxics Rule (CTR), discussed further below, to add toxics criteria that were not included in the NTR, and California has adopted appropriate water quality standards for some of the criteria established in the NTR. Tables 9-1 and 9-2 provide federal human health criteria and aquatic life criteria, respectively, for potential contaminants of concern related to the use of PVC, CPVC, ABS, or PFA pipes.

[2] The EPA published CCL 1, CCL 2, and CCL 3 in March 1998, February 2005, and October 2009, respectively (EPA 2015d).

NSF International Standard/American National Standard 61—Drinking Water System Components – Health Effects

In 1985, EPA began a cooperative agreement with a consortium led by NSF, an independent, non-profit, non-governmental organization, to develop standards and a certification program for all indirect and direct drinking water additives (EPA 2002; NSF/ANSI 2015). The consortium included the American Water Works Association Research Foundation, the Association of State Drinking Water Administrators, the American Water Works Association, and the Conference of State Health and Environmental Managers (NSF/ANSI 2015). Two standards for drinking water additives products were developed: one for drinking water treatment chemicals (direct additives); and the other for indirect additives products and materials from drinking water components. The indirect standard, NSF International Standard/American National Standard[3] (NSF/ANSI) Standard 61: Drinking Water System Components–Health Effects, is relevant to the Proposed Project.

The NSF/ANSI Standard 61 establishes minimum requirements to minimize potential adverse human health effects from the chemical contaminants and impurities that are indirectly imparted (via leaching[4]) to drinking water from products, components, and materials used in drinking water systems. This standard does not establish performance, taste and odor, or microbial growth support requirements for drinking water system products, components, or materials. The NSF/ANSI Standard 61 covers protective materials (e.g., coatings, linings, solvent additives), joining and sealing materials (e.g., solvent cements, welding materials, gaskets), and pipes and related products (e.g., tanks, fittings).

Materials and products covered under NSF/ANSI Standard 61 are certified through the following general process:

- Review of all product-specific information and development of an analyte/chemical list, based on the complete formulation information for each water contact material, such as activators, co-solvents, plasticizers, stabilizers, and fillers;
- Review of intended uses of the product, including maximum temperatures and anticipated water volumes that come into contact with the product/component/material during a 24-hour period;
- Review of any toxicological studies relevant to the chemicals and impurities in the product;
- Identification of the appropriate analytical testing (most conservative[5]) for all water contact materials based on the developed analyte list, suspected/known toxicity of all chemicals in the product itself and used in its manufacture, and each substance's solubility;

[3] The ANSI is the administrator and coordinator of the U.S. private sector voluntary standardization system, and involved in the accreditation of third-party product certifications (ANSI 2015).
[4] The transfer or dissolution of chemicals or metals from a pipe surface to fluids transported in the pipe is called "leaching."
[5] Most conservative/rigorous testing is typically associated with shorter conditioning periods, longer exposure periods, higher surface-to-volume ratios and higher exposure temperatures (NSF/ANSI 2015).

- Testing of the materials for the indicated analyses identified during the analyte selection; [The testing/extraction procedures used to generate exposure water varies by product category (e.g., pipes and related products, barrier materials, joining and sealing materials, mechanical devices and others), by application (hot or cold), and by configuration, size, and material composition of the individual product as applicable. Some of the variables to be selected and/or adjusted include surface area-to-volume ratio, conditioning (e.g., cleaning and pre-soaking), exposure time, and single versus multiple time point sampling protocols, filling, emersion or other contact arrangement, and initial test-water quality characteristics. (EPA 2002; NSF/ANSI 2015).]
- Comparison of the exposed water concentrations to applicable water quality criteria, as determined by the NSF (as described further below).

The results of the laboratory analysis on the exposed extraction water are normalized to determine the level of contaminants projected "at the tap," and then these normalized contaminant concentrations are compared to various criteria (EPA 2002). The water quality criteria used to evaluate the normalized concentrations are derived from one of these methods, depending on the available data and whether the chemical is regulated or unregulated, in the following order:

1. EPA and Health Canada's established drinking water criteria for regulated contaminants;
2. NSF-determined total allowable concentration and single product allowable concentration (SPAC[6]) for unregulated substances (these criteria have been peer-reviewed externally);
3. NSF-determined drinking water criteria (total allowable concentration and SPAC) for unregulated contaminants that have been identified as extractants from products covered under this NSF/ANSI Standard (these criteria are undergoing external peer-review or have not been submitted for external peer review);
4. NSF-determined drinking water criteria for unregulated contaminants based on EPA guidance values, including those in the EPA Health Advisory and Integrated Risk Information System (IRIS) database; and
5. a threshold of evaluation list for chemicals that do not have available minimum data to determine a Total Allowable Concentration or SPAC, and specific chemical concentrations as established in the above three methods (NSF/ANSI 2015), for which "a comprehensive literature search for the particular substance and consideration of structure-activity relationships" must be undertaken if certain threshold concentrations are exceeded. (EPA 2002; NSF/ANSI 2015)

In addition to the certification process above, specific contaminant testing requirements in the NSF/ANSI Standard 61 for PVC, CPVC, ABS, and PFA pipes would be applicable to the Proposed Project and include:

[6] The SPAC used by the NSF/ANSI Standard 61 is one-tenth of the regulatory (or guidance) MCL (or Total Allowable Concentration).

- PVC and CPVC pipes: regulated metals[7], phenolics, VOCs, tin[8], and residual vinyl chloride monomer (RVCM). Specifically, the level of RVCM within the walls of PVC or CPVC products and materials are to be directly determined (NSF/ANSI 2015).
- Flexible PVC pipes: VOCs, regulated metals, phenolics, phthalates[9], RVCM, tin[10], and zinc[11].
- ABS pipes: acrylonitrile, 1,3-butadiene, styrene, regulated metals, VOCs, and phenolics.
- PFA materials are not explicitly mentioned in the NSF/ANSI Standard 61; however, some of the requirements for polytetrafluoroethylene (PTFE) possibly are applicable because PTFE has similar properties to PFA. Thus, PFA materials may be tested for VOCs and perfluorooctanoic acid (NSF/ANSI 2015).

Other pipe materials, such as solvents, cements, and fittings, may require testing for additional chemicals, depending on the specific formulation of each pipe material, including acetone, methyl ethyl ketone, tetrahydrofuran, dimethylformamide, methyl isobutyl ketone, and cyclohexanone (NSF/ANSI 2015).

NSF/ANSI 14—Plastics Piping System Components and Related Materials

The NSF/ANSI Standard 14 defines minimum physical, performance, and health effects requirements for plastic pipe system components and related materials to protect public health and the environment (NSF/ANSI 2013). The NSF/ANSI Standard 14 requirements are applicable to thermoplastic and thermoset plastic pipe system components (e.g., pipes, fittings, valves, joining materials), and materials (i.e., resin or blended compounds) and ingredients used to manufacture these plastic pipe system components (NSF/ANSI 2013). The standard incorporates numerous requirements by reference. References that are incorporated into the NSF/ANSI Standard 14 that are applicable to the Proposed Project may include the following:

- American Society for Testing and Materials (now known as ASTM International or ASTM) standard specifications for ABS plastic pipe, sewer pipes, and drain, waste, and vent pipes, and fittings;
- ASTM standard specifications for solvent cements for ABS, PVC, and CPVC plastic pipe systems;
- ASTM standard specifications for PVC plastic pipe, including pressure ratings, sewer pipes, and drain-waste-vent pipes, and related PVC pipe fittings;

[7] Regulated metals include antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, selenium, and thallium.
[8] The analysis for tin is required when tin-based stabilizers are used.
[9] Testing for phthalates is required when phthalate ester plasticizers are used. Analysis is to be for the specific phthalate ester(s) used in the product formulation.
[10] The analysis for tin is required when tin-based stabilizers are used.
[11] The analysis for zinc is required when zinc-based stabilizers are used.

- ASTM standard specifications for CPVC plastic hot- and cold-water distribution systems;
- ASTM standard specifications for solvent cements for transition joints between ABS and PVC pipe components; and
- ASTM standard specifications for the compounds/materials used in the production of PVC, CPVC, and ABS pipes and fitting materials.

Furthermore, this standard requires that materials, compounds, products, and formulations used in potable water plastic pipe system comply with the applicable requirements of NSF/ANSI Standard 61. In addition, NSF/ANSI Standard 14 requires that plastic pipes and system components and related materials intended for potable water be monitored annually for compliance with NSF/ANSI Standard 61. PVC and CPVC products are to be monitored for RVCM at least three times annually, and the RVCM in all PVC and CPVC potable water pipe products is not to exceed 3.2 milligrams per kilogram (mg/kg), which is consistent with the SPAC identified in NSF/ANSI Standard 61. (NSF/ANSI 2013)

9.2.2 State Laws, Regulations, and Policies

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act), passed in 1969, dovetails with the CWA (see discussion of the CWA above). It established the SWRCB and divided California into nine regions, each overseen by an RWQCB. The SWRCB is the primary State agency responsible for protecting the quality of California's surface water and groundwater supplies. However, much of the SWRCB's daily implementation authority is delegated to the nine RWQCBs, which are responsible for implementing CWA Sections 402 and 303[d]. In general, the SWRCB manages water rights and regulates statewide water quality, whereas the RWQCBs focus on water quality within their respective regions.

The Porter-Cologne Act requires the RWQCBs to develop water quality control plans (also known as basin plans) that designate beneficial uses of California's major surface water bodies and groundwater basins and establish specific narrative and numerical water quality objectives for those waters. Beneficial uses represent the services and qualities of a water body (i.e., the reasons why the water body is considered valuable). Water quality objectives reflect the standards necessary to protect and support those beneficial uses. Basin plan standards primarily are implemented by regulating waste discharges so that water quality objectives are met. Under the Porter-Cologne Act, basin plans must be updated every 3 years.

California Toxics Rule

Effective May 2000, the CTR was adopted by EPA to promulgate numeric aquatic life criteria for 23 priority toxic pollutants, numeric human health criteria for 57 priority toxic pollutants, and a compliance schedule provision (Federal Register 2000). The compliance schedule provision authorized California to issue compliance schedules for new or revised NPDES permit limits based on the federal toxics rule criteria. Adoption of the CTR was required to fill a gap in California water quality standards that was created in 1994, when a State court overturned the State's water quality control plans that contained water quality

criteria for priority toxic pollutants (Federal Register 2000). The EPA determined that numeric criteria were necessary in California to protect human health and the environment (EPA 2012b). The CWA requires states to adopt numeric water quality criteria for priority toxic pollutants for which EPA has issued criteria guidance, the presence or discharge of which could reasonably be expected to interfere with maintaining designated uses. These criteria are identical to the NTR criteria and legally are applicable in California for inland surface waters, enclosed bays, and estuaries for all purposes and programs under the CWA (EPA 2012b; Federal Register 2000).

California Division of Drinking Water Programs' Regulations

The SWRCB's Division of Drinking Water (formerly the California Department of Public Health) is responsible for regulating public drinking water systems among other functions, including enforcement of California's regulations related to drinking water (i.e., Title 17 and Title 22 of the CCR) (SWRCB 2014b). Title 17 requires the protection of water systems from backflow. Title 22 identifies recycling water criteria, domestic water quality and monitoring regulations (i.e., MCLs for contaminants of concern), surface water treatment requirements, water treatment and distribution staff certification requirements, and other drinking water-related requirements (WestlawNext 2015). Similar to the federal water quality standards, Title 22 provides primary and secondary MCLs that, respectively, provide for the protection of human health and non-health related drinking water requirements, such as taste, odor, or color. Table 9-1 provides the California MCLs for contaminants potentially associated with the Proposed Project's pipe material types.

Safe Drinking Water and Toxic Enforcement Act of 1986

The Safe Drinking Water and Toxic Enforcement Act of 1986, better known by its original name of Proposition 65, was established in 1986, requiring the State to publish a list of chemicals known to cause cancer, birth defects, or other reproductive harm, and requiring businesses to notify Californians about significant amounts of chemicals in the products they purchase, in their homes or workplaces, or that are released into the environment (OEHHA 2013). Under Proposition 65, California businesses are prohibited from knowingly discharging significant amounts of listed chemicals into sources of drinking water (OEHHA 2013). The Proposition 65 list now includes approximately 800 chemicals and is updated annually. OEHHA administers the Proposition 65 program.

9.2.3 Local Laws, Regulations, and Policies

Because the Proposed Project addresses revisions to the State's Plumbing Code, local laws, regulations, and policies are not discussed.

1 **Table 9-1. Drinking Water MCLs and Human Health Criteria Summary for Potential Contaminants in PVC, CPVC, or ABS Pipes**

Potential Contaminant (see Note 2)	Federal Primary MCL, unless otherwise indicated (mg/L or ppm)	State Primary MCL, unless otherwise indicated (mg/L or ppm)	Federal Human Health Criteria for the Consumption of Water + Organism (µg/L)	Federal Human Health Criteria for the Consumption of Organism Only (µg/L)	NSF/ANSI Standard 61 Total Allowable Concentration (mg/L) (see Note 6)	NSF/ANSI Standard 61 Single Product Allowable Concentration (SPAC) (mg/L) (see Note 6)
Acetone	---	---	---	---	6 (see Note 7)	0.6 (see Note 7)
Acrylonitrile	---	---	0.051	0.25	0.0006 (see Note 7)	0.00006 (see Note 7)
Antimony	0.006	0.006	5.6	640	0.006	0.0006
Arsenic	0.010	0.010	0.018	0.14	0.010	0.001
Barium	2	1	1,000	---	2	0.2
Beryllium	0.004	0.004	(see Federal Primary MCL)	---	0.004	0.0004
1,3-butadiene	---	---	---	---	0.1 (see Note 8)	0.01 (see Note 8)
Butyltin compounds (mono- and di- only)	---	---	---	---	0.02 (total) (see Note 9)	0.004 (total) (see Note 9)
Cadmium	0.005	0.005	(see Federal Primary MCL)	---	0.005	0.0005
Chromium	0.1	0.05 for total Chromium, 0.010 for hexavalent Chromium	(for both Chromium III and IV, see Federal Primary MCL)	---	0.1	0.01
Copper	1.3 (see Notes 3 and 4)	1.3 (see Notes 3 and 4)	1,300	---	1.3 (see Notes 3 and 4)	0.13
Cyclohexanone	---	---	---	---	30 (see Note 9)	3 (see Note 9)
Dimethylformamide	---	---	---	---	0.09 (see Note 9)	0.009 (see Note 9)
Lead	0.015 (see Note 3)	0.015 (see Note 3)	---	---	0.005 (see Note 2)	0.0005
Mercury (inorganic)	0.002	0.002	---	---	0.002	0.0002
Methyl Ethyl Ketone	---	---	---	---	4 (see Note 7)	0.4 (see Note 7)
Methyl Isobutyl Ketone	---	---	---	---	7 (see Note 9)	0.7 (see Note 9)
Methylmercury	---	---	---	0.3 mg/kg	0.0007 (see Note 7)	0.00007 (see Note 7)
Methyltin compounds (mono- and di- only)	---	---	---	---	0.03 (total) (see Note 9)	0.006 (total) (see Note 9)
Nonylphenol	---	---	---	---	0.02	0.002
Pentachlorophenol	0.001	0.001	0.27	3.0	0.001	0.001
Phenol	(see Note 2)	(see Note 2)	10,000	860,000	2 (see Note 2 and 7)	0.2 (see Note 2 and 7)

Potential Contaminant (see Note 2)	Federal Primary MCL, unless otherwise indicated (mg/L or ppm)	State Primary MCL, unless otherwise indicated (mg/L or ppm)	Federal Human Health Criteria for the Consumption of Water + Organism (µg/L)	Federal Human Health Criteria for the Consumption of Organism Only (µg/L)	NSF/ANSI Standard 61 Total Allowable Concentration (mg/L) (see Note 6)	NSF/ANSI Standard 61 Single Product Allowable Concentration (SPAC) (mg/L) (see Note 6)
Selenium	0.05	0.05	170	4200	0.05	0.005
Styrene	0.1	0.1	---	---	0.1	0.01
Tetrahydrofuran	---	---	---	---	1 (see Note 9)	0.37 (see Note 9)
Thallium	0.002	0.002	0.24	0.47	0.002	0.0002
Tin (inorganic)	---	---	---	---	4 (see Note 9)	0.4 (see Note 9)
Tributyltin oxide	(see Note 5)	---	---	---	0.002 (see Notes 5 and 7)	0.0002 (see Notes 5 and 7)
Vinyl Chloride	0.002	0.0005	0.025	2.4	0.002	0.0002
Zinc	(see Note 4)	---	7,400	26,000	---	---

Notes:

--- = a standard is not available for this contaminant; MCL = maximum contaminant level; mg/L = milligram per liter; ppm = parts per million; µg/L = micrograms per liter

1. This table is not meant to include all potential contaminants that may be in pipe materials, such as cements, solvents, and fittings, since those may vary by the type of pipe material used. Instead, this table primarily provides information on the primary contaminants identified by NSF International (NSF) as potentially occurring in PVC, CPVC, and ABS pipes.
2. The NSF/ANSI Standard 61 requires testing for other contaminant categories (i.e., perfluorooctanoic acid, phenols, and phthalates) that may not have a standard set for the category but could for an individual chemical within this category (ex. Di(2-ethylhexyl)phthalate). In general, individual MCLs or human health criteria for these types of contaminants were not provided in this water quality criteria summary table. The NSF/ANSI Standard 61 requirements for two phenol compounds, pentachlorophenol and nonylphenol, are provided here since they have established aquatic life criteria.
3. Copper and lead do not have actual MCLs; instead they are called “Action Levels” that represent the level at which a drinking water system much undertake a number of actions to control corrosion if these levels are exceeded.
4. Copper and zinc have non-enforceable secondary MCLs of 1 and 5 mg/L, respectively.
5. MCLs have not been established for tin or tributyltin. However, the NSF/ANSI Standard 61 has derived a drinking water criteria for tributyltin oxide of 0.002 mg/L based on the U.S. Environmental Protection Agency’s (EPA) oral reference dose (in the EPA Integrated Risk Information System [IRIS] database with a default 20% relative source contribution for drinking water) (NSF/ANSI 2015).
6. These values are based on the 2014a version of the NSF/ANSI Standard 61, which was last updated in February 2015. Criteria that do not have a note associated with them are generally based on EPA drinking water criteria (i.e. MCLs).
7. These water criteria are based on an oral reference dose for that constituent established by EPA’s IRIS.
8. These pass/fail criteria are based on an action level established by UL, a global independent safety science company, with Joint Peer Review Steering Committee (JPRSC) consensus. The JPRSC is comprised of product certifying agencies, including the CSA Group, NSF International, IAPMO R&T, UL, and the Water Quality Association. Sources of the pass/fail criteria approved by the JPRSC may include risk assessments submitted by each certifying agency as well as assessments based upon authoritative agencies (i.e., EPA or Health Canada) (NSF/ANSI 2015).
9. These are NSF action levels (criteria) that have been derived according to the requirements of Annex A from the drinking water additives standard (NSF/ANSI Standard

Potential Contaminant (see Note 2)	Federal Primary MCL, unless otherwise indicated (mg/L or ppm)	State Primary MCL, unless otherwise indicated (mg/L or ppm)	Federal Human Health Criteria for the Consumption of Water + Organism (µg/L)	Federal Human Health Criteria for the Consumption of Organism Only (µg/L)	NSF/ANSI Standard 61 Total Allowable Concentration (mg/L) (see Note 6)	NSF/ANSI Standard 61 Single Product Allowable Concentration (SPAC) (mg/L) (see Note 6)
60) or the NSF/ANSI Standard 61 (NSF/ANSI 2015). These have been peer-reviewed.						
Sources: EPA 2014a, 2014f; SWRCB 2015a; NSF/ANSI 2015						

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1 **Table 9-2. EPA Aquatic Life Criteria Summary for Potential Contaminants in PVC, CPVC, or ABS Pipes**

Potential Contaminant	Freshwater		Saltwater	
	Acute Criterion Maximum Concentration (CMC) (µg/L)	Chronic Criterion Continuous Concentration (CCC) (µg/L)	Acute Criterion Maximum Concentration (CMC) (µg/L)	Chronic Criterion Continuous Concentration (CCC) (µg/L)
Acetone	---	---	---	---
Acrylonitrile	---	---	---	---
Antimony	---	---	---	---
Arsenic	340	150	69	36
Barium	---	---	---	---
Beryllium	---	---	---	---
1,3-butadiene	---	---	---	---
Butyltin compounds (mono- and di- only)	---	---	---	---
Cadmium	2	0.25	40	8.8
Chromium (III)	570	74	---	---
Chromium (IV)	16	11	1,100	50
Copper	(see notes)	(see notes)	4.8	3.1
Cyclohexanone	---	---	---	---
Dimethylformamide	---	---	---	---
Lead	65	2.5	210	8.1
Mercury (methylmercury)	1.4	0.77	1.8	0.94
Methyl ethyl ketone	---	---	---	---
Methyl Isobutyl Ketone	---	---	---	---
Methyltin compounds (mono- and di- only)	---	---	---	---
Nonylphenol	28	6.6	7	1.7
Pentachlorophenol	19	15	13	7.9
Phenols	(see notes)			
Phthalates	(see notes)			
Perfluorooctanoic acid	(see notes)			

Potential Contaminant	Freshwater		Saltwater	
	Acute Criterion Maximum Concentration (CMC) (µg/L)	Chronic Criterion Continuous Concentration (CCC) (µg/L)	Acute Criterion Maximum Concentration (CMC) (µg/L)	Chronic Criterion Continuous Concentration (CCC) (µg/L)
Selenium	---	5.0	290	71
Styrene	---	---	---	---
Tetrahydrofuran	---	---	---	---
Thallium	---	---	---	---
Tin	---	---	---	---
Tributyltin (TBT)	0.46	0.072	0.42	0.0074
Vinyl Chloride	---	---	---	---
Zinc	120	120	90	81

Notes:
--- = a standard is not available for this contaminant; MCL = maximum contaminant level; mg/L = milligram per liter; ppm = parts per million; µg/L = micrograms per liter
1. This table is not meant to include all potential contaminants that may be in pipe materials, such as cements, solvents, and fittings, since those may vary by the type of pipe material used. Instead, this table provides information on the primary contaminants identified by the NSF as potentially occurring in PVC, CPVC, and ABS pipes.
2. Freshwater criteria for copper are evaluated using procedures described in the "Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms."
3. The NSF/ANSI 61 requires testing for other contaminant categories (i.e., perfluorooctanoic acid, phenols, and phthalates) that may not have a standard set for the category but could for an individual chemical within this category—
ex. Di(2-ethylhexyl)phthalate or pentachlorophenol. Individual aquatic life criteria for these types of contaminants generally were not provided in this summary table.
4. Pentachlorophenol freshwater criteria were expressed as a function of pH. Values shown correspond to a pH of 7.8.
Source: EPA 2014f

9.3 Environmental Setting

9.3.1 Drinking Water Supplies at OSHPD Facilities

OSHPD 1, 2, 3, and 4 facilities are located statewide and receive potable water supplies from a variety of water purveyors. Specific water supply sources for these purveyors widely vary and groundwater and surface water sources likely supply potable (drinking) water to the OSHPD 1, 2, 3, and 4 facilities. Before reaching OSHPD 1, 2, 3 and 4 facilities, drinking water is required to comply with the water quality regulations discussed above and usually has been treated at a water treatment plant to disinfect the water and remove any existing pollutants. Although treatment methods at these various water treatment plants are dependent on a number of factors, including the quality of the raw (untreated) water supplies, all water supply providers are required to meet the drinking water quality regulations discussed above. In addition, water supply providers are required to ensure the quality of the drinking water throughout their water distribution systems and prevent the contamination of any water supplies between the treatment plant and the point of use. Information was not available during preparation of this Draft EIR regarding whether any MCL exceedances exist at specific OSHPD 1, 2, 3, or 4 facilities.

In general, potential threats to drinking water include: improper chemical disposal; animal wastes; pesticides; human wastes; wastes injected deep underground; naturally-occurring substances; improperly treated or disinfected drinking water; or improperly maintained drinking water distribution systems (EPA 2004).

9.3.2 Wastewater Quality from OSHPD Facilities

Wastewater from OSHPD facilities is discharged to existing sanitary discharge systems and generally is transported eventually to WWTPs. Wastewater treatment processes vary between WWTPs but typically are designed to treat only domestic sewage and treat for conventional pollutants[12] (EPA 2011). Types of wastewater treatment processes include: primary treatment to remove large solids and smaller inorganic grit, secondary treatment to remove biodegradable organic contaminants via microorganisms, disinfection to kill any remaining pathogens, and sludge handling/disposal. Advanced treatment options can be implemented, depending on the WWTP's specific effluent discharge requirements, and may include nitrification or denitrification to convert the forms of nitrogen, and physical-chemical treatment to remove dissolved metals and organics (EPA 2011). Typically, WWTPs discharge treated effluent into surface waters, including rivers or the Pacific Ocean. However, some WWTPs may discharge treated effluent directly to golf courses, agricultural areas, or parkland (EPA 2011). Primary and secondary wastewater treatment processes generate waste solids (i.e., sewage sludge or biosolids) that require disposal, typically in a landfill, incinerated in a sewage sludge incinerator, or as fertilizer/soil conditioner (EPA 2011).

[12] Conventional pollutants are considered to be biochemical oxygen demand, total suspended solids, fecal coliform, pH, and oil and grease (EPA 2011).

WWTPs are required to comply with RWQCB-mandated waste discharge requirements, detailed in their individual NPDES permits. Wastewater discharges from OSHPD 1, 2, 3 and 4 facilities to local WWTPs generally are typical of hospital and sanitary sewer wastes. As described in Chapter 6, Hazards and Hazardous Materials, the existing OSHPD 1, 2, 3, or 4 facilities' wastewater do not contain substantial amounts of hazardous materials or wastes because these materials and wastes are handled and disposed in accordance with the hazardous materials/waste-related federal and state regulations.

9.3.3 Surface Water Quality

The quality of surface water and groundwater varies greatly throughout California, based on the natural setting and types of anthropogenic activity. Potential sources of water quality impairment can come from point and non-point sources. Point sources emit from discrete locations, such as an industrial center, pipe, or concentrated animal feeding operation. In comparison, non-point sources are not easily identifiable locations and include such sources as runoff from roads and driveways, atmospheric deposition, discharges from improperly managed construction sites, crop and forest land, mining operations, faulty septic systems, and other sources. Non-point sources also include agricultural stormwater discharges and return flows from irrigated areas.

As described above, wastewater from OSHPD 1, 2, 3 and 4 facilities generally is treated at a WWTP and ultimately is discharged as treated effluent into California's surface waters. Existing impairments for potential water quality contaminants that may be contained in pipe materials proposed for the OSHPD facilities under the Proposed Project are summarized in Table 9-3 (the list is not meant to be all inclusive but rather representative of potential contaminants). In addition, other impairments, such as toxicity, are included because sources of toxicity are often a result of non-point or unknown sources, and the individual constituents listed in Table 9-3 potentially may contribute to water or sediment toxicity impairments. Arsenic, cadmium, chromium, copper, lead, mercury, phenols, selenium, thallium, sediment and water toxicity, and zinc are listed impairments. Mercury is the most common impairment, occurring in all RWQCB areas, affecting the quality of 177 water bodies (SWRCB 2011). However, generally point sources contribute only low to moderate mercury inputs, and the most significant mercury sources are historic gold mining and the erosion and drainage from abandoned mines (SWRCB 2011). The San Francisco Bay Area Region (Region 2) and the San Diego Region (Region 9) are the only regions to list industrial and/or municipal wastewater as potential sources for any of the 12 water quality-impairing constituents in Table 9-3. Specifically, wastewater is identified as a potential contributing source of lead, mercury, selenium, and zinc impairments (SWRCB 2011).

Table 9-3. Numbers of 303(d) Listings for Water Quality Constituents Relevant to the Proposed Project by Region (2010)

Pollutant Type	Regional Water Quality Control Board									
	1	2	3	4	5	6	7	8	9	Total
Acetone	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	--	--	--	--	--	--	--	--	--	--
Antimony	--	--	--	--	--	--	--	--	--	--
Arsenic	--	--	--	--	2	7	--	--	--	9
Barium	--	--	--	--	--	--	--	--	--	--
Beryllium	--	--	--	--	--	--	--	--	--	--
1,3-butadiene	--	--	--	--	--	--	--	--	--	--
Butyltin compounds (mono- and di- only)	--	--	--	--	--	--	--	--	--	--
Cadmium	--	--	--	4	8	--	--	3	2	17
Chromium	--	--	--	1	--	--	--	--	--	1
Copper	--	2	2	31	18	1	1	9	19	83
Cyclohexanone	--	--	--	--	--	--	--	--	--	--
Dimethylformamide	--	--	--	--	--	--	--	--	--	--
Lead	--	--	1	28	3	--	--	5	7	44
Mercury (methylmercury)	6	36	6	7	109	7	2	2	2	177
Methyl Ethyl Ketone	--	--	--	--	--	--	--	--	--	--
Methyl Isobutyl Ketone	--	--	--	--	--	--	--	--	--	--
Methyltin compounds (mono- and di- only)	--	--	--	--	--	--	--	--	--	--
Nonylphenol	--	--	--	--	--	--	--	--	--	--
Phenols (Pentachlorophenol)	--	--	--	--	--	--	--	--	2 (see notes)	2
Phthalates	--	--	--	--	--	--	--	--	--	--
Perfluorooctanoic acid	--	--	--	--	--	--	--	--	--	--
Selenium	--	3	--	16	6	--	5	1	27	58
Styrene	--	--	--	--	--	--	--	--	--	--
Tetrahydrofuran	--	--	--	--	--	--	--	--	--	--
Thallium	--	--	--	--	--	--	--	--	1	1
Tin (or Organotins)	--	--	--	--	--	--	--	--	--	--
Toxicity, including Unknown	--	1	--	19	--	--	1	--	29	50
Toxicity, Sediment	--	3	16	16	27	--	--	6	14	82
Tributyltin (TBT)	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	--	--	--	--	--	--	--	--	--	--
Zinc	--	1	1	8	14	--	1	2	5	32

Notes:
-- = a particular pollutant is not found on the 303(d) list as an individual pollutant. However, that does not mean the pollutant does not contribute to general toxicity in the water or sediments.

Pollutant Type	Regional Water Quality Control Board									
	1	2	3	4	5	6	7	8	9	Total
1. The number of constituents shown in the table above includes only the number of individual water bodies with an impairment. It does not count the same water body multiple times, unless specific different sections of that water body (i.e., river reaches) are identified individually on the 303(d) list. Multiple listings of the same waterbody for each of the individual sources contributing to that particular constituent impairment are counted once. 2. Phenol impairments shown in table are for pentachlorophenol (PCP). 3. Cadmium impairment counts include sediment standards. Source: SWRCB 2011										

9.4 Impact Analysis

9.4.1 Methodology

Data sources used to prepare this section include:

- NSF International (NSF)/American National Standards Institute (ANSI) Standard 61 2014a–Drinking Water System Components–Health Effects (2015)
- Various U.S. Environmental Protection Agency (EPA) sources regarding water quality criteria, and drinking water regulations
- State Water Resources Control Board (SWRCB) sources regarding drinking water quality systems and criteria

Based on a review of publically available documents and scientific literature, the Proposed Project's potential to contribute contaminants to existing sanitary waste or stormwater from OSHPD 1, 2, 3 and 4 facilities or to impair existing drinking water quality at these facilities was qualitatively evaluated through the following methodology. Literature related to the Proposed Project's material types was reviewed to determine the potential for contaminant leaching from these products and specific contaminants of concern. The analysis then qualitatively considered product design requirements (NSF/ANSI) and proposed uses of the various products (potential exposure to various parameters, such as varying temperatures), as described in Chapter 2, Project Description. The hydrologic pathway of fluids (i.e., sanitary sewage/drinking water/stormwater) transported in the proposed plumbing materials at the OSHPD facilities, potential treatment before disposal in a surface water, and potential quantity of water compared to other potential sources, was considered to determine the potential for the Proposed Project to contribute to any surface water quality impairments. Based on this information and scientific literature, the Proposed Project's potential to exceed drinking water quality standards or waste discharge requirements, or otherwise substantially degrade water quality was determined.

Impacts related to flooding caused by pipe failure were evaluated qualitatively by consideration of the Proposed Project pipe materials and stability, susceptibility to corrosion or failure, the existing pipe materials susceptibility to corrosion or failure, and

uses of the Proposed Project's pipe materials, including potential waste products that would be in the pipes.

9.4.2 Criteria for Determining Significance

The Proposed Project would result in a significant impact on hydrologic or water quality resources if it would:

A. Violate any water quality standards or waste discharge requirements;

B. Substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;

C. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;

D. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;

E. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

F. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;

G. Otherwise substantially degrade water quality;

H. Place within a 100-year flood hazard area structures which would impede or redirect flood flows;

I. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam;

J. Contribute to inundation by seiche, tsunami, or mudflow.

Criteria A, G, and I were evaluated in the Initial Study (see Appendix A) and were determined to have a less-than-significant impact, and thus they are evaluated further, below. Criteria B, C, D, E, F, H, and J also were evaluated in the Initial Study and were determined to have no impact; therefore, these criteria are not discussed further in this Draft EIR.

9.4.3 Environmental Impacts

Impact HYD-1: Potentially Violate a Water Quality Standard or Degrade Water Quality because of Chemical Leaching from Pipes (*Less than Significant*)

As described in Chapter 2, Project Description, the Proposed Project would include the use of PFA, PVC, ABS, and CPVC pipes at OSHPD facilities to support dialysis treatments and transport potable water supplies, sanitary sewage, and/or stormwater flows within the facilities. As fluids are transported through these pipes, chemicals may be transferred from the pipe materials[13] used in the pipe construction process to the transported fluids, thereby potentially altering the quality of these fluids. As discussed above, chemicals or metals from a pipe surface may be leached into fluids that come into contact with the pipe materials. Potential water quality impacts related to leaching from pipes could occur if the pipe materials resulted in any of the following:

- an increase of contaminants resulting in exceedance(s) of drinking water quality standards;
- an increase of contaminants that ultimately are transported via the wastewater treatment and discharge process or stormwater runoff to surface waters, thereby causing an exceedance of the WWTP's waste discharge requirements, an exceedance of applicable surface water quality standards, and/or degradation of the surface water's quality; or
- an increase of contaminants that are captured in the WWTP solids removal process, disposed via sewage sludge to agricultural areas or landfills, and result in subsequent surface water quality or groundwater quality impacts.

The following discussion describes the potential for leaching to occur from these pipe types, discusses the potential contaminants of concern related to leaching, and evaluates the potential impacts of these leachable contaminants. Because the manufacturing process of all PVC products includes a vinyl chloride monomer[14] and oftentimes organotins (Richardson and Edwards 2009), and the manufacturing process of ABS products includes styrene, these chemicals are discussed individually. Other contaminants previously mentioned in this chapter are discussed as well.

Vinyl Chloride

Vinyl chloride has been identified as a potential leachable contaminant from PVC and CPVC pipes and is a known human carcinogen (ATSDR 2011; EPA 2002; Health Canada 2013). PVC pipes manufactured prior to 1977 contained elevated levels of vinyl chloride (EPA 2002). Measured concentrations of vinyl chloride in residential drinking water supplies and laboratory experiments range from non-detectable to approximately 410 parts per trillion (410 nanograms per liter [ng/L]) (Walter et al. 2011; Richardson and Edwards 2009). Other studies have found vinyl chloride concentrations in laboratory experiments, using pipes made in Saudi Arabia in 1994, were non-detectable until temperatures exceeded 45 degrees Celsius (approximately 114°F), at which time concentrations peaked at approximately 2.5 parts per billion (ppb) (2.5 micrograms per liter [µg/L]) (Al-Malack et al. 2000). Factors

[13] In general, references to "pipe materials" include the pipes and related products (pipes, fittings), joining and sealing materials (solvent cements), and protective materials (coatings, linings). This is consistent with the various materials relevant to NSF/ANSI Standard 61.

[14] A monomer is a compound whose molecules can join together with similar or different monomers to form a polymer, which is a compound of high molecular weight, such as polyethylene.

that promote vinyl chloride leaching include small-diameter pipes (2 inches or less), high temperatures (45°Celsius or greater), and high contact times with pre-1977 PVC pipes (1 day or more) (EPA 2002; Al-Malack et al. 2000). In addition, the residual level of vinyl chloride in the pipe itself is directly proportional to the amount of vinyl chloride leaching from PVC pipes (Health Canada 2013).

As described in Section 9.2.1, Regulatory Setting, drinking water quality and surface water quality standards have been established for vinyl chloride because it is a known environmental toxic contaminant and human carcinogen. EPA has set a drinking water MCL for vinyl chloride of 2 ppb (2 µg/L), and the SWRCB has an MCL of 0.5 ppb (Table 9-1). Leaching from PVC pipes and discharge from plastic factories are identified as the main sources of vinyl chloride into drinking water supplies (EPA 2014a). In addition, NSF/ANSI Standard 61 requires that PVC and CPVC products have an RVCM concentration of less than or equal to 3.2 mg/kg to be considered acceptable for drinking water use (NSF/ANSI 2015). This RVCM concentration requirement is based on EPA MCL for vinyl chloride and the SPAC value of 1/10th the MCL value (i.e., 0.2 µg/L) (NSF/ANSI 2015).

The SWRCB's Division of Drinking Water Quality regulates drinking water contaminants, particularly those contaminants with an MCL that is higher than their designated public health goal (PHG), and the division has not detected vinyl chloride in water supply systems recently (2011–2014) (SWRCB 2015b, 2015c, 2015d). A "detection" is a source with two measurements at or above the detection limit for purposes of reporting (SWRCB 2015b, 2015c). Because vinyl chloride has not been detected recently by the SWRCB in drinking water sources, it appears that potential leaching of vinyl chloride from PVC or CPVC pipes has not caused water quality impairment in California's drinking water systems or violated the established drinking water quality standards.

As described in Chapter 2, Project Description, the plumbing code requires compliance with NSF/ANSI Standard 61, including compliance with the pipe material composition and adherence to the mandated vinyl chloride limits in the pipe material. Because the Proposed Project would not alter the plumbing code's Section 604.1 requirement that pipe, tube, and fittings shall be in accordance with the requirements of NSF/ANSI Standard 61, the OSHPD 1, 2, 3 and 4 facilities would use only CPVC and PVC pipes that meet the NSF/ANSI Standard 61 requirements, including vinyl chloride composition of the pipe and monitoring/testing requirements. Thus, the Proposed Project would not be anticipated to contribute vinyl chloride concentrations that would exceed EPA or SWRCB MCLs. Although no federal aquatic criteria for vinyl chloride exist, compliance with the MCLs would be protective of surface water quality, and pipe material use under the Proposed Project is not anticipated to substantially degrade surface waters or violate any surface water quality standards.

The NSF/ANSI Standard 61 does not require that ABS materials be analyzed for vinyl chloride, indicating that these pipe materials are unlikely to contain this contaminant. In addition, PFA materials are not considered sources of leachable contaminants, including vinyl chloride, especially in concentrations that would exceed applicable water quality criteria (Water Quality Products 2006).

Therefore, significant leaching of vinyl chloride into drinking water or surface waters would not occur as a result of the Proposed Project. The impact would be **less than significant**.

Organotins

PVC and CPVC pipes treated with tin-based stabilizers could leach organotins, a group of organic derivatives of tin, from the pipe surface into fluids transported in the pipes (Wu et al. 1989; Impellitteri et al. 2007), which potentially could result in drinking water quality or surface water quality-related impacts. In addition to their use as stabilizers for PVC products, organotins are used as pesticides, catalysts, anti-oxidants, anti-fouling agents, and glass coatings (Impellitteri et al. 2007). The specific type of organotin in a product depends on the product's intended use:

- PVC stabilizers typically are dimethyl tin (DMT), dibutyl tin (DBT), monomethyl tin, and monobutyl tin (MBT);
- PVC fungicides/biocides may include tributyltin (TBT);
- Food industry-related stabilizers (ex. plastic wrap) are typically dioctyl tin; and
- Pesticides include TBT, triphenyltin (TPHT), and tricyclohexyltin (TCHT) (Impellitteri et al. 2007)[15].

Some organotin products (e.g., TBT, TPHT, and TCHT in particular) are highly toxic, particularly to aquatic life, in part because they bioaccumulate (Fent 1996; Okoro et al. 2011; Central Contra Costa Sanitary District 2009; Yi et al. 2012; ATSDR 2005). Past uses of TBT, especially as a protective coating on boats, and the ease with which triorganotins adsorb to suspended sediment particles has led to some sediment toxicity worldwide and in California, particularly in areas with high shipping traffic (Impellitteri et al. 2007; Okoro et al. 2011, Yi et al. 2012). Similarly, TPHT generally is detectable only at marinas and harbors, and primarily is derived from antifouling product releases and agricultural runoff (Yi et al. 2012). Other potential sources of TPHT include treated or untreated sewage effluent and stormwater runoff (Yi et al. 2012; Fent 1996). Because of this sediment toxicity, regulatory agencies have restricted or banned the use of TBT; as an example, in the San Francisco Bay Area, regulations restrict the use of TBT on boat coatings and marina structures, and as pesticides in cooling systems additives (Central Contra Costa Sanitary District 2009). As shown in Table 9-2, EPA has established freshwater and saltwater aquatic life criteria for both acute and chronic exposure to TBT (EPA 2014f).

The concentrations of organotins and types of organotins leached from tin-based PVC or CPVC pipes typically varies with pipe type and whether fluids are flowing continuously or are static (Impellitteri et al. 2007; Richardson and Edwards 2009). Observed approximate peak concentrations in various municipal water systems and/or at residences in the United States and Canada included:

[15] The mono- and di- organotin compounds (ex. DBT) are degradation products of the triorganotins (ex., TBT) (Okoro et al. 2007).

- 0.45 ng/L of monomethyl tin, 0.26 ng/L of DMT, 0.36 ng/L of MBT, 4.62 ng/L of DBT, and 0.09 ng/L of TBT (Impellitteri et al. 2007),
- 291 ng/L of monomethyl tin, 49 ng/L of DMT, 29 ng/L of MBT, and 53 ng/L of DBT (Sadiki and Williams 1999), and
- 0.098 ng/L for monomethyl tin, 0.06 ng/L for DMT, 0.176 ng/L for MBT, and 0.298 ng/L for DBT (Richardson and Edwards 2009).

These represent peak concentrations, sometimes taken during a first flush or after periods of static water flow, when the organotins were below detectable limits in numerous samples. Generally, monomethyl tin and DMT were observed most often in the municipal water sources (Sadiki and Williams 1999).

Laboratory experiments and concentration modeling of potential organotin leaching typically yielded higher in-water organotin concentrations than was observed in the field. In a static pipe fragment reactor, the concentrations of DMT and monomethyl tin following 2 years of incubation at 22 degrees Celsius and 55 degrees Celsius ranged from 0.82 to 2.84 ng/L and 0.31-0.70 ng/L, respectively (Richardson and Edwards 2009). MBT and DBT were not detected in this experiment (Richardson and Edwards 2009). In a closed-loop PVC pipe system, the combined leached DBT and DMT concentrations rapidly increased to a steady concentration of approximately 0.5 mg/m3 (500 ng/L), which was approximately half of a previously modeled maximum leached organotin concentration of 895 ng/L (0.895 µg/L) from PVC pipes (Adams et al. 2011; Fristachi et al. 2009).

As shown in Table 9-1, the SWRCB and EPA have not established MCLs for tributyltin or other organotins (SWRCB 2015a; EPA 2014a). In addition, EPA listed organotins on the Chemical Contaminant List (CCL 2) in 2005, and thereafter did not include them on the subsequent two lists (CCL 3 and CCL 4), thereby indicating that organotins do not require federal safe drinking water regulations (EPA 2014d, 2014e, 2015c). However, the NSF/ANSI Standard 61 has derived Total Allowable Concentration and SPAC drinking water criteria for di- and mono-butyltin compounds, di-and mono-methyltin compounds, and tributyltin oxide, as shown in Table 9-1 (NSF/ANSI 2015). The most conservative criteria of these organotin compounds are for tributyltin oxide, which has a Total Allowable Concentration criterion of 0.002 mg/L (equivalent to 2,000 ng/L) and a SPAC of 0.0002 mg/L (equivalent to 200 ng/L), based on EPA's oral reference dose from the EPA IRIS database (NSF/ANSI 2015). This Total Allowable Concentration criterion is substantially greater than any of the estimated or measured drinking water organotin concentrations described above. Some of the estimated and measured drinking water organotin concentrations described above potentially would exceed the SPAC NSF/ANSI Standard 61 criteria. However, this does not necessarily indicate that the PVC and CPVC pipes allowed under the Proposed Project would result in an exceedance of the SPAC criteria, for the following reasons:

- the pipe materials used in the experiments or drinking water systems did not necessarily comply with the most current NSF product material requirements,
- the composition of pipe materials used under the Proposed Project may not contain a tributyltin stabilizer, and

- any pipe materials used under the Proposed Project would be required to comply fully with the NSF/ANSI Standard 61 requirements, including the SPAC for tributyltin oxide, if it is applicable based on the product composition.

Thus, for these reasons, the Proposed Project would not exceed any applicable organotin-related drinking water criteria.

As described above for vinyl chloride, leached organotins potentially could enter the wastewater stream from transport in PVC and CPVC pipe materials, and ultimately could be discharged to surface waters. During the wastewater treatment process, organotins may be removed or degraded by physical (i.e., sediment removal), chemical, or biological processes (Scrimshaw et al. 2013; Okoro et al. 2011). The effectiveness of these processes at removing TBT from wastewater varies. For example, Scrimshaw et al. (2013) recorded average TBT inputs from multiple input sources to a tertiary treatment WWTP as 0.164 µg/L and 0.211 µg/L[16], and average TBT influent concentration to a conventional trickling filter WWTP as 0.692 µg/L (likely from a significant industrial source). Following treatment, the average TBT concentrations in the final effluent at the tertiary treatment WWTP and the conventional trickling filter WWTP were 0.052 µg/L and 0.035 µg/L, respectively, which correspond to total TBT removals of 68 and 95 percent (Scrimshaw et al. 2013). As summarized in Scrimshaw et al. (2013), other research has found total TBT removal at WWTPs to range from 84 to 100 percent. Similarly, the total and/or secondary removal percentages for DBT ranged from 84 to 100 percent (Scrimshaw et al. 2013). The removal of MBT was highly variable and ranged from 14 to 95 percent (Scrimshaw et al. 2013). The TBT concentrations in the final effluent in the Scrimshaw et al. (2013) study would be less than EPA Aquatic life criteria for freshwater acute and chronic criteria and the saltwater acute criteria, but not below the saltwater chronic criteria.

However, if statewide OSHPD 1, 2, 3 or 4 facilities potentially leached organotins into sanitary sewer or stormwater discharges, this would be unlikely to pose a significant risk resulting in surface water quality criteria exceedances or a substantial degradation of water quality for the following reasons:

- The relatively small quantity of wastewater discharged from OSHPD 1, 2, 3 and 4 facilities compared to the total wastewater inputs from all other municipal, commercial, and industrial sources locally or statewide would not be substantial;
- PVC, CPVC, and ABS pipes and their related pipe materials currently are used statewide at many different residential, commercial, public, and industrial facilities for similar water supply, wastewater, stormwater, or drain/waste/vent purposes as the OSHPD 1, 2, 3 and 4 facilities. The quality of wastewater from the OSHPD 1, 2, 3, and 4 facilities that could result from the Proposed Project is anticipated to be equal to or better than the quality from other or similar wastewater systems because the proposed CPVC, PVC, ABS, and PFA pipes would be held to newer, and likely more conservative, product quality and human health standards.

[16] Peak TBT inputs from these same two sources were 0.874 µg/L and approximately 1.11 µg/L.

- No California water bodies have been 303(d)-listed for organotin impairments (SWRCB 2011).
- All pipe materials authorized at OHSPD 1, 2, 3 and 4 facilities because of the Proposed Project would be required to meet NSF/ANSI Standard 61 and NSF/ANSI Standard 14. Certification of the OSHPD 1, 2, 3, and 4 facilities' plumbing materials would occur only if the NSF found that the concentrations of leached materials from the proposed plumbing products, materials, and ingredients that came in contact with the water would not result in any unacceptable toxicological levels. In addition, an extensive risk assessment protocol, incorporating EPA guidance, is used during the NSF/ANSI certification process of these plumbing materials.

Therefore, the impact would be **less than significant**.

Styrene

Styrene is a component of ABS pipe material and potentially could leach from these pipe materials into the transported fluids, thereby posing a potential water quality impairment. Styrene is a possible carcinogen and, when tested at high doses, caused reproductive and mental impairment to rats (ATSDR 2010). This discussion focuses on the potential for ABS pipes to contribute styrene because, based on the required testing under NSF/ANSI Standard 61, it is not a known contaminant of PVC or CPVC pipes (NSF/ANSI 2015). In addition, the PFA pipe materials would not be an anticipated source of styrene because these materials do not leach contaminants (Water Quality Products 2006).

The SWRCB and EPA have established MCLs for styrene of 0.1 mg/L (100 ppb) (SWRCB 2015a; EPA 2014a). EPA has identified two primary sources of styrene in drinking water as discharge from rubber and plastic factories and leaching from landfills (EPA 2014a). In February 2015, the SWRCB re-evaluated MCLs for contaminants that had two or more detections in drinking water systems above the PHGs, between 2011 and 2014 (SWRCB 2015b). This evaluation determined that although two drinking water system sources with styrene concentrations were in excess of the PHG (peak concentration of 1.1 ppb compared to the PHG of 0.5ppb), the styrene MCL did not require further review because no detections of styrene occurred above the MCL and limited styrene detections occurred above the PHG (SWRCB 2015c).

The Proposed Project would comply with requirements of NSF/ANSI Standard 61, including the concentration of styrene in ABS pipe materials, to minimize the potential for human health effects. Based on this compliance and the limited detections of styrene in California's drinking water systems, the Proposed Project would not be anticipated to result in significant water quality effects on drinking water or surface waters. Therefore, the impact would be **less than significant**.

Other Chemicals

Use of CPVC, PVC, and ABS pipes and associated pipe materials, such as fittings, cements, and stabilizers at OSHPD facilities potentially would result in the transfer of other contaminants in these materials to drinking water, wastewater, or stormwater, and ultimately into surface waters. Potential contaminants associated with these pipe materials

are included in Tables 9-1 through 9-3 and include metals, acetone, dimethylformamide, methyl ethyl ketone, methyl isobutyl ketone, tetrahydrofuran, cyclohexanone, phenols, and phthalates. This list is not all encompassing because some product information may be confidential, and the specific product composition, particularly of fillers, stabilizers, sealants, and cements, may vary. However, the list is representative of the primary contaminants of concern, and the discussion would be applicable to other potential chemicals that may come into contact with fluids/water because of the Proposed Project.

As described in Section 9.3.3, Surface Water Quality, some of the potential contaminants in the Proposed Project's pipe materials are listed as surface water impairments (SWRCB 2011); these contaminants include arsenic, cadmium, chromium, copper, lead, mercury, phenols, selenium, thallium, and zinc. NSF/ANSI Standard 61 SPAC or Total Allowable Concentration requirements have been established for all of these potential contaminants except for zinc. In addition, all of these constituents have at least one drinking water/human health-related criterion, as shown in Table 9-1(SWRCB 2015a; EPA 2014a). Furthermore, most of these contaminants also have EPA aquatic life criteria (acute and chronic) for freshwater and saltwater. A comparison of the NSF Total Allowable Concentration and SPAC requirements to the drinking water and aquatic life criteria found that the SPAC requirements potentially were not protective of aquatic life (i.e., the NSF requirement was greater/above at least one aquatic life criterion) for cadmium, phenol[17] (nonylphenol), and copper. In addition, a comparison was not performed for zinc, and thallium because the constituents do not have aquatic life criteria or an NSF requirement.

However, if OSHPD 1, 2, 3 or 4 facilities potentially leached these other contaminants into sanitary sewer or stormwater discharges, they would be unlikely to pose a significant risk from surface water quality criteria exceedances or from a significant degradation of water quality for the following reasons:

- The relatively small quantity of wastewater discharged from OSHPD 1, 2, 3 and 4 facilities compared to the total wastewater inputs from all other municipal, commercial, and industrial sources locally and statewide would not be significant.
- PVC, CPVC, and ABS pipes and related pipe materials currently are used statewide at many different residential, commercial, public, and industrial facilities for similar water supply, wastewater, stormwater, or drain/waste/vent purposes as the OSHPD 1, 2, 3 and 4 facilities. The quality of wastewater from OSHPD 1, 2, 3, and 4 facilities that could result from the Proposed Project is anticipated to be equal to or better than the quality from other or similar wastewater systems because the proposed

[17] NSF requirements exist for specific phenol chemicals, including pentachlorophenol and nonylphenol, and the overall phenol category. EPA has established aquatic life criteria for two specific phenol compounds, pentachlorophenol and nonylphenol, but not the broader phenol category. Which specific phenols may be used in plastic pipe products related to the Proposed Project are unknown. The NSF requirements for pentachlorophenol are 0.001 mg/L total allowable concentration and a SPAC of 0.0001 mg/L, which are protective (less than) all EPA-established freshwater and saltwater aquatic criteria for pentachlorophenol (ranging from 0.0079 to 0.019 mg/L). The nonylphenol NSF total allowable concentration and SPAC requirements of 0.02 and 0.002 mg/L, respectively, would both be greater (less protective) than the chronic saltwater aquatic criteria. The total allowable concentration for nonylphenol also would be greater than the freshwater chronic and acute saltwater aquatic life criteria.

CPVC, PVC, ABS, and PFA pipes would be held to newer, and likely more conservative, product quality and human health standards.

- All pipe materials authorized at OHSPD 1, 2, 3, and 4 facilities because of the Proposed Project would be required to meet NSF/ANSI Standard 61 and NSF/ANSI Standard 14. Certification of the OSHPD facilities' plumbing materials would occur only if NSF found that the concentrations of leached materials from the proposed plumbing products, materials, and ingredients which came in contact with the water would not result in any unacceptable toxicological levels. In addition, an extensive risk assessment protocol, incorporating EPA guidance, is used during the NSF/ANSI certification process of these plumbing materials.

Therefore, the impact would be **less than significant**.

Impact HYD-2: Expose People or Structures to a Significant Risk of Loss, Injury, or Death from Flooding Impacts related to Failure of Pipe Materials (*Less than Significant*)

The Proposed Project would use ABS, PVC, CPVC, and PFA pipe materials at OSHPD facilities. With the exception of the PFA pipes, the pipes would carry drinking water, sanitary sewage, or stormwater within these facilities. Failure of these pipe materials potentially could pose a flooding hazard.

As described in Chapter 8, Hazards and Hazardous Materials, the potential risk of rupture or failure of the ABS, PVC, or CPVC pipes would be less than significant under normal operating conditions, based on pipelines compliance with the applicable ASTM standards. In addition, Chapter 8 discusses the potential risk of ABS pipe failure because of the potential use of incompatible chemicals and prescribes measures to minimize these risks to a less-than-significant level. Furthermore, a study of a variety of water main pipe types found that PVC pipes had the lowest failure rate compared to the other pipe types, including cast iron, ductile iron, concrete, steel, and asbestos cement (Utah State University 2012). For these reasons, pipe failure would be unlikely to occur at OSHPD facilities, or to occur at such a magnitude that a flood-related risk to humans or structures would result. If an accidental pipe failure occurred, any released fluids (water/sanitary sewage) likely would be captured primarily in the OSHPD facility and would not pose a risk to people outside the facility. Furthermore, the pipe failure would be unlikely to cause significant flooding within an OSHPD facility to the extent that it would pose a significant risk to the lives of people at the facility. Therefore, the impact would be **less than significant**.

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Chapter 10
OTHER STATUTORY CONSIDERATIONS

10.1 Introduction

This chapter presents discussions of significant and unavoidable impacts, growth-inducing impacts, and cumulative impacts, as required by the State CEQA Guidelines.

10.2 Significant Irreversible Environmental Changes

Section 15126.2(c) of the State CEQA Guidelines requires an Environmental Impact Report (EIR) to describe any significant irreversible environmental changes that would be caused by the Proposed Project if it is implemented. According to Section 15127 of the State CEQA Guidelines, the information required by Section 15126.2(c) concerning irreversible changes needs to be included only in EIRs prepared in connection with any of the following activities:

a. The adoption, amendment, or enactment of a plan, policy, or ordinance of a public agency;

b. The adoption by a Local Agency Formation Commission (LAFCO) of a resolution making determination; or

c. A project which will be subject to the requirement for preparing an environmental impact statement pursuant to the requirements of the National Environmental Policy Act (NEPA) of 1969, 42 [U.S. Code] USC 4321-4347.

The Proposed Project would not involve the adoption by a LAFCO of a resolution-making determination. In addition, the Proposed Project is not subject to NEPA requirements.

The Proposed Project would not include the adoption or enactment of a plan or ordinance of a public agency. Rather, the Proposed Project would include revisions to state regulations (i.e., the California Plumbing Code). Although State regulations are not considered a "policy" of a public agency, this section describes potential irreversible changes associated with implementation of the Proposed Project.

Implementation of the Proposed Project would not require ABS, PVC, CPVC, or PFA pipes be used at OSHPD 1, 2, 3, and 4 facilities. Rather, the Proposed Project simply would allow these types of plastic pipes to be used. The only potential significant irreversible environmental change associated with the Proposed Project would be the potential increase in use of nonrenewable resources in the production of plastic pipe. Plastic pipe types that would be allowed under the Proposed Project are nonrenewable in the sense that they are derived from a petroleum source. These pipes are not entirely nonrenewable because they are recyclable. However, use of plastic pipes also would result in a corresponding decrease

in use of metal piping, a nonrenewable recyclable resource. Overall, the Proposed Project would not be anticipated to increase use of nonrenewable resources, but simply to change the type of nonrenewable resource to be used. This potential increase would not be a significant irreversible environmental change.

10.3 Significant and Unavoidable Impacts

Section 15126.2(b) requires an EIR to describe any significant impacts that cannot be mitigated to a less-than-significant level. All of the potential impacts associated with the Proposed Project would be less than significant. The Proposed Project would not result in any significant and unavoidable impacts.

10.4 Growth Inducement

Section 15126.2(d) of the State CEQA Guidelines requires an EIR to include a detailed statement of a project's anticipated growth-inducing impacts. The analysis of growth-inducing impacts must discuss the ways in which a project could foster economic or population growth or the construction of additional housing in the surrounding environment. The analysis also must address project-related actions that would remove existing obstacles to population growth, affect tax existing community service facilities, and require construction of new facilities that would cause significant environmental effects, or encourage or facilitate other activities that could, individually or cumulatively, significantly affect the environment. A project would be considered growth inducing if it would induce growth directly (by constructing new housing or increasing population) or indirectly (increasing employment opportunities or eliminating existing constraints on development). Under CEQA, growth is not assumed to be either beneficial or detrimental.

The Proposed Project would not include new development or infrastructure installation that could directly induce significant population growth. Any construction-related jobs resulting from implementation of the Proposed Project would be anticipated to draw from the existing work force. The Proposed Project would not displace any existing housing units or persons, or create any housing units. Any job growth associated with the Proposed Project's implementation is not anticipated to generate sufficient economic activity to the extent that it would result in substantial population growth. Therefore, no growth-inducing impacts would occur under the Proposed Project.

10.5 Cumulative Impacts

A cumulative impact refers to the combined effect of "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (State CEQA Guidelines Section 15355). Cumulative impacts reflect "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor, but collectively significant projects taking place over a period of time" (State CEQA Guidelines Section 15355[b]).

State CEQA Guidelines section 15130(a) requires that an EIR address the cumulative impacts of a proposed project when:

- the cumulative impacts are expected to be significant; and
- the project's incremental effect is expected to be cumulatively considerable, or significant, when viewed in combination with the effects of past, current, and probable future projects.

An EIR does not need to discuss cumulative impacts that do not result in part from the project evaluated in the EIR.

Section 15130 requires an analysis of cumulative impacts to contain the following elements:

- Either a list of past, present, and probable future projects producing related cumulative impacts, or a summary of projections contained in an adopted local, regional or statewide plan that describes or evaluates conditions contributing to the cumulative effect.
- A definition of the geographic scope of the area affected by the cumulative effect, and a reasonable explanation for the geographic limitation used.
- A summary of the environmental effects expected to result from those projects with specific reference to additional information stating where that information is available.
- A reasonable analysis of the combined (cumulative) impacts of the relevant projects.

It also must evaluate a project's potential to contribute to the significant cumulative impacts identified, and discuss feasible options for mitigating or avoiding any contributions assessed as cumulatively considerable.

The discussion of cumulative impacts is not required to provide as much detail as the discussion of the effects attributable to the project alone. Rather, the level of detail is to be guided by what is practical and reasonable.

10.5.1 Methods Used in this Analysis

Approach to Analysis

As mentioned above, Section 15130 of the State CEQA Guidelines provides two recommended approaches for analyzing and preparing an adequate discussion of significant cumulative impacts. The approaches, as defined in Section 15130, are either:

- the *list approach*, which would involve listing past, present, and probable future projects producing related or cumulative impacts, including those projects outside the control of the lead agency; or
- the *projection approach*, which utilizes a summary of projections contained in an adopted general plan, a related planning document, or an adopted environmental document that evaluated regional or area-wide conditions contributing to the cumulative impact.

The level of detail of a cumulative impact analysis needs to consider a project's geographic scope and other factors (e.g., a project's construction or operation activities, the nature of the environmental resource being examined) so that the level of detail is practical and reasonable. The Proposed Project would allow the statewide use of ABS, PVC, CPVC, and PFA plastic pipe at OSHPD 1, 2, 3, and 4 facilities. The use of ABS, PVC, CPVC, and PFA currently is allowed at all other facilities in California. Therefore, it would not be practical or reasonable to list all reasonably foreseeable projects in California with related environmental effects as the Proposed Project, or to summarize the projections contained in all potentially relevant adopted general plans, related planning documents, or adopted environmental documents evaluating regional or area-wide conditions. Therefore, the discussion below uses more general information to support a "projection" approach for the cumulative impact analysis. The specific geographic scope for each environmental resource topic analyzed in this Draft EIR for cumulative impacts is provided next.

Resource Topics Considered and Dismissed

As shown in Table 10-1, the Proposed Project would not have any potential to make a considerable contribution to any potential cumulative impacts on aesthetics; agricultural resources and forestry; cultural resources; greenhouse gas emissions; geology, soils, and seismicity; land use and planning; mineral resources; noise and vibration; population and housing; public services; recreation; traffic and transportation; and utilities and service systems. These resource topics have been dismissed from consideration in the cumulative impacts analysis and are not discussed further.

Table 10-1. Resource Topics Dismissed from Further Consideration in the Cumulative Impacts Analysis

Resource Topic Not Discussed Further	Rationale
Aesthetics	The use of PFA in dialysis branch lines and/or plastic pipe as part of construction or renovation of OSHPD 1, 2, 3 and 4 facilities would be unlikely to have an adverse effect on a scenic vista. Possibly some OSHPD 1, 2, 3 and 4 facilities may be visible from state scenic highways, and possibly some OSHPD facilities may be historic buildings, but the use of PFA, PVC, CPVC, and ABS pipe in plumbing applications would not affect the aesthetic quality or resources of these buildings. Installation and/or the use of PFA, PVC, CPVC, and ABS pipe would not include any nighttime lighting or sources of glare. Aesthetic impacts from other past, present, and probable future projects would be localized and the determination of cumulative impacts generally would need to be made on a site-specific basis. However, for locations where Proposed Program activities may occur and the potential for cumulative aesthetic impacts may exist, the Proposed Program would not have potential to make a considerable contribution to any cumulative impacts related to aesthetics.

Resource Topic Not Discussed Further	Rationale
Agricultural Resources and Forestry	The Proposed Project would not result in the direct or indirect conversion of agricultural or forest lands to non-agricultural use, nor would it conflict with existing zoning for agricultural use, forest land, timberland, or a Williamson Act contract. The Proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use that would substantially affect timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, or other public benefits. Therefore, the Proposed Project would not have the potential to make any contribution to any cumulative impacts related to agricultural resources and/or forestry.
Cultural Resources	No information has been found during the preparation of this Draft EIR to suggest that a widespread loss or degradation of significant historic resources would occur as a result of implementation of the Proposed Project. Rather, impacts on significant historic resources from other past, present, and probable future projects would be localized and would affect only the immediate resources in question. The activities to be carried out under the Proposed Project would have limited potential to affect cultural resources and would be highly unlikely to affect any individual cultural resource that is, or may be in the future, subject to significant cumulative impacts. For this reason, the Proposed Project would not have the potential to make a considerable contribution to any cumulative impacts related to cultural resources.
Geology, Soils, and Seismicity	The Proposed Project would not expose individuals to increased geologic or seismic hazards, would not result in erosion or the loss of topsoil, would not construct structures on unstable soils, and would not create wastewater systems in unsuitable soils. Therefore, the Proposed Project would not have the potential to make a considerable contribution to any cumulative impacts related to geology, soils, or seismicity.
Greenhouse Gas Emissions	The Proposed Project would have no impact related to greenhouse gas emissions. Therefore, it would have no potential to contribute to a cumulatively significant impact.
Land Use and Planning	The Proposed Project would not result in the creation of any permanent structures or barriers that could divide an established community, nor would it result in any permanent land use changes that could conflict with any land use plans, policies, or regulations adopted to avoid or mitigate an environmental effect. All activities conducted under the Proposed Project would be required to obtain any necessary authorizations from the relevant land use authority or property owner, and to comply with any applicable laws or policies specific to the area. Therefore, the Proposed Project would not have the potential to make a considerable contribution to any cumulative impacts related to land use and planning.

Resource Topic Not Discussed Further	Rationale
Mineral Resources	The Proposed Project could result in increased use of PFA, PVC, CPVC, and ABS pipe. For example, OSHPD 1, 2, 3 and 4 facilities may choose to replace existing metal pipes with plastic pipes or use plastic pipes rather than metal pipes in new facilities. Such choices could result in increased production and demand for base products. Some minerals, such as barium, may be used in the manufacture of PVC, CPVC, and ABS, or in extraction of base products (e.g., petroleum). Where such minerals may be obtained is unknown (many sources are likely to exist), but increased demand for use in PFA, PVC, CPVC, and ABS pipe manufacturing could reduce the availability of such resources. However, relative to the overall consumption of minerals and the overall demand for PFA, PVC, CPVC, and ABS pipe, the Proposed Project's contribution to such demand would be negligible. For this analysis, evidence could not be found of a shortage in minerals used in the production of PFA, PVC, CPVC, or ABS pipe. Therefore, the Proposed Project would not have the potential to make a considerable contribution to any cumulative impacts related to mineral resources.
Noise and Vibration	Implementation of Proposed Project activities may create short-term noise during construction, but the Proposed Project would not exempt projects using plastic pipe from compliance with applicable noise standards. Installation of plumbing materials could expose persons or structures to groundborne vibration or groundborne noise, but because the specific locations where such potential impacts may occur is unknown, determining whether any impacts would be substantial is infeasible. The Proposed Project would not result in permanent increases in ambient noise levels above normal existing levels. Installation and the use of plumbing material at OSHPD 1, 2, 3 and 4 facilities may occur within an airport land use plan area, within 2 miles of a public airport, or in the vicinity of a private airstrip. However, any noise generated by Proposed Project construction activities would be minor and short-term. The Proposed Project would not expose people residing or working in any locations to excessive noise levels. For the reasons described above, the Proposed Project would not have the potential to make a considerable contribution to any cumulative impacts related to noise and vibration.

Resource Topic Not Discussed Further	Rationale
Population and Housing	The Proposed Project would not include housing and would not construct or expand any new infrastructure. Replacement or retrofit of plumbing in existing buildings with plastic pipe, resulting from the Proposed Project, could displace medical resident populations temporarily, but patients presumably would be moved to other parts of the facility or would be transferred to another facility as necessary. Furthermore, OSHPD buildings are not considered housing. In addition, the Proposed Project would not result in construction of infrastructure or include other activities that could indirectly induce or remove an obstacle to population growth. Therefore, the Proposed Project would not have the potential to make a considerable contribution to any cumulative impacts related to population and housing.
Public Services	The Proposed Project would not cause an increase in population that would affect demand for police protection, schools, parks, or other public facilities. Public concerns have been raised regarding the potential for PVC, CPVC, or ABS pipe to increase the risk of fire. Concerns have cited the potential for plastic pipe used for drain, waste, and vent systems to create a pathway for smoke, hot gases, and fire to spread through a building. This possible impact would not be substantially different from similar potential impacts arising from existing metal pipes at OSHPD facilities. Therefore, in comparison to baseline conditions, the Proposed Project would not have the potential to make a considerable contribution to any cumulative impacts related to public services.
Recreation	The Proposed Project would not cause an increase in population or contribute to the deterioration of any existing recreational facilities. Furthermore, the Proposed Project would not create any new recreational facilities and would not alter any existing recreational facilities. Therefore, the Proposed Project would not have the potential to make a considerable contribution to any cumulative impacts related to recreation.

Resource Topic Not Discussed Further	Rationale
Traffic and Transportation	The Proposed Project potentially could result in temporary increases in traffic from transportation of plastic pipe to project sites. However, it would be speculative to say whether and where potential traffic impacts may occur, because specific locations of project-related activities are unknown. Site-specific factors (such as facility layouts, adjacent roads, existing level of service, or vehicle miles travelled metrics) would determine the presence and degree of any potential traffic impacts. The choice of plumbing materials for OSHPD 1, 2, 3, and 4 facilities would not affect air traffic patterns, increase traffic hazards because of project design features, or affect alternative transportation policies, plans, or programs. Transport of PFA, PVC, CPVC, and ABS pipe and equipment for installation at OSHPD 1, 2, 3, and 4 facilities would not interfere with emergency access. Therefore, the Proposed Project would not have the potential to make a considerable contribution to any cumulative impacts related to traffic and transportation.
Utilities and Service Systems	The Proposed Project would not contribute to increased population, or to water or wastewater treatment demand. The Proposed Project may result in the replacement of existing building water and wastewater systems with plastic pipes, but this would not affect the need for new water or wastewater treatment facilities or expansion of existing facilities. Public concerns have been raised that PVC, CPVC, and ABS pipes may leach contaminants during use. If plastic pipes leached contaminants, these contaminants may be transported to the local wastewater treatment plant, where they may not be fully removed by treatment processes before being discharged. This potential cumulative impact is discussed in Chapter 9, Hydrology and Water Quality. The Proposed Project may increase the use of PVC, CPVC, and ABS pipes at OSHPD 1, 2, 3, and 4 facilities relative to metal pipe. Plastics are relatively bulky and have long biodegradation times, and thus they take up landfill space (Murphy n.d.). PVC and other plastics also are relatively difficult to recycle, though recycling is possible and commonly is done (Murphy n.d.). Because Proposed Project activities could occur at various undetermined locations throughout the state, any impacts on landfill capacity would be speculative. However, potential hazardous impacts associated with disposal of plastic pipes in landfills are addressed in Chapter 8, Hazards and Hazardous Materials. Therefore, the Proposed Program would not have the potential to make a considerable contribution to any cumulative impacts related to utilities and service systems.

Geographic Scope of Analysis

The level of detail of a cumulative impact analysis should consider a project's geographic scope and other factors (e.g., a project's construction or operation activities, the nature of the environmental resource being examined) so that the level of detail is practical and reasonable. The following discussion focuses on the potential cumulative impacts of the Proposed Project on environmental resources that could be cumulatively affected by the Proposed Project in conjunction with other past, present, and reasonably foreseeable future projects. The specific geographic scope for each environmental resource topic analyzed in this Draft EIR for cumulative impacts is provided below. Chapter 4, Air Quality, further discusses cumulative impacts related to this resource topic.

The defined specific geographic scope for each environmental resource area analyzed in this Draft EIR to which the Proposed Project could contribute to cumulative impacts is shown in Table 10-2.

Table 10-2. Geographic Scope for Resources with Cumulative Impacts Relevant to the Proposed Project

Resource	Geographic Scope	Explanation for the Geographic Scope
Air Quality	Statewide	This includes all air basins in California where OSHPD 1, 2, 3, and 4 facilities may use plastic pipe.
Biological Resources	Aquatic habitats statewide	This includes special-status aquatic species in aquatic habitats in the vicinity of OSHPD 1, 2, 3, and 4 facilities that may use plastic pipe. Terrestrial species and habitats were not considered because the Proposed Project would have no impact on these resources.
Hazards and Hazardous Materials	Statewide, at Proposed Project activity locations in proximity to people	This area covers all landfills in the state, as well as areas inside and in proximity to OSHPD 1, 2, 3, and 4 facilities that may use plastic pipe.
Hydrology and Water Quality	Statewide, at Proposed Program activity locations in proximity to water bodies	This area covers all receiving waters in proximity to OSHPD 1, 2, 3, and 4 facilities that may use plastic pipe.
Note: The project area includes areas in which physical actions that are part of the Proposed Project might take place.		

Existing information on current and historical conditions was used to evaluate the combined effects of past actions on each resource topic that was evaluated. For present and probable future projects and activities, a list of related actions or forecasts was compiled. The effects of these past, present, and probable future conditions then were evaluated in combination with those of the Proposed Project. The combined effects of past actions and related present and probable future projects are described further, below.

10.5.2 Cumulative Impact Analysis

Cumulative Setting

Table 10-3 summarizes the cumulatively significant impacts that are anticipated to occur because of existing and reasonably foreseeable future development, even if the Proposed Project is not implemented. This table addresses all resource topics for which the Proposed Project has been evaluated for its potential to make a cumulatively considerable incremental contribution to an overall significant cumulative impact. Further descriptions of each of these topics are presented in the text below.

Table 10-3. Cumulatively Significant Impacts Independent of the Proposed Project

Resource Topic	Cumulatively Significant Impacts
Air Quality	Increasing population levels and urbanization is resulting in cumulatively significant levels of air pollution. Generation of air pollutant emissions affects the surrounding air quality, both at a local level especially for particulate matter and toxic air contaminants, and at the air basin level especially for ozone precursors and particulate matter. Air pollutant emissions may be generated by many human activities, including the manufacture of a wide range of materials used in construction projects (plastic pipe is one of many such materials), construction of all types of development and infrastructure projects (installation of plastic pipe is one of many construction activities). Ambient air concentrations of criteria air pollutants above the ambient air quality standards are above levels that are protective to human health and the environment. Increases in air pollutant emissions require additional planning and reduction measures to attain and maintain air quality. A number of air basins in California are designated as being in nonattainment at the State or federal level for various air pollutants; such locations are of particular concern with respect to cumulative impacts for those pollutants.
Biological Resources	Increasing population levels and human activities are resulting in a cumulatively significant conversion of habitat, loss of species, and increased numbers of federally and State-listed endangered and threatened species, including freshwater and saltwater aquatic life.
Hazards and Hazardous Materials	Increasing population levels, urbanization, industrialization, and development are generating cumulatively significant impacts on the physical environment related to hazards and hazardous materials, including increased health risks from exposure to hazardous chemicals and increasing cancer rates.
Hydrology and Water Quality	Increasing population levels and human activities statewide may lead to a variety of cumulatively significant impacts on water quality, including new sources of point source and non-point source pollution, and discharges of contaminants to water bodies that are designated as having no further assimilation capacity for those contaminants (i.e., 303[d]-listed water bodies), or those that can become so designated. Cumulative water quality impacts may affect drinking water supplies, the quality of wastewater that is discharged to receiving waters, and the quality of surface waters and groundwater.

Air Quality

The discussion of the air quality cumulative setting is provided in Chapter 4, Air Quality.

Biological Resources

The cumulative setting of the Proposed Project includes existing development and reasonably foreseeable future development of all types throughout California, which now may include, and foreseeably could include, installations of PVC, CPVC or ABS plastic pipes. See Chapter 5, Biological Resources, for a description of the cumulative setting for this resource topic.

Hazards and Hazardous Materials

The cumulative setting for hazards and hazardous materials includes installation of both metal pipes and plastic pipes, as allowed under the Plumbing Code for the full range of development projects, in addition to future OSHPD 1, 2, 3, and 4 facilities.

Installation of water, wastewater, and drainage lines using metallic pipes generally requires welding or soldering and flux. Welding is a method of tightly bonding two metals by melting them where they join. Soldering is the process of joining two metal pieces together. Flux is a chemical cleaning agent that helps with soldering and welding by removing oxidation from the metals to be joined. In particular, flux helps to remove rust from pipe sections being soldered, it seals out air that reduces further rusting, and it improves the wetting characteristics of the liquid solder. Highly active fluxes often are acidic and/or corrosive. Fumes may be released during soldering that can have adverse human health effects (through inhalation), and volatile organic compounds can be outgassed during processing. Plumbers installing metallic water, wastewater, and drainage lines, and others in the vicinity of the construction work, may be exposed to a variety of chemicals used during construction, such as lead, adhesives, solvents, solder, sulfur dioxide, and other toxic substances. Older facilities (constructed prior to 1978), where the plumbing is being installed or upgraded, may contain hazardous building materials, such as asbestos, lead-based paints, and mold that can pose a risk for construction workers. Galvanized pipes generally are threaded and do not require the use of bonding agents. Installation of PVC, CPVC, and ABS pipes may include the use of carcinogenic components (i.e., vinyl chloride monomer) and specialized resins, primers, cements; if unregulated or used improperly, these chemicals have been associated with potential health risks, such as skin irritation and/or dizziness. EPA does not designate PVC, CPVC, and ABS pipes as hazardous materials or wastes; however, the resins, primers, cements, and solvents used to connect the pipes are listed as hazardous materials and wastes in Title 40, Section 302.4 or RCRA Title 40 Section 261 of the Code of Federal Regulations, respectively. Accordingly, the use of these materials in sufficient quantities in uncontrolled conditions may affect construction workers and possibly others in the vicinity of plastic pipe installation activities.

OSHA and Cal/OSHA worker safety regulations during construction and operations, and facility-specific hazardous materials business plans are the primary instruments for managing hazardous materials and reducing health risks for those at work sites for or in the vicinity of construction and pipe installation activities.

Hydrology and Water Quality

Existing impairments for potential water quality contaminants that may be contained in pipe materials used for the Proposed Project are summarized in Table 9-3 in Chapter 9, Hydrology and Water Quality (the list is not meant to be all inclusive but rather representative of potential contaminants). The contaminants listed in Table 9-3 also may be contained in pipe materials at existing facilities and reasonably foreseeable future developments throughout California. In addition, other impairments, such as toxicity, are included in Table 9-3 because sources of toxicity often result from non-point or unknown sources, and the individual constituents listed in Table 9-3 potentially may contribute to water or sediment toxicity impairments. Arsenic, cadmium, chromium, copper, lead,

mercury, phenols, selenium, thallium, sediment and water toxicity, and zinc are listed impairments. Mercury is the most common impairment, occurring in all of California's nine Regional Water Quality Control Board (RWQCB) jurisdictional areas, and affecting the quality of 177 water bodies (SWRCB 2011). However, generally point sources contribute only low to moderate mercury inputs; the most significant mercury sources are historic gold mining, and the erosion and drainage from abandoned mines (SWRCB 2011). The San Francisco Bay Area Region (Region 2) and the San Diego Region (Region 9) are the only regions to list industrial and/or municipal wastewater as potential sources for any of the 12 water quality-impairing constituents in Table 9-3. Specifically, wastewater is identified as a potential contributing source of lead, mercury, selenium, and zinc impairments (SWRCB 2011).

Three aspects of the cumulative setting for hydrology and water quality are described further: drinking water supplies, wastewater quality, and surface water quality, as follows.

Drinking Water Supplies. Potable water supplies for OSHPD 1, 2, 3, and 4 facilities, and all other development in California, come from a variety of sources located throughout the state. These various water supply sources include groundwater and surface water sources. Before reaching OSHPD 1, 2, 3 and 4 facilities, or other existing or proposed development, drinking water is required to comply with the water quality regulations discussed in Chapter 9, Hydrology and Water Quality, and usually has been treated at a water treatment plant to be disinfected and remove any existing pollutants. Although treatment methods at these various water treatment plants depend on a number of factors, including the quality of the raw (untreated) water supplies, all water supply providers are required to meet the drinking water quality regulations discussed above. In addition, water supply providers are required to ensure the quality of the drinking water throughout their water distribution systems and prevent the contamination of any water supplies between the treatment plant and the point of use. In general, potential threats to drinking water include improper chemical disposal, animal wastes, pesticides, human wastes, wastes injected deep underground, naturally occurring substances, improperly treated or disinfected drinking water, or improperly maintained drinking water distribution systems (EPA 2004).

Wastewater Quality. Wastewater from OSHPD facilities, and from existing and reasonably foreseeable future development located in urbanized areas, will be discharged to existing sanitary discharge systems and generally eventually will be transported to wastewater treatment plants (WWTPs). Wastewater treatment processes vary between WWTPs but typically are designed to treat only domestic sewage and treat for conventional pollutants (EPA 2011). Types of wastewater treatment processes include primary treatment to remove large solids and smaller inorganic grit, secondary treatment to remove biodegradable organic contaminants via microorganisms, disinfection to kill any remaining pathogens, and sludge handling/disposal. Advanced treatment options can be implemented, depending on the WWTP's specific effluent discharge requirements, and may include nitrification or denitrification to convert forms of nitrogen, and physical-chemical treatment to remove dissolved metals and organics (EPA 2011). Typically, WWTPs discharge treated effluent into surface waters, including rivers or the Pacific Ocean. However, some WWTPs may discharge treated effluent directly to golf courses, agricultural areas, or parkland (EPA 2011). Primary and secondary wastewater treatment processes generate waste solids (i.e.,

sewage sludge or biosolids) that require disposal, typically in a landfill, incinerated in a sewage sludge incinerator, or as fertilizer/soil conditioner (EPA 2011).

WWTPs are required to comply with RWQCB-mandated waste discharge requirements, detailed in their individual NPDES permits. Wastewater discharges from OSHPD 1, 2, 3 and 4 facilities to local WWTPs generally are typical of hospital and sanitary sewer wastes, while wastewater from other development projects typically consist of sanitary sewer wastes and the full range of wastes that are permissible for treatment at WWTPs. Wastewater that is conveyed to WWTPs from OSHPD 1, 2, 3, or 4 facilities, and all other types of development, would not contain substantial amounts of hazardous materials or wastes because these materials and wastes would be handled and disposed in accordance with hazardous materials/waste-related federal and state regulations.

Surface Water Quality. The quality of surface water and groundwater varies greatly throughout California, based on the natural setting and types of anthropogenic activity. Potential sources of water quality impairment can come from point and non-point sources. Point sources emit from discrete locations, such as an industrial center, pipe, or concentrated animal feeding operation. In comparison, non-point sources are not easily identifiable locations and include such sources as runoff from roads and driveways, atmospheric deposition, discharges from improperly managed construction sites, crop and forest land, mining operations, faulty septic systems, and other sources. Non-point sources also include agricultural stormwater discharges and return flows from irrigated areas.

Cumulative Impacts

As described below, the Proposed Project has been evaluated to determine whether it would make a cumulatively considerable incremental contribution to any of the significant cumulative impacts identified in Table 10-3. For each resource topic evaluated, the Proposed Project would not have the potential to make a considerable contribution to any cumulatively significant impacts.

Impact CUM-1: Result in a Cumulatively Considerable Net Increase of any Criteria Pollutant for which the Project Region is a Nonattainment Area *(Less than Significant)*

This impact is discussed and analyzed in Section 4.4 of Chapter 4, Air Quality.

Impact CUM-2: Impact on Freshwater and Saltwater Aquatic Life (Less than Significant)

The use of CPVC, PVC, and ABS pipes and associated pipe materials in existing and future development; combined with such use at OSHPD 1, 2, 3, or 4 facilities; potentially would result in contaminants leaching into fluids transported in these pipes, and ultimately potentially could be discharged to freshwater or saltwater habitats. These potential contaminants would result in a potentially significant impact on aquatic life if they were transferred in such quantities or concentrations to surface waters that they (a) would degrade the quality of aquatic habitats, and/or (b) would be directly toxic to aquatic organisms. Potential contaminants that could be leached from these materials

could include vinyl chloride, organotins (including tributyltin or TBT), styrene, metals,[1] acetone, dimethylformamide, methyl ethyl ketone, methyl isobutyl ketone, tetrahydrofuran, cyclohexanone, phenols, and phthalates. This list is not all encompassing because some product information may be confidential, and the specific product composition, particularly of fillers, stabilizers, sealants, and cements, may vary. However, the list is representative of the primary contaminants of concern, and the discussion would be applicable to other potential chemicals that may come into contact with fluids/water because of existing and reasonably foreseeable further development and the Proposed Project.

Some of the chemicals listed above have been identified as potentially toxic to freshwater or saltwater aquatic species and have established water quality criteria for the protection of aquatic life. Specifically, EPA has identified freshwater or saltwater aquatic life criteria for arsenic, cadmium, chromium, copper, lead, mercury, selenium, TBT, and zinc, as shown in Table 9-2 of Chapter 9, Hydrology and Water Quality. In addition, as shown in Table 9-3, California has existing surface water quality impairments for arsenic, cadmium, chromium, copper, lead, mercury, phenols, selenium, thallium, sediment and water toxicity, and zinc. Potential sources of these impairments are discussed in Chapter 9, Hydrology and Water Quality, and include a variety of non-point and point sources, such as urban runoff, wastewater discharges, agriculture, and the use of TBT in antifouling ship paints. The analysis in Chapter 9, Hydrology and Water Quality, found that product standards established by NSF International (NSF), an independent, non-profit, non-governmental organization, potentially were not protective of aquatic life (i.e., the NSF standard exceeded at least one aquatic life criterion) for cadmium and copper. A comparison was not performed for phenols, zinc, and thallium because the constituents do not have aquatic life criteria or an NSF requirement.

However, use of plastic pipe for the Proposed Project would not be expected to result in a considerable contribution to degradation of water quality or exceedances of applicable surface water quality criteria, including aquatic life criteria, from the potential leaching of the above or other contaminants into sanitary sewer or stormwater discharges. This is because PVC, CPVC, and ABS pipes and related pipe materials currently are used statewide at many different residential, commercial, public, and industrial facilities for the full range of water supply, wastewater, stormwater, or drain/waste/vent purposes allowed in the 2016 California Plumbing Code. An extensive literature search did not identify any documentation of a causal relationship between the use of plastic pipe and related pipe materials, and loss of habitat for freshwater or saltwater aquatic life.

Therefore, the Proposed Project would not make a considerable contribution to cumulative impacts on aquatic life. The impact would be **less than significant**.

[1] Metals could include antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, selenium, and thallium.

Impact CUM-3: Temporary Chemical Exposure during the Installation of PVC, CPVC, or ABS Pipes (*Less than Significant*)

Impact HAZ-1 describes the project-level impacts associated with temporary chemical exposure during installation of plastic pipes under the Proposed Project. As described in that impact discussion, existing requirements to protect the safety of workers and others near a construction area would continue to be applied for activities conducted for the Proposed Project. These requirements would apply to all cumulative activities, not just those of the Proposed Project. These requirements would be adequate so that exposure to these chemicals would not result in a considerable contribution to significant human health impacts. Therefore, the impact would be **less than significant**.

Impact CUM-4: Potential Violations of Water Quality Standard or Degradation of Water Quality because of Chemical Leaching from Pipes (*Less than Significant*)

Impact HYD-1 describes the potential for the Proposed Project to result in contaminants leaching into fluids transported in pipes. Such leaching under the Proposed Project would not have a considerable contribution to cumulative water quality impacts related to surface water quality criteria exceedances or degradation of water quality for the following reasons:

- PVC, CPVC, and ABS pipes and related pipe materials currently are used statewide at many different residential, commercial, public, and industrial facilities for similar water supply, wastewater, stormwater, or drain/waste/vent purposes as the OSHPD 1, 2, 3 and 4 facilities and will be used in future development in California. The quality of wastewater from the OSHPD 1, 2, 3, and 4 facilities that could result from the Proposed Project, and the quality of wastewater from other future development, are anticipated to be equal to or better than the quality from other or similar wastewater systems because the proposed CPVC, PVC, ABS, and PFA pipes would be held to newer, and likely more conservative, product quality and human health standards.

- All pipe materials authorized for use at OHSPD 1, 2, 3, and 4 facilities because of the Proposed Project, and for other reasonably foreseeable future development in California, would be required to meet NSF/ANSI Standard 61 and NSF/ANSI Standard 14. Certification of the OSHPD facilities' plumbing materials, or the plumbing materials of other development in California, would occur only if the NSF found that the concentrations of leached materials from the proposed plumbing products, materials, and ingredients that came in contact with water would not result in any unacceptable toxicological levels. In addition, an extensive risk assessment protocol, incorporating EPA guidance, would be used during the NSF/ANSI certification process of these plumbing materials.

Therefore, the impact would be **less than significant**.

Chapter 11
ALTERNATIVES

11.1 Introduction

This chapter describes the alternatives considered for the Proposed Project and evaluates their environmental impacts as compared with the Proposed Project. The purpose of the alternatives analysis in an EIR is to describe a range of reasonable, potentially feasible action alternatives to the project that can feasibly attain most of the identified project objectives, but reduce or avoid one or more of the project's significant impacts (State CEQA Guidelines Section 15126.6[b]). In addition, a No Project alternative must be evaluated to consider the impacts of *not* implementing a project (State CEQA Guidelines Section 15126.6[e]).

Based on the analyses presented in this Draft EIR, the Proposed Project would not result in any significant environmental impacts—all potential environmental impacts of the Proposed Project were found to be less than significant without mitigation. Therefore, it is not possible to identify an action alternative meeting CEQA's requirement that each action alternative reduce or avoid one or more of the project's significant impacts. Despite this finding, two action alternatives were developed to address concerns raised by one comment during the scoping period. This comment was the only one that expressed concerns about the Proposed Project during the scoping period (see Appendix B). These alternatives have been considered, despite the absence of any significant impacts associated with the Proposed Project, to provide a good faith evaluation of alternatives in consideration of the concerns expressed by this comment regarding the potential impacts of the Proposed Project. The main concerns stated in the comment had to do with the following:

- Contamination of drinking water by CPVC and PVC pipes;
- Air quality impacts associated with CPVC, PVC, and ABS solvents and cements;
- Air quality impacts associated with the manufacturing of CPVC and PVC pipes and fittings;
- Worker health and safety impacts associated with the installation of CPVC, PVC, and ABS plastic pipes;
- Solid waste impacts associated with disposal of CPVC, PVC, and ABS pipes;
- Fire hazard impacts associated with CPVC, PVC, and ABS pipes; and
- Impacts associated with premature mechanical failure of CPVC, PVC, and ABS pipes.

A more detailed description of the CEQA regulatory requirements for alternatives analysis is provided in the section immediately below. This chapter then describes the alternative development process, alternatives that were considered, and alternatives that were considered but dismissed. The chapter closes with a discussion regarding the environmentally superior alternative.

11.1.1 Regulatory Requirements

CEQA requires that an EIR evaluate a reasonable range of potentially feasible alternatives to the proposed project, including the No Project Alternative. The No Project Alternative allows decision-makers to compare the impacts of approving the action against the impacts of not approving the action. Although no clear rule exists for determining a reasonable range of reasonable alternatives to a project, CEQA provides guidance that can be used to define the range of alternatives for consideration in the environmental document.

The alternatives described in an EIR must feasibly accomplish most of the basic project objectives, reduce or eliminate one or more of the significant impacts of the project (although the alternative could have greater impacts overall), and be potentially feasible (State CEQA Guidelines Section 15126.6[a]). In determining whether alternatives are potentially feasible, the lead agency is to be guided by the general definition of feasibility found in State CEQA Guidelines Section 15364: "… capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."

In accordance with State CEQA Guidelines section 15126.6, subd. (f), the lead agency needs to consider site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitations, and jurisdictional boundaries in determining the feasibility of alternatives to be evaluated in an EIR. An EIR must briefly describe the rationale for selection and rejection of alternatives and the information that the lead agency relied on in making the selection. It also should identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process, and briefly explain the reason for their exclusion (State CEQA Guidelines Section 15126.6[c]).

An EIR's analysis of alternatives is required to identify the environmentally superior alternative among all those considered (State CEQA Guidelines Sections 15126.6[a] and [e][2]). If the "no project" alternative is identified as the environmentally superior alternative, then the EIR also must identify an environmentally superior alternative among the other alternatives.

These guidelines were used in developing and evaluating the alternatives described below.

11.2 Alternatives Development Process

The Proposed Project's purpose and objectives, as well as comments received during the scoping period, were considered while developing alternatives. Alternatives were developed to achieve most of the basic objectives of the Proposed Project, although the selected alternatives may reach these objectives to a lesser extent than the Proposed Project. A reasonable range of potentially feasible alternatives is presented in Section 11.3, Alternatives Considered, describing their potential impacts as well as benefits. Alternatives considered but dismissed are described in Section 11.4, Alternatives Considered and Dismissed.

11.2.1 Project Goals and Objectives

The following goals and objectives are the same as those presented in Sections 2.1 and 2.2 of Chapter 2, Project Description. The purpose of the Proposed Project is to revise the 2016 California Plumbing Code, to allow the use of the following materials in the indicated plumbing systems at OSHPD 1, 2, 3, and 4 facilities:

- Chlorinated polyvinyl chloride (CPVC) pipes, tubes, and fittings in water supply distribution systems;
- Perfluoroalkoxy (PFA) in dialysis branch lines;
- Acrylonitrile butadiene styrene (ABS) and polyvinyl chloride (PVC) piping installations in sanitary drainage systems;
- ABS and PVC pipes and fittings for drain-waste-vent (DWV) systems; and
- ABS and PVC piping installations for stormwater drainage systems.

The Proposed Project is needed to increase flexibility in the construction, modification, or renovation of OSHPD 1, 2, 3, and 4 facilities.

Specific project objectives are as follows:

- Align California's Building Code with the national model code, which contains no prohibitions on the use of plastic pipe for plumbing;
- Increase consistency within California's Building Standards Code, for which no prohibitions on the use of plastic pipe for plumbing exist except for OSHPD 1, 2, 3 and 4 facilities;
- Possibly reduce the cost and improve the ease of installation of plumbing materials;
- Reduce the potential for corrosion of plumbing piping from hospital wastes and/or corrosive soil types;
- Reduce the potential for infection and/or disease transmission (e.g., galvanized water lines can form bio films); and
- Allow use of nationally used and proven products at OSHPD 1, 2, 3, and 4 facilities.

11.2.2 Significant Environmental Impacts of the Proposed Project

The Proposed Project would not result in any significant environmental impacts.

11.3 Alternatives Considered

The No Project Alternative has been considered, as required by CEQA. In addition, the following alternatives have been considered because they meet most of the Proposed Project's objectives, would be feasible, and may address the concerns expressed by the comment referenced above regarding the Proposed Project:

- No ABS Pipes in Drain or Waste/Sewer Connections Alternative
- No CPVC in Water Quality Supply Distribution Systems

A summary comparison of these alternatives is provided in Table 11-1.

11.3.1 No Project Alternative

Characteristics of this Alternative

Under the No Project alternative, the use of the following materials in the indicated plumbing systems at OSHPD 1, 2, 3, and 4 facilities would continue to be prohibited in the California Plumbing Code:

- CPVC pipes, tubes, and fittings in water quality supply distribution systems;
- PFA in dialysis branch lines;
- ABS and PVC pipe installations in sanitary drainage systems;
- ABS and PVC pipes and fittings for DWV systems; and
- ABS and PVC pipe installations for stormwater drainage systems.

Under the No Project alternative, the purpose and objectives of the Proposed Project would not be achieved.

Impact Analysis

Under the No Project Alternative, CPVC, PFA, ABS, and PVC pipes would not be allowed at OSHPD 1, 2, 3, and 4 facilities. The less-than-significant impacts of the Proposed Project (as described in Chapters 4 through 9 of this Draft EIR) would not occur. However, the No Project alternative would result in the continued problem of increased biofilm growth on metallic pipes (as compared to plastic pipes) and elevated pathogenic proliferation (EPA 2002; Yu, Kim, & Lee 2010).

11.3.2 No ABS Pipes in Drain or Waste/Sewer Connections Alternative

Characteristics of this Alternative

This alternative differs from the Proposed Project with respect to pipe connections for drain or waste/sewer connections. In this alternative, ABS and PVC pipes would not be allowed in drain or waste/sewer connections. Instead, such connections would use metallic pipes (as allowed in the existing California Plumbing Code).

Impact Analysis

The environmental impacts of this alternative would be the same as the Proposed Project, except that this alternative may avoid or further reduce any potential for impacts related to concerns expressed about the manufacture, installation, and use of ABS pipes in drain or waste/sewer connections (see Section 11.1 above).

11.3.3 No CPVC in Water Quality Supply Distribution Systems Alternative

Characteristics of this Alternative

This alternative differs from the Proposed Project in that CPVC would not be allowed in OSHPD 1, 2, 3, and 4 water quality supply distribution systems. Instead, metallic pipes would be used (as allowed in the existing California Plumbing Code).

Impact Analysis

The environmental impacts of this alternative would be the same as the Proposed Project, except that this alternative may avoid or further reduce any potential for impacts related to the concerns expressed regarding the manufacture, installation, and use of CPVC in water quality supply distribution systems (see Section 11.1 above).

Table 11-1. Summary of Alternatives and Comparison to the Proposed Project

Alternative	Characteristics	Relationship to Proposed Project Objectives	Impacts Compared to the Proposed Project
No Project Alternative	▪ CPVC pipes, tubes, and fittings would not be allowed in OSHPD 1, 2, 3, and 4 water quality supply distribution systems; ▪ PFA would not be allowed in dialysis branch lines; ▪ ABS and PVC pipe installations would not be allowed in sanitary drainage systems; ▪ ABS and PVC pipes and fittings would not be allowed for DWV systems; and ▪ ABS and PVC pipe installations would not be allowed for stormwater drainage systems.	▪ No Proposed Project objectives would be met.	▪ None
No ABS Pipes in Drain or Waste/Sewer Connections Alternative	▪ Identical to Proposed Project except ABS pipe would not be allowed in drain or waste/sewer connections at OSHPD 1, 2, 3 and 4 facilities	▪ All Proposed Project objectives would be met except for the use of ABS pipe in drain or waste/sewer connections.	▪ Potential avoidance or reduction of alleged impacts associated with the manufacture, installation, and use of ABS pipes in drain or waste/sewer connections.
No CPVC in Water Quality Supply Distribution Systems Alternative	▪ Identical to Proposed Project except CPVC would not be allowed in water quality supply distribution systems at OSHPD 1, 2, 3, and 4 facilities	▪ All Proposed Project objectives would be met except for the use of CPVC in water quality distribution systems.	▪ Potential avoidance or reduction of alleged impacts associated with the manufacture, installation, and use of CPVC in water quality supply distribution systems.

11.4 Alternatives Considered and Dismissed

The following alternatives were considered, but ultimately were dismissed from further analysis because they would not sufficiently meet most of the Proposed Project objectives:

- **No CPVC, PVC, or ABS Pipe Alternative:** Under this alternative, CPVC, PVC, and ABS pipes would not be allowed at OSHPD 1, 2, 3 and 4 facilities. This alternative would allow only the use of PFA in dialysis branch lines. This alternative was dismissed because it would not meet most of the Proposed Project objectives.

- **No ABS and PVC Pipe Alternative:** Under this alternative, ABS and PVC pipes and fittings would be allowed at OSHPD 1, 2, 3, and 4 facilities. This alternative was dismissed because it would not meet most of the Proposed Project objectives.

11.5 Environmentally Superior Alternative

Because neither the Proposed Project nor any of the alternatives would result in any significant environmental impacts, it is somewhat arbitrary to select the environmentally superior alternative. Based on the concerns expressed by the sole comment during the public scoping period (see Appendix B), the No Project alternative would alleviate all alleged impacts expressed by the comment, mentioned above. The No CPVC in Water Quality Supply Distribution Systems alternative may be considered the environmentally superior alternative in response to the comment mentioned above because of its reduction in alleged impacts on drinking water quality.

However, overall, the Proposed Project would not result in any significant impacts, and therefore no mitigation measures are required.

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Chapter 12
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Chapter 13
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None.

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None.

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APPENDIX A

Notice of Preparation of an EIR

and

Initial Study

Notice of Preparation

Date:	April 28, 2015
To:	State Clearinghouse, Responsible Agencies, Trustee Agencies, Federal Agencies, Interested Parties, and Organizations
Subject:	**Notice of Preparation of a Draft Environmental Impact Report for Revisions to the 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**
Lead Agency:	Office of Statewide Health Planning and Development, 400 R Street, Sacramento, CA 95811-6213
Contact:	Glenn Gall, AIA, Project Manager State of California Office of Statewide Health Planning and Development 400 R Street, Suite 200 Sacramento, CA 95811 Glenn.Gall@oshpd.ca.gov

The Office of Statewide Health Planning and Development (OSHPD) is the lead agency and is preparing an environmental impact report (EIR) for the project identified below. OSHPD would like input from your agency and interested members of the public regarding the scope and content of the environmental information that is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency may need to use the program EIR prepared by OSHPD when considering any permit or other approval related to the proposed project.

The project description, location, and potential environmental effects are contained in the attached materials. A copy of the initial study ☒ ***is*** ☐ ***is not*** attached.

Because of the time limits mandated by state law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

Please send your response to Glenn Gall, AIA, at the address above. Please include your name or the name of a contact person in your agency.

Project Title:	Revisions to the 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
Project Applicant, if any:	n/a

Date: April 28, 2015

Signature: Glenn Gall

Title: Project Manager

Email: Glenn.Gall@oshpd.ca.gov

Reference: Cal. Code Regs., tit. 14, (CEQA Guidelines) Sections 15082, subd. (a), 15103, 15375.

Revisions to the 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

Initial Study

April 2015

Prepared for

Office of Statewide Health Planning and Development
400 R Street
Sacramento, CA 95811-6213

Prepared by

Horizon Water and Environment, LLC
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Oakland, California 94612
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Acronyms and Abbreviations

ABS	acrylonitrile butadiene styrene
BMP	best management practice
CBSC	California Building Standards Commission
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CPVC	chlorinated polyvinyl chloride
CRHR	California Register of Historical Resources
DWV	drain-waste-vent
EIR	Environmental Impact Report
Farmland	Prime Farmland, Unique Farmland, or Farmland of Statewide Importance
FDD	Facilities Development Division
FMMP	Farmland Mapping and Monitoring Program
HCl	hydrogen chloride
HCP	habitat conservation plan
MEK	methyl ethyl ketone
mm	millimeter
NOP	Notice of Preparation
NRHP	National Register of Historic Places
NTSB	National Transportation Safety Board
OSHPD	California Office of Statewide Health Planning and Development
OSHPD 1	General Acute Care Hospitals and Acute Psychiatric Hospitals
OSHPD 2	Skilled Nursing Facilities and Intermediate Care Facilities
OSHPD 3	Licensed Clinics and Freestanding Outpatient Clinical Services Buildings
OSHPD 4	Correctional Treatment Centers
PFA	Perfluoroalkoxy
PVC	polyvinyl chloride
TAC	toxic air contaminant
VOC	volatile organic carbon

A. PROJECT DESCRIPTION

1.0 Project Background

The California Building Standards Commission (CBSC) oversees the triennial compilation and publication of the adoptions, amendments, and repeal of administrative regulations to Title 24 of the California Code of Regulations (CCR), California Building Standards Code. Part 5 of the California Building Standards Code is known as the California Plumbing Code and will incorporate, by adoption, the latest edition of the Uniform Plumbing Code of the International Association of Plumbing and Mechanical Officials with the California Amendments.

The California Building Standards Code is published in its entirety every 3 years by order of the California legislature, with supplements published in intervening years. The California legislature delegated authority to various State agencies, boards, commissions, and departments, for creation of building regulations to implement the State's statutes. These building regulations or standards have the same force of law and take effect 180 days after their publication unless otherwise stipulated.

California's Office of Statewide Health Planning and Development (OSHPD), as one of the legislatively delegated State agencies, has authority to propose regulations related to the following facilities:

- General Acute Care Hospitals and Acute Psychiatric Hospitals (OSHPD 1);
- Skilled Nursing Facilities and Intermediate Care Facilities (OSHPD 2);
- Licensed Clinics and Freestanding Outpatient Clinical Services Buildings (OSHPD 3); and
- Correctional Treatment Centers (OSHPD 4).

These proposed regulations then are subjected to the Triennial Code Adoption Cycle review and approval process, administered by CBSC.

OSHPD's Facilities Development Division (FDD) Building Standards Unit is responsible for the development of administrative regulations and building standards for the four facility types listed above. These regulations are developed, as necessary, to implement the provisions of the Alfred E. Alquist Hospital Seismic Safety Act of 1983.

Building Standards Unit staff work in conjunction with OSHPD's architects, engineers, and construction observation staff; the Hospital Building Safety Board; and interested members of the public to develop code language for new building standards and amendments to existing standards in the California Building Standards Code. All regulatory proposals are submitted to the CBSC for approval and adoption.

The purpose of the Proposed Project is to change the 2016 California Plumbing Code, to allow the use of the following materials in the indicated plumbing systems for OSHPD 1, 2, 3, and 4 facilities:

- Chlorinated polyvinyl chloride (CPVC) pipes, tubes, and fittings in water supply distribution systems;
- Perfluoroalkoxy (PFA) in dialysis branch lines;
- Acrylonitrile butadiene styrene (ABS) and polyvinyl chloride (PVC) piping installations in sanitary drainage systems;
- ABS and PVC pipes and fittings for drain-waste-vent (DWV) systems; and
- ABS and PVC piping installations for stormwater drainage systems.

The Proposed Project is needed to increase flexibility in the construction, modification, or renovation of OSHPD 1, 2, 3, and 4 facilities.

2.0 Project Objectives

The objectives of the Proposed Project are as follows:

- Align California's Building Code with the national model code, which contains no prohibitions on the use of plastic pipe for plumbing;
- Increase consistency within California's Building Standards Code, for which no prohibitions on the use of plastic pipe for plumbing exist except for OSHPD 1, 2, 3 and 4 facilities;
- Possibly reduce the cost and improve the ease of installation of plumbing materials;
- Reduce the potential for corrosion of plumbing piping from hospital wastes and/or corrosive soil types;
- Reduce the potential for infection and/or disease transmission (e.g., galvanized water lines can form bio films); and
- Allow use of nationally used and proven products in OSHPD 1, 2, 3, and 4 facilities.

3.0 Proposed Project

The Proposed Project would involve making the following changes to the 2016 California Plumbing Code. These changes would apply to OSHPD 1, 2, 3, and 4 facilities throughout the State of California (see Figure 1). Proposed additions are shown in <u>underscore</u>, and proposed deletions are shown in ~~strikeout~~.

- **Chapter 6 – Water Supply and Distribution**

  604.0 Materials.

  604.1 Pipe, Tube, and Fittings. Pipe, tube, fittings, solvent cements, thread sealants, solders, and flux used in potable water systems intended to supply drinking water shall be in accordance with the requirements of NSF 61.

Horizon WATER and ENVIRONMENT

Figure 1
Project Area

Materials used in the water supply system, except valves and similar devices, shall be of a like material, except where otherwise approved by the Authority Having Jurisdiction.

Materials for building water piping and building supply piping shall comply with the applicable standards referenced in Table 604.1.

~~***Exception: [OSHPD 1, 2 & 4]*** *Use of CPVC is not permitted for applications under authority of the Office of Statewide Health Planning and Development.*~~

- **Chapter 6 – Water Supply and Distribution**

605.0 Joints and Connections

605.3 Copper Pipe, Tubing, and Joints

605.3.3 Mechanical Joints

~~**605.3.3.2**~~ **605.1.3.2** ~~**[Not permitted for OSHPD 1, 2, 3, & 4]**~~ **Pressed Fittings.** Pressed fittings for copper pipe or tubing shall have an elastomeric O-ring that forms the joint. The pipe or tubing shall be fully inserted into the fitting, and the pipe or tubing marked at the shoulder of the fitting. Pipe or tubing shall be cut square, chamfered, and reamed to full inside diameter. The fitting alignment shall be checked against the mark on the pipe or tubing to ensure the pipe or tubing is inserted into the fitting. The joint shall be pressed using the tool recommended by the manufacturer.

614.0 Dialysis Water-Distribution Systems

6.14.1 [OSHPD 1, 2, 3, & 4] Dialysis water feedlines shall be PVC (polyvinyl chloride), glass, stainless steel, or PVDF (polyvinylidene fluoride,) and sized to provide a minimum velocity of 1.5 feet per second (0.46 m/s). The piping shall be a singleloop system with or without recirculation. Branches to dialysis machines shall be ¼ inch (6.4 mm) inside dimension and take off from the bottom of the main feedline. Branch lines may be Perfluoroalkoxy (PFA).

- **Chapter 7 – Sanitary Drainage**

701.0 Materials

~~**701.1**~~ **701.2** **Drainage Piping.** Materials for drainage piping shall be in accordance with one of the referenced standards in Table 701.1 except that:

(1) No galvanized wrought-iron or galvanized steel pipe shall be used underground and shall be kept not less than 6 inches (152 mm) aboveground.

(2) ABS and PVC DWV piping installations shall be installed in accordance with applicable standards referenced in Table 1401.1. Except for individual single-family dwelling units, materials exposed within ducts or

plenums shall have a flame-spread index of a maximum of 25 and a smoke-developed index of a maximum of 50, where tested in accordance with ASTM E 84 and UL 23.

(a) ***[HCD 1 & HCD 2]*** *ABS and PVC installations are limited to not more than two stories of areas of residential accommodation.*

~~*(b)* ***[OSHPD 1, 2, & 4]*** *ABS and PVC installations are not allowed.*~~

- **Chapter 9 – Vents**

903.0 Materials

903.1 Applicable Standards. Vent piping and fittings shall comply with the applicable standards referenced in Table 701.1, except that:

(1) No galvanized steel or 304 stainless steel pipe shall be installed underground and shall not be less than 6 inches (152 mm) aboveground.

(2) ABS and PVC DWV piping installations shall be in accordance with the applicable standards reference in Table 1401.1. Except for individual single-family dwelling units, materials exposed within ducts or plenums shall have a flame-spread index of a maximum of 25 and a smoke-developed index or not more than 50 where tested in accordance with ASTM E 84 or UL 723.

903.1.1 [HCD 1 & HCD 2] *ABS or PVC installations are limited to not more than two stories of areas of residential accommodation.*

903.1.2 [HCD 1] *All malleable iron vents shall be galvanized.*

~~***903.1.3 [OSHPD 1, 2, 3 & 4]*** *ABS and PVC installations are not allowed.*~~

- **Chapter 11 – Storm Drainage**

1101.0 General.

1101.1 Where Required. Roofs, paved areas, yards, courts, courtyards, vent shafts, light wells, or similar areas having rainwater, shall be drained into a separate storm sewer system, or into a combined sewer system where a separate storm sewer system is not available, or to some other place of disposal satisfactory to the Authority Having Jurisdiction. In the case of one- and two-family dwellings, storm water shall be permitted to be discharged on flat areas, such as streets or lawns, so long as the storm water shall flow away from the building and away from adjoining property, and shall not create a nuisance.

1101.2 Storm Water Drainage to Sanitary Sewer Prohibited. Storm water shall not be drained into sewers intended for sanitary drainage.

1101.3 Material Uses. Rainwater piping placed within the interior of a building or run within a vent or shaft shall be of cast-iron, galvanized steel,

wrought iron, brass, copper, lead, Schedule 40 ABS DWV, Schedule 40 PVC DWV, stainless steel 304 or 316L [stainless steel 304 pipe and fittings shall not be installed underground and shall be kept not less than 6 inches (152 mm) aboveground], or other approved materials, and changes in direction shall be in accordance within the requirements of Section 706.0. ABS *and* PVC DWV piping installations shall be installed in accordance within IS 5 and IS 9. Except for individual single-family dwelling units, materials exposed within ducts or plenums shall have a flame-spread index of a maximum of 25 and a smoke-developed index of a maximum of 50, where tested in accordance with ASTM E 84 and UL 723.

1101.3.1 [HCD 1 & HCD 2] *ABS or PVC installations are limited to not more than two stories of areas of residential accommodation.*

~~***1101.3.2 [OSHPD 1, 2, 3, & 4]*** *ABS and PVC installations are not allowed.*~~

1102.0 Materials

1102.1 Conductors. Conductors installed aboveground in buildings shall be in accordance within the applicable standards referenced in Table 701.1 for aboveground drain, waste, and vent pipe.

1102.1.1 Inside of Conductors. The inside of conductors installed aboveground level shall be seamless copper water tube, Type K, L, or M; Schedule 40 copper pipe or Schedule 40 copper alloy pipe; Type DWV copper drainage tube; service weight cast-iron soil pipe or hubless cast-iron soil pipe; standard weight galvanized steel pipe; stainless steel 304 or 316L [stainless steel 304 pipe and fittings shall not be installed underground and shall be kept not less than 6 inches (152 mm) aboveground]; or Schedule 40 ABS or Schedule 40 PVC plastic pipe.

1102.1.2 [HCD 1] *ABS or PVC installations are limited to not more than two stories of areas of residential accommodation.*

~~***1102.1.3 [OSHPD 1, 2, 3, & 4]*** *ABS and PVC installations are not allowed.*~~

4.0 Proposed Plumbing Materials

The Proposed Project would allow use of PFA, ABS, PVC, and CPVC materials as specified above. These materials, along with key aspects of their manufacture, in-use, and end of life features, are described below. All of the proposed materials would be subject to various ASTM standards as well as NSF 61 standards. During installation of ABS, PVC, and CPVC, each of these pipes may be connected using various pipe fittings and connectors. These fittings may use various cements and sealers for a proper, leak-free fit. (See the general discussion on pipe fittings, cements, and sealers at the end of this section.)

PFA

PFA was first produced by DuPont in 1972 and is called Teflon® PFA. PFA is a type of fluoropolymer and has very similar properties as the more common polytetrafluoroethylene (PTFE), which is the more popularly known form of Teflon. PFA is used for pharmaceutical, environmental, laboratory, and semiconductor applications. PFA consists of copolymers of tetrafluoroethylene and perfluoroethers, has a very high impact strength, and can be used at a higher working temperature than most plastics. PFA is inert to strong mineral acids, inorganic bases, inorganic oxidizers, aromatics, some aliphatic hydrocarbons, alcohols, aldehydes, ketones, ethers, esters, chlorocarbons, fluorocarbons, and mixtures of these substances. PFA is not considered hazardous as defined in the U.S. Code of Federal Regulations, 29 CFR 1910.1200.

ABS

ABS is a common thermoplastic polymer. A thermoplastic polymer is a plastic material that becomes pliable or moldable above a specific temperature and solidifies on cooling. ABS is a lightweight material that exhibits high impact resistance and mechanical toughness. It is used in many consumer products, such as toys, appliances, and telephones.

ABS is synthesized from styrene and acrylonitrile in the presence of polybutadiene (synthesized from 1,3-butadiene). The resulting ABS polymer contains long chains of polybutadiene, cross-linked with shorter chains of poly(styrene-co-acrylonitrile). The polymerization process typically uses an emulsion process, a continuous mass process, or a combination of the two processes. The base monomers have the potential to be emitted in the manufacturing process; however, this is highly dependent on the process and process control technologies used. Many process control technologies capture and reuse monomers that may escape and use closed systems.

ABS plastic is recyclable and commonly is mixed with virgin ABS to make plastics for various uses.

PVC

PVC comes in two basic forms: rigid and flexible. The rigid form of PVC is used in construction for pipe and in profile applications, such as doors and windows. It also is used for bottles, other non-food packaging, and cards (e.g., bank or membership cards). PVC can be made softer and more flexible by the addition of plasticizers. In this form, it also is used in plumbing, electrical cable insulation, imitation leather, signage, inflatable products, and many applications where it replaces rubber.

The basic PVC polymer typically is combined with various additives and enhancers before final product formation. These enhancers are added to improve the characteristics of the final product, such as heat stabilizers, UV stabilizers, plasticizers, processing aids, impact modifiers, thermal modifiers, fillers, flame retardants, biocides, smoke suppressors, and color pigments.

Phthalates are the most widely used plasticizer when making plastic softer and more flexible. Phthalates generally are classified according to size and the amount of branching of the molecule.

Heat stabilizers minimize the loss of hydrogen chloride (HCl) during the degradation process. Traditionally, derivatives of heavy metals (e.g. lead and cadmium) have been used; these have been phased out and currently metallic salts of fatty acids, such as calcium stearate, have been used to achieve the desired enhancement. In rigid forms of PVC, tin-based stabilizers also may be used. Other metals may be used in flexible PVC and include stabilizers based on barium, zinc, and calcium carboxylates.

Chlorination is discussed below under CPVC.

Recycling PVC has become possible by using the Vinyloop® process (a physical, solvent-based recycling technology, suitable for difficult-to-treat composite PVC waste).

CPVC

CPVC is a thermoplastic produced by chlorination of PVC resin. It is generated by chlorination of aqueous solution of PVC particles, followed by exposure to UV light that initiates the free-radical chlorination process. The increase in chlorine content provides a higher heat resistance. Common uses of CPVC include hot and cold water pipes and industrial liquid handling. CPVC shares most of the features and properties of PVC. Because of its excellent corrosion resistance at elevated temperatures, CPVC is ideally suited for self-supporting constructions where temperatures up to 200 degrees Fahrenheit exist.

The basic CPVC polymer typically is combined with various additives and enhancers before final product formation. These enhancers are added to improve the characteristics of the final product, such as heat stabilizers, UV stabilizers, plasticizers, processing aids, impact modifiers, thermal modifiers, fillers, flame retardants, biocides, smoke suppressors, and color pigments. These are similar to the ones described above for PVC.

PVC, CPVC, and ABS Pipe Fittings, Cements, and Sealers

To connect PVC, CPVC, and ABS pipe sections together and provide a complete seal, various fittings, cements, and sealers typically are used on-site during installation. The cements and sealers in particular may release various volatile organic carbons (VOCs), some of which are toxic air contaminants (TACs), during the curing process. Traditionally, cements and sealers used significant quantities of methyl ethyl ketone (MEK) as a solvent. Because of the low VOC regulatory requirements in many California air districts, the cements and sealers are reformulated to use a larger percentage of acetone, which is less volatile, and MEK content is decreased or eliminated. Other ingredients common in PVC and CPVC cements include tetrahydrofuran, cyclohexanone, and silica, along with the polymer resin (PVC or CPVC) and minor amounts of plasticizers, fillers, color pigments, and other stabilizers. Other ingredients common in ABS cement includes ABS resin and minor amounts of plasticizers, fillers, color pigments, and other stabilizers. A particular solvent cement often contains small quantities of proprietary formulations, used to enhance the softening and joining properties of the cement through the various plasticizers, stabilizers, and fillers. Some of this proprietary information is not available publically; however, the major constituents of the solvent cement typically can be found on material safety data sheets, if they are required to be listed.

5.0 Project Location and Setting

The Proposed Project would allow statewide use of the identified materials for the four facility types listed in Section 2.1. The specific locations of their use that may result from the Proposed Project are unknown at this time, and would be based on the locations and construction methods for future new construction and renovation of OSHPD 1, 2, 3, and 4 facilities.

6.0 Permits and Approvals

The permits and regulatory compliance requirements for the Proposed Project are described by permitting agency, as shown in Table 2-1. Activities conducted in compliance with the adopted regulations may be subject to other permitting and approvals, such as from local land use authorities. As the specific locations of such activities are unknown at this time, the specific local or other permitting and approvals that may be applicable also are unknown.

Table 2-1. Other Permits and Regulatory Approvals

Regulatory Agency	Law/Regulation	Purpose	Permit/Authorization Type
California Building Standards Commission	CCR, Title 24	California Plumbing Code, Water Supply and Distribution; Sanitary Drainage	CBSC Approval

7.0 Topics to be Analyzed in the Environmental Impact Report

Based on some public concerns that have been expressed regarding ABS, PVC, and CPVC pipes, OSHPD has chosen to prepare a Draft Environmental Impact Report (Draft EIR). The Draft EIR will assess the proposed project's effects on the environment, to identify potentially significant impacts (if any), and to identify, if applicable, feasible mitigation measures to reduce or eliminate potentially significant environmental impacts. An analysis of alternatives to the proposed project also will be included in the Draft EIR. Topics to be analyzed in the Draft EIR include but are not necessarily limited to the following:

- Air Quality
- Biological Resources
- Cultural Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality

Responses received to the Notice of Preparation (NOP) may modify the list of issues addressed in the Draft EIR.

8.0 Environmental Procedures

The NOP initiates the CEQA process and allows agency and public input, to assist OSHPD in refining the range of issues and project alternatives to be addressed in the Draft EIR. Comment is invited on the NOP to help determine the scope of issues to be included in the Draft EIR.

Any comments are to be submitted within 30 days of receipt of the NOP to Glenn Gall, AIA, OSHPD's Project Manager for the Proposed Project (see *Contact Information* below). In conjunction with the 30-day review period for the NOP, OSHPD will hold two scoping meetings to provide an additional opportunity to learn about the project, ask questions, and provide comments about the scope and content of the information to be addressed in the draft EIR. The scoping meetings will be held at the following times and locations:

Friday, May 15, 2015
10:00 am – 12:00 pm
Office of Statewide Health Planning and Development
Sacramento Room
400 R Street
Sacramento, CA 95811

Friday, May 22, 2015
10:00 am – 12:00 pm
Ronald Reagan State Building
Auditorium
300 S. Spring Street
Los Angeles, CA 90013

After the 30-day review period for the NOP is complete and all comments are received and considered, a Draft EIR will be prepared in accordance with CEQA, as amended (Public Resources Code Section 21000 et seq.), and the State Guidelines for Implementation of CEQA (CCR Section 15000 et seq.).

After the Draft EIR is completed, it will be made available for a 45-day public review and comment period. A Notice of Availability of the Draft EIR will be sent directly to responsible trustees and agencies with jurisdiction by law over the Proposed Project; agencies, individuals, and organizations commenting on the NOP; and any other entities and individuals who have requested notice regarding the Draft EIR. The Draft EIR will be made available to the public at a number of locations, including OSHPD's headquarters, several public libraries throughout the state, and online. Information about availability of the draft EIR will be posted on the OSHPD's website (http://www.oshpd.ca.gov/FDD/Regulations/index.html).

9.0 Contact Information

For further information or to submit comments in response to this NOP, please send or e-mail correspondence and/or comments to the following:

Glenn Gall, AIA
Project Manager
Office of Statewide Health Planning and Development
400 R Street, Suite 200
Sacramento, CA 95811
(916) 440-8356
Glenn.Gall@oshpd.ca.gov

B. ENVIRONMENTAL CHECKLIST

1.0 Overview

Project title:	Revisions to the 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 (Proposed Project)
Lead Agency name and address	Office of Statewide Health Planning and Development 400 R Street Sacramento, CA 95811-6213
Contact person and phone number:	Glenn Gall, AIA, Project Manager (916) 440-8356
Project location:	The Proposed Project may result in activities statewide, at new and existing OSHPD facilities.
Project sponsor's name and address:	Office of Statewide Health Planning and Development 400 R Street Sacramento, CA 95811-6213
Land designation:	Land use designations cannot be determined because Proposed Project activities may occur at various locations statewide that currently are unknown.

2.0 Environmental Factors Potentially Affected

The environmental factors checked below potentially would be affected by the Proposed Project or would include at least one impact that would be "less than significant" but would be evaluated in the Draft EIR because of concerns expressed by the public, as indicated by the checklist on the following pages.

[ ] Aesthetics	[ ] Agricultural and Forestry Resources	[X] Air Quality
[X] Biological Resources	[X] Cultural Resources	[ ] Geology / Soils
[X] Greenhouse Gas Emissions	[X] Hazards and Hazardous Materials	[X] Hydrology / Water Quality
[ ] Land Use / Planning	[ ] Mineral Resources	[ ] Noise
[ ] Population / Housing	[ ] Public Services	[ ] Recreation
[ ] Transportation/Traffic	[ ] Utilities / Service Systems	[X] Mandatory Findings of Significance

3.0 Evaluation of Environmental Impacts

In this analysis, the degree of change from existing conditions caused by the Proposed Project is compared to the impact evaluation criteria to determine whether the change is significant. In other words, existing conditions serve as the baseline for evaluating the potential impacts of the Proposed Project. As mandated by the California Environmental Quality Act (CEQA), only reasonably foreseeable changes to the physical environment are considered.

Potential impacts that cannot be assessed because of absence of site-specific information are considered to be speculative. For example, use of pipe could occur as part of a larger project (e.g., new hospital facilities) where the project as a whole could have potentially significant impacts. Because the locations and characteristics of any such projects are currently unknown, it would be speculative to say whether and where such potential impacts would occur. Therefore, this evaluation focuses specifically on whether the use of plastic pipe in these types of facilities generally would have potentially significant impacts.

Similarly, these changes to the California Building Standards Code would not authorize projects implementing the regulations (i.e., using plastic pipe) to violate any other applicable local, state or federal laws, regulations, or policies. For example, changes to the California Building Standards Code under the Proposed Project would not override a local ordinance prohibiting the use of plastic pipe that would otherwise apply.

The following terminology is used throughout this document to describe the level of potential impacts on the environment from the Proposed Project:

- *No Impact.* The Proposed Project would not adversely affect a particular environmental resource or topical area of analysis in any way.

- *Less than Significant.* The Proposed Project would not cause a substantial adverse change in the environment.

- *Potentially Significant.* The Proposed Project could cause a significant environmental impact.

Potential impacts that are considered speculative are accorded a significance conclusion of "No Impact." Potential impacts that are determined in this analysis to be less than significant may be carried forward for further analysis in the EIR because of public concerns. It is indicated in the checklist response discussion whether a less than significant impact will be evaluated in the EIR.

4.0 CEQA Environmental Checklist

I. AESTHETICS

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
	Would the project:				
a.	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b.	Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c.	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d.	Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	☐	☒

Discussion of Checklist Responses

a. Have an Adverse Effect on a Scenic Vista—*No Impact*

The use of PFA in dialysis branch lines and/or plastic pipe as part of construction or renovation of OSHPD 1, 2, 3 and 4 facilities would be unlikely to have an adverse effect on a scenic vista. No impact would occur.

b. Substantially Damage Scenic Resources, including Trees, Rock Outcroppings, and Historic Buildings within a State Scenic Highway—*No Impact*

Possibly some OSHPD 1, 2, 3 and 4 facilities may be visible from state scenic highways, and possibly some OSHPD facilities may be historic buildings, but the use of PFA, PVC, CPVC, and ABS pipe in plumbing applications would not affect the aesthetic quality or resources of these buildings. No impact would occur.

c. Substantially Degrade the Existing Visual Character or Quality of the Site and Its Surroundings—*No Impact*

The use of PFA, PVC, CPVC, and ABS pipe would not affect the existing visual character or quality of any potential project sites at OSHPD 1, 2, 3 and 4 facilities. Plastic pipes used under

the revised regulations, in lieu of metal pipes, primarily would be contained within building walls and would not be visible. No impact would occur.

d. Create a New Source of Light or Glare, Affecting Views in the Area—*No Impact*

Installation and/or the use of PFA, PVC, CPVC, and ABS pipe would not include any nighttime lighting or sources of glare. The Proposed Project may reduce the amount of exposed metal piping in OSHPD 1, 2, 3 and 4 facilities, and thus potentially could reduce glare to some marginal degree because metal generally is more reflective than plastic. No impact would occur.

II. AGRICULTURAL RESOURCES

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency, to nonagricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g])?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use in a manner that will significantly affect timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, or other public benefits?	☐	☐	☐	☒
e. Involve other changes in the existing environment that, because of their location or nature, could result in a conversion of Farmland to a nonagricultural use?	☐	☐	☐	☒

Discussion of Checklist Responses

a and e. Convert Farmland to Non-Agricultural Use Related to the FMMP or Involve Other Changes in the Existing Environment that Could Result in a Conversion to Non-Agricultural Use—*No Impact*

The use of PFA, PVC, CPVC, and ABS piping in OSHPD 1, 2, 3, and 4 facilities would not result in the direct or indirect conversion of agricultural or forest lands to non-agricultural use. No impact would occur.

b and c. Conflict with Existing Zoning for Agriculture Use, a Williamson Act Contract, or existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production—*No Impact*

The use of PFA, PVC, CPVC, and ABS piping in OSHPD 1, 2, 3 and 4 facilities would not conflict with existing zoning for agricultural use, forest land, timberland, or conflict with a Williamson Act contract. No impact would occur.

d. Result in the loss of forest land or conversion of forest land to non-forest use that would significantly affect timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, or other public benefits—*No Impact*

The Proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use that would significantly affect timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, or other public benefits. No impact would occur.

III. AIR QUALITY

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e. Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Discussion of Checklist Responses

a. Conflict with or Obstruct Implementation of the Applicable Air Quality Plan—*Less than Significant*

The use of PFA in dialysis branch lines is not anticipated to conflict with or obstruct implementation of the applicable air quality plan. The use of PVC, CPVC, and ABS pipe in OSHPD facilities as a result of the Proposed Project may occur statewide, and thus all air basins in the state potentially could be affected. Installation of PVC, CPVC, and ABS pipe could contribute some amount of VOCs and TACs because the cements and sealers used to connect pipes together emit these contaminants during the curing process. Typical VOCs and TACs include phenolics, phthalates, and various types of monomers. In addition, the Proposed Project potentially could result in increased use and production of PFA, PVC, CPVC, and ABS pipe, the production of which could release air contaminants. The increased production of PFA, PVC, CPVC, and ABS pipe may or may not occur in California and may or may not require having their own environmental compliance and air quality permitting analyses conducted.

However, these potential minor sources of contaminants are not anticipated to be of a sufficient degree to conflict with any applicable air quality plans. The impact would be less than significant. While this potential impact is not considered to be significant, it will be evaluated further in the Draft EIR.

b. Violate Any Air Quality Standard or Contribute Substantially to an Existing or Projected Air Quality Violation—*Less than Significant*

The use of PFA in dialysis branch lines is not expected to affect any air quality standard or contribute substantially to an existing or project air quality violation. The use of PVC, CPVC, and ABS pipe in OSHPD facilities as a result of the Proposed Project may occur statewide, and thus all air basins in the state potentially could be affected. Several air basins within the state are in non-attainment of the ozone ambient air quality standard. Cements and sealers used to connect pipes together emit VOCs during the curing process, which may contribute to formation of ozone in air basins that are in non-attainment. Because Proposed Project locations currently are unknown, it would be speculative to say whether and where a potential impact may occur. While this potential impact is therefore not considered to be significant, it will be evaluated further in the Draft EIR.

c. Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region is a Nonattainment Area—*Less than Significant*

As discussed under "b" above, the use of PVC, CPVC, and ABS pipes may emit VOCs that could contribute to cumulative ozone violations. Because Proposed Project locations currently are unknown, it would be speculative to say whether and where a potential impact may occur. This impact is therefore not considered to be significant, but will be evaluated in the Draft EIR.

d. Expose Sensitive Receptors to Substantial Pollutant Concentrations—*Less than Significant*

PFA, PVC, CPVC, and ABS pipe under normal operating conditions do not emit any substantial pollutants. During installation and conditioning of the PVC, CPVC, and ABS pipes, some TACs may be emitted. These generally will be small quantities that will disperse rapidly on reaching ambient air. In the event of fire, the potential also would exist for burning PFA, CVC, CPVC, and ABS pipe to generate toxic fumes, such as hydrogen fluoride or hydrogen cyanide. This potential impact is not considered to be significant, because of adherence to existing worker health protection and fire prevention standards. However, because of public concerns, the impact will be evaluated further in the Draft EIR.

e. Create Objectionable Odors Affecting a Substantial Number of People—*Less than Significant*

The use of PFA, PVC, CPVC, and ABS pipe during normal operation would not result in any generation of odors. During installation and conditioning of PVC, CPVC, and ABS pipe, some odors associated with the release of VOCs during pipe fittings may occur. These odors would be temporary, localized, and would dissipate quickly in the ambient air, and thus a substantial number of people would not be exposed to objectionable odors. Some temporary objectionable odors may occur, associated with the gasoline and diesel-powered

construction equipment used to deliver or install the pipe. However, this would be similar to baseline conditions and would not result in exposing a substantial number of people to objectionable odors. Therefore, the impact would be less than significant and will not be evaluated in the Draft EIR.

IV. BIOLOGICAL RESOURCES

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:					
a.	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?	☐	☐	☒	☐
b.	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS?	☐	☐	☒	☐
c.	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including marshes, vernal pools, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d.	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native residents or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f.	Conflict with the provisions of an adopted habitat conservation plan (HCP); natural community conservation plan; or other approved local, regional, or state HCP?	☐	☐	☐	☒

Discussion of Checklist Responses

a. Have a Substantial Adverse Effect, either Directly or Through Habitat Modifications, on Any Species Identified as a Candidate, Sensitive, or Special-Status Species—*Less than Significant*

The use of PFA, PVC, CPVC, and ABS piping in OSHPD 1, 2, 3, and 4 facilities is not expected to result in substantial direct effects to any sensitive or listed species. Since no development, grading, or land disturbance is proposed for this project, no habitat modifications would occur. Nevertheless, due to some concerns expressed about potential environmental impacts to aquatic organisms from leachates from PVC, CPVC, and ABS pipe, this issue will be further examined in the EIR.

b. Have a Substantial Adverse Effect on Any Riparian Habitat or Other Sensitive Natural Community—*Less than Significant*

The use of PFA. PVC, CPVC, and ABS piping in OSHPD 1, 2, 3, and 4 facilities is not expected to result in substantial direct effects to any riparian habitat or other sensitive natural community. Nevertheless, due to some concerns expressed about potential environmental impacts to aquatic organisms, this issue will be further examined in the EIR.

c. Have a Substantial Adverse Effect on Federally Protected Wetlands—*No Impact*

The use of PFA, PVC, CPVC, and ABS piping in OSHPD 1, 2, 3, and 4 facilities would not result in any effects to federally protected wetlands. There would be no impact.

d. Interfere Substantially with the Movement of Any Native Resident or Migratory Fish, or Wildlife Species, or with Established Native Residents or Migratory Corridors, or Impede the Use of Native Wildlife Nursery Sites—*No Impact*

The use of PFA, PVC, CPVC, and ABS plastic piping in OSHPD 1, 2, 3, and 4 facilities would not result in any interference with wildlife movement, established wildlife corridors, or the use of Native Wildlife Nursery. There would be no impact.

e. Conflict with any Local Policies or Ordinances Protecting Biological Resources—*No Impact*

The proposed changes to the CPC regarding PFA, PVC, CPVC, and ABS plastic piping in OSHPD 1, 2, 3, and 4 facilities would not exempt users from applicable local policies or ordinances protecting biological resources. As such, there would be no potential for conflicts, and there would be no impact.

f. Conflict with the Provisions of an Adopted HCP or Natural Community Conservation Plan—*No Impact*

The proposed changes to the CPC regarding PFA, PVC, CPVC, and ABS in OSHPD 1, 2, 3, and 4 facilities would not exempt users from applicable provisions of an Adopted HCP or Natural

Community Conservation Plan. As such, there would be no potential for conflicts, and there would be no impact.

V. CULTURAL RESOURCES

		Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
	Would the project:				
a.	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☒	☐
b.	Cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5?	☐	☐	☐	☒
c.	Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☐	☐	☒
d.	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

Discussion of Checklist Responses

a. Cause a Substantial Adverse Change in the Significance of a Historical Resource as Defined in Section 15064.5—*Less than Significant*

The use of PFA, PVC, CPVC, and ABS materials in historic structures is not expected to significantly affect the integrity of historic structures. Nevertheless, this issue will be examined further in the EIR.

b. Cause a Substantial Adverse Change in the Significance of an Archaeological Resource as Defined in Section 15064.5—*No Impact*

Since no ground disturbance is contemplated as a part of this project, adverse changes in the significance of archaeological resources are not anticipated. No impact would occur.

c. Directly or Indirectly Destroy a Unique Paleontological Resource or Site or Unique Geological Feature—*No Impact*

Since no ground disturbance is contemplated as a part of this project, adverse changes in the significance of archaeological resources are not anticipated. No impact would occur.

d. Disturb Any Human Remains, Including Those Interred Outside of Formal Cemeteries—*No Impact*

Since no ground disturbance is contemplated as a part of this project, human remains will not be disturbed. No impact would occur.

VI. GEOLOGY, SOILS, AND SEISMICITY

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
2. Strong seismic ground shaking?	☐	☐	☐	☒
3. Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
4. Landslides?	☐	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the Project and potentially result in an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
d. Be located on expansive soil, as defined in Table 18-1-B of the 1994 Uniform Building Code, creating substantial risks to life or property?	☐	☐	☐	☒
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Discussion of Checklist Responses

a. Expose People or Structures to Potential Substantial Adverse Effects, Including the Risk of Loss, Injury, or Death Involving:

1. Seismic-Related Rupture of a Known Earthquake Fault—*No Impact*

The use of PFA, PVC, CPVC, and ABS pipe in OSHPD 1, 2, 3 and 4 facilities would not expose people or structures to potential adverse effects, including the risk of loss, injury, or death involving the rupture of a known earthquake fault. PVC piping has been found to have good hydraulic and structural integrity compared to other common materials used in water and sewer piping applications (e.g., metal, vitrified clay) (Ohlinger, 2002; Duffy, 2007). Vinyl piping's flexibility enable it to respond to excessive forces without fracturing (Ohlinger, 2007), and makes it less vulnerable to earth movements (Duffy, 2007). ABS piping has similar properties to PVC and CPVC piping. As such, there is no reason to believe that PVC, CPVC or ABS piping would be more likely to fail in the event of a seismic-related rupture of a known earthquake fault, and thereby expose people or structures to adverse effects, than metal piping currently authorized for use in OSHPD facilities. No impact would occur.

2. Strong Seismic Ground Shaking—*No Impact*

The use of PFA, PVC, CPVC, and ABS pipe in OSHPD 1, 2, 3 and 4 facilities would not expose people or structures to potential adverse effects, including the risk of loss, injury or death involving strong seismic ground shaking. As described above, PVC piping has been found to have good structural integrity relative to piping materials currently authorized for use in OSHPD facilities (e.g., metal) (Ohlinger, 2002; Duffy, 2007). There is no reason to believe that PVC, CPVC or ABS piping would be more likely to fail in the event of strong seismic ground shaking than metal piping currently authorized for use in OSHPD facilities. No impact would occur.

3. and 4. Seismic-related Ground Failure, Including Liquefaction and Landslides—*No Impact*

The use of PFA, PVC, CPVC, and ABS pipe in OSHPD 1, 2, 3 and 4 facilities would not expose people or structures to potential adverse effects, including the risk of loss, injury or death involving seismic-related ground failure, including liquefaction and landslides. As described above, PVC piping has been found to have good structural integrity relative to piping materials currently authorized for use in OSHPD facilities (e.g., metal) (Ohlinger, 2002; Duffy, 2007). There is no reason to believe that PVC, CPVC or ABS piping would be more likely to fail in the event of seismic related ground failure than metal piping currently authorized for use in OSHPD facilities. No impact would occur.

b. Cause Substantial Soil Erosion or the Loss of Topsoil—*No Impact*

The use of PFA, PVC, CPVC, and ABS pipe in OSHPD 1, 2, 3 and 4 facilities would not result in substantial soil erosion or the loss of topsoil. No impact would occur.

c. Be Located on a Geologic Unit or Soil that is Unstable or that Would Become Unstable as a Result of the Proposed Project and Potentially Result in an On-site or Off-site Landslide, Lateral Spreading, Subsidence, Liquefaction, or Collapse—*No Impact*

Under the Proposed Project, PFA, PVC, CPVC, and ABS piping theoretically could be used on a geologic unit or soil that is unstable, but the Proposed Project would not affect the stability of the geologic unit or soil, nor would it affect the chances of an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. In addition, as described above, PVC piping has been found to have good structural integrity relative to other piping materials currently authorized for use in OSHPD facilities (e.g., metal) (Ohlinger, 2002; Duffy, 2007). As such, there is no reason to believe that PVC, CPVC or ABS piping would be more likely to fail if an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse were to occur than metal piping currently authorized for use in OSHPD facilities. No impact would occur.

d. Be Located on Expansive Soil, Creating Substantial Risks to Life or Property—*No Impact*

Under the Proposed Project, PFA, PVC, CPVC, and ABS piping theoretically could be used on expansive soil, but the Proposed Project would not affect the soil, nor would it result in risks to life or property. In addition, as described above, PVC piping has been found to have good structural integrity relative to other piping materials currently authorized for use in OSHPD facilities (e.g., metal) (Ohlinger, 2002; Duffy, 2007). As such, there is no reason to believe that PFA, PVC, CPVC or ABS piping would be more likely to fail and create substantial risks to property if it were to be located on expansive soil than metal or other piping currently authorized for use in OSHPD facilities. No impact would occur.

e. Have Soils Incapable of Adequately Supporting the Use of Septic Tanks or Alternative Wastewater Disposal Systems in Areas Where Sewers are Not Available for the Disposal of Wastewater—*No Impact*

The Proposed Project would not include any activities that could affect the use of septic tanks or alternative wastewater disposal systems. No impact would occur.

VII. GREENHOUSE GAS EMISSIONS

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:					
a.	Generate a net increase in greenhouse gas emissions which may have a significant impact on the environment?	☐	☐	☒	☐
b.	Conflict with a county-adopted climate action plan or another applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion of Checklist Responses

a. Generate a Net Increase in Greenhouse Gas Emissions, which May Have a Significant Impact on the Environment—*Less than Significant*

During normal operational use of PFA, PVC, CPVC, and ABS pipes, no emissions of GHGs occur. Installation and conditioning of PVC, CPVC, and ABS pipes for the Proposed Project would generate GHG emissions associated with construction equipment used during installation; such emissions would be similar to GHG emissions occurring as a result of use of other pipe materials. Production of PVC, CPVC, and ABS pipes emits GHG emissions that may be higher than the GHG emissions used in manufacturer of existing pipe materials. The extent of additional emissions is impossible to calculate, and therefore speculative to estimate. This impact is therefore not considered to be significant, but it will be further evaluated in the Draft EIR.

b. Conflict with Any Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases—*Less than Significant*

Installation of plastic piping would emit GHG emissions associated with vehicles for workers and delivery, and with construction equipment used during installation. These emissions would be similar to GHG emissions for installation of the existing pipe materials. Specific Proposed Project locations are unknown at this time, so it is not possible to determine which local GHG plans, policies, or regulations may apply. This impact is therefore not considered significant, but it will be evaluated in the Draft EIR.

VIII. HAZARDS AND HAZARDOUS MATERIALS

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:					
a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b.	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c.	Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d.	Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?	☐	☐	☐	☒
e.	Be located within an airport land use plan area or, where such a plan has not been adopted, be within 2 miles of a public airport or public use airport and result in a safety hazard for people residing or working in the study area?	☐	☐	☐	☒
f.	Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the study area?	☐	☐	☐	☒
g.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

VIII. HAZARDS AND HAZARDOUS MATERIALS

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
h.	Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Discussion of Checklist Responses

a. Create a Significant Hazard to the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials—*Less than Significant*

PFA is chemically inert and does not present a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Some public health concerns exist regarding use of PVC, CPVC, and ABS piping, related to the following: exposure of workers to potentially carcinogenic components (vinyl chloride monomer) and toxic by-products (dioxins) during PVC manufacturing; reaction of plastic piping with non-compatible solvents and leaching of contaminants during use; exposure of workers and other members of the public to health risks from use of specialized resins, cements, and solvents (e.g. acetone, cyclohexanone, methyl ethyl ketone, and tetrahydrofuran) during the installation and the use of plastic piping; potential for PVC piping to breakdown during use and/or disposal, and create smaller particles of PVC plastic that may enter the environment. None of these impacts are considered to be significant because plastic pipe has been used in all other types of buildings in California for decades, and NSP and ASTM standards are in place for the protection of human health. However, because of public concerns, these potential impacts will be evaluated further in the Draft EIR.

b. Create a Significant Hazard to the Public or the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials into the Environment—*Less than Significant*

Public health concerns exist regarding the potential for PFA, PVC, CPVC, and ABS pipe to increase hazards to public health in the event of a fire, as they can release toxic airborne byproducts (e.g. hydrogen fluoride, dioxins or hydrochloric acid) when heated. While this potential impact is not considered to be significant (see discussion in Section 4.III, Air Quality), because of public concerns, it will be evaluated further in the Draft EIR.

c. Emit Hazardous Emissions or Involve Handling Hazardous or Acutely Hazardous Materials, Substances, or Waste within One-Quarter Mile of an Existing or Proposed School—*Less than Significant*

Although the potential exists for increased production of PFA, ABS, PVC, and CPVC in response to a change in plumbing code regulations, and for such production to include hazardous emissions or handling hazardous or acutely hazardous materials, it would be speculative to conclude whether or not such potential emissions or substances would occur within one-quarter mile of an existing or proposed school. Specific locations of PFA, PVC, CPVC, and ABS pipe manufacturing, transport, use, or disposal that may occur as a result of the Proposed Project are unknown at this time. This impact is therefore not considered significant, but it will be evaluated further in the Draft EIR.

d. Be Located on a Site that is Included on a List of Hazardous Materials Sites Compiled Pursuant to Government Code Section 65962.5, and Create a Significant Hazard to the Public or the Environment—*No Impact*

Whether OSHPD 1, 2, 3 and 4 facilities using PFA, PVC, CPVC, and ABS piping pursuant to the Proposed Project would be located on any list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 is unknown. Therefore, the potential to create a hazard to the public or the environment would be speculative. No impact would occur.

e and f. Be Located within an Airport Land Use Plan Area or Be within 2 Miles of a Private Airport or Public Airport and Result in a Safety Hazard for People Residing or Working in the Study Area—*No Impact*

OSHPD 1, 2, 3, and 4 facilities may be within 2 miles of a private airport or public airport. However, the use of these plastic pipes in such facilities would not result in a safety hazard for people residing or working in the study area. No impact would occur.

g. Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan—*No Impact*

The Proposed Project includes regulatory changes permitting statewide use of PFA, PVC, CPVC, and ABS pipe in OSHPD facilities. Choice and installation of plumbing materials does not require activities that reasonably can be expected to impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. No impact would occur.

h. Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Wildland Fires, Including Where Wildlands are Adjacent to Urbanized Areas or Where Residences are Intermixed with Wildlands—*No Impact*

The type of plumbing materials used would have no effect on wildland fires and would not expose people or structures to a substantial risk of loss, injury, or death involving wildland fires, including places where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. No impact would occur.

IX. HYDROLOGY AND WATER QUALITY

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:					
a.	Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b.	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site?	☐	☐	☐	☒
d.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on-site or off-site?	☐	☐	☐	☒
e.	Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f.	Otherwise substantially degrade water quality?	☐	☐	☒	☐
g.	Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h.	Place within a 100-year flood hazard area structures that would impede or redirect floodflows?	☐	☐	☐	☒

IX. HYDROLOGY AND WATER QUALITY

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
i.	Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j.	Contribute to inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion of Checklist Responses

a and f. Violate Any Water Quality Standards or Waste Discharge Requirements or Otherwise Substantially Degrade Water Quality—*Less than Significant*

The use of PFA, PVC, CPVC, and ABS pipe in OSHPD 1, 2, 3 and 4 facilities as a result of the Proposed Project may occur throughout the state. Public concerns have been raised that PVC, CPVC, and ABS pipe may leach toxic pollutants during installation and use and thereby degrade water quality. None of these impacts are considered to be significant because plastic pipe has been used safely in many other types of buildings in California for decades, and NSP and ASTM standards are in place for the protection of human health. While this potential impact appears to be less than significant, it will be evaluated in the Draft EIR.

b. Substantially Deplete Groundwater Supplies or Interfere Substantially with Groundwater Recharge, Resulting in a Net Deficit in Aquifer Volume or Lowering of the Local Groundwater Table Level—*No Impact*

The Proposed Project would not increase water demand or affect groundwater recharge in any OSHPD facilities. No impact would occur.

c. Substantially Alter the Existing Drainage Pattern of the Site or Area, Including through the Alteration of the Course of a Stream or River, Resulting in Substantial Erosion or Siltation On-site or Off-site—*No Impact*

The use of PFA, PVC, CPVC, and ABS pipes in OSDPD 1, 2, 3, and 4 facilities would not result in the substantial alteration of existing drainage patterns of a site or area. No impact would occur.

d. Substantially Alter the Existing Drainage Pattern of the Site or Area, Including through the Alteration of the Course of a Stream or River, or Substantially Increase the Rate or Amount of Surface Runoff Resulting in Flooding On-site or Off-site—*No Impact*

As described in the preceding checklist question discussion, the Proposed Project would not permanently affect drainage patterns at OSHPD 1, 2, 3 and 4 facilities. The Proposed Project would not increase the amount of impervious area or otherwise increase the rate or amount of surface runoff at any OSHPD 1, 2, 3 and 4 building sites. No impact would occur.

e. Create or Contribute Runoff Water that Would Exceed the Capacity of Existing or Planned Storm Water Drainage Systems or Provide Substantial Additional Sources of Polluted Runoff—*No Impact*

The Proposed Project would not increase the amount of impermeable surfaces at any building sites. The Proposed Project potentially could result in the use of plastic pipe rather than metal pipe for stormwater drainage connections at OSHPD facilities, but this change would not affect the volume or transport of stormwater generated at the sites. No impact would occur.

g. Place Housing within a 100-year Flood Hazard Area, As Mapped on a Federal Flood Hazard Boundary or Flood Insurance Map or Other Flood Hazard Delineation Map—*No Impact*

The Proposed Project would not include construction of any housing. No impact would occur.

h. Place Structures within a 100-year Flood Hazard Area Resulting in Impeding or Redirecting Flood Flows—*No Impact*

The use of PFA, PVC, CPVC, and ABS pipe in OSHPD 1, 2, 3 and 4 facilities would not cause structures to be located in a flood hazard area. No impact would occur.

i. Expose People or Structures to a Significant Risk of Loss, Injury, or Death Involving Flooding, Including Flooding Resulting from the Failure of a Levee or Dam—*Less than Significant*

Public concerns have been raised that plastic pipes are more susceptible to premature mechanical failure than metal pipes in plumbing applications. In its 1998 report, the National Transportation Safety Board (NTSB) determined that plastic pipe used for gas service installed between the 1960s and 1980s was more susceptible to brittle-like cracking (NTSB 1998). If a plastic pipe failed in an OSHPD 1, 2, 3 or 4 facility, it potentially could result in flooding and loss or injury. For this analysis, evidence could not be found of plastic pipes failing prematurely in plumbing applications. PVC, CPVC, and ABS pipes currently are allowed in plumbing for all building types in California and elsewhere in the U.S., except at OSHPD 1, 2, 3, and 4 facilities. Therefore, this impact is considered less than significant, but because of public concerns, it will be evaluated further in the Draft EIR.

j. Contribute to Inundation by Seiche, Tsunami, or Mudflow—*No Impact*

The Proposed Project would not affect the siting of future OSHPD buildings, and therefore it would not cause facilities to be constructed in proximity to the ocean or in areas where mudflows or seiches are likely to occur. No impact would occur.

X. LAND USE AND PLANNING

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:					
a.	Physically divide an established community?	☐	☐	☐	☒
b.	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c.	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Discussion of Checklist Responses

a. Physically Divide an Established Community—*No Impact*

The use of PFA, PVC, CPVC, and ABS pipe in OSHPD 1, 2, 3 and 4 facilities would not physically divide an established community. No impact would occur.

b. Conflict with Any Applicable Land Use Plans, Policies, or Agency Regulation Adopted for the Purpose of Avoiding or Mitigating an Environmental Effect—*No Impact*

The Proposed Project would not authorize any activities that could conflict with land use plans or policies. No impact would occur.

c. Conflict with Habitat Conservation Plans—*No Impact*

The Proposed Project would not authorize any activities that could conflict with any habitat conservation plans. No impact would occur.

XI. MINERAL RESOURCES

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:					
a.	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐
b.	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☒	☐

Discussion of Checklist Responses

a and b. Result in the Loss of Availability of a Known Mineral Resource of Value or Result in the Loss of Availability of a Locally Important Mineral Resource Recovery Site—*Less than Significant*

As discussed in previous sections, the Proposed Project could result in increased use of PFA, PVC, CPVC, and ABS pipe. For example, OSHPD 1, 2, 3 and 4 facilities may choose to replace existing metal pipes with plastic pipes or use plastic pipes rather than metal pipes in new facilities. Such increased use could result in increased production and demand for base products. Some minerals, such as barium, may be used in the manufacture of PVC, CPVC, and ABS or in extraction of base products, such as petroleum. Where such minerals may be obtained is unknown (many sources are likely to exist), but increased demand for use in PFA, PVC, CPVC, and ABS pipe manufacturing could reduce the availability of such resources. However, relative to the overall consumption of minerals and the overall demand for PFA, PVC, CPVC, and ABS pipe, the Proposed Project's contribution to such demand would be negligible. For this analysis, evidence could not be found of a shortage in minerals used in the production of PFA, PVC, CPVC, or ABS pipe. The impacts would be less than significant.

XII. NOISE

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project result in:					
a.	Exposure of persons to or generation of noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	☐	☐	☐	☒
b.	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c.	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d.	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
e.	For a project located within an airport land use plan area, or, where such a plan has not been adopted, within 2 miles of a public airport or public-use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f.	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion of Checklist Reponses

a. Result in Noise Levels in Excess of Standards Established in the Local General Plan or Noise Ordinance, or in Other Applicable Local, State or Federal Standards—*No Impact*

Installation and the use of plumbing material in OSHPD 1, 2, 3, and 4 facilities may create short-term noise during construction. However, the Proposed Project would not exempt projects using plastic pipe from compliance with applicable noise standards. No impact would occur.

b. Result in Exposure of Persons to or Generation of Excessive Groundborne Vibration or Groundborne Noise Levels—*No Impact*

Installation of these plumbing materials potentially could expose persons or structures to groundborne vibration or groundborne noise levels, because installation of pipe may include drilling or other vibration-causing activities. However, because the specific locations where such potential impacts may occur is unknown, determining whether any impacts would be excessive is not possible. Therefore, there would be no impact.

c. Result in Substantial Permanent Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project—*No Impact*

The use of PFA, PVC, CPVC, and ABS pipe in OSHPD 1, 2, 3 and 4 facilities would not result in permanent increases in ambient noise levels above levels existing without the Proposed Project. No impact would occur.

d. Result in a Substantial Temporary Increase in Ambient Noise Levels in the Project Vicinity above Levels Existing without the Project—*No Impact*

Installation of plumbing materials in OSHPD 1, 2, 3 and 4 facilities potentially could expose persons to temporary increases in ambient noise levels related to the equipment used to install the pipe. However, any noise generated during implementation of the Proposed Project would be minor and would be limited to the construction phase. The Proposed Project would not expose people residing or working in these locations to excessive noise levels. No impact would occur.

e and f. Expose People Residing or Working in the Vicinity of an Airport Land Use Plan Area, within 2 Miles of a Public Airport or Public-use Airport, or within the Vicinity of a Private Airstrip to Excessive Noise Levels—*No Impact*

Installation and the use of plumbing material in OSHPD 1, 2, 3 and 4 facilities may occur within an airport land use plan area, within 2 miles of a public airport, or in the vicinity of a private airstrip. However, any noise generated under the Proposed Project would be minor and would be limited to the construction phase. The Proposed Project would not expose people residing or working in these locations to excessive noise levels. No impact would occur.

XIII. POPULATION AND HOUSING

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:					
a.	Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b.	Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c.	Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion of Checklist Responses

a. Induce Population Growth—*No Impact*

The Proposed Project would not include housing and would not construct or expand any new infrastructure. No impact would occur.

b and c. Displace Population or Housing—*No Impact*

Replacement or retrofit of plumbing in existing buildings with plastic pipe resulting from the Proposed Project could displace medical resident populations temporarily, but these patients simply would be moved to other parts of the facility or would be transferred to another facility. Furthermore, OSHPD buildings are not considered housing. No impact would occur.

XIV. PUBLIC SERVICES

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

Discussion of Checklist Responses

a. Result in Adverse Physical Impacts Associated with the Provision of New or Physically Altered Governmental Facilities or a Need for New or Physically Altered Governmental Facilities for: Fire Protection—*Less than Significant*

Public concerns have been raised regarding the potential for PVC, CPVC, or ABS pipe to increase the risk of fire. Concerns have cited the potential for large-diameter plastic piping used for drain, waste and vent systems to create a pathway for smoke, hot gases, and fire to spread through a building. Evidence has not been found to suggest that this impact might be significant, but because of some public concerns, it will be evaluated further in the Draft EIR.

Police Protection, Schools, Parks, or Other Public Facilities—*No Impact*

The Proposed Project would not cause an increase in population that would affect demand for added police protection, schools, parks, or other public facilities. No impact would occur.

XV. RECREATION

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:					
a.	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b.	Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion of Checklist Responses

a. Increase Use of Existing Parks or Recreational Facilities—*No Impact*

The Proposed Project would not cause an increase in population or contribute to the deterioration of any existing recreational facilities. No impact would occur.

b. Create New or Altered Recreational Facilities—*No Impact*

The Proposed Project would not create any new recreational facilities and would not alter any existing recreational facilities. No impact would occur.

XVI. TRANSPORTATION/TRAFFIC

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:					
a.	Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒
b.	Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c.	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d.	Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e.	Result in inadequate emergency access?	☐	☐	☐	☒
f.	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

Discussion of Checklist Responses

a. Conflict with Applicable Circulation Plans, Ordinances, or Policies—*No Impact*

The Proposed Project potentially could result in temporary increases in traffic from transportation of plastic pipe to project sites. However, it would be speculative to say whether and where potential traffic impacts may occur, because specific locations of project-related activities are unknown. Site-specific factors (such as facility layouts, adjacent roads, and existing LOS metrics) would determine the presence and degree of any potential traffic impacts. Because the impact is speculative, it has been concluded that there is no impact.

b. Conflict with Applicable Congestion Management Programs—*No Impact*

It would be speculative to say whether and where potential traffic impacts may occur related to the Proposed Project, because Proposed Project locations are unknown. Knowledge of site-specific factors (such as facility layouts, adjacent roads, and existing LOS metrics) would be necessary to determine whether any conflicts with applicable congestion management programs may occur. Because the impact is speculative, it has been concluded that there is no impact.

c. Result in a Change in Air Traffic Patterns—*No Impact*

The choice of plumbing materials for OSHPD 1, 2, 3, and 4 facilities would not affect air traffic patterns. No impact would occur.

d. Result in Increased Hazards Due to Design Features—*No Impact*

The choice of plumbing materials for OSHPD 1, 2, 3, and 4 facilities would not increase traffic hazards because of project design features. No impact would occur.

e. Result in Inadequate Emergency Access—*No Impact*

Transport of PFA, PVC, CPVC, and ABS piping and equipment for installation in OSHPD 1, 2, 3 and 4 facilities would not interfere with emergency access. No impact would occur.

f. Conflict with Alternative Transportation Policies, Plans, or Programs—*No Impact*

The choice of plumbing materials for OSHPD 1, 2, 3, and 4 facilities would not affect alternative transportation policies, plans, or programs. No impact would occur.

XVII. UTILITIES AND SERVICE SYSTEMS

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:					
a.	Exceed wastewater treatment requirements of the applicable RWQCB?	☐	☐	☒	☐
b.	Require or result in the construction of new water or wastewater treatment facilities or an expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c.	Require or result in the construction of new stormwater drainage facilities or an expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d.	Have sufficient water supplies available to serve the Project from existing entitlements and resources, or would new or expanded entitlements be needed?	☐	☐	☐	☒
e.	Result in a determination by the wastewater treatment provider that serves or may serve the Project that it has inadequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f.	Be served by a landfill with insufficient permitted capacity to accommodate the Project's solid waste disposal needs?	☐	☐	☐	☒
g.	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Discussion of Checklist Responses

a. Exceed Wastewater Treatment Requirements of the Applicable Regional Water Quality Control Board—*Less than Significant*

PFA is chemically inert and is not expected to affect wastewater treatment requirements. Public concerns have been raised that PVC, CPVC, and ABS piping may leach contaminants during use. If plastic piping leached contaminants, these contaminants then may be

transported to the local wastewater treatment plant, where they may not be fully removed by treatment processes before being discharged. ABS and PVC piping are proposed for use in sanitary drainage systems and storm drain systems with implementation of the Proposed Project. While no evidence has been found to suggest that this impact could be significant, because of some public concerns, it will be evaluated further in the Draft EIR.

b. Require or Result in the Construction of New Water or Wastewater Treatment Facilities or Expansion of Existing Facilities—*No Impact*

The Proposed Project would not contribute to increased population or water or wastewater treatment demand. The Proposed Project may result in the replacement of existing building water and wastewater systems with plastic piping, but this would not affect the need for new water or wastewater treatment facilities or expansion of existing facilities. No impact would occur.

c. Require or Result in the Construction of New Stormwater Drainage Facilities or Expansion of Existing Facilities—*No Impact*

The Proposed Project would allow for use of plastic pipe for stormwater drainage in existing or new OSHPD 1, 2, 3 and 4 facilities, and it could result in replacement, retrofit, or installation of plastic pipe for stormwater drainage in OSHPD 1, 2, 3 and 4 facilities. However, the Proposed Project would not result in increased stormwater discharges that would create the need for new or expanded stormwater drainage facilities. No impact would occur.

d. Make Sufficient Water Supplies Available to Serve the Project from Existing Entitlements and Resources—*No Impact*

The Proposed Project would not increase water demand in any existing OSHPD facilities. The use of PFA and/or plastic pipe at new OSHPD 1, 2, 3 and 4 facilities would not increase water use relative to existing piping. No impact would occur.

e. Result in a Determination by the Wastewater Treatment Provider that Serves or May Serve the Project that It Has Inadequate Capacity to Serve the Project's Projected Demand in Addition to the Provider's Existing Commitments—*No Impact*

The Proposed Project would not cause an increase in population or an increase in wastewater generation rates. No impact would occur.

f and g. Comply with All Applicable Regulations Related to Solid Waste and Have Available Landfill Capacity to Accommodate the Project's Solid Waste Disposal Needs—*Less than Significant*

Plastics are relatively bulky and have long biodegradation times, and thus they take up landfill space (Murphy, No Date). PVC and other plastics also are relatively difficult to recycle, though recycling is possible and commonly is done (Murphy, No Date). The Proposed Project may increase the use of PVC, CPVC, and ABS pipe in OSHPD 1, 2, 3 and 4 facilities relative to metal pipe, which is more easily recycled. This potentially could result in more future disposal of plastic and greater potential impact on landfill capacity, if the plastic pipe is not recycled. However, the amount of plastic pipe used in OSHPD 1, 2, 3 and 4 facilities as a result of the

Proposed Project would be small relative to the overall volume used in the state for all types of buildings and applications, and it would be speculative to say how and where landfill capacity impacts may occur because of the Proposed Project. While this impact is therefore considered less than significant, it will be evaluated further in the Draft EIR.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a.	Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐
b.	Does the Project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☐	☒
c.	Does the Project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

Discussion of Checklist Responses

a. Result in Impacts on Environmental Quality, Fish, or Wildlife, and Historic Resources—*Less than Significant*

As described in the preceding impact discussions, the Proposed Project is not anticipated to result in significant impacts on environmental quality, fish, or wildlife, or historic resources. However, due to public concerns expressed regarding certain environmental topics, this will be further evaluated in the EIR.

b. Result in Impacts that would be Individually Limited but Cumulatively Considerable—*No Impact*

A cumulative impact refers to the combined effect of "two or more individual effects which, when considered together, are considerable or which compound or increase other

environmental impacts" (State CEQA Guidelines Section 15355). Cumulative impacts reflect "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (State CEQA Guidelines Section 15355[b]).

Although the Proposed Project could result in the use of plastic pipe that could contribute to cumulative impacts (e.g., emissions of VOCs in air basins that are not in attainment for VOCs), the location and extent to which plastic pipe would be used for implementation of the Proposed Project would be speculative. Therefore, it is not possible to conclude that the Proposed Project would make a considerable contribution to any significant cumulative impact. Accordingly, there would be no impact.

c. Result in Environmental Effects that Would Cause Substantial Adverse Effects on Human Beings, either Directly or Indirectly—*Less than Significant*

The Proposed Project would not have any potential for substantial direct or indirect adverse effects on human beings. The impact would be less than significant. Nevertheless, due to some concerns raised by the public, this will be evaluated further in the EIR.

C. DETERMINATION

This Initial Study has concluded that the Proposed Project would not result in any potentially significant impacts. However, because of public concerns expressed about certain issues, OSHPD will prepare a Draft EIR to provide the most detailed and robust analysis possible, with the most opportunities for public input through the CEQA process.

D. LIST OF INITIAL STUDY PREPARERS

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APPENDIX B

Scoping Summary

Introduction

Scoping refers to the public outreach process used under CEQA to determine the coverage and content of an environmental impact report (EIR). The scoping comment period offers an important opportunity for the public and agencies to review and comment during the early phases of the environmental compliance process. Scoping helps to establish methods of analysis, identify the environmental effects that will be considered in detail, identify potential project alternatives to reduce potential effects, and develop mitigation measures to avoid or compensate for adverse effects. In some cases, it may also identify issues that the public feels do not warrant analysis.

This summary describes the scoping process undertaken by the OSHPD for the proposed changes to the 2016 California Plumbing Code (Proposed Project). It also summarizes comments received. Verbal comments during the scoping meetings are noted below. The only set of written comments received during the scoping period were from the law firm of Adams, Broadwell, Joseph & Cardozo and are included in Attachment 1 of this Appendix.

Overview of Project Scoping Process

Scoping is initiated when the lead agency issues a Notice of Preparation (NOP) announcing the beginning of the EIR process. As required by CEQA and the CEQA Guidelines, an NOP was developed that provided information on the background, goals, and objectives of the Proposed Project; announced preparation of, and requested public and agency comment on, the scope and content of the EIR; and provided information on the public scoping meeting to be held as part of the scoping process. A copy of the NOP and Initial Study is included in Appendix A of this Draft EIR.

The NOP for the Project was received by the State Office of Planning and Research, State Clearinghouse on May 1, 2015, which initiated the public scoping period. OSHPD also distributed the NOP and Initial Study via e-mail for review and comment to numerous federal and state agencies and interested parties.

The scoping period ended on June 5, 2015.

In May 2015, OSHPD conducted two public scoping meeting for the Proposed Project. The Scoping Meetings were held at the following locations and times:

- Sacramento, CA — May 15, 2015, 10:00 a.m. to 12:00 p.m., at OSHPD Headquarters, Sacramento River Room, 400 R Street, Sacramento, CA 95811.

- Los Angeles, CA — May 22, 2015, 10:00 a.m. to 12:00 p.m., at the Ronald Reagan State Building, Auditorium, 300 South Spring Road, Los Angeles, CA 90013

Besides OSHPD and contractor staff, 3 individuals attended the Sacramento scoping meeting, and 3 individuals attended the Los Angeles scoping meeting. During the meetings, OSHPD staff and OSHPD's CEQA contractor engaged in one-on-one conversations to discuss and answer questions about the Proposed Project and the CEQA process. Attendees were given

the opportunity to provide verbal and written scoping comments. Of the six total attendees at the two scoping meetings, five expressed support for the Proposed Project. The other attendee was a representative from the law firm of Adams, Broadwell, Joseph & Cardozo and indicated his opposition to the Proposed Project.

The following verbal comments were noted during the Sacramento scoping meeting:

- The use of plastic piping in OSHPD 1, 2, 3 and 4 facilities raises concerns regarding potential impacts to human health;
- Will PFA be installed in walls? (the answer was "no")

The following verbal comments were noted during the Los Angeles scoping meeting:

- The Proposed Project would reduce costs of materials and labor;
- The Proposed Project would reduce seismic anchorage because of reduced weight;
- The materials proposed by OSHPD can already be used everywhere else in the United States with no issues;
- Having options for plumbing materials makes more sense and provides more competition;
- The lifecycle of PVC, CPVC, and ABS is much greater than metal pipes;
- There is an existing problem with corrosion in cast iron pipes that leads to degradation and stoppage;
- CPVC is four times quieter than copper;
- The interior of copper pipe is reduced over time due to build-up. This reduces conveyance capacity of the pipe; and
- CPVC provides the best resistance to biological films.

Meeting attendees at both meetings were greeted by project staff on arrival, and attendees were asked to add their names and contact information to an attendance record and for future communication on the project. The sign-in sheet for the Sacramento meeting is included on the next page. The sign-in sheet for the Los Angeles meeting is not included because none of the three attendees signed in. Comment forms were distributed at the scoping meetings for submission of written comments during or after the meeting; no comment forms were submitted to OSHPD. The representative from the law firm of Adams, Broadwell, Joseph & Cardozo at the Sacramento scoping meeting indicated that his comments were those contained in a letter dated October 8, 2012 (see Attachment 1). No other written or oral comments were received during the 30-day scoping period.

OSHPD Proposed Changes to California Plumbing Code Project

Public Scoping Meeting Sign In Sheet

May 15, 2015 – Sacramento, CA

Name	Address	Email Address	Organization (optional)	Phone Number (optional)
DAVE KOKOSENSKI	69 LINCOLN BLVD. SUITE A-122 LINCOLN, CA. 95648	DAVID.KOKOSENSKI@LUBRIZOL.COM	LUBRIZOL	916-715-2119
Roger Richter	CHA	RRICHTER@calhospital.org	CHA	916-552-7570
David Castillo			OSHPD	916-440-8401
Tom Enslow	520 Capitol Mall, Suite 350 Sacramento, CA 95814	tenslow@adamsbroadwell.com	Cal. State P.P.C Trades Council	916-444-6201

Disclaimer: Before including your name, address, e-mail address or other personal identifying information, please be aware that your name and contact information will be added to the project mailing list and your personal identifying information may be made publicly available at any time. While you can request that your personal identifying information be withheld from public review, OSHPD cannot guarantee that this will be possible.

Attachment 1

Comment Letter from

Adams, Broadwell, Joseph & Cardozo

October 8, 2012

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October 8, 2012

VIA HAND DELIVERY & EMAIL

Jim McGowan
Executive Director
California Building Standards Commission
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CBSC@dgs.ca.gov

Glenn Gall
Building Standards Unit Supervisor
Office of Statewide Health Planning and Development
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Re: *CPVC Potable Water Pipe and PVC & ABS Drainage Pipe*; OSHPD Notice of Proposed Changes to the California Plumbing Code: 2012 Triennial Code Adoption Cycle: Opposition to Proposed Amendment of CPC §§ 604.1 and 701.1.2.1

Dear Mr. McGowan and Mr. Gall:

The following comments are respectfully submitted on behalf of the California State Pipe Trades Council in opposition to the California Plumbing Code amendments proposed by the Office of Statewide Health Planning and Development ("OSHPD") that would remove the current prohibition on the installation of Chlorinated Poly-Vinyl Chloride ("CPVC") drinking water pipe and polyvinyl chloride ("PVC") and acrylonitrile butadene styrene ("ABS") plastic drainage pipe in certain health care clinics and facilities ("the Project").

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The California Building Standards Commission ("CBSC" or "Commission") is currently reviewing proposed building standard code submittals as part of its 2012 Triennial Code Adoption Cycle. Included in the submittals currently under review are regulations proposed by OSHPD that would amend California Plumbing Code section 604.1 to allow the installation of CPVC potable water pipe within buildings identified in the California Plumbing Code as "OSHPD 3" occupancies.[1] In addition OSHPD has proposed amending California Plumbing Code section 701.1.2.1 to allow the installation of PVC and ABS drainage pipe within OSHPD 3 occupancies.[2] OSHPD 3 occupancies are defined in the State Code as "Licensed clinics and any freestanding building under a hospital license where outpatient clinical services are provided."[3]

The current California Plumbing Code prohibits the use of CPVC, PVC and ABS plastic pipe in OSHPD 3 occupancies and all other buildings under OSHPD building standard proposal authority. The removal of this prohibition is likely to increase the amount of CPVC, PVC and ABS pipe installed in new buildings and replaced in existing buildings ("re-pipings").

There is substantial evidence that the installation of CPVC, PVC and ABS plastic pipe may result in significant public health and environmental impacts. Accordingly, the proposed regulations approving these products may not be adopted until these potential impacts have been fully disclosed, evaluated and mitigated in an environmental impact report ("EIR"), as required by the California Environmental Quality Act ("CEQA"). OSHPD, however, has proposed adoption of these proposed regulations without any compliance with CEQA whatsoever.

OSHPD's failure to comply with CEQA in proposing these code changes is surprising in that the Department of Housing and Community Development ("HCD") prepared an EIR to evaluate expanded approval of CPVC in residential occupancies. HCD's CEQA review of CPVC determined that the installation of CPVC may result in several significant impacts, including worker health and safety impacts, water contamination impacts and air quality impacts. As a result, HCD imposed significant mitigation measures to address and reduce these potential impacts. These measures include: (1) requiring a one-week flushing regimen after installation to reduce water contamination; (2) requiring compliance with worker

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[1] OSHPD, Express Terms for Proposed Building Standards of the Office of Statewide Health Planning and Development Regarding Proposed Changes to California Plumbing Code (Revised August 13, 2012) at p. 7.
[2] *Id*. at p. 9.
[3] Cal. Code Regs., tit. 24, Part 5, § 1.10.3.

safety requirements including safety training, ventilation and glove use requirements; and (3) requiring the use of low-VOC one-step cement to reduce air quality impacts.[4]

The record of the State of California's past environmental reviews of CPVC, PVC and ABS plastic pipe contains extensive evidence that the installation of CPVC, PVC and ABS pipe may result in significant public health and environmental impacts. These potential impacts include:

- **Air Quality Impacts**
  - CPVC, PVC and ABS solvents and cements emit Volatile Organic Compound ("VOC") emissions, resulting in increased ozone and smog pollution.
- **Worker Health & Safety Impacts**
  - 1989 Department of Health Services Study concluded that workers installing CPVC, PVC and ABS plastic pipe in buildings 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.
  - Worker exposure occurs through inhalation and dermal absorption.
  - Most gloves offer no protection against dermal absorption of any of these chemicals. The use of gloves may actually make the problem worse.
- **Contamination of drinking water**
  - CPVC pipe leaches chemicals such as THF, MEK, ACE, CHX and organotins (including tributyltin) that may contaminate drinking water, exposing the public to hazardous chemicals through consumption and through inhalation and skin exposure during bathing.
  - CPVC and PVC pipe leach chemicals, such as organotins, that may pollute receiving waters. 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.

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[4] See Cal. Code Regs., tit. 24, Part 5, § 604.1.1 and Appendix I, Installation Standard for CPVC Solvent Cemented Hot and Cold Water Distribution Systems, §§ 1.2, 1.2.1, 1.2.2.

- **Manufacturing Impacts**
  - CPVC, PVC and ABS pipe, fittings, cements and solvents are manufactured in California.
  - Increased manufacturing of these products will result in significant air quality and worker health and safety impacts.
  - The manufacture of CPVC and PVC pipe and fittings results in the release of dioxins and other highly toxic chemicals.
- **Solid Waste Impacts**
  - CPVC, PVC and ABS pipes are made from virgin materials, are only marginally recyclable and create disposal difficulties.
  - The metal pipes that CPVC, PVC and ABS pipes replace have an almost 100% recycling rate and are almost entirely made from recycled materials.
  - CPVC and PVC pipe are considered contaminants in the waste stream and disposal may result in the release of dioxins, vinyl chloride and other highly dangerous substances.
- **Fire Hazard Impacts**
  - CPVC, PVC and ABS pipe increase fire risks from toxic smoke, cancer-causing dioxins and fire spread.
  - These concerns are particularly acute in health care facilities where patients may lack mobility to quickly evacuate buildings.
- **Premature Mechanical Failure Impacts**
  - CPVC, PVC and ABS pipe may prematurely rupture, contaminating walls and occupied spaces with raw sewage.
  - CPVC, PVC and ABS pipe are more likely to rupture during earthquake events, increasing the risk of water contamination and disease outbreak.

The proposed regulations authorizing the installation of CPVC, PVC and ABS plastic pipe in OSHPD-regulated buildings may not be approved by the Commission until environmental review consistent with the requirements of CEQA has been completed and certified. Until then, the Commission must disapprove the proposed regulations or, in the alternative, table the proposal pending further study. Adoption of these proposed regulations prior to completion of this review would violate state law.

The proposed approval of CPVC, PVC and ABS plastic pipe must also be denied because the Proposed Express Terms and Initial Statement of Reasons ("ISOR") for the Project fail to meet the requirements of the California Building Standards Law. Health and Safety Code section 18930 requires that building standards be justified under the listed nine-point criteria.

OSHPD's proposed approval of CPVC, PVC and ABS plastic pipe would not meet at least two of the nine-point criteria: (1) the requirement that the adoption of standards be in the public interest, and (2) the requirement that the adoption of standards would not be unreasonable, arbitrary or unfair. Because the proposed approval of CPVC, PVC and ABS plastic pipe prior to the completion of an EIR would violate state law and would potentially result in numerous public health, safety and environmental impacts, adoption of these standards would be contrary to the public interest and unreasonable, arbitrary and unfair.

I. CEQA APPLIES TO THE PROPOSED APPROVAL OF CPVC, PVC AND ABS PLASTIC PIPE

A. CEQA Applies to the Proposed Action

On September 13, 2012, Paul Coleman, Deputy Director of the Facilities Development Division for OSHPD sent a letter to my firm claiming that CEQA does not apply to the proposed regulatory change to eliminate the current prohibition on the installation of CPVC, PVC and ABS plastic pipe in OSHPD 3 buildings.[5] Mr. Coleman's assertion that CEQA does not apply is based upon numerous factual and legal inaccuracies.

First, Mr. Coleman misleadingly states that OSHPD 3 buildings are under the jurisdiction of local building departments, not under OSHPD jurisdiction. Mr. Coleman claims that Health and Safety Code section 129885 allows a hospital to voluntarily place its free-standing clinic building under OSHPD jurisdiction, but there are currently no free-standing clinic buildings that have actually been placed under OSHPD's jurisdiction.

Mr. Coleman has confused OSHPD's plan review and building inspection jurisdiction with OSHPD's jurisdiction over the adoption of building standards. Health and Safety Code section 129885, subdivision (a) states that a city or county

[5] Coleman, Letter re Request for Mailed Notice of CEQA Actions and Public Hearings (Sept. 13, 2012) [Appendix 73].

shall have "plan review and building inspections responsibilities" for buildings described in section 129725, subdivision (b)(1) (which includes free-standing clinic buildings). Notwithstanding subdivision (a), Health and Safety Code section 129885, subdivision (e) states that a hospital may request OSHPD to perform the "plan review and building inspection services" for its free-standing clinic buildings.

In either case, however, the buildings described in section 129725, subdivision (b)(1) (including free-standing clinic buildings) are subject to "the clinic standards propounded by [OSHPD] in the California Building Standards Code." Health and Safety Code section 129885, subdivision (b) requires a city or county to either apply the "applicable clinic provisions of the latest edition of the California Building Standards Code" or to submit the plans to OSHPD "to determine whether or not the clinic project meets the standards propounded by the office in the California Building Standards Code."[6]

OSHPD's jurisdiction to propound building standards for clinics is also set forth in the California Building Standards Commission's Administrative Code in Title 24, Part 1 of the California Code of Regulations. By statute, the California Building Standards Commission is the entity responsible for adopting building standards for health care facilities, including hospitals and clinics.[7] The Commission and OSHPD, however, have adopted administrative regulations clarifying that OSHPD has jurisdiction to develop and propose building standards for clinics and other health care facilities.[8]

Moreover, OSHPD has a long history of proposing for adoption, and in fact continues to propose for adopotion, regulations for OSHPD 3 clinics in the California Building Standards Code, including regulations related to the installation of CPVC, PVC and ABS plastic pipe.[9] For example, in the very same regulatory proposal in which OSHPD proposes to delete the prohibition on the installation of CPVC, PVC and/or ABS plastic pipe in the OSHPD 3 facilities, OSHPD proposes adding other *new* building standards requirements for application

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[6] See also Cal. Code Regs., tit. 24, Part 1, §§ 7-2100, 72101.
[7] See Health & Saf. Code § 18929.1, 18930, 18931, 18935, 18938.5, 18949.3 (transferring OSHPD's responsibility for adopting building standards to the California Building Standards Commission).
[8] Cal. Code Regs., tit. 24, Part 1, §§ 7-103, subd. (b), see also Cal. Code Regs., tit. 24, Part 5, §§ 1.1.3.2, subd. 13 & 1.10.3.
[9] See e.g., Cal. Code Regs., tit. 24, Part 5, §§ 1.10.3, 1.10.3.2 (stating that OSHPD 3 buildings are subject to California Building Standards Code, Title 24, Parts 2, 3, 4, 5, 9, 10, and 11), 604.1, 604.11.1, 701.1.2.1 (setting forth code amendments applicable to OSHPD 1, 2, 3 & 4 occupancies).

to OSHPD 3 clinics.[10] Accordingly, Mr. Coleman's statement that OSHPD does not have jurisdiction over building standards for OSHPD 3 clinics is not supported by law or by OSHPD's own actual practice.

Mr. Coleman also incorrectly claims that there is no existing prohibition on the installation of CPVC, PVC and/or ABS plastic pipe in clinic facilities under local building department jurisdiction and that the model code allows for the use of CPVC, PVC and/or ABS plastic pipe for certain occupancies and uses outside of OSHPD's jurisdiction. This claim evinces a complete lack of understanding of building standards in California, as well as OSHPD's own building standard authority. First, as discussed above, OSHPD 3 buildings are within OSHPD's building standard proposal jurisdiction. Mr. Coleman is again confusing local building department jurisdiction over plan review and building inspection and local building department jurisdiction over adoption of building codes. Second, even if OSHPD didn't have jurisdiction to propose building standards for clinics (which it clearly does), this would not mean that national model code provisions would apply to these clinics. Nor would it mean that local building departments would adopt building standards for clinics.

It is the State that adopts building standards code provisions for buildings in California, not local jurisdictions or private model code organizations. The State of California has preempted the building standards field in order to provide statewide uniformity in building standards.[11] The Title 24 California Building Standards Code is the applicable code for *all occupancies* throughout the state, not the model codes."[12] Thus, it is the model codes as amended, deleted, or modified in Title 24 that apply to commercial occupancies, not the model codes as published by private code bodies.

Furthermore, Title 24's applicability to building occupancies is not dependent on affirmative adoption by local governments. As noted in the Commission's Building Standards Bulletin 10-03, Title 24 applies to all occupancies "whether or

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[10] See OSHPD, Express Terms for Proposed Building Standards of the Office of Statewide Health Planning and Development Regarding Proposed Changes to California Plumbing Code, (Revised August 13, 2012) at §§210.0, 217.0, 221.0, 314.8, 410.3 and Table 4-2 (proposing amendments applicable to OSHPD 1, 2, 3, and 4).

[11] Stats. 1970, ch. 1436, § 7 (declaring that "uniformity of [building] codes throughout the State is a matter of statewide interest and concern," affecting both the cost of construction and the public health and safety); see also Health and Saf. Code § 18938.5.

[12] CBSC, Building Standards Bulletin 10-03 (2010) at pp. 1-2 (emphasis provided); see also Health & Saf. Code § 18938.5.

not the Local government takes an affirmative action to adopt [Title 24]."[13] Moreover, local building officials are prohibited from granting building permits that conflict with the State Code.[14]

Local jurisdictions may amend the California Building Standards Code under certain circumstances based upon local climatic, geological or topographical conditions.[15] These amendments, however, are made to the California Building Standards Code as adopted by the Commission, not to the model codes themselves. As stated in the Commission's Building Standards Bulletin 10-03, the Commission will reject any local government ordinance that proposes to adopt and amend the model codes.[16]

Because the Commission has adopted specific state building standards for application to OSHPD 3 clinic buildings, these standards must be enforced at the local level unless amended based upon local climatic, geological or topographical conditions. Accordingly, the existing prohibition on the installation of CPVC, PVC and/or ABS plastic pipe in OSHPD 3 clinic facilities applies to all clinic facilities regardless of whether OSHPD or the local building department has jurisdiction over plan review and building inspection.

Furthermore, the action being proposed is the *Commission's* adoption of amendments to the California Plumbing Code that are proposed by OSHPD. Because the Commission is the entity that adopts, deletes or amends these regulations, OSHPD's jurisdiction is not relevant to the question of whether CEQA applies. The pertinent question is whether or not the Commission's adoption of a regulation that would remove the current California Plumbing Code prohibition on the installation of CPVC drinking water pipe and PVC and ABS drainage pipe in OSHPD 3 buildings is a discretionary action that triggers CEQA. The law is well-settled on this point.

An agency action is subject to CEQA if it: (1) is a discretionary action undertaken by a public agency, and (2) may cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the

[13] CBSC, Building Standards Bulletin 10-03 (2010) at p. 2.
[14] See Health & Saf. Code §§ 18938.5.
[15] Health & Saf. Code § 18941.5, subd. (b).
[16] CBSC, Building Standards Bulletin 10-03 (2010) at p. 4.

environment.[17] The adoption of regulations is considered "discretionary" under CEQA if any application of judgment is required.[18]

The courts have uniformly held that the adoption of building standards meets this definition and is subject to environmental review under CEQA. In the case *Building Code Action v. Energy Resources Conservation and Development Commission*, the court held that adoption of energy conservation regulations establishing double-glazing standards for new residential construction was subject to CEQA review since it could result in a significant impact on air quality as a result of increased glass production.[19]

Moreover, the courts have specifically required compliance with CEQA prior to approval of potentially hazardous plumbing systems and materials, including CPVC pipe itself. In 1997, the San Francisco Superior Court overturned a decision of HCD and the Commission to approve CPVC without first completing CEQA review.[20] Similarly, in the 2004 case *Plastic Pipe and Fitting Association v. California Building Standards Commission,* the Court of Appeal held that environmental review under CEQA must be conducted prior to the approval of building code amendments that may have a significant impact on the environment.[21] The material at issue in that case was cross-linked polyethylene ("PEX"), another plastic drinking water pipe. The Court of Appeal held that the approval of new building standards is a discretionary act and that no statutory or categorical exemptions from CEQA apply to the adoption of building standards.[22]

In reviewing whether a government action may cause a physical change in the environment, the "fair argument standard" is applied.[23] Under this standard, CEQA review occurs "whenever it can be fairly argued on the basis of substantial evidence" that the project may cause either a direct physical change in the

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[17] Pub. Resources Code §§ 21065, 21080; Cal. Code Regs., tit. 14 ("CEQA Guidelines") §§ 15061, 15357, 15358, 15378.
[18] *Wildlife Alive v. Chickering* (1976) 18 Cal.3d 190, 206 (holding that CEQA applies to the enactment of regulations).
[19] *Building Code Action v. Energy Resources Conservation and Development Commission* (1980) 102 Cal.App.3d 577.
[20] *Cuffe v. California Building Standards Commission* (1997) San Francisco Superior Court No. 977657 (Wm. Cahill, J.).
[21] *Plastic Pipe and Fitting Association v. California Building Standards Commission* (2004) 24 Cal.App.4th 1390.
[22] *Id.* at p. 1413.
[23] *Dunn-Edwards v. Bay Area Air Quality Management District ("BAAQMD")* (1992) 9 Cal.App.4th 644, 654-656; *Castaic Lake Water Agency v. City of Santa Clarita* (1995) 41 Cal.App.4th 1257, 1264-1265.

environment or a reasonably foreseeable indirect physical change in the environment.[24] "'Substantial evidence' . . . means enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached."[25] The CEQA Guidelines define substantial evidence as including "facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts."[26] As a matter of law, "substantial evidence includes . . . expert opinion."[27]

The substantial evidence required to make the initial determination to apply CEQA is, necessarily, minimal.[28] A reviewing court's decision as to whether an activity is a "project" need only be based on the most preliminary of investigations, rather than based on an initial study or other environmental document. As one court observed, "[t]he existence of a project cannot depend on the outcome of the inquiry which the act contemplates only after the existence of a project is established."[29]

In the case at hand, substantial evidence that OSHPD's approval of CPVC, PVC and ABS plastic pipe may result in reasonably foreseeable indirect physical changes in the environment is presented herein, and in the attached expert comments and appendices. Because the fair argument standard applies, this evidence conclusively establishes that CEQA applies regardless of whether other contrary evidence is presented.

B. An EIR Must Be Prepared Prior to the Adoption of the Proposed Building Standards

If an action is subject to CEQA, then an initial study must be prepared to determine the next required step.[30] An initial study is a preliminary analysis used to determine whether an EIR or negative declaration must be prepared.[31]

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[24] *Dunn-Edwards v. BAAQMD, supra*, 9 Cal.App.4th at p. 655.
[25] *Castaic Lake Water Agency v. City of Santa Clarita*, *supra*, 41 Cal.App.4th at pp. 1264-1265.
[26] CEQA Guidelines, § 15064, subd. (f)(5).
[27] Pub. Resources Code § 21080, subd. (e)(1); CEQA Guidelines, § 15064, subd. (f)(5).
[28] See *Simi Valley Recreation and Park District v. Local Agency Formation Commission* (1975) 51 Cal.App.3d 648, 663; *Davidon Homes v. City of San Jose* (1997) 54 Cal.App.4th 106, 118.
[29] *Simi Valley Recreation and Park District v. Local Agency Formation Commission, supra,* 51 Cal.App.3d at p. 663.
[30] CEQA Guidelines, § 15063.
[31] CEQA Guidelines, §§ 15063, 15365.

The courts have repeatedly recognized that the EIR is the "heart of CEQA."[32] CEQA requires that a public agency prepare an EIR on any activity it undertakes or approves which may have a significant impact on the environment. The EIR aids an agency in identifying, analyzing, disclosing, and, to the extent possible, avoiding a project's significant environmental effects through implementing feasible mitigation measures.[33] The EIR thus acts as an "environmental 'alarm bell' whose purpose is to alert the public and its responsible officials to environmental changes before they have reached the ecological points of no return."[34]

In certain limited circumstances, a negative declaration may be prepared instead of an EIR. A negative declaration is permitted when, based upon the initial study, a lead agency determines that a project "would not have a significant effect on the environment."[35] However, such a determination may be made only if "[t]here is no substantial evidence in light of the whole record before the lead agency" that such an impact may occur.[36]

When determining if an EIR must be prepared, the "fair argument" standard applies. Under this standard, a public agency must prepare an EIR whenever *any* substantial evidence supports a fair argument that a proposed project "may have a significant effect on the environment."[37] Significant effect on the environment "means a substantial, or potentially substantial, adverse change in the environment."[38] If the record contains substantial evidence supporting 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 contrary evidence that the project will not have a significant effect.[39]

In the case at hand, the record contains extensive evidence, including the attached expert comments and appendices that establish that the proposed approval of CPVC, PVC and ABS pipe may have a significant impact on the environment. Accordingly, preparation of an EIR is required prior to approval of these products.

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[32] *The Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903, 926.
[33] Pub. Resources Code § 21002.1, subd. (a); CEQA Guidelines, § 15002, subd. (a), (f).
[34] *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1220.
[35] *Id.*; Pub. Resources Code § 21080, subd. (c).
[36] *Id.*
[37] *Id.* at p. 927; Pub. Resources Code §§ 21100, 21151, 21080.
[38] Pub. Resources Code § 21068; *The Pocket Protectors v. City of Sacramento, supra*, 124 Cal.App.4th at p. 927.
[39] Pub. Resources Code § 21151, subd. (a); *The Pocket Protectors v. City of Sacramento, supra*, 124 Cal.App.4th at p. 927.

II. THE STATE'S PRIOR REVIEW OF CPVC ESTABLISHES A FAIR ARGUMENT THAT ANY EXPANSION OF ITS APPROVAL IN THE CALIFORNIA PLUMBING CODE MAY RESULT IN SIGNIFICANT ENVIRONMENTAL AND HEALTH AND SAFETY IMPACTS

Prior CEQA reviews of CPVC by the State of California have determined that the expanded approval of CPVC in the California Plumbing Code may result in numerous potentially significant effects on the environment. These prior reviews include a 1982 Initial Study, a 1989 California Department of Health Services technical study ("1989 DHS Study"), a 1997 Initial Study, a 2000 Mitigated Negative Declaration ("MND") and a 2007 Supplemental EIR. The potential impacts identified in these prior reviews include contamination of drinking water, worker exposure to toxic solvents, increased air emissions, manufacturing, solid waste impacts and increased fire hazards. Under established judicial precedent, these prior state agency findings constitute substantial evidence of potential impacts under CEQA.[40]

The approval of CPVC pipe as a new material to deliver drinking water was first proposed to be included in the California Plumbing Code in 1982.[41] The proposal was based on the inclusion of CPVC in the 1982 Uniform Plumbing Code, the privately published model code upon which the California Plumbing Code is based.

A 1982 Initial Study was then prepared by HCD, which 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.[42] The potentially significant effects identified in the 1982 Initial Study included premature mechanical failure, increased air emissions, deterioration of existing aquatic habitat, increased fire hazards, contamination of drinking water from chemicals leaching from CPVC pipe and solvents, and worker health hazards resulting from exposure to chemical solvents through dermal absorption and inhalation during the manufacture and installation of plastic pipe.

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[40] See *Stanislaus Audubon Society, Inc. v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 154.
[41] See 1982 HCD Initial Study [Appendix 1]; See BSC Meeting (Jul. 27, 2006) [Appendix 2]; see CPVC Environmental Review of Proposed Expanded EIR Use of Plastic Pipe (Mar. 1983) [Appendix 101].
[42] 1982 HCD Initial Study [Appendix 1].

A Draft EIR was prepared in 1989, but was never completed. 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 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 Department of Health Services ("DHS") prepared a study finding that workers installing CPVC pipe would be regularly exposed to toxic substances in excess of legal exposure limits.[43] Preliminary leaching studies also showed the persistence of toxic and carcinogenic compounds in the drinking water carried by CPVC.[44]

Faced with the mounting evidence of potential hazards associated with plastic pipe use and the need for additional study, the plastic industry withdrew its funding and directed HCD to terminate all work on the 1989 EIR.[45] As a result of this directive, the 1989 EIR was abandoned and left incomplete.

In 1995, BFGoodrich asked then-Governor Wilson to approve CPVC in the California Plumbing Code "by edict," *without any further compliance with CEQA*. BFGoodrich executives made this request at a fundraiser in Ohio during Wilson's presidential campaign and subsequently in writing.[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]

On October 26, 1995, the Department approved proposed regulations authorizing the statewide approval of CPVC *without completion* of the previously abandoned 1989 EIR or any other compliance with CEQA.[48] Despite the objections of numerous stakeholders, the Commission then adopted HCD's proposed regulations.[49] The Commission's approval of CPVC without compliance with CEQA was quickly overturned by the court in the case *Cuffe, et al. v. California Building*

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[43] DHS, California Occupational Health Program, "Plastic Pipe Installation: Potential Health Hazards for Workers (April 1989) at p. 19 (1989 DHS Study) [Appendix 3].
[44] Reid Memo re Plastic Pipe (Feb. 15, 1988) [Appendix 4].
[45] SPI Letter to HCD to Terminate Work on 1989 EIR (Aug. 9, 1994) [Appendix 5].
[46] BFGoodrich letter to Governor Pete Wilson re CEQA Compliance (Sept. 1, 1995) [Appendix 6].
[47] Governor Wilson letter directing HCD to Adopt Emergency Regulations Approving CPVC (Oct. 12, 1995) [Appendix 7].
[48] HCD Finding of Emergency HCD Approval re Approval of Proposed Regulations to Approve CPVC (10-26-95) [Appendix 8].
[49] *Cuffe, et al. v. California Building Standards Commission and California Department of Housing and Community Development* (Sup. Ct. San Francisco County, 1997) No. 977657, Peremptory Writ of Mandate (03-13-97) [Appendix 9].

Standards Commission and California Department of Housing and Community Development.[50] The court vacated the CPVC approval and ordered HCD and CBSC to take no further action to approve CPVC without first completing an Initial Study and either an EIR or a negative declaration.[51]

In response to the court's order, HCD prepared a new initial study in 1997. The new initial study again found that statewide approval of CPVC "may have a significant effect on the environment, and an Environmental Impact Report is required." [52] Based upon the record of the prior proceedings and other evidence before it, the 1997 Initial Study concluded that the proposed statewide approval of CPVC would result in potentially significant impacts on air quality, water quality, solid waste, worker health and safety, public health, and fire hazards.[53]

In 1998, HCD prepared an EIR for the statewide approval of CPVC again and certified it. While the 1998 EIR contained almost no new analysis from the abandoned 1989 EIR and was eventually rescinded and deemed incomplete by HCD, the 1998 EIR nonetheless recognized that CPVC use may have significant effects on human health and the environment.[54]

Eventually, HCD completed and certified two CEQA documents evaluating the potential impacts of CPVC in residential settings: a Mitigated Negative Declaration ("MND") certified in 2000 for the limited approval of CPVC and a 2007 Supplemental EIR on the expanded approval of CPVC in residential buildings. The 2000 MND and 2007 Supplemental EIR found that use of CPVC posed potentially significant impacts on worker health and safety, contaminated drinking water, and air quality impacts. As a result, HCD adopted mitigation measures that required CPVC to be installed using one-step, low-voc cement, to undergo a one-week flushing regimen before being used for human consumption, and comply with certain glove and ventilation installation requirements to protect worker health and safety.[55]

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[50] *Cuffe, et al. v. California Building Standards Commission and California Department of Housing and Community Development* (Sup. Ct. San Francisco County, 1997) No. 977657, Judgment Granting Peremptory Writ of Mandate, filed April 9, 1997 [Appendix 10].
[51] *Cuffe, et al. 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 10].
[52] HCD Initial Study (Aug. 1997) [Appendix 11].
[53] *Id.*
[54] Letter of Settlement Terms, p. 1, art. 2 [Appendix 12].
[55] See 2000 MND [Appendix 13]; 2006 CPVC DEIR at p. 16 [Appendix 14]; 2006 CPVC Recirculated DEIR at p. 50 [Appendix 15].

As the above discussion illustrates, HCD has generated over 25 years of relevant information regarding the impacts of approving CPVC. The 1982 Initial Study, 1989 Draft EIR, 1997 Initial Study, 2000 MND, and 2007 Supplemental EIR, as well as the preliminary studies on which the documents relied, contained facts, reasonable assumptions based on facts, and expert opinion specifically about the effects of installing CPVC pipes.

CEQA case law requires OSHPD and CBSC to recognize these prior findings as substantial evidence triggering the requirements for compliance with CEQA and for preparation of an EIR. In *Stanislaus Audubon Society v. County of Stanislaus*, the County's Planning Department prepared an initial study that concluded that the project at issue might have a significant impact.[56] The record also contained a study prepared by Tuolumne County that considered a project similar to the project at issue and determined that the similar project would have a significant effect on the environment.[57] The court found that both the Planning Department's conclusion and the Tuolumne County study were substantial evidence that the County could not ignore. The court ruled that the County must prepare an EIR.

Like the County in *Stanislaus*, OSHPD may not ignore HCD's twenty-five years of analyses and fact-based conclusions that approval of CPVC pipe may have a significant impact on the environment. The fact that this information was generated by an agency other than OSHPD is irrelevant according to the *Stanislaus* decision. Because HCD came to fact-based conclusions based on its findings in the 1982 Initial Study, 1989 Draft EIR, 1997 Initial Study, 2000 MND, and 2007 Supplemental EIR, there is substantial evidence supporting a fair argument in favor of preparation of an EIR prior to CPVC approval.

Moreover, OSHPD may not ignore preliminary studies like the one conducted by DHS that found that workers installing CPVC pipe would be regularly exposed to toxic substances in excess of legal exposure limits. Like the Tuolumne Study in *Stanislaus*, the DHS Study and other preliminary studies relied on by HCD in preparation of its environmental documents analyzed a project similar to the one proposed by OSHPD. Previous studies conducted on similar projects constitute substantial evidence. Thus, the DHS Study creates a fair argument that approval of CPVC may have a significant impact.

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[56] *Stanislaus Audubon Society, Inc. v. County of Stanislaus, supra*, 33 Cal.App.4th at 155.
[57] *Id.* at 155-156.

Under the court's holding in *Stanislaus Audubon Society, Inc. v. County of Stanislaus*, the State of California's prior findings that the expanded approval of CPVC pipe in California buildings may result in significant environmental impacts is determinative and requires environmental review under CEQA. The conclusions from the1982 and 1997 Initial Studies, the 1989 DHS Study, and the 2000 MND and 2007 Supplemental EIR, individually and collectively, create a "fair argument" that installation of CPVC may cause significant impacts on the environment.[58] Even if OSHPD were to disagree with these prior findings, such a disagreement would not diminish their significance as substantial evidence.[59]

III. THE STATE'S PRIOR DETERMINATION THAT EXPANDED APPROVAL OF ABS AND PVC DRAINAGE PIPE MAY RESULT IN SIGNIFICANT IMPACTS RAISES A FAIR ARGUMENT THAT OSHPD'S PROPOSED APPROVAL OF ABS AND PVC PIPE MAY ALSO RESULT IN SIGNIFICANT IMPACTS

As with CPVC, the state has also previously determined that approval of ABS and PVC drainage pipe in the California Plumbing Code may result in numerous potentially significant effects on the environment. Under CEQA, this prior state agency finding constitutes substantial evidence that approval of ABS and PVC drainage Pipe may result in significant effects on the environment.[60]

In the same 1982 Initial Study that determined CPVC potable water pipe may result in significant impacts, the state also found that the expanded approval of ABS and PVC drainage pipe would potentially result in numerous significant effects on the environment and would require the preparation of an EIR.[61] The 1982 Initial Study examined the evidence before it and concluded that the expanded approval of ABS and PVC drainage pipe might have numerous, significant effects on the environment including: worker exposure to toxic solvents; increased air emissions; and increased fire hazards.[62] Based upon these findings, the Initial Study

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[58] See *Stanislaus Audubon Society, Inc. v. County of Stanislaus, supra*, 33 Cal.App.4th at 154; *Gentry v. Murietta* (1995) 36 Cal.App.4th 1359 (petitioner may rely on statements made in initial study to establish fair argument, even in the face of contradictory evidence).
[59] *Id.*
[60] *Stanislaus Audubon Society, Inc. v. County of Stanislaus, supra*, 33 Cal.App.4th at 154.
[61] HCD, Plastic Pipe Initial Study (1982) [Appendix 1].
[62] *Id.*

held that an EIR was required prior to the expanded approval of ABS and PVC drainage pipe.[63]

The abandoned 1989 Draft EIR that evaluated the proposed approval of CPVC also evaluated the proposed approval of ABS and PVC drainage pipe. The DHS worker health and safety study prepared as part of the 1989 Draft EIR found that workers installing ABS and PVC pipe would be regularly exposed to toxic substances in excess of legal exposure limits, with the most significant exposures occurring when CPVC potable water pipe was also being installed in the same building.[64]

In 2006, HCD again proposed expanding the approval of ABS and PVC drainage pipe. After comments were submitted regarding the requirement for CEQA review, HCD withdrew the proposal on the grounds that it was "unable to complete an adequate review due to a lack of necessary information."[65]

The 1982 Initial Study and 1989 DHS Study, individually and collectively, create a fair argument that OSHPD's approval of ABS and PVC drainage Pipe may result in significant effects on the environment.[66] Under established case law, these prior findings are determinative and require environmental review under CEQA.[67]

IV. ADDITIONAL SUBSTANTIAL EVIDENCE FURTHER ESTABLISHES A FAIR ARGUMENT THAT APPROVAL OF CPVC, PVC AND ABS PIPE MAY RESULT IN SIGNIFICANT ENVIRONMENTAL IMPACTS

The evidence in the record, including the expert comments, studies and other documents contained in the appendices to this letter, overwhelmingly demonstrates that OSHPD's proposed approval of CPVC potable water pipe and PVC and ABS drainage pipe may have significant effects on the environment. These potential impacts include: (1) worker exposure to toxic chemicals at levels exceeding established workplace standards; (2) contamination of drinking water from chemicals leached from the CPVC pipe and solvents; (3) contamination of receiving waters from chemicals leached from CPVC, PVC and ABS pipe; (4) air quality

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[63] The 1982 Initial Study also examined the proposed statewide approval of CPVC and PE plastic pipe.
[64] 1989 DHS Study [Appendix 3].
[65] HCD, Revised Express Terms, 2006 UPC/2007 CPC (Nov. 21, 2006) at p. 7. [Appendix 57]
[66] See *Stanislaus Audubon Society, Inc. v. County of Stanislaus, supra*, 33 Cal.App.4th at 154; *Gentry v. Murietta* (1995) 36 Cal.App.4th 1359.
[67] *Id.*

impacts from CPVC, PVC and ABS solvent emissions; (5) increased risk of fire hazard from toxic smoke and fire spread; (6) increased risk of rupture and failure of plumbing pipes; and (7) increased solid waste disposal impacts from the replacement of recyclable materials with CPVC, PVC and ABS pipe.

A. Worker Health and Safety Impacts

1. Risk to Workers Installing CPVC, PVC or ABS Pipe

Past studies have demonstrated that without effective mitigation measures, workers installing CPVC, PVC or ABS pipe will be regularly exposed to levels of harmful chemicals exceeding established workplace standards. The most comprehensive study on this subject was conducted in the 1989 DHS Study.[68] In that study, the California Department of Health Services examined worker exposure to the chemical solvents in the primers and cements used to join the pipes.[69]

Sections of CPVC, PVC and ABS pipe are joined using fittings or connectors. The pipe is chemically fused to the connector using a process call "solvent welding" or "cementing." This process uses chemicals -- cleaners, primers and cements -- which are 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. These cleaners, primers and cements are made with solvents that contain potentially harmful chemicals such as tetrahydrofuran ("THF"), methyl ethyl ketone ("MEK"), cyclohexanone ("CHX") and acetone ("ACE").

The 1989 DHS Study found that workers installing CPVC, PVC or ABS pipe were regularly exposed to these harmful chemicals at levels exceeding established workplace standards.[70] The likelihood of overexposure above the full-shift exposure limit was estimated to be 10% for a typical workday. The likelihood of overexposure above the short-term exposure limit at least once in a typical eight-hour workday was estimated to be 68%. The highest MEK exposures occurred during the installation of ABS drainage pipe.[71] The highest THF exposures occurred during the concurrent installation of CPVC potable water pipe and PVC drain, waste and

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[68] 1989 DHS Study [Appendix 3].
[69] *Id.*
[70] *Id.*
[71] *Id.*

vent pipe.[72] Three of the six samples in which THF exposures exceeded the short-term exposure limits were for workers installing PVC drainage pipe.[73] The study found that THF, CHX, ACE and MEK enter the bloodstream of workers through vapors, solvent skin contact and through permeation of gloves and clothes.

In 1998, DHS again reviewed the potential for worker health and safety impacts from the installation of CPVC, PVC and ABS plastic pipe and concluded that: "Case reports point to the likelihood that overexposure related to poor ventilation has already led to illness in pipe workers."[74]

Dr. Martyn Smith, Professor of Toxicology in the School of Public Health at the University of California, Berkeley, and Peggy Lopipero, M.P.H., have reviewed the potential adverse health impacts for worker exposure to THF, MEK and ACE. Their report concluded that exposure to these chemicals may cause significant health effects, and that THF was potentially carcinogenic.[75]

Even at levels lower than recommended exposure limits, MEK and ACE produce irritation of the eyes, nose and throat.[76] Indeed a substantial percentage of plumbers report experiencing irritation during the installation of these plastic pipes.[77] DHS has stated clearly that short-term irritation is a material impairment to health.[78] Furthermore repeated irritation may contribute to chronic illness.[79] In addition, all four solvents used in CPVC, PVC and ABS 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.[80]

New data or testing is required to adequately evaluate this impact.[81] New formulations of primers and cements have entered the market since the completion

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[72] *Id.*
[73] *Id.*
[74] Comments of Elizabeth Katz, MPH, Acting Chief, Hazard Identification System and Information Service, Department of Health Services (June 11, 1998) [Appendix 29].
[75] Smith-Lopipero Comments on CPVC DEIR (Aug. 1998), pp. 1-2, 23. [Appendix 18].
[76] *Id.*.
[77] *Id.*
[78] Dr. Bellows, DEIR Comments re CPVC Pipe Use for Potable Water Piping in Residential Buildings (Aug. 27, 1998) at p. 25 [Appendix 19].
[79] *Id.*
[80] *Id.* p. 36.
[81] See *Citizens to Preserve the Ojai v. County of Ventura* (1985) 176 Cal.App.3d 421.

of the 1989 DHS Study.[82] 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.[83]

Dr. James Bellows, one of the primary authors of the 1989 DHS Study, reviewed these new formulas in his follow-up 1998 report. Dr. Bellows found that the introduction of low-VOC primer and cement formulations has actually resulted in *higher* combined exposures than were observed in the 1989 DHS Study.[84] The typical low-VOC primer and cements contain almost ten times the amount of MEK, resulting in "ten-fold higher airborne concentrations as the primer and cement evaporate."[85] In addition, the 2007 CPVC EIR found that new low-VOC adhesives actually increase the amount of Acetone in primers and cements.[86] Moreover, the acceptable workplace exposure limits for ACE have been significantly lowered since the 1989 DHS Study.[87] Accordingly, the use of new low-VOC primer and cements will likely result in significantly greater leaching impacts of certain chemicals than revealed in the 1989 DHS Study.

Furthermore, plastic pipe expert Thomas Reid has found that additives in new formulations may pose leaching issues not evaluated in the earlier 1989 DHS Study.[88] For example, unreacted monomers from impact modifiers may contain butadiene or acrylonitrile, which are carcinogens.[89]

In addition, the 1989 DHS study did not evaluate the installation of CPVC, PVC and ABS pipe in health care facilities that may contain a significantly higher number of pipe joints and significantly larger pipes than other occupancies.[90] The amount of glue and solvent for these types of installations and the worker exposure

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[82] See 2006 CPVC DEIR at p. 63 (low-VOC solvents contain increased amounts of ACE) [Appendix 14]; 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) [Appendix 19].
[83] *Id.*
[84] Dr. Bellows DEIR Comments re CPVC Pipe Use for Potable Water Piping in Residential Buildings (Aug. 27, 1998), pp. 18-20 [Appendix 19].
[85] *Id.* at p. 20.
[86] 2006 CPVC DEIR at p. 63 [Appendix 14].
[87] Dr. Bellows Comments (Sept. 8, 2006) [Appendix 52]; see also CPVC 2006 DEIR at p. 65 [Appendix 14].
[88] Reid Comments (Sept. 13, 2006) p. 6 [Appendix 23]
[89] *Id.*
[90] Lescure, ABS and CPVC in Hospitals letter (Oct. 7, 2009) [Appendix 56].

to the fumes could be much higher than evaluated in the 1989 DHS study.[91] The unique exposure risks to workers installing CPVC, PVC and ABS pipe in healthcare facility settings must be further evaluated under CEQA.

The 1989 DHS Study, Dr. Bellow's 1998 and 2006 comments letters, and the 1998 Smith and Lopipero report constitute substantial evidence that the approval of CPVC, PVC and ABS pipe may, individually and cumulatively, result in serious violations of workplace chemical exposure standards. This significant impact must be disclosed and evaluated under CEQA.

2. Risk to Workers Manufacturing CPVC and PVC Pipes

Throughout the manufacture of CPVC and PVC, dioxins, furans, PCBs and hexachlorobenzene are unavoidably produced.[92] As a result, the manufacture of CPVC and PVC pipe and fittings can result in significant worker exposures to toxic and carcinogenic chemicals.[93] In her 2005 Comments, Dr. Phyllis Fox calculated that dioxin emissions alone may expose workers to a cancer risk of over five per million – five times above relevant significance thresholds.[94] In addition, workers are exposed to a wide range of other toxic chemicals, including THF, MEK and CHX.[95] The Vinyl Chloride industry in particular has a very disturbing record of manufacturers knowingly exposing workers to serious and life-threatening workplace conditions.[96] When evaluated in relation to other plastics used to make pipe, PVC (including 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.[97]

Because the Project will contribute to increased demand for CPVC, PVC and ABS pipe in California, it is likely to increase the manufacture of these products at factories within the state. As a result, the proposed action may incrementally increase the cumulative risk to workers in the CPVC pipe and solvent manufacturing industry.

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[91] *Id.*
[92] Dr. Pless Comments (Sept. 12, 2006) [Appendix 20]; Dr. Fox Comments, §II.B [Appendix 21].
[93] Dr. Fox Comments (Apr. 22, 2005), §II.B [Appendix 21].
[94] *Id.*
[95] *Id.*
[96] Jim Morris, Staff Houston Chronicle, The Chemical Industry's Secrets/High-Level Crime/Italy Develops a Case for Manslaughter Because Workers Breathed Vinyl Chloride [Appendix 47].
[97] Rossi et al., San Francisco Department of the Environment, Plastic Pipes Alternative Assessment (Feb. 11, 2005) p. 4 [Appendix 48].

B. Water Quality Impacts

1. Substantial Evidence Exists That Toxic Chemicals Leach Directly From CPVC, PVC and ABS Pipe and Solvents and May Contaminate Drinking Water

OSHPD's approval of CPVC, PVC and ABS plastic pipe may cause significant impacts due to the leaching of toxic chemicals into drinking water. Past studies demonstrate organic chemicals such as THF, MEK, ACE, and organotins have been found to leach into drinking water from CPVC, PVC and ABS pipe and solvents.[98]

Even in low doses, these chemicals may pose significant health risks when they contaminate drinking water.[99] THF, for example, is potentially carcinogenic.[100] THF may also cause depression of central nervous system functions.[101] MEK causes irritation and central nervous system depression even in low doses.[102] In higher doses, MEK may be embryotoxic, fetotoxic and potentially teratogenic.[103] Chronic irritation is associated with skin cancer. Subchronic toxicity studies of MEK show that it causes liver damage. MEK also potentiates the toxic effects of other common contaminants, including such common primer and cement leachates as THF and ACE.[104] Peripheral neuropathy may be caused by the combined exposure of MEK and THF.[105] Furthermore, MEK and ACE may cause polyneuropathy when found together.[106] MEK, ACE and possibly THF also have the ability to potentiate the toxic effects of other chemicals including common contaminants of tap water.[107]

Organotins such as diorganotins and triorganotins, are irritants to the skin and eyes and are powerful metabolic inhibitors.[108] Diorganotins are hepatoxic and can cause damaging effects on the liver and bile duct, immunotoxicity, reproductive

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[98] Reid Comments (Sept. 13, 2006) [Appendix 23]; Reid comments (Oct. 18, 2006) [Appendix 58].
[99] *Id.*
[100] Smith-Lopipero Comments on CPVC DEIR (Aug. 1998) at pp. 7, 8 [Appendix 18].
[101] Dr. Bellows DEIR Comments re CPVC Pipe Use for Potable Water Piping in Residential Buildings (Aug. 27, 1998) at, p. 36 [Appendix 18] [Appendix 19].
[102] Smith-Lopipero Comments on CPVC DEIR (Aug. 1998) at p. 23 [Appendix 18].
[103] *Id.* at p. 9.
[104] *Id.* at pp. 9-10, 13-14.
[105] *Id.*
[106] *Id.*
[107] Smith-Lopipero Comments on CPVC DEIR (Aug. 1998) at p. 13 [Appendix 18].
[108] *Id.* at pp. 15-17.

toxicity and developmental toxicity.[109] Triorganotins, such as tributyltin, are highly toxic to the central nervous system.[110]

The United States Environmental Protection Agency ("EPA") has corroborated that leaching of organotins from PVC and CPVC pipe may be a public health concern. In 1998, the 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."[111] The 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.[112] The EPA concluded that the toxicology and leaching of organotins required further in-depth evaluation.[113] This conclusion by the EPA is substantial evidence that leaching of organotins from CPVC may significantly affect drinking water.

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 Minimal Risk Levels ("MRLs") for organotin compounds.[114] 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.[115]

A study by the German Federal Institute for Health Protection of Consumers and Veterinary Medicine has recommended an even lower maximum exposure level of 8.75 ug/L per day for an adult.[116] For an infant, the maximum exposure level under the German recommendation would be about 4.9 ug/L a day.[117]

The Project's contribution to cumulative exposure to organotins must also be evaluated. There are many other sources of organotin compounds, including packaged foods (leached from plastic containers), seafood (highly bioaccumulated),

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[109] *Id.*
[110] *Id.*
[111] 63 Federal Register 10282 (Mar. 2, 1998).
[112] *Id.*
[113] *Id.*
[114] Reid Comments (Sept. 13, 2006) pp. 9-12 [Appendix 23].
[115] *Id.*
[116] Reid Comments (Sept. 13, 2006) [Appendix 23].
[117] *Id.*

bottled drinks (leached from plastic containers), and swimming in contaminated waters (many receiving waters in California have elevated levels).[118]

For dibutyltin compounds, the standard setting organization NSF International factors in cumulative exposure to organotins into its leaching standards by multiplying the maximum allowable exposure level by 20% to come up with a single product allowable concentration ("SPAC").[119] 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.[120]

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.[121] Other studies have shown organotin leaching from pipes at levels up to 140 ug/L.[122] Accordingly, a fair argument exists that CPVC pipe may leach organotins at levels sufficient to result in cumulative health and safety impacts on adults and infants.

2. Substantial Evidence Exists that Toxic Chemicals Leaching from CPVC and PVC Pipe May Contribute to the Contamination of State Water Bodies

The Project must also be evaluated under CEQA because it may result in the discharge of greater amounts of organotins into waters of the State of California that are already degraded by organotins and toxicity. Where a water body already is degraded by the existing cumulative levels of organotins or other pollutants, irrespective of their source, increased discharges of organotins result in additional cumulative effects to that already degraded waterbody.[123]

Substantial evidence exists that the leaching of organotins from PVC and CPVC may be a significant contributor to organotin contamination in municipal wastewater effluents. High concentrations of organotin compounds have been widely reported in treated sewage effluents, including in California, *e.g.*, Hyperion,

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[118] *Id.*
[119] *Id.*
[120] *Id.*
[121] *Id.*
[122] Dr. Fox Comments on Water Quality Impacts (Apr. 25, 2005) at p. 5 [Appendix 59]; *see also* Lozeau, Baykeeper comments (Apr. 25, 2005) [Appendix 60].
[123] See CEQA Guidelines, § 15065(a)(3).

Oceanside, San Jose, San Diego, and Yuba County.[124] One source that has been implicated for these high levels is leaching of organotin compounds from PVC and CPVC pipe. Concentrations of organotin compounds detected in PVC and CPVC leachates have been found to be similar to those measured in the municipal effluents.[125] Moreover, the majority of organotin compounds, 60% to 70%, are commercially used to stabilize the PVC and CPVC resins.[126] Studies have directly implicated the "normal leaching and weathering of PVC pipes used for potable and wastewater" as principal sources of organotin contamination in municipal wastewater.[127] Canadian researchers have concluded:

> It is likely that new CPVC water distribution systems would contaminate the supplied water with organotins for some time after installation. PVC and CPVC plumbing installations may, therefore, be a significant source of the monobutyltin and dibutyltin found in municipal wastewater.[128]

The leaching of organotins from CPVC and PVC pipes may have significant impacts on fish and wildlife, including wildlife listed by state and federal wildlife agencies as endangered and threatened. Organotin compounds can be extremely toxic to aquatic life. The early developmental stages of aquatic organisms are particularly sensitive to organotin compounds.[129]

Tributyltins are the most toxic of the organotins and have been identified as a serious and widespread contaminant of marine and fresh water habitats in California.[130] Extremely low levels of tributyltin cause deformities in oysters and a wide range of adverse reproductive and developmental effects in fish.[131] In addition to their inherent toxicity, tributyltin and the other organotins bioconcentrate in the aquatic environment. Because they bioconcentrate, the impact of persistent sources of organotins will be magnified over time and may thus affect anglers who catch and eat contaminated fish.[132] Tributyltin has also been implicated in adverse impacts to sea otters, a species listed as a threatened species under the federal Endangered

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[124] Dr. Fox Comments on Water Quality Impacts (Apr. 25, 2005) at p. 6 [Appendix 59]; *see also* Lozeau, Baykeeper comments (Apr. 25, 2005) [Appendix 60].
[125] *Id.*
[126] *Id.*
[127] *Id.*
[128] *Id.*
[129] *Id.* at pp. 13-14.
[130] *Id.* at p. 14.
[131] *Id.* at pp. 13-17.
[132] *Id.* at p. 15.

Species Act and which feeds near the top of the food chains in the coastal waters off of Central California.[133]

Other forms of organotins are also toxic to aquatic life.[134] The California Department of Toxic Substances Control has recommended that dibutyltin, for example, be included in developing cleanup criteria.[135]

The state's water quality agencies have long recognized the serious dangers posed by tributyltin discharges to the waters of the state.[136] Organotins, and in particular tributyltin, are commonly regulated by the Regional and State Boards throughout the state.[137] The state's water quality agencies have determined that levels of tributyltin found in many sewage treatment plants threaten to violate the state's water quality standards.[138] The additional tributyltin resulting from the proposed Project will exacerbate that existing threat.

The Project would also result in the discharge of elevated concentrations of MEK, CHX, THF and ACE. These chemicals are also known to cause aquatic toxicity.[139]

Because the leaching of organotins and other chemicals from CPVC and PVC pipe may contribute to cumulative impacts on aquatic life, OSHPD's proposed expansion of the approved use of CPVC and PVC in California buildings may cause a reasonably foreseeable indirect physical change in the environment. The potential impact of this leaching on receiving waters must thus be evaluated under CEQA.

C. Air Quality Impacts

1. VOC Emissions from Solvents Used to Install CPVC, PVC and ABS Solvents May Be Cumulatively Significant

Substantial evidence demonstrates that the Project may result in significant air quality impacts, both individually and in concert with the prior limited approvals of CPVC, PVC and ABS pipe in the California Plumbing Code. These air

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[133] *Id.*
[134] *Id.* at pp. 15-16.
[135] *Id.*
[136] *Id.* at p. 16.
[137] *Id.* at pp. 8-13.
[138] *Id.*
[139] *Id.* at p. 18.

quality impacts result mainly from the cements, primers and cleaners necessary to install CPVC, PVC and ABS plastic pipe. The cleaners, primers, and cements used to join these pipes contain high concentrations of solvents (85% - 100%) that are volatile organic compounds. These VOCs are evaporated during the transfer, drying, surface preparation, and cleanup, resulting in VOC emissions.

VOCs are ozone precursor compounds. The VOCs are converted into ozone and fine particulate matter in the atmosphere, causing or contributing to violations of ambient air quality standards and attendant health effects.[140] Ozone pollution is a principal component of smog and is a major source of respiratory illness in California.[141]

The proposed expanded approval of CPVC, PVC and ABS pipe will increase the use of CPVC, PVC and ABS cleaners and cement and, therefore, will increase emissions of VOCs. As a result, the expanded use of these solvents may have direct and cumulatively significant impacts on air quality.

The U.S. Environmental Protection Agency and California have both set ambient air quality standards on ozone to protect public health and welfare. These standards are exceeded throughout much of California.[142] The South Coast Air Quality Management District ("SCAQMD"), where most of the health facility growth is occurring, has the highest ozone levels in the United States.[143] Any increase in ozone in an area that significantly exceeds ozone ambient air quality standards should be considered significant.

The Project's cumulative air quality impacts must be reviewed under CEQA and evaluated in an EIR. Cumulative impacts result from individually minor but collectively significant projects taking place over a period of time. Because of this potential additive effect, "the full environmental impact of a proposed project cannot be gauged in a vacuum."[144] 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.[145] In particular, the Project must be looked at in context with the California Plumbing Code's limited approval of CPVC, PVC and ABS pipe in other occupancies, such as residential buildings.

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[140] Dr. Pless Comments (Oct. 8, 2009) [Appendix 31].
[141] *Id.*
[142] *Id.*
[143] *Id.*
[144] *Communities for a Better Environment v. Calif. Resources Agency*, *supra*, 103 Cal.App.4th at p. 114, fns. omitted.
[145] Pub. Resources Code § 21083, subd. (b), CEQA Guidelines, §§ 15130, subd. (b) & 15355, subd. (b).

The 2006 CPVC EIR evaluated this issue in detail and concluded that the expanded approval of CPVC in residential occupancies may have significant adverse impacts on air quality.[146] The 2006 CPVC EIR imposed significant mitigation to reduce this impact, including the use of low-VOC, one-step cements; yet found that HCD's approval of CPVC would still result in a significant impact even with the imposed mitigation.[147] As a result, a statement of overriding considerations was adopted as part of the project approval.[148]

Because OSHPD's proposed regulations would further expand the approved use of CPVC, PVC and ABS pipe in the California Plumbing Code, it will further exacerbate what has already found to be a significant impact on the environment.

2. VOC Emissions from Increased Manufacturing of CPVC, PVC and ABS Solvents May Also Be Cumulatively Significant

An evaluation of the Project's emissions must also include indirect VOC emissions from manufacture of CPVC, PVC and ABS pipe, fittings, primers and cements. CEQA requires analysis of a project's "indirect" impacts, such as manufacturing that will be caused by the project.[149]

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.[150] 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.[151] The NSF's product database and other

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[146] 2006/2007 CPVC FEIR at pp. 5-6 [Appendix 51].
[147] *Id.*
[148] *Id.*
[149] *Kings Co. Farm Bureau v. Hanford* (1990) 221 Cal.App.3d 692 at 717; CEQA Guidelines, § 15064, subd. (d) & Appendix G.
[150] *Building Code Action v. Energy Resources Conservation and Development Comm.* (1980) 102 Cal.App.3d 577.
[151] CEQA Guidelines, § 15064, subd. (d).

sources indicate that CPVC, PVC and ABS cement, and primers are manufactured in California and that these facilities are significant sources of VOC emissions.[152] 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.[153]

The Project will increase the demand for CPVC, PVC and ABS pipe, fittings, and joining chemicals. This is likely to increase manufacturing of these products at factories in the state, thereby causing increased VOC emissions from those factories.[154] When looked at in conjunction with the VOC emissions from the installation of CPVC, PVC and ABS pipe, this is a potentially significant impact that requires review under CEQA.

Moreover, the State of California has already previously identified manufacturing impacts as a potentially significant impact of the expanded approval of plastic pipe.[155] The 1982 Initial Study prepared by HCD 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 increase in air emissions with a potential decrease in ambient air quality.[156]

The conclusion of the 1982 Initial Study is, itself, substantial evidence that an increase in the demand for CPVC, PVC and ABS pipe, fittings, and joining chemicals may result in significant air quality impacts.

3. Increased Manufacturing of CPVC and PVC Products May Increase Emissions of Dioxin and Other Toxics

CPVC and PVC manufacturing emits toxic chemicals that can cause significant health impacts, including dioxins, organotins and solvents.[157]

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[152] NSF Product and Service Listing (Apr. 19, 2005) [Appendix 26].
[153] *Id.*
[154] 2006 PVC/ABS Dr. Pless Comments at p. 15 [Appendix 33].
[155] 1982 HCD Initial Study [Appendix 1].
[156] *Id.* §III.2.a.
[157] Dr. Fox Comments (Apr. 22, 2005), §II.B [Appendix 21]; Rossi et al., San Francisco Department of the Environment, Plastic Pipes Alternative Assessment (Feb. 11, 2005) pp. 3, 4, 8-13 [Appendix 48].

Imported CPVC and PVC resin is extruded into plumbing products. The extrusion process emits dioxins (polychlorinated dibenzo dioxins). Dioxins are among the most toxic chemicals known to science and cause adverse health effects, including cancer, birth defects, immune system damage, reproductive dysfunction (including infertility, endometriosis, micropenis, and others), diabetes, and hormonal abnormalities at extremely low levels.[158]

The dioxin emissions during extrusion may result in a significant cancer inhalation risk to both workers and the public.[159] Relying on laboratory analysis conducted on air in a CPVC extrusion plant, and published scientific data, Dr. Fox calculated that dioxin levels created by CPVC extrusion would create a cancer risk of 5 cancers per million.[160] The California Air Resource Board and the federal Clean Air Act §112(f) and many air districts establish a significance threshold for cancer risk of one per million.[161] The CPVC Project exceeds these thresholds by a factor of five and would therefore be significant.[162]

Dr. Fox also concludes that the dioxin emissions from extrusion facilities could also pose a significant cancer risk to offsite individuals in commercial or residential areas around the extrusion facility. Thus, by increasing the amount of CPVC that is extruded in California, the Project would increase the risk of cancer from inhalation of dioxins in the workplace and in the areas around the extrusion facilities. This risk is apparently already significant. Thus, the Project would result in a cumulatively significant health impact to both workers and the public.[163]

D. Fire Hazard Impacts

Substantial evidence exists that the expanded use of CPVC, PVC and ABS plastic pipe may increase the risk of fires in multi-story buildings. The fire hazards associated with CPVC, PVC and ABS pipe include increased risk of fire spread and increased risk from toxic smoke or gas.

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[158] Dr. Fox Comments (Apr. 22, 2005), §II.B.1 [Appendix 21].
[159] *Id.*
[160] *Id.*
[161] *Id.*, citing, CARB, *Risk Management Guidelines for New and Modified Sources of Toxic Air Pollutants* (July 1993).
[162] *Id.*
[163] *Id.*

The plastic piping systems of greatest concern for fire spread are, by far, those for drain, waste and vent systems.[164] These pipes, which transport waste and gases through a building, are large in diameter, hollow and combustible.[165] If the fire resistance ability of their openings is not properly addressed, they create a pathway for smoke, hot gases and fire to spread through a building.[166] Because drainage pipes are large in diameter they may create large openings between rooms when they melt or ignite, particularly where firestopping material is misapplied or fails. The venting of drainage pipe systems may also contribute to the spread of the fire because they provide a ready source of outside oxygen for the fire. [167]

A report by fire engineer Thomas J. Klem and Massachusetts Institute of Technology professor of engineering Dr. Thomas Eagar found a significant level of non-compliance with regard to plastic pipe fire stop penetrations and that improper installation is a problem noted by manufacturers of these assemblies.[168] Even where firestopping material is correctly applied, the use of CPVC, PVC and ABS drainage pipe may have cumulative impacts on the spread of fire. It is extremely rare for a fire resistive assembly to be built exactly as it is found in generic form as described in the tables of the model building codes.[169] Such assemblies will have other piping present and/or electrical components and possibly insulation and other components for data transmission.[170] The cumulative effect of all of these components along with the CPVC, PVC and ABS drainage pipe may impact the performance of these walls if a serious fire occurs.[171]

The use of plastic pipe in medical facilities also poses a heightened fire spread risk because the bulk of piping in these occupancies is horizontal on each floor in the ceiling.[172] According, to a leading health care facility construction company in California, plastic piping running horizontally in these floor ceilings currently has only a limited measure of fire protection due to the use of metal piping.[173] The plastic horizontal CPVC, PVC or ABS has a flame spread that would

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[164] Joseph Zicherman, Plastic Pipe and Fire Safety (Sept. 5, 2000) at p. 15 [Appendix 22]; see also KBS, Specifier's Handbook [Appendix 27].
[165] KBS, Specifier's Handbook [Appendix 27].
[166] Joseph Zicherman, Plastic Pipe and Fire Safety (Sept. 5, 2000) at p. 16 [Appendix 22].
[167] *Id.*
[168] Klem, et al, Safety of Firewall Penetrations in High-Rise Building (2004) [Appendix 41].
[169] Zicherman, Plastic Pipe and Fire Safety (Sept. 5, 2000) at p. 28 [Appendix 22].
[170] *Id.* at pp. 28-29.
[171] *Id.* at p. 29.
[172] Lescure, ABS and CPVC in Hospitals letter ()ct. 7, 2009) [Appendix 56].
[173] *Id.*

go unchecked in these ceiling spaces. Accordingly, new fire wall or fire break code would need to be developed to minimize this spread rating.[174]

CPVC, PVC and ABS pipe further increase the risk of fires because they release toxic fumes and chemicals when heated or burned.

When CPVC or PVC burn, they form hazardous substances that present acute and chronic hazards to firefighters, building occupants, and the surrounding community. These substances include hydrogen chloride gas and dioxin.[175] The hydrochloric acid released by burning PVC is potentially lethal to people caught in a burning building, while dioxin's health effects are exerted more slowly and are spread across a larger population. Hydrogen chloride is a corrosive, highly toxic gas that can burn skin on contact. When it comes into contact with the mucous lining of the respiratory tract, it creates hydrochloric acid and can cause severe respiratory damage.[176] Exposure to a single CPVC or PVC fire can cause permanent respiratory disease.[177]

CPVC and PVC are often advertised as "fire resistant," meaning that a fairly high temperature is required to start it burning. However, CPVC and PVC start to smolder and release toxic fumes such as hydrochloric acid at a lower temperature, long before they ignite.[178] By the time actual combustion begins, they lose over 60% of their weight in the generation of hydrochloric acid and other chemicals.[179] The toxic gases generated during this pre-combustion period are particularly dangerous as there is no flame to warn firefighters and occupants.[180]

For this reason, some firefighter associations are working to educate the public about the hazards of PVC building materials and are supporting municipal and state level policies to reduce its use.[181] The International Association of Fire Fighters points out that 165 people died in the Beverly Hills Supper Club Fire of

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[174] *Id.*
[175] Joe Thorton, Ph.D., Healthy Building Network, "Environmental Impacts of Polyvinyl Chloride Building Materials" (2002) at p. 48 [Appendix 28].
[176] *Id.*
[177] *Id.*
[178] Frank Ackerman, et al., Global Development and Environment Institute, "The Economics of Phasing Out PVC" (December 2003) at p. 11 [Appendix 35].
[179] Affidavit of Judith Schreiber before the Supreme Court of the State of New York in the matter of *Resilient Floor Covering Institute v. New York State Department of Environmental Conservation* (2003) [Appendix 35] [Appendix 34].
[180] *Id.*
[181] Frank Ackerman, et al., Global Development and Environment Institute, "The Economics of Phasing Out PVC" (December 2003) at pp. 1, 11 [Appendix 24] [Appendix 35].

1977, and 85 people in the MGM Grand Hotel Fire in Las Vegas in 1980—almost all of whom, according to the firefighters, were killed by inhalation of toxic fumes and gases, not by heat, flames, or carbon dioxide. A likely culprit is the hydrochloric acid created by the decomposition of PVC used in building materials.[182]

Medical researchers have found elevated levels of long-term respiratory and other health problems in firefighters who put out fires involving large quantities of PVC and have identified hydrochloric acid – acting alone or in combination with carbon monoxide and soot – as the probable cause of the damages.[183]

The hazards of PVC in fires have prompted action or positions by a number of expert organizations. The U.S. Military has adopted specifications to avoid PVC-jacketed cables in aircraft, space vehicles, and enclosures in which offgassing may occur in the event of fire.[184] In the United Kingdom, the Fire Brigades Union ("FBU") has stated, "The FBU is now particularly concerned about the safety of PVC based building materials that are used in the construction and fitting out of buildings when involved in fire."[185]

In addition to hydrochloric acid, CPVC and PVC create dioxins when burned. Dioxins are released into the air in the thick, choking smoke produced when CPVC and PVC pipe burns. Dioxins are also left behind in the ash and debris from a CPVC or PVC fire.[186] While only small amounts of dioxin may be formed as the result of burning CPVC or PVC, dioxin is one of the most toxic substances known to science.[187] Dioxin is a known human carcinogen and has been linked to reproductive disorders, immune suppression, and endometriosis, and other diseases in laboratory animals.[188] In Germany, after a fire in a kindergarten that contained substantial quantities of PVC, scientists measured dioxin levels in indoor soot at concentrations almost 300 times greater than the German government's health standard.[189]

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[182] Frank Ackerman, et al., Global Development and Environment Institute, "The Economics of Phasing Out PVC" (December 2003) at p. 11 [Appendix 35] (citing International Association of Fire Fighters, AFL-CIO, CLC, "Hazardous Materials: Polyvinyl Chloride" (Washington DC, 1995).
[183] Frank Ackerman, et al., Global Development and Environment Institute, "The Economics of Phasing Out PVC" (December 2003) at p. 11 [Appendix 35].
[184] Joe Thorton, Ph.D., Healthy Building Network, "Environmental Impacts of Polyvinyl Chloride Building Materials" (2002) at p. 48 [Appendix 23] [Appendix 28].
[185] *Id.*
[186] *Id.*
[187] *Id.*
[188] *Id.*
[189] *Id.* at p. 49.

ABS pipe also releases toxic gases when burned, including acrolein, hydrogen cyanide and styrene.[190] Like hydrogen chloride, hydrogen cyanide begins forming before combustion and is toxic at low levels.[191] ABS pipe is also significantly more flammable than PVC pipe.[192]

The increased use of CPVC, PVC and ABS pipe may thus result in an increased risk of fire propagation and toxic smoke. This is a potentially significant adverse environmental impact that could affect the health of firefighters, building occupants, and neighbors. Because of this risk, both the 1982 Initial Study and 1997 Initial Study found that increased fire hazard was a potentially significant risk of the expanded approval of these pipes. These findings, themselves, constitute substantial evidence triggering the requirement to review this Project under CEQA.

The fire spread and toxic smoke hazards associated with CPVC, PVC and ABS pipe are particularly important to consider in health care facilities. Occupants in these types of buildings are much more likely to have limited mobility and may not be able to rapidly evacuate during a fire. With such populations, any increase in the speed of the spread of fire may be deadly. Moreover, such occupants are more likely to be exposed to hydrogen chloride and hydrogen cyanide offgassing from heated CPVC, PVC or ABS while awaiting evacuation.

E. Risk of Mechanical Failure

1. Premature Failure from Exposure to Commonly Encountered Materials such as Isopropyl-Alcohol

Substantial evidence exists that CPVC, PVC and ABS pipes may prematurely fail when exposed to commonly encountered materials. Failure of drainage systems may result in unsanitary and unsafe conditions from the release of raw sewage and sewer gas. When drainage pipe breaks, the walls and occupied space of a building are contaminated by sewage. Such sewage contamination would increase the risk of the spread of infectious diseases in health care facilities.

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[190] Richard Gann, et al., NIST Technical Note 1439, U.S. Department of Commerce, "International Study of the Sublethal Effects of Fire Smoke on Survivability and Health (SEFS): Phase I Final Report (August, 2001) at p. 110 [Appendix 36].
[191] Reid Comments (Oct. 18, 2006) [Appendix 58].
[192] KBS, Specifier's Handbook [Appendix 27].

ABS drainage pipe has already experienced extensive failures, leading to numerous consumer lawsuits and class action claims for damages.[193] These failures were widespread and were not limited to one manufacturer, one extruder or even one kind of pipe. These extensive failures were blamed on a combination of factors, including chemical attack from numerous commonly encountered chemicals.

The ABS drainage pipe that remains on the market today continues to be susceptible to failure from chemical attack on the plastic. ABS is subject to attack by most organic solvents. Chemicals such as isopropyl-alcohol, turpentine, drain cleaners, candle wax and vegetable oils all will decompose, dissolve or substantially reduce the lifetime of ABS pipe.[194] Because such materials are commonly flushed down drains in buildings, a fair argument exists that some installations of ABS drainage pipe may prematurely fail as a result of such exposure. Isopropyl-alcohol is particularly likely to be commonly flushed down drains in health care facilities.

The record also contains substantial evidence that CPVC and PVC pipe are also susceptible to premature failure when exposed to numerous substances commonly encountered in building environments, including termiticides, fungicides, WD-40, oil-based caulk, metal pipe thread sealants, metal piping antimicrobial coatins containing amines, and plasticized PVC (electric wire insulation and plastic grommets).[195] A 2003 Canadian report states that certain types of electrical wire and cable jacketing may contain plasticizers that leach out when in contact with PVC pipe and damage the pipe.[196] Nothing in the building code, however, prohibits placement of electrical wiring adjacent to CPVC or PVC pipe. Furthermore, it is common to install electrical wiring adjacent to CPVC or PVC pipe since the same holes are often used for both plumbing and electrical service.[197] Termiticides, fungicides, WD-40 and caulk are also likely to be applied near or around CPVC or PVC pipe under sinks or where they pass through openings in walls.

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[193] See Thompson, ABS and PB Failures in California [Appendix 37].
[194] CraftTech Industries, Inc., Chemical Resistance Guide [Appendix 38].
[195] Reid Comments (Oct. 18, 2006) [Appendix 58]; CMHC, Research Report on Incompatible Building Materials, p. 40 [Appendix 39]; Noveon Chemical Resistance Data [Appendix 40] CraftTech Industries, Inc., Chemical Resistance Guide [Appendix 38]; Dr. Duane Priddy, Plastic Failure Labs, *Why Do CPVC Pipes Fail*, pp. 8-10 [Appendix 42]; Duane Priddy, Plastic Failure Labs, *Why Do PVC and CPVC Pipes Fail* [Appendix 17].
[196] CMHC, Research Report on Incompatible Building Materials, p. 40 [Appendix 39].
[197] Declaration of John Hall [Appendix 43].

A report by Plastic Failures Labs indicates that the failure rate of CPVC pipes and fittings has been increasing.[198] The same report found that more than 80% of the failures have been due to contamination by incompatible substances.[199] The report also found a significant increase in CPVC failures due to the increased use of antimicrobial lined metal pipes. The antibacterial film used in these pipes contains amines which rapidly degrade CPVC pipe.[200]

Because of these risks, the potential for premature failure of CPVC, PVC and ABS pipes must be reviewed and analyzed under CEQA.

2. Increased Risk of Failure due to Earthquakes

OSHPD's proposed approval of CPVC, PVC and ABS pipes in OSHPD 3 health care facilities may also result in a greater number of failures during earthquake events, increasing the likelihood of water contamination and disease outbreak. Because CPVC, PVC and ABS are flexible, they have low beam strength and require two to three times more horizontal and vertical support than rigid piping materials such as cast iron.[201] Because cast iron pipe requires less support, the chances of failures of the support in seismic events are greatly reduced.[202] CPVC, PVC and ABS plastic pipes also use solvent cemented joints that are rigid and any movement could result in separation or breaks.[203] Cast iron pipe, on the other hand, uses a gasketed joint that is flexible allowing it to move in seismic events without the danger of breaks or separations.[204] Such heightened protection from seismic events is particularly critical if healthcare facilities are to remain functional in an earthquake emergency.[205]

The potential increased risk of plumbing pipe failure in healthcare facilities during seismic events is a potentially significant impact that must be evaluated under CEQA.

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[198] Dr. Duane Priddy, Plastic Failure Labs, *Why Do CPVC Pipes Fail*, p. 1 [Appendix 42]; see also Duane Priddy, Plastic Failure Labs, *Why Do PVC and CPVC Pipes Fail* [Appendix 17].
[199] *Id.* at pp. 2, 8-10.
[200] *Id.*
[201] LeVan Declaration, Cast Iron Soil Pipe and Fittings Compared to PVC and ABS DWV Pipe and Fittings in Seismic Events [Appendix 44]
[202] *Id.*
[203] *Id.*
[204] *Id.*
[205] *Id.*; see also Lescure, ABS and CPVC in Hospitals (Oct. 7, 2009) [Appendix 56].

F. Solid Waste Impacts

Substantial evidence exists that the expanded approval of CPVC, PVC and ABS pipe may result in significant, increased solid waste disposal impacts. CPVC, PVC and ABS pipe are likely to create significantly greater quantities of construction waste due to the fact that they are essentially not recyclable, will replace plumbing pipe material that has an almost 100% recycling rate, and will generally need to be replaced more often than currently approved plumbing pipe materials. Additionally, CPVC, PVC and ABS contain contaminants that may create hazards when disposed in landfills or incinerators.

Currently, OSHPD requires buildings under its jurisdiction to use iron, copper or steel drainage pipe, materials with extremely high recycling rates and which are made from recycled metals. Potable water pipe installed in hospitals and health care facilities are overwhelmingly copper, which also has an almost 100% recycling rate and is largely made from recycled material. CPVC, PVC and ABS pipe, in contrast, are only marginally recycled and are made almost entirely from virgin materials. By replacing highly recycled materials with materials that are only marginally recyclable and which contain virtually no recycled content, the Project will result in a significant increase of construction waste.

Recent reports on PVC and CPVC have stated bluntly, "there is no safe way to get rid of it, and no good way to recycle it."[206] The multitudes of additives required to make CPVC or PVC useful make large scale post-consumer recycling nearly impossible for most products and interfere with the recycling of other plastics.[207] Of an estimated 7 billion pounds of PVC thrown away in the U.S., barely one quarter of 1 percent is recycled.[208] Because of its higher chlorine content, CPVC is recycled even less than PVC. The American Association of Postconsumer Plastics Recyclers has declared efforts to recycle PVC and CPVC a failure.[209] It further declared that it would henceforth view PVC and CPVC products as unrecyclable contaminants in the municipal waste stream.[210]

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[206] 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 [Appendix 45]; *see also* PVC Recycling – Solving a Problem or Selling a Poison? [Appendix 55].
[207] Healthy Building Network, PVC in Buildings: Hazards and Alternatives (Jan. 11, 2006) at p. 1 [Appendix 46].
[208] *Id.*
[209] Joe Thorton, Ph.D., Healthy Building Network, "Environmental Impacts of Polyvinyl Chloride Building Materials" (2002) at p. 55 [Appendix 28].
[210] *Id.*

A 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 and PVC posed the most significant problems. The report found that CPVC and PVC are hard to recycle and are considered contaminants by most plastic recycling programs.[211] It also found that CPVC and PVC posed disposal problems because they are the only plastic pipes on the market that contain OSPAR Chemicals for Priority Action (organotins, lead and possibly cadmium).[212]

The same San Francisco report determined that there is only a "small market" for recycled ABS, making it also a plastic of "concern" when evaluated for solid waste impacts.[213] Like CPVC and PVC, ABS has highly hazardous manufacturing intermediates, including carcinogens, and is difficult to recycle.[214] As a result, it is considered only marginally better than PVC environmentally. The Danish EPA has ranked plastic from the most harmful to the least harmful. ABS was rated the second most harmful plastic, just behind PVC.[215] ABS received this rating due to the toxic intermediate compounds used to produce ABS and the difficulty in recycling ABS.[216]

Moreover, because CPVC and PVC are considered contaminants in the plastic recycling waste stream, increased amounts of PVC waste may actually interfere with recycling of other plastics.[217] Efforts to recycle other types of plastics may be ruined by contamination with even small amounts of CPVC or PVC.[218] This makes strict segregation of CPVC and PVC from the plastics waste stream essential. However, such segregation is often difficult to achieve in practice.[219] The potential impact of increased CPVC potable water pipe waste and PVC drainage pipe waste on the recycling of other plastics is a potentially significant impact of the Project that requires further review under CEQA.

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[211] Rossi et al., San Francisco Department of the Environment, Plastic Pipes Alternative Assessment (Feb. 11, 2005) at pp. 3, 15 [Appendix 48].
[212] Rossi, et al., San Francisco Department of the Environment, Plastic Pipe Alternatives Assessment (Feb. 11, 2005) at p. 3 [Appendix 48]. OSPAR stands for "Oslo-Paris Convention for the Protection of the Marine Environment of the North-East Atlantic." Chemicals on the OSPAR list are of high concern for water toxicity.
[213] *Id.* at p. 16.
[214] Jamie Harvie, et al., PVC-Free Pipe Purchasers' Report (Nov. 1, 2002) at p. 2 [Appendix 49].
[215] Michael Belivue, et al., PVC: Bad News Comes In 3's: The Poison Plastic, Health Hazards and the Looming Waste Crisis (December 2004) at p. 48 [Appendix 50].
[216] *Id.*
[217] Rossi, et al., San Francisco Department of the Environment, Plastic Pipe Alternatives Assessment (Feb. 11, 2005) at p. 3, 15 [Appendix 48].
[218] *Id.*
[219] *Id.*

In addition to not being recyclable, CPVC, PVC and ABS pipe also have shorter lifespans than their copper and cast iron counterparts.[220] The estimated lifespan for CPVC is only 20 to 40 years. Copper pipe, on the other hand, has an estimated lifespan of well over 50 years. PVC and ABS drainage pipe also have a much shorter lifespan than cast iron drainage pipe. Cast iron pipe has an estimated lifespan of over 100 years and has been known to last 200 to 400 years.[221] PVC pipe has an estimated lifespan of 20 to 40 years and ABS has an estimated lifespan of 50 years. As a result, on average CPVC, PVC and ABS plastic pipe will need to be replaced twice as often as their copper pipes and cast iron pipe counterparts, resulting in much greater waste disposal impacts.

The unique hazards associated with the ultimate disposal of CPVC, PVC and ABS plastic pipes must also be evaluated. CPVC, PVC and ABS present significant disposal risks when disposed in landfills or burned in waste incinerators. First, the persistence of CPVC, PVC and ABS, which typically lasts for centuries in a landfill, presents a significant burden in terms of the demand for landfill space.[222] Second, the release of additives in the plastics may contaminate groundwater.[223] Third, combustion of CPVC, PVC and ABS in incinerators or landfill fires may release hazardous substances into the air, including dioxins, metals and toxic gases.[224] CPVC and PVC burning in landfill fires may be the largest source of dioxin releases to the environment.[225]

The evidence in the record demonstrates that the current trend is to reduce and replace CPVC and PVC use, not to recycle CPVC and PVC waste.[226] The 2005

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[220] See DEIR Reid Comments (Oct. 18, 2006) [Appendix 58].
[221] Cast Iron Soil Pipe Institute, FAQ [Appendix 16].
[222] See Joe Thorton, Ph.D., Healthy Building Network, "Environmental Impacts of Polyvinyl Chloride Building Materials" (2002) at p. 56 [Appendix 28]; see also Rossi, et al., San Francisco Department of the Environment, Plastic Pipe Alternatives Assessment (Feb. 11, 2005) [Appendix 48].
[223] *Id.*
[224] *Id.*
[225] Healthy Building Network, PVC in Buildings: Hazards and Alternatives (Jan. 11, 2006) at p. 1 [Appendix 46]; Joe Thornton, 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 trash stream by weight.") [Appendix 28].
[226] Ackerman, et al., Global Development and Environment Institute, "The Economics of Phasing Out PVC" (December 2003) [Appendix 35] at pp. 16, 40-45; Dioxin, PVC, and Health Care Institutions and Mark Rossi, PVC & Healthcare [Appendices 53 & 54 (calling for reduction of PVC in

San Francisco Department of the Environment report concludes by recommending that CPVC and PVC be "avoided" due to their negative impact on solid waste disposal.[227] A 2003 report by the Global Development and Environment Institute has documented numerous efforts worldwide to phase out the use of PVC, including CPVC.[228] In California, the cities of Oakland, San Francisco and Berkeley have adopted resolutions to eliminate dioxin, including PVC use reduction as a broader strategy.[229] A number of U.S. health care institutions and professional societies have adopted resolutions encouraging the elimination of PVC, CPVC and other products that are important contributors to dioxin formation.[230] Denmark, Spain, Germany, Norway, Luxembourg and Sweden have all adopted policies encouraging the phasing out of PVC use, including PVC and CPVC piping.[231] Numerous water bottling companies in Europe are also phasing out the use of CPVC and PVC.[232] OSHPD's proposed expansion of CPVC and PVC use in California runs directly counter to this national and international public health trend.

Solid waste disposal is a potentially significant adverse environmental impact of the proposed expanded approval of CPVC potable water pipe and PVC and ABS drainage pipe. This significant impact triggers CEQA and must be evaluated in an EIR.

V. THE PROPOSAL TO REMOVE THE RESTRICTIONS ON CPVC, PVC AND ABS PIPE FAILS TO MEET AT LEAST TWO OF THE NINE-POINT CRITERIA

Before the Commission may adopt a proposed building standard, it must be satisfied that the proposing agency has adequately justified adoption under the nine-point criteria analysis of Health and Safety Code section 18930. Section 18930 requires findings under the nine-point criteria to be supported by substantial

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health care facilities, including plastic plumbing pipes.); Michael Belivue, et al., PVC: Bad News Comes In 3's: The Poison Plastic, Health Hazards and the Looming Waste Crisis (December 2004) at p. 48 [Appendix 50].

[227] Joseph Zicherman, Plastic Pipe and Fire Safety (Sept. 5, 2000) Appendix 22 at, pp. 4, 17; *see also* Michael Belivue, et al., PVC: Bad News Comes In 3's: The Poison Plastic, Health Hazards and the Looming Waste Crisis (December 2004) [Appendix 50] (documenting PVC waste crisis).

[228] Ackerman et al., Global Development and Environment Institute, "The Economics of Phasing Out PVC" (December 2003) at pp. 16, 40-45 [Appendix 35].

[229] *Id.* at p. 40.

[230] *Id.*

[231] *Id.* at pp. 41-42.

[232] *Id.* at p. 42.

evidence. If the Commission finds a factual finding to be arbitrary or capricious or to lack substantial evidence, it shall return the standard back to the proposing agency for reexamination.[233] The nine-point criteria required under Section 18930 to justify proposed building standards are as follows:

(1) The proposed building standards do not conflict with, overlap, or duplicate other building standards.

(2) The proposed building standard is within the parameters established by enabling legislation and is not expressly within the exclusive jurisdiction of another agency.

(3) The public interest requires the adoption of the building standards.

(4) The proposed building standard is not unreasonable, arbitrary, unfair, or capricious, in whole or in part.

(5) The cost to the public is reasonable, based on the overall benefit to be derived from the building standards.

(6) The proposed building standard is not unnecessarily ambiguous or vague, in whole or in part.

(7) The applicable national specifications, published standards, and model codes have been incorporated therein as provided in this part, where appropriate.

(A) If a national specification, published standard, or model code does not adequately address the goals of the state agency, a statement defining the inadequacy shall accompany the proposed building standard when submitted to the commission.

(B) If there is no national specification, published standard, or model code that is relevant to the proposed building standard, the state agency shall prepare a statement informing the commission and submit that statement with the proposed building standard.

(8) The format of the proposed building standards is consistent with that adopted by the commission.

[233] Health & Saf. Code § 18930, subd. (d) (1).

(9) The proposed building standard, if it promotes fire and panic safety, as determined by the State Fire Marshal, has the written approval of the State Fire Marshal.

In the case at hand, there is substantial evidence that the proposed approval of CPVC potable water pipe and PVC and ABS drainage pipe, without first preparing an EIR, would be contrary to the public interest (criteria 3) and would be unreasonable, arbitrary and unfair (criteria 4). Furthermore, the record lacks substantial evidence to support a contrary finding. Accordingly, OSHPD's proposed approval of CPVC, PVC and ABS pipe lacks justification under at least two elements of the nine-point criteria.

A. Expanded Approval of CPVC, PVC and ABS Pipe without First Complying with CEQA Would Not Be in the Public Interest

Removal of the current prohibition on the use of CPVC, PVC and ABS pipe in OSHPD-regulated buildings without first complying with CEQA would not meet the "public interest" element of the nine-point criteria. Health and Safety Code section 18930, subdivision (3), requires agencies to determine if the "public interest requires the adoption of the building standards." In the case at hand, OSHPD's proposed approval of CPVC, PVC and ABS pipe without first evaluating the potential impacts of the proposed regulations under CEQA would violate state law. Approval of building standards in violation of state law would be, in itself, contrary to the public interest. Removal of the current restrictions on the use of CPVC, PVC and ABS pipe in OSHPD-regulated buildings would also be contrary to the public interest due to the numerous potential significant environmental, health and safety impacts associated with these products that could adversely affect the public.

As discussed in detail above, it is well settled that the Commission and OSHPD must comply with CEQA prior to adopting new building standards that may have a significant impact on the public health, safety or the environment. Furthermore, it is well settled that compliance with CEQA is in the public interest.[234] CEQA "protects not only the environment but also informed self-government."[235] CEQA informs the public and its responsible officials of the

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[234] See *Kane v. Redevelopment Agency of City of Hidden Hills* (1986) 179 Cal.App.3d 899, 905; *People By and Through Dept. of Public Works v. Bosio* (1975) 47 Cal.App.3d 495, 526; see also Pub. Resources Code § 21000.

[235] *Communities for a Better Environment v. Calif. Resources Agency, supra,* 103 Cal.App.4th at p. 108.

environmental consequences of their decisions before they are made, ensuring consideration of alternatives and requiring imposition of reasonable mitigation measures.[236] Failure to comply with CEQA prior to the adoption of this proposed regulatory change would thus be contrary to the public interest in ensuring informed self-government and in protecting public health, safety and the environment.

Furthermore, substantial evidence exists that approval may result in significant environmental, health, and safety impacts that could adversely affect the public. As detailed above, the expanded approval of CPVC, PVC and ABS pipe may result in: (1) increased worker exposure to toxic solvents; (2) drinking water and receiving water contamination; (3) increased air pollution; (4) increased fire hazards; (5) premature pipe failure; and (6) solid waste impacts. Approval of CPVC, PVC and ABS pipe without full disclosure, evaluation and mitigation of these impacts would not be in the public interest and thus may not be justified under the nine-point criteria.

B. Approval of CPVC, PVC and ABS Pipe without First Preparing an EIR Would Be Unreasonable, Arbitrary and Unfair because It Would Violate State Law

Health and Safety Code section 18930, subdivision (4), requires proposing agencies to justify their proposed building standards on the grounds that the proposed standard "is not unreasonable, arbitrary, unfair, or capricious, in whole or in part." In the case at hand, it is manifestly unreasonable, arbitrary and unfair to propose the adoption of building standards that violate state law. As discussed above, authorizing the expanded approval of CPVC, PVC and ABS pipe without first preparing an EIR or otherwise complying with CEQA would violate state law. Since it would be unreasonable, arbitrary and unfair to approve building standards in a manner contrary to law, such approval may not be justified under the nine-point criteria.

Furthermore, the proposed approval of CPVC, PVC and ABS pipe is unfair and unreasonable due to the substantial evidence of potential significant impacts associated with these materials. Approval of a building material without first requiring full disclosure, evaluation and mitigation of its potential impacts is unfair to the public. Moreover, a proposal by an agency to have a potentially hazardous building material approved without such disclosure, evaluation and mitigation is unreasonable.

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[236] *Id.*; Pub. Resources Code §§ 21063 & 21100.

VI. CONCLUSION

The California State Pipe Trades Council respectfully requests that the Commission disapprove these proposed amendments or, in the alternative, require further study of the proposals prior to adoption. Substantial evidence exists that OSHPD's proposed approval of CPVC potable water pipe and PVC and ABS drainage pipe may result in significant health, safety and environmental impacts. As a result, state law requires compliance with CEQA and the preparation of an EIR prior to adoption of these proposed regulations. To date, OSHPD has not taken any steps to comply with the requirements of CEQA. Not even an Initial Study has been prepared on these proposed regulations. Adoption of these proposed regulations prior to compliance with CEQA would violate state law.

Furthermore, adoption of these regulations is not justified under the California Building Standards Law. The California Building Standards Law requires that building standards be justified in terms of the nine-point criteria listed in Health and Safety Code section 18930. Among these criteria are the requirements that adoption of the proposed standards be in the "public interest" and not be "unreasonable, arbitrary, unfair, or capricious." Because the potential environmental, health and safety impacts of CPVC, PVC and ABS pipe has not been sufficiently evaluated or mitigated, approval of the proposed OSHPD amendments would not be in the public interest. Moreover, the proposed regulations removing OSHPD's restrictions on the use of CPVC, PVC and ABS pipe would be unreasonable, unfair and contrary to the public interest since they would violate the statutory requirements of CEQA.

Sincerely,

Thomas A. Enslow

TAE:
Attachments