ADOPTION OF A REGULATION FOR THE HEXAVALENT CHROMIUM MAXIMUM CONTAMINANT LEVEL

DRAFT ENVIRONMENTAL IMPACT REPORT

SCH # 2021110099

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CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

State Water Resources Control Board

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ACRONYMS, OTHER ABBREVIATIONS, AND DEFINITIONS

Acronym	Definition
AB	Assembly Bill
AEA	Atomic Energy Act
BAT	best available technologies
BLM	Bureau of Land Management
CalAm	Cal American Water Company
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CAL OES	California Office of Emergency Services
Cal Water	California Water Service
CBC	California Building Standards Code
Cal Code Regs	California Code of Regulations
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CDPH	California Department of Public Health
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CO2e	Carbon Dioxide Equivalents
CRHR	California Register of Historical Resources
CUPA	Certified Unified Program Agency
CVWD	Coachella Valley Water District
CWS	Community Water System

dB	Decibel
dBA	A-weighted sound levels
DLR	detection limit for purposes of reporting
DOF	California Department of Finance
DTSC	Department of Toxic Substances Control
DWSRF	Drinking Water State Revolving Fund
EIR	Environmental Impact Report
ESA	Endangered Species Act
ESHA	Environmentally Sensitive Habitat Areas
FEMA	Federal Emergency Management Agency
GAMA	Groundwater Ambient Monitoring and Assessment Program
GHG	Greenhouse gasses
GIS	Geographic Information System
gpm	Gallons per minute
GSA	Groundwater Sustainability Agency
HCP	Habitat Conservation Plan
HWCA	The Hazardous Waste Control Act
ISOR	Initial Statement of Reasons
IX	Ion Exchange
LLRW	Low–Level Radioactive Waste
LRA	Local Responsibility Area
LZ	Lighting zone
MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Level
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter

µg/L	Micrograms per liter
µg/m3	Micrograms per cubic meter
MRZs	Mineral Resource Zones
MSA	Magnuson-Stevens Conservation and Management Act
Mw	Moment Magnitude Scale
MWh	Megawatts per hour
NAHC	Native American Heritage Commission
NEHR	National Earthquake Hazards Reduction Act
NEHRP	National Earthquake Hazards Reduction Program
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRC	Nuclear Regulatory Commission
NTNCWS	Nontransient Noncommunity Water System
OEHHA	Office of Environmental Health Hazard Assessment
PHG	Public health goal
PM	particulate matter
POU	Point-of-use device
Ppm	Parts per million
RCF	Reduction-Coagulation/ Filtration
RCRA	Resource Conservation and Recovery Act
RO	Reverse Osmosis
SAFER	Safe and Affordable Funding for Equity and Resiliency
SB	Senate bill
SBA	Strong-base anion exchange

SBFFP	State Board of Forestry and Fire Protection
SCWD	Soquel Creek Water District
SGMA	Sustainable Groundwater Management Act
SRA	State Responsibility Area
SRIA	Standardized Regulatory Impact Assessment
State Water Board	California State Water Resources Control Board
TCLP	Toxicity Characteristic Leaching Procedure
TNCWS	Transient Noncommunity Water System
TSDF	Hazardous Waste Treatment, Storage, or Disposal Facility
USACE	Unites States Army Corps of Engineers
U.S.C.	United States Code
USDA	United States Department of Agriculture
U.S. EPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WBA	Weak-base anion exchange

SUMMARY

INTRODUCTION

In 2001, the California Legislature required the Department of Health Services to develop a primary drinking water standard for hexavalent chromium by 2003. Health and Safety Code section 116365, subdivisions (a) and (b), requires the State Water Resources Control Board (State Water Board or Board) to adopt primary drinking water standards at a level as close as feasible to the corresponding public health goal (PHG), placing primary emphasis on the protection of public health, and avoiding, to the extent technologically and economically feasible, any significant risk to public health. In 2011, the Office of Environmental Health Hazard Assessment (OEHHA) published the hexavalent chromium PHG at 0.02 micrograms per liter (µg/L).

The State Water Board is proposing a primary drinking water standard for hexavalent chromium (Proposed Regulations). The Proposed Regulations include a maximum contaminant level (MCL) of 10 µg/L or 0.010 milligrams per liter (mg/L) and an associated detection limit for purposes of reporting (DLR) of 0.05 ug/L or 0.00005 mg/L for all public water systems.[1]

The Proposed Regulations include a compliance schedule based on public water system size:

- Systems with more than 10,000 service connections would be required to comply with the MCL within two years of rule adoption.
- Systems with 1,000 to 10,000 service connections would be required to comply with the MCL within three years of rule adoption.
- Systems with fewer than 1,000 service connections would be required to comply with the MCL within four years of rule adoption.

Pursuant to Health and Safety Code section 116370, the State Water Board is proposing findings of reduction/coagulation/filtration, ion exchange, and reverse osmosis as best available technologies (BAT) for the removal of hexavalent chromium from drinking water to concentrations at or below the proposed MCL. The State Water Board prepared this draft Environmental Impact Report (EIR) to comply with the requirements of the California Environmental Protection Quality Act (CEQA). (Pub. Resources Code, § 21000 et seq.) and the CEQA Guidelines. (Cal. Code Regs., tit. 14, § 15000 et seq.) and to assess potential environmental impacts that may result from the State Water Board's adoption of, and public water systems' compliance with, the Proposed Regulations. The project under CEQA consists of the Proposed Regulations.

The State Water Board preferred alternative is a primary drinking water standard with a MCL for hexavalent chromium of 10 µg/L or 0.01 milligrams per liter (mg/L).

[1] A public water system is defined as "a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year…" (Health & Saf. Code, § 116275, subd. (h).) Note that the Proposed Regulations allow for an interim DLR of 0.1 µg/L.

PROJECT OBJECTIVE

The project objectives include the following:

- Avoid significant risks to public health from drinking water supplied by public water systems in California.
- Reduce cancer and non-cancer public health risks from human consumption of drinking water contaminated with hexavalent chromium.
- Comply with the statutory mandate to adopt a primary drinking water standard for hexavalent chromium, as required by Health and Safety Code section 116365.5.

The project will meet these objectives by adopting regulations that:

- Set a MCL for hexavalent chromium as close to the PHG set by the OEHHA as possible, after taking into consideration both technological and economic feasibility.
- Set a DLR that laboratories must achieve when analyzing for hexavalent chromium in drinking water.
- Identify BAT for treatment.
- Identify language to be used by public water systems for public notices and consumer confidence reports when there have been exceedances of the MCL.

SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES

This first-tier, programmatic EIR identifies the potential direct and indirect impacts of the Proposed Regulations, which are related to public water systems' compliance with a primary drinking water standard for hexavalent chromium. Public Resources Code section 21159 requires the State Water Board, when adopting a regulation requiring the installation of pollution control equipment, or a performance standard or treatment requirement, to consider the reasonably foreseeable methods of compliance and analyze the reasonably foreseeable impacts of the methods of compliance. In addition, the State Water Board must consider reasonably foreseeable feasible mitigation measures, and reasonably foreseeable alternative means of compliance.

Reasonably foreseeable methods of compliance include installation and operation of treatment. The Proposed Regulations identify as BAT three methods that can treat drinking water to concentrations of hexavalent chromium at or below the proposed MCL: Reverse Osmosis (RO); Ion Exchange (IX) (Both Strong and Weak base); and Reduction Coagulation Filtration (RCF). The impacts related to the implementation of treatment are similar for each BAT and relate primarily to the installation and operation of the treatment works. Potential impacts will, in part, depend on where and how individual treatment projects are implemented.

Project-level impacts will vary depending on the size, location, and type of treatment installed, and the environmental resources in and around the project site. It is possible that at a specific site with particularly sensitive environmental resources, the installation of treatment could cause potentially significant impacts as compared to baseline conditions. Although it is anticipated that treatment will be installed within areas that are already disturbed, such as within the footprint of existing well sites, distribution pipes, and treatment works, and that any potentially significant impacts could be mitigated, many of the potential impacts are identified

as being potentially significant and unavoidable due to the fact that the State Water Board cannot control the location of the projects, the type of mitigation, or whether mitigation will be required.

This EIR identifies the following as reasonably foreseeable alternative means of compliance: drilling a new well, switching to surface water, blending sources, treatment with stannous chloride, and purchasing water from, or consolidating with, a nearby water system. The impacts from alternative means of compliance are likely to vary depending on the individual project. Because it would be speculative to assume the type, size, and location of potential compliance projects, as well as the type of resources impacted, this EIR cannot quantify the impacts associated with the implementation of any specific project, but does recognize the potential for such impacts, and identifies potential mitigation that could be implemented at site-specific projects to avoid such impacts.

Potential environmental impacts are related to the reasonably foreseeable means of compliance and alternative means of compliance with the project and are summarized in Table ES1-1. Refer to Chapters 4 through 23 in this EIR for a complete discussion of each impact.

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact	Proposed Mitigation Measure(s)	Level of Significance after Mitigation
Chapter 4 - Aesthetics		
Impact 4-1: Compliance with the Proposed Regulations may have a substantial adverse effect on a scenic vista.	**Mitigation Measures 4-1:** **a)** To the extent possible, install equipment and infrastructure improvements within or adjacent to existing facility boundaries. b) Where new structures or enclosures are necessary, avoid exceeding the height of existing buildings and structures in the vicinity sky lining of structures or electrical lines. c) Install privacy fencing and/or vegetative screening. d) Locate and design structures and roads to blend with existing visual environment, vegetation, and facilities. e) Paint structures colors that blend in with the surrounding environment. f) To the extent possible, avoid removing trees, rock outcrops, or other visually pleasing landscape elements. g) After construction restore the environment to its preconstruction appearance.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 4-2: Compliance with the Proposed Regulations may substantially damage a scenic resource.	See Mitigation Measures 4-1	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 4-3: Compliance with the Proposed Regulations may substantially degrade the existing visual character or quality of public views of a site and its surroundings, or conflict with applicable zoning and other regulations governing scenic quality.	See Mitigation Measures 4-1	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact 4-4: Compliance with the Proposed Regulations may create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	**Mitigation Measures 4-4:** a) Follow local lighting ordinances. b) Schedule hours of operation to reduce light and glare. c) Design outdoor lighting to aim downward onto the project site and not glare skyward or onto adjacent parcels.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Chapter 5 – Agricultural and Forest Resources		
Impact 5-1: Compliance with the Proposed Regulations could convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to nonagricultural use.	**Mitigation Measures 5-1:** a) To the extent possible, avoid siting treatment operations or other infrastructure on land designated as Prime or Unique Farmland, Farmland of Statewide Importance, or Williamson Act contract lands. b) Secure appropriate land use permits from local jurisdictions prior to modification of existing treatment operations or construction of new treatment operations or other infrastructure at public water systems. c) To the extent feasible, plan and construct treatment works or other infrastructure consistent with general plans, appropriate agriculture and forest lands preservation programs, and agriculture and forest lands conservation easements.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 5-2: Compliance with the Proposed Regulations could conflict with existing zoning for agricultural use or a Williamson Act contract.	See Mitigation Measures 5-1	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 5-4: Compliance with the Proposed Regulations could result in loss of forest	**Mitigation Measure 5-4:**	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

land or conversion of forest land to non-forest use.	a) To the extent possible, avoid siting treatment operations or other infrastructure on land zoned as forest land or timberland.	significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Chapter 6 – Air Quality		
Impact 6-1: Compliance with Proposed Regulations could conflict with or obstruct implementation of the applicable air quality plan.	**Mitigation Measures 6-1:** a) Apply for, secure, and comply with all appropriate air quality permits for project construction from the local agency with air quality jurisdiction, and from other applicable agencies, if appropriate, prior to construction mobilization. b) Comply with the Clean Air Act and the California Clean Air Act (e.g., New Source Review and Best Available Control Technology criteria, if applicable). c) If located in PM non-attainment areas, prepare, and comply with, a dust abatement plan that addresses emissions of fugitive dust during construction and operation of the project. d) Comply with the Off-Road Regulation for in-use off-road vehicles to meet diesel particulate matter fleet averaging standards. e) Use diesel particulate matter filters to further reduce tailpipe emissions from operation of diesel-fueled equipment during construction. Cost effective mitigation options for reduction of PM emissions from diesel fueled engines are available and in use at construction and demolition operations. f) Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes, as required by the state airborne toxics control measure. (Cal. Code Regs., tit. 13, § 2485.) g) Provide clear signage that posts requirement for workers to reduce idling time at entrances to the site.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 6-2: Compliance with Proposed Regulations could violate an air quality standard	See Mitigation Measures 6-1	Because future compliance projects are currently unknown and the authority to mitigate impacts

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

or contribute substantially to an existing or projected air quality violation.		may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 6-3: Compliance with Proposed Regulations could expose sensitive receptors to substantial pollutant concentrations.	See Mitigation Measures 6-1	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 6-4: Compliance with Proposed Regulations could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).	See Mitigation Measures 6-1	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Chapter 7 – Biological Resources		
Impact 7-1: Compliance with the Proposed Regulations by public water systems could have a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.	**Mitigation Measures 7-1:** a) Identify special status species protected by federal, state, and local laws, regulations, policies, and ordinances that may be within the area where the site-specific compliance project would be located by querying the CNDDB and conducting a project site survey. If special status species or their habitats have been identified in the project area during biological inventory of the compliance project site by a qualified biologist prior to construction, comply with applicable federal and state endangered species acts and regulations, and any local requirements, such as tree preservation policies. Ensure that important fish or wildlife movement corridors or nursery sites are not impeded by project activities.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

	b) When special status species have been identified in the project area, conduct pre-construction surveys prior to the commencement of construction to identify whether the species are currently inhabiting the project site. If species are identified, species specific avoidance protection measures are required. c) Environmental Awareness Training: Prior to the commencement of site grading, the environmental monitor shall conduct an environmental awareness training for all construction personnel. The environmental awareness training shall include discussions of the special-status species and nesting birds that may occur in the project area. Topics of discussion could include descriptions of the species' habitats, general provisions and protections afforded by CEQA and the federal and state ESAs, measures implemented to protect special-status species, review of the project boundaries and special conditions, the environmental monitor's role in project activities, lines of communication, and procedures to be implemented in the event a special-status species is observed in the work area. d) Designate environmentally sensitive areas (ESA) and erect temporary construction fencing and signs to protect the ESA from vehicle and foot traffic. e) Limit construction to a seasonal window outside of the time of potential impact. For example, construct the project outside of nesting bird season (March 1st to September 30th). f) Retain a qualified biologist to act as an environmental monitor to ensure compliance with biological resources mitigation measures. Monitoring could be conducted full time during the initial disturbances (site clearing) and be reduced to twice a week following initial disturbances or a frequency and duration determined	

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

	by the water system in consultation with the USFWS, the CDFW, and the lead agency, if not the water system. The monitor's responsibilities could include: a. ensuring that procedures for verifying compliance with environmental mitigations are implemented; b. establishing lines of communication and reporting methods; c. preparing compliance reporting; d. conducting construction crew training regarding environmentally sensitive areas and protected species; e. facilitating the avoidance of special status plants and habitats; f. maintaining authority to stop work; and g. outlining actions to be taken in the event of non-compliance. g) Implement mitigation banking consisting of the restoration or creation of habitat undertaken expressly for the purpose of compensating for unavoidable habitat losses (species and wetlands) in advance of development actions. The USACE has published guidance for determining compensatory mitigation ratios as required for processing of the Department of Army permits under Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, and Section 103 of the Marine Protection, Research, and Sanctuaries Act. Mitigation ratios and credits requirements are also established by the CDFW and the USFWS, to compensate for loss of habitat of federal and state listed species. h) Prepare and implement, or comply with existing, habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.	

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

	i) Prohibit construction activities during the rainy season with requirements for seasonal weatherization and implementation of erosion prevention practices. j) Comply with all applicable limits on water diversion and use, including but not limited to Fish and Game Code section 5937 and water right permitting, water conservation, and endangered species requirements. k) Prepare a site design and development plan that avoids or minimizes disturbance of habitat and wildlife resources, as well as prevents stormwater discharge that could contribute to sedimentation and degradation of local waterways. Depending on disturbance size and location, a National Pollutant Discharge Elimination System construction permit may be required from the State Water Board.	
Impact 7-2: Compliance with the Proposed Regulations by public water systems could have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or the USFWS.	See Mitigation Measures 7-1.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 7-3: Compliance with the Proposed Regulations by public water systems could have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	See Mitigation Measures 7-1 and 13-3.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 7-4: Compliance with the Proposed Regulations by public water systems may have the potential to interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native	See Mitigation Measures 7-1.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

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resident or migratory wildlife corridors or impede the use native wildlife nursery sites.		
Impact 7-5: Compliance with the Proposed Regulations by public water systems may have the potential to conflict with any local policies or ordinances protecting biological resources such as a tree preservation policy or ordinance	See Mitigation Measures 7-1.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 7-6: Compliance with the Proposed Regulations by public water systems may have the potential to conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan.	See Mitigation Measures 7-1.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Chapter 8 – Cultural Resources		
Impact 8-1: Compliance with Proposed Regulations could cause a substantial adverse change in the significance of a historical resource.	**Mitigation Measures 8-1** a) Follow the Secretary of the Interior's "Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings" or the Secretary of the Interior's "Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings" (1995), Weeks and Grimmer (Cal. Code Regs., tit. 14, § 15064.5, subd. (b)(3).) (identifying that generally projects following these standards shall be considered as mitigated to level less than significant impact). b) Require onsite worker training to alert workers to the possibility of encountering archaeological resources and human remains during construction activities and teach them the appropriate laws and procedures to follow in the event of a discovery. c) If archaeological resources are discovered during construction, cease all work in the vicinity of the find and have an archaeologist meeting the Secretary of the	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

	Interior's Professional Qualification Standards evaluate the find. Construction work may continue other parts of the project site while archaeological mitigation takes place. d) Make provisions for unique archaeological resources found on the site, including contingency funding and a time allotment sufficient to allow recovering an archaeological sample or to employ avoidance measures. e) Preserve resources in place or leave in an undisturbed state by planning construction to avoid archaeological sites; deeding archaeological sites into permanent conservation easements; capping or covering archaeological sites with a layer of soil before building on the sites; and planning parks, greenspace, or other open space to incorporate archaeological sites (See Pub. Resources Code, § 21083.2, subd. (b).) f) Prepare site development and grading plans that avoid disturbance of known cultural sites and/or documented sensitive areas and take appropriate measures to protect sensitive resources. g) Include mitigation agreed upon during consultation with the Native American Tribes pursuant to AB 52 (see Tribal Cultural Resources, Chapter 21). h) Retain a qualified archaeologist and/or Native American representative to monitor construction activities, particularly grading and trenching in or near known archaeological sites. If artifacts are observed during construction, require that construction be halted until a qualified archaeologist has been consulted. Also see **Mitigation Measure 21-1**	
Impact 8-2: Compliance with Proposed Regulations could cause a substantial adverse change in the significance of an archaeological resource.	See Mitigation Measures 8-1 and 21-1	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

		determined to be potentially significant and unavoidable.
Impact 8-3: Compliance with Proposed Regulations could potentially disturb human remains, including those interred outside of formal cemeteries.	**Mitigation measure 8-3:** Public water systems shall comply with Health and Safety Code section 7050.5 and Public Resources Code section 5097.98 or Title 25 U.S.C. chapter 32 sections 3001 to 3013 on federally owned land, as appropriate. Also see **Mitigation Measures 8-1 and 21-1** to reduce impacts to human remains.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Chapter 9 - Energy		
Impact 9-1: Compliance with Proposed Regulations could result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	**Mitigation Measures 9-1:** a) Design systems with energy efficient measures. b) Install energy efficient equipment for all treatment processes. c) Maintain equipment to ensure that it runs efficiently. d) Operate systems during off peak demand hours. e) Implement water conservation measures to reduce the unnecessary use of water. f) Use energy efficient technologies and practices during construction to reduce the likelihood of inefficient energy use. g) Participate in local or regional electrical demand management programs.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Chapter 10 – Geology and Soils		
Impact 10-1: Compliance with the Proposed Regulations by public water systems may directly or indirectly cause potential adverse effects, including risk of loss, injury or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, including liquefaction; or landslides.	**Mitigation Measures 10-1:** a) Water system components shall be sited, designed, and constructed in compliance with state and local seismic design regulations. b) Avoid building on or near surface faults. The most appropriate measure for potential fault rupture hazards is avoidance (e.g., building setbacks).	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

	c) Water system components shall be constructed to withstand the effects of ground shaking, liquefaction, and lateral spreading. d) Public water systems shall implement an earthquake safety and response program. e) In the event of a large earthquake event (i.e., magnitude 5.0 or greater within 50 miles of the project site), all structures and features, such as pipelines, shall be inspected for damage, as soon as possible. Any damaged structures or features shall be shut down until they have been evaluated and/or repaired.	
Impact 10-2: Compliance with the Proposed Regulations by public water systems may result in substantial soil erosion or loss of topsoil.	**Mitigation Measures 10-2:** a) Projects that disturb more than an acre, shall enroll under the State Water Board's Construction Stormwater Permit program. Prepare and implement Stormwater Pollution Prevention Plan. b) Schedule construction work for the dry season. c) Limit development to portions of a site while leaving the remaining land in a natural undisturbed condition. d) Limit clearing and grading of native vegetation at a site to the minimum amount needed. e) Grade only areas that are going to be immediately worked on. Leave natural vegetation long as possible. f) Promote use of native vegetation and revegetation: Existing native vegetation requires the least care of any planting materials, requires little or no water or fertilizer, and may grow on difficult sites. g) Implement best management practices such as covering stockpile materials, installation of silt fences or fiber rolls to reduce or eliminate discharge of soil, surface water runoff and pollutants during excavation, grading, trenching, repaving, or ground-disturbing activities. h) After a large storm or rainfall event (i.e., ≥ 1" in 24 hours), inspect all project structures and features for	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

	damage as soon as possible. Any damaged structures or features shall be closed to staff and the public until evaluated and/or repaired.	
Impact 10-3: Compliance with the Proposed Regulations by public water systems may lead to siting site-specific compliance projects to be located on a geologic unit or soil that is unstable or that would become unstable because of the project and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.	**Mitigation Measure 10-3:** a) A site-specific geotechnical engineering report shall be prepared by licensed professional to identify and evaluate weak and less competent soil conditions and recommend site-specific mitigation. The geotechnical professional recommendations may include: 1. Siting improvements away from sensitive soils. 2. Soil amendment to improve soil strength and cohesion properties. 3. Removal of unstable soil. 4. Allowable slope gradients to reduce landslide and lateral spread potential. 5. Site grading and drainage recommendations. 6. Grading should be conducted in accordance with relevant state and local regulations and recommendations of a geotechnical report.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 10-4: Compliance with the Proposed Regulations by public water systems may cause compliance projects to be located on expansive soil, and creating substantial risk to life or property.	See Mitigation Measures 10-3	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 10-5: Compliance with the Proposed Regulations by public water systems may lead to siting site-specific compliance projects, on soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.	**Mitigation Measures 10-5:** a) A site-specific soil evaluation shall be prepared by licensed professionals to evaluate specific soil conditions and recommend appropriate options for wastewater disposal. b) If soils evaluation indicates that on-site disposal is not appropriate, select an alternative that does not rely on on-site disposal.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 10-6: Compliance with the Proposed Regulations by public water systems may directly	**Mitigation Measures 10-6:**	Because future compliance projects are currently unknown and the authority to mitigate impacts

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

or indirectly destroy a unique paleontological resource or site, or geologic feature.	a) During the project planning phase, consult a qualified paleontologist to determine whether paleontological resources would likely be disturbed in a project area based on the sedimentary context of the area and a records search for past paleontological finds in the area. Rock units are described as having (a) high, (b) undetermined, (c) low, or (d) no potential for containing significant paleontological resources. In areas determined to have high or undetermined potential for significant paleontological resources, an adequate monitoring program for mitigating the impact of development must include: 1. An intensive field survey and surface salvage prior to earth moving, if applicable. 2. Monitoring by a qualified paleontological resource monitor of excavations in previously undisturbed rock units. 3. Salvage of unearthed fossil remains and/or traces (e. g., tracks, trails, burrows, etc.). 4. Screen washing to recover small specimens, if applicable. 5. Preparation of salvaged fossils to a point of being ready for curation (i.e., removal of enclosing matrix, stabilization and repair of specimens, and construction of reinforced support cradles where appropriate). 6. Identification, cataloging, curation, and provision for repository storage of prepared fossil specimens. 7. A final report of the finds and their significance. b) If the site contains areas of high potential for significant paleontological resources or unique geologic features and avoidance is possible, prepare site development and grading plans that avoid	may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

	disturbance of known paleontological and unique geologic features. c) If paleontological resources are accidentally discovered during project construction, construction should cease in the vicinity of the find and a qualified paleontologist shall be retained to assess the find and recommend appropriate treatment measures such as those listed above.	
Chapter 11 – Greenhouse Gas Emissions		
Impact 11-1: Compliance with Proposed Regulations by public water systems could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	**Mitigation Measures 11-1:** a) Implement the GHG mitigation measures listed in the most recent air district guidance documents, as appropriate for the project site and conditions. b) Use alternative fuels for construction equipment. c) Use electric and hybrid construction equipment. d) Limit construction equipment idling beyond regulatory requirements. e) Use local building materials for at least 10 percent of total materials. f) Recycle or reuse at least 50 percent of construction waste or demolition materials. g) Ensure that vehicle tire pressure is maintained to manufacturer specifications. h) Require trucks and trailers to be retrofitted with the best available "SmartWay Transport" and/or CARB-approved technology to reduce aerodynamic drag and rolling resistance. i) Use blended cements with limestone, fly ash, natural pozzolan, and/or slag added to replace some of the clinker in the production of Portland cement. j) Use electric engines, where feasible, to eliminate on-site GHG emissions from stationary engines.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

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	k) Purchase GHG offset credits that were previously captured from another source and available for purchase in an approved carbon registry.	
Impact 11-2: Compliance with Proposed Regulations by public water systems could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	**Mitigation Measures 11-2:** **a)** Public water systems shall consult plans, policies, and regulations for the reduction of GHG emissions that may apply to the future compliance project and take them into account when designing proposed projects to avoid potential conflicts.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Chapter 12 – Hazards and Hazardous Materials		
Impact 12-1: Compliance with the Proposed Regulations by public water systems could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	**Mitigation Measures 12-1:** a) Comply with requirements of the HWCA and Hazardous Materials Transport Act governing the generation, transportation, and disposal of hazardous waste. b) If applicable, develop and receive approval of a risk management plan to prevent the accidental release of hazardous materials. c) Manage hazardous materials in accordance with established handling and disposal protocols, preparing spill cleanup plans, and providing necessary spill prevention and clean-up equipment onsite. d) Document the transport and disposition of hazardous materials in transport manifests. e) Handle individual hazardous materials consistent with best management practices. f) Maintain safe, secure, and appropriate storage facilities. g) Restrict access to, and use of, hazardous materials to trained personnel.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 12-2: Compliance with the Proposed Regulations by public water systems could create a significant hazard to the public or the environment through reasonably foreseeable	See Mitigation Measures 12-1	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

upset and accident conditions involving the release of hazardous materials into the environment.		determined to be potentially significant and unavoidable.
Impact 12-3: Compliance with the Proposed Regulations by public water systems could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school.	See Mitigation Measures 12-1	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 12-4: Compliance with the Proposed Regulations by public water systems could cause site-specific compliance projects to be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, create a significant hazard to the public or to the environment.	**Mitigation Measures 12-4:** a) Prior to design of treatment works, the public water systems should consult the list maintained by the DTSC pursuant to Government Code section 65962.5 for all known hazardous waste sites statewide. DTSC manages the Hazardous Waste and Substances Sites (Cortese) List, which may be used as a planning document by the state, local agencies, and developers to comply with the CEQA requirements in providing information about the location of hazardous materials release sites. b) Prior to final project design and any earth disturbing activities, the public water systems should conduct a Phase I Environmental Site Assessment (Phase I). The Phase I should be prepared by a Registered Environmental Assessor or other qualified professional to assess the potential for contaminated soil or groundwater conditions at the project site. The Phase I should include a review of appropriate federal, state, and local hazardous materials databases to identify hazardous waste sites at on-site and off-site locations within a one-quarter mile radius of the project location. This Phase I should also include a review of existing and past land uses through aerial photographs, historical records, interviews of owners and/or operators of the property, observations during a reconnaissance site visit, and review of other relevant existing information	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

	that could identify the potential existence of contaminated soil or groundwater. If no contaminated soil or groundwater is identified or if the Phase I does not recommend any further investigation, then the discharger may proceed with final project design and construction. If existing soil or groundwater contamination is identified, and if the Phase I recommends further review, the public water system should conduct follow-up sampling to characterize the contamination and identify any remediation consistent with applicable regulations prior to any earth disturbing activities. The report should include, but is not limited to, activities performed for the assessment, summary of anticipated contaminants and contaminant concentrations at the proposed construction site, and recommendations for appropriate handling of any contaminated materials during construction.	
Chapter 13 – Hydrology and Water Quality		
Impact 13-1: Compliance with the Proposed Regulations by public water systems may violate any water quality standard or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.	**Mitigation Measures 13-1:** a) For projects that would disturb greater than one-acre, enroll under the NPDES construction stormwater general permit program, and implement a stormwater pollution prevention plan. For projects under an acre, implement best management practices to ensure disturbed soils do not move off-site. b) Limit site disturbing activities as much as possible to avoid compacting soils and impacting the site's ability to infiltrate water and the site's natural drainage. c) Properly dispose offsite of waste stream from treatment; treat onsite and discharged to a sanitary sewer if found nonhazardous and a permit is issued by the local wastewater treatment provider; or discharge to the ground or to surface water if found	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

	nonhazardous and a permit is issued by the applicable regional water quality control board. d) If applicable, develop and receive approval of a risk management plan to prevent the accidental release of hazardous materials. e) Manage hazardous materials in accordance with established handling and disposal protocols, preparing spill cleanup plans, and providing necessary spill prevention and clean-up equipment onsite. f) If stannous chloride is used for treatment, coordinate with the State Water Board to develop pilot testing to demonstrate effectiveness and safety, perform distribution system sampling (including pH, alkalinity, oxidation reduction potential, electronic conductivity) to ensure the ion stays in the three-valence state, and develop a response plan if hexavalent chromium is found.	
Impact 13-2: Compliance with the Proposed Regulations by public water systems may substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	**Mitigation Measures 13-2:** a) Design site specific compliance project to ensure that its water requirements are consistent with available local supplies of water. b) Design site specific compliance project to ensure it is consistent with the local groundwater sustainability plan. c) Install permeable parking and driving surface material. d) Avoid installation of treatment in areas that impact natural recharge of groundwater. e) Design site specific compliance project to include recharge basins to compensate for new impervious surfaces.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impacts 13-3: Compliance with the Proposed Regulations by public water systems may	**Mitigation Measures 13-3**	Because future compliance projects are currently unknown and the authority to mitigate impacts

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or offsite.	a) For projects that would disturb greater than one-acre, enroll under the NPDES construction stormwater general permit program, and implement a stormwater pollution prevention plan. For projects under an acre, implement best management practices to ensure disturbed soils do not move off-site. b) As much as possible, retain the natural conditions of the site, with an emphasis on limiting site disturbance to the maximum extent practical. c) If major changes to the site are needed, which may change or alter the site's permeability and natural drainage, incorporate onsite stormwater retention to ensure excess flows from large-scale stormwater events are discharged off-site in a controlled and non-erosive manner.	may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 13-4: Compliance with the Proposed Regulations by public water systems may substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite.	See Mitigation Measures 13-3	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 13-5: Compliance with the Proposed Regulations by public water systems may substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would 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.	See Mitigation Measures 13-3.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

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Impact 13-6: Compliance with the Proposed Regulations by public water systems may substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows.	See Mitigation Measures 13-3	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 13-7: Compliance with the Proposed Regulations by public water systems may in flood hazard, tsunami or seiche zones, risk release of pollutants due to project inundation.	**Mitigation Measures 13-7:** a) Identify the location of FEMA 100-year flood zones with respect to the proposed site-specific compliance projects. b) To the extent feasible, locate proposed projects outside FEMA 100-year flood zones. c) For site-specific compliance projects that must be located within 100-year flood zones: 1. Design project infrastructure to withstand the effects of flooding using such features as elevated working surfaces and foundations, and site protection such as levees or other protective features. 2. Manage on-stie drainage. 3. Provide additional containment for chemicals that must be stored on-site in areas that could be impacted by flooding. d) Conduct a site-specific investigation that includes identification of local conditions such as tsunami inundation zones. e) Design modifications to withstand impacts of tsunami inundation and seiche waves. f) Design and construct treatment facilities in compliance with state and local seismic and wind design regulations. g) Develop an appropriate response plan to address the effects of a large earthquake event (i.e., magnitude 5.0	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

	or greater within 50 miles of the project site), or strong wind event.	
Impact 13-8: Compliance with the Proposed Regulations by public water systems may conflict with or obstruct implementation of water quality control plan or sustainable groundwater management plan.	**Mitigation Measure 13-8**: a) If discharging wastewater to land, obtain a permit from the regional water quality control board. b) Only discharge to local sanitary sewer system with permission. c) If wastewater cannot be discharged to land or into a sanitary sewer system, dispose of it at appropriate landfill. d) If the site-specific project is located within a high or medium priority basin, comply with the applicable groundwater sustainability plan.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Chapter 14 – Land Use and Planning		
Impact 14-2: Compliance with Proposed Regulations could cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.	**Mitigation Measures 14-2:** a) Review project proposals to avoid potential conflicts with land use plans, policies, and regulations. b) Secure land use approvals from local jurisdictions prior to construction. c) Comply with local zoning ordinances and conditional use permits.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Chapter 15 – Mineral Resources		
Impact 15-1: Compliance with the Proposed Regulations by public water systems could potentially 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.	**Mitigation Measure 15-1:** Prior to design and construction of the compliance projects, consult with the California Geological Survey's Mineral Resources Program mineral classification maps, technical reports, and data regarding mineral resources throughout the state, and if possible, avoid placing compliance projects in areas that would result in the loss of availability of a known mineral	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

	resource that would be of value to the region and the residents of the state.	
Impact 15-2: Compliance with the Proposed Regulations by public water systems may 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.	**Mitigation Measure 15-2:** Prior to design and construction of the compliance project, consult the city or county general plan, site-specific plan, or other land use plan to identify locally important mineral resource recovery sites, and if possible, avoid placing compliance projects in areas that would result in the loss of availability of those mineral resources.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Chapter 16 - Noise		
Impact 16-1: Compliance with Proposed Regulations could generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project more than standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	**Mitigation Measure 16-1:** a) Comply with local plans, policies, and ordinances regarding acceptable noise and vibration levels. b) Ensure noise-generating construction activities (including truck deliveries, rock drilling and blasting) are limited to the least noise-sensitive times of the day (e.g., weekdays during the daytime hours) for projects near sensitive receptors, and only occur between the hours prescribed in the applicable jurisdiction's noise ordinance or regulation. c) Consider use of permanent noise barriers, such as berms and screening walls, to limit ambient noise at property lines, especially where sensitive receptors may be present. d) Use temporary construction noise barriers during construction such as sound barrier fencing. e) Ensure all construction equipment used are adequately muffled and maintained. f) Ensure all stationary construction equipment (i.e., compressors and generators) is located as far as practicable from nearby sensitive receptors or are shielded. g) Properly maintain mufflers, brakes and all loose items on construction and operational-related vehicles to	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

	minimize noise and ensure safe operations. Keep truck operations to the quietest operating speeds. Advise about downshifting and vehicle operations in sensitive communities to keep truck noise to a minimum. h) Use noise controls on standard construction equipment. i) Install mufflers on air coolers and exhaust stacks of all diesel and gas-driven engines. j) Equip all emergency pressure relief valves and steam blow-down lines with silencers to limit noise levels. k) Contain operations within buildings or other types of effective noise enclosures. l) Employ engineering controls, including sound-insulated equipment and control rooms, to reduce the average noise level in normal work areas.	
Impact 16-2: Compliance with Proposed Regulations could result in generation of excessive ground borne vibration or ground borne noise levels.	See Mitigation 16-1.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 16-3: Compliance with Proposed Regulations could result in compliance projects located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, which project exposes people residing or working in the project area to excessive noise levels.	See Mitigation 16-1.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Chapter 17 – Population and Housing		
No significant impacts.		
Chapter 18 – Public Services		

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

No impacts.		
Chapter 19 - Recreation		
No impacts.		
Chapter 20 - Transportation		
Impact 20-1: Compliance with Proposed Regulations could conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.	**Mitigation Measures 20-1:** a) Implement a Construction Traffic Control Plan and a Traffic Management Plan. b) Use flaggers or warning signs to provide for safe ingress and egress to/from the project site. c) Coordinate with the local public transit administration so that bus routes or bus stops in work zones can be temporarily relocated. d) Display bicycle and pedestrian safety signage in project area.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 20-2: Compliance with Proposed Regulations could conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).	**Mitigation Measures 20-2:** Consolidate maintenance and monitoring trips for wells with hexavalent chromium to avoid unnecessary trips.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 20-3: Compliance with Proposed Regulations could substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	**Mitigation Measures 20-3:** Avoid or mitigate transportation design hazards for hexavalent chromium compliance projects. The lead agency shall prepare a traffic impact report to assess potential impacts on appropriate street segments and intersections. The traffic impact report shall identify impacts that exceed the agencies' guidelines for significance and identify appropriate mitigation. Acceptable mitigation measures may include: a) Turn restrictions. b) Roadway widening to add turn lanes or shoulders. c) Flaring of intersections to add turn lanes. d) Provision of passing lanes or turnouts.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

	e) Acceleration and deceleration lanes. f) Protected left turn pockets or free right turns lanes. g) Restriping to add lanes with or without parking removal. h) Roundabouts. i) Median construction/modification to restrict access. j) Removal of obstructions. k) Fair-share contributions to approved projects identified in the agency's Capital Improvement Plan. l) Fair-share contributions to traffic signals identified in the agency's traffic signal plan.	
Chapter 21 – Tribal Cultural Resources		
Impact 21-1 Compliance with the Proposed Regulations may have the potential to cause a substantial adverse change in the significance of a tribal cultural resource listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources or 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 Public Resources Code Section 5024.1	**Mitigation Measures 21-1** a) The lead agency for the project specific CEQA analysis will consider the impact of the project on tribal cultural resources and follow consultation requirements pursuant to Public Resources Code sections 21080.3.1, 21080.3.2, and 21082.3. b) Accidental discovery of historical or unique archaeological resources – If tribal cultural resources that are historical or unique archaeological resources are accidentally discovered during construction, provisions must be made for a qualified archaeologist to immediately evaluate the significance of the find. If the find is determined a historical or unique archaeological resource, contingency funding, and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation must be made available. (Cal. Code Regs., tit. 14, § 15064.5, subd. (f).) c) Discovery of human remains – In the event that human remains are encountered during construction activities, the project proponent shall comply with section 15064.5, subdivision (e)(1), of the CEQA Guidelines and	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

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	Public Resources Code section 7050.5. All project-related ground disturbance in the vicinity of the human remains shall be halted until the county coroner has been notified. If the coroner determines that the remains are Native American, the coroner will notify the Native American Heritage Commission (NAHC) to identify the most likely descendants of the deceased Native Americans. Project-related ground disturbance in the vicinity of the find shall not resume until the process detailed in CEQA Guidelines section 15064.5, subdivision (e), has been completed. d) Upon discovery of human remains during construction, California law protects Native American burials, skeletal remains, and associated grave goods regardless of the antiquity and provides for the sensitive treatment and disposition of those remains. (Health & Saf. Code, § 7050.5; Pub. Resources Code, § 5097.9 *et seq*.) e) Implement the following mitigation measures, as described in Public Resources Code section 21084.3: Avoidance and preservation of the resources in place; treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource; permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places; and protecting the resource. f) Monitoring by tribal representatives of ground disturbing construction activities. g) In the event of accidental discovery of archaeological material of Native American origin, contact tribal representatives from consulting tribes and allow them to visit the site and participate in the evaluation with the professional archaeologist.	

TABLE ES1-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

	h) Development, in collaboration with consulting tribe(s), of a Monitoring and Discovery Plan that will be written and agreed to prior to construction. The plan would prescribe roles and responsibilities, pre-construction requirements, construction monitoring requirements, and procedures to follow if archaeological and/or human remains are discovered during construction. Also see Mitigation Measures 8-1	
Chapter 22 – Utilities and Service Systems		
Impact 22-1: Compliance with the Proposed Regulations may have the potential to require relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.	**Mitigation Measure 22-1** a) To the extent possible, install equipment and infrastructure improvements within or adjacent to existing facility boundaries to take advantage of existing utility connections and reduce need for expansion of services. b) Consult with local utilities prior to the design of the site-specific compliance project to reduce impacts to local utilities. c) Participate in local or regional electrical demand management programs. d) Design project to ensure that its water requirements are consistent with available local supplies of water. e) To protect natural stormwater draining, retain the natural conditions of the site to the extent possible, with an emphasis on limiting site disturbance to the maximum extent practical. f) If major changes to the site are needed, which may change or alter the site's permeability and natural drainage, incorporate onsite stormwater retention to ensure excess flows from large-scale stormwater events are discharged off-site in a controlled and non-erosive manner.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

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	g) For wastewater disposal, only discharge to local sanitary sewer system with permission. If discharging wastewater to land, obtain a permit from the regional water quality control board. If wastewater cannot be discharged to sanitary sewer system or to land, dispose of at appropriate landfill. h) Implement mitigation measures identified above for the protection resources from construction activities, such as Mitigation Measures 7-1, for the protection of biological resources; Mitigation Measures 8-1 and 8-3, for the protection of cultural resources; Mitigation Measures 10-2, for protection of soils from erosion; Mitigation Measures 10-6, for the protection of paleontological resources; and Mitigation Measures 21-1 for the protection of tribal cultural resources.	
Impact 22-2: Compliance with the Proposed Regulations may have the potential to cause public water systems to not have sufficient water supplies available for current and future needs during normal, dry, and multiple dry years.	**Mitigation Measure 22.2** Design project to ensure that its water requirements are consistent with available local supplies of water.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 22-3: Compliance with the Proposed Regulations may result in a determination by local wastewater treatment providers that serves or may serve public water systems that they do not have adequate capacity to serve the proposed compliance project's projected demand in addition to the provider's existing commitments.	**Mitigation Measure 22-3** a) Only discharge to local sanitary sewer system with permission. b) Test waste stream to ensure that the levels of constituents, particularly hexavalent chromium, and salts, do not exceed requirements set by the wastewater treatment provider. c) If discharge to sanitary sewer system is not feasible, do not discharge to land without permit from the regional water quality control board. d) If wastewater cannot be discharged to land or into sanitary sewer system, dispose of at appropriate landfill.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

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Impact 22-4: Compliance with the Proposed Regulations may generate solid waste more than State or local standards, or more than the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.	**Mitigation Measure 22-4** Test solid waste and dispose of all solid waste properly, depending on whether waste meets RCRA and non-RCRA hazardous waste levels; or is considered LLRW.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Chapter 23 - Wildfire		
Impact 23-3: Compliance with the Proposed Regulations could require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.	**Mitigation Measures 23-3:** a) A project-specific fire prevention plan for construction and operation of the project shall be prepared by the project proponent and submitted to relevant state or local agency for review before the start of construction activities. b) The draft copy of the fire prevention plan shall be provided to each fire agency (e.g., CAL FIRE and county or local municipal fire agencies) before the start of any construction activities.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.
Impact 23-4: Compliance with the Proposed Regulations could expose people or structures to significant risks, including downslope or downstream flooding or landslides, because of runoff, post-fire slope instability, or drainage changes.	**Mitigation Measures 23-4:** a) Prohibit construction activities during the rainy season with requirements for seasonal weatherization and implementation of erosion prevention practices. b) Prepare a site design and development plan that avoids or minimizes ground disturbance and prevents stormwater discharge. This plan may be combined with the plan described in Mitigation Measure 7.1.	Because future compliance projects are currently unknown and the authority to mitigate impacts may lie in other public agencies, the level of significance after mitigation is conservatively determined to be potentially significant and unavoidable.

ALTERNATIVES

The purpose of the alternatives analysis in an EIR is to describe a range of reasonable alternatives to the project that could feasibly attain the objectives of the project but would avoid or substantially lessen significant effects of the project and evaluate the comparative merits of the alternatives. (Cal. Code Regs., tit. 14, § 15126.6, subd. (a).) The range of alternatives considered must include those that offer substantial environmental advantages over the proposed project and may be feasibly accomplished in a successful manner considering economic, environmental, social, technological, and legal factors. Although CEQA requires consideration of a "no project" alternative, such an alternative is not an option to the Proposed Regulations because the California Legislature has required the State Water Board to adopt a drinking water standard for hexavalent chromium. (Health & Saf. Code, § 116365.5.) Instead, the analysis of the "no project" alternative will essentially be an analysis of the baseline because here the baseline would be identical to the existing environment. (Cal. Code Regs., tit. 14, § 15126.6, subd. (e)(1).)

As discussed in Chapter 26, the EIR evaluated 20 alternatives to the proposed MCL for hexavalent chromium of 10 µg/L. These alternatives include hexavalent chromium MCLs from 1 to 15, 20, 25, 30, 35, 40, and 45 µg/L. Where the MCL is set would not likely affect potential project-level impacts related to compliance; for example, the impacts related to a new well or treatment would not substantially differ whether the MCL was set at 8, 10, or 15. Instead, what would change is the number of systems that would have to take some sort of action to come into compliance with the MCL, and potentially some of the operational impacts. For example, setting the MCL at a lower (more stringent) level would require more systems to come into compliance, and for those that installed treatment, it would require more frequent changing of the treatment filter, while a higher (less stringent) MCL would mean that fewer public water systems would be out of compliance and would have to treat, and those that have to treat would be able to change treatment filters less often.

In addition to the 20 alternatives to the MCL, the EIR looks at the addition of stannous chloride reduction treatment to the list of BATs identified in the Proposed Regulations.

AREAS OF CONTROVERSY

The area of controversy associated with the Proposed Regulations relates to the cost of compliance. Public water systems that must come into compliance will likely incur significant costs. The assessments of the economic impacts to public water systems and their rate payers conducted pursuant to Health and Safety Code section 116365 and the Administrative Procedure Act concluded that annual costs per service connection for community water systems would range from $91 (systems with more than 10,000 service connections) to $1,622 (for systems with fewer than 100 service connections). (SWRCB 2023a, sec. 5.2.4.3). The average annual cost per person for community water systems ranges from $23 (systems with more than 10,000 service connections) to $443 (systems with less than 100 service connections) (SWRCB 2023a, sec. 5.2.4.5). These costs are higher for smaller water systems because there are fewer service connections among which the cost of the treatment can be shared. Although larger systems will incur higher costs because they must treat more water, the costs to individual rate payers will be significantly higher for smaller systems, because there are fewer rate payers among whom expenses can be shared. It was this issue of economic feasibility for small systems that was the focus of litigation when a hexavalent chromium primary drinking water standard was first set by the

Department of Public Health in 2014, prior to the transfer of the Division of Drinking Water to the State Water Board. In fact, at that time, the Department of Public Health relied on the categorical exemptions for “actions by regulatory agencies for protection of natural resources” and “actions by regulating agencies for protection of the environment,” and no environmental analysis of the reasonably foreseeable means of compliance was conducted. No parties raised CEQA compliance as an issue at that time.

CHAPTER 1 - INTRODUCTION AND BACKGROUND

The State Water Board Resources Control Board (State Water Board or Board) is proposing to adopt a primary drinking water standard for hexavalent chromium ("Proposed Regulations"). The Proposed Regulations will apply to public water systems statewide. The project under the California Environmental Quality Act (CEQA) consists of the Proposed Regulations, which are included in their entirety in Appendix A. This Environmental Impact Report (EIR) was prepared by staff of the State Water Board.

The State Water Board is the principal agency with primary responsibility for overseeing drinking water in California. California requires public water systems to sample their drinking water sources and analyze the samples for various constituents, including inorganic chemicals, to determine compliance with drinking water standards, including maximum contaminant levels (MCLs). A public water system must notify the State Water Board and the public when drinking water supplied to the public is noncompliant with a drinking water standard and take appropriate action to come into compliance with that standard.

Health and Safety Code section 116365[2] imposes requirements on the State Water Board for adoption of primary drinking water standards for the protection of public health.[3] One of those requirements is that the State Water Board set a primary drinking water standard as close to the contaminant's public health goal (PHG) as is technologically and economically feasible at the time of adoption, while placing primary emphasis on protection of public health. PHGs are established by the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA). In July 2011, the OEHHA established the PHG for hexavalent chromium at 0.00002 milligrams per liter (mg/L), equivalent to 0.02 micrograms per liter (µg/L) (OEHHA 2011).

The State Water Board is proposing 0.010 mg/L as the MCL for hexavalent chromium (10 µg/L). In addition, the Proposed Regulations will set the detection limit for purposes of reporting (DLR) at 0.00005 mg/L; identify ion exchange (IX), reduction coagulation filtration (RCF), and reverse osmosis (RO) as the best available technologies (BAT) for treating hexavalent chromium; identify analytical methods to be used for testing hexavalent chromium in drinking water; and identify language to be used by public water systems for public notices and consumer confidence reports when there have been exceedances of the MCL. Environmental impacts related to the MCL would result primarily from the activities taken by the public water systems to come into compliance with the MCL, including installing, operating, and maintaining treatment; drilling new wells; switching from contaminated groundwater to surface water; blending sources; and purchasing water from, or consolidating with neighboring water systems.

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[2] All references are to the California Health and Safety Code, unless otherwise designated.

[3] "Primary drinking water standards" are maximum levels of contaminants that, in the judgement of the State Water Board, may have an adverse effect on the health of persons. (Health & Saf. Code, §116275, subd. (c)(1).) In lieu of maximum contaminant levels, the State Water Board may require the use of a specified treatment technique if the State Water Board finds that it is not economically or technically feasible to ascertain the level of the contaminant. (Health & Saf. Code, §116275, subd. (c)(2); Health & Saf. Code, §116365, subd. (j).)

1.1 BACKGROUND ON HEXAVALENT CHROMIUM

Chromium is an inorganic chemical; a heavy metal that occurs throughout the environment. The trivalent form, also commonly known as “trivalent chromium” or “chromium 3 (III),” is a required nutrient and has very low toxicity. The hexavalent form, also commonly known as “chromium 6 (VI),” is more toxic and has been known to cause cancer when inhaled. In recent scientific studies on laboratory animals, hexavalent chromium has also been linked to cancer when ingested (OEHHA 2011). In addition, hexavalent chromium can cause other problems besides cancer, such as liver toxicity.

The presence of hexavalent chromium in drinking water sources is attributed to both its natural occurrence and industrial use. Hexavalent chromium may be present in groundwater in California at levels up to, and in some cases exceeding, 100 µg/L. Between January 1, 2010, and June 21, 2021, hexavalent chromium was found, to some extent, in 53 of 58 counties in California, and is principally found in the counties of Los Angeles, San Bernardino, Fresno, Riverside, Stanislaus, Sacramento, Santa Clara, Monterey, Kern, San Joaquin, and Tulare. These counties each have 100 or more sources with detectable levels of hexavalent chromium. Statewide there are more than 3,000 sources with detection of hexavalent chromium over 1µg/L (SWRCB 2023a, sec. 3.1).

There are areas of contamination in California confirmed from industrial activities that used hexavalent chromium, such as the manufacturing of textile dyes, wood preservation, leather tanning, and anti-corrosion processes, where hexavalent chromium contaminated waste has migrated into the underlying groundwater. The presence and concentration of hexavalent chromium in surface water sources is less than that found in groundwater sources.

No federal or California drinking water standard currently exists specifically for hexavalent chromium. Hexavalent chromium is currently indirectly regulated under the total chromium MCL of 50 µg/L (0.05 mg/L). California’s MCL for total chromium was established in 1977, when what was then a “National Interim Drinking Water Standard” for total chromium was adopted. The total chromium MCL was established to address exposures to hexavalent chromium, which is the more toxic form of chromium. The U.S. Environmental Protection Agency (U.S. EPA) adopted the same standard for total chromium, but in 1991 raised the federal MCL to 100 µg/L (0.1 mg/L). California retained its 50 µg/L MCL for total chromium.

In 1999, as part of the MCL review process, the California Department of Public Health’s (CDPH’s) predecessor, the California Department of Health Services, sought to determine whether it would be appropriate to set an MCL specifically for hexavalent chromium. Subsequently, concerns about hexavalent chromium’s potential carcinogenicity when ingested resulted in the adoption of Health and Safety Code section 116365.5, which required the California Department of Health Services to establish a primary drinking water standard for hexavalent chromium by January 1, 2004.

Pursuant to section 116365, subdivision (c), OEHHA prepares and publishes an assessment of public health risks posed by each contaminant for which the State Water Board proposes a primary drinking water standard. The risk assessment includes an estimate of the drinking water contaminant level that is not anticipated to cause or contribute to adverse health effects, or that does not pose any significant health risk; this is known as PHG. In July of 2011 OEHHA established a hexavalent chromium PHG of 0.02 µg/L (0.00002 mg/L) (OEHHA 2011). The availability of the hexavalent chromium PHG enabled the CDPH to proceed with setting a primary drinking water standard. As part of that rulemaking process,

the CDPH proposed an MCL for hexavalent chromium of 10 µg/L (0.010 mg/L) in August of 2013.

On May 28, 2014, the Office of Administrative Law approved the regulations submitted by the CDPH, and the MCL became effective on July 1, 2014.[4] On September 4, 2015, Senate Bill 385 was signed by the Governor to provide public water systems with time to come into compliance without being deemed in violation of the MCL. (Stats. 2015, ch. 272, §1.) This statute automatically sunset on January 1, 2020. (Health & Saf. Code, § 116431, subd. (i).)

On May 31, 2017, the Superior Court of Sacramento County invalidated the hexavalent chromium MCL for drinking water. (*California Manufacturers and Technology Association, et al. v. State Water Resources Control Board,* Super. Ct., Sacramento County, Case No. 34-2015-80001850.). The court ordered the State Water Board to take the necessary actions to delete the hexavalent chromium MCL from the California Code of Regulations, which occurred on September 11, 2017.

1.2 PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT (EIR)

CEQA requires state and local government agencies to consider environmental impacts of projects over which they have discretionary authority before acting on those projects. (Pub. Resources Code, § 21000 et seq.) This EIR is an informational document that will inform public agency decision makers and the public generally of the potential significant environmental impacts of the Proposed Regulations, discuss possible ways to mitigate significant impacts, and describe reasonable alternatives to the project.

The project analyzed in this EIR is the State Water Board's adoption of the Proposed Regulations. The State Water Board will respond to comments received on this draft EIR in the Final EIR. The State Water Board will review this programmatic EIR before certifying it as meeting the requirements of CEQA and make a statement of overriding considerations if any impacts cannot be reduced to less than significant levels. Once the EIR is certified, it will be one of the factors considered by the State Water Board when deciding whether to adopt the Proposed Regulations.

This EIR is designed to meet the requirements of Public Resources Code section 21159 and CEQA Guidelines section 15187, which require certain agencies, including the State Water Board, to perform an environmental analysis of the reasonably foreseeable methods of compliance at the time it adopts a rule or regulation requiring the installation of pollution control equipment, or establishing a performance standard or treatment requirement. This analysis must include: 1) an analysis of the reasonably foreseeable environmental impacts of the methods of compliance; 2) an analysis of reasonably foreseeable feasible mitigation measures; and 3) an analysis of reasonably foreseeable alternative means of compliance with the rule or regulation. The analysis does not have to include a site-specific analysis but does require an agency to consider a reasonable range of environmental, economic, and technical factors, populations and geographic areas, and specific sites. (Pub. Resources Code, § 21159, subds. (c) & (d).) An EIR prepared at the time of adopting the rule or regulation pursuant to CEQA satisfies these requirements. (*Id.*, subd. (b).)

[4] The Division of Drinking Water moved from the California Department of Public Health (CDPH) to the State Water Board on July 1, 2014. (Stats. 2014, ch. 35, § 63.)

As described in greater detail below, another purpose of this EIR is to provide sufficient analysis for public water systems to rely on and use in preparation of their own CEQA analysis of environmental impacts of their specific projects needed to comply with the Proposed Regulations.

1.3 ENVIRONMENTAL REVIEW AND APPROVAL PROCESS

The preparation of an EIR involves multiple steps. During this process, the public is provided the opportunity to review and comment on the scope of the analysis, the content of the EIR, the analysis and conclusions presented, and the overall adequacy of the document to meet the substantive requirements of CEQA. The following describes the steps in the environmental review process for this project.

1.3.1 Notice of Preparation, Public Scoping Meeting

On November 5, 2021, the State Water Board sent a notice of preparation (NOP) to the Office of Planning and Research, State Clearinghouse, for distribution to trustee agencies, including the California Department of Fish and Wildlife, the California Department of Parks and Recreation, and the State Lands Commission. The NOP and Workshop Notice is available online at **https://ceqanet.opr.ca.gov/2021110099.** On November 8, 2021, the State Water Board mailed the NOP and scoping meeting invitation to the county clerks of all 58 California counties. The Board posted the NOP on the **State Water Board's website** and emailed the notice to public water systems via a distribution list of 5,799 recipients identified as administrative contacts by public water systems in the state. The State Water Board also emailed the notice to 4539 recipients who have requested drinking water-related announcements (some of whom may also receive notification via the former distribution list).

The State Water Board held a scoping meeting on November 29, 2021, to solicit input from interested persons. While the State Water Board determined that this project did not meet the definitions of a project of statewide, regional or areawide significance pursuant to CEQA Guidelines section 15206, the Board sought public input and consultation on its preparation of an EIR. One-hundred-thirty-seven people attended the scoping meeting. Afterward, the Board received written comment letters to the NOP, which were considered during the preparation of this EIR. See Appendix B for the comment letters received.

1.3.2 Notification to California Native American Tribes

On November 1, 2021, the State Water Board sent notification letters pursuant to Public Resources Code section 21080.3.1 to the 35 tribes who have requested formal project notification from the State Water Board. Emails were sent with delivery receipts. One tribe requested consultation, then did not follow up after repeated attempts to set up a meeting.

1.3.3 Draft EIR and Public Involvement

This Draft EIR is being circulated for public review and comments on the adequacy of the analysis in this Draft EIR. Notice of this Draft EIR also has been sent directly to persons and agencies that commented on the NOP. Comments received will be considered in the development of the final EIR.

The Draft EIR will be available at the California Environmental Protection Agency, State Water Resources Control Board's Office of Chief Counsel at 1001 I Street, Sacrament, CA; at the Sacramento County Law Library, and at each of the State Water Board's Division of

Drinking Water field branch offices[5], as well as on the State Water Board's website at: **Chromium-6 Drinking Water MCL.**

In addition to the CEQA process, the State Water Board will be conducting public meetings (workshop and adoption hearing) to meet requirements of the Administrative Procedure Act for the adoption of the Proposed Regulations. (Gov. Code, § 13400 et seq.) All comments received, including names and addresses, will become part of the official administrative record and may be available to the public.

1.3.4 Final EIR and Approval Process

Written and oral comments received on the Draft EIR during the public review period will be addressed in a response to comments document that, together with the Draft EIR and any changes to the Draft EIR made in response to comments received, will constitute the Final EIR. The Draft EIR and Final EIR together will comprise the EIR for the Proposed Regulations. According to CEQA Guidelines section 15090, subdivision (a), before the State Water Board approves the Proposed Regulations, it must certify that the EIR has been completed in compliance with CEQA, that it has reviewed and considered the information in the EIR, and that the EIR reflects its independent judgment and analysis of the State Water Board.

After the final EIR is certified, the State Water Board will decide whether to adopt the Proposed Regulations and make any necessary findings in accordance with CEQA Guidelines section 15092. Under CEQA Guidelines section 15092, a lead agency may approve or carry out a project subject to an EIR only if it determines that either: (1) the project will not have a significant effect on the environment, or (2) the agency has eliminated or substantially lessened all significant effects on the environment where feasible, and any remaining significant effects on the environment found to be unavoidable are acceptable due to overriding considerations, in which case it will adopt a statement of overriding considerations pursuant to CEQA Guidelines section 15093. Following project approval, the State Water Board will file a Notice of Determination pursuant to CEQA Guidelines section 15094.

Report Organization

The EIR is organized into the following chapters so that the reader can easily find information about the project and its specific environmental issues:

- Summary presents a summary of the Proposed Regulations, a description of impacts and mitigation measures presented in a table format, and a discussion of alternatives.
- Chapter 1, "Introduction and Background," provides a brief overview of the EIR's purpose.
- Chapter 2, "Regulatory Setting and Proposed Regulations," provides information on the project including location, objectives, technical, economic, and environmental characteristics, and intended uses of the EIR.

[5] For addresses of the field branches see **Division of Drinking Water District Office contacts (ca.gov).**

- Chapter 3, “Impact Analysis Approach” discusses assumptions, parameters, and methodology used for analyzing potential environmental impacts, including the approach to considering cumulative impacts.
- Chapters 4 through 24 provide discussion on environmental factors provided in the CEQA Guidelines’ Environmental Checklist (Appendix G Environmental Checklist Form and Appendix F). Each of these chapters describes the environmental and regulatory setting, a range of potential impacts that would result from the Proposed Regulations, potential mitigation measures, and impact significance conclusions, including consideration of cumulative impacts.
- Chapter 25, “Other CEQA Considerations” summarizes growth inducing impacts, Significant Irreversible Environmental Changes, and Significant Unavoidable Impacts.
- Chapter 26, “Alternatives Analysis,” presents project alternatives (including the No-Project Alternative) and provides an evaluation of each alternative in comparison with the project.
- Chapter 27, “References,” identifies documents used (printed references) and individuals consulted (personal communications) in preparation of the EIR.

CHAPTER 2 - REGULATORY SETTING AND PROPOSED REGULATIONS

The State Water Board is proposing to adopt and implement a primary drinking water standard for hexavalent chromium by adopting a regulation under the California Safe Drinking Water Act.

2.1 EXISTING REGULATORY ENVIRONMENT

Under the California Safe Drinking Water Act, the State Water Board establishes drinking water standards to ensure that the drinking water provided by public water systems is potable and protective of public health. All public water systems are subject to regulations adopted by the U.S. EPA under the Safe Drinking Water Act of 1974, as amended. (42 U.S.C. § 300f et seq.) California public water systems are also subject to the California Safe Drinking Water Act (Health & Saf. Code, div. 104, pt. 12, ch. 4) and regulations adopted by the State Water Board under the California Safe Drinking Water Act. (Cal. Code Regs., tit. 22, div. 4, pt. 12, ch. 1-18.) Health and Safety Code section 116270, subdivision (f) declares California's intent to improve upon the minimum requirements of the federal Safe Drinking Water Act and to establish a program that is more protective of public health than the minimum federal requirements. Section 116350, subdivision (b)(3) establishes the State Water Board's authority to adopt regulations to implement the California Safe Drinking Water Act.

The State Water Board regulates over 7,000 public water systems, which are defined in the California Safe Drinking Water Act as systems "for the provision of water for human consumption through pipes or other constructed conveyances that [have] 15 or more service connections or regularly [serve] at least 25 individuals daily at least 60 days out of the year." (Health & Saf. Code, § 116275, subd. (h).) There are three types of public water systems:

a) Community Water Systems (CWS), which serve at least 15 service connections used by yearlong residents or regularly serve at least 25 yearlong residents of the area served by the system.

b) Non-transient Noncommunity Water Systems (NTNCWS), which are public water systems that are not community water systems, and regularly serve at least 25 of the same persons over six months per year. Examples include schools or business parks with their own water systems.

c) Transient Noncommunity Water Systems (TNCWS), which are not community water systems and do not regularly serve at least 25 of the same persons over six months per year. Examples include gas stations, restaurants, and campgrounds with their own water systems. They serve at least 25 people, but they are generally not the same people. Note that businesses may be categorized as (NTNCWS) if they have at least 25 employees.

Of the public water systems in the state, approximately 2,800 are CWS, 1,500 are NTNCWS, and 3,000 are TNCWS. In addition to these public water systems, the State Water Board also regulates 51 wholesalers of drinking water.

The State Water Board adopts primary drinking water standards, which include MCLs of contaminants that, in the judgment of the State Water Board, may have an adverse effect on the health of persons, and the monitoring and reporting requirements as specified in regulations adopted by the State Water Board that pertain to MCLs. (Health & Saf. Code,

§ 116275, subd. (c).) The State Water Board has previously adopted MCLs for eighteen inorganic chemicals, including total chromium, and which are presently in effect. (Cal. Code Regs., tit. 22, § 64431.) When the State Water Board adopts a primary drinking water standard, it also adopts a finding of the BAT for removing the contaminant from drinking water sources, taking into consideration costs and benefits of technologies proven effective under full-scale applications. (Health & Saf. Code, § 116370.)

Primary drinking water standards also set requirements for monitoring of contaminants, reporting of results, and notifying the public of delivered water quality. (Health & Saf. Code, § 116275, subd. (c).) The State Water Board's existing regulations require CWS and NTNCWS to monitor for inorganic chemicals on a regular basis, as determined by their source of water (groundwater or surface water) and water quality results. (Cal. Code Regs., tit. 22, § 64432, subd. (c).) TNCWS must only monitor for inorganic chemicals in surface water sources for parks and other facilities with an average daily population use of more than 1,000 people, or which are determined to be subject to potential contamination based on a sanitary survey. (Cal. Code Regs., tit. 22, § 64432, subd. (o).)

Section 116450 of the Health and Safety Code requires public water systems to provide notice to water users when primary drinking water standards and monitoring requirements are not met, requires the notices to include information on possible human health effects of the subject contaminant, and requires the State Water Board to approve the content of such notices. Health and Safety Code section 116470, subdivision (a) requires each public water system to annually prepare and deliver to each customer a consumer confidence report, including the levels of regulated contaminants found in the water and a statement of health concerns that resulted in regulation of those contaminants.

2.2 EXISTING INORGANIC CHEMICAL TREATMENT SYSTEMS

Many public water systems currently treat inorganic chemicals in their drinking water sources, most notably arsenic, nitrate, nitrite, and perchlorate. The BAT for removing arsenic from drinking water include activated alumina, coagulation/filtration (not BAT for systems <500 service connections), IX, lime softening (not BAT for systems <500 service connections), RO, electrodialysis, and oxidation/filtration. The BAT for removing nitrite are IX and RO, and the BAT for removing nitrate are IX, RO, and electrodialysis. The BAT for removing perchlorate are IX and biological fluidized bed reactor. (Cal. Code Regs., tit. 22, § 64447.2.) The most common treatment systems for removing these inorganic chemicals from drinking water sources are IX and coagulation/filtration.

Several public water systems currently treating inorganic chemicals treat for hexavalent chromium. This is largely due to the prior adoption of the primary drinking water standard for hexavalent chromium, which was subsequently repealed. One public water system operates a reduction-coagulation-filtration (RCF) treatment works:

- Cal Water – Las Lomas (CA1710013) modified an existing filtration treatment system to treat for hexavalent chromium at one groundwater well using RCF treatment.

The following public water systems operate IX treatment works:

- Coachella Valley Water District: Cove Community (CA3310001) operates strong-base ion exchange treatment systems at three groundwater wells.
- Indio Water Authority (CA3310020) operates strong-base ion exchange treatment systems at three groundwater wells.

- CalAm – Parkway (CA3410017) operates strong-base ion exchange treatment systems at three groundwater wells.
- Cal Water – Las Lomas (CA1710013) operates an ion exchange treatment system at one groundwater well (in addition to the RCF treatment at a separate well).
- Cal Water – Dixon (CA4810002) operates strong-base ion exchange treatment systems at three groundwater wells.
- Cal Water – Willows (CA1110003) operates strong-base ion exchange treatment systems at four groundwater wells.
- Cal Water – Oak Hills (CA2710019) operates strong-base ion exchange treatment systems at one groundwater well.
- City of Glendale (CA1910043) operates a weak-base ion exchange treatment system in connection with its Glendale Water Treatment Plant.
- CSP Labs & Micro Paradox (CA5105013) operates strong-base ion exchange treatment systems at one groundwater well.

2.3 PROJECT OBJECTIVES

The objectives of the Proposed Regulations include the following:

- Avoid significant risks to public health from drinking water supplied by public water systems in California.
- Reduce cancer and non-cancer public health risks from human consumption of drinking water contaminated with hexavalent chromium.
- Comply with the statutory mandate to adopt a primary drinking water standard for hexavalent chromium, as required by Health and Safety Code section 116365.5.

2.4 DESCRIPTION OF PROPOSED REGULATIONS

The Proposed Regulations would adopt a MCL of 10 µg/L for hexavalent chromium. (Cal. Code Regs. tit. 22, § 64431 Table 64431-A.) The Proposed Regulations would include a compliance schedule based on public water system size, by adding subdivision (p) and Table 64432-B to section 64432 of title 22 of the California Code of Regulations. Under the proposed compliance schedule:

- Systems with more than 10,000 service connections would need to comply with the MCL within two years after the Proposed Regulations take effect.
- Systems with 1,000 to 10,000 service connections would need to comply with the MCL within three years after the Proposed Regulations take effect.
- Systems with fewer than 1,000 service connections would need to comply with the MCL within four years after the Proposed Regulations take effect.
- Systems with hexavalent chromium contamination above the proposed MCL before their applicable compliance deadline must prepare and submit to the State Water Board plans for achieving compliance by their applicable compliance deadline.

The Proposed Regulations would require the following:

- CWS and NTNCWS would be required to monitor for hexavalent chromium and report sampling results. Initial monitoring would be required within six months of the effective date of the Proposed Regulations, although systems that conducted groundwater monitoring up to two years before the effective date would not be subject to this requirement. (Cal Code Regs., tit. 22, § 64332 subd. (b).) Initial monitoring may be conducted at the same time as routine monitoring for other contaminants that are currently regulated, so long as the six-month deadline is met.
- CWS and NTNCWS would be required to monitor groundwater sources once every three years and surface water sources annually; systems where monitoring shows a continuous or persistent trend toward higher levels of hexavalent chromium would be required to monitor quarterly; and systems that install treatment to remove hexavalent chromium would be required to monitor the treated water monthly. (Cal Code Regs., tit. 22, §§ 64332 subd. (c), 64332.8.) Routine monitoring could be conducted at the same time as routine monitoring for other regulated contaminants that are currently regulated, so long as the relevant deadlines for hexavalent chromium monitoring are met.
- TNCWS would need to monitor for hexavalent chromium if they use surface water to serve parks and other facilities with an average daily population use of more than 1,000 people or which are determined to be subject to potential contamination based on a sanitary survey. (Cal. Code Regs., tit. 22, § 64332, subd. (o).)
- All public water systems would be required to comply with a hexavalent chromium MCL (Cal. Code Regs., tit. 22, § 64431.) To comply with the MCL, public water systems would install treatment or implement an alternative means of compliance (discussed in section 3.1.2 and 3.1.3 of this EIR).
- BAT would be identified for hexavalent chromium removal, although public water systems would be free to choose their own method of compliance with the MCL. (Cal. Code Regs., tit. 22, § 64447.2.)
- A DLR of 0.05 µg/L would be specified for hexavalent chromium. Laboratories would be required to use one of the two methods of analysis identified in the regulations that can detect hexavalent chromium at a concentration at least as low as the DLR, and samples that had concentrations greater than the DLR would need to be reported as detected for hexavalent chromium. (Cal. Code Regs., tit. 22, § 64432, subd. (d).) (The Proposed Regulations include an interim DLR of 0.1 µg/L.)
- Public water systems that violate the hexavalent chromium MCL would be required to use specific public notification language, including health effects warnings, in their messages to the public about exceedances of the MCL. (Cal. Code Regs., tit. 22, § 64465.)
- CWS and NTNCWS that detect hexavalent chromium would be required to use specific language regarding the major origins of hexavalent chromium in drinking water in their Consumer Confidence Report. (Cal. Code Regs., tit. 22, § 64481 subd. (p).)

The text of the Proposed Regulations is available in Appendix A.

The Proposed Regulations directly affect the 233 public water systems with hexavalent chromium concentrations of more than 10 ug/L, out of a total of 7,355 public water systems in

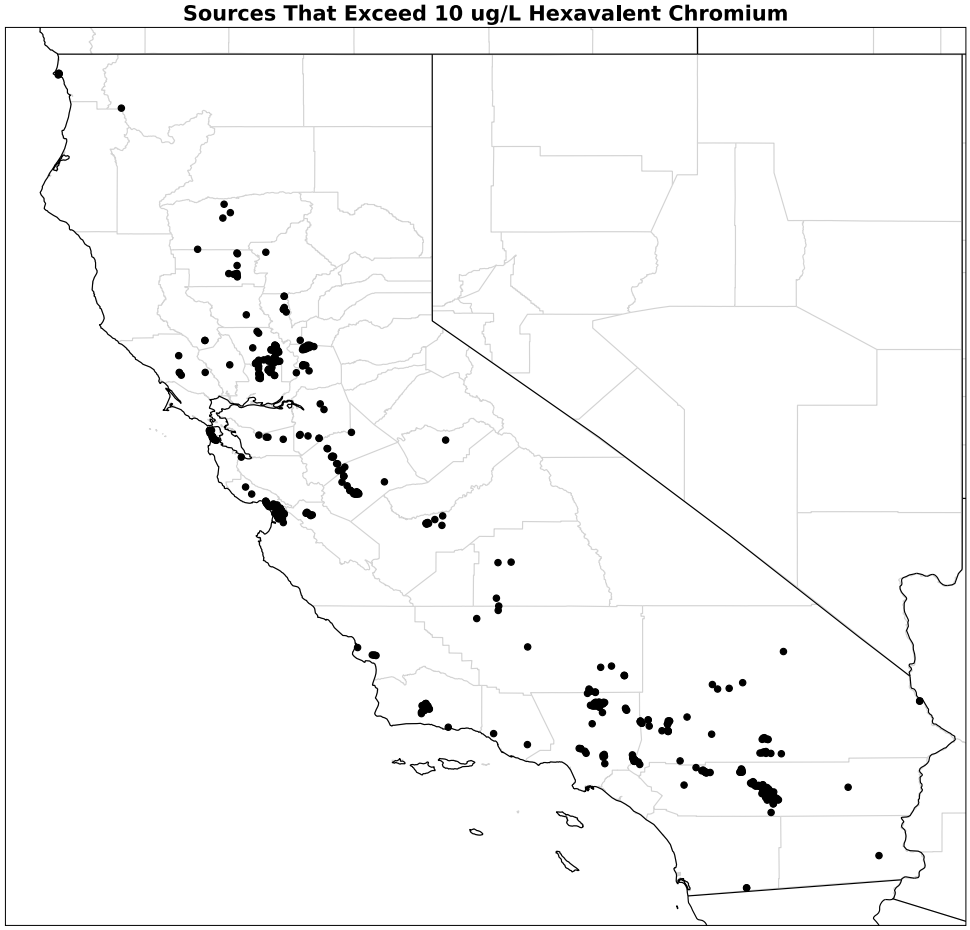
California. Of the 233 affected public water systems, 160 are CWS, 62 are NTNCWS, 7 are TNCWS, and 4 are wholesalers. Of the 233 public water systems, 146 are privately-owned systems and 82 are public water agencies. Of the privately owned PWS, 13 are small businesses, as detailed in section C.3. These 13 are either NTNCWS or TNCWS (SWRCB 2023b, sec. A.4).

Out of the 10,131 public water systems sources that sampled for hexavalent chromium between January 1, 2010, and June 21, 2021, 501 sources (in the 233 systems) have annual concentrations above the proposed MCL of 10 ug/L. Combined, these contaminated systems serve 5,542,798 people statewide, who are expected to experience health benefits from lower concentrations of hexavalent chromium in their drinking water. Most of the population affected is served by CWS (5,328,938 people) and 94% are in urban areas (SWRCB 2023b, sec. A.4).

2.5 PROJECT LOCATION

Adoption of the Proposed Regulations would occur in Sacramento and take effect for public water systems anywhere in the state. Where drinking water sources exceed the proposed MCL of 10 µg/L, public water systems will need to implement local, site-specific projects to comply with the Proposed Regulations, such as installation of treatment or blending of contaminated sources with non-contaminated sources. Section 2.6.1 describes the reasonably foreseeable means of compliance with the Proposed Regulations and Section 2.6.3 describes the reasonably foreseeable alternative means of compliance. This is a programmatic EIR, and it is not known at this time what compliance projects public water systems will undertake in the future or where they will be located other than in areas with hexavalent chromium contamination above the proposed MCL of 10 µg/L. Figure 2.1 is a map of where hexavalent chromium is known to exceed the proposed MCL, based on existing monitoring data. (The source of data is the State Water Board's Safe Drinking Water Information System (SDWIS 2021), and the Water Quality Information Replacement (WQIR 2021).

FIG. 2.1. PUBLIC WATER SYSTEM DRINKING WATER SOURCES ABOVE 10 UG/L



Although the State Water Board has data on sources contaminated with hexavalent chromium, it is not possible to know at this time where future compliance projects will be located. This is because the existing data on hexavalent chromium contamination is from the monitoring that public water systems conducted when the prior regulation of hexavalent chromium was in effect. That regulation was repealed in 2017, and since then, public water systems have not been required to monitor for hexavalent chromium. Therefore, there will undoubtedly be some changes to that data. Relatedly, not all public water systems have monitored for hexavalent chromium. Even under the prior regulation, TNCWS were only required to monitor where they were determined to be subject to potential contamination based on a sanitary survey or used surface water for parks and other facilities with an average daily population use of more than 1,000 people. Out of the 3,520 TNCWS sources currently in the state, only 326 (9.3%) have reported hexavalent chromium sampling results (SWRCB 2023a, sec. 5.2.2.2).

In addition, even where there is a known source of hexavalent chromium contamination based on existing data, it is not possible to know at this time the location of future compliance projects to address that contamination. This is because, as public water systems explained to the State Water Board in comments to the Notice of Preparation, there are a variety of possible means of compliance with the Proposed Regulations other than wellhead treatment. The State Water Board identified reasonably foreseeable alternative means of compliance,

as discussed in section 2.6.3, and many of those means of compliance would occur at locations not presently known. For instance, if a public water system were to comply with the Proposed Regulations by drilling a new well, it is not known at this time where the new well would be located. In some cases, the future compliance project could even occur outside of the service territory of the public water system, as may be the case in consolidations. For these reasons, even where a source of drinking water is known to be contaminated with hexavalent chromium based on data collected under the prior regulation, it would be speculative to guess the location of a future compliance project to address that contamination.

2.6 PROJECT TECHNICAL CHARACTERISTICS

The primary drinking water standard for hexavalent chromium will require public water systems to comply with the MCL, but it will not dictate specific methods of compliance. Although the Proposed Regulations identify three types of treatment technologies as the BAT for treating water contaminated with hexavalent chromium, water systems are not restricted to using those specific treatment technologies. For instance, some water systems may switch to sources of water that are not contaminated or may blend sources of contaminated water with sources of uncontaminated water to deliver drinking water that meets the MCL.

Consistent with Public Resources Code section 21159, this EIR analyzes the environmental impacts of the reasonably foreseeable methods of compliance. To make this determination, the State Water Board relied on two sources of information. First, it considered sixty-one compliance plans that water systems submitted to obtain an extension for compliance with the regulation adopted in 2014. Senate Bill 385 (stats. 2015 ch. 272), authorized the State Water Board to grant time extensions to systems that submitted plans, which included descriptions of the actions systems planned to take to comply with the original regulation. The plans show that aside from installing treatment, water systems considered blending sources, drilling new wells, relying on surface water (which is generally not contaminated with hexavalent chromium), and purchasing water from or consolidating with nearby water systems that could provide uncontaminated drinking water.[6]

Second, the State Water Board considered comments from public water systems in connection with the CEQA scoping meeting that the Board held on November 29, 2021. Commenters who discussed alternative means of compliance identified similar means, including blending sources, drilling new wells, relying on surface water, and purchasing water from or consolidating with nearby water systems. Some commenters also identified stannous chloride as a treatment technology.

The fact that water systems indicated in Senate Bill 385 compliance plans and in comments to the CEQA scoping meeting that they were considering these alternative means of compliance does not necessarily demonstrate that these are feasible. Many compliances plans described initial ideas for compliance – not executed or completed actions. In many

[6] Because the compliance plans consist of PDFs submitted by water systems and do not all meet the requirements for web accessibility, the State Water Board is making them available upon request, rather than appending them to this EIR or posting them on the Division of Drinking Water's website. If you wish to obtain a copy of the compliance plans relied upon, please email your request to **ddw-hexavalentchromium@waterboards.ca.gov**.

cases, obtaining a new source of water may have proven infeasible due to extensive contamination or insufficient water rights. The invalidation of the original regulation in 2017 caused many water systems to abandon their plans for complying with a MCL for hexavalent chromium, leaving little evidence of what would have been feasible. Nevertheless, the State Water Board takes the conservative approach in identifying the following alternative means of compliance with the proposed regulation to be reasonably foreseeable: (1) blending contaminated water with other existing uncontaminated sources; (2) drilling a new groundwater well; (3) increasing reliance on surface water; (4) purchasing water from or consolidating with another water system; and (5) using stannous chloride treatment. Therefore, this EIR considers potential significant environmental impacts from these alternative means of compliance, and often refers to "alternative means of compliance" and "reasonably foreseeable means of compliance" interchangeably.

2.6.1 Best Available Technologies (BAT)

The State Water Board expects that most public water systems with hexavalent chromium contamination will install a BAT.

2.6.1.1 Ion Exchange (IX)

Ion exchange can treat a wide range of contaminants and is identified as a BAT for several inorganic chemicals, including hexavalent chromium. Currently nine public water systems in California operate IX treatment systems for hexavalent chromium that are permitted by the State Water Board's Division of Drinking Water.

2.6.1.1.1 Treatment Mechanism

IX treatment removes hexavalent chromium and other contaminants from source water using ion exchange media, or resins. Resins consist of a polymer matrix to which ions have been permanently fixed. Oppositely charged ions attach, or adsorb, to the fixed ions, but can be replaced by other ions with a greater ionic attraction to the fixed ions (Ionex 2015, p. 13). Contaminated water is pumped through treatment vessels, where it passes through the resins. As the contaminated water passes through the resins, the hexavalent chromium anions adsorb, or stick, to the resin's surface, where they replace the anions originally attached to the fixed ions. Other anions with a similar or higher attraction may also adsorb to the resin, including arsenic and uranium (Health Canada 2015, p. 27). When the resin's ability to adsorb replacement ions is exhausted, the resin must either be replaced or regenerated. Regeneration uses a brine solution to replace hexavalent chromium and other adsorbed contaminants with the original ion configuration (*Id*. at p. 22-25).

Different resins are appropriate for different source water quality conditions. Almost all permitted IX treatment systems for hexavalent chromium use strong-base anion exchange (SBA) resins, which may be single-use or regenerated. Where source water quality is high in sulfate, a strong-base resin may be uneconomical because the sulfate will compete with the hexavalent chromium in adsorbing to the resin, requiring more frequent resin replacement. Instead, under these conditions, a water system may choose to use a weak-base anion exchange (WBA) resin. Using WBA resin requires additional chemical application or aeration to adjust the pH of the water. WBA resins cannot be regenerated and must be replaced every few years. The City of Glendale's IX treatment system at the Glendale Water Treatment Plant uses a WBA resin (Chan 2022). It is the only permitted IX treatment for hexavalent chromium in California to use a WBA resin.

2.6.1.1.2 Treatment Facilities

IX treatment can be comprised of multiple vessels in series and/or parallel trains, and a resin filter-guard system. In some cases, the vessels are contained in a modified shipping container, located on the same lot as the existing well. Some IX treatment systems may also include equipment to regenerate spent resins, including salt containers, saturators, and waste containers. A pre-filter system to remove sediments from the water prior to treatment is generally also included. In some cases, IX treatment may require an increase in pressure in addition to head loss from the well. In those cases, installation of a booster pump may be necessary. Other equipment for SBA IX may include a strainer, clarifier, ferrous sulfate feed system, clarified regeneration brine tank, fast rinse water recycle tank, backwash pumps, and filter press (SWRCB 2023b, sec. I.3.a.2.A). Other equipment for WBA IX may include a strainer, chemical storage and feed system, waste backwash water tank, and caustic storage and feed system (SWRCB 2023b, sec. I.3.a.2.B).

The footprints of IX treatment systems vary in size. For instance, California Water Service (Cal Water) treats three wells serving the City of Dixon for hexavalent chromium; the sites, including well and treatment, occupy approximately 4,504 square feet, 7,789 square feet, and 13,132 square feet, respectively (SWRCB 2022b). At Cal Water in Oak Hills, the IX treatment and well are located on a lot of 20,065 square feet (Tejada 2022a).

The Water Research Foundation estimates that for strong-base IX treatment with clarified waste brine discharged to sewer or hauled offsite, indoor, and outdoor footprints would range from 510 and 1,163 square feet, respectively, for a system treating 100 gallons per minute, to 1,501 and 8,468 square feet, respectively, for a system treating 10,000 gallons per minute (Najm et al., 2014, Appendix A). For weak-base IX treatment with pH adjustment with CO_2 and then stripping, the Water Research Foundation estimates indoor and outdoor footprints would range from 692 and 1,281 square feet, respectively, for a system treating 100 gallons per minute, to 4,900 and 7,884 square feet, respectively, for a system treating 10,000 gallons per minute (Najm et al., 2014, Appendix A). For weak-base IX treatment with pH adjustment with HCl and then NaOH, the Water Research Foundation estimates indoor and outdoor footprints would range from 72 and 1,127 square feet, respectively, for a system treating 100 gallons per minute, to 1,060 and 7,662 square feet, respectively, for a system treating 10,000 gallons per minute (Najm et al., 2014, Appendix A).

In the State Water Board's Cost Estimating Methodology in the Standard Regulatory Impact Assessment for the Proposed Regulations (SRIA), the Division of Drinking Water estimates that a SBA IX indoor equipment footprint is based on the space needed for the strainer, clarifier, ferrous sulfate feed system, and dewatering equipment, which is 255 square feet for treatment at 100 gpm and 751 square feet at 10,000 gpm. Additionally, indoor working space is equal to the indoor equipment footprint, such that the total building area is double the indoor equipment footprint. Outdoor footprint is based on the space needed for the ion exchange vessels, salt system, waste brine tanks, rinse tanks, and ferrous sulfate feed system (SWRCB 2023b, sec. I.3.a.2.A). The SRIA also estimates that a WBA IX indoor equipment footprint is based on the space needed for the strainer, HCl equipment, and NaOH system, which is 36 square feet for treatment at 100 gpm and 530 square feet at 10,000 gpm. The indoor working space is also equal to the indoor equipment footprint, calculated the same way as the SBA IX indoor working space. The WBA IX outdoor footprint is based on the space needed for the ion exchange vessels, HCl system, NaOH system, and backwash water tank. If the WBA IX system used carbon dioxide and then air stripping to adjust the pH, instead of the space needed for HCl equipment and an NaOH system, outdoor

space would be needed for a carbon dioxide system and indoor space would be needed for air stripping equipment (SWRCB 2023b, sec. I.3.a.2.B).

Treatment systems are generally located near the wells they treat. At Cal Water's IX treatment site for the City of Dixon, distances between the three wells and their treatment measure 54 feet, 40.5 feet, and 21.5 feet, respectively (SWRCB 2022b). At Cal Water in Oak Hills, the hexavalent chromium treatment facility is situated 8 feet from the well (Tejada 2022a). It is reasonable to expect that most IX treatment will be installed near existing wells, on sites where drinking water infrastructure is already present.

As noted above, IX treatment is sometimes installed inside a modified shipping container. For instance, at Cal Water's IX treatment for the City of Dixon, the IX treatment vessels are housed inside a modified shipping container of the following dimensions: 240 inches by 139 inches by 96 inches. Each modified shipping container can house up to four IX treatment vessels. Wells requiring more treatment vessels require more shipping containers. For the City of Dixon, Cal Water operates three IX treatment plants at three different well sites: one well is served by IX treatment vessels housed in one modified shipping container, one well is served by IX treatment vessels housed in two modified shipping containers, and one well is served by IX treatment vessels housed in three modified shipping containers. A separate modified shipping container at each well houses the resin regeneration modules, outside of which is a brine tank measuring 98 inches tall and 94 inches in diameter, and a brine waste tank measuring 120 inches tall and 122.5 inches in diameter (without roof vent). Upstream of the influence to the treatment plants are two bag filters measuring 132 inches by 112.5 inches by 77.4 inches (SWRCB 2022b).

2.6.1.1.3 Replacement, Regeneration, and Disposal of Resin and Brine

As noted above, the resins used in IX treatment are either single-use or regenerable. Of the existing permitted hexavalent chromium treatment systems for public water systems in California, only two use single-use resins: The City of Glendale and CalAm Parkway. The City of Glendale's IX treatment uses a weak-base resin that cannot be regenerated, as discussed below. The City of Glendale last changed out the resin after four years of operation (Chan 2022). CalAm Parkway uses a strong-base resin but does not regenerate the resin; CalAm Parkway installed its IX treatment in December 2017 and has replaced its resin once, in 2020 (Kunda 2022).

Frequency of IX resin replacement is a function of water quality and volume of water treated.[7] It also depends on whether the resin is regenerated. Among the permitted treatment systems regenerating resin, the frequency of resin replacement varies. For example, Coachella Valley Water District (CVWD), Cove Community operates hexavalent chromium treatment at three wells. The resin at one well lasted eight years before needing replacement; the resin at another lasted five years; and the resin at the third well has not yet needed replacement (Mayes 2022a). According to the Indio Water Authority, which operates hexavalent chromium treatment at multiple wells, the manufacturer of the resin recommends replacement every five to seven years (Khurana 2022). This appears to be consistent with

[7] Note that not all the water would necessarily need to be run through the treatment works. Some water could be allowed to be diverted, and when blended with the treated water, would meet the standard for hexavalent chromium. Doing this would help preserve the treatment media, such as the resin used in IX, for extended amount of time.

the actual replacement schedules of the systems currently operating IX treatment for hexavalent chromium in California using regenerated resins. Cal Water Willows reported replacing resins every 11 years (Tabor 2022).

Regenerable resins are restored using a brine solution to extend their life, although they still eventually require disposal. Regeneration facilities typically consist of a saturated brine tank, a brine pump, a brine waste tank, and, in some applications, a filter press. After the resin becomes saturated with hexavalent chromium and other ions, the media needs to be replaced or regenerated. Regeneration consists of an initial rinse of the media followed by reversing the flow of water through the vessel using a strong saturated brine solution that displaces the chromium. This waste brine is delivered to an on-site brine waste tank and can be reused multiple times before it is either disposed of into the local sanitary sewer or hauled off site for disposal (Najm et al., 2014; Najm et al., 2017). Depending on the concentration of hexavalent chromium and other contaminants adsorbed by the resin and dislodged by regeneration—such as arsenic and uranium—brine may be classified as toxic hazardous waste or low-level radioactive waste and require disposal at a facility licensed to accept such waste. Hexavalent chromium and other contaminants may be removed from brine by precipitating them out of the brine. The resulting sludge is dewatered, and the solids are disposed of at a landfill or hazardous waste disposal facility. As described in Chapter 12, available evidence indicates that sludge would likely be classified as hazardous waste, while the remaining brine would not and could be disposed of in a sanitary sewer.

There is considerable variation in the quantity and frequency of brine and sludge disposal by public water systems in California operating permitted IX treatment for hexavalent chromium. For example, CVWD, Cove Community disposes of brine five times per week, at 5,000 gallons per load. It also disposes of up to ten drums of filter cake sludge every three months. This sludge contains arsenic and chromium metals that are present in the raw water (Mayes 2022b). CVWD reports that it generates up to 1650 pounds of sludge annually (Mayes 2022b.) Indio Water Authority disposes up to 4,400 gallons of brine every ninety days (SWRCB 2015; Khurana 2022). Cal Water Las Lomas and Cal Water Oak Hills each dispose of 55 gallons of waste brine annually (Tejada 2022b). Soquel Creek Water District (SCWD) sponsored a pilot study using SBA to treat its wells for hexavalent chromium; based on the results, it estimated that a proposed 2,000 gpm SBA treatment system would produce 50,000 gallons of brine annually, which could be reduced to 660 gallons of sludge classified as hazardous waste (SCWD 2015, pp. 1-18, 3-45 to 3-46). SBA resins may not need to be disposed of as hazardous waste. Systems rely on third-party testing to determine whether to dispose of resins as hazardous waste. Two systems report that at least some of their resins have been tested as non-hazardous (Kunda 2022; Khurana 2022). WBA resins may require disposal as hazardous waste. The City of Glendale reports that the last spent resin for its WBA treatment was disposed of after four years of operation; it was disposed of as low-level radioactive waste (LLRW) (Chan 2022).

At least three California studies have also investigated the use of WBA to treat for hexavalent chromium (Hazen 2013; Blute 2013; Water Research Foundation 2017b). The studies indicate that WBA resin is likely to be classified as non-Resource Conservation and Recovery Act (RCRA) waste. Furthermore, over time WBA resin may accumulate uranium in concentrations that would require disposal as a LLRW. The limited disposal options for LLRW and their associated cost may reduce the amount of time that a WBA resin is used before replacement (Health Canada 2015, p. 24; Water Research Foundation 2017b, p. 12.)

Application of an absorbent material to the resin may lower uranium concentrations below the LLRW threshold. Available data indicates disposal once every one to two years.

The City of Glendale began a demonstration-scale study of WBA to remove hexavalent chromium in 2010 (Hazen 2013, p. 2.) After about a year, the initial WBA resin reached its capacity to adsorb uranium and was replaced (Blute 2013, pp. 12-13). The resin was tested and found to contain approximately 0.5% percent uranium (*Id*). The resin was then treated with an absorbent material, which reduced its uranium concentration to below the 0.05% threshold concentration for classification as a LLRW (Hazen 2013, pp. 62-62). It was also tested for hazardous waste and found to contain total chromium below the threshold concentration for classification as a RCRA waste; based on tests from an earlier study, however, it was assumed to exceed the chromium (III) and (VI) thresholds for classification as a non-RCRA hazardous waste (Blute 2013, pp. 13-14).

Another study tested WBA resins for hazardous waste. WBA resins were used to treat water from 10 wells in California, Nevada, and Oklahoma (Water Research Foundation 2017b. pp. 7, 11-12). After treating approximately 150,000 bed volumes each, the resins tested below the threshold concentrations for classification as RCRA waste; however, seven of 10 resins exceeded the threshold chromium concentration for classification as a non-RCRA waste (Water Research Foundation 2017b pp. 11-12). An EIR issued by CVWD for hexavalent chromium treatment estimated that WBA resins would be disposed of every two years and would be classified as non-RCRA hazardous waste and LLRW (CVWD 2016, p. 4-9-19).

2.6.1.5 Reduction-Coagulation-Filtration (RCF)

Reduction-Coagulation-Filtration (RCF) can treat a wide range of contaminants and is identified as a BAT for hexavalent chromium. RCF treatment removes hexavalent chromium from source water through a three-stage process. The first stage reduces chromium from its hexavalent to trivalent form using a reductant (ferrous iron, stannous chloride, and tin (elemental stannous) have proven effective). The second stage coagulates the trivalent chromium and other chemical particles to form flocs. This stage is often associated with a minimum retention time that is needed for the chemical reaction to fully take place. Finally, the flocs are removed by filtration and concentrated, and the solids are disposed of at appropriate landfills or directly into a sewer when one is available.

Unlike IX treatment, RCF treatment does not require regeneration of the media (or resin) as the removal process is physical straining and not adsorption. Filter media is typically cleaned by backwashing. Unlike IX treatment, RCF reduces hexavalent chromium to trivalent chromium. The threshold for total chromium (trivalent and hexavalent forms) to be classified as a hazardous waste, requiring special disposal, is higher than the threshold for hexavalent chromium. IX also captures other contaminants, such as uranium and arsenic, while RCF does not. Consequently, there are more disposal options for RCF backwash. Depending on the concentration of chromium in backwash, it may be directly disposed of in a sanitary sewer or may require disposal in a hazardous waste facility; sludge may be removed from the backwash through dewatering, allowing the water to be recycled to the head of the plant. In some cases, sludge may be disposed of in a landfill, but in other cases it may require disposal in a hazardous waste facility.

Like IX treatment, RCF may require minimal pressure increase to offset head loss through the treatment process and in some cases a booster pump may be required. Of the existing permitted treatment systems for hexavalent chromium in California, only one uses RCF. Cal Water Las Lomas uses RCF to treat hexavalent chromium at one of its wells, where it

converted an existing iron/manganese treatment system to treat for hexavalent chromium. Cal Water Las Lomas operates an IX treatment system at another groundwater well for the same system (Cal Water 2015a; 2015b). Cal Water Las Lomas reports that backwash is discharged into the sanitary sewer (Tejada 2022b). The City of Glendale performed a demonstration-scale test of RCF to remove hexavalent chromium between 2010 and 2012, using ferrous sulfate as a reducing agent and polymer as a flocculent (Health Canada 2015, p. 19; Hazen 2013, p. 2; Blute 2013, p. 24.) Glendale used a settling tank and filter to remove solid residuals from the backwash; after removal of solid residuals, the backwash water was recirculated through the RCF process (Blute 2013, p. 28). Solid residuals tested below the threshold chromium concentration for classification as RCRA hazardous waste, but above the threshold for classification as a non-RCRA hazardous waste (Blute 2013, p. 29). Residuals tested below the uranium threshold concentration for classification as a LLRW (Blute 2013, p. 29). Approximately 7,700 pounds of solid residuals were generated over seven months of operation (Blute 2013, pp. 32, 34). The solid residuals were temporarily stored on site, before disposal at Clean Harbors' hazardous waste disposal facility in Buttonwillow (Blute 2013, p. 32).

The only waste from RCF is the backwash water, the volume of which is "significantly higher than that of the SBA or WBA [IX] process, however, it is the easiest waste to handle among the three major treatment technologies" (Water Research Foundation 2017b). This volume can also be dramatically reduced by dewatering, allowing most of the backwash water volume to return to the treatment process and leaving a relatively small volume of solids, or sludge, to be handled as waste.

Equipment for RCF includes RCF filtration vessels, reduction contactor vessels, chemical feed system, backwash system, and backwash return. In the SRIA, the Division of Drinking Water estimates that an RCF indoor equipment footprint is based on the space needed for the ferrous sulfate system, which is 20 square feet for treatment up to 2,000 gpm and 40 square feet for larger treatment flows. Additionally, indoor working space is equal to the indoor equipment footprint, such that the total building area is double the indoor equipment footprint. Outdoor footprint is based on the space needed for the ion exchange vessels, salt system, waste brine tanks, rinse tanks, and ferrous sulfate feed system. The outdoor footprint is based on the equipment floor area needed for RCF filtration vessels, reduction contactor vessels, and the backwash system (SWRCB 2023b, sec. I.3.a.2.C).

The Water Research Foundation estimates that for RCF treatment with waste backwash water discharged to the sewer untreated, indoor, and outdoor footprints would range from 40 and 1,062 square feet, respectively, for a system treating 100 gallons per minute, to 80 and 11,057 square feet, respectively, for a system treating 10,000 gallons per minute (Najm et al., 2014, Appendix A). For RCF treatment with waste backwash water returned to head of plant, the Water Research Foundation estimates that indoor and outdoor footprints would range from 486 and 1,530 square feet, respectively, for a system treating 100 gallons per minute, to 3,962 and 12,057 square feet, respectively, for a system treating 10,000 gallons per minute (Najm et al., 2014, Appendix A).

2.6.1.6 Reverse Osmosis (RO)

Reverse Osmosis (RO) forces water across a semi-permeable membrane; particles are prevented from crossing the membrane based on their size and ionic charge (Health Canada 2015, p. 27). RO can remove a wide range of contaminants, and primary drinking water standards for several inorganic chemicals identify it as a BAT. However, RO requires a

significant amount of energy and results in the loss of large amounts of water (Health Canada 2015). It is therefore difficult to implement at full municipal scale, although two full-scale desalination plants in California use RO. There are no public water systems in California permitted to use RO to remove hexavalent treatment. The State Water Board concludes that full-scale RO is not a reasonably foreseeable method of compliance with the proposed MCL (SWRCB 2023a, sec. 5.4.3).

However, public water systems serving fewer than two hundred connections may install point-of-use (POU) reverse osmosis (RO) devices to comply with the proposed MCL. (Cal. Code Regs. tit. 22, § 64417 [allowing use of point of use treatment systems in lieu of centralized treatment for purpose of complying with one or more MCLs].) POU is a water treatment device that is installed at the point of use, such as a sink or drinking water fountain. Unlike large-scale RO facilities, POU can treat the water using normal water system pressure. Disposal of treatment reject water is directed down the sink drain connected directly to the sewer line or on-site septic system.

2.6.2 Systems with Existing BAT

Public water systems that currently treat for another regulated contaminant using one of the BATs for hexavalent chromium may only need to make modest changes to their existing treatment system to remove hexavalent chromium. For instance, if a public water system currently has an IX treatment plant for arsenic, it can rely on the same treatment plant to remove hexavalent chromium. If a public water system has a single-pass IX system for perchlorate, it may be able to treat for hexavalent chromium without making physical changes to the treatment facility, but the number of IX treatment vessels and number of media and media replacement may increase.

Some public water systems may modify existing coagulation-filtration treatment plants to also remove hexavalent chromium. Although some public water systems use the coagulant-filtration process for groundwater treatment of arsenic, iron, and manganese, no regulated contaminants currently require the reduction step (the “R” in “RCF”), which is necessary for the treatment of hexavalent chromium. However, it has been found that changing the coagulant to a reducing coagulant (e.g., from ferric chloride (oxidized form) to ferrous sulfate (reducing form), adding some reaction time, and adding an oxidation step afterwards (adding chlorine), will work to remove iron, manganese, arsenic, and hexavalent chromium concurrently. Therefore, to convert a coagulation-filtration facility to a RCF facility, would need a change in treatment chemicals and addition of a reaction vessel. The oxidation step is already typical for arsenic, iron, and manganese removal (Health Canada 2015, pp.19-20; Brandhuber 2004, p.10).

It is unlikely that any public water system will use existing RO treatment to remove hexavalent chromium because there are currently no large-scale RO treatment facilities for groundwater treatment. Some public water systems using POU may be able to use the same POU units for removing hexavalent chromium, however.

2.6.3 Alternative Means of Compliance

In addition to installation and operation of BAT, public water systems have indicated that the following are also reasonably foreseeable alternative means of compliance that may be cost-effective and available to some water systems.

2.6.3.1 Blending Contaminated Water with Uncontaminated Sources

Some water systems may be able to blend water from the contaminated source with water from a source that is not contaminated to produce water with a hexavalent chromium concentration below the proposed MCL. Blending requires additional source(s) of supply that ensures the combined sources comply with drinking water standards, a location where blending can be controlled and monitored, and facilities to induce blending. Blending typically requires installation of new pipelines, a location that accommodates a mixing chamber, and site instrumentation to monitor the blending facilities. Unlike treatment, blending does not generate any waste streams or waste product needing disposal.

2.6.3.2 Obtaining A New Groundwater Supply

Instead of installing treatment for a contaminated source, some water systems may be able to drill a new groundwater well in a location or at a depth where the groundwater's hexavalent chromium concentration is below the proposed MCL. Drilling a new well involves a drill rig, construction of temporary drilling mud pits, and mobilization of equipment. Drilling a new well may not be an option for many water systems where access to aquifers or water bearing strata free of hexavalent chromium is unavailable.

2.6.3.3 Obtaining A New Surface Water Supply

Some water systems may choose to switch to surface water that is not contaminated with hexavalent chromium. Some water systems may already have access to surface water through their water rights or a contracted supply and have an existing surface water treatment plant. Of the public water systems that the State Water Board has data indicating that they would exceed the MCL for hexavalent chromium, there are approximately 30 public water systems that currently use both groundwater and surface water. For these systems, it may be possible to increase their reliance on surface water and reduce or cease using the groundwater supply contaminated with hexavalent chromium. The infrastructure already exists for these systems, and there is unlikely to be additional infrastructure necessary to implement this alternative. However, depending on the loss of source capacity due to hexavalent chromium contamination, some surface water facilities may need to undergo expansion. Some systems may not find this alternative to be feasible if their surface water source is unreliable or inadequate during the dry season, however.

Water systems without existing surface water rights, the ability to contract for an additional source of water, or an existing surface water treatment plant are unlikely to switch to surface water for two reasons. First, obtaining surface water could be challenging. Many streams are fully appropriated by existing water right holders, and although a public water system could purchase water, it may not be a reliable, long-term solution. Second, constructing a surface water treatment plant is a more expensive undertaking than installing a treatment system for hexavalent chromium at a groundwater well. For these reasons, it is not reasonably foreseeable that water systems will develop surface water sources as an alternative means of complying with the proposed regulation.

2.6.3.4 Consolidating With, Or Connecting To, Another Public Water System

Consolidation is the joining of two or more water systems, and usually includes a smaller system being subsumed into a larger water system (SWRCB 2021a, p.168). A water system with hexavalent chromium contamination may decide to consolidate with a nearby water system, rather than treat its contaminated source or obtain a new source. Consolidation is particularly likely for small water systems for which the cost of treatment or obtaining new

sources cannot be recovered from a large base of ratepayers. In those cases, the small water system may prefer to consolidate with a nearby water system and cease operating as a standalone system.

In addition to consolidation, a public water system may purchase water from another system that meets the MCL for hexavalent chromium. If the system has an interconnection with that other system, then no new infrastructure may be necessary. In other cases, the public water system would need to construct an interconnection, including any transmission pipelines necessary to connect to the other system.

Both consolidation and purchasing of water require installation of a drinking water pipeline connecting the two systems, which varies in length according to the distance between the systems. The pipeline is often constructed in existing rights of way, such as alongside roadways. In some cases, the pipeline may need to be constructed in undisturbed areas.

Besides the adjoining pipeline, consolidation and purchasing water usually do not require installation of additional infrastructure, but in some cases, the aging infrastructure of the subsumed system in a consolidation may need to be replaced or improved for other reasons. For instance, the receiving water system may want to replace or install new booster pumps and storage tanks and overhaul the subsumed system's distribution system. While these improvements may be constructed as part of the consolidation project, they are usually not necessary for delivering uncontaminated water. Rather, they may be pursued for other reasons, such as reducing overall construction costs by undertaking multiple improvement projects at the same time.

2.6.3.5 Using Stannous Chloride Treatment

Stannous chloride reduction, like RCF, reduces chromium from its hexavalent to trivalent form; unlike RCF, however, the trivalent chromium precipitate is not removed by filtration; instead, it and the stannous chloride remain in the distribution system (Dummer 2021). The State Water Board does not propose identifying stannous chloride reduction treatment as a BAT because more data is needed to assess its efficacy and safety. For instance, more information is needed to understand how time in the distribution system affects oxidation of trivalent chromium to hexavalent chromium, and whether water systems can treat hexavalent chromium with stannous chloride without exceeding the maximum use level for stannous chloride as a drinking water additive. In addition, stannous chloride and chromium have been shown to deposit and accumulate onto piping and other media, adding to concerns about the fate of both stannous chloride and chromium in the distribution system (Kennedy et al. 2020).

Although the State Water Board determined that stannous chloride reduction treatment was not a BAT for addressing hexavalent chromium contamination, there may be specific conditions under which it is a viable treatment technology for some systems (SWRCB 2021b; SWRCB 2023a, sec. 5.4.4). With additional data showing its effectiveness and no adverse health consequences, it is possible that stannous chloride may be permitted for some systems. Therefore, for purposes of CEQA the State Water Board considers stannous chloride reduction treatment to be a reasonably foreseeable alternative means of compliance with the proposed regulation.

Stannous chloride reduction treatment requires installation of a treatment system, including a chemical storage tank and a chemical metering pump. The chemical storage tank would be designed with a secondary container to prevent leaks. The treatment system would be

installed inside the existing well head building, if one exists, or inside a chemical feed shed constructed next to the well head and occupying a small footprint.

Because no filtration or coagulation is required, stannous chloride reduction treatment requires a much smaller footprint than the treatments that have been identified as the best available technologies. In the case of a well with an existing wellhead building, there would be no additional footprint at all.

2.7 PROJECT ECONOMIC CHARACTERISTICS

The State Water Board prepared both a SRIA and an economic impact assessment of the Proposed Regulations to comply with the Administrative Procedure Act's requirements for rulemakings. The economic impact assessment is available in the Initial Statement of Reasons (ISOR), and the SRIA is available at the State Water Board's **Hexavalent Chromium website.**

The State Water Board found that for CWS, the average annual cost per service connection to pay for installing treatment ranges from $91 (systems with more than 10,000 service connections) to $1,622 (for systems with fewer than 100 service connections) (SWRCB 2023a, sec. 5.2.4.4). The average annual cost per person for CWS ranges from $23 (systems with more than 10,000 service connections) to $443 (systems with less than 100 service connections). (SWRCB 2023a, sec. 5.2.4.5). These costs are higher for smaller water systems because there are fewer service connections among which the cost of the treatment can be shared.

For NTNCWS, the average annual cost per service connection ranges from $2,973 (systems with 1,000 or more people) to $72,596 (systems with 400 to 1,000 people) (SWRCB 2023a, sec. 5.2.4.4). The annual average cost per person for NTNCWS ranges from $101 (systems with 1,000 or more people) to $1,596 (systems with fewer than 50 people). For TNCWS, the average annual cost per service connection is $1,667. The average annual cost per person is $442 for TNCWS and $6 for wholesalers. However, NTNCWS and TNCWS are not community systems and do not directly charge households or individuals for the cost of water (SWRCB 2023a, sec. 5.2.4.5).

2.8 PROJECT ENVIRONMENTAL CHARACTERISTICS

See section 3, which describes the environmental characteristics of the Proposed Regulations.

2.9 AGENCIES THAT WILL USE THIS DOCUMENT

The State Water Board will use this first-tier, programmatic EIR in considering whether to adopt the Proposed Regulations. Prior to approving the project, the State Water Board, as lead agency, must certify that the EIR has been prepared in compliance with CEQA, that the final EIR was presented to the Board, that the Board reviewed and considered the information contained in the final EIR prior to approving the project, and the final EIR reflects the Board's independent judgement and analysis. (Cal. Code Regs., tit. 14 § 15090 subd. (a)). Once the EIR is certified, it will be one of the factors considered by the State Water Board when deciding whether to adopt the Proposed Regulations.

Public Resources Code section 21159.1 allows the use of focused EIRs for projects that consist solely of installation of pollution control equipment required by specific agencies' rules

or regulations and other components necessary to complete installation of equipment, if the agency requiring pollution control prepared an EIR that included an assessment of growth-inducing and cumulative impacts from, and alternatives to, the project. For these focused EIRs the discussion of potential significant environmental impacts is limited to project-specific potentially significant effects on the environment that were not discussed in the environmental analysis in the EIR prepared for the rule or regulation. In addition, the focused EIR does not have to discuss growth-inducing or cumulative impacts, and the discussion of alternatives can be limited to a discussion of alternative means of compliance, if any, with the rule or regulation.

Public water systems and other entities may use this EIR in CEQA analysis of site-specific projects to comply with the Proposed Regulations. Local compliance projects are likely to be projects under CEQA and will require CEQA review by lead and responsible agencies. Most CWS are publicly owned and would act as the lead agencies, with other agencies with authority to approve the project serving as responsible agencies. For privately-owned water systems, which include many NTNCWS and TNCWS, a public agency approving the project will serve as lead agency. In many cases, this is the county, city, or other jurisdiction with primary oversight of the project; in some cases, it is the State Water Board, which permits the operation of the public water system, or is providing funding for the project. If not serving as lead agency for a site-specific project, the State Water Board would serve as a responsible agency.

Under the California Safe Drinking Water Act, public water systems must obtain an amended permit from the State Water Board's Division of Drinking Water when modifying, adding to, or changing their source of supply or method of treatment. (Health & Saf. Code, § 116550.) The issuance of a discretionary approval would require CEQA review of the site-specific compliance project, and the State Water Board may rely on this EIR when conducting that future review.

CHAPTER 3 - IMPACT ANALYSIS APPROACH

3.1 COMPLIANCE WITH PUBLIC RESOURCES CODE SECTION 21159

3.1.1 Requirement

When the State Water Board adopts a rule or regulation requiring in the installation of pollution control equipment or a performance standard, it must conduct an environmental analysis of the reasonably foreseeable methods of compliance with that rule or regulation. (Pub. Resources Code, § 21159; Cal. Code Regs., tit. 14, § 15187, subd. (a).) In preparation of that analysis, the State Water Board may use numerical ranges or averages where specific data is not available; however, it is not required to engage in speculation or conjecture. The analysis is required to include:

- An analysis of the reasonably foreseeable environmental impacts of the methods of compliance,
- An analysis of reasonably foreseeable feasible mitigation measures relating to those impacts, and
- An analysis of reasonably foreseeable alternative means of compliance with the rule or regulation.

The analysis must consider a reasonable range of environmental, economic, and technical factors, population and geographic areas, and specific sites. (Pub. Resources Code, § 21159, subd. (c).) The analysis should not engage in speculation, nor is the detail of a project-level analysis required. (*Id*., subds. (a) & (d).) The preparation of an EIR at the time of adopting a rule or regulation pursuant to CEQA is deemed to satisfy these requirements (*Id*., subd. (b).)

3.1.2 Reasonably Foreseeable Means of Compliance

The Proposed Regulations do not prescribe means for complying with the proposed MCL, but they do identify the following as BAT to achieve compliance: Strong-base and Weak-base IX, RCF, and RO. Although public water systems may be permitted to use other means to achieve compliance with the proposed MCL, BAT is expected to be the primary means to achieve compliance. Installation of BAT is therefore considered the “reasonably foreseeable means of compliance”.

3.1.3 Reasonably Foreseeable Alternative Means of Compliance

As explained in section 2.6.3 - “Alternative Means of Compliance,” the State Water Board relied on several sources of information to identify reasonably foreseeable alternative methods of compliance. The reasonably foreseeable alternative means of compliance include: (1) blending contaminated water with other existing uncontaminated sources; (2) drilling a new groundwater well; (3) increasing reliance on surface water; (4) purchasing water from or consolidating with another water system; and (5) using stannous chloride treatment.

3.1.4 Analysis of Potential Impacts is Programmatic

All public water systems in California around the state will need to comply with the Proposed Regulations. Some public water systems that need to treat their water to comply with the proposed MCL will be in both rural and urban areas; some will be very large, such as Coachella Valley Water District; others may serve fewer than 100 homes. Although the State Water Board has some understanding of areas in the state where groundwater exceeds the proposed MCL, the State Water Board cannot predict how each public water system will choose to comply, where the site-specific compliance projects will be located, what site-specific sensitive resources may be located there, what mitigation measures may be feasible, and what the potential significant environmental impacts could ultimately be. Because of the anticipated variety of circumstances in which public water systems are located and the number of different ways in which public water systems may choose to comply, the analysis of the impacts of the Proposed Regulations must be programmatic in nature.

This EIR focuses on the potential environmental impacts resulting from actions that public water systems are expected to take to comply with the Proposed Regulations. This includes the environmental impacts of the construction and operation of both BAT and alternative means of compliance. Although the impacts related to BAT are well understood, as IX, RCF, and RO are commonly used treatment technologies for removing contaminants from drinking water, impacts related to the alternative means of compliance are likely to be much more variable, depending on the individual project. Means of compliance such as switching to surface water, drilling a well, or intertying with an adjacent system would be much more varied in their implementation, depending on many factors including their location and the cost of implementation. Therefore, the analysis of impacts related to the alternative means of compliance are much more generalized than the impacts related to the implementation of BAT.

As a first-tier, programmatic EIR, this document cannot address potential site-specific project environmental impacts. Instead, it considers generally the potential environmental impacts of compliance, with the understanding that site-specific compliance projects could be located at any number of locations in the state, some of which may be sensitive and result in potentially significant impacts to the environment. This analysis contains as much information as is currently available, without being speculative.

3.1.5 Use Of Available Data in Impacts Assessments

It is unknown what types of compliance projects public water systems will employ to meet the Proposed Regulations; however, data is available on the number and locations of active groundwater wells that have analytical results (SDWIS 2021). The data used in this analysis are from the Division of Drinking Water dataset described as “Well results represent active and inactive public supply wells for water systems that serve at least 15 connections or more than 25 people per day (some smaller systems may be included but at limited availability)” h**ttps://gamagroundwater.waterboards.ca.gov/gama/datadownload.** Wells, whose highest annual average over the data period for each source exceeded the proposed MCL were included in the analysis. This data set is not exhaustive as not all public water system wells have been tested for the presence of hexavalent chromium. These are the same wells that appear in the Drinking Water Watch website **https://sdwis.waterboards.ca.gov/PDWW/**

and are also a subset of the data available at **https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/**.

These well data were compared against the following datasets to assess environmental settings and potential impacts (Elliott 2022; See Appendix C): the California Department of Conservation's California Important Farmland (CDC 2022e), California Geological Survey Alquist-Priolo fault zones (CDC 2022a), California Geological Survey liquefaction hazard zones (CDC 2022c), California Geological Survey landslide hazard zones (CDC 2022b), tsunami hazard zones (CDC 2022f), and California Geological Survey Minerals Program radon hazard zones (CDC 2022d); the California Department of Forestry and Fire Protection's Forest Vegetation (CAL FIRE 2022a), and Fire Hazard Severity Zones (CAL FIRE 2022b); the California Department of Water Resources' Sustainable Groundwater Management Act Basin Prioritization (DWR 2022); the California Department of Fish and Wildlife's California Natural Diversity Database (CDFW 2022a), Conservation Plan Boundaries (CDFW 2022b), and Oak Woodlands (CDFW 2017); the United States Fish and Wildlife Service's Critical Habitats (USFWS 2022); the San Francisco Estuary Institute's California Aquatic Resources Inventory (SFEI 2017); the National Park Service's National Register of Historic Places (NPS 2022); the United States Environmental Protection Agency's Superfund Site Boundaries (US EPA 2022); and the California Environmental Protection Agency's Cortese List Sites (CalEPA 2022).

3.2 POTENTIAL IMPACTS

The State Water Board's Division of Drinking Water has extensive experience with all the reasonably foreseeable means of compliance and was able to draw upon that experience when considering the potential environmental impacts of public water system's implementation of the Proposed Regulations. Because the BATs identified are common, their potential impacts are generally well understood. Under many circumstances, these projects do not have significant impacts and are able to rely on categorical exemptions, such as the exemption for minor alterations of existing facilities or for the construction or conversion of small structures.[8]

The State Water Board consulted a variety of sources to assess the reasonably foreseeable impacts from BATs, including a review of articles and guidance (Brandhuber 2004; Hazen 2013; Najm et al. 2014; Najm et al. 2017; Water Research Foundation 2014; Water Research Foundation 2017a). It also surveyed the public water systems in California currently operating BAT to treat for hexavalent chromium regarding the footprint of their treatment facilities and waste disposal practices. It reviewed CEQA documents prepared for BAT projects to treat for hexavalent chromium: an EIR prepared by Coachella Valley Water District and a mitigated negative declaration prepared by Soquel Creek Water District. It also reviewed research studies on a demonstration project to treat for hexavalent chromium carried out by the City of Glendale, as well as reviews of research on BAT energy use and waste disposal. The State Water Board is also familiar with potential impacts related to the alternative methods of compliance. For example, the State Water Board has been involved in 200 consolidations since 2016, and routinely is a lead or responsible agency for projects that involve the kinds of activities that have been identified as reasonably foreseeable alternative means of compliance, such as permitting new groundwater wells, surface water treatment

[8] For example, the Indio Water Authority relied on the exemption for minor alterations to existing facilities for its hexavalent chromium treatment projects needed to meet summer potable demand. (Cal. Code Regs., tit. 14, §15303) (IWA 2015).

plants, and source blending. Based on this experience, the State Water Board has been able to identify potential impacts related to the reasonably foreseeable alternatives.

Based on the information developed from the State Water Board's experience with the reasonably foreseeable means of compliance and the information gathered from other environmental documents, this EIR identified the following potential impacts related to the reasonably foreseeable means of compliance.

3.2.1 Impacts from Monitoring Requirements

CWS and NTNCWS will be required to test for hexavalent chromium. About 80% of the approximately 7,000 public water systems have already been tested, and even though it is not required, approximately 2,724 sources and 150 treatment facilities continue to monitor for its presence. Systems that have not been tested within the last two years would need to begin testing after the regulations are adopted. Much of the new testing can be done at times when public water systems are already testing for other constituents. This is especially true for the triennial, annual, and quarterly testing required by the Proposed Regulations.

For the annual monitoring required by systems relying on surface water, or the triennial testing by systems relying on groundwater, the testing would likely be performed at the same time as other testing, such as the routine testing for other inorganic chemicals. If a public water system has hexavalent chromium over the MCL and needs to test quarterly, it is possible, especially if the system relies on groundwater and is required to chlorinate, to coordinate that testing with other requirements, such as the quarterly bacteriological testing required for chlorinated groundwater systems under the Revised Total Coliform Rule.[9] Based on past and current monitoring information, it is anticipated that 233 public water systems may have to treat (SWRCB 2023b, sec A.4). If a public water system is required to treat for hexavalent chromium, it would be required to test the treated water monthly. Additional testing required by the Proposed Regulations could result in additional greenhouse gas emissions if operators must make additional driving trips to perform the testing and use gas-powered vehicles.

Under the State Water Board's existing regulations, TNCWS are only required to monitor for inorganic chemicals if they are using surface water sources for parks or other facilities with an average daily population use of more than 1,000 people, or if they are determined to be subject to potential contamination based on a sanitary survey (Cal. Code Regs., tit. 22, § 64432, subd. (o).) Out of the 3,002 TNCWS currently in the state, only 259 (8.6%) have ever sampled for hexavalent chromium. Any TNCWS source required to sample will follow the same sampling frequency as CWS sources. (*Id*.) It is likely that any new monitoring would be coordinated with existing monitoring requirements.

3.2.2 BAT-Related Impacts

3.2.2.1 Construction Impacts

There may be potentially significant environmental impacts from construction of all three BATs. Many impacts from construction are temporary and would cease as soon as the

[9] For example, there are already 1023 public water systems that chlorinate their groundwater and must test for bacteria quarterly to comply with the revised total coliform rule. (Cal. Code Regs., tit. 22, § 64421, subd. (b)(2)(A).)

construction is completed. Temporary construction impacts include noise, truck traffic, dust, and air quality. However, construction impacts from grading and trenching can also cause permanent impacts to many of the resource categories including wetlands, plant and animal species, and tribal and cultural resources. In addition, the construction of impervious surfaces, such as concrete pads for infrastructure, such as tanks, can affect hydrologic resources, by impacting drainage off-site and groundwater infiltration.

3.2.2.2 Operational Impacts

All three BATs will generate treatment residuals, which may require disposal as hazardous waste. IX resin regeneration produces brine containing accumulated hexavalent chromium and may also contain significant quantities of arsenic and uranium. RCF filter backwashing produces backwash containing trivalent chromium. RO POU devices produce rejected water containing higher concentrations of hexavalent chromium, although rejected water would recombine with treated water before entering the sewer. Used brine and backwash water may contain chromium and other contaminants at concentrations requiring disposal at a licensed hazardous waste facility. Contaminants may be separated from brine and backwash through dewatering, reducing the volume of hazardous waste requiring disposal and allowing reuse of brine or water. If brine or backwash is not a hazardous waste, it may be discharged to the sewer, if permitted by the local municipality. Discharges could also be allowed to the ground or surface waters if permitted by the appropriate Regional Water Quality Control Board. (Wat. Code, § 13260.)

When the filter media for each of the BATs are exhausted, the treatment efficiency will be reduced, and the media will need to be replaced. Spent IX resins may contain concentrations of contaminants requiring their disposal as hazardous waste. Other media may be disposed of at landfills.

In California, the Department of Toxic Substances Control (DTSC) implements the federal Resource Conservation and Recovery Act (RCRA) to ensure that hazardous and non-hazardous wastes are properly managed. Public water systems are required to meet DTSC's requirements, which would include testing spent filters to determine if they contain hazardous levels of waste, and if so, transporting the spent filters appropriately, disposing of them at a facility approved to accept such waste, and maintaining records of how filters are disposed of (See Chapter 12 for information related to hazardous waste disposal).

Additional impacts potentially related to the operation of BAT include additional energy and water usage.[10] As described previously in section 2.6.1, IX and RCF treatment may require an increase in pressure due to head loss from the treatment process. In those cases, installation of a booster pump may be necessary. Similarly, additional water may be required for backwashing, and water loss occurs from the treatment process itself. POU RO devices would produce some rejected water that would be lost down the drain.

Although there may be construction and operational impacts from the BATs, the BATs also have a beneficial impact on the environment because the treatment removes hexavalent chromium from the environment to a place where it can be safely contained. Once the

[10] Note that full-scale RO has high energy costs, but the state water board does not anticipate RO use by public water systems as centralized treatment. (SWRCB 2023a, sec. 5.4.3.)

drinking water has been treated for hexavalent chromium, the domestic wastewater would not contain the contaminant.

3.2.3 Impacts Related to Alternative Means of Compliance

3.2.3.1 Blending

Impacts related to blending contaminated water with other existing uncontaminated sources may include construction impacts related to the installation of new pipelines and a mixing chamber and site instrumentation to monitor the blending facilities. Many of these impacts would be short-term impacts related to construction. In many cases, blending projects would occur on existing water facility sites. Operation of a mixing chamber and a booster pump to reinject the water back into the distribution system would likely require a 25 to 100 horsepower pump, depending on the flow rate. In addition, the addition of facilities could cause impacts to resources such as aesthetics, depending on the size and location of the project's facilities.

3.2.3.2 New Groundwater Wells

Potential environmental impacts related to obtaining a new groundwater supply would be related to drilling a new groundwater well in a location or at a depth where there is not hexavalent chromium contamination above the proposed the maximum contaminant level and connecting the new well to the existing distribution system. Drilling a new well involves a drill rig, construction of test wells, temporary drilling mud pits, and mobilization of equipment, which sometimes requires grading of new access roads. Operational impacts could occur to the groundwater aquifer, especially if the aquifer is already overused. Impacts to the aquifer and energy use to pump the water would only be significant if the old well is not replaced by the new well and decommissioned and water extraction and energy use are increased over what was previously used. There would also be minor construction impacts associated with destroying the old, contaminated source well.

3.2.3.3 New Surface Water Supply

Potential environmental impacts related to obtaining a new surface water supply would probably not include construction impacts because it is unlikely that any system that does not already use surface water would find it economical to construct a surface water treatment plant, and instead would install groundwater treatment. However, if a public water system already relies on surface water sources for at least part of its supply, it may be able to increase its reliance on that source, which is less likely to be contaminated with hexavalent chromium. Since the infrastructure already exists for these systems using surface water, there is unlikely to be additional infrastructure necessary to implement this alternative other than operational changes.

However, depending on the loss of source capacity due to hexavalent chromium contamination, some surface water facilities may need to undergo expansion, which could result in construction impacts. Construction impacts in and near waterways may involve impacts to waters of the U.S. and waters of the state, wetlands and riparian habitat, and aquatic and wetland species. Construction near rivers, lakes, estuaries, and the coast also has a higher potential to impact cultural and tribal cultural resources because most pre-industrial human occupation relied on proximity to natural perennial water sources. Operational impacts from an increased reliance on surface water could have potential

impacts on the amount of water in that surface water body, potentially impacting fish and other aquatic and wetland resources that rely upon that surface water.

3.2.3.4 Consolidation or Intertie

Potential environmental impacts related to purchasing water from or consolidating with another public water system would include construction-related impacts. Purchasing water from another system and consolidation require installation of a drinking water pipeline connecting the two systems, which varies in length according to the distance between the systems. Pipelines to connect systems are often constructed in existing rights of way, such as in and alongside roadways. In some cases, the pipeline may need to be constructed in undisturbed areas, which could cause potentially significant environmental impacts. Other construction-related impacts could be associated with upgrades to the distribution system or other aging infrastructure. In addition, there could be potential impacts related to increased reliance on the source of the public water system providing the water. For example, if the system providing the water relies on a well, the additional water needed to supply the system being consolidated or intertied could affect the aquifer.

3.2.3.5 Stannous Chloride

Potential environmental impacts related to stannous chloride treatment are like those related to treatment using RCF and include short-term construction impacts to resources such as noise and air quality, and longer-term impacts related to grading and trenching, such as permanent impacts to resource categories such as wetlands, plant and animal species, and tribal and cultural resources. In addition, although stannous chloride treatment requires a smaller footprint than other treatments, like IX or RCF, it still requires installation of a chemical storage tank and metering pump, and the construction of impervious surfaces can affect the hydrology resources, including drainage off-site and groundwater infiltration.

Unlike the BAT, there is no disposal requirement for treatment with stannous chloride. However, because the trivalent chromium precipitate is not removed by filtration and remains in the water, there could be a potential for trivalent chromium to reoxidize to hexavalent chromium in the distribution system. In addition, there could be a potential impact to water quality resources by exceeding the maximum use level for stannous chloride as a drinking water additive.

3.3 IDENTIFYING IMPACT SIGNIFICANCE

The analysis first determines the extent to which each of the resources categories could be affected by the public water systems implementing reasonably foreseeable means of compliance to meet the MCL. The analysis then applies a set of specific significance criteria (Thresholds of Significance) based on the CEQA Guidelines Appendix G Environmental Checklist Form. The “threshold of significance” for a given environmental effect is that level at which the lead agency finds effects of the project to be significant. The threshold can be defined as a quantitative or qualitative standard, or a set of criteria pursuant to which the significance of a given environmental effect may be determined.

The range of impacts from the Proposed Regulations are as follows:

a) No Impact – where the implementation of reasonably foreseeable means of compliance with the MCL is not anticipated to create a physical adverse change in the environment, or the project would result in only a beneficial impact.

b) Less-Than-Significant Impact – where the implementation of reasonably foreseeable means of compliance with the MCL is not expected to create a substantial adverse change in the environment and for which no mitigation measures are required.

c) Significant Impact – where the implementation of reasonably foreseeable means of compliance with the MCL is anticipated to create a substantial adverse effect on the environment, but feasible mitigation measures are available to reduce it to a less-than-significant level.

d) Significant and Unavoidable Impact – where the implementation of reasonably foreseeable means of compliance with the MCL is expected to create a substantial adverse effect on the environment and for which there are no feasible mitigation measures available to reduce it to a less-than-significant level.

Note that some impacts are identified as significant or significant and unavoidable only because of the programmatic nature of the document; the Water Board has no control over how the public water system might implement their individual projects to come into compliance, but it is likely that as part of a site-specific project analysis of the impacts of the compliance project that some of these impacts could be mitigated. For example, because a treatment facility could be located on prime agricultural land, the State Water Board cannot say that there would be no impact on prime agricultural land. However, it is likely that most public water systems would be able to avoid impacts to prime agricultural land and other sensitive locations when implementing their site-specific compliance project.

3.4 MITIGATION MEASURES

Where significant adverse impacts are identified, the EIR must "describe feasible measures which could minimize" those impacts to a less-than-significant level. (Cal. Code Regs., tit. 14, § 15126.4.) Without attempting to quantify the impacts associated with the implementation of any specific project, the EIR includes a list of potential actions or mitigation measures that could possibly reduce the impact to a less-than-significant level or contribute to doing so.[11] However, because of the programmatic nature of the analysis and because the State Water Board does not have control over how a public water system will ultimately comply with the regulations, including where it would locate site-specific compliance projects, it is uncertain whether the identified mitigation would be effective in reducing the potential impacts for any specific project.

In addition, even if the mitigation measures identified in the EIR would be effective, the State Water Board does not have the ability to require that specific mitigation measures be implemented at this time; that is within the purview of the lead and responsible agencies that will ultimately approve or permit the site-specific compliance projects.

Because there is inherent uncertainty in where future projects may be implemented (i.e., within sensitive wetland areas versus previously disturbed areas), or in the degree of

[11] Some of the measures identified may not be traditional mitigation measures, but instead are regulatory requirements that are required by law, and if complied with, could reduce potential impacts. For example, in the Geology section regarding impacts related to seismic activity, it was identified that "Water system components should be sited, designed, and constructed in compliance with state and local seismic design regulations."

mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects, this EIR takes a conservative approach in making its post-mitigation significance conclusions. In many cases, even though mitigation is identified, and it would likely be effective in mitigating to less-than-significant levels any potential impact, the EIR concludes that the potential impacts are significant and unavoidable because of this inherent uncertainty.

3.5 CUMULATIVE IMPACTS

CEQA requires consideration of cumulative environmental impacts. Cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. (Cal. Code Regs., tit. 14 § 15355.) The purpose of the cumulative impacts analysis is to ensure that potential environmental impacts of an individual project are not considered in isolation. Impacts that may be individually less than significant from a narrow project-scale perspective could pose potentially significant impacts when considered from a wider perspective, including impacts of other past, present, and probable future projects.

Discussion on cumulative impacts must reflect the severity of impacts and likelihood of occurrence. (Cal. Code Regs., tit. 14, § 15130, subd. (b).) According to the CEQA Guidelines, the cumulative impacts discussion does not need to provide as much detail as is provided in the analysis of project-only impacts and should be guided by standards of practicality and reasonableness (*Id.*, subd. (b).)

3.5.1 Projects Producing Related or Cumulative Impacts

The CEQA Guidelines require that a lead agency either include a list of past, present, and probable future projects producing 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. (Cal. Code Regs., tit. 14, § 15130, subd. (b)(1).) Here, the State Water Board identified past, present, and probable future projects that could potentially produce cumulative impacts with the potential impacts that have been identified from the Proposed Regulations. To identify these other drinking water regulations or programs, the State Water Board considered the following information.

3.5.1.1 Existing primary drinking water regulations adopted by the State Water Board

Among other regulations implementing the California Safe Drinking Water Act, the State Water Board has previously adopted 18 MCLs for inorganic chemicals other than the proposed MCL for hexavalent chromium, 61 MCLs for organic chemicals (volatile organic chemicals and synthetic organic chemicals), 3 MCLs for radioactivity, and a primary drinking water standard for bacteriological quality. Reasonably foreseeable means of compliance with these regulations include similar site-specific projects as those for complying with the proposed regulation for hexavalent chromium. For instance, water systems may install treatment, obtain new sources of supply (i.e., drill new wells or switch to surface water), blend sources, or purchase water from, or consolidate with, other public water systems. These reasonably foreseeable means of compliance with existing drinking water standards are likely to produce similar environmental impacts as the reasonably foreseeable means of compliance with the proposed regulation for hexavalent chromium. Likewise, potential mitigation measures will be similar, too.

The State Water Board anticipates that strong-base IX and RCF will be the most common types of treatment that water systems employ to comply with the proposed regulation of hexavalent chromium. Many other contaminants for which drinking water standards have already been adopted may also be treated by strong base IX. Ion exchange is the best available technology for removing numerous other inorganic chemicals from drinking water, including arsenic, barium, beryllium, cadmium, cyanide, chromium, nickel, nitrate, nitrite, perchlorate, and thallium. (Cal. Code Regs., tit. 22, § 64447.2.) It is also the best available technology for removing radionuclides from drinking water, including combined radium-226 and radium-228, uranium, and beta particle and photon radioactivity. (Cal. Code Regs., tit. 22, § 64447.3.) Coagulation-filtration is used by some public water systems to remove arsenic, iron, and manganese, and with modifications to the process, including the addition of a reduction stage, can remove these contaminants as well as hexavalent chromium. Consequently, there are likely to be site-specific projects for complying with these other existing drinking water standards that may produce similar environmental impacts – and be amenable to similar project-specific mitigation measures – as the installation of strong-base ion exchange and RCF for complying with the proposed regulation of hexavalent chromium.[12]

In particular, the existing drinking water standards for arsenic and nitrate are especially relevant because of the widespread incidence of arsenic and nitrate contamination, especially in the Central Valley. The best available technology for arsenic and nitrate includes, among other things, IX treatment. It is likely that the reasonably foreseeable means of compliance for arsenic, nitrate, and the proposed regulation of hexavalent chromium will frequently include installation of IX treatment of groundwater. As with hexavalent chromium, alternative means of compliance may include obtaining new sources of water (drilling new wells or switching to surface water), blending sources, or purchasing water from, or consolidating with, other public water systems.

3.5.1.2 Future Primary Drinking Water Regulations That The State Water Board Is Likely To Adopt

There are also probable future drinking water standards that may be adopted by the State Water Board. These standards were identified at the March 1, 2022, meeting of the State Water Board, when the State Water Board's Division of Drinking Water proposed a list of regulatory development priorities (SWRCB Res. No. 2022-0007). The Division of Drinking Water proposed lowering the existing MCL for arsenic, developing new MCLs for perfluorooctanoic acid and perfluoroocatnesulfonic acid (and investigating whether to request that the OEHHA determine public health goals for other per- and polyfluoroalkyl substances), developing a new MCL for N-Nitroso-dimethylamine, and lowering the existing MCLs for styrene and cadmium. The State Water Board adopted the staff's proposed priorities for regulatory development. It is therefore assumed, for purposes of this EIR's cumulative impacts analysis, that these future regulations are probable future projects. Reasonably foreseeable means of compliance with these proposed drinking water standards are the same reasonably foreseeable means of compliance with existing drinking water standards and the proposed regulation of hexavalent chromium. A future lowering of the MCL for

[12] Note that in some circumstances where a public water system already has treatment in place for one constituent, it may be able to treat for additional constituents with changes to the treatment operation and would not need to install additional treatment.

arsenic may result in installation of new or increased IX or RCF treatment capacity at groundwater wells – like the proposed regulation of hexavalent chromium – as well as obtaining new sources of water (drilling new wells or switching to surface water), blending sources, or purchasing water from, or consolidating with, other public water systems.

Lastly, the OEHHA is developing public health goals for unregulated contaminants other than the ones discussed above, for which the State Water Board may develop drinking water standards in the future. Under the California Safe Drinking Water Act, the OEHHA is required to develop PHGs for contaminants that the State Water Board proposes to regulate. (Health & Saf. Code, § 116365 subd. (c).) Contaminants currently under review by the OEHHA include, 1,4-dioxane, trihalomethanes, halo acetic acids, and cyanotoxins.[13] To the extent that these contaminants are regulated in the future, the reasonably foreseeable means of compliance may be like the reasonably foreseeable means of compliance with the proposed regulation of hexavalent chromium.

3.5.1.3 The Safe and Affordable Funding for Equity and Resilience Program at the State Water Board

The State Water Board's Safe and Affordable Funding for Equity and Resilience (SAFER) program assists water systems to consolidate voluntarily and works with water systems that have been ordered by the State Water Board to consolidate. Water systems that voluntarily consolidate may be eligible for technical assistance from SAFER. There are 11 water systems that are voluntarily consolidating that SAFER is currently assisting. These include: Six Acres Water Company with City of Cloverdale; Kern Mobile Estates, LLC with Rosamond CSD; 60th Street Assoc. Water System with Rosamond CSD; First Mutual Water System with Rosamond CSD; Rosamond Mobile Home Park with Rosamond CSD; Rosamond School Water System with Rosamond CSD; North Fork Elementary School with MD#08 North Fork; Yosemite High School with Hillview Water Company; Madera County Maintenance District #19 Parkwood with City of Madera; and Soults Mutual Water Company with City of Tulare. More information is available at **the SAFER website**. These consolidation projects entail a variety of infrastructure improvements, many of which are like the reasonably foreseeable means of compliance with the proposed regulation of hexavalent chromium, and which may occur in areas near future site-specific compliance projects for the proposed regulation.

The State Water Board is authorized to order a mandatory consolidation of public water systems or state small water systems that serve disadvantaged communities and consistently fail to provide an adequate supply of safe drinking water or are at-risk, as defined in statute. (Health & Saf. Code, § 116682.) Water systems under mandatory consolidation order may receive technical and financial assistance from SAFER. There are currently six mandatory consolidation projects underway: Norcal Water Works with Del Water Company-Larkspur Meadows; Tooleville with the City of Exeter; West Water Company with Sonoma County CSA 41-Fitch; East Orosi CSD with Orosi Public Utility District; South Kern Mutual Water Company with City of Bakersfield; and Old River Mutual Water Company with City of Bakersfield. More information is available at **the SAFER website**.

Lastly, there have been 172 past consolidation projects facilitated by the SAFER program or its predecessor since January 1, 2017. These consolidation projects have occurred in locations throughout the state, and in many instances, involved construction of infrastructure

[13] More information is at **https://oehha.ca.gov/water/notices**.

like the reasonably foreseeable means of compliance with the proposed regulation for hexavalent chromium. This includes, for instance, installation of treatment, construction of new groundwater wells, connection to surface water sources, and purchasing water from or consolidating to, other public water systems.

3.5.1.4 The Drinking Water State Revolving Fund and Related Funding Programs at the State Water Board

The State Water Board administers California's Drinking Water State Revolving Fund (DWSRF), as well as complementary funding sources, which finance water infrastructure improvement projects throughout the state. Complementary revenue sources include general obligation bond acts such as "The Water Quality, Supply, and Infrastructure Improvement Act of 2014" (Proposition 1) and "The California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access for All Act of 2018" (Proposition 68). Notably, funding sources also include $650 million in appropriations in the Budget Act of 2021 (Senate Bill 129 and Senate Bill 170) for drinking water projects (budget item 3940-106-0001). More information about the DWSRF program is available at the State's Water Board **Division of Financial Assistance website.**

The DWSRF has financed 504 drinking water infrastructure projects since its inception (SWRCB DFA 2021b, p. 9). The number of projects financed each year varies. In the 2019-2020 annual report for the DWSRF, the State Water Board's Division of Financial Assistance identified 34 projects funded during state fiscal year 2019-2020 (SWRCB DFA 2021b, p. 10). The DWSRF program finances a wide variety of drinking water infrastructure improvement projects, some like the reasonably foreseeable means of compliance with the proposed regulation for hexavalent chromium. For instance, the State Water Board's Division of Financial Assistance identified 15 projects funded during the state fiscal year 2018-2019. Four projects were for MCL compliance; three projects were related to source, quantity, and reliability issues; one project was for a distribution pipeline; one project was for a treatment plant improvement; five projects addressed distribution storage; and one project was a consolidation (SWRCB DFA 2019, p. 21).

With respect to probable future projects, the State Water Board's Division of Financial Assistance maintains a DWSRF Comprehensive List, which includes active applications by water systems for financial assistance, but which are not complete. The Division of Financial Assistance also maintains a list of projects that are likely to receive funding by the end of the fiscal year. The fundable list for the state fiscal year 2021-2022 included 35 projects, which are located throughout the state. Many of these projects, if funded, will consist of infrastructure improvements that are located throughout the state and may be like the reasonably foreseeable means of compliance with the proposed regulation for hexavalent chromium, including installation of treatment, the drilling of new wells, improvements to surface water treatment facilities, interties with other water systems, and consolidations (SWRCB DFA 2021a).

3.5.2 Location of cumulative impacts

Cumulative impacts from the proposed regulation of hexavalent chromium may occur in areas of the state with public water system drinking water sources contaminated with hexavalent chromium above the proposed MCL of 10 ug/L. Table 3.1 shows the number of sources with detected contamination above 10 ppb for each county in the state. This is based

on the State Water Board's current information about hexavalent chromium detections (SDWIS 2021; WQIR 2021).

TABLE 3-1. KNOWN SOURCES CONTAMINATED ABOVE 10 UG/L, BY COUNTY

County	No. of Detections	County, cont.	No. of Detections
ALAMEDA	3	SAN BERNARDINO	46
BUTTE	1	SAN DIEGO	2
COLUSA	1	SAN FRANCISCO	11
DEL NORTE	5	SAN JOAQUIN	8
FRESNO	9	SAN LUIS OBISPO	5
GLENN	11	SAN MATEO	7
IMPERIAL	1	SANTA BARBARA	18
KERN	15	SANTA CRUZ	21
LAKE	2	SISKIYOU	1
LOS ANGELES	59	SOLANO	22
MARIPOSA	1	SONOMA	5
MERCED	23	STANISLAUS	15
MONTEREY	33	SUTTER	7
NAPA	1	TEHAMA	4
RIVERSIDE	90	TULARE	3
SACRAMENTO	20	VENTURA	2
SAN BENITO	8	YOLO	41

Similarly, Figure 2.1 in Chapter 2 shows the location of public water system sources with detected hexavalent chromium contamination above 10 ug/

3.5.3 Approach to Analysis of Cumulative Impacts

Because of the statewide reach of the Proposed Regulations and the variety and range of compliance methods available to public water systems, the impact analyses for the resource topics in the following chapters are programmatic in that they address the statewide context, rather than site-specific or project-specific effects. The document contains a description and analysis of a series of reasonably foreseeable compliance actions that are part of a statewide program. Recommended mitigation measures in the following chapters provide generally recognized methods to reduce potentially significant environmental impacts, but do not offer details related to future site-specific projects that cannot be known at this time. As a result of the statewide context of the environmental analysis, the impact conclusions and mitigation measures in the resource-oriented chapters that follow are cumulative by nature, because they describe the potential impacts associated collectively with the full range of reasonably foreseeable compliance responses.

Implementation of the Proposed Regulations would potentially result in cumulatively considerable contributions to significant cumulative impacts related to certain resource areas, as discussed below. While recommended mitigation is provided for each potential cumulatively considerable contribution to a significant impact, other agencies would be responsible for implementing the mitigation measures. Consequently, it is uncertain whether mitigation measures would be implemented, which precludes assurance that significant impacts would be avoided. Where impacts cannot feasibly be mitigated, this Draft EIR recognizes the impact as significant and unavoidable. The State Water Board will adopt Findings and a Statement of Overriding Considerations for any significant and unavoidable environmental effects of the Proposed Regulations as part of the approval process.

CHAPTER 4 - AESTHETICS

This chapter describes aesthetic resources in California and analyzes potential impacts that may occur from compliance with the Proposed Regulations.

4.1ENVIRONMENTAL SETTING

California has a great diversity of scenic vistas and aesthetic resources. Urban/developed areas are typical for incorporated areas within California, and include existing commercial, industrial, public, and residential uses. Urban fringe or urban transition areas are located on the edge of urban development and provide a buffer between urban and agricultural or open space uses. Transitional land uses on the edge of urban fringe areas may include commercial, industrial, or public uses compatible with agricultural or open space uses. Agricultural areas are typified by broad open agrarian fields including dairies, cropland, vineyards, orchards, and grazing land. Typical elements include farm structures and equipment and scattered rural residences. Natural open space areas include expanses of valleys, foothills, mountains, deserts, forests, wetlands, and coastal resources, among others, that are not utilized for agriculture. Some natural open space areas are designated as federal, state, or local parklands or recreation areas. Scenic vistas can include any of the previously described visual landscapes, including, for example, coastal vistas, mountain views, and cityscapes.

4.2 REGULATORY SETTING

4.2.1 California's Scenic Highway Program

A highway may be designated scenic under California's Scenic Highway Program depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. The Scenic Highway Program does not preclude development but seeks to encourage quality development that does not degrade the scenic value of the highway. Scenic Highways are identified as either eligible for listing or officially designated. Currently there are 70 officially designated State Scenic Highways, totaling 1,385 miles; and 7 officially designated County Scenic Highways, totaling over 75 miles throughout California. In addition, there are 155 eligible Scenic Highways throughout California. The locations of these scenic highways are available on the California Scenic Highway Mapping System website (Caltrans 2022).

4.2.2 Outdoor Lighting

The California Building Standards Code (CBC) contains regulations concerning lighting characteristics, such as maximum power and brightness, shielding, and sensor controls to turn lighting on and off. (Cal. Code Regs., tit. 24, §§ 130.2-140.7.) Different lighting standards are set by classifying areas by lighting zone (LZ). The classification is based on population figures of the 2000 Census. Areas can be designated as LZ0 (very low – undeveloped areas of government designated parks, recreation areas, and wildlife preserves), LZ1 (low – developed portions of government designated parks, recreation areas, and wildlife preserves), LZ2 (moderate – rural areas), LZ3 (moderately high – urban areas), or LZ4

(high). (Cal. Code Regs., tit. 24, §§ 10-114.) Lighting requirements for LZ0 and LZ1 have stricter protections against new sources of light pollution and light trespass.

4.2.3 Local General Plans and ordinances

Cities and counties within California are required to develop general plans that set forth the goals, policies, and directions they will take in managing their future development. Scenic resources must be included in the land use and open space elements of general plans. Scenic resources are also closely related to other elements of a general plan.

Cities and counties adopt local ordinances to implement their general plans, including protection of scenic resources. For example, Sacramento County regulates signs along scenic corridors identified in its general plan's circulation element. (Sac. Co. Zoning Code, § 5.10.7.)

4.3 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This section discusses potential impacts to aesthetic resources from the implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations. Reasonably foreseeable means of compliance with the proposed regulation include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of impacts to aesthetic resources that could occur with implementation of the reasonably foreseeable means of compliance with the proposed regulation. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines.

Future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-specific assessments of impacts on aesthetic resources. At that time, project-level impacts to aesthetic resources will be analyzed.

4.4 IMPACTS AND MITIGATION MEASURES

Would the Proposed Regulations:

1. Have a substantial adverse effect on a scenic vista?
2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?
3. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings. (Public views are those that are

experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

4.4.1 Impact 4-1 – Scenic Vistas

Treatment to remove hexavalent chromium from a groundwater source will generally be installed at the well site or near it. Similarly, if a water system increases its use of uncontaminated surface water, it will likely expand its existing water treatment facility. Because treatment is likely to occur at an existing waterworks site, it is unlikely to cause a new obstruction of an existing scenic vista. Likewise, installation of treatment is unlikely to substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway; or to substantially degrade the existing visual character or quality of the site and its surroundings.

Implementation of reasonably foreseeable alternative methods of compliance other than increased use of surface water have a potential to negatively affect scenic vistas, scenic resources, or scenic quality. Consolidations between two water systems or the purchase of uncontaminated water from another water system may involve construction of new distribution infrastructure. Transmission pipelines are often buried underground and are unlikely to obstruct scenic vistas, resources, or quality, though some trees or vegetation could nevertheless be lost during installation. Some consolidations may require construction of distribution storage tanks. Likewise, blending sources to comply with the proposed regulation may require the construction of tanks or other infrastructure. These tanks, depending on their size and location, could potentially obstruct scenic vistas or degrade existing scenic resources or scenic quality. There is inherent uncertainty in the location of future site-specific projects to comply with the proposed regulation. This is particularly true in the case of infrastructure for consolidations, interties, and blending, which may be constructed in one of many possible locations throughout a water distribution system. It cannot be known at this programmatic stage whether site-specific projects will be constructed in a location or manner that impair existing scenic resources or degrade their existing quality.

The State Water Board expects that the installation of treatment or other reasonably foreseeable alternative means of compliance will be developed in compliance with local general plans designating scenic vistas or corridors, and local zoning ordinances and design standards requiring minimum setbacks, maximum height requirements, and other standards to reduce any impact on scenic vistas, resources, and quality. Installation of treatment or other reasonably foreseeable alternative means of compliance will consist of site-specific projects that undergo individual CEQA review to assess environmental impacts, including impacts to scenic vistas, resources, and quality. The State Water Board anticipates that, as part of those environmental reviews for site-specific projects, the CEQA lead agencies will require compliance with local ordinances and design standards to reduce potentially adverse impacts to scenic vistas, resources, and quality. In addition, there are recognized practices and mitigation measures that lead agencies may require of site-specific projects to avoid or minimize potentially adverse impacts.

4.4.1.1 Mitigation Measures 4-1

a) To the extent possible, install equipment and infrastructure improvements within or adjacent to existing facility boundaries.

b) Where new structures or enclosures are necessary, avoid exceeding the height of existing buildings and structures in the vicinity.

c) Install privacy fencing and/or vegetative screening.

d) Locate and design structures and roads to blend with existing visual environment, vegetation, and facilities.

e) Paint structures colors that blend in with the surrounding environment.

f) To the extent possible, avoid removing trees, rock outcrops, or other visually pleasing landscape elements.

g) After construction restore the environment to its preconstruction appearance.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. The ability to implement Mitigation Measures 4-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 4-1 is **potentially significant and unavoidable**.

4.4.2 Impact 4-2 – Scenic Resources

For the reasons stated in Impact 4-1, the Proposed Regulations have the potential to substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. Mitigation Measures 4-1 may reduce Impact 4-2 to less than significance, yet for the reasons stated in the discussion of Impact 4-1 and Mitigation Measures 4-1, this impact is **potentially significant and unavoidable.**

4.4.3 Impact 4-3 – Scenic Quality

For the reasons stated in Impact 4-1, the Proposed Regulations have the potential to substantially degrade the existing visual character or quality of public views of the site and its surroundings in non-urbanized areas, and conflict with applicable zoning and other regulations governing scenic quality in urbanized areas. Mitigation Measures 4-1 may reduce Impact 4-3 to less than significance, yet for the reasons stated in the discussion of Impact 4-1 and Mitigation Measures 4-1, this impact is **potentially significant and unavoidable.**

4.4.4 Impact 4-4 – Light or Glare

Installation of treatment at a well site may entail the addition of lights at the site to aid in maintenance or security of the treatment facility. Other reasonably foreseeable alternative

means of compliance may also entail the addition of nighttime lighting, particularly where new distribution tanks or blending infrastructure are installed as part of a consolidation or blending program. Likewise, expansion of a surface water treatment plant may include additional nighttime lighting.

The State Water Board expects that the installation of treatment or other reasonably foreseeable alternative means of compliance will be developed in compliance with local standards and guidelines for lighting and glare. Installation of treatment or other reasonably foreseeable alternative means of compliance will consist of site-specific projects that undergo individual CEQA review to assess potential environmental impacts, including impacts to light and glare. The State Water Board anticipates that, as part of those environmental reviews for site-specific projects, the CEQA lead agencies will require compliance with local standards and guidelines to reduce potentially adverse impacts from light and glare. In addition, there are recognized practices and mitigation measures that lead agencies may require of site-specific projects to avoid or minimize potentially adverse impacts.

4.4.4.1 Mitigation Measures 4-4

a) Follow local lighting ordinances.

b) Schedule hours of operation to reduce light and glare.

c) Design outdoor lighting to aim downward onto the project site and not glare skyward or onto adjacent parcels.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. The ability to implement Mitigation Measures 4-4, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 4-4 is **potentially significant and unavoidable**.

4.4.5 Cumulative Impacts

Implementation by public water systems of reasonably foreseeable means of compliance with the proposed regulation may contribute to cumulative impacts to aesthetic resources from other projects occurring in the state. In particular, and as discussed in section 3.5, other drinking water projects that are like the reasonably foreseeable means of compliance have occurred and are likely to occur in the future. For instance, public water systems will continue to install treatment and obtain new sources of water supply to protect public drinking water supplies from other drinking water contaminants regulated under the California Safe Drinking Water Act and, in some cases, financed by the State Water Board's financial assistance programs. Likewise, public water systems will continue to consolidate with assistance from the State Water Board's SAFER program. These infrastructure projects have the potential to adversely affect the visual quality and character of a landscape or scenic vista. Due to the number of public water systems (currently around 7,000) and their distribution throughout the

state, the cumulative impact on aesthetic resources from the proposed regulation may be considerable in the context of these other projects. In addition, projects that are unrelated to the State Water Board's drinking water programs may impact aesthetic resources in the vicinity of site-specific projects to comply with the proposed regulation. Depending on the location, the cumulative impact on aesthetic resources may be significant.

The proposed regulation's contribution to this significant impact could be cumulatively considerable due to the development of new drinking water infrastructure that could affect the visual quality and character of a landscape or scenic vista. Implementation of the project-level mitigation measures recommended in this chapter would effectively reduce the incremental contribution from the proposed regulation to a less-than-considerable level, but authority to require that mitigation will rest with agencies that will be authorizing site-specific projects, and not with the State Water Board at this time. Consequently, it is uncertain whether mitigation measures would be implemented, which precludes assurance that significant impacts would be avoided. Therefore, the State Water Board takes the conservative approach and discloses, for purposes of CEQA compliance, that the proposed regulation could result in a considerable contribution to a potentially significant cumulative impact on aesthetic resources.

CHAPTER 5 – AGRICULTURAL AND FOREST RESOURCES

This chapter describes existing agricultural and forest resources in California and analyzes potential impacts that may occur from compliance with the Proposed Regulations.

5.1 ENVIRONMENTAL SETTING

5.1.1 Agricultural Resources

In 2019, California was the number-one state in farm receipts, with over $50 billion in revenue, representing 13.5 percent of the U.S. total. California's agricultural abundance includes more than 400 commodities and produces sixty-one percent of the U.S. vegetables and fifty-four percent of the fruits and nuts (CDFA 2020). In 2017, 70,521 farms operated in California with 24.5 million acres devoted to farming and ranching (USDA 2019). The California Department of Food and Agriculture (CDFA) estimated that the average farm size was 348 acres (CDFA 2020).

Although California leads the nation in agricultural production, it has lost significant farmland to urbanization. CDFA estimates that urbanization has claimed about 3.4 million acres of land in California's agricultural counties. About 40,000 acres of farmland is converted annually. The San Joaquin Valley produces more than half of agriculture in the state; more than 60 percent of converted farmland in the San Joaquin Valley was prime, unique, or of statewide importance. The conversion of farmland is mainly the result of the location of most California cities in areas with good soil and abundant water. Other causes include designation of farmland for environmental protection and fallowing due to water shortages (CDFA 2009).

Based on existing monitoring data, one well with hexavalent chromium levels above the proposed MCL is located within prime farmland; that well is in Alameda County. One well, in Kern County, is located within farmland of statewide importance (Elliott 2022).

5.1.2 Forest Resources

Forest land is defined as land that can support at least 10 percent native tree cover that allows for management of timber, aesthetics, fish and wildlife, recreation, and other public benefits. (Pub. Resources Code, § 12220, subd. (g).) Roughly one-third of California is covered in forests. California is made up of roughly 100 million acres of land, 32 million of which is forest land. Forest land is spread throughout various regions in the state, including the mountainous Klamath, Sierra Nevada, and Coast Ranges regions, as well as the in the coastal fog belt of Northern and Central California. Conifer forests and woodlands cover more than 19 million acres and are most extensive in the Sierra, Modoc, and Klamath/North Coast bioregions. Hardwood forests and oak woodlands cover almost 12 million acres and extend mostly along the perimeter of the Sacramento and San Joaquin Valleys and throughout the coastal ranges. The most productive timber growing portion of California's forests consist of approximately 17 million acres of public and private timberland—that is, land capable of growing more than 20 cubic feet of wood per acre per year and statutorily available for timber management (USFS 2020).

Of the approximately 32 million acres of forest in California, federal agencies (including the U.S. Forest Service (USFS), Bureau of Land Management, and National Park Service) own and manage about 19 million acres, or 57 percent. State and local agencies including

California Department of Forestry and Fire Protection (CAL FIRE), local open space, park and water districts and land trusts own another three percent. Forty percent of California's forestland is owned by families, Native American tribes, or companies. Industrial timber companies own five million acres or 14 percent. Six-and-a-half million acres are owned by individuals (USFS 2020). Timberland, a subset of forest land, is defined by State law as land that is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products and can produce an average annual volume of wood fiber of at least 20 cubic feet per acre per year at its maximum production. (Pub. Resources Code, § 4526.)

Based on existing monitoring data, 24 wells with hexavalent chromium levels above the proposed MCL are in hardwood woodland (Elliott 2022). These wells are primarily in Monterey and Santa Barbara Counties; two each are in Tehama and Yolo Counties; and one each are in Santa Cruz and Ventura Counties. Four wells are in conifer forest; three are in Del Norte County, and one is in Santa Cruz County. Three wells are in hardwood forest; one each are in Mariposa, Napa, and Tehama Counties.

5.2 REGULATORY SETTING

5.2.1 Williamson Act

Important farmland is categorized by the California Department of Conservation (CDC) as prime farmland, farmland of statewide importance, unique farmland, and farmland of local importance. These categories consider physical and chemical features including soil quality, growing season, and moisture supply to rate the type of land that is currently or during the previous four years, used for agricultural purposes (CDC 2022g).

The California Land Conservation Act of 1965 (Gov. Code, § 51200 et seq) ("Williamson Act") authorizes local governments to contract with private landowners to preserve agricultural lands or open space for a specified period, typically 10 to 20 years. During the term of the contract, the landowner forgoes development, or conversion to nonagricultural or non-open space use in return for lower property taxes. The local government forgoes a portion of its property taxes in return for the planning advantages and values implicit in retaining land in agriculture or open space.

Williamson Act land contracts have an initial term of ten or more years with taxes reduced to reflect the open space or agricultural land use. At the end of the term, the contract automatically renews each year, unless a request for nonrenewal is filed. The nonrenewal notice begins a nine-year "nonrenewal" period in which the tax assessment gradually increases to meet current tax rates. Williamson Act land contracts may also be terminated through cancellation, public acquisition, city annexation, and easement exchange. Although the primary activities on Williamson Act lands are related to agriculture, recent regulatory changes authorize contracts to preserve lands for other uses such as solar facilities.

5.2.2 Z'berg-Nejedly Forest Practice Act of 1973

CAL FIRE enforces the laws that regulate logging on privately-owned lands in California. The Z'berg-Nejedly Forest Practice Act was enacted in 1973 (Pub. Resources Code, § 5411 et seq.) to ensure that logging is done in a manner that will preserve and protect fish, wildlife, forests, and streams. CAL FIRE enacts and enforces additional rules to protect these

resources. CAL FIRE ensures that private landowners abide by these laws when harvesting trees. Although there are specific exemptions in some cases, the Forest Practice Act applies to all commercial harvesting operations.

5.3 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This chapter discusses potential impacts to agriculture and forestry resources from the implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations. Reasonably foreseeable means of compliance with the Proposed Regulations include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of impacts to agricultural and forestry resources that could occur with implementation of the reasonably foreseeable means of compliance with the Proposed Regulations. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines. It also considers, where available and appropriate, environmental documents prepared by public water systems for site-specific projects like the reasonably foreseeable means of compliance with the Proposed Regulations.

Future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-specific assessments to agricultural and forest resources. At that time, project-level impacts to agricultural and forest resources will be analyzed.

5.4 IMPACTS AND MITIGATION MEASURES

Would the Proposed Regulations:

1. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to nonagricultural use?
2. Conflict with existing zoning for agricultural use or a Williamson Act contract?
3. Conflict with existing zoning for, or cause rezoning of forest land. (Pub. Resources Code, § 12220, subd. (g).), timberland (*Id.*, § 4526), or timberland zoned Timberland Production (Gov. Code, § 51104, subd. (g).)?
4. Result in loss of forest land or conversion of forest land to non-forest use?

5. Involve other changes in the existing environment, which, due to location or nature, could result in conversion of Farmland to non-agriculture use or conversion of forest land to non-forest use?

5.4.1 Impact 5-1 Conversion of Farmland

Compliance with the Proposed Regulations may have the potential to result in conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to non-agricultural use.

Many of the public water systems whose water supply would exceed the proposed MCL are in agricultural areas, particularly the Sacramento and San Joaquin Valleys. Therefore, installation of treatment for hexavalent chromium or adoption of reasonably foreseeable alternative methods of compliance may result in conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Installation of treatment to remove hexavalent chromium from a groundwater source will generally occur at the well site or near it. Wells operated by public water systems in agricultural areas may be in areas currently used for agriculture or open space, consistent with local land use regulations. Therefore, the installation of treatment may require the conversion of agricultural land. Reasonably foreseeable alternative methods of compliance through blending with a new source or consolidation may require conversion of agricultural land to route pipelines or expansion of existing facilities to add tanks for storage for blending or installation of booster pumps. Therefore, the potential for conversion of lands designated as agricultural land to non-agricultural use may be significant.

The State Water Board expects that the installation of treatment or other reasonably foreseeable alternative means of compliance will be consistent with local general plans designating areas of agricultural use and relevant local zoning ordinances. Installation of treatment or other reasonably foreseeable alternative means of compliance will consist of site-specific projects that undergo individual CEQA review to assess environmental impacts, including conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The State Water Board anticipates that, as part of those environmental reviews for site-specific projects, the CEQA lead agencies will require compliance with local ordinances to reduce potentially adverse impacts. In addition, there are recognized practices and mitigation measures that lead agencies may require of site-specific projects to avoid or minimize potentially adverse impacts.

5.4.1.1 Mitigation Measures 5-1

Examples of recognized and accepted measures that are routinely required by regulatory agencies include:

a) To the extent possible, avoid siting treatment operations or other infrastructure on land designated as Prime or Unique Farmland, Farmland of Statewide Importance, or Williamson Act contract lands.

b) Secure appropriate land use permits from local jurisdictions prior to modification of existing treatment operations or construction of new treatment operations or other infrastructure at public water systems.

c) To the extent feasible, plan and construct treatment works or other infrastructure consistent with general plans, appropriate agriculture and forest lands preservation programs, and agriculture and forest lands conservation easements.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. The ability to implement Mitigation Measures 5-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 5-1 is **potentially significant and unavoidable**.

5.4.2 Impact 5-2 - Zoning and Williamson Act Contracts

Compliance with the Proposed Regulations may have the potential to conflict with existing zoning for agricultural use or a Williamson Act contract. Public water systems' implementation of reasonably foreseeable means of compliance with the Proposed Regulations may include the installation of treatment tanks, pipelines, and other infrastructure, which may have the potential to result in conflict with existing agricultural zoning or Williamson Act contracts. Mitigation Measures 5-1 may reduce Impact 5-2 to less than significance, yet for the reasons discussed in Impact 5-1 and Mitigation Measures 5-1, conflict with existing zoning for agricultural use or a Williamson Act contract is **potentially significant and unavoidable.**

5.4.3 Impact 5-3 - Zoning Conflicts and Rezoning

Compliance with the Proposed Regulations does not have the potential to conflict with existing zoning for, or cause rezoning of, forest land (Pub. Resources Code, § 12220, subd. (g)) or timberland (*id.*, § 4526), or timberland zoned as Timberland Production (Gov. Code, § 51104, subd. (g).) Although hexavalent chromium detections in forested areas of northern California are sparse, there is nonetheless a potential for installation of BAT or reasonably foreseeable alternative methods of compliance to occur on land that is currently used for forest land or timberlands. It is anticipated that any construction inconsistent with local zoning would qualify for a utility easement or conditional use permit, which would not require rezoning of the affected land. Therefore, there is **no impact**.

5.4.4 Impact 5-4 – Loss of Forest Land

The installation of BAT or reasonably foreseeable alternative methods of compliance may require the conversion of forest land. For instance, a well may be in forested land, which requires conversion as the wellsite footprint expands to accommodate the installation of treatment. Likewise, blending with a new source or consolidation may require conversion of forest land to route pipelines or expansion of existing facilities to add tanks for storage or blending or installation of booster pumps. Therefore, the potential for loss of forest lands may be significant.

5.4.4.1 Mitigation Measures 5-4

Examples of recognized and accepted measures that are routinely required by regulatory agencies include:

a) To the extent possible, avoid sitting treatment operations or other infrastructure on land zoned as forest land or timberland.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. The ability to implement Mitigation Measure 5-4, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 5-4 is **potentially significant and unavoidable**.

5.4.5 Impact 5-5 – Other Changes

Compliance with the Proposed Regulations is not expected to involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland, to non-agricultural use or conversion of forest land to non-forest use.

5.4.6 Cumulative Impacts

Implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations may contribute to cumulative impacts to agricultural and forest resources from other projects occurring in the state. In particular, and as discussed in section 3.5, other drinking water projects that are like the reasonably foreseeable means of compliance have occurred and are likely to occur in the future. For instance, public water systems will continue to install treatment and obtain new sources of water supply to address other drinking water contaminants regulated under the California Safe Drinking Water Act and, in some cases, financed by the State Water Board's financial assistance programs. Likewise, public water systems will continue to consolidate with assistance from the State Water Board's SAFER program. These infrastructure projects have the potential to adversely affect agricultural and forest resources. Due to the number of public water systems (currently around 7,000) and their distribution throughout the state, the cumulative impact on agricultural and forest resources from the Proposed Regulations may be considerable in the context of these other projects. In addition, projects that are unrelated to the State Water Board's drinking water programs may impact agricultural and forest resources in the vicinity of site-specific projects to comply with the Proposed Regulations. Depending on the location, the cumulative impact on agricultural and forest resources may be significant.

The Proposed Regulations' contribution to this significant impact could be cumulatively considerable due to the development of new drinking water infrastructure that could affect agricultural and forest resources. Implementation of the project-level mitigation measures recommended in this chapter would effectively reduce the incremental contribution from the

Proposed Regulations to a less-than-considerable level, but authority to require that mitigation will rest with other agencies that will be authorizing site-specific projects, and not with the State Water Board. Consequently, it is uncertain whether mitigation measures would be implemented, which precludes assurance that significant impacts would be avoided. Therefore, the State Water Board takes the conservative approach and discloses, for purposes of CEQA compliance, that the Proposed Regulations could result in a considerable contribution to a potentially significant cumulative impact on agricultural and forest resources.

CHAPTER 6 – AIR QUALITY

This chapter describes existing air quality conditions in California and analyzes potential impacts that may occur from compliance with the Proposed Regulations.

6.1 ENVIRONMENTAL SETTING

Daily emissions and pollutant concentrations are two ways to quantify air pollution. The term “emissions” means the quantity of pollutant released into the air and is measured in units of pounds per day (lbs/day). The term “concentrations” means the amount of pollutant material per volumetric unit of air and is measured in units of parts per million (ppm) or micrograms per cubic meter (µg/m3).

6.1.1 Criteria Pollutants

The California Air Resources Board has established state ambient air quality standards (state standards) to identify outdoor pollutant levels considered safe for the public. After state standards are established, state law requires the California Air Resources Board to designate each area as attainment, nonattainment, or unclassified for each state standard. In addition to state standards, the federal Clean Air Act requires U.S. EPA to set national ambient air quality standards (federal standards or national standards). The California Air Resources Board makes area designations for ten pollutants: ozone, suspended particulate matter (PM10 and PM2.5), carbon monoxide, nitrogen dioxide, sulfur dioxide, sulfates, lead, hydrogen sulfide, and visibility reducing particles. An air quality standard defines the maximum amount of a pollutant that can be present in outdoor air without harm to the public’s health.

6.1.2 Carbon Monoxide

Exposure to high concentrations of carbon monoxide, a colorless and odorless gas, reduces the oxygen-carrying capacity of the blood, and therefore can cause dizziness and fatigue, impair central nervous system functions, and induce angina in persons with serious heart disease. Carbon monoxide is emitted almost exclusively from the incomplete combustion of fossil fuels. In urban areas, motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains emit carbon monoxide. Motor vehicle exhaust releases most of the carbon monoxide in urban areas. Vehicle exhaust contributes approximately 56 percent of all carbon monoxide emissions nationwide and up to 95 percent in cities. Carbon monoxide is a non-reactive air pollutant that dissipates relatively quickly. As a result, ambient carbon monoxide concentrations generally follow the spatial and temporal distributions of vehicular traffic. Carbon monoxide concentrations are influenced by local meteorological conditions, primarily wind speed, topography, and atmospheric stability. Carbon monoxide from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions combine with calm atmospheric conditions.

6.1.3 Ozone

While ozone serves a beneficial purpose in the upper atmosphere (stratosphere) by reducing potentially harmful ultraviolet radiation, when it reaches elevated concentrations in the lower atmosphere it can be harmful to humans and to sensitive species of plants. Short-term ozone exposure can reduce lung function and increase an individual’s susceptibility to respiratory

infection. Long-term exposure can impair lung defense mechanisms and lead to emphysema and chronic bronchitis. Ozone concentrations build to peak levels during periods of light winds or stagnant air, bright sunshine, and high temperatures. Ideal conditions occur during summer and early autumn. Sensitivity to ozone varies among individuals. About 20 percent of the population is sensitive to the ozone layer, with children being particularly vulnerable. Ozone is formed in the atmosphere by a complex series of chemical reactions under sunlight that involve “ozone precursors.” Ozone precursors are categorized into two families of pollutants: oxides of nitrogen and reactive organic compounds. Oxides of nitrogen and reactive organic compounds are emitted from a variety of stationary and mobile sources. While oxides of nitrogen are considered a criteria pollutant, reactive organic compounds are not in this category, but are included in this discussion as ozone precursors. Ozone is the chief component of urban smog and the damaging effects of photochemical smog generally relate to the concentration of ozone. Meteorology and terrain play major roles in ozone formation. The greatest source of smog producing gases is the automobile.

6.1.4 Nitrogen Dioxide

The major health effect from exposure to high levels of nitrogen dioxide is the risk of acute and chronic respiratory disease. Like ozone, nitrogen dioxide typically is not directly emitted, but it is formed through a rapid reaction between nitric oxide and atmospheric oxygen. Nitric oxide and nitrogen dioxide are collectively called oxides of nitrogen and are major contributors to ozone formation. Nitrogen dioxide also contributes to the formation of respirable particulate matter (see discussion of respirable particulate matter below) and fine particulate matter through the formation of nitrate compounds. At atmospheric concentrations, nitrogen dioxide is only potentially irritating. In high concentrations, the result is a brownish-red cast to the atmosphere and reduced visibility.

6.1.5 Sulfur Dioxide

The major health effect from exposure to sulfur dioxide is acute and chronic respiratory disease. Exposure may cause narrowing of the airways, which may cause wheezing, chest tightness, and shortness of breath. Sulfur dioxide can also react with water in the atmosphere to form acids (or “acid rain”), which can cause damage to vegetation and man-made materials. The main source of sulfur dioxide is coal and fuel oil combustion in power plants and industries, as well as diesel fuel combustion in motor vehicles. Generally, the highest levels of sulfur dioxide are found near large industrial complexes. In recent years, sulfur dioxide concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of sulfur dioxide and by limiting the sulfur content in fuel. Sulfur dioxide concentrations in southern California have been reduced to levels well below the state and national ambient air quality standards, but further reductions in emissions are needed to attain compliance with ambient air quality standards for sulfates, respirable particulate matter, and fine particulate matter, to which sulfur dioxide is a contributor.

6.1.6 Particulate Matter

Particulate matter pollution consists of very small liquid and solid particles in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter also forms when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. Particulate matter is regulated as respirable particulate matter (inhalable particulate matter less than ten micrometers in diameter). More recently it has been

subdivided into coarse and fine fractions, with particulate matter less than 2.5 micrometers in diameter constituting the fine fraction. Major sources of respirable particulate matter include crushing or grinding operations; dust stirred up by vehicles traveling on roads; woodburning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter results from fuel combustion (e.g., from motor vehicles, power generation, and industrial facilities), residential fireplaces, and wood stoves. In addition, fine particulate matter can be formed in the atmosphere from gases such as sulfur dioxide, oxides of nitrogen, reactive organic compounds, ammonia, and elemental carbon. Fine particulate matter is a subset of respirable particulate matter.

The health effects from long-term exposure to high concentrations of particulate matter are increased risk of chronic respiratory disease like asthma and altered lung function in children. Particles with 2.5 to 10 microns in diameter tend to collect in the upper portion of the respiratory system. Particles that are 2.5 microns or less are so tiny that they can penetrate deeper into the lungs and damage lung tissues. These substances can be absorbed into the bloodstream and cause damage elsewhere in the body. Short-term exposure to high levels of particulate matter has been shown to increase the number of people seeking medical treatment for respiratory distress, and to increase mortality among those with severe respiratory problems. Particulate matter also results in reduced visibility. Ambient particulate matter has many sources. It is emitted directly by combustion sources like motor vehicles, industrial facilities, and residential wood burning, and in the form of dust from ground-disturbing activities such as construction and farming. It also forms in the atmosphere from the chemical reaction of precursor gases.

6.1.7 Toxic Air Contaminants

Toxic air contaminants include air pollutants that can produce adverse public health effects, including carcinogenic effects, after long-term (chronic) or short-term (acute) exposure. One source of toxic air contaminants is combustion of fossil fuels or digester gas. Human exposure occurs primarily through inhalation, although non-inhalation exposure can also occur when toxic air contaminants in particulate form deposits onto soil and drinking water sources and enter the food chain or are directly ingested by humans. Many pollutants are identified as toxic air contaminants because of their potential to increase the risk of developing cancer. For toxic air contaminants that are known or suspected carcinogens, it has been found that there are no levels or thresholds below which exposure is risk free. No ambient air quality standards exist for toxic air contaminants, except standards for lead, hydrogen sulfide, and vinyl chloride are provided in California Ambient Air Quality Standards. Instead, numerous national, state, and local rules that affect both stationary and mobile emission sources regulate toxic air contaminants emissions. Individual toxic air contaminants vary greatly in the risk they present; at a given level of exposure one toxic air contaminant may pose a hazard that is many times greater than another. Where data are sufficient to do so, a “unit risk factor” can be developed for cancer risk. The unit risk factor expresses assumed risk to a hypothetical population, the estimated number of individuals in a million who may develop cancer as the result of continuous, lifetime (70-year) exposure to 1 µg per cubic meter of the toxic air contaminants. Unit risk factors provide a standard that can be used to establish regulatory thresholds for permitting purposes. This is, however, not a measure of actual health risk because actual populations do not experience the extent and duration of exposure that the hypothetical population is assumed to experience. For non-cancer health effects, a similar factor called a Hazard Index is used.

Areas with monitored pollutant concentrations that are lower than ambient air quality standards are designated as “attainment areas” on a pollutant-by-pollutant basis. When monitored concentrations exceed ambient standards, areas are designated as “nonattainment areas.” An area that recently exceeded ambient standards, but is now in attainment, is designated as a “maintenance area.” Nonattainment areas are further classified based on the severity and persistence of the air quality problem as “moderate” “severe” or “serious.” Classifications determine the applicability and minimum stringency of pollution control requirements.

6.2 REGULATORY SETTING

6.2.1 Federal

The U.S. EPA is the federal agency charged with administering the federal Clean Air Act Amendments of 1990. The U.S. EPA oversees state and local implementation of federal Clean Air Act requirements. The Clean Air Act Amendments require the U.S. EPA to approve State Implementation Plans to meet and/or maintain the national ambient standards. The federal air quality standards are shown in Table 6-1.

TABLE 6-1 FEDERAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Primary	Secondary
Ozone	8 Hour	0.070 ppm (140 µg/m^3)	0.070 ppm (140 µg/m^3
Respirable Particulate Matter	24 Hour	150 µg/m^3	150 µg/m^3
Fine Particulate Matter	24 Hour	35 µg/m^3	35 µg/m^3
Fine Particulate Matter	1 Year	12.0 µg/m^3	15.0 µg/m^3
Carbon Monoxide	1 Hour	35 ppm (40 mg/m^3)	None
Carbon Monoxide	8 Hour	9 ppm (10 mg/m^3)	None
Nitrogen Dioxide	1 Hour	0.10 ppm (190 µg/m^3)	None
Nitrogen Dioxide	1 Year	0.053 ppm (100 µg/m^3)	0.053 ppm (100 µg/m^3)
Sulfur Dioxide	1 Hour	75 ppb (195 µg/m^3)	None
Sulfur Dioxide	3 Hour	None	0.5 ppm (1300 µg/m^3)
Lead	Calendar Quarter	0.15 µg/m^3	0.15 µg/m^3

6.2.2 State

6.2.2.1 California Clean Air Act

The California Air Resources Board is the state agency responsible for coordinating both state and federal air pollution control programs in California. In 1988, the State Legislature adopted the California Clean Air Act, which established a statewide air pollution control program. The California Clean Air Act's requirements include annual emission reductions, increased development and use of low emission vehicles, and submittal of air quality attainment plans by air districts. The California Air Resources Board established state ambient air quality standards for the same pollutants required under the Clean Air Act, as shown in Table 6-2. Additionally, the California Air Resources Board established state standards for pollutants that have no federal ambient air quality standard, including sulfate, visibility, hydrogen sulfide, and vinyl chloride.

TABLE 6-2 CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Standard
Ozone	1 Hour	0.09 ppm (180 µg/m^3)
Ozone	8 Hour	0.070 ppm (140 µg/m^3)
Respirable Particulate Matter	24 Hour	50 µg/m^3
Respirable Particulate Matter	1 Year	20 µg/m^3
Fine Particulate Matter	24 Hour	None
Fine Particulate Matter	1 Year	12.0 µg/m^3
Carbon Monoxide	1 Hour	20 ppm (23 mg/m^3)
Carbon Monoxide	8 Hour	9 ppm (10 mg/m3)
Carbon Monoxide	8 Hour (for Lake Tahoe)	6 ppm (7 mg/m^3)
Nitrogen Dioxide	1 Hour	0.18 ppm (339 µg/m^3)
Nitrogen Dioxide	1 Year	0.030 ppm (57 µg/m^3)
Sulfur Dioxide	1 Hour	0.25 ppm (655 µg/m^3)
Sulfur Dioxide	24 Hour	0.04 ppm (105 µg/m^3)
Lead	30 Day Average	1.5 µg/m^3

6.2.2.2 Health and Safety Code section 41700

Health and Safety Code section 41700 prohibits the discharge of air contaminants including "nuisance" odors, stating, "Except as otherwise provided in Section 41705, a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or

the public, or that cause, or have a natural tendency to cause, injury or damage to business or property." (Health & Saf. Code, § 41700, subd. (a).) Odors from composting and agricultural operations are not prohibited under this law.

6.2.2.3 Local

There are 35 local air districts within the state. Each district (referred to as either an Air Pollution Control District or an Air Quality Management District) is responsible for controlling emissions, primarily from stationary sources of air pollution, within their area. Each district develops and adopts an Air Quality Management Plan, which serves as the blueprint to bring the district into compliance with federal and state clean air standards. Rules are adopted to reduce emissions from various sources.

6.3 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This section discusses potential impacts to air quality from the implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations. Reasonably foreseeable means of compliance with the Proposed Regulations include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of impacts to air quality that could occur with implementation of the reasonably foreseeable means of compliance with the Proposed Regulations. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines. It also considers, where available and appropriate, environmental documents prepared by public water systems for site-specific projects like the reasonably foreseeable means of compliance with the Proposed Regulations.

Future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-specific assessments of impacts on air quality. At that time, project-level impacts to air quality will be analyzed.

6.4 IMPACTS AND MITIGATION MEASURES

Would the Proposed Regulations:

1. Conflict with or obstruct implementation of the applicable air quality plan?
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
3. Expose sensitive receptors to substantial pollutant concentrations?

4. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?
5. Create objectionable odors affecting a substantial number of people?
6. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

6.4.1 Impacts 6-1 – Air Quality Plans

Project-specific impacts for compliance with the Proposed Regulations are unlikely to conflict with or obstruct an air quality plan. Compliance projects, in most cases, will not affect residential, employment, or traffic projections in applicable air quality plans because of the limited size and scope of the projects. In addition, and as discussed below, most emissions will be short-term construction-related emissions, while operational-related emissions are unlikely to be significant.

Construction-related emissions may occur during construction of compliance projects, including installation of treatment works, expansion of surface water treatment plants, and consolidations of public water systems. Construction activities such as excavation, grading, and trenching have the potential to produce a temporary increase in criteria air pollutants and Toxic Air Contaminants from the use of construction equipment. The specific details of the construction activities would depend upon a variety of factors not within the control of the State Water Board. Nonetheless, the analysis presented herein provides a good-faith disclosure of the types of construction-related emission impacts that could occur with the implementation of reasonably foreseeable methods of compliance.

During the construction phase, criteria air pollutants and diesel particulate matter could be generated from a variety of construction activities. These emissions would be temporary and occur intermittently depending on the intensity of construction on a given day. Site grading and excavation activities may generate fugitive particulate matter (PM) emissions (dust), which is the primary pollutant of concern during construction. Fugitive PM emissions (including PM_{10} and $PM_{2.5}$) vary as a function of several parameters, including soil silt content and moisture, wind speed, size of area disturbed, and the intensity of activity performed by the construction equipment. Exhaust emissions from off-road construction equipment, material delivery trips, and construction worker-commute trips could also contribute to short-term increases in diesel particulate emissions. Exhaust emissions from construction-related mobile sources also include reactive organic gases and NO_x emissions. Both the type and magnitude of emissions will vary depending on the equipment type, number, and duration of usage.

The site preparation phase typically generates the most emissions because of the on-site equipment and ground-disturbing activities associated with grading, compacting, and excavation. Site preparation equipment typically includes backhoes, bulldozers, loaders, and excavation equipment (e.g., graders and scrapers). Although it would be speculative to estimate detailed construction information at any project based on the types of activities that could occur, it would be expected that the primary source of construction-related emissions would come from the soil disturbance and equipment-related activities (e.g., use of backhoes, bulldozers, excavators, and other related equipment). Therefore, construction activities could result in emissions of NO_x and PM, which may exceed general mass

emissions limits of a local or regional air quality management district depending on the site location.

Thus, construction-related impacts could result in temporary air emissions at levels that may conflict with applicable air quality plans, exceed, or contribute to existing or projected limits, result in or contribute to a net increase in non-attainment areas, or expose sensitive receptors to significant substantial pollutant concentrations. As a result, this short-term construction-related air quality impact is potentially significant.

In addition to short-term construction impacts to air quality, there may be longer term operational impacts. Public water system employees or contractors will need to drive to treatment plants for maintenance and monitoring trips, and the emissions from these vehicles may negatively impact air quality. Maintenance trips are not expected to occur often, and monitoring trips could be coordinated with existing monitoring requirements for contaminants other than hexavalent chromium. At a minimum, a public water system employee or contractor would need to drive to a wellhead treatment site at least monthly to sample the treated water quality. In addition to the vehicle trips for maintenance and monitoring, there would be an increase in energy usage to power the treatment facilities, and the production of that energy may contribute negatively to air quality.

The State Water Board is aware of only one system in California that has prepared an EIR for a treatment project for hexavalent chromium – Coachella Valley Water District (CVWD). The Draft EIR looked at the potential impacts related to the operations of their project, which included two treatment facilities, each consuming more than 5 million kilowatt-hours (kWh) of electricity annually and estimating 50 delivery trips to each treatment facility annually (CVWD 2016, Table 4.4-13). There, the CVWD concluded that the emissions from the operations of the project would not exceed the South Coast Air Quality Management District's thresholds. The CVWD project is larger than typical compliance projects likely to be proposed by most public water systems. The CVWD serves 108,507 service connections, whereas most public water systems that would be affected by the proposed MCL serve fewer than 10,000 service connections (SWRCB 2023a, Attachment 1, Table 7.1A). Therefore, it is likely that most compliance projects will similarly find, during site-specific CEQA reviews, that operational impacts to air quality are not potentially significant.

6.4.1.1 Mitigation Measures 6-1

It is expected that project specific CEQA analyses will provide specific measures that could be implemented to reduce construction emissions. Based on results of the site-specific environmental review, project proponents should be required to implement all feasible mitigation identified in the site-specific environmental document to reduce or substantially lessen air quality impacts of compliance projects with the Proposed Regulations. Examples of recognized and commonly implemented mitigation measures that are routinely required to reduce air quality impacts include:

a) Apply for, secure, and comply with all appropriate air quality permits for project construction from the local agency with air quality jurisdiction, and from other applicable agencies, if appropriate, prior to construction mobilization.

b) Comply with the Clean Air Act and the California Clean Air Act (e.g., New Source Review and Best Available Control Technology criteria, if applicable).

c) If located in PM non-attainment areas, prepare, and comply with, a dust abatement plan that addresses emissions of fugitive dust during construction and operation of the project.

d) Comply with the Off-Road Regulation for in-use off-road vehicles to meet diesel particulate matter fleet averaging standards.

e) Use diesel particulate matter filters to further reduce tailpipe emissions from operation of diesel-fueled equipment during construction. Cost effective mitigation options for reduction of PM emissions from diesel fueled engines are available and in use at many construction and demolition operations.

f) Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes, as required by the state airborne toxics control measure. (Cal. Code Regs. tit.13, § 2485.)

g) Provide clear signage that posts requirements for workers to reduce idling time at entrances to the site.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. The ability to implement Mitigation Measures 6-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 6-1 is **potentially significant and unavoidable**.

6.4.2 Impact 6-2 - Air Quality Violations

For the reasons stated in Impact 6-1, the Proposed Regulations have the potential to violate air quality standards or contribute substantially to an existing or projected air quality violation. Mitigation Measures 6-1 may reduce Impact 6-2 to less than significant, yet for the reasons stated in the discussion of Impact 6-1 and Mitigation Measures 6-1, this impact is **potentially significant and unavoidable.**

6.4.3 Impact 6-3 - Sensitive receptors

It is infeasible to know at this programmatic stage precisely where future compliance projects will be located. It is therefore also infeasible to know whether there will be sensitive receptors in the vicinity of future compliance projects. Compliance projects may occur anywhere in the state, and it is possible that some may be in areas with sensitive receptors, such as near schools. Consequently, for the reasons stated in Impact 6-1, the Proposed Regulations have the potential to expose sensitive receptors to substantial pollutant concentrations. Mitigation Measures 6-1 may reduce Impact 6-3 to less than significant, yet for the reasons stated in the discussion of Mitigation Measures 6-1, this impact is **potentially significant and unavoidable.**

6.4.4 Impact 6-4 - Increase of Non-Attainment Pollutants

For the reasons stated in Impact 6-1, compliance projects have the potential to result in a cumulatively considerable net increase of any non-attainment pollutant for which the project region is under an applicable federal or state ambient air quality standard. While the specific location of compliance projects cannot be known at this time, the project regions are likely to consist of parts of the state with numerous detections of hexavalent chromium above the proposed MCL. Hexavalent chromium is more prevalent in some areas than in others. For instance, the counties with the greatest number of hexavalent chromium detections above the proposed MCL are Riverside County, Los Angeles County, and Yolo County, with 82, 40, and 37 detections, respectively (Section 3.5.2). All or parts of these counties are non-attainment for certain criteria air pollutants. For example, Yolo County, Riverside County, and Los Angeles County are all non-attainment for state ozone and PM10 air quality standards (CARB 2020a; CARB 2020b). Because construction of compliance projects may lead to particulate emissions and ozone formation in these counties, there could be a cumulatively considerable net increase in PM10, and ozone related to temporary air quality impacts in these counties.

For the reasons stated in Mitigation Measures 6.1, the Proposed Regulations could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard. Mitigation Measures 6-1 may reduce Impact 6-4 to less than significant, yet for the reasons stated in the discussion of Mitigation Measures 6-1, this impact is **potentially significant and unavoidable.**

6.4.5 Impact 6-5 - Odors and Other Emissions

Compliance projects are unlikely to produce objectionable nuisance odors or other emissions affecting a substantial number of people. Temporary construction activities would involve the use of gasoline or diesel-powered equipment, which emit exhaust fumes, but these activities would occur only periodically during the construction period, and any exhaust fumes would dissipate quickly within the construction site. In many projects involving the installation of new treatment, any construction-related odors would be limited geographically to the treatment sites. In projects involving consolidation or the installation of new transmission lines or distribution infrastructure, odors associated with temporary construction activities may be more likely to occur in residential areas, but will still be infrequent, short-term, and dissipate rapidly. During the operational phase of compliance projects, objectional odors are also unlikely to occur. Chemicals with objectionable odors are not used by the BATs and all treatment occurs within treatment vessels that keep odors in. The other reasonably foreseeable means of compliance are also unlikely to produce objectionable odors during operation, especially odors that would affect a substantial number of people. Even if a particular treatment system were to produce an odor during operation, its impact will be limited to the treatment plant operator or other employees or contractors of the public water system, not a substantial number of people. Therefore, this impact is **less than significant.**

6.4.6 Cumulative Impacts

Implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations may contribute to cumulative impacts to air quality from other projects occurring in the state. In particular, and as discussed in section 3.5, other drinking

water projects that are like the reasonably foreseeable means of compliance have occurred and are likely to occur in the future. For instance, public water systems will continue to install treatment and obtain new sources of water supply to address other drinking water contaminants regulated under the California Safe Drinking Water Act and, in some cases, financed by the State Water Board's financial assistance programs. Likewise, public water systems will continue to consolidate with assistance from the State Water Board's SAFER program. These infrastructure projects have the potential to adversely affect air quality. Due to the number of public water systems (currently around 7,000) and their distribution throughout the state, the cumulative impact on air quality from the Proposed Regulations may be considerable in the context of these other projects. In addition, projects that are unrelated to the State Water Board's drinking water programs may impact air quality in the vicinity of site-specific projects to comply with the Proposed Regulations. Depending on the location, the cumulative impact on air quality may be significant.

The Proposed Regulations' contribution to this significant impact could be cumulatively considerable due to the development of new drinking water infrastructure that could affect air quality. Implementation of the project-level mitigation measures recommended in this chapter would effectively reduce the incremental contribution from the proposed regulations to a less-than-considerable level, but authority to require that mitigation will rest with agencies that will be authorizing site-specific projects, and not with the state water board at this time. Consequently, it is uncertain whether mitigation measures would be implemented, which precludes assurance that significant impacts would be avoided. Therefore, the State Water Board takes the conservative approach and discloses, for purposes of CEQA compliance, that the proposed regulations could result in a considerable contribution to a potentially significant cumulative impact on air quality.

CHAPTER 7 - BIOLOGICAL RESOURCES

This chapter describes existing biological resources in California and analyzes potential impacts that may occur from compliance with the Proposed Regulations.

7.1 ENVIRONMENTAL SETTING

A great diversity of vegetation and wildlife resources exist in California across a broad range of physiographic regions, from the coast, inland across mountain ranges and valleys, to deserts along the eastern and southern borders. California contains examples of most of the major biological provinces, or biomes, in North America, including grassland, shrub land, deciduous forest, coniferous forest, alpine tundra, mountains, deserts, temperate rainforest, marine, estuarine, and freshwater habitats. Each of these biomes contains many different types of plant communities, such as redwood forests, vernal pool wetlands, or blue oak woodlands.

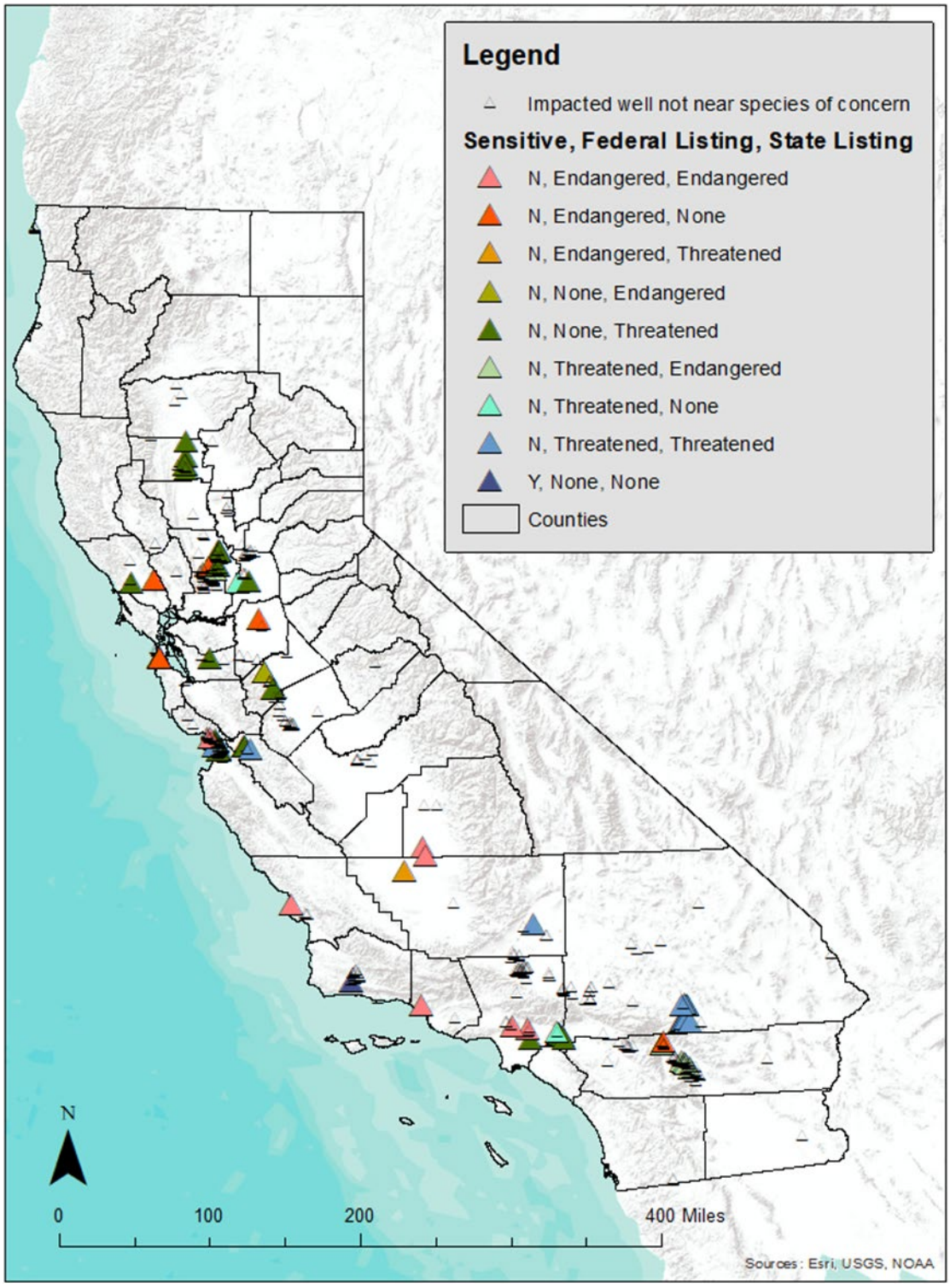
Special-status species herein are defined as any species granted status by the U.S. Fish and Wildlife Service (USFWS) as Federally Threatened, Endangered, Proposed, Candidate, or Birds of Conservation Concern; additionally, species granted status by the California Department of Fish and Wildlife (CDFW) as California Endangered or Threatened (includes Candidates), Species of Special Concern, Fully Protected, or CDFW Watchlist.

California has a great number of animal species, representing large portions of wildlife species nationwide. The state's diverse natural communities provide a wide variety of habitat conditions for wildlife. A complete list of special status plants and animals present in California (last updated in 2022) is provided by the CDFW. The most current list of species and subspecies with special management status for specific locations is available from the California Natural Diversity Database (CNDDB). The CNDDB is a continually refined and updated computerized inventory of location information on the rarest animals, plants, and natural communities in California.

The varied habitat types within California are conducive to a great diversity of plant and animal species, many of which are endemic to the state. Because of habitat conversion to agriculture, residential, and commercial development, many species have become rare, threatened, or endangered (CDFW 2022a; 2022b). For example, 222 plant species have been state-listed as endangered, threatened, or rare under Fish and Game Code section 1904 enacted by the Native Plant Protection Act of 1977 and sections 2074.2 and 2075.5, enacted by the California Endangered Species Act of 1984. Also, 185 plant species have been federally listed as endangered or threatened under the federal Endangered Species Act of 1973. (16 U.S.C. § 1531 et seq.) Additionally, 53 species of animals have been listed as threatened or endangered by both the state and the federal government.

There are 78 wells with average hexavalent chromium levels above the proposed MCL that are in mapped occurrences of special status species (Elliott 2022). One well is located near a presumed-extant nesting site of prairie falcon (Falco mexicanus), a "sensitive" bird species, and 77 are located within occurrences of federal or state listed "endangered" or "threatened" species (California Department of Fish & Wildlife 2022a). See Figure 7-1.

FIGURE 7-1 AFFECTED WELLS IN AREAS OF RECORDED OCCURRENCES OF SPECIAL STATUS SPECIES



Critical habitat is a habitat area essential to the conservation of a listed species. This is a specific term and designation within the U.S. Endangered Species Act (ESA) (USFWS 2022). There are wells with average hexavalent chromium levels above the proposed MCL in nine critical habitats (Elliott 2022) (See table 7-1 below).

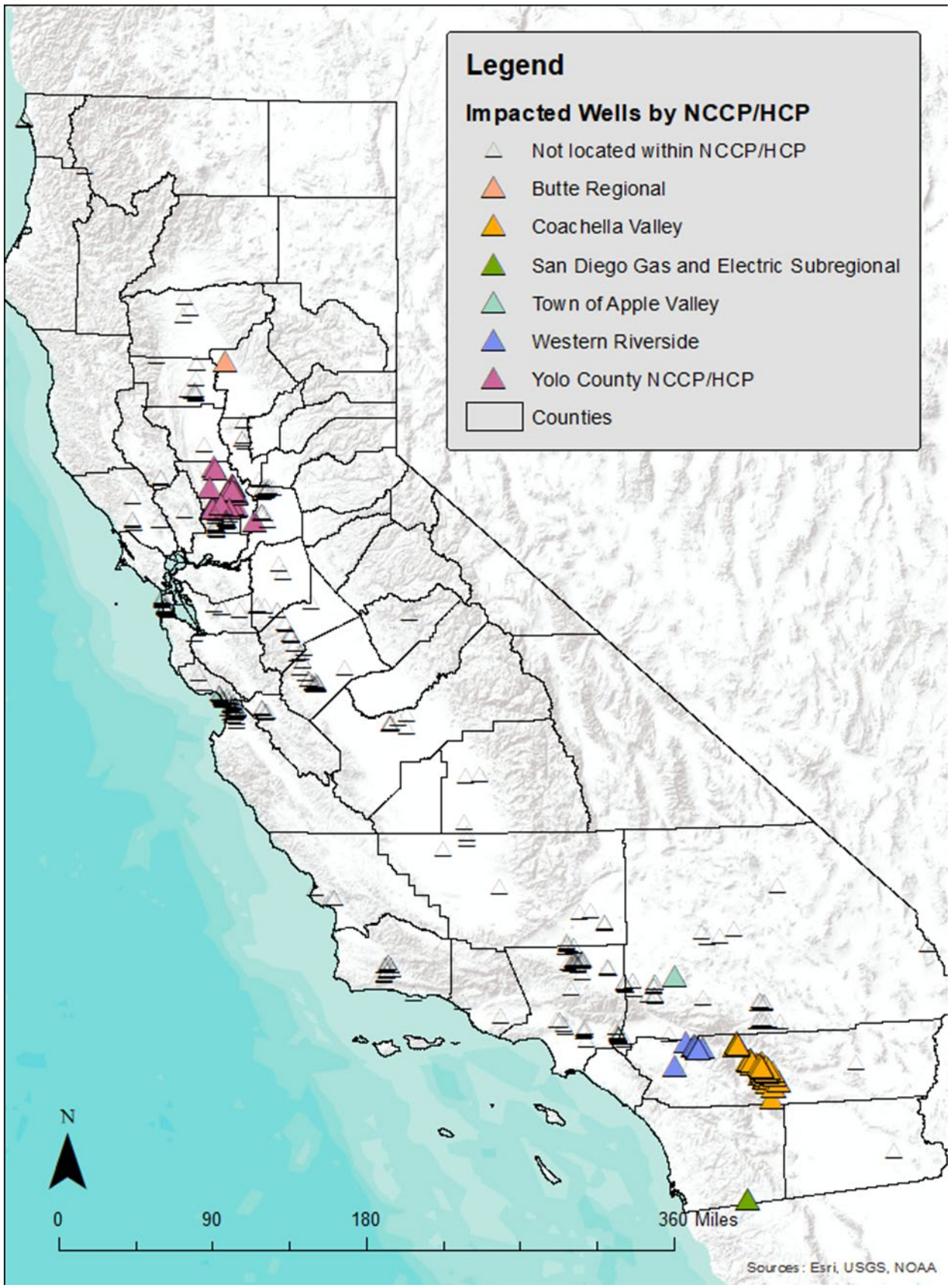
TABLE 7-1 AFFECTED WELLS WITHIN CRITICAL HABITATS

Well(s) No.	Water System	USFWS Critical Habitat Species of Concern	County
5664-1	3310001	Coachella Valley milk-vetch, Coachella Valley fringe-toed lizard	Riverside
6805-1	3310001	Peninsular bighorn sheep	Riverside
24, 29, 37	3310008	Coachella Valley milk-vetch	Riverside
1	3500552	California tiger salamander	San Benito
1, 4	3910018	Delta smelt	San Joaquin
7	3810702	Delta smelt	San Joaquin
2	4400758	California red-legged frog	Santa Cruz
1	4400763	California red-legged frog	Santa Cruz
1	4400774	Zayante band-winged grasshopper	Santa Cruz
3, 18	4410011	Santa Cruz tarplant	Santa Cruz
1, 2	4800804	Delta smelt	Solano
11	5610017	Southwestern willow flycatcher	Ventura
1	5700552	Delta smelt	Yolo

Wetlands and waters of the state are some of the habitats that are specifically protected under state and federal laws. Two wells with average hexavalent chromium levels above the proposed MCL, each in a different water system, are located within known mapped wetlands (SFEI 2017). One is within a Depressional Seasonal Natural Emergent Wetland (pond) near Volta in central-western Merced County. The other is a well at the Fresno City Wastewater Plant which is within a Lacustrine Unnatural Non-vegetated wetland (reservoir) in central-western Fresno County.

California has many protected species and habitat types. One way to protect species and their habitats is through habitat conservation planning. A habitat conservation plan (HCP) is a document that meets federal ESA requirements and enables local agencies to allow projects and activities to occur in endangered species' habitats. The Natural Community Conservation Planning (NCCP) Program is a cooperative effort designed to protect species and their habitats through an ecosystem approach. The program helps identify and provide for large area-wide protection of plants, animals, and their habitats while allowing for compatible and appropriate economic activity. There are several regional NCCP/HCPs in California and several more in the planning stages. There are 132 wells with average hexavalent chromium levels above the proposed MCL located within the boundaries of a NCCP/HCP (CDFW 2022b). Most are either within the Coachella Valley (77 wells) or Yolo County (40 wells) NCCP/HCP. See Figure 7-2.

FIGURE 7-2 AFFECTED WELLS IN NCCP/HCPS



7.2 REGULATORY SETTING

7.2.1 Federal Laws

7.2.1.1 Migratory Bird Treaty Act

Nesting birds are protected under the Migratory Bird Treaty Act (MBTA) of 1918. The MBTA provides protection for nesting birds that are both residents and migrants, whether they are considered special status by resource agencies. The MBTA prohibits the take of nearly all native birds. The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed under title 50 of the Code of Federal Regulations, part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations. (50 C.F.R. § 21.) The direct injury or death of a migratory bird due to construction activities or other construction-related disturbance that causes nest abandonment, nestling abandonment, or forced fledging would be considered take under federal law. The USFWS, in coordination with the CDFW, administers the MBTA. The CDFW's authoritative nexus to MBTA is provided in California Fish and Game Code section 3503.5, which protects all birds of prey and their nests; and section 3800, which protects all non-game birds that occur naturally in the State.

7.2.1.2 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 U.S.C. §§ 668-668d), originally the Bald Eagle Protection Act, was enacted in 1940 to protect bald eagle (*Haliaeetus leucocephalus*), the species selected as a national emblem of the United States. The act was amended in 1962 to include the golden eagle (*Aquila chrysaetos*). As amended, the Act prohibits take, possession, and commerce of bald and golden eagles and their parts, products, nests, or eggs, except by valid permit. Take is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb." Disturb means agitating or bothering to a degree that causes, or is likely to cause, injury, a decrease in productivity, or nest abandonment. This law also prohibits human-induced alterations near previously used nest sites when eagles are not present if upon the eagle's return it is disturbed as defined above. Take permits may be issued for conducting certain types of lawful activities such as scientific research, propagation, and Indian religious purposes. The USFWS is responsible for enforcing this act.

7.2.1.3 Federal Endangered Species Act

The Endangered Species Act of 1973 (ESA) (16 U.S.C. § 1531 et seq.), as amended, provides for listing of endangered and threatened species of plants and animals and designation of critical habitat for listed animal species. The ESA also prohibits all persons subject to U.S. jurisdiction from "taking" endangered species, which includes any harm or harassment. Section 7 of the ESA requires that federal agencies, prior to project approval, consult with the USFWS and/or the National Marine Fisheries Service (NMFS) to ensure adequate protection of listed species that may be affected by the project. Species that are listed under the ESA are automatically listed under the California Endangered Species Act.

7.2.1.4 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act of 1976 (Magnuson-Stevens Act or MSA) (16 U.S.C §§ 1801−1884), as amended in 1996 and reauthorized in 2007, protects fisheries resources and fishing activities within 200 miles of shore and essential fish habitat. The MSA defines "essential fish habitat" as those waters and substrate that support fish for spawning, breeding, feeding, or maturation. The MSA requires that the

National Oceanic and Atmospheric Administration (NOAA) Fisheries, the regional fishery management councils, and federal agencies that take an action that may influence managed fish species under MSA, identify essential fish habitat and protect important marine and anadromous fish habitat. The regional fishery management councils, with assistance from the NOAA Fisheries, are required to develop and implement Fishery Management Plans. Fishery Management Plans delineate essential fish habitat and management goals for all managed fish species, including some fish species that are not protected under the MSA. Federal agencies that fund, permit, or carry out activities that may adversely affect essential fish habitat are required under Section 305(b) of the MSA, in conjunction with required Section 7 consultation under ESA, to consult with the NOAA Fisheries regarding potential adverse effects of their actions on essential fish habitat and to respond in writing to NOAA Fisheries' recommendations.

7.2.1.5 Clean Water Act Section 404

The federal Clean Water Act, enacted as the Water Pollution Control Act Amendments of 1972, outlines the basic structure for regulating discharges of pollutants to waters of the United States. The Clean Water Act serves as the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands.

Waters of the United States are areas subject to federal jurisdiction pursuant to Section 404 of the Clean Water Act. Waters of the United States are typically divided into two types: (1) wetlands and (2) other waters of the United States. Wetlands are "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." (33 C.F.R. § 328.3(c)(4); 40 C.F.R. § 230.3(o)(3)(iv).) To be considered subject to federal jurisdiction, a wetland must normally support hydrophytic vegetation (plants growing in water or wet soils), hydric soils, and wetland hydrology (USACE 1987). Other waters of the United States are seasonal or perennial water bodies, including lakes, stream channels, drainages, ponds, and other surface water features, that exhibit an ordinary high-water mark but lack positive indicators for the three wetland parameters. (33 C.F.R. § 328.4.)

Section 404 of the Clean Water Act regulates the discharge of dredged and fill materials into waters of the United States. Applicants must obtain a permit from the United States Army Corps of Engineers (USACE) for discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed activity.

7.2.2 State Laws

7.2.2.1 California Endangered Species Act (CESA)

The CESA (Fish & G. Code, § 2070 et seq.) has many similarities to the ESA. The CESA is carried out by the CDFW. The CESA provides a method for the CDFW to designate species as endangered or threatened by its own initiative or in response to a citizen petition. The CESA prohibits the take of species listed as endangered or threatened pursuant to the Act. (Fish & G. Code, § 2080.) CDFW may allow acts that would otherwise be subject to this prohibition, provided that: (1) the taking is incidental to an otherwise lawful activity; (2) the taking will be minimized and fully mitigated; (3) the applicant ensures adequate funding for minimization and mitigation; and (4) the authorization will not jeopardize the continued existence of listed species. (Fish & G. Code, § 2081.)

7.2.2.2 California Fish and Game Code

The California Fish and Game Code regulates the taking of mammals, birds, fish, reptiles, and amphibians, as well as natural resources including waters and wetlands of the state. It includes the Streambed Alteration Agreement regulations (Fish & G. Code §§ 1600- 1616) and CESA, as well as provisions for legal fishing and hunting, and tribal agreements relating to the take of native wildlife. Any project impact to state-listed species within or alongside a project site would mandate a permit under the CESA. Also, if a project recommends altering a state-defined wetland or a streambed, then a Streambed Alteration Agreement would be mandatory from the CDFW.

Fish and Game Code sections 3503, 3503.5, and 3800 prohibit the possession, incidental take, or needless destruction of nesting birds, their nests, and eggs. Section 3511 lists birds that are “Fully Protected” as those that may not be taken or possessed except under specific permit.

Section 5937 requires all artificial obstructions to always allow sufficient water for fish below the obstruction.

7.2.2.3 California Native Plant Protection Act

The California Native Plant Protection Act of 1977 (Fish & G. Code, §§ 1900–1913) protects, enhances, and preserves endangered or rare native plants in the State; gives the CDFW the right to classify state threatened, endangered, and rare plants; and provides detailed protection measures for identified populations. The Act also advises the California Fish and Game Commission to adopt regulations governing propagation, possessing, taking, and sale of any endangered or rare native plant. Vascular plants listed as endangered or rare by the California Native Plant Society (2011), but which have no designated protection nor status under state or federal endangered species legislation, are defined as follows:

- Rank 1A: Plants Believed Extinct.
- Rank 1B: Plants Rare, Threatened, or Endangered in California and elsewhere.
- Rank 2: Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere.
- Rank 3: Plants About Which More Information is Needed – A Review List.
- Rank 4: Plants of Limited Distribution – A Watch List.

7.2.2.4 CEQA Guidelines Section 15380

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines section 15380 provides that a species not listed on the federal or state list of protected species may be considered rare, threatened, or endangered if the species can be shown to meet the specified criteria in section 15380. These criteria have been modeled after the definition in the ESA and the section of the Fish and Game Code dealing with rare or endangered plants or animals. This section was included in the Guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a species of concern that has not yet been listed by either the USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from a project’s potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

7.2.2.5 California Coastal Act

The California Coastal Act (Pub. Resources Code, § 30000 et seq.) provides for the long-term management of lands within California's Coastal Zone boundary, as established by the California Legislature and defined in the Coastal Act. The California Coastal Act defines Environmentally Sensitive Habitat Areas (ESHAs) as "any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments." (Pub. Resources Code, § 30107.5.) ESHAs are designated within the Coastal Zone by the California Coastal Commission or in a certified local coastal program. Of primary relevance to terrestrial biological resources are Coastal Act policies concerning ESHAs and adjacent developments, and diking, filling, or dredging and continued movement of sediment and nutrients. A development activity within the Coastal Zone generally requires a coastal development permit from either the Coastal Commission or a local government with a certified local coastal program, to ensure that the activity complies with the Coastal Act. The Coastal Act includes goals and policies that constitute the statutory standards that are applied to planning and regulatory decisions made by the Coastal Commission and by local governments.

The Coastal Commission generally treats wetlands, streams, riparian habitats, and open coastal waters as ESHAs, although exceptions may exist where the definition of ESHA is not satisfied. Because the Coastal Commission typically defines wetlands based on a "one-parameter approach," Coastal Commission jurisdictional wetlands are typically greater in extent than those regulated by the USACE under the Clean Water Act. An ESHA may also be found in upland areas, for example stands of large, mature trees in an area otherwise lacking such habitat.

The principal Coastal Act policy pertaining to ESHAs is Public Resources Code section 30240, which provides: "Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within such areas."

7.3 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This section discusses potential impacts to biological resources from the implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations. Reasonably foreseeable means of compliance with the Proposed Regulations include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future compliance projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of impacts to biological resources that could occur with implementation of the reasonably foreseeable means of compliance with the Proposed Regulations. This analysis considers the questions posed in

Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines. It also considers, where available and appropriate, environmental documents prepared by public water systems for site-specific projects like the reasonably foreseeable means of compliance with the Proposed Regulations.

Future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with the CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-specific assessments of impacts on biological resources. At that time, project-level impacts to biological resources will be analyzed.

7.4 IMPACTS AND MITIGATION MEASURES

Would the Proposed Regulations:

1. 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 California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?
3. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
4. 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?
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

7.4.1 Impact 7-1 - Candidate, Sensitive, and Special Status Species

Compliance with the Proposed Regulations by public water systems may have the potential to have a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

Construction of reasonably foreseeable means of compliance could have potentially significant impacts on candidate, sensitive, or special-status species. Although installation of treatment facilities to comply with the Proposed Regulations would likely take place within the existing footprint of treatment facilities, and adjacent to the existing well and distribution facilities, implementation of alternative means of compliance, such as construction of an intertie or consolidation with another system, could impact previously undisturbed areas that could pose a potentially significant impact to biological resources. Construction activities related to the reasonably foreseeable means of compliance, such as the installation of

treatment, could disturb land, cause noise or vibrations that could disturb special status animal species, or affect special status plants and/or critical habitat. In addition to construction, there could also be personnel coming onsite monthly for monitoring, and operation and maintenance of the facilities, including changing out media for treatment works. However, operation and maintenance of facilities is less likely to cause environmental impacts than initial construction.

Operation and maintenance activities of the reasonably foreseeable means of compliance could also 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. For example, if a public water system were to comply with the Proposed Regulations by switching to using more surface water, this could have an impact on candidate, sensitive, or special status fish species. Less water in streams could adversely affect fish habitat, including causing stream temperatures to rise.

7.4.1.1 Mitigation Measures 7-1

Examples of recognized and accepted measures that are routinely required by regulatory agencies include:

a) Identify special status species protected by federal, state, and local laws, regulations, policies, and ordinances that may be within the area where the site-specific compliance project would be located by querying the CNDDB and conducting a project site survey. If special status species or their habitats have been identified in the project area during biological inventory of the compliance project site by a qualified biologist prior to construction, comply with applicable federal and state endangered species acts and regulations, and any local requirements, such as tree preservation policies. Ensure that important fish or wildlife movement corridors or nursery sites are not impeded by project activities.

b) When special status species have been identified in the project area, conduct pre-construction surveys prior to the commencement of construction to identify whether the species are currently inhabiting the project site. If species are identified, species specific avoidance protection measures are required.

c) Environmental Awareness Training: Prior to the commencement of site grading, an environmental monitor should conduct environmental awareness training for all construction personnel. The environmental awareness training should include discussions of the special-status species and nesting birds that may occur in the project area. Topics of discussion could include descriptions of the species' habitats, general provisions and protections afforded by CEQA and the federal and state ESAs, measures implemented to protect special-status species, review of the project boundaries and special conditions, the environmental monitor's role in project activities, lines of communication, and procedures to be implemented in the event a special-status species is observed in the work area.

d) Designate environmentally sensitive areas and erect temporary construction fencing and signs to protect the areas from vehicle and foot traffic.

e) Limit construction to a seasonal window outside of the time of potential impact. For example, construct the project outside of nesting bird season (March 1st to September 30th).

f) Retain a qualified biologist to act as an environmental monitor to ensure compliance with biological resources mitigation measures. Monitoring could be conducted full time during the initial disturbances (site clearing) and be reduced to twice a week following initial disturbances or a frequency and duration determined by the water system in consultation with the USFWS, the CDFW, and the lead agency, if not the water system. The monitor's responsibilities could include:

   1. ensuring that procedures for verifying compliance with environmental mitigations are implemented;
   2. establishing lines of communication and reporting methods;
   3. preparing compliance reporting;
   4. conducting construction crew training regarding environmentally sensitive areas and protected species;
   5. facilitating the avoidance of special status plants and habitats;
   6. maintaining authority to stop work;
   7. outlining actions to be taken in the event of non-compliance.

g) Implement mitigation banking consisting of the restoration or creation of habitat undertaken expressly for the purpose of compensating for unavoidable habitat losses (species and wetlands) in advance of development actions. The USACE has published guidance for determining compensatory mitigation ratios as required for processing of the Department of Army permits under Section 404 of the Clean Water Act, Section 10 of the Rivers, and Harbors Act; and Section 103 of the Marine Protection, Research, and Sanctuaries Act. Mitigation ratios and credits requirements are also established by the CDFW and the USFWS, to compensate for loss of habitat of federal and state listed species.

h) Prepare and implement, or comply with existing, habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan**.**

i) Prohibit construction activities during the rainy season with requirements for seasonal weatherization and implementation of erosion prevention practices.

j) Comply with all applicable limits on water diversion and use, including but not limited to Fish and Game Code section 5937 and water right permitting, water conservation, and endangered species requirements.

k) Prepare a site design and development plan that avoids or minimizes disturbance of habitat and wildlife resources, as well as prevents stormwater discharge that could contribute to sedimentation and degradation of local waterways. Depending on disturbance size and location, a National Pollutant Discharge Elimination System construction permit may be required from the State Water Board.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. The ability to implement Mitigation Measures 7-1, or equally effective and feasible measures, is within the purview of

the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 7-1 is **potentially significant and unavoidable**.

7.4.2 Impact 7-2 - Sensitive Natural Communities

For the reasons stated in Impact 7-1, compliance with the Proposed Regulations by public water systems may have the potential to have a substantial adverse effect on aquatic and riparian habitat, or other sensitive natural communities identified in local or regional plans, policies, regulations, or by the CDFW or the USFWS. Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 7-1 may reduce the significance of Impact 7-2 to less than significant. The ability to implement Mitigation Measures 7-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 7-2 is **potentially significant and unavoidable**.

7.4.3 Impact 7-3 - Protected Wetlands

For reasons similar to those stated in Impact 7-1, compliance with the Proposed Regulations by public water systems may have the potential to have a substantial adverse effect on state or federally protected wetlands (including, but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 7-1 and 13-3 may reduce the significance of Impact 7-3 to less than significant. The ability to implement Mitigation Measures 7-1, Mitigation Measures 13-3, or other equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 7-3 is **potentially significant and unavoidable**.

7.4.4 Impact 7-4 - Species Movement and Migration

For reasons like those stated in Impact 7-1, compliance with the Proposed Regulations by public water systems may have the potential to 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. Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 7-1 may reduce the significance of Impact 7-4 to less than significant. The ability to implement Mitigation Measures 7-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 7-4 is **potentially significant and unavoidable**.

7.4.5 Impact 7-5 - Local Policies and Ordinances

For the reasons stated in Impact 7-1, compliance with the Proposed Regulations by public water systems may have the potential to conflict with any local policies or ordinances protecting biological resources such as a tree preservation policy or ordinance. Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 7-1 may reduce the significance of Impact 7-5 to less than significant. The ability to implement Mitigation Measures 7-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 7-5 is **potentially significant and unavoidable**.

7.4.6 Impact 7-6 - Habitat Conservation Plans

For reasons like those in Impact 7-1, compliance with the Proposed Regulations by public water systems may have the potential to conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan. Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 7-1 may reduce the significance of Impact 7-6 to less than significant.

The ability to implement Mitigation Measures 7-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 7-6 is **potentially significant and unavoidable**.

7.4.7 Cumulative Impacts

Implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations may contribute to cumulative impacts to biological resources from other projects occurring in the state. In particular, and as discussed in section 3.5, other drinking water projects that are like the reasonably foreseeable means of compliance have occurred and are likely to occur in the future. For instance, public water systems will continue to install treatment and obtain new sources of water supply to address other drinking water contaminants regulated under the California Safe Drinking Water Act and, in some cases, financed by the State Water Board's financial assistance programs. Likewise, public water systems will continue to consolidate with assistance from the State Water Board's SAFER program. These infrastructure projects have the potential to adversely affect biological resources. Due to the number of public water systems (currently around 7,000) and their distribution throughout the state, the cumulative impact on biological resources from the Proposed Regulations may be considerable in the context of these other projects. In addition, projects that are unrelated to the State Water Board's drinking water programs may impact biological resources in the vicinity of site-specific projects to comply with the Proposed Regulations. Depending on the location, the cumulative impact on biological resources may be significant.

The Proposed Regulations' contribution to this significant impact could be cumulatively considerable due to the development of new drinking water infrastructure that could affect biological resources. Implementation of the project-level mitigation measures recommended in this chapter would effectively reduce the incremental contribution from the Proposed Regulations to a less-than-considerable level, but authority to require that mitigation will rest with agencies that will be authorizing site-specific projects, and not with the State Water Board at this time. Consequently, it is uncertain whether mitigation measures would be implemented, which precludes assurance that significant impacts would be avoided. Therefore, the State Water Board takes the conservative approach and discloses, for purposes of CEQA compliance, that the Proposed Regulations could result in a considerable contribution to a significant cumulative impact on biological resources.

CHAPTER 8 - CULTURAL RESOURCES

This chapter describes the nature of existing cultural resources in California and analyzes potential impacts that may occur to historical resources, unique archaeological resources, and human remains from the Proposed Regulations.

8.1 ENVIRONMENTAL SETTING

CEQA requires agencies to assess the effects of projects on cultural resources that meet the definition of an historical resource, a unique archaeological resource, a tribal cultural resource, or human remains. Native American heritage resources from the past to the present may fall under the definition of both cultural resources and tribal cultural resources in the Appendix G of the CEQA Guidelines. (Pub. Resources Code, § 21074, subd. (c).) Impacts to tribal cultural resources are discussed in Chapter 21.

California currently has 1,114 Historic Landmarks, 29 National Historic Landmarks, and thousands of historical resources and archaeological sites that are either listed on the California Register of Historical Resources (CRHR) or have been determined eligible for listing.

A review of the National Register of Historic Places Geospatial Dataset (non-confidential data only) (NPS 2022), indicates three wells with average levels of hexavalent chromium over the proposed MCL, are present within the Golden Gate Park, a National Register of Historic Places listed historic district that is also a California historical resource listed on the CRHR. Because this dataset doesn't include archaeological sites it is possible there are additional wells in archaeological sites that are historical resources that are not included within the dataset used for the analysis (Elliott 2022).

8.2 REGULATORY SETTING

8.2.1 CEQA Statutes and Guidelines

CEQA defines "historical resource" to mean a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources; included in a local register of historical resources; or otherwise determined to be a historical resource by the lead agency. (Pub. Resources Code, § 21084.1.) CEQA defines a "unique archaeological resource" as any archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- Has a special and quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person. (Pub. Resources Code, § 21083.2, subd. (g).)

If a resource meets the definition of both a historical and unique archaeological resource, it is considered a historical resource under CEQA. (Cal. Code Regs., tit.14, § 15064.5.)

When the existence of or the probable likelihood of Native American human remains has been identified, the lead agency must work with the appropriate Native American "most likely descended from the deceased Native American" as identified by the Native American Heritage Commission as provided in Public Resources Code section 5097.98. (Cal. Code Regs., tit. 14, § 15064.5 subd. (d).)

The CEQA Guidelines also address the appropriate course of action to take when human remains are discovered accidentally outside of a dedicated cemetery. (Cal. Code Regs., tit. 22, § 15064.5 subd. (e).)

8.2.2 California Register of Historical Resources

Public Resources Code section 5024.1 established the CRHR and the criteria for listing a resource on the CRHR. A "historical resource" is any resource listed or eligible for listing on the CRHR. The CRHR listing criteria are intended to determine whether the resource in question is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage. The term "historical resource" also includes any site described in a local register of historic resources or identified as significant in a historical resources survey meeting the requirements. (Pub. Resources Code, § 5024.1, subd. (c).)

8.2.3 Human Remains

Health and Safety Code section 7001 defines "human remains" or "remains" as, "the body of a deceased person, regardless of its stage of decomposition, and cremated remains." It is possible that human remains may be present at surface and subsurface levels. State law prescribes protective measures that must be taken if human remains are discovered. Specifically, section 7050.5 of the California Health and Safety Code requires that the County Coroner shall be immediately notified of the discovery and no further excavation or disturbance of the site, or any nearby area may continue until the County Coroner has determined, within two working days of notification of the discovery, the appropriate treatment and disposition of the human remains.

If the County Coroner determines that the remains are, or are believed to be, Native American, he or she is required to notify the Native American Heritage Commission (NAHC) within 24 hours in accordance with the Public Resources Code section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant from the deceased Native American. The most likely descendant shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

8.3 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This section discusses potential impacts to cultural resources from the implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations. Reasonably foreseeable means of compliance with the Proposed Regulations include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of impacts to cultural resources that could occur with implementation of the reasonably foreseeable means of compliance with the Proposed Regulations. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines. It also considers, where available and appropriate, environmental documents prepared by public water systems for site-specific projects like the reasonably foreseeable means of compliance with the Proposed Regulations.

Future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-specific assessments of impacts on cultural resources. At that time, project-level impacts to cultural resources will be analyzed.

8.4 IMPACTS AND MITIGATION MEASURES

Would the Proposed Regulations:

1. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines section 15064.5?
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines section 15064.5?
3. Disturb any human remains, including those interred outside of formal cemeteries?

8.4.1 Impact 8-1 - Historical Resources

Compliance with the Proposed Regulations by public water systems may have the potential to cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines section 15064.5.

Although construction of projects for compliance with the Proposed Regulations would likely take place within the existing footprint of public water system facilities, and adjacent to existing wells and distribution facilities, there could be situations where the public water system itself is a historical resource, the public water system was originally built on an archaeological site, or it would be necessary to construct in a previously undisturbed area that could pose a potentially significant impact to historical or archaeological resources. Construction activities may disturb land, including grading of the site. During construction activities, there is the potential to encounter and impact historical resources and archaeological resources. The operations of compliance projects are less likely to cause impacts to historical or archaeological resources, but normal operations could also impact resources.

The magnitude and type of impacts of site-specific projects would depend upon the area disturbed and characteristics of the site. The types of cultural resources that may potentially be affected by construction activities include, but are not limited to, pre-colonial and historic-

era archaeological sites, historic buildings, structures, human remains, and tribal cultural resources.

Examples of recognized and accepted measures that are routinely required by regulatory agencies include:

8.4.1.1 Mitigation Measures 8-1

a) Follow the Secretary of the Interior's "Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings" or the Secretary of the Interior's "Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings" (1995) Weeks and Grimmer. (Cal. Code Regs., tit. 14 § 15064.5 subd. (b)(3) (identifying that generally projects following these standards shall be considered mitigated to a level less than significant impact).

b) Require onsite worker training to alert workers to the possibility of encountering archaeological resources and human remains during construction activities and teach them the appropriate laws and procedures to follow in the event of a discovery.

c) If archaeological resources are discovered during construction, cease all work in the vicinity of the find and have an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards evaluate the find. Construction work may continue on other parts of the project site while archaeological mitigation takes place.

d) Make provisions for unique archaeological resources found on the site, including contingency funding and a time allotment sufficient to allow recovering an archaeological sample or to employ avoidance measures.

e) Preserve resources in place or leave in an undisturbed state by planning construction to avoid archaeological sites; deeding archaeological sites into permanent conservation easements; capping or covering archaeological sites with a layer of soil before building on the sites; and planning parks, greenspace, or other open space to incorporate archaeological sites. (Pub. Resources Code, § 21083.2, subd.(b).)

f) Prepare site development and grading plans that avoid disturbance of known cultural sites and/or documented sensitive areas and take appropriate measures to protect sensitive resources.

g) Include mitigation agreed upon during consultation with the Native American Tribes pursuant to AB 52 (see Chapter 21, Tribal Cultural Resources).

h) Retain a qualified archaeologist and/or Native American representative to monitor construction activities, particularly grading and trenching in or near known archaeological sites. If artifacts are observed during construction, it is required that construction be halted until a qualified archaeologist has been consulted.

Also see Mitigation Measure 21-1

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 8-1 and 21-1 could reduce Impact 8-1 to less than significance, yet the ability to implement Mitigation

Measures 8-1 and/or 21-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 8-1 is **potentially significant and unavoidable.**

8.4.2 Impact 8-2 - Archaeological Resources

For similar reasons to Impact 8-1, compliance with the Proposed Regulations by public water systems may have the potential to cause a substantial adverse change in the significance of an archaeological resource pursuant to section 15064.5 of the CEQA Guidelines. Because future site-specific compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 8-1 and/or 21-1 may reduce the significance of Impact 8-2 to less than significant, yet the ability to implement Mitigation Measures 8-1 and/or 21-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 8-2 is **potentially significant and unavoidable.**

8.4.3 Impact 8-3 - Human Remains

For similar reasons to Impact 8-1, compliance with the Proposed Regulations by public water systems may have the potential to disturb human remains, including those interred outside of formal cemeteries.

Although construction of projects for compliance with the Proposed Regulations would likely take place within the existing footprint of public water system facilities, and adjacent to existing wells and distribution facilities, there could be situations where the public water system was originally built on a burial site, or it would be necessary to construct in a previously undisturbed area that could pose a potentially significant impact to human remains. Construction activities may disturb land, including grading of the site. During construction activities, there is the potential to encounter and impact human remains. The operation of compliance projects are less likely to cause impacts to human remains, but normal operations could also cause impacts to human remains if they are present.

8.4.3.1 Mitigation Measure 8-3

a) Public water systems should comply with Health and Safety Code section 7050.5 and Public Resources Code section 5097.98 or Title 25 U.S.C. chapter 32 sections 3001 to 3013 on federally owned land, as appropriate.

Also see Mitigation Measures 8-1 and 21-1 to reduce impacts to human remains.

Because future site-specific compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 8-3, 8-1 and 21-1 may reduce the significance of Impact 8-3 to less than significant. The ability to implement Mitigation Measures 8-3, 8-1 and/or 21-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 8-3 is potentially significant and unavoidable.

8.4.4 Cumulative Impacts

Implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations may contribute to cumulative impacts to cultural resources from other projects occurring in the state. In particular, and as discussed in section 3.5, other drinking water projects that are like the reasonably foreseeable means of compliance have occurred and are likely to occur in the future. For instance, public water systems will continue to install treatment and obtain new sources of water supply to address other drinking water contaminants regulated by the State Water Board and, in many cases, financed by the State Water Board's financial assistance programs. Likewise, public water systems will continue to consolidate with assistance from the State Water Board's SAFER program. These infrastructure projects have the potential to adversely affect the archaeological and historical resources and/or disturb human remains located outside of dedicated cemeteries. Due to the number of public water systems (currently around 7,000) and their distribution throughout the state, the cumulative impact on cultural resources from the Proposed Regulations may be considerable in the context of these other projects. In addition, projects that are unrelated to the State Water Board's drinking water programs may impact cultural resources in the vicinity of site-specific projects to comply with the Proposed Regulations. Depending on the location, the cumulative impact on cultural resources may be significant.

The Proposed Regulations' contribution to this significant impact could be cumulatively considerable due to the construction of new drinking water infrastructure by materially altering or destroying the characteristics that make cultural resources historically significant. Implementation of the project-level mitigation measures recommended in this chapter would effectively reduce the incremental contribution from the Proposed Regulations to a less-than-considerable level, but authority to require that mitigation will rest with other agencies that will be authorizing site-specific projects, and not with the State Water Board. Consequently, it is uncertain whether mitigation measures would be implemented, which precludes assurance that significant impacts would be avoided. Therefore, the State Water Board takes the conservative approach and discloses, for purposes of CEQA compliance, that the Proposed Regulations could result in a considerable contribution to a significant cumulative impact on cultural resources.

CHAPTER 9 - ENERGY

This chapter describes existing energy resources in California and analyzes potential impacts that may occur from the Proposed Regulations.

9.1 ENVIRONMENTAL SETTING

In 2019, California was the second-largest total energy consumer among the states, but its per capita energy consumption was less than in all other states except Rhode Island, due in part to its mild climate and its energy efficiency programs (USEIA 2022). A comparison of California's energy-consuming end-use sectors indicates that the transportation sector is the greatest energy consumer, by approximately two to three times compared to the other end-use sectors (e.g., industrial, commercial, and residential) (USEIA 2022). According to the U.S. Energy Information Administration, in 2021, California was the largest consumer of jet fuel and second-largest consumer of motor gasoline among the 50 states. Water and wastewater systems in California use as much as 19 percent of the state's electricity consumption for pumping, treating, collecting, and discharging wastewater, as well as for customer uses. When customer end uses are subtracted, California water agencies account for 5.1 percent of the state's electricity consumption (CEC 2020). California's Climate Change Scoping Plan estimates two percent of the total energy used in the state is related to the conveyance, treatment, and distribution of water supply (CARB 2017, p. ES14).

9.2 REGULATORY BACKGROUND

9.2.1 Federal

9.2.1.1 Energy Policy Act

The Energy Policy Act of 2005 was intended to reduce reliance on non-renewable energy resources and provide incentives to reduce demand on these resources. The act established tax incentives for renewable energy production and energy efficiency and conservation, and required an increase in the amounts of renewable fuels (e.g., ethanol or biodiesel) to be used in gasoline sold in the U.S. It also included provisions to increase oil and natural gas production on federally owned lands and set federal reliability standards regulating the electrical grid.

9.2.2 State

9.2.2.1 California Integrated Energy Policy

Senate Bill 1389 (ch. 568, stats. 2002) requires the California Energy Commission (CEC) to prepare an Integrated Energy Policy Report for the Governor and Legislature every two years. The report analyzes data and provides policy recommendations on trends and issues concerning electricity and natural gas, transportation, energy efficiency, renewable energy, and public interest energy research.

9.2.2.2 The California Energy Efficiency Strategic Plan

As a result of Assembly Bill (AB) 32 (ch. 488 stats. 2006.), the California Air Resources Board set energy efficiency goals to reduce emissions of greenhouse gasses. The California Public Utilities Commission developed the California Energy Efficiency Strategic Plan in 2008 to establish energy efficiency targets applicable to its regulated utilities (CPUC 2008).

9.2.2.3 California Renewables Portfolio Standard

California's Renewables Portfolio Standard, updated in 2018, sets a goal of obtaining 100 percent zero-carbon electricity for the state by 2045. Interim targets are established to achieve 33 percent electricity produced from renewable sources by 2020 and 50 percent by 2026.

9.2.2.4 Climate Change Scoping Plan

In 2006, the Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multi-year program to reduce greenhouse gas emissions in California. The Climate Change Scoping Plan details the State's strategy for achieving its Greenhouse Gas (GHG) reduction targets and is discussed in greater detail in Chapter 11, "Greenhouse Gas Emissions." The water supply-energy nexus is one of the sectors targeted in the Climate Change Scoping Plan, which has the following goals and actions related to energy expended producing, moving, treating, and heating and water (CARB 2017, p. ES14):

a) Increase water savings by certifying innovative technologies for water conservation and developing and implementing new conservation targets, updated agricultural water management plans, and long-term conservation regulations.

b) Develop a voluntary registry for GHG emissions from energy use associated with water; and

c) Continue to increase the use of renewable energy to operate the State Water Project.

9.3 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This section discusses potential impacts to energy resources from the implementation by public water systems of reasonably foreseeable means of compliance with the proposed regulation. Reasonably foreseeable means of compliance with the proposed regulation include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of impacts to energy resources that could occur with implementation of the reasonably foreseeable means of compliance with the proposed regulation. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines. It also considers, where available and appropriate, environmental documents prepared by public water systems for site-specific projects like the reasonably foreseeable means of compliance with the proposed regulation.

For future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would

include site-specific assessments of impacts on energy resources. At that time, project-level impacts to energy resources will be analyzed.

9.4 IMPACTS AND MITIGATION MEASURES

Would the Proposed Regulations:

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

9.4.1 Impact 9-1 - Consumption of Energy Resources

Construction of compliance projects would require electricity to power construction equipment, such as electric power tools and welders, as well as fuels to operate gasoline- or diesel-powered construction equipment. It is possible that construction equipment would be poorly maintained or allowed to idle when not in use, or that haul trips would be planned inefficiently, any of which could lead to the wasteful, inefficient, or unnecessary consumption of fuel. Compliance project proponents can avoid these scenarios by implementing construction management plans. Through mitigation, potential impacts during construction could therefore be less than significant.

During operation of treatment plants, public water systems will need to make vehicle trips to the plants for maintenance and monitoring. These trips are unlikely to involve wasteful, inefficient, or unnecessary consumption of fuel. In many cases, public water systems may be able to combine trips to monitor for multiple contaminants or treatment water quality parameters. Public water systems may also elect to rely on energy-efficient vehicles, including electric vehicles, for maintenance and monitoring trips.

Operation of treatment plants will entail energy consumption. For example, in the EIR prepared for the Coachella Valley Water District's Chromium-6 Treatment Project, the lead agency estimated close to a doubling of energy consumption at contaminated well sites to power ion exchange treatment and regeneration systems (CVWD 2016 4.12-11). The water district's existing ion exchange treatment well sites at the time used approximately 21,270 MWh of electricity per year, while the proposed project to treat for hexavalent chromium at numerous wells sites was estimated to use a maximum of approximately 41,153 MWh of electricity per year, depending on the brine disposal option (CVWD 2016, 4.12-11). This was a very large, proposed hexavalent chromium treatment project, entailing the installation of ion exchange treatment at thirty well sites with on-site regeneration of resin. Other projects are likely to be smaller in scope. Some projects, such as projects to blend contaminated water with non-contaminated water, may require installation of booster pumps, which would require electrical consumption to operate.

The Water Research Foundation published a study in 2017 investigating hexavalent chromium treatment for small systems and estimated the amount of electricity required for various treatment scenarios (Water Research Foundation 2017a). The study conveyed this estimate as part of operations and maintenance cost estimates. For treatment of one million gallons of low sulfate water per day using strong-base ion exchange single-use resin in series operation, the Water Research Foundation estimated 108,333 kWh of energy use per

year (expressed in the study as an operations and maintenance cost of $13,000, assuming an energy cost of $0.12 per kWh) (Water Research Foundation 2017a, table 4.20). The estimated energy for ion exchange treatment with onsite regeneration is substantially higher. For treatment of one million gallons of low-moderate sulfate water per day using strong-base ion exchange resin in series or parallel operation, with onsite regeneration, the Water Research Foundation estimated 816,667 kWh of energy use per year (expressed in the study as an annual operations and maintenance cost of $98,000, assuming an energy cost of $0.12 per kWh) (Water Research Foundation 2017a, tables 4.21 and 4.22). This is more than a seven-fold increase compared to strong-base ion exchange with single-use resin. Lastly, for treatment of one million gallons of water per day using weak-base ion exchange resin (which cannot be regenerated), the Water Research Foundation estimated an energy use of 125,000 kWh per year (expressed in the study as an operations and maintenance cost of $15,000, assuming an energy cost of $0.12 per kWh) (Water Research Foundation 2017a, table 4.6). The Water Research Foundation explained that the cost estimates developed with this methodology are considered to fall within the range of Class 5 estimates as defined by the Association for the Advancement of Cost Engineering International. These levels of engineering cost estimating are generally conducted based on limited preliminary information and without detailed information such as process and instrumentation diagrams, engineering layouts, and equipment schedules. This level of cost estimating is appropriate for budgetary planning purposes, assessment of initial viability and evaluation of alternative plans. Typical accuracy ranges recognized for Class 5 estimates are -30% to +50%" (Water Research Foundation 2017a p. 63).

The Water Research Foundation published a study in 2014, based on pilot scale testing of ion exchange and RCF treatment for hexavalent chromium, which indicated less energy use than the CVWD or 2017 studies. The study estimated costs for strong-base ion exchange, weak-base ion exchange, and RCF. Weak-base ion exchange costs were estimated for two methods of pH adjustment: in one, carbon dioxide was added before treatment, followed by air stripping; in the other, hydrochloric acid was added before treatment, followed by caustic soda. Energy costs were limited to head loss and an air blower and booster for one of the weak-base ion exchange methods; regeneration costs were not included (Water Research Foundation 2014, p. 88). The study estimated the following energy use for systems of varying size.

TABLE 9-1 ESTIMATED ENERGY USE (KW/YEAR) BY TREATMENT AND SYSTEM SIZE

	100 gpm	250 gpm	500 gpm	1000 gpm	2000 gpm	5000 gpm	7500 gpm	10000 gpm
SBA	2,671	6,678	13,356	26,710	53,422	133,555	200,333	267,111
RCF	2,671	6,678	13,356	26,710	53,422	133,555	200,333	267,111
WBA (CO2 and air stripping)	65,793	150,137	209,606	419,214	838,428	1,933,100	3,177,386	3,866,199

WBA (HCl and NaOH)	2,671	6,678	13,356	26,710	53,422	133,555	200,333	267,111

Cost estimates assumed raw water containing 25 ug/L of hexavalent chromium. Cost estimates also assumed well use at 60% of capacity and a reduction of hexavalent chromium to 1 ug/L in treated water. The estimates present here were adjusted to reflect use at 100% of capacity and a reduction of hexavalent chromium to the proposed MCL of 10 ug/L. A bypass equation calculating the amount of water that must be treated to 80% of the MCL for all water to meet the MCL showed that meeting an MCL of 10 ug/L would require treating about 70% of the amount of water that would need to be treated to meet an MCL of 1 ug/L. Energy costs to meet an MCL of 10 ug/L were therefore estimated to equal 70% of energy costs presented in the study to meet the MCL of 1 ug/L.

Even though installation of treatment or other reasonably foreseeable means of compliance will likely require increases in energy consumption, those increases are not wasteful or unnecessary because the energy is needed to produce safe drinking water. Likewise, the energy usage is unlikely to be inefficient because public water systems must pay for the cost of energy as part of their operations and maintenance budgets; therefore, they have a financial incentive to design treatment plants and other infrastructure that do not use more energy than necessary. Some water systems also implement demand management programs to reduce energy impacts. For instance, in its EIR for its hexavalent chromium treatment project, the Coachella Valley Water District noted that it automatically shuts down water pumps when demand on the electrical grid is at its peak (CVWD 2016 4.12-11). Other water systems may implement similar demand management programs. For these reasons, energy usage for compliance project operations is unlikely to result in a significant environmental impact due to inefficient consumption of energy resources.

9.4.1.1 Mitigation Measures 9-1

It is expected that project specific CEQA analyses will provide specific measures that could be implemented to avoid the wasteful, inefficient, or unnecessary consumption of energy. Based on results of the site-specific environmental review, project proponents should be required to implement all feasible mitigation identified in the site-specific environmental document to reduce or substantially lessen impacts from compliance projects.

Examples of mitigation measures include:

a) Design systems with energy efficient measures.

b) Install energy efficient equipment for all treatment processes.

c) Maintain equipment to ensure that it runs efficiently.

d) Operate systems during off-peak demand hours.

e) Implement water conservation measures to reduce the unnecessary use of water.

f) Use energy efficient technologies and practices during construction to reduce the likelihood of inefficient energy use.

g) Participate in local or regional electrical demand management programs.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that

will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 9-1 could reduce Impact 9-1 to less than significance, yet the ability to implement Mitigation Measures 9-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 9-1 is **potentially significant and unavoidable**.

9.4.2 Impact 9-2 - Renewable Energy and Efficiency Plans

Compliance projects in response to the Proposed Regulations would be unlikely to conflict with or obstruct a state or local plan for renewable energy or energy efficiency. California water agencies account for 5.1 percent of the state's electricity consumption (CEC 2020, p.1). Compliance projects that involve the installation of treatment facilities are likely to increase total electricity consumption, but only by a small amount. This is because most water systems will not be out of compliance with the Proposed Regulations, and of those that are, only some will decide to install new treatment. Others may decide to drill replacement wells, blend sources, or consolidate with other public water systems. Replacement wells would not require additional energy use compared to existing wells. While blending or consolidating may require additional energy to transport or distribute water, the increase is likely to be minimal because of the relatively short distances to distribute water for blending or to connect adjacent public water systems. Installation of POU devices require minimal additional energy to operate.

Although the installation of treatment facilities would increase energy consumption, these compliance projects are unlikely to conflict with or obstruct a state or local plan for renewable energy or energy efficiency. This is because water treatment facilities can be powered by renewable energy and designed with efficiency in mind. In addition, the additional energy consumption required for treatment facilities would be relatively small compared to total energy consumption or demand addressed by state or local renewable energy and energy efficiency plans. For example, in its EIR for its hexavalent chromium treatment project, the Coachella Valley Water District noted that the long-term energy demand for ongoing operation of the proposed treatment would be small in comparison to energy demand in Riverside County as a whole. The increase in demand due to the proposed treatment of hexavalent chromium at thirty well sites was 14,691 kWh, representing 0.00013 percent of the Riverside County's electricity usage at the time. (CVWD 2016 4.12-11.) The water district found that the increase in demand would not constrain regional or local supplies of energy, require additional energy capacity, or substantially affect peak and base periods of demand. (CVWD 2016 4.12-11.)

For these reasons, Impact 9-2 is **less than significant.**

9.4.3 Cumulative Impacts

Implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations may contribute to cumulative impacts on energy resources from other projects occurring in the state. In particular, and as discussed in section 3.5, other

drinking water projects that are like the reasonably foreseeable means of compliance have occurred and are likely to occur in the future. For instance, public water systems will continue to install treatment and obtain new sources of water supply to address other drinking water contaminants regulated by the State Water Board and, in many cases, financed by the State Water Board's financial assistance programs. Likewise, public water systems will continue to consolidate with assistance from the State Water Board's SAFER program. These infrastructure projects will require consumption of energy resources during construction and, in most cases, operation. Due to the number of public water systems (currently around 7,000) and their distribution throughout the state, the cumulative impact on energy resources from the proposed regulation may be considerable in the context of these other projects. In addition, projects that are unrelated to the State Water Board's drinking water programs may impact energy resources in the vicinity of site-specific projects to comply with the Proposed Regulations. Depending on the location, this cumulative impact may be significant.

The Proposed Regulations' contribution to this significant impact could be cumulatively considerable due to the development of new drinking water infrastructure that requires consumption of energy resources during construction and operation. Implementation of the project-level mitigation measures recommended in this chapter would effectively reduce the incremental contribution from the proposed regulation to a less-than-considerable level, but authority to require that mitigation will rest with agencies that will be authorizing site-specific projects, and not with the State Water Board at this time. Consequently, it is uncertain whether mitigation measures would be implemented, which precludes assurance that significant impacts would be avoided. Therefore, the State Water Board takes the conservative approach and discloses, for purposes of CEQA compliance, that the Proposed Regulations could result in a considerable contribution to a potentially significant cumulative impact on energy resources.

CHAPTER 10 - GEOLOGY AND SOILS

This chapter describes geology, soil, and seismologic conditions, geologic hazards and paleontological resources in California and analyzes potential impacts that may occur from compliance with the Proposed Regulations.

10.1 ENVIRONMENTAL SETTING

California's geomorphology is a product of more than 500 million years of tectonic plate convergence and subduction, collision, and expansion that built mountain ranges, valleys, and high plains. Plate tectonics is a complex process that involves the movement and interaction of lithospheric plates that form the earth's crust. Driven by forces within the earth's mantle, these plates continually move; one may pass another at transform boundaries such as the San Andreas Fault, converge at subduction zones where one plate dives beneath another, or simply collide to form steep folded mountains.

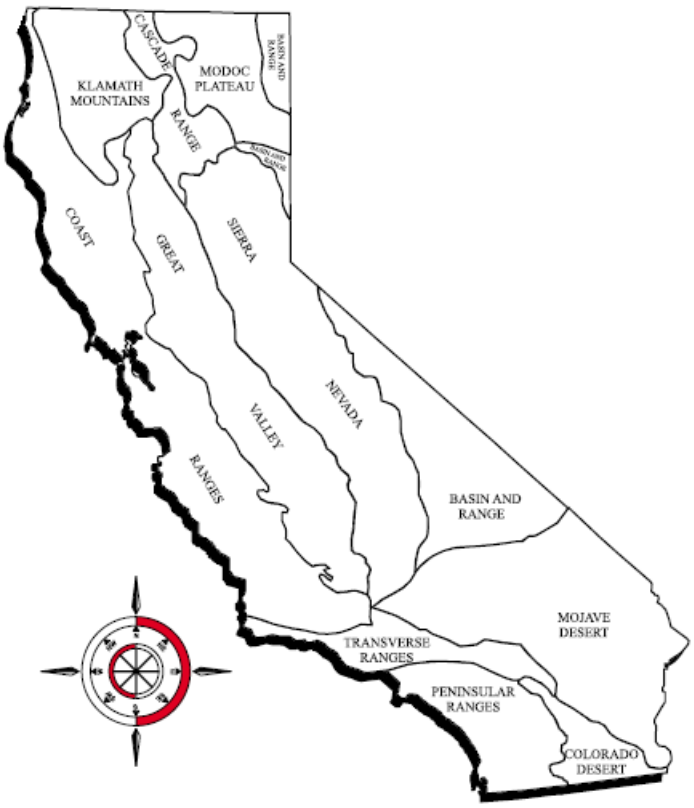
The San Andreas Fault zone is an active transform boundary where the Pacific plate is rotating north-northwest with respect to the relatively stable North American Plate. All of California that is east of the San Andreas Fault is situated on the western edge of the North American Plate; the portion of the state that is west of the San Andreas Fault is situated on the Pacific Plate. Although movement along the San Andreas Fault is right lateral strike slip, the fault has also produced compressional geomorphic features such as the Transverse Ranges at fault bends and at its northern termination at the Gorda Plate. Additionally, the fault has produced divergent geomorphic features such as the Salton Sea and the Sea of Cortez near its southern end.

Tectonic movement generally occurs at a geologic pace, so that the interval between seismic events at a particular location may be on the order of decades, centuries, or millennia. These plate tectonic motions are important on a human scale because each incremental movement results in an earthquake that may impact human activities. On a larger scale, tectonic movements have resulted in extrusive volcanic activity, intrusive plutonic emplacement, and accretion of additional crust. Eons of tectonic uplift and down-warping combined with erosive forces have produced geomorphic features such as mountains, canyons, and valleys that are part of the current landscape. Geomorphic landforms are typically geologically young, but the landforms contain rocks and geologic features that range from recent to hundreds of millions of years.

10.1.1 Geomorphic Provinces

The wide physiographic variability across relatively short distances in California is the result of it varied geology, topography, and climate. These natural physiographic characteristics form the basis of California's eleven regional geomorphic provinces (Figure 10-1). Each geomorphic province is defined by its geology, topography, landforms, and mineralogy. In turn, the geomorphic characteristics of each province influence its climate and precipitation, vegetation, and watersheds. A common attribute of the geomorphic provinces is that physiographic characteristics have their origin in complex tectonic interactions and are altered by other natural forces. With few exceptions, boundaries of geomorphic provinces generally follow the delineation of California's ecological subregions (Griffith et. al.1996).

FIGURE 10-1. GEOMORPHIC PROVINCES OF CALIFORNIA



Source: California Department of Conservation, California Geological Survey Note 36, 2002 (CGS 2002a).

10.1.2 Geologic Hazards

For this EIR, the term geologic hazard is broadly defined as the geologic manifestation of an actual or threatened natural or unnatural movement of land, earth, or water. Baseline geologic hazards considered for the Proposed Regulations include seismic rupture, seismic shaking hazards (liquefaction, slope failure, tsunamis, seiche, volcanism), land subsidence, and hazardous minerals. In California, earthquakes are the primary geologic hazard with the potential to impact great numbers of people.

Faults in California move in three basic ways: lateral, upward, and downward. A strike-slip fault is nearly vertical and perpendicular to the ground surface; the movement is lateral, where one side moves left or right relative to the other. The lateral ground shift may offset or truncate linear geomorphic features such as streams and ridges. A reverse or thrust fault pushes one side upward at an angle and over the other; over time this compressional movement tends to create hills and mountains. A normal fault moves downward at an angle, pulling away from the other side; the extensional movement creates basins.

The most well-known fault system in California is the San Andreas, a segmented, right-lateral transverse fault that generally trends northwest to southeast across the western edge of the state from Point Arena to Baja California. The northern segment crosses the Coast Ranges diagonally from Point Arena to the Santa Cruz Mountains; the Central segment runs along the west side of the Great Valley from Hollister to Parkfield. Except for an eastward bend at

the Transverse Ranges, the southern segment extends south from Parkfield to the Sea of Cortez. The northern portion offset more than 20 feet of ground surface in the destructive 1906 San Francisco earthquake; the central segment produces periodic relatively low magnitude (Mw 6 and under) earthquakes and aseismic creep; and the southern segment produced a magnitude 8.2 earthquake in 1857.

Lateral movement on the San Andreas Fault zone and other major lateral faults has resulted in development of thrust faults and normal faults to accommodate the lateral movement. The 1989 Loma Prieta earthquake and the 1994 Northridge earthquakes were the result of movement on thrust faults associated with the San Andreas Fault zone.

Although earthquake hazards are greatest in the seismically active western portion of the state, faults in other portions of the state may also present seismic risks. Seismic hazards in the central and eastern part of the state tend to be distributed over a region or an area rather than a single fault. An aerial source zone is one where the seismic activity and frequency is such that past seismic activity cannot be not clearly assigned to a particular fault. The Foothills, Western Nevada, Mohawk-Honey Lake, Northeastern California, and Brawley seismic zones are areal source zones. Earthquakes in these areal source zones typically produce magnitudes less than 5.0. The 1975 Cleveland Hills earthquake in the Foothills fault system was 5.8 and resulted in significant local damage, and the 1966 Dog Valley earthquake had a magnitude of 6.2.

The potential severity of a geologic hazard at a particular location may be related to the regional geology, topography, soil conditions, climate, or hydrogeologic conditions. The potential impact of a particular geologic or soil condition depends on factors such as human occupancy or presence and structural or non-structural characteristics. This environmental analysis is intended to provide an overview of potential impacts from known geologic conditions throughout the State. However, local hazards would have to be considered with respect to site-specific conditions or activities and would be evaluated on a case-by-case basis.

10.1.2.1 Seismic Rupture

Surface rupture is an offset of the ground surface caused by a fault deep within the earth that breaks through to the Earth's surface. Any structure built across the fault is at risk of being torn apart. Not all earthquakes result in surface rupture. Normal and reverse (dip-slip) faulting surface ruptures feature vertical offsets while strike-slip faulting produces lateral offsets. Many earthquake surface ruptures are combinations of both. Structures that span a surface fault are likely to suffer great damage from surface ruptures.

There is one known well for one water system with average hexavalent chromium levels above the proposed MCL located within an Alquist-Priolo Fault Zone, Water System CA3600141, the Mitsubishi Cement Plant Cushenbury in San Bernardino County (CDC 2022a).

10.1.2.2 Seismic Shaking Hazards

Hazards associated with seismic shaking include landslides, liquefaction, lateral spreading, tsunamis, seiche, and flooding. Seismic hazards and seismic risk vary considerably across the state and even within each fault system.

Fourteen wells with average hexavalent chromium levels above the proposed MCL are in liquefaction zones (CDC 2022c). See table 10.1 below. None are in landslide, tsunami, or seiche zones according to available data.

TABLE 10-1 AFFECTED WELLS IN LIQUEFACTION ZONES

Well(s)	Water system	County
1, 5	0110010	Alameda
GOU GN-3	1910043	Los Angeles
32	1910126	Los Angeles
14	1910173	Los Angeles
VO-1, VO-2	1910179	Los Angeles
Serramonte, Hickey	3810001	San Mateo
01-19, 01-20	4410009	San Mateo
2	4410020	San Mateo
11	5610017	Ventura
2	5610063	Ventura

10.1.2.3 Slope Failures

There are many types of slope failures including landslides, mudslides, rockslides, slump, and soil creep etc. Slope failures are the downslope displacement and movement of soil, rock, or other materials and can happen slowly or very quickly. Slope failures are caused by disturbances in the natural stability of a slope. They are mostly caused by an increase in water content resulting from rapid melting of snow or ice, heavy or rain, but can follow droughts, earthquakes, or volcanic eruptions. Slope failures can also be triggered by static gravitational forces (i.e., soil creep), dynamic seismic forces, or human activities. Even minor cracking and slumps can damage property; larger failures, such as landslides, may result in catastrophic injuries and property damage.

Slope stability depends on several interdependent variables including geology, climate, topography, slope geometry, and saturation. Factors that contribute to slope movements include those that decrease the resistance in the slope materials and those that increase the stresses on the slope. Although earthquakes often cause landslides, most landslides are triggered by non-seismic forces. There are no known wells with average hexavalent chromium levels above the proposed MCL in landslide zones based on the available data.

10.1.2.4 Tsunami

Tsunamis are generated by ground motions beneath large bodies of water resulting from an earthquake or other geologic event such as an undersea volcano or oceanic meteorite impact. Energy emitted by undersea ground motions is translated to water in the form of powerful undersea waves. Tsunami waves travel away from the source until they encounter a body of land large enough to stop them. Several historic earthquakes, including the 1946 M8.1 Aleutian, 1960 M9.5 Chile, and 1964 M9.2 Alaska earthquakes resulted in tsunamis that inundated and caused considerable damage to a portion of the northern and central California coast. A tsunami generated by a large earthquake in Alaska or Chile has the potential to cause catastrophic damage to California’s coastal regions.

10.1.2.5 Seiche

Seiches are a type of water motion generated as a response to external forces such as seismic shaking, landslides, strong winds, or rapid atmospheric changes. Seiche motion tends to occur as an oscillating standing wave. Generally, seiche waves occur in rivers, reservoirs, ponds, and lakes, but also may occur in partially or fully enclosed water bodies along the coast. Seiche waves resulting from the 1964 Alaska earthquake were observed in disparate localities such as New Mexico, Kansas, Lake Michigan, the Gulf Coast, and Australia. Seiches resulting from strong winds are common in large lakes and bays.

10.1.2.6 Volcanism

Although rare, volcanic eruptions have occurred in California and could occur again. Other geologic hazards may also arise from volcanic activity such as toxic gas emissions, steam vents, hot springs, and seismic shaking. The greatest potential volcanic hazards in California are from magma eruptions in the Cascade Range, the Long Valley Volcanic Region, Clear Lake Volcanic Field, the Coso Volcanic Field, and the Salton Buttes (USGS 2022a). The United States Geological Survey monitors active volcanoes including those in California for evidence of subsurface movement and maintains a database of areas likely to be impacted by volcanic eruptions (White, et al 2011). Additionally, volcanic eruptions from sources in Oregon or Nevada could temporarily impact air and water quality in northern California.

10.1.2.7 Land Subsidence

Land subsidence is a gradual settling or sudden sinking of the Earth's surface owing to subsurface movement of earth materials (Galloway et al. 1999, p. 1). The principal causes are aquifer-system compaction from groundwater extraction, drainage and tilling of organic soils, underground mining, hydro compaction, natural compaction, sinkholes, and thawing permafrost. In California groundwater pumping is the main cause of subsidence but drainage of organic (peat) soils, and oil extraction have also affected smaller areas of California.

Subsidence because groundwater removal more than groundwater recharge is generally spread across broad areas. Extensive agricultural pumping has resulted in soil compaction and lowered ground surfaces primarily in the San Joaquin Valley and in southern California.

10.1.2.8 Hazardous Minerals

Some hazardous minerals are naturally occurring and can be exposed and made airborne by construction or other human activities. Asbestos occurs naturally in certain geologic settings in California. Inhalation of asbestos fibers may cause cancer. Most commonly, asbestos occurrences are associated with serpentinite and partially serpentinized ultramafic rocks. Asbestos is released from ultramafic and serpentine rock when it is broken or crushed. This can happen when cars drive over unpaved roads or driveways surfaced with these rocks, when land is graded for building purposes, or at quarrying operations. It is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods if dust abatement and containment practices are not implemented. Other mineral hazards include mercury and radon gas. Mercury was mined historically in California and widely used for gold recovery at mines until about 1970. Radon gas is a naturally occurring, radioactive gas that is invisible and odorless. It forms from the radioactive decay of small amounts of uranium and thorium naturally present in rocks and soils.

10.1.3 Soil

Soil in California is as diverse as the geologic and ecological factors that determine its properties. Soil forms over time as a by-product of chemical or mechanical weathering by the interaction of the underlying parent rocks material, climate, topography, dust, biological activity, and organic debris. The rate at which soil forms depends on factors such as precipitation, temperature, parent material, and nutrient input.

Soil is an important resource in California; agricultural, forest, and recreational economies rely on soil resources. The Natural Resources Conservation Service has classified and named all the various soil types in the United States and has developed an on-line database of soils that includes information about soil types and characteristics such as color, texture, mineralogy, and organic content. The soil survey database includes soil engineering properties such as water retention potential, cation exchange capacity, erosion potential, shrink-swell potential, and corrosion potential.

Soil in the Great Valley is derived from eroded sediments that originated from the Sierra Nevada Mountains to the east and from the Coast Ranges to the west. Several millennia of episodic flooding have resulted in more than 10,000 feet of soil accumulation in the Great Valley. The Valley's rich and fertile topsoil is the foundation of California's agricultural economy. However, agricultural production practices and development have resulted in removal or destruction of fertile topsoil over vast areas.

10.1.3.1 Expansive Soil

Expansive soils contain clay minerals that allow expansion on a molecular level. Expansive clay minerals contain gaps or pockets that enable water to enter and expand the molecule; when the water dries, the molecule shrinks. The continually repeating change in soil volume is called "shrink and swell", where soil expands, swells, and heaves when moist, then shrinks and cracks as it dries. In the United States, the annual damage from expansive soils is greater than the damage from floods, hurricanes, tornadoes, and earthquakes combined.

10.1.3.2 Corrosive or Reactive Soil

Soil corrosion involves a chemical reaction between soil and other elements such as steel and concrete. Typically, soil exposed to high moisture for long periods and containing high electrical conductivity potential, high acidity, or high alkalinity and/or high sulfide content will exhibit the greatest corrosivity potential.

10.1.3.3 Soil Erosion and Loss of Topsoil

Soil erosion is a natural process that is often exacerbated by human activities such as cultivation, grazing, timber harvesting, grading, construction, and other land disturbances. Soil erosion is most often initiated by the presence or absence of water but may also be generated, caused, or exacerbated by wind or gravitational forces. Soils that are most susceptible to erosion are generally high in silt content but may also be composed of fine sand or well-graded coarse sand. Expansive clay soil may have shrink/swell properties that promote erosion on shallow slopes as well as steep slopes. Soil erosion may also contribute to subsidence (discussed above).

10.1.3.4 Paleontological Resources

Paleontological resources are fossilized remains, traces, or imprints of organisms, preserved in or on the Earth's crust, that are of paleontological interest and provide information about the history of life on Earth. Rock units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some

volcaniclastic formations (e. g., ashes or tephra's), and some low-grade metamorphic rocks that contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (SVP 2010, p. 1). Fossils and imprints of organisms are usually found in these rock layers; however, more recent Pleistocene fossils may be found in unconsolidated sediments.

The Society for Vertebrate Paleontology defines Paleontological potential as consisting, "of both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, plant, or trace fossils and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic data. Rock units which contain potentially datable organic remains older than late Holocene, including deposits associated with animal nests or middens, and rock units which may contain new vertebrate deposits, traces, or trackways are also classified as having high potential (SVP 2010, p. 1-2).

Significant vertebrate or invertebrate fossils have been documented throughout the state. Because the majority of California was underwater during the time of the dinosaurs and until the Tertiary Period (66 to 2.6 million years ago), dinosaur fossils are mostly absent and marine fossils older than 65 million years are not common and are exposed mainly in the mountains along the border with Nevada, along the edges of the Central Valley, and portions of the Coast, Transverse Ranges, and the Peninsular Ranges. Tertiary marine fossils have been found under the streets of Los Angeles during storm drain and subway construction. Dating between 1.8 million and 11,000 years ago, Pleistocene continental sedimentary rock units are found throughout the state and have yielded a variety of plant and vertebrate fossils. Pleistocene fossil localities include large lake deposits, such as Lake Manix in the Mojave Desert, marine terrace deposits along the coast, particularly the southern coast, and the La Brea Tar Pits, a well-known site in Los Angeles that has produced a variety of extinct terrestrial fauna dating to the last Ice Age. Extinct Pleistocene animals, including mammoths, have also been found during development projects near Sacramento, in Livermore, in southern California, and on the Channel Islands. Holocene-age deposits (less than 11,000 years old), such as those that blanket most of the Central Valley floor, are geologically immature and generally unlikely to contain fossils. One exception is the Lake Cahuilla deposits in today's Colorado Desert that have yielded freshwater fossils and small terrestrial vertebrates that date between 270 and at least 6,000 years ago.

10.2 REGULATORY SETTING

10.2.1 Federal

On October 1977, the U.S. Congress passed the National Earthquake Hazards Reduction (NEHR) Act to "reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program." To accomplish this, the act established the National Earthquake Hazards Reduction Program (NEHRP). This program was significantly amended in November 1990, which refined the description of agency responsibilities, program goals, and objectives. The NEHRP's mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results. The NEHR designates the Federal Emergency

Management Agency (FEMA) as the lead federal agency of the program and assigns it several planning, coordinating, and reporting responsibilities. Other NEHR Act agencies include the National Institute of Standards and Technology, National Science Foundation, and the United States Geological Survey (USGS).

10.2.2 State

10.2.2.1 Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Act (Pub. Resources Code, § 2621 et seq.) was passed in 1972 to mitigate the hazard of surface faulting to structures designed for human occupancy. The main purpose of the law is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. A structure for human occupancy is defined as any structure used or intended for supporting or sheltering any use or occupancy, which is expected to have a human occupancy rate of more than 2,000 person-hours per year. The law addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. An active fault, for the purposes of the Alquist-Priolo Act, is one that has ruptured in the last 11,000 years.

The Alquist-Priolo Act requires the State Geologist to establish regulatory zones known as Earthquake Fault Zones around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and state agencies for their use in planning efforts. Before a structure for human occupancy can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, the local agency must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.

10.2.2.2 California Seismic Hazards Mapping Act

The California Seismic Hazards Mapping Act of 1990 (Pub. Resources Code, §§ 2690–2699.6.) addresses seismic hazards other than surface rupture, such as liquefaction and induced landslides. The act established a mapping program for areas that have the potential for liquefaction, strong ground shaking, or other earthquake and geologic hazards. The California Department of Conservation has developed the California Earthquake Hazards Zone Application also known as EQ Zapp (CDC 2022). The Seismic Hazards Mapping Act specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

10.2.2.3 State Earthquake Protection Law

The State Earthquake Protection Law (Health & Saf. Code, § 19100 et seq.) requires that structures be designed and constructed to resist stresses produced by lateral forces caused by wind and earthquakes, as provided in the CBC. Chapter 16 of the CBC Code sets forth specific minimum seismic safety and structural design requirements, requires a site-specific geotechnical study to address seismic issues, and identifies seismic factors that must be considered in structural design.

10.2.2.4 California Building Standards Code (CBC)

The State of California provides minimum standards for building design through the CBC. (Cal. Code Regs., tit. 24.) Where no other building codes apply, Chapter 29 regulates excavation, foundations, and retaining walls. The CBC also applies to building design and construction in the state and is based on the International Building Code used widely

throughout the country (generally adopted on a state-by-state or district-by-district basis). The CBC has been modified for California conditions with numerous more detailed and/or more stringent regulations.

10.2.2.5 National Pollutant Discharge Elimination System Permit (NPDES)

The State Water Board and nine regional water quality control boards administer state and federal regulations and for pollution generated from stormwater under the National Pollutant Discharge Elimination System (NPDES). An operator of any construction activities with ground disturbances of 1.0 acre or more must obtain a General Permit through the NPDES Stormwater Program. The General Permit requires that best management practices be employed to reduce sedimentation into surface waters and control erosion. The preparation of a stormwater pollution prevention plan addresses control of water pollution that includes the effects of sediments in the water during construction activities. These permits are further explained within Section 13.2.1.6, Hydrology and Water Quality.

10.2.2.6 Public Resources Code Section 5097.5

Paleontological resources are protected under the California Public Resources Code. "No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any …vertebrate paleontological site, including fossilized footprints, … or paleontological … feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor." As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

10.2.2.7 California Coastal Act

The California Coastal Act, in part, authorizes the California Coastal Commission to review permit applications for development within the coastal zone and, where necessary, to require reasonable mitigation measures to offset effects of that development. Permits for development are issued with "special conditions" to ensure implementation of these mitigation measures. Public Resource Code section 30244, "Archaeological or Paleontological Resources," states that, "Where development would adversely impact archaeological or paleontological resources …, reasonable mitigation measures shall be required."

Various cities and counties have passed ordinances and resolutions related to paleontological resources within their jurisdictions. Examples include the counties of Orange and San Bernardino and the cities of San Diego, Carlsbad, Palmdale, and Chula Vista. These regulations generally provide additional guidance on assessment and treatment measures for projects subject to CEQA compliance.

10.3 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This section discusses potential impacts to geology and soils resources from the implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations. Reasonably foreseeable means of compliance with the Proposed Regulations include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of impacts to geology and soil resources that could occur with implementation of the reasonably foreseeable means of compliance with the Proposed Regulations. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines.

Future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-specific assessments of impacts on geology and soil resources. At that time, project-level impacts to geology and soil resources will be analyzed.

10.4 IMPACTS AND MITIGATION MEASURES

Would the Proposed Regulations:

1. Directly or indirectly cause potential substantial adverse effects, including risk of loss, injury, or death involving:
    a. 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.
    b. Strong seismic ground shaking?
    c. Seismic-related ground failure, including liquefaction?
    d. Landslides?
2. Result in substantial soil erosion or loss of topsoil?
3. Be located on a geologic unit or soil that is unstable or that would become unstable because of the project and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefication or collapse?
4. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994) that would create substantial risks to life or property?
5. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?
6. Directly or indirectly destroy a unique paleontological resource or site; or unique geologic feature.

10.4.1 impact 10-1 - Adverse Effects

Compliance with the Proposed Regulations by public water systems may have the potential to cause potential substantial adverse effects directly or indirectly, including risk of loss, injury, or death involving:

a) 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.

b) Strong seismic ground shaking.

c) Seismic-related ground failure, including liquefaction; or

d) Landslides.

Numerous active faults are known to exist throughout the state that may generate earthquakes capable of injuring people and damaging structures, including water systems and their treatment works, pipelines, and foundations. Ground shaking associated with seismic events may also cause geologic hazards such as liquefaction, subsidence, and landslides. These seismic-related effects have the potential to cause potential substantial adverse effects to the treatment tanks, their pipelines, and foundations, which could result in risk of loss, injury, or death, especially if the treatment tanks are located within an urban area or located near homes or businesses. As noted previously, tanks could be very large. For example, treatment tanks proposed by the CVWD would be 12 feet in diameter and stand vertically 16-20 feet high (CVWD 2016, p. 1-3).

Although it is anticipated that the reasonably foreseeable means of compliance, such as new treatment facilities or pipelines to intertie two systems together, could be in areas where they are susceptible to ground shaking or other seismic-related ground failure from earthquake or landslides, it is anticipated that structures built in such hazardous areas would be designed to withstand such hazards as part of the permitting process. This is what is required for the thousands of other structures that are currently located within active fault zones in California, including residential properties, commercial and industrial facilities such as existing drinking water treatment works, highways, ponds, and airports. Therefore, seismic risk may be reduced through appropriate sitting, design, and construction practices.

10.4.1.1 Mitigation Measures 10-1

Seismic risks may be reduced through implementation of siting, design, and construction practices that comply with state and local seismic design regulations. Compliance with construction standards for seismic design is the responsibility of the other state and local agencies.

Examples of recognized and accepted measures that are routinely required by regulatory agencies include:

a) Water system components shall be sited, designed, and constructed in compliance with state and local seismic design regulations.

b) Avoid building on or near surface faults. The most appropriate measure for potential fault rupture hazards is avoidance (e.g., building setbacks).

c) Construct water system components to withstand the effects of ground shaking, liquefaction, and lateral spreading.

d) Implement an earthquake safety and response program.

e) In the event of a large earthquake event (i.e., magnitude 5.0 or greater within 50 miles of the project site), inspect all structures and features, such as pipelines, for damage, as soon as possible. Shut down any damaged structures or features until they have been evaluated and/or repaired.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 10-1 could reduce Impact 10-1 to less than significance, yet the ability to implement Mitigation Measures 10-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 10-1 is **potentially significant and unavoidable**.

10.4.2 Impact 10-2 - Soil Erosion

Compliance with the Proposed Regulations by public water systems may have the potential to result in substantial soil erosion or loss of topsoil. Construction activities related to the installation of reasonably foreseeable means of compliance with the MCL may require earthwork and grading. Construction of projects for compliance with the Proposed Regulations would likely take place within the existing footprint of public water system facilities and adjacent to existing wells and distribution facilities. Construction of new wells and consolidation pipelines may also entail ground disturbance. Depending on the size and scope of the improvements, heavy equipment required for these improvements may include bulldozers, scrapers, compactors, graders, excavators, loaders, dump-trucks, and water trucks. These activities have the potential to cause significant soil disturbance and initiate adverse soil responses such as soil erosion or loss of topsoil. During grading activities to improve undeveloped land, precipitation and runoff may initiate erosion and transport of sediment. If unabated, sediment may be transported onto adjacent properties and into receiving water.

Controlling soil erosion is a factor in preventing water pollution, soil loss, wildlife habitat loss and human property loss. Soil erosion and runoff can degrade the quality of surface water and damage property. Topsoil is an important element in soil erosion control; topsoil often contains seeds of native shrubs and grasses, and nutrients that will promote vegetative growth and aid in erosion control.

Consequently, construction activities that disturb undeveloped areas pose a potentially significant impact to soil erosion or loss of topsoil.

10.4.2.1 Mitigation Measures 10-2

The following practices can be implemented to avoid and/or minimize potential soil erosion or loss of topsoil resulting from earthwork and grading activities:

a) Projects that disturb more than an acre shall enroll under the State Water Board's Construction Stormwater Permit program. Prepare and implement Stormwater Pollution Prevention Plan.

b) Schedule construction work for the dry season.

c) Limit development to portions of a site while leaving the remaining land in a natural undisturbed condition.

d) Limit clearing and grading of native vegetation at a site to the minimum amount needed.

e) Grade only areas that are going to be immediately worked on. Leave natural vegetation long as possible.

f) Promote use of native vegetation and revegetation: Existing native vegetation requires the least care of any planting materials, requires little or no water or fertilizer, and may grow on difficult sites.

g) Implement best management practices such as covering stockpile materials, installation of silt fences or fiber rolls to reduce or eliminate discharge of soil, surface water runoff and pollutants during excavation, grading, trenching, repaving, or ground-disturbing activities.

h) After a large storm or rainfall event (i.e., ≥ 1" in 24 hours), inspect all project structures and features for damage as soon as possible. Any damaged structures or features shall be closed to staff and the public until evaluated and/or repaired.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 10-2 may reduce Impact 10-2 to less than significant, yet the ability to implement Mitigation Measures 10-2, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 10-2 is **potentially significant and unavoidable**.

10.4.3 Impact 10-3 - Geologic Unit and Soil Instability

Compliance with the Proposed Regulations by public water systems may have the potential to be located on a geologic unit or soil that is unstable or that would become unstable because of the project and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

Site-specific projects designed to comply with the proposed regulations may be located anywhere in the state, including areas underlain by unstable soils. Grading activities, including excavation, cutting/filling, and stockpiling that may be part of implementing reasonably foreseeable methods of compliance could exacerbate existing loose soil

conditions, and increased potential for natural geologic hazards such as landslides, lateral spreading, subsidence, liquefaction, and collapse.

Consequently, construction activities that disturb undeveloped areas have the potential to expose and exacerbate conditions related to an unstable geological unit or weak or sensitive soil. Therefore, it is anticipated that impacts from compliance with the Proposed Regulations on an unstable geologic unit or soil, have the potential to be significant.

10.4.3.1 Mitigation Measures 10-3

The following are recognized practices routinely required to avoid and/or minimize impacts from unstable soil and adverse soil conditions:

A site-specific geotechnical engineering report shall be prepared by a licensed professional to identify and evaluate weak and less competent soil conditions and recommend site-specific mitigation. The geotechnical professional recommendations may include:

a) Siting improvements away from sensitive soils.

b) Soil amendment to improve soil strength and cohesion properties.

c) Removal of unstable soil.

d) Allowable slope gradients to reduce landslide and lateral spread potential.

e) Site grading and drainage recommendations.

f) Grading should be conducted in accordance with relevant state and local regulations and recommendations of a geotechnical report.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 10-3 could reduce Impact 10-3 to less than significant, yet the ability to implement Mitigation Measures 10-3, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 10-3 is **potentially significant and unavoidable.**

10.4.4 Impact 10-4 - Expansive Soil

Compliance with the Proposed Regulations by public water systems may have the potential to be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994) that would create substantial risks to life or property. Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. For the reasons discussed in Impact 10-3, Mitigation Measures 10-3 may reduce the significance of Impact 10-4 to less than significant. The ability

to implement Mitigation Measures 10-3, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 10-4 is **potentially significant and unavoidable**.

10.4.5 Impact 10-5 - Soils and Wastewater Disposal

Compliance with the Proposed Regulations by public water systems may lead to siting site-specific compliance projects, such as facilities for treatment, on soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

Two of the BATs generate treatment residuals, some including wastewater products. Regeneration of strong-base IX resin uses a brine solution to remove hexavalent chromium and any other contaminants. The brine may be reused if these contaminants are precipitated out of the solution, or the untreated brine may be disposed of. RCF similarly uses water to backwash filter media. Backwashed water may be recycled if contaminants are filtered or settled out of solution, or the untreated backwash may be disposed of. The amount of waste stream will depend on the treatment system size, and on potential opportunities to reuse or reduce the waste stream. Wastewater could either be hauled away for disposal, either to a landfill or hazardous waste disposal facility if it contains high enough concentrations of toxic waste; discharged to the sanitary sewer, if permitted by the local provider of wastewater treatment; or discharged to the ground, if permitted by the Regional Water Quality Control Board. Therefore, if on-site soils are not capable of supporting wastewater disposal treatment through an on-site septic system or other on-site system, other options may be available.

Installation of treatment or other reasonably foreseeable alternative means of compliance will consist of site-specific projects that undergo individual CEQA review to assess environmental impacts, including impacts to soils. The State Water Board anticipates that, as part of those environmental reviews for site-specific projects, the CEQA lead agencies will require compliance with local ordinances and permits to reduce potentially adverse impacts to geology and soils. In addition, there are recognized practices and mitigation measures that lead agencies may require of site-specific projects to avoid or minimize potentially adverse impacts.

10.4.5.1 Mitigation Measures 10-5

Individual site-specific compliance projects that propose treatment would need to do additional review to determine what options for waste disposal are best for their site-specific conditions. The following practices may further reduce impacts from soils that are incapable of supporting septic tanks or alternative on-site wastewater disposal systems:

a) Have a licensed professional prepare a site-specific soil evaluation to evaluate specific soil conditions and recommend appropriate options for wastewater disposal.

b) If soils evaluation indicates that on-site disposal is not appropriate, select an alternative that does not rely on on-site disposal.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that

will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 10-5 could reduce Impact 10-5 to less than significant, yet the ability to implement Mitigation Measures 10-5, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 10-5 is **potentially significant and unavoidable.**

10.4.6 Impact 10-6 - Paleontological and Geologic Resources

Compliance with the Proposed Regulations by public water systems may lead to sitting site-specific compliance projects in areas that are paleontologically or geologically unique. Site-specific projects designed to comply with the proposed regulations may be located anywhere in the state, including areas underlain by geologic units bearing unique paleontological resources or unique geologic features. Grading and trenching activities that may be part of implementing reasonably foreseeable methods of compliance could damage or destroy unique paleontological and geologic resources.

Consequently, construction activities that disturb undeveloped areas or excavate paleontological bearing geologic units or unique geological features have the potential to destroy unique paleontological and geological resources. Therefore, it is anticipated that impacts from compliance with the Proposed Regulations on unique paleontological and geological resources, have the potential to be significant.

10.4.6.1 Mitigation Measure 10-6

The Society of Vertebrate Paleontology has published a guidance document for the assessment and mitigation of adverse impacts to paleontological resources (SVP 2010). Much of the following is taken from the Society of Vertebrate Paleontology guidance and are recognized and accepted measures that are routinely required by regulatory agencies and include:

a) During the project planning phase, consult a qualified paleontologist to determine whether paleontological resources would likely be disturbed in a project area based on the sedimentary context of the area and a records search for past paleontological finds in the area. Rock units are described as having (a) high, (b) undetermined, (c) low, or (d) no potential for containing significant paleontological resources. In areas determined to have high or undetermined potential for significant paleontological resources, an adequate monitoring program for mitigating the impact of development must include:

    1. An intensive field survey and surface salvage prior to earth moving, if applicable.
    2. Monitoring by a qualified paleontological resource monitor of excavations in previously undisturbed rock units.

3. Salvage of unearthed fossil remains and/or traces (e. g., tracks, trails, burrows, etc.).
4. Screen washing to recover small specimens, if applicable.
5. Preparation of salvaged fossils to a point of being ready for curation (i.e., removal of enclosing matrix, stabilization and repair of specimens, and construction of reinforced support cradles where appropriate).
6. Identification, cataloging, curation, and provision for repository storage of prepared fossil specimens.
7. A final report on the finds and their significance.

b) If the site contains areas of high potential for significant paleontological resources or unique geologic features and avoidance is possible, prepare site development and grading plans that avoid disturbance of known paleontological and unique geologic features.
c) If paleontological resources are accidentally discovered during project construction, construction should cease in the vicinity of the find and a qualified paleontologist should be retained to assess the find and recommend appropriate treatment measures, such as those listed above.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 10-6 could reduce Impact 10-6 to less than significant, yet the ability to implement Mitigation Measures 10-6, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 10-6 is **potentially significant and unavoidable.**

10.4.7 Cumulative Impacts

Implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations may contribute to cumulative impacts on geology and soils resources from other projects occurring in the state. In particular, and as discussed in section 3.5, other drinking water projects that are like the reasonably foreseeable means of compliance have occurred and are likely to occur in the future. For instance, public water systems will continue to install treatment and obtain new sources of water supply to address other drinking water contaminants regulated by the State Water Board and, in many cases, financed by the State Water Board's financial assistance programs. Likewise, public water systems will continue to consolidate with assistance from the State Water Board's SAFER program. Due to the number of public water systems (currently around 7,000) and their distribution throughout the state, the cumulative impact on geology and soils resources from the Proposed Regulations may be considerable in the context of these other projects. In

addition, projects that are unrelated to the State Water Board's drinking water programs may impact geology, paleontology, and soil resources in the vicinity of site-specific projects to comply with the Proposed Regulations. Depending on the location, this cumulative impact may be significant.

The Proposed Regulations' contribution to this significant impact could be cumulatively considerable due to the development of new drinking water infrastructure that impacts geology, paleontology, and soils resources during construction and operation. Implementation of the project-level mitigation measures recommended in this chapter would effectively reduce the incremental contribution from the Proposed Regulations to a less-than-considerable level, but authority to require that mitigation will rest with other agencies that will be authorizing site-specific projects, and not with the State Water Board. Consequently, it is uncertain whether mitigation measures would be implemented, which precludes assurance that significant impacts would be avoided. Therefore, the State Water Board takes the conservative approach and discloses, for purposes of CEQA compliance, that the Proposed Regulations could result in a considerable contribution to a potentially significant cumulative impact on geology, paleontology, and soil resources.

CHAPTER 11 - GREENHOUSE GAS EMISSIONS

This chapter describes existing emissions from greenhouse gases (GHGs) in California and analyzes potential impacts on emissions that may occur from compliance with the Proposed Regulations.

11.1 ENVIRONMENTAL SETTING

An increase in the concentrations of GHGs in the Earth's atmosphere is the main cause of human-induced climate change. GHGs naturally trap heat by impeding the exit of infrared radiation when ultraviolet solar radiation is absorbed by the Earth and re-radiated as infrared radiation. The principal GHGs associated with anthropogenic emissions are carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, perfluorocarbon, nitrogen trifluoride, and hydrofluorocarbon. (Health & Saf. Code, § 38505, subd. (g); Cal. Code Regs., tit. 14, § 15364.5.) Water vapor is also an important GHG because it traps more heat than any of the other greenhouse gases, but it is not a GHG of concern with respect to anthropogenic activities and emissions. Each of the principal GHGs associated with anthropogenic climate warming has a long atmospheric lifetime, ranging from one year to several thousand years. In addition, the potential heat-trapping ability of each of these gases vary significantly from one another. Methane, for instance, is 23 times more potent than carbon dioxide. Conventionally, GHGs are reported as "carbon dioxide equivalents" (CO2e). Carbon dioxide equivalents consider the relative potency of non-carbon dioxide GHGs and convert their quantities to an equivalent amount of carbon dioxide so that all emissions can be reported as a single quantity.

In 2019, there were more than 418 million metric tons of carbon dioxide equivalents in emissions in California (CARB 2021). Of those emissions, 41% were from the transportation sector, 24% were from the industrial sector, 14% were from the generation of electricity, 7% were from agriculture and forestry, 8% were from the residential sector, and 6% were from the commercial sector (CARB 2021).

11.2 REGULATORY SETTING

In 2005, Executive Order S-3-05 proclaimed that California is vulnerable to the effects of climate change. To combat those concerns, the Executive Order established a long-range GHG reduction target of 80 percent below 1990 levels by 2050.

Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006 (Stats. 2006 ch. 488) required California to reduce statewide GHG emissions to 1990 levels by 2020. AB 32 directed the California Air Resources Board to develop and implement regulations that reduce statewide GHG emissions. Senate Bill (SB) 32 (Stats. 2016 ch. 249) extended the goals of AB 32 and set a goal of reducing emissions 40 percent from 1990 levels by 2030. The Climate Change Scoping Plan approved by the California Air Resources Board in December 2017 outlines the State's plan to achieve the GHG reductions required in AB 32 and SB 32. SB 375 (Stats. 2008 ch. 728) requires the California Air Resources Board to set regional targets for reducing greenhouse gas emissions, in collaboration with municipal planning organizations. It also requires municipal planning organizations to adopt sustainable community strategies as part of their regional transportation plans to meet regional targets.

SB 97 (Stats. 2007 ch. 185) directed the Office of Planning and Research to prepare, develop, and transmit guidelines for the feasible mitigation of GHG emissions to the California Resources Agency. The Office of Planning and Research developed a technical advisory suggesting relevant ways to address climate change in CEQA analyses. The technical advisory also lists potential mitigation measures, describes useful computer models, and points to other important resources. Amendments to CEQA Guidelines implementing SB 97 became effective on March 18, 2010.

11.3 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This section discusses potential impacts to GHGs from the implementation by public water systems of reasonably foreseeable means of compliance with the proposed regulation. Reasonably foreseeable means of compliance with the proposed regulation include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of impacts to GHGs that could occur with implementation of the reasonably foreseeable means of compliance with the proposed regulation. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines. It also considers, where available and appropriate, environmental documents prepared by public water systems for site-specific projects like the reasonably foreseeable means of compliance with the proposed regulation.

Future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-specific assessments of impacts on GHGs. At that time, project-level impacts to GHGs will be analyzed.

11.4 IMPACTS AND MITIGATION MEASURES

Would the Proposed Regulations:

a) Generate greenhouse gas 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 the emissions of greenhouse gases?

11.4.1 Impact 11-1 - Greenhouse Gas Emissions

Compliance with the Proposed Regulations by public water systems may have the potential to generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

Future compliance projects by public water systems will likely include construction activities that entail the short-term emission of GHGs. For example, the construction of a treatment plant or drilling of a replacement well would involve construction machinery fueled by diesel or gasoline that, when combusted in engines, emit GHGs. Similarly, trucks transporting materials to and from a project site would likely require gasoline or diesel to operate, as would many of the worker vehicles. Public water system project proponents or CEQA lead agencies will be able to quantify the estimated GHG emissions from construction activities at the project site using a quantitative model such as the California Emissions Estimator Model Version by inputting specific information about the future compliance project, such as the quantity, types, size, and duration of construction equipment usage. A quantitative estimate of the GHG emissions of future compliance projects is impossible to know at this time, but it is likely that any future compliance project would entail some amount of GHG emissions because of the need for construction equipment powered by gasoline or diesel fuel. These emissions would be limited to the duration of construction and short-lived, however. In its 2016 EIR for a proposed hexavalent chromium treatment project, the CVWD estimated that its proposed project would result in 3,340.44 metric tons of CO2e emissions over a three-year construction time (CVWD, 2016, 4.8-5).

Future compliance projects would also emit GHGs, directly or indirectly, through their long-term operations. The CVWD described five emission source categories from operation of its proposed project. These included the emissions from the production of energy needed to run the IX treatment and other facilities; the emissions from motor vehicle trips for monitoring, maintenance, and employee commutes; the emissions associated with consumable products in the project area, such as landscaping and cleaning supplies; the emissions from off-road motor vehicle trips to well sites; and the emissions associated with supplying and treating water (CVWD 2016 4.8-4). The CVWD estimated that its proposed project, using brine crystallization process alternative, would result in 9,830.55 metric tons of CO2e emissions per year (including the construction-related emissions amortized over thirty years) (CVWD 2016 4.8-7). Of the five categories of emissions sources, energy was by the far the greatest source of operational GHG emissions, responsible for 7,405.89 metric tons of CO2e emissions per year (CVWD 2016 4.8-7).

Compliance projects undertaken by other public water systems may emit less GHG than the emissions predicted by the CVWD for its proposed project. This is because the GHG emissions from energy to power future compliance projects will vary according to the public water system’s electricity provider and their GHG intensity factor, which represents the amount of GHG emissions per megawatt hour of electricity. For instance, the CVWD estimated GHG emissions from energy procured for its proposed project based on the two utilities that would have provided its energy: Southern California Edison and Imperial Irrigation District (CVWD 2016 4.8-4). Future compliance projects will estimate GHG emissions according to their electrical utility’s GHG intensity factor. In addition, GHG emissions intensity has fallen substantially in recent years (LAO 2022 p. 8). If the state’s electricity is increasingly carbon neutral in the future, then the intensity factors should fall, and operational emissions will be less in the future. Lastly, the CVWD’s proposed hexavalent chromium project likely represents the largest potential future project to comply with the Proposed Regulations because the CVWD has the most drinking water sources

contaminated with hexavalent chromium among public water systems in California, based on current State Water Board data (SDWIS 2021; WQIR 2021). Nevertheless, the CVWD determined in its 2016 EIR that the GHG emissions associated with its proposed project were less than significant (CVWD 2016 4.6-8).

11.4.1.1 Mitigation Measures 11-1

The following are mitigation measures that public water systems could implement to reduce GHG emissions from future compliance projects:

a) Implement the GHG mitigation measures listed in the most recent air district guidance documents, as appropriate for the project site and conditions.

b) Use alternative fuels for construction equipment.

c) Use electric and hybrid construction equipment.

d) Limit construction equipment idling beyond regulatory requirements.

e) Use local building materials for at least 10 percent of total materials.

f) Recycle or reuse at least 50 percent of construction waste or demolition materials.

g) Ensure that vehicle tire pressure is maintained to manufacturer specifications.

h) Require trucks and trailers to be retrofitted with the best available “SmartWay Transport” and/or CARB-approved technology to reduce aerodynamic drag and rolling resistance.

i) Use blended cements with limestone, fly ash, natural pozzolan, and/or slag added to replace some of the clinker in the production of Portland cement.

j) Use electric engines, where feasible, to eliminate on-site GHG emissions from stationary engines.

k) Purchase GHG offset credits that were previously captured from another source and available for purchase in an approved carbon registry.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects’ impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 11-1 could reduce Impact 11-1 to less than significant, yet the ability to implement Mitigation Measures 11-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 11-1 is **potentially significant and unavoidable**.

11.4.2 Impact 11-2 - Conflicts with Plans

It is unlikely that compliance with the Proposed Regulations by public water systems would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs. While the State Water Board has directed its Division of Financial

Assistance and Division of Drinking Water to assist disadvantaged communities in making their drinking water infrastructure energy efficient and powered with zero- or low-carbon energy sources (State Water Resources Control Board Resolution No. 2017-0012), the State Water Board is not aware of a plan or policy for the specific purpose of reducing GHG emissions from the drinking water sector. Public water systems are unlikely to be considered "covered entities" under the California Air Resources Board's regulations concerning the cap-and-trade program because of the nature of the industry and inclusion thresholds. (Cal. Code Regs., tit. 17, § 95811-12.)

Nevertheless, because future compliance projects may occur anywhere in the state and regional or local climate action plans or other policies may apply to the project, it is conceivable that there could be a potential conflict between a proposed project and plan or policy to reduce GHG emissions. It is expected that a project proponent would design its project to mitigate potential conflicts, however.

11.4.2.1 Mitigation Measure 11-2

(a) Public water systems shall consult plans, policies, and regulations for the reduction of GHG emissions that may apply to the future compliance project and take them into account when designing proposed projects to avoid potential conflicts.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 11-2 could reduce Impact 11-2 to less than significant, yet the ability to implement Mitigation Measure 11-2, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 11-2 is **potentially significant and unavoidable**.

11.4.3 Cumulative Impacts

Implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulation may contribute to cumulative impacts on GHG emissions from other projects occurring in the state. In particular, and as discussed in section 3.5, other drinking water projects that are like the reasonably foreseeable means of compliance have occurred and are likely to occur in the future. For instance, public water systems will continue to install treatment and obtain new sources of water supply to address other drinking water contaminants regulated by the State Water Board and, in many cases, financed by the State Water Board's financial assistance programs. Likewise, public water systems will continue to consolidate with assistance from the State Water Board's SAFER program. These infrastructure projects will entail the emissions of GHGs during construction, and, in most cases, operation. Due to the number of public water systems (currently around 7,000) and their distribution throughout the state, the cumulative impact on GHG emissions from the Proposed Regulation may be considerable in the context of these other projects. In addition, projects that are unrelated to the State Water Board's drinking water programs may emit GHGs in the vicinity of site-specific projects to comply with the Proposed Regulation. This

cumulative impact is significant because of the threat that GHG emissions pose to the climate.

The Proposed Regulations' contribution to this significant impact could be cumulatively considerable due to the development of new drinking water infrastructure that emits GHGs during construction and operation. Implementation of the project-level mitigation measures recommended in this chapter may reduce the incremental contribution from compliance with the Proposed Regulations to a less-than-considerable level, but authority to require that mitigation will rest with agencies that will be authorizing site-specific projects, and not with the State Water Board at this time. Consequently, it is uncertain whether mitigation measures would be implemented, which precludes assurance that significant impacts would be avoided. Therefore, the State Water Board takes the conservative approach and discloses, for purposes of CEQA compliance, that the Proposed Regulations could result in a considerable contribution to a potentially significant cumulative impact on GHG emissions.

CHAPTER 12 - HAZARDS AND HAZARDOUS MATERIALS

This chapter describes the existing environmental setting and the regulatory oversight of hazardous materials, and analyzes potential impacts related to hazardous materials that may occur from compliance with the Proposed Regulations.

12.1 ENVIRONMENTAL SETTING

Construction, operation, and maintenance of hexavalent chromium treatment works may involve the generation, transport, and disposal of hazardous materials. Hazards and hazardous materials can be natural or man-made. Hazardous materials are used in many industries and can enter the environment through spills and leaks. Hazardous materials have contaminated soil and groundwater throughout the state, and care is required to avoid exposing workers or the public to hazardous materials in soil and water. To avoid releasing more hazardous materials into soil and water, it is critical that proper care is exercised in the transportation, storage, and handling of hazardous materials.

Based on existing monitoring data, seven wells with hexavalent chromium levels above the proposed MCL are located at sites listed pursuant to Government Code section 65962.5 (Cortese List) where release of hazardous materials has occurred. Seven wells are located within Superfund site boundaries: five within the San Fernando Valley site, one in the Tracy Defense Depot site in Tracy, and one in the Watkins-Johnson Company Stewart Division Plant in Scotts Valley. Four wells are in high-potential radon zones; two wells are in Tulare County; one each are in Ventura and San Mateo Counties (Elliot 2022).

12.2 REGULATORY SETTING

12.2.1 Federal

12.2.1.1 Resource Conservation and Recovery Act

The primary federal statute regulating hazardous materials is the Resource Conservation and Recovery Act (RCRA). (42 U.S.C. § 6901 et seq.) RCRA establishes a comprehensive regulatory scheme that governs the generation, transport, and disposal of hazardous waste from “cradle to grave.” RCRA’s implementing regulations require generators of hazardous waste to determine whether a waste is hazardous (40 C.F.R. § 262.11), properly label and store hazardous wastes (40 C.F.R. § 262.30-.33), prepare a standard manifest for transporters (40 C.F.R. § 262.20), and maintain records of manifests (40 C.F.R. § 262.40). Transporters must maintain records of manifests obtained from generators (40 C.F.R. § 263.20) and comply with U.S. Department of Transportation regulations governing transportation of hazardous materials (40 C.F.R. § 263.10). A facility that treats, stores, or disposes of hazardous waste (TSDF) must maintain records of manifests received from transporters; periodically analyze wastes located at the facility; and have in place equipment, plans, and procedures for responding to emergencies (40 C.F.R. §§ 264.13, 264.30-.56, 264.71, 264.74). A TSDF must hold a permit throughout the life of the facility and 30 years after closure; post-closure permits must address ground and groundwater monitoring and maintenance of waste-containing structures (40 C.F.R. §§ 264.117, 270.1).

RCRA regulations define hazardous waste to include solid wastes that exhibit the characteristic of ignitability, corrosivity, reactivity, or toxicity; and solid wastes produced in specified industrial processes (40 C.F.R. § 261.3). A chromium-containing waste is classified as a toxic hazardous waste under RCRA if its total chromium concentration meets the threshold of 5 mg/L, as determined using the Toxicity Characteristic Leaching Procedure (TCLP), a test designed to simulate the leaching of metals from solid waste that would occur under landfill conditions (40 C.F.R. § 261.24).

The United States Environmental Protection Agency (U.S. EPA) may authorize a state to administer RCRA in lieu of the federal government if it determines that the state has a hazardous waste program that is consistent with RCRA requirements and is at least as stringent (42 U.S.C. § 6926). U.S. EPA authorized California's hazardous waste program in 1992 (57 Fed. Reg. 32726). As described below in section 12.2.2.2, California's program is administered by the Department of Toxic Substances Control (DTSC) and local agencies.

12.2.1.2 Atomic Energy Act

Ion exchange treatment has the capacity to capture uranium as well as chromium. The disposal of radioactive wastes such as uranium is regulated by the Nuclear Regulatory Commission (NRC) under the Atomic Energy Act (AEA) (42. U.S.C. § 2011 et seq). AEA regulations classify uranium in drinking water treatment residuals as a source material (U.S. EPA 2005). An entity in possession of a substance containing 0.05 percent or more of uranium source material must hold an NRC license (10 C.F.R. §§ 40.3, 40.13). The NRC regulations grant entities a general license for possession of uranium source material from drinking water treatment, but only if the entity possesses less than 7 kg at one time and produces less than 70 kg in a calendar year (10 C.F.R. § 40.22). Otherwise, an entity must hold a special license (10 C.F.R. § 40. 3). Waste containing 0.05 percent or more of uranium source material must also be disposed of at a facility licensed by the NRC (U.S. EPA 2005 at p. 132; 10 C.F.R. §§ 40.4, 40.13, 61.2). Such material is termed low-level radioactive waste. (LLRW) (U.S. EPA 2005.) The Low–Level Radioactive Waste Policy Act (42 U.S.C. § 2021b et seq.) requires states, individually or through regional compacts, to license disposal facilities for LLRW generated in those states (42 U.S.C. § 2021c). Disposal of LLRW generated in California is discussed below, in section 12.2.2.3.

12.2.1.3 Clean Air Act

Regulations under the Clean Air Act (42 U.S.C. § 7401 et seq.) are designed to prevent accidental releases of hazardous materials. The regulations require facilities that store a threshold quantity or greater of listed regulated substances to develop a risk management plan, including hazard assessments and response programs to prevent accidental releases of listed chemicals.

12.2.1.4 Hazardous Materials Transport Act

The U.S. Department of Transportation, in conjunction with the U.S. EPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to transportation of hazardous materials. The Hazardous Materials Transportation Act of 1974 (49 U.S.C § 5101) directs the U.S. Department of Transportation to establish criteria and regulations regarding the safe storage and transportation of hazardous materials (Code of Federal Regulations title 49, parts 171–180), regulates the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials.

12.2.2 State

12.2.2.1 Safe Drinking Water and Toxics Enforcement Act

The Safe Drinking Water and Toxics Enforcement Act of 1986 (Proposition 65) identifies chemicals that cause cancer and reproductive toxicity, provides information for the public, and prevents discharge of the chemicals into sources of drinking water. Lists of the chemicals of concern are published and updated periodically. Businesses are required to notify Californians about the chemicals in products they purchase, in the workplace, or that are released to the environment. By providing this information, individuals can make informed decisions about protecting themselves from exposure to these chemicals.

12.2.2.2 Hazardous Waste Control Act

The Hazardous Waste Control Act (HWCA) created the State hazardous waste management program authorized by U.S. EPA to administer RCRA. (Health & Saf. Code, § 25100 et seq.) HWCA's requirements for the generation, transportation, and disposal of hazardous waste generally mirror RCRA's requirements. (Cal. Code Regs., tit. 22, §§ 66262.10-66264.1103.) Unlike RCRA, HWCA requires permitting of hazardous-waste generators. (Health & Saf. Code, § 25404.2.) Generator permits are issued and enforced by Certified Unified Program Agencies (CUPAs), local agencies designated and overseen by DTSC. (Health & Saf. Code § 25404.2; Cal. Code Regs., tit. 27, § 15100.) DTSC permits TSDFs in California and administers other HWCA requirements. Currently, only two disposal facilities are permitted by DTSC: CleanHarbors in Buttonwillow and Chemical Waste Management's Kettleman Hills facility.

HWCA also covers hazardous wastes not covered by RCRA. Such hazardous wastes are termed non-RCRA hazardous wastes. RCRA classifies chromium-containing wastes as hazardous based only on the concentration of total chromium. HWCA classifies chromium-containing wastes based on the concentration of either trivalent chromium (chromium III) or hexavalent chromium (chromium VI). (Cal. Code Regs., tit. 22, § 66261.24.) HWCA also classifies chromium-containing wastes based on total concentration and a leaching test, the Waste Extraction Test, which uses a more extractive method than RCRA's TCLP test. Under HWCA, a waste is a non-RCRA hazardous waste if its total concentration of trivalent chromium meets the threshold of 2500 mg/kg, or its total concentration of hexavalent chromium meets the threshold of 500 mg/kg. (Cal. Code Regs., tit. 22, § 66261.24.) A waste is a non-RCRA hazardous waste if its soluble concentration of trivalent chromium meets the threshold of 560 mg/L, or its soluble concentration of hexavalent chromium meets the threshold of 5 mg/L. (Cal. Code Regs., tit. 22, § 66261.24.)

12.2.2.3 State Regulation of Radioactive Materials

The NRC may authorize states by agreement to exercise the NRC's regulatory authority. (42 U.S.C. § 2021.) The NRC entered into an agreement with California in 1962. (Health & Saf. Code, § 115230.) The agreement grants California authority to exercise the NRC's regulatory authority over source materials. California has adopted the same licensing requirements as the NRC for entities that possess source materials, as defined by the AEA. An entity in possession of a substance containing 0.05 percent or more of uranium source material must hold a license from the CDPH. (Cal. Code Regs., tit. 17, § 30181.) The CDPH regulations grant entities a general license for possession of uranium source material from drinking water treatment, but only if the entity possesses less than 7 kg at one time and less than 70 kg in a

calendar year. (Cal. Code Regs., tit. 17, § 30191.) Otherwise, an entity must hold a special license. (Cal. Code Regs., tit. 17, § 30190.)

The Low–Level Radioactive Waste Policy Act (42 U.S.C. § 2021b et seq.) requires states, individually or through regional compacts, to license disposal facilities for LLRW generated in those states. (42 U.S.C. § 2021c.) Although California has adopted authority to license LLRW facilities within the state (Health & Saf. Code, § 115261), it has not issued any licenses. Four facilities—in Washington, Utah, Texas, and South Carolina—are currently licensed to accept LLRW waste. Currently, only the facility in Clive, Utah, accepts LLRW from California; other sites only accept LLRW waste from fellow compact states.

12.2.2.4 Accidental Release Prevention Program

The California Office of Emergency Services (CAL OES) implements the risk management plan requirements of the federal Clean Air Act. (Gov. Code, § 25533) Facilities covered by the requirements must submit a risk management plan for approval by the applicable CUPA, which includes safety information, a hazard review, operating procedures, training requirements, maintenance requirements, compliance audits, and incident investigation procedures.

12.3 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This section discusses potential impacts from hazards and hazardous materials caused by implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations. Reasonably foreseeable means of compliance with the Proposed Regulations include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of impacts to hazardous wastes that could occur with implementation of the reasonably foreseeable means of compliance with the proposed regulation. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines.

Future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-specific assessments of impacts from hazards and hazardous materials. At that time, project-level impacts related to hazardous materials will be analyzed.

12.4 IMPACTS AND MITIGATION MEASURES

Would the Proposed Regulations:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
2. 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?
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school?
4. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would it create a significant hazard to the public or to the environment?
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?
6. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?
7. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?
8. Expose people or structures, either directly or indirectly, to a significant loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

12.4.1 Impact 12-1 - Transport, Use, and Disposal of Hazardous Material

Compliance with the Proposed Regulations by public water systems may have the potential to create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

12.4.1.1 BAT - Potential Construction Impacts

Construction activities to install treatment facilities for hexavalent chromium or reasonably foreseeable alternative methods of compliance may involve site surface and subsurface disturbance through excavation, grading, and trenching. If hazardous materials such as pesticides or herbicides, volatile organic compounds or other hazardous materials are present in excavated soil or groundwater, hazardous materials could be released to the environment, exposing construction workers or the public to potential health risks depending on the nature and extent of contamination encountered. Contaminated soil or groundwater could also require disposal as hazardous waste.

Construction activities would likely require use of hazardous materials such as fuels for construction equipment, oils, and lubricants. The types and quantities of hazardous materials would vary at each facility depending on the type and magnitude of the site-specific project. The improper use, storage, handling, transport, or disposal of hazardous materials could result in accidental release of hazardous materials, thereby exposing construction workers, the public, and the environment, including soil and/or ground or surface water, to hazardous materials contamination.

The greatest potential for encountering contaminated soil and groundwater would be in areas where past or current land uses have resulted in leaks from fuel or chemical storage tanks, or other releases of hazardous materials have occurred. Federal, State, and local agencies maintain databases of hazardous materials sites. The State Water Board's Geo Tracker database identifies thousands of hazardous materials sites within California. If sites with soil and/or groundwater contamination are located at or near existing or proposed new treatment works, hazardous materials could be encountered in the subsurface during excavation and grading activities. Encountering hazardous materials in soil or groundwater during construction could further disperse existing contamination into the environment and expose construction workers or the public to contaminants, potentially resulting in health and safety risks to workers and the public.

Hazardous materials in soil and groundwater, if identified, should be managed appropriately according to applicable laws and regulations to reduce risks associated with exposures to individuals or releases to the environment. California Department of Industrial Relation's Division of Occupational Safety and Health's regulations require preparation and implementation of a site health and safety plan to protect workers who could encounter hazardous materials and ensure that construction workers have specialized training and appropriate personal protective equipment. Regulations also require that excavated materials suspected of contamination be segregated, sampled, and hauled to a landfill licensed for this type of waste. If groundwater dewatering is required for excavation of subsurface facilities, the groundwater may require treatment prior to discharge, in accordance with applicable requirements of the State Water Board and the regional water quality control boards.

12.4.1.2 BAT - Operation and Maintenance Impacts

12.4.1.2.1 Chemical Storage

The operation and maintenance of treatment works for BAT would require chemicals to be stored on site. The chemicals required would, in part, depend upon what kind of treatment was being implemented. For example, in its EIR, the CVWD identified that it would need to keep sodium hypochlorite and hydrochloric acid onsite to use daily in its strong-base IX treatment. For its weak-base IX treatment, carbon dioxide, anti-scalant, sodium hydroxide, and calcium hypochlorite would need to be kept on-site. The RCF treatment would require ferrous iron, which would have to be stored on site (CVWD 2016, pp. 4.9-18 to 23).

12.4.1.2.2 Waste Residuals

In addition to chemicals stored onsite for treatment, all three BATs will generate waste residuals, some of which may be hazardous. The types of waste generated by each BAT and their characteristics are discussed below.

Reverse Osmosis - It is expected that the only form of RO that will be used is POU (SWRCB 2023a, sec. 5.4.3). POUs generate a waste stream consisting of reject water that does not pass through the membrane. Rejecting water for treatment of hexavalent chromium would contain hexavalent chromium, as well as other contaminants. Before discharge, however, reject water would combine with other household waste streams, which would include water that passed through the POU. The concentration of contaminants in discharged water would therefore not differ significantly from the concentration in the influent water and would not constitute hazardous waste. The POU device, including the membrane and carbon filters, would require replacement and disposal, but could be disposed of as solid, non-hazardous waste. The filters would require replacement about every six months to a year; the

membrane would require replacement after about three years; the whole device would require replacement after about ten years.

Ion Exchange

IX treatment removes hexavalent chromium and other contaminants from source water using ion exchange media, or resins. Resins consist of a polymer matrix to which ions have been permanently fixed. Oppositely charged ions attach, or adsorb, to the fixed ions, but can be replaced by other ions with a greater ionic attraction to the fixed ions (Ionex 2015, p. 13). Contaminated water is pumped through treatment vessels, where it passes through the resins. As the contaminated water passes through the resins, the hexavalent chromium anions adsorb, or stick, to the resin's surface, where they replace the anions originally attached to the fixed ions. Other anions with a similar attraction may also adsorb to the resin, including arsenic and uranium (Health Canada 2015, p. 27). When the resin's ability to adsorb replacement ions is exhausted, the resin must either be replaced or regenerated. Regeneration uses a brine solution to replace hexavalent chromium with the original ion configuration (Health Canada 2015, pp. 22-25).

Two types of anion exchange may be used to remove hexavalent chromium from drinking water: weak-base (WBA) and strong-base (SBA). WBA resins are discarded after exhaustion, while SBA may be regenerated using a brine solution, which restores the original ion configuration (Health Canada 2015, pp. 22-25).

WBA

WBA waste consists of the spent resin and the chromium and any other captured material, notably uranium. WBA has not been used widely in California to treat hexavalent chromium. The City of Glendale uses WBA to treat a well that is contaminated with hexavalent chromium. The city reports that the last spent resin for its WBA treatment was disposed of after four years of operation, and that it was disposed of as LLRW (Chan 2022).

At least three California studies have also investigated the use of WBA to treat for hexavalent chromium. The studies indicate that WBA resin is likely to be classified as non-RCRA waste. Furthermore, over time WBA resin may accumulate uranium in concentrations that would require disposal as a LLRW. The limited disposal options for LLRW and their associated cost may reduce the amount of time that a WBA resin is used before replacement (Health Canada 2015, p. 24; Water Research Foundation 2017b, p.12). Application of an absorbent material to the resin may lower uranium concentrations below the LLRW threshold. Available data indicates disposal once every one to two years.

The City of Glendale began a demonstration-scale study of WBA to remove hexavalent chromium in 2010 (Hazen 2013, p. 2). After about a year, the initial WBA resin reached its capacity to adsorb uranium and was replaced. The resin was tested and found to contain approximately 0.5% percent uranium (Blute 2013, pp. 12-13). The resin was then treated with an absorbent material, which reduced its uranium concentration to below the 0.05% threshold concentration for classification as a LLRW (Hazen 2013, p. 62). It was also tested for hazardous waste and found to contain total chromium below the threshold concentration for classification as a RCRA waste; based on tests from an earlier study, however, it was assumed to exceed the chromium (III) and (VI) thresholds for classification as a non-RCRA hazardous waste (Blute 2013, pp. 13-14).

Another study tested WBA resins for hazardous waste. WBA resins were used to treat water from 10 wells in California, Nevada, and Oklahoma (Water Research Foundation 2017b pp.

7, 11-12). After treating approximately 150,000 bed volumes each, the resins tested below the threshold concentrations for classification as RCRA waste; however, seven of 10 resins exceeded the threshold chromium concentration for classification as a non-RCRA waste (Water Research Foundation 2017b, pp. 11-12). An EIR issued by Coachella Valley Water District for hexavalent-chromium treatment estimated that WBA resins would be disposed of every two years and would be classified as non-RCRA hazardous waste and LLRW (CVWD 2016, pp. 4-9 to 4-19).

SBA

The primary waste from SBA consists of brine used to regenerate resin. An ionic material in the brine replaces the ionic material captured by the resin. Brine used to regenerate resin used to treat hexavalent chromium will therefore contain high levels of chromium and other potentially hazardous substances. This brine may then be treated by adding agents to reduce hexavalent chromium to trivalent chromium and cause it to precipitate, forming a sludge, which may be dewatered (Water Research Foundation 2017b, p. 8; SCWD 2015, pp. 1-18 to 1-19; CVWD 2016, pp. 4.9-20). Such brine treatment thus creates two wastes streams: sludge and treated brine.

Available data indicates that sludge would likely be classified as a hazardous waste, while remaining brine would not and could be disposed of in a sanitary sewer. Soquel Creek Water District (SCWD) sponsored a pilot study using SBA to treat its wells for hexavalent chromium; based on the results, SCWD concluded that the sludge produced would be classified as hazardous waste (SCWD 2015, pp. 1-18, 3-45 to 3-46). The study of WBA resins to treat water from wells in California, Nevada, and Oklahoma also examined SBA resins. It found that after regeneration, brines contained uranium below the LLRW threshold but chromium above the threshold for classification as a RCRA hazardous waste (Water Research Foundation 2017b, p. 8). The study projected that after reduction, the sludge would likely be classified as non-RCRA hazardous waste and that the remaining brine could be disposed of in a sanitary sewer (Water Research Foundation 2017b, p. 8). CVWD conducted an EIR for a proposed SBA treatment project that likewise projected that sludge would be classified as a non-RCRA hazardous waste and the remaining brine could be disposed of in a sanitary sewer (CVWD 2016 4.9-19 to 4.9-21). CVWD's Cove Community water system uses SBA to treat three wells for hexavalent chromium. It reports treating brine to create a chromium- and arsenic-rich sludge, which is disposed of as a hazardous waste, and brine that is disposed of as non-hazardous waste (Bigley 2022).

The rate of brine and sludge produced by resin regeneration would vary based on system size and demand. Coachella Valley Water District, Cove Community disposes of brine five times per week, at 5,000 gallons per load. It also disposes of up to ten drums of filter cake sludge every three months. This sludge contains arsenic and chromium metals that are present in the raw water (Mayes 2022b). CVWD reports that it generates up to 1650 pounds of sludge annually (Mayes 2022b). Indio Water Authority disposes up to 4,400 gallons of brine every ninety days (SWRCB 2015; Khurana 2022). Cal Water Las Lomas and Cal Water Oak Hills each dispose of 55 gallons of waste brine annually (Tejada 2022b). SCWD's pilot study estimated that a proposed 2,000 gpm SBA treatment system would produce 50,000 gallons of brine annually, which could be reduced to 660 gallons of sludge classified as hazardous waste (SCWD 2015, pp. 1-18, 3-45 to 3-46).

Resins are also a waste of SBA treatment. Since SBA resins can be regenerated, however, they need not be replaced as frequently as WBA resins and may not need to be disposed of

as hazardous waste. Systems report resin lifespans lasting from five to eleven years (Khurana 2022; Tabor 2022). Systems report third-party testing to determine whether to dispose of resins as hazardous waste. Two systems report that at least some of their resins have been tested as non-hazardous (Kunda 2022; Khurana 2022).

Reduction Coagulation/Filtration (RCF)

RCF produces less hazardous waste than IX treatment. This is because RCF reduces chromium from its hexavalent to its trivalent form. The threshold concentration for classification as a hazardous waste is higher for total chromium (hexavalent and trivalent) than it is for hexavalent chromium. Ion exchange treatment also captures other contaminants, such as uranium and arsenic, while RCF does not.

Currently, only one California public water system uses RCF to treat chromium. California Water Service's system in Las Lomas uses RCF treatment to remove chromium from one of its wells; it reports that backwash is discharged into the sanitary sewer (Tejada 2022b). Some systems, however, may need to dispose of backwash as hazardous waste. The City of Glendale performed a demonstration-scale test of RCF to remove hexavalent chromium between 2010 and 2012, using ferrous sulfate as a reducing agent and polymer as a flocculent (Blute 2013, p. 24). Glendale used a settling tank and filter to remove solid residuals from the backwash; after removal of solid residuals, the backwash water was recirculated through the RCF process. Solid residuals tested below the threshold chromium concentration for classification as RCRA hazardous waste, but above the threshold for classification as a non-RCRA hazardous waste. Residuals tested below the uranium threshold concentration for classification as a LLRW (Blute 2013, p. 29). Approximately 7,700 pounds of solid residuals were generated over seven months of operation. The solid residuals were temporarily stored on site, before disposal at Clean Harbors' hazardous waste disposal facility in Buttonwillow (Blute 2013, pp. 32-34).

Without proper prevention, public water system employees and the public could be impacted by the transportation, storage, handling, and disposal of chemicals needed for treatment, operations and maintenance, and waste streams from the treatment process. Although risks of potential impacts can be reduced by enforcement by CUPAs and DTSC of permits for hazardous waste generators and TSDFs, and compliance with the U.S. Department of Transportation regulations governing transportation of hazardous waste, the State Water Board does not have jurisdiction over how public water systems would address potential hazards and handle hazardous materials. Therefore, impact to the public or environment through the routine transport, use, or disposal of hazardous materials may be **significant and unavoidable.**

12.4.1.3 Impacts Related to Reasonably Foreseeable Alternative Methods of Compliance

Blending, drilling new wells, construction of interties, consolidation, or switching to surface water are alternative methods to BAT that would not require treatment to remove hexavalent chromium. Because these methods would not require treatment, their operation would not generate hazardous waste. However, as described in section 12.4.1.1, above, construction activities could result in exposure to hazardous waste, depending on existing contamination at the site of construction.

Treatment using stannous chloride would not remove hexavalent chromium; instead, it would reduce it to its safer trivalent form. Therefore, stannous chloride would not create a waste stream of concentrated chromium.

12.4.1.4 Mitigation Measure 12-1

Examples of recognized and accepted measures that are routinely required by regulatory agencies to ensure the safe use, handling, transport, and disposition of hazardous materials include:

a) Comply with requirements of the HWCA and Hazardous Materials Transport Act governing the generation, transportation, and disposal of hazardous waste.

b) If applicable, develop and receive approval of a risk management plan to prevent the accidental release of hazardous materials.

c) Manage hazardous materials in accordance with established handling and disposal protocols, prepare spill cleanup plans, and providing necessary spill prevention and clean-up equipment onsite.

d) Document the transport and disposition of hazardous materials in transport manifests.

e) Handle individual hazardous materials consistent with best management practices.

f) Maintain safe, secure, and appropriate storage facilities.

g) Restrict access to, and use of, hazardous materials to trained personnel.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 12-1 could reduce Impact 12-1 to less than significant, yet the ability to implement Mitigation Measures 12-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board at this time. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 12-1 is **potentially significant and unavoidable.**

12.4.2 impact 12-2 - Release of Hazardous Materials

For the reasons set out in 12.4.1, construction of reasonably foreseeable means of compliance and operation of BAT may involve the generation, transportation, storage, and disposal of hazardous materials, which may result in accidental release of hazardous materials into the environment.

12.4.2.1 Mitigation Measure 12-2

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses

conducted by CEQA lead agencies approving those projects. Mitigation Measures 12-1 could reduce Impact 12-2 to less than significant, yet the ability to implement Mitigation Measures 12-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 12-2 is **potentially significant and unavoidable.**

12.4.3 Impact 12-3 – Emissions and Handling of Hazardous Materials Near Schools

For the reasons set out in 12.4.1, compliance with the Proposed Regulations by public water systems may have the potential to cause hazardous emissions within one-quarter mile of an existing or proposed school. Compliance with the Proposed Regulations by public water systems may have the potential to cause handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

Mitigation Measures 12-1 could reduce Impact 12-3 to less than significance, yet because future site-specific projects to treat for hexavalent chromium may be located anywhere within the state, including within one-quarter mile of an existing or proposed school, and for the reasons stated in Impact 12-1 and Mitigation Measures 12-1, environmental impacts related to the handling of hazardous materials within one-quarter mile of an existing or proposed school have the potential to be **significant and unavoidable.**

12.4.4 Impact 12-4 - Hazardous Materials Sites

For the reasons set out in 12.4.1, compliance with the Proposed Regulations by public water systems may have the potential to be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and may have the potential to create a significant hazard to the public or the environment.

As noted previously, projects to treat hexavalent chromium may be located anywhere within the state, including on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5. As noted in section 12.1, above, existing monitoring data indicates that seven wells with hexavalent chromium levels above the proposed MCL are located at sites listed pursuant to Government Code section 65962.5. Seven wells are located within Superfund site boundaries: five within the San Fernando Valley site, one in the Tracy Defense Depot site in Tracy, and one in the Watkins-Johnson Company Stewart Division Plant in Scotts Valley. Four wells are in high-potential radon zones; two wells are in Tulare County; one each are in Ventura and San Mateo Counties (Elliott 2022).

However, it is anticipated that treatment would be designed and located to be consistent with applicable land use policies and regulations. It is also anticipated that appropriate land use permits from local jurisdictions would be secured prior to construction of treatment facilities, and that they would be developed in compliance with general plans and zoning ordinances establishing design guidelines such as minimum setbacks.

12.4.4.1 Mitigation Measures 12-4

Examples of recognized and accepted measures to mitigate potential impacts from hazardous materials sites include:

a) Prior to design of treatment works, the public water systems should consult the list maintained by the DTSC pursuant to Government Code section 65962.5 for all known hazardous waste sites statewide. DTSC manages the Hazardous Waste and Substances Sites (Cortese) List, which may be used as a planning document to comply with the CEQA requirements in providing information about the location of hazardous materials release sites.

b) Prior to final project design and any earth disturbing activities, the public water systems should conduct a Phase I Environmental Site Assessment (Phase I). Phase I should be prepared by a Registered Environmental Assessor or other qualified professional to assess the potential for contaminated soil or groundwater conditions at the project site. Phase I should include a review of appropriate federal, state, and local hazardous materials databases to identify hazardous waste sites at on-site and off-site locations within a one-quarter mile radius of the project location. This Phase I should also include a review of existing and past land uses through aerial photographs, historical records, interviews of owners and/or operators of the property, observations during a reconnaissance site visit, and review of other relevant existing information that could identify the potential existence of contaminated soil or groundwater. If no contaminated soil or groundwater is identified or if Phase I does not recommend any further investigation, then the water system may proceed with final project design and construction. If existing soil or groundwater contamination is identified, and if the Phase I recommends further review, the public water system should conduct follow-up sampling to characterize the contamination and identify any remediation consistent with applicable regulations prior to any earth disturbing activities. The report should include, but is not limited to, activities performed for the assessment, summary of anticipated contaminants and contaminant concentrations at the proposed construction site, and recommendations for appropriate handling of any contaminated materials during construction.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 12-4 could reduce Impact 12-4 to less than significant, yet the ability to implement Mitigation Measures 12-4, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 12-4 is potentially **significant and unavoidable.**

12.4.5 Impact 12-5 - Airports

Compliance with the Proposed Regulations by public water systems would not have the potential to result in a safety hazard for people residing or working in the project area for a project located within an area covered by an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport.

If the treatment works were located within an area covered by an airport land use plan or, where a plan has not been adopted, within two miles of a public airport or public use airport, there would be no impact to safety for people in the area. As noted previously, the size of the tanks for the treatment are not expected to be so significant in size as to impact an airport. For example, CVWD anticipated its resin treatment vessels to only be about 16-20 feet tall and 12 feet in diameter (CVWD 2016, p. 1-3). This would not be disruptive to planes flying into or out of an area. Therefore, there is **no impact.**

12.4.6 Impact 12-6 - Private Airstrips

Compliance with the Proposed Regulations by public water systems will not have the potential to result in a safety hazard for people residing or working in the project area for a project located within the vicinity of a private airstrip. Therefore, there is **no impact.**

12.4.7 Impact 12-7 - Emergency Plans

Compliance with the Proposed Regulations by public water systems will not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. As described in the discussion of transportation impacts, none of the reasonably foreseeable means of compliance would block emergency access to an area in the long-term, and any short-term impacts during construction would be temporary and less than significant. Public water systems constructing compliance projects should maintain access for emergency vehicles during construction. This is supported by existing CEQA documentation for prior proposed projects to address hexavalent chromium contamination, including, for instance, the CVWD 2016 EIR, which found that the state's largest proposed hexavalent chromium treatment project would have no impact on emergency access (CVWD 2016, pp. 4.17-12). Therefore, the Proposed Regulations will have no impact on emergency access. Therefore, **no impact** to an adopted emergency response plan or emergency evacuation plan is expected.12.4.8 Impact 12-8 - Wildland Urban Interfaces

Compliance with the Proposed Regulations by a public water system will not 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.

Compliance with the Proposed Regulations by a public water system is not expected to increase population or housing in the wildland areas. Installation of treatment will not expand available drinking water for community expansion, but rather would make existing sources comply with state standards for drinking water to protect public health. In addition, the treatment works would not create additional fire danger. The treatment works would not be highly combustible, being composed primarily of paved or gravel access roads, concrete pads, and metal tanks and pipelines. Therefore, the project will have **no impact** on the risk of loss, injury, or death involving wildland fires.

12.4.9 Cumulative Impacts

Implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations may contribute to cumulative impacts from hazards and hazardous materials caused by other projects occurring in the state. In particular, and as discussed in section 3.5, other drinking water projects that are like the reasonably foreseeable means of compliance have occurred and are likely to occur in the future. For instance, public water systems will continue to install treatment and obtain new sources of water supply to address other drinking water contaminants regulated by the State Water Board and, in many cases, financed by the State Water Board's financial assistance programs. Likewise, public water systems will continue to consolidate with assistance from the State Water Board's SAFER program. These infrastructure projects have the potential to cause impacts from hazards and hazardous materials. Due to the number of public water systems (currently around 7,000) and their distribution throughout the state, the cumulative impact from hazards and hazardous materials caused by the Proposed Regulations may be considerable in the context of these other projects. In addition, projects that are unrelated to the State Water Board's drinking water programs may cause impacts from hazards and hazardous materials in the vicinity of site-specific projects to comply with the Proposed Regulations. Depending on the location, the cumulative impact from hazards and hazardous materials may be significant.

The Proposed Regulations' contribution to this significant impact could be cumulatively considerable. Implementation of the project-level mitigation measures recommended in this chapter would effectively reduce the incremental contribution from the Proposed Regulations to a less-than-considerable level, but authority to require that mitigation will rest with other agencies that will be authorizing site-specific projects, and not with the State Water Board. Consequently, it is uncertain whether mitigation measures would be implemented, which precludes assurance that significant impacts would be avoided. Therefore, the State Water Board takes the conservative approach and discloses, for purposes of CEQA compliance, that the Proposed Regulations could result in a considerable contribution to a significant cumulative impact from hazards and hazardous material.

CHAPTER 13 - HYDROLOGY AND WATER QUALITY

This chapter describes existing hydrology and water quality in California and analyzes potential impacts that may occur from the Proposed Regulations.

13.1 ENVIRONMENTAL SETTING

13.1.1 Surface Water

The Porter Cologne Water Quality Control Act (Wat. Code, § 13000 et seq.) divides the state into nine regions based on watersheds, each with distinct climate, topography, geology, and hydrology. (*Id.*, § 13200.) Table 13-1 shows seasonal patterns, precipitation, and runoff characteristics of the regions. These surface water resources are diverse and varied, ranging from large and long-reaching perennial rivers in the north and central areas of the state, to primarily intermittent waterways along much of the southern coast, to desert washes and dry lakes in the inland east and south. Major waterways include the Klamath River system which drains northern reaches of California's Coastal Range and the southern Cascades; the Sacramento-San Joaquin River system, which is the largest river system in the state, and which drains the southern tip of the Cascade Range, the western Sierra Nevada, the eastern Coastal Range, and the Central Valley; and the Colorado River, which flows along California's eastern border and into Mexico. There are many smaller perennial and intermittent waterways that drain California's seaboard and the eastern slope of the Sierra.

Northern portions of the state generally receive substantially more precipitation than southern portions of the state. Snowpack in the Sierra Nevada and southern Cascades serves as a significant reservoir for water storage. Snowpack accumulates over the winter and early spring months, and gradually melts in late spring and summer, feeding surface flows, filling reservoirs, and recharging groundwater. Captured snowmelt, especially east and north of the Central Valley, is highly managed, and is released from reservoirs to supply regional agriculture and urban needs, and to provide water for export to other areas of the state.

The State Water Project and federal Central Valley project pump water from the southern Sacramento-San Joaquin Delta into a network of aqueducts and reservoirs that supply water to Central and Southern California for agricultural and urban uses. Other state, federal, and local water projects provide water to specific cities or areas. Such projects include diversions from the Sierra Nevada to the San Francisco Bay Area, from the Owens Valley to Los Angeles, and from the Colorado River to the Imperial Valley metropolitan Southern California. Other water projects provide surface water supply to Santa Barbara, Blythe, San Luis Obispo, the northern San Francisco Bay Area, Vacaville, and other urban areas.

In recent decades, California's natural and engineered water systems have come under increasing demand pressure to meet urban, agricultural, industrial, and environmental water requirements. During dry years, it is almost impossible to meet the needs of all water users, and recent droughts have resulted in reductions in water supplies for urban, environmental, and agricultural uses.

TABLE 13-1 WATERSHED CHARACTERISTICS OF CALIFORNIA

REGION	SEASONAL PATTERNS	RUNOFF CHARACTERISTICS	PRECIPITATION
North Coast (Region 1)	Inland: Distinct rainy, cool winters and hot, dry summers, Coastal: Cool and wet year-round with little temperature variation.	Highest peak discharges recorded in the state, highest total sediment yields	Dominated by rainfall. Average annual precipitation is 53 inches.
Sacramento, San Joaquin, and Tulare Lake (Region 5)	Valley: Hot, dry summers and cool, wet winters Mountains: Mild summers with intermittent thundershowers, heavy winter snowfalls above 5,000 feet	Prolonged spring runoff fed by Sierra Nevada snowpack, low sediment yields due to widespread vegetation and stable rock types/soils, locally high sediment yields due to land uses (e.g., logging, grazing, and urbanization)	Valleys receive winter rainfall, and mountains receive moderate to heavy snowfall, total average annual precipitation ranges from 36 inches in the Sacramento River region to 13-14 inches for the San Joaquin and Tulare Lake regions
San Francisco Bay and Central Coast (Regions 2 and 3)	Coast: Cool and foggy year-round with rain in the winter, small seasonal temperature variations. Inland areas: Warmer, dry summers with cooler, rainy winters	High peak runoffs due to small, steep watersheds, local rivers susceptible to severe flooding during high rainfall events, some watersheds produce high sediment yields due to unstable rock types/soils	Precipitation from rainfall, insignificant snowfall. Northern area average annual precipitation is 31 inches, with > 50 inches in some areas. Southern area average annual precipitation is 20 inches.
North and South Lahontan (Region 6)	Valleys: Semi-arid high desert terrain, hot, dry summers, locally intense thunderstorms, mild, dry winters, Mountains: Cool to mild summers, cold	Valleys: High peak runoffs in ephemeral drainages. Watersheds, except Owens River, are short, steep ephemeral drainages, stable rock types/soils result in low, coarse-textured sediment yields. Mountains: Extended spring runoff with	Valleys: Low to moderate precipitation totals due to rain shadow effects of Sierra Nevada and Cascade Mountains; Mountains: Regionally heavy winter snowfall and intense summer thunderstorms,

	winters, regionally heavy snowfall	locally high sediment yields in Sierra	average annual precipitation ranges from 8 inches in the south to 32 inches in the north
South Coast (Regions 4, 8, and 9)	The Mediterranean climate with dry years interrupted by infrequent high precipitation years, warm, dry summers and mild, wet winters. Inland: Summer temperatures can exceed 90 degrees, intense subtropical storms	Watersheds are largely ephemeral and fed by rainfall, rivers susceptible to frequent flooding due to high peak discharge events, sediment yields locally high due to urbanization, low vegetation cover and unstable soils, debris flows, and mudflows frequent in some smaller drainages	High rainfall with insignificant snowfall contribution, locally heavy storms have highest 24- hour rainfall totals in the state, average annual precipitation is 18.5 inches
Colorado Desert (Region 7)	Arid desert region with hot, dry summers, locally intense thunderstorms, mild winters, rainfall is limited to a few storms per year	Low runoff due to limited rainfall, but locally heavy during infrequent storm events, overall sediment yields low, but produce debris flows during storms	All precipitation falls in the form of rain, region has lowest yearly precipitation totals in the state, some areas receiving less than 2 inches, average annual regional rainfall is 5.5 inches

13.1.2 Groundwater

Groundwater is used extensively in many areas of the state to support urban, agricultural, and industrial use, especially in areas where surface water supplies are limited, or infrastructure for delivery of surface water is lacking. Such areas include California's Central Valley, southern portion of the San Francisco Bay Area, greater Los Angeles area, and inland desert areas of southern California.

California has 515 defined groundwater basins, whose total storage capacity is estimated to be between 850 million acre-feet and 1,300 million acre-feet (DWR 2021, p. H-7). Only about half this water, however, is available for use. During droughts, less surface water is available, which leads to an increased reliance on and use of groundwater.

Groundwater accounts for 41 percent of the state's total annual water supply on an average basis, and as much as 58 percent of the total annual water supply in a critically dry year (DWR 2021, p. H-1). About 83 percent of Californians depend on groundwater for some portion of their water supply and many communities are 100 percent reliant on groundwater for all their water needs (*Id*.)

The state's 2011-2016 average groundwater extraction volume for the agricultural, urban, and managed wetlands sectors was 19.1-million-acre feet, which was 46 percent of the total water used within the three sectors. The trend during this period shows groundwater use steadily increased from 31 percent of total water use in 2011 to 58 percent in 2015 (DWR 2021 p. 3-2 to 3-3). This is primarily because of a reduction in surface water supplies during drought, whose use dropped from 43 percent between 2011 and 2015.

TABLE 13-2 AVERAGE ANNUAL GROUNDWATER USE BY HYDROLOGIC REGION AND STATEWIDE 2011–2016 (DWR 2021)

Hydrologic Region	Groundwater Use (taf)	Percent of Total Water Use[a]
North Coast	408	40%
San Francisco Bay	266	20%
Central Coast	1,203	90%
South Coast	1,573	37%
Sacramento River	2,778	34%
San Joaquin River	3,983	48%
Tulare Lake	8,141	69%
North Lahontan	93	27%
South Lahontan	429	74%
Colorado River	247	6%
Statewide	19,122	46[b]%

Table 13-2 notes: taf = thousand acre-feet

Numbers and percentages may not total precisely because of rounding.

a) The percentage of total water use is the region's groundwater use divided by the region's total water (groundwater and surface water) used.

b) Statewide percent of total water use is the statewide groundwater use divided by statewide total water (groundwater and surface water) used.

Many of California's groundwater basins are in arid valleys and are recharged by percolation of rainfall and surface water flows. "Recharge occurs more readily in areas of coarse sediments, which are usually located near alluvial fans associated with mountain ranges" (DWR 1975, p.7). Percolation in southern California occurs only during periods of intense precipitation, whereas northern California groundwater basins often receive direct recharge from precipitation annually. The location and extent of impermeable, confining layers in alluvial deposits that contain groundwater basins play a major role in the amount and rate of recharge of percolating water and overall quality of groundwater.

Prior to the enactment of the Sustainable Groundwater Management Act (SGMA), groundwater had not been regulated except in a few basins that had been adjudicated or had local groundwater management programs. Excessive groundwater use has resulted in 21 groundwater basins being critically over-drafted. These basins cover about one-fifth of the total groundwater basin area of the state, and in 2014, accounted for 63 percent of the state's groundwater use (DWR 2021, p. H-5). SGMA authorized the establishment of groundwater sustainability agencies (GSAs) to govern groundwater resources. High and medium-priority groundwater basins (94 basins) were required to form GSAs by June 30, 2017, and 260 GSAs were formed by that deadline in 143 groundwater basins. GSAs for critically-over drafted basins were required to prepare groundwater sustainability plans by January 31, 2020, and achieve sustainability by 2040. The high and medium-priority basins are required to adopt groundwater sustainability plans by 2022 and achieve sustainability by 2042. Based on available data, the State Water Board estimates that public water systems have 492 sources with hexavalent chromium over 10 µg/L in high priority groundwater basins, and approximately ninety of those are within critically over drafted basins (Elliott 2022).

In addition to the groundwater aquifers described above, many community and private wells located in the Sierra Nevada, Cascade and Coastal Mountain ranges are known as hard-rock wells-drilled in fractured hard rock material that draw water from numerous fractures. These wells typically produce much lower volumes of water but can also be impacted by natural or anthropogenic hexavalent chromium.

13.1.3 Water Quality

Monitoring for water quality protection purposes is conducted through a variety of federal, state, and local programs, including the federal and California Safe Drinking Water Acts, the federal Clean Water Act, and the state Porter-Cologne Water Quality Act. Water quality issues differ depending upon location and type of water resource; size and extent of watershed and water resources; location with respect to potential pollutant sources; seasonal and climatic factors; and other interacting physical, chemical, and biological processes.

Common classes of water quality pollutants regulated under state and federal regulations include inorganics, pathogens, and organic compounds. Inorganics include nutrients (phosphorus and various forms of nitrogen including nitrate), salts, and metals, including hexavalent chromium. Pathogens include viruses and bacteria. Other organic compounds include volatile organic compounds, petroleum products (fuels, oils, greases, and pesticides, etc.). Water quality physical parameters such as dissolved oxygen, pH, and electrical conductivity are also regulated.

13.1.3.1 Surface Water Quality

Surface water quality in California is highly variable, and ranges from very high-quality lakes and streams in the Sierra Nevada and Cascade mountains and in remote or undeveloped

areas, to highly polluted drainage courses that carry municipal, agricultural, and industrial wastewater. Surface water quality is affected by agricultural, urban, and industrial sources of pollution. Point sources, which are defined as specific outfalls discharging into natural waters, are easily identified, and are regulated by California's the State Water Board and regional water quality control boards and the U.S. EPA. Nonpoint sources, including polluted runoff from urban and agricultural sources, are more challenging to identify and regulate. Nonpoint sources generally drain into a river or waterway over an extended area, or via many individual inlets. In some instances, waterways that receive polluted runoff and wastewater discharges serve as water supply sources for downstream water users.

Surface water quality depends on seasonal hydrologic patterns, mineral composition of watershed soils, topography, and sources of contaminants. During summer low-flow conditions, surface water quality characteristics of most importance to aquatic life are temperature, dissolved oxygen, turbidity, bio-stimulatory nutrients (e.g., nitrogen and phosphorus), nuisance algae growth, and toxic constituents (e.g., unionized ammonia and residual chlorine). During higher stream flow conditions common during winter, water quality is influenced more by stormwater runoff and associated pollutants (e.g., sediment, oil and grease from automobiles and paved areas), nutrients from agricultural fields and livestock boarding areas, and organic litter (e.g., leaves and grass clippings). The quality of surface water used for domestic, agricultural, and industrial supply is characterized by parameters such as total dissolved solids content, turbidity, taste and odor, and levels of toxic contaminants.

The state evaluates current water quality conditions and prioritizes funding efforts for protection, cleanup, and monitoring programs through individual water quality assessments compiled into the State Water Board's section 305(b) reporting process, which is mandated under the federal Clean Water Act (SWRCB 2022c). The section 305(b) report includes section 303(d) lists, which identify water bodies for which the technology based Clean Water Act effluent limitations are insufficient to meet applicable water quality standards (which include designated beneficial uses and criteria or objectives to protect those uses).

The State Water Board's 303(d) and 305(b) Integrated Report enables users to search and view water quality assessment information about specific water bodies in California. In the 2020-2022 report, the Central Coast, Central Valley, and San Diego regions were assessed, and based on the data complied, 1011 new listings and 224 delisting's of impaired waterbody-pollutant combinations were recommended for the 303(d) list (SWRCB 2022c, p. 12). The report indicates that most of the state's surface lakes and reservoirs, rivers and streams, freshwater wetlands, and estuaries only partially support all their designated beneficial uses. Of the water bodies not supporting all their uses, a small fraction fails to support one or more designated beneficial uses all the time. The report also identifies physical or chemical constituents that cause beneficial uses not to be met.

13.1.3.2 Groundwater Quality

Groundwater quality is also highly variable both by geographical area and by depth within an area. High-quality groundwater exists in the Sierra Nevada, Cascades, and along the eastern side of the Central Valley, but is in aquifers of limited extent. High-quality groundwater also exists in other locations around the state that have limited agricultural and urban development. Groundwater across much of the Coastal Range and western flank of the southern Central Valley, and southern deserts often have high levels of naturally occurring salts and metals that make the water unfit for many uses. In areas with extensive urban or

agricultural activities, waste discharges have induced high levels of salts and other contaminants that make groundwater unfit for consumption or other uses unless it is treated.

Major sources of groundwater pollution include historic and ongoing waste discharges, leaking underground storage tanks, and infiltration of polluted runoff from agricultural and urban areas. Nitrogen fertilizers are of particular concern, because nitrate levels in groundwater exceed drinking water standards in many areas of the state. (Harter and Lund 2012). Groundwater pollution can be extremely costly and difficult to remediate.

The State Water Board's Groundwater Ambient Monitoring and Assessment Program (GAMA) is California's comprehensive groundwater quality monitoring program. The GAMA program collects data by testing untreated water in different types of wells for naturally occurring and man-made chemicals and compiles them along with data from several other agencies. The data are available to view and query at **GeoTracker GAMA** which gives the user access to water quality data from more than 200,000 discrete well locations and connects the user to other groundwater information.

Annually, the State Water Board conducts a needs assessment to help determine how it should use the tools, funding, and regulatory authorities to help struggling drinking water systems. For public water systems, the 2022 Needs Assessment looked at community water systems with less than 30,000 service connections or serve a population up to 100,000, and all non-transient non-community water systems that serve K-12 schools.[14] Risk indicators for water quality problems include the existence of constituents of emerging concern, including hexavalent chromium. Much of the low-level hexavalent chromium found in drinking water is naturally occurring, reflecting its presence in geological formations throughout the state. However, there are areas of contamination in California from historic industrial use, such as the manufacturing of textile dyes, wood preservation, leather tanning, and anti-corrosion coatings, where hexavalent chromium contaminated waste has migrated into the underlying groundwater (SWRCB 2022a, p. 74).

13.2 REGULATORY SETTING

13.2.1 Federal Laws, Regulations, and Policies

13.2.1.1 Clean Water Act

The Clean Water Act is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and wetlands.

13.2.1.2 Section 404 – Discharge of Dredged and Fill Materials into Waters of the United States

Section 404 of the Clean Water Act regulates the discharge of dredged and fill materials into waters of the United States, which include all navigable waters, their tributaries, and some isolated waters, as well as some wetlands adjacent to the waters. (33 C.F.R. § 328.3.) 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 provisions of Section 404. Construction activities involving placement of fill into jurisdictional waters of the U.S. are regulated by USACE

[14] The 2022 needs assessment also looked at state small systems (serving between 5 to 15 connections) and domestic wells.

through permit requirements. No USACE permit is effective in the absence of state water quality certification under Section 401.

13.2.1.3 Section 401 - Water Quality Certification

Section 401 of the Clean Water Act requires a water quality certification when a proposed activity requiring a federal license or permit could result in a discharge to waters of the U.S. and affect water quality. The certifying agency may deny our condition certification as appropriate to implement Clean Water Act requirements and appropriate requirements of state law. In California, the State Water Board has certification authority. The State Water Board, in turn, delegates implementation responsibility to the nine regional water quality control boards, except for multi-regional projects or projects involving hydropower or water supply, for which the State Water Board issues certification.13.2.1.4 Section 402 - NPDES Permit for Stormwater Discharge

Section 402 of the Clean Water Act regulates stormwater and other point-source discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES). In California, the NPDES is administered by the State Water Board and the nine regional water quality control boards. The NPDES program provides for both general (which cover a group of similar or related activities) and individual (activity- or project-specific) permits.

13.2.1.5 Municipal Stormwater Permitting Program

The State Water Board regulates stormwater discharges from municipal separate storm sewer systems through its Municipal Storm Water Permitting Program. Permits are issued under two phases, depending on the size of the urbanized area or municipality. Phase I municipal storm water permits are issued for medium (population between 100,000 and 250,000 people) and large (population of 250,000 people or more) municipalities and are often issued to a group of co-permittees within a metropolitan area. Phase II municipal storm water permits apply to smaller municipalities (generally population less than 100,000 but greater than 50,000, or as specified by the State Water Board).

13.2.1.6 General Construction Stormwater Permit

Under Section 402 of the Clean Water Act, most construction projects that disturb one acre or more of land are required to obtain coverage under the State Water Board's General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, as amended by Orders 2010-0014-DWQ and 2012-0006-DWQ.) The general permit requires the applicant to file a public notice of intent to discharge stormwater and prepare and implement a stormwater pollution prevention plan (SWPPP).

13.2.1.7 Federal Safe Drinking Water Act

The federal Safe Drinking Water Act (42 U.S.C § 300f et seq.) authorizes the U.S. EPA to promulgate national primary drinking water standards. The U.S. EPA has established standards for more than 90 contaminants. California has been given the authority to implement the Safe Drinking Water Act within its jurisdiction.

13.2.2 State Laws, Regulations and Policies

13.2.2.1 Water Rights

13.2.2.2 Surface Water Rights

A water right is a legal entitlement authorizing water to be diverted from a specified source and put to beneficial use. Water rights are property rights, but their holders do not own the water itself. They possess the right to use it. The exercise of some water rights requires a permit or license from the State Water Board, whose objective provide for the orderly administration of water rights, to prevent the waste and unreasonable use of water, to protect public trust uses of waters of the state and to provide that water is conserved and used in the public interest.

Article X, Section 2 of the California Constitution requires all use of water to be “reasonable and beneficial.” These “beneficial uses” have commonly included municipal and industrial uses, irrigation, hydroelectric generation, and livestock watering. More recently, the concept has been broadened to include recreational use, fish and wildlife protection, and enhancement and aesthetic enjoyment.

There are two major types of water rights in California: riparian and appropriative. Riparian rights usually come with owning a parcel of land that is adjacent to a source of water. A riparian right entitles the landowner to use a correlative share of the water flowing past his or her property. Riparian rights do not require permits, licenses, or government approval, but they apply only to the water which would naturally flow in the stream. Riparian rights do not entitle a water user to divert water to storage in a reservoir for use in the dry season or to use water on non-riparian parcels or on land outside of the watershed. Riparian rights remain with the property when it changes hands, although parcels severed from the adjacent water source generally lose their right to the water.

Appropriative rights are established by diverting water for beneficial use not authorized under riparian right. Since 1914 a permit issued by the State Water Board has been required to initiate an appropriation. Appropriative rights are based on a “first-in-time, first-in-right" concept that came out of California’s goldrush period. The appropriate right allows others to divert available water from the same river or stream, but the rights exist within a hierarchy of priorities. The hierarchy of priorities means that in times of shortage the most recent (“junior”) right holder must be the first to discontinue such use; each right’s priority dates to when the appropriation was initiated, for pre-1914 appropriative rights, or the time the permit application was filed with the State Water Board.

Riparian rights generally have a higher priority than appropriative rights. The priorities of riparian right holders carry equal weight; during a drought all share the shortage among themselves.

Unauthorized appropriation of water is against the law and can result in court action and fines. Permits spell out the amounts, conditions, and timetables for the completion of a water project, and prior to issuance of a permit, the State Water Board must consider all prior rights and the availability of water in the basin. The State Water Board also considers the flows needed to preserve instream uses, such as recreation and fish and wildlife habitat. Once a permit is issued, any change in the purpose, the place of use or point of diversion of the water requires approval of the State Water Board.

The Water Code allows changes in water rights, including changes to allow the transfer of water from one user to another, and in recent years, temporary transfers of water have been used increasingly as a way of meeting statewide water demands, particularly in drought

years. Temporary transfers of water rights are initiated by petition to the State Water Board. If the Board finds the proposed transfer will not injure any other legal user of water and will not unreasonably affect fish, wildlife, or other instream users, then the transfer is approved.

13.2.2.3 Groundwater Rights

In most areas of California, overlying landowners may extract percolating groundwater and put it to beneficial use without approval from the State Board or a court. California does not have a permit process for regulation of groundwater use. In several basins, however, groundwater use is subject to regulation in accordance with court decrees adjudicating the groundwater rights within the basins.

The California Supreme Court decided in the 1903 case *Katz v. Walkinshaw* recognized appropriative and overlying rights to groundwater, corresponding to the appropriative and riparian rights established for surface waters. In the 1909 case of *Hudson v. Dailey* the California Supreme Court held that where surface and groundwater rights are interconnected the water rights and priorities to those waters are correlative.

The SGMA became law in 2015 and created a legal and policy framework to manage groundwater sustainability. The SGMA allows local agencies to customize groundwater sustainability plans to their regional economic and environmental conditions and needs, and establishes new governance structures, known as GSAs. The SGMA is intended to prevent undesirable results from groundwater ruse, which are defined as the following:

a) Chronic lowering of groundwater levels (not including overdraft during a drought if a basin is otherwise managed);

b) Significant and unreasonable reduction of groundwater storage;

c) Significant and unreasonable seawater intrusion;

d) Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies;

e) Significant and unreasonable land subsidence that substantially interferes with surface land uses; or

f) Depletions of interconnected surface water have significant and unreasonable adverse impacts on beneficial uses of surface water.

13.2.2.4 Porter-Cologne Water Quality Act

Through implementation of the Porter-Cologne Water Quality Control Act (Wat. Code, § 13000 et seq.), the State Water Board and the nine regional water quality control boards implements the federal Clean Water Act and regulates the discharge of waste to waters of the state. Requirements of the federal and state acts are primarily implemented by the nine regional water quality control boards, who identify beneficial uses for the waters within their regions and set water quality objectives to protect those uses within their water quality control plans (also referred to as basin plans). The State Water Board and the regional water quality control boards issue waste discharge requirements (permits) to dischargers of waste to ensure attainment of water quality objectives and protection of the beneficial uses of the state's surface water and groundwater.

13.2.2.5 Safe Drinking Water Act

In 1976, two years after the federal Safe Drinking Water Act was passed, California adopted its own Safe Drinking Water Act. (Health & Saf. Code, § 116270 et seq.) California was granted primacy to implement the federal Safe Drinking Water Act in 1978. The California Safe Drinking Water Act authorizes the State Water Board to establish primary drinking water standards that are at least as stringent as those established under the federal Safe Drinking Water Act, including the establishment of MCLs for all acutely toxic contaminants and contaminants that when present in drinking water may cause cancer, birth defects, and other chronic diseases. (Health & Saf. Code, §§ 116270, subds. (d) & (f), 116365.) These MCLs must be as close as economically and technologically feasible to the PHG. (Health & Saf. Code, § 116365.) Responsibility for overseeing the state's drinking water program, including establishment and enforcement of primary drinking water standards, is within the State Water Board's Division of Drinking Water.

13.2.2.6 Human Right to Water

California's Human Right to Water (AB 685 stats. 2012 ch. 524), codified at Water Code section 106.3, declares that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." The State Water Board must consider this policy when "revising, adopting, or establishing policies, regulations, and grant criteria." The law does not expand any obligation of the state to provide water or to require the expenditure of additional resources to develop water infrastructure beyond existing obligations.

13.3 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This section discusses potential impacts to hydrology and water quality from the implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations. Reasonably foreseeable means of compliance with the Proposed Regulations include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of impacts to hydrology and water quality that could occur with implementation of the reasonably foreseeable means of compliance with the Proposed Regulations. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines. It also considers, where available and appropriate, environmental documents prepared by public water systems for site-specific projects like the reasonably foreseeable means of compliance with the Proposed Regulations.

Future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-

specific assessments of impacts on hydrology and water quality. At that time, project-level impacts to hydrology and water quality will be analyzed.

13.4 IMPACTS AND MITIGATION

Would the Proposed Regulations:

1. Violate any water quality standard or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?
2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?
3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would:
    a. Result in substantial erosion or siltation on- or off-site?
    b. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or offsite?
    c. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?
    d. Impede or redirect flood flows?
4. In flood hazard, tsunami or seiche zones, risk release of pollutants due to project inundation?
5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

13.4.1 Impact 13-1 - Water quality standards and waste discharge requirements

Compliance with the Proposed Regulations by public water systems may have the potential to result in violation of water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.

13.4.1.1 Construction Impacts

Impacts related to the construction of site-specific projects, such as the installation of treatment, drilling of new wells, expansion of surface water treatment plants, construction of interties with other public water systems, installation of infrastructure to allow for blending contaminated water with uncontaminated sources, and consolidations between public water systems could result in erosion and siltation from earthwork. Earthwork may include grading, excavation, soil stockpiling, compacting, and trenching for pipeline installation. Such work could temporarily alter existing drainage patterns and expose soils, which could be moved offsite by wind and water. If not properly managed, this could increase sediment loads in surface water bodies near project sites. Construction activities that disturb more than one acre of soil would need to enroll in the NPDES construction stormwater general permit program and implement a stormwater pollution prevention plan.

Reasonably foreseeable means of compliance that include the installation of concrete and other above-ground infrastructure, such as tanks, could also permanently alter existing drainage patterns by increasing impervious surfaces, potentially exceeding the capacity of existing or planned stormwater drainage systems, or providing additional sources of runoff.

13.4.1.2 Operation and Maintenance Impacts

Two of the BATs—ion exchange and RCF— produce a waste stream that could affect groundwater or surface water sources if not disposed of properly. This waste stream could either be disposed of off-site; sent to a sanitary sewer system, if found to be non-hazardous and permitted by the wastewater treatment provider; or disposed of to the ground or to surface water, if found to be non-hazardous and permitted by the applicable Regional Water Quality Control Board.

Similarly, if a public water system were to comply by expanding its use of surface water, it may need to expand its surface water treatment facilities, and operational impacts could include additional non-hazardous sludge waste that would need to be properly disposed of.

In addition, as noted in the hazardous waste section above, chemicals stored on site could have the potential to impact groundwater if they are improperly stored, and spills or leaks occur.

Unlike the BAT, there is no disposal requirement for treatment with stannous chloride. However, because the trivalent chromium precipitate is not removed by filtration and remains in the distribution system, there could be a potential for trivalent chromium to reoxidize to hexavalent chromium in the distribution system. In addition, there could be a potential impact to water quality resources by exceeding the maximum use level for stannous chloride as a drinking water additive.

13.4.1.3 Mitigation Measures 13-1

The following are recommended mitigation measures to protect water quality:

a) For projects that would disturb greater than one-acre, enroll under the NPDES construction stormwater general permit program, and implement a stormwater pollution prevention plan. For projects under an acre, implement best management practices to ensure disturbed soils do not move off-site.

b) Limit site disturbing activities as much as possible to avoid compacting soils and impacting the site's ability to infiltrate water and the site's natural drainage.

c) Properly dispose off-site the waste stream from treatment; treat onsite and discharge to a sanitary sewer if found nonhazardous and a permit is issued by the local wastewater treatment provider; or discharge to the ground or to surface water if found nonhazardous and a permit is issued by the applicable Regional Water Quality Control Board.

d) If applicable, develop and receive approval of a risk management plan to prevent the accidental release of hazardous materials.

e) Manage hazardous materials in accordance with established handling and disposal protocols, prepare spill cleanup plans, and provide necessary spill prevention and clean-up equipment onsite.

f) If stannous chloride is used for treatment, coordinate with the State Water Board to develop pilot testing to demonstrate effectiveness and safety, perform distribution

system sampling (including pH, alkalinity, oxidation reduction potential, electronic conductivity) to ensure the ion stays in the three-valence state, and develop a response plan if hexavalent chromium is found.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 13-1 could reduce Impact 13-1 to less than significance, yet the ability to implement Mitigation Measures 13-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 13-1 is **potentially significant and unavoidable.**

13.4.2 Impact 13-2 - Groundwater Supplies

Compliance with the Proposed Regulations by public water systems may substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that there would be 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 which would not support existing land uses or planned uses for which permits have been granted), impeding sustainable groundwater management of a basin.

13.4.2.1 Construction Impacts

Concrete surfaces and compaction of soils related to the construction of site-specific projects could interfere with groundwater recharge.

13.4.2.2 Operation and Maintenance Impacts

The operation of certain types of site-specific projects could have impacts on groundwater supplies. Although public water systems would arguably not increase groundwater use because of the Proposed Regulations, some reasonably foreseeable means of compliance could result in a shift from one source of groundwater to another, putting additional pressure on that new source.[15] For example, installing new wells within a different aquifer that is not contaminated could substantially decrease the groundwater supplies of that aquifer. Similarly, intertying to or consolidating with a nearby system that relies on an uncontaminated aquifer could decrease groundwater supplies of that aquifer. Increased pumping would not be a significant impact in many places; however, in critically over drafted basins, increased pumping may contribute to cumulative impacts.

Treatment for hexavalent chromium would not substantially increase pumping to meet the drinking water supply for public water system customers. The source supply would just be run through the treatment to ensure that it meets the drinking water standard for hexavalent

[15] Shifting from groundwater to surface water would have a beneficial impact on groundwater supplies.

chromium. However, in some situations, additional water pressure would be necessary to run the treatment, and a booster pump may be necessary.[16]

For public water systems that use strong-base IX and plan to regenerate the resin, additional water would be needed to rinse the resin to regenerate it. For example, CVWD estimated that its regeneration facility would require 75,000 gallons of water to fill its process tanks, but after that, the water would be continually recycled internally and used in the regeneration process and would require minimal additional process water after the initial start-up (CVWD 2016 4.18-7).

CVWD also identified that in its two weak-base IX treatment facilities, 2.9 million gallons of water would be required for initial setup, but that this water would be continually recycled onsite and minimal additional water following start-up would be required (CVWD 2016 4.18-7).

13.4.2.3 Mitigation Measures 13-2

The following are recommended mitigation measures to protect groundwater supply and basin recharge:

a) Design site specific compliance project to ensure that its water requirements are consistent with available local supplies of water.

b) Design site specific compliance project to ensure it is consistent with the local groundwater sustainability plan.

c) Install permeable parking and driving surface material.

d) Avoid installation of treatment in areas that impact natural recharge of groundwater.

e) Design site specific compliance project to include recharge basins to compensate for new impervious surfaces.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 13-2 could reduce Impact 13-2 to less than significance, yet the ability to implement Mitigation Measures 13-2, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 13-2 is **potentially significant and unavoidable**.

13.4.3 Impact 13-3 - Drainage Impacts

[16] Although large-scale RO treatment could result in substantial water loss, it is anticipated that RO treatment would only be used for point-of-use treatment at homes for public water systems with less than 100 connections, where centralized treatment was not economically feasible. (SWRCB 2023a, sec. 5.4.3.)

Compliance with the Proposed Regulations by public water systems has the potential to substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a river, stream, or minor drainage, or through the addition of impervious surfaces in a manner which would result in substantial erosion or siltation on- or off-site.

Impacts related to the construction of site-specific projects, such as the installation of treatment, drilling of new wells, expansion of surface water treatment plants, construction of interties with other public water systems, installation of infrastructure to allow for blending contaminated water with uncontaminated sources, and consolidations between public water systems could result in drainage impacts. Grading, excavation, soil stockpiling, compacting, and trenching for pipeline installation could temporarily alter existing drainage patterns by altering existing topographic and drainage features. Compaction of soils by heavy equipment could decrease the infiltration rates, causing ponding on-site and increased runoff, which could result in erosion or siltation on-or off-site.

Reasonably foreseeable means of compliance that include the installation of impervious surfaces such as concrete, and above-ground infrastructure, such as tanks, prevent natural drainage and infiltration of storm water through soil, and permanently alter existing drainage patterns. The increase in impervious surfaces can increase surface water runoff volume and rate, which may exceed the capacity of existing or planned stormwater drainage systems, causing erosion and siltation on and off site.

As such, the installation of site-specific compliance projects has the potential to cause a significant impact to drainage.

13.4.3.1 Mitigation Measures 13-3

The following mitigation measures are recommended:

a) For projects that would disturb greater than one-acre, enroll under the NPDES construction stormwater general permit program, and implement a stormwater pollution prevention plan. For projects under an acre, implement best management practices to ensure disturbed soils do not move off-site.

b) As much as possible, retain the natural conditions of the site, with an emphasis on limiting site disturbance to the maximum extent practical.

c) If major changes to the site are needed, which may change or alter the site's permeability and natural drainage, incorporate onsite stormwater retention to ensure excess flows from large-scale stormwater events are discharged off-site in a controlled and non-erosive manner.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 13-3 could reduce Impact 13-3 to less than significant, yet the ability to implement Mitigation Measures 13-3, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-

mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 13-3 is **potentially significant and unavoidable.**

13.4.4 Impact 13-4 - Runoff

Compliance with the Proposed Regulations by public water systems may have the potential to substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces in a manner which would increase the rate or amount of surface runoff, resulting in flooding on- or off-site. Mitigation Measures 13-3 could reduce Impact 13-4 to less than significant, yet for the reasons stated in the discussion of Impact 13-3 and Mitigation Measures 13-3, this impact is **potentially significant and unavoidable.**

13.4.5 Impact 13-5 - Stormwater Drainage and Runoff Pollution

Compliance with the Proposed Regulations by public water systems may have the potential to create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff. Mitigation Measures 13-3 could reduce Impact 13-5 to less than significant, yet for the reasons stated in the discussion of Impact 13-3 and Mitigation Measures 13-3, this impact is **potentially significant and unavoidable.**

13.4.6 Impact 13-6 - Impeded or Redirected Flood Flows

Compliance with proposed regulations by public water systems may have the potential to substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces in a manner which would impede or redirect flood flows. Mitigation Measures 13-3 could reduce Impact 13-6 to less than significance, yet for the reasons stated in the discussion of impact 13-3 and mitigation measures 13-3, this impact is **potentially significant and unavoidable.**

13.4.7 Impact 13-7 - Inundation Risks

Compliance with the Proposed Regulations by public water systems may increase the risk of release of pollutants due to inundation of the treatment projects in flood hazard, tsunami or seiche zones.

Many areas of California are prone to flooding, especially low-lying portions of the Central Valley, the Sacramento-San Joaquin Delta, the Russian River Watershed, low-lying coastal areas without sufficient protection from surf or storms, desert washes located in California's desert areas, and additional areas where levees, dams, stormwater containment, and other flood containment infrastructure are not sufficient. Even areas protected by levees are susceptible to flooding in the event of high-intensity storms of long duration. Given the widespread extent of potential flooding hazards in many areas of California, the risk of flooding may not be completely unavoidable. FEMA provides information on flood hazard and frequency for cities and counties on its Flood Insurance Rate Maps. FEMA identifies designated zones to indicate flood hazard potential.

Tsunami and seiche are natural responses to events such as earthquakes, prolonged rainy periods, or strong winds. The California Geological Survey has developed tsunami inundation maps that delineate areas with significant risk of tsunami inundation. Based on existing

information, the State Water Board believes that there are no affected wells with hexavalent chromium above 10 µg/L that are within a tsunami zone (Elliott 2022).

Any new infrastructure related to the reasonably foreseeable means of compliance would be located where public water systems already exist. Therefore, the Proposed Regulations would not be putting public water systems into risk; that risk of inundation already exists if they are located within a flood hazard, tsunami or seiche zone. Inundation of the reasonably foreseeable means of compliance, however, could impair public water systems' ability to provide drinking water that meets drinking water standards, and chemicals kept on-site for the purpose of treating drinking water could be released into the environment.

13.4.7.1 Mitigation Measures 13-7

The following are recommended mitigation measures:

a) Identify the location of FEMA 100-year flood zones with respect to the proposed site-specific compliance projects.

b) To the extent feasible, locate proposed projects outside FEMA 100-year flood zones.

c) For site-specific compliance projects that must be located within 100-year flood zones:

    1. Design project infrastructure to withstand the effects of flooding using such features as elevated working surfaces and foundations, and site protection such as levees or other protective features.

    2. Manage on-site drainage.

    3. Provide additional containment for chemicals that must be stored on-site in areas that could be impacted by flooding.

d) Conduct a site-specific investigation that includes identification of local conditions such as tsunami inundation zones.

e) Design modifications to withstand impacts of tsunami inundation and seiche waves.

f) Design and construct treatment facilities in compliance with state and local seismic and wind design regulations.

g) Develop an appropriate response plan to address the effects of a large earthquake event (i.e., magnitude 5.0 or greater within 50 miles of the project site), or strong wind event.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 13-7 could reduce Impact 13-7 to less than significant, yet the ability to implement Mitigation Measures 13-7, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 13-7 is **potentially significant and unavoidable.**

13.4.8 Impact 13-8 - Conflicts with Water Quality Control Plans and Sustainable Groundwater Management Plans

Compliance with the Proposed Regulations by public water systems could potentially cause a conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Wastewater from treatment operations may be discharged to a local sanitary sewer system if the local system agrees that its facilities can handle the waste. If wastewater from treatment operations cannot be discharged to the sanitary sewer system, the public water system could apply to be able to discharge the waste to land. If the discharge to land is done without compliance with regional water quality control board requirements, it could potentially cause a conflict with, or obstruct implementation of, a water quality control plan.

Public water systems may also try to drill wells in deeper aquifers to obtain water that meets the MCL to comply with the regulations. If additional groundwater is pumped from an aquifer that is subject to the Sustainable Groundwater Management Act, and the pumping is not in compliance with the groundwater sustainability plan adopted by the groundwater sustainability agency, the site-specific project could cause conflict with or obstruct a groundwater management district's plan.

13.4.8.1 Mitigation Measure 13-8

The following are recommended mitigation measures:

a) If discharging wastewater to land, obtain a permit from the regional water quality control board.

b) Only discharge to local sanitary sewer system with permission.

c) If wastewater cannot be discharged to land or into a sanitary sewer system, dispose of it at an appropriate landfill.

d) If the site-specific project is located within a high or medium priority basin, comply with the applicable groundwater sustainability plan.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 13-8 could reduce Impact 13-8 to less than significant, yet the ability to implement Mitigation Measures 13-8, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 13-8 is **potentially significant and unavoidable**.

13.5 CUMULATIVE IMPACTS

Implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations may contribute to cumulative impacts to hydrology and water

quality from other projects occurring in the state. In particular, and as discussed in section 3.5, other drinking water projects that are like the reasonably foreseeable means of compliance have occurred and are likely to occur in the future. For instance, public water systems will continue to install treatment and obtain new sources of water supply to address other drinking water contaminants regulated by the State Water Board and, in many cases, financed by the State Water Board's financial assistance programs. Likewise, public water systems will continue to consolidate with assistance from the State Water Board's SAFER program. These infrastructure projects have the potential to adversely affect hydrology and water quality. Due to the number of public water systems (currently around 7,000) and their distribution throughout the state, the cumulative impact on hydrology and water quality from the Proposed Regulations may be considerable in the context of these other projects. In addition, projects that are unrelated to the State Water Board's drinking water programs may impact hydrology and water quality in the vicinity of site-specific projects to comply with the Proposed Regulations. Depending on the location, the cumulative impact on hydrology and water quality may be significant.

The Proposed Regulations' contribution to this significant impact could be cumulatively considerable due to the development of new drinking water infrastructure that could affect hydrology and water quality. Implementation of the project-level mitigation measures recommended in this chapter would effectively reduce the incremental contribution from the Proposed Regulations to a less-than-considerable level, but authority to require that mitigation will rest with other agencies that will be authorizing site-specific projects, and not with the State Water Board. Consequently, it is uncertain whether mitigation measures would be implemented, which precludes assurance that significant impacts would be avoided. Therefore, the State Water Board takes the conservative approach and discloses, for purposes of CEQA compliance, that the Proposed Regulations could result in a considerable contribution to a potentially significant cumulative impact on hydrology and water quality.

CHAPTER 14 - LAND USE AND PLANNING

This chapter describes the existing land use planning in California and analyzes potential impacts that may occur from the Proposed Regulations.

14.1 ENVIRONMENTAL AND REGULATORY SETTING

Land use planning refers to the way physical landscapes are used or developed. In general, local governments determine the allowable land uses within their jurisdictional boundaries. In incorporated areas, land use decisions are typically made by the city. In the township areas, land use decisions are typically made by the county. Sometimes other agencies, such as the California Coastal Commission, State Lands Commission, or federal land management agencies also make land use decisions. Generally, state law establishes the framework for local planning procedures, which local governments follow when adopting their own set of land use policies and regulations. California's Planning and Zoning Law (Gov. Code, § 65000 et seq.) provides most of the legal framework local governments must follow in land use planning. Major features include general plans, specific plans, zoning, and subdivisions.

14.1.1 General Plans

The general plan is a city or county's basic planning document. It provides the blueprint for development regarding the location of housing, business, industry, road, parks, and other land uses, protection of the public from noise and other environmental hazards, and conservation of natural resources, among other things. State law requires general plans to include certain elements, including land use, circulation, housing, conservation, open space, noise, and safety. Local governments are permitted to adopt additional elements covering subjects of particular interest to that jurisdiction, such as recreation, public facilities, and economic development. The legislative body of each city and county adopts zoning, subdivision, and other ordinances to regulate land uses consistent with the city or county's general plan.

14.1.2 Specific Plans

Specific plans implement the general plan in particular geographic areas. Specific plans describe allowable land uses, identify open space, and detail the availability of facilities and financing for a portion of the community. Specific plans must be consistent with the general plan. Zoning ordinances, subdivisions, public works projects, and development agreements must be consistent with the area's specific plan.

14.1.3 Zoning

A zoning ordinance is local law that specifies allowable uses for each piece of property within the community. Zoning ordinances must comply with the general plan. Zoning ordinances group various types of land uses into general categories or "zones," such as single-family residential, commercial, industrial, and agricultural. Each piece of property in the community is assigned a zone, listing the kinds of uses that will be allowed on that land and setting standards, such as minimum lot size and maximum building height.

14.1.4 Subdivisions

In general, land cannot be divided in California without local government approval. Dividing land for sale, lease or financing is regulated by local ordinances based on the state

Subdivision Map Act. (Gov. Code, § 66410 et seq.) The primary goals of the Subdivision Map Act are: (a) to encourage orderly community development by providing for the regulation and control of the design and improvements of the subdivision with a proper consideration of its relation to adjoining areas; (b) to ensure that the areas within the subdivision that are dedicated for public purposes will be properly improved by the subdivider so that they will not become an undue burden on the community; and (c) to protect the public and individual transferees from fraud and exploitation. (61 Ops.Cal.Atty.Gen. 299, 301 (1978); 77 Ops.Cal.Atty.Gen. 185 (1994).)

14.2 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This section discusses potential impacts to land use and planning from the implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations. Reasonably foreseeable means of compliance with the Proposed Regulations include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of impacts to land use and planning that could occur with implementation of the reasonably foreseeable means of compliance with the proposed regulation. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines. It also considers, where available and appropriate, environmental documents prepared by public water systems for site-specific projects like the reasonably foreseeable means of compliance with the Proposed Regulations.

Future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-specific assessments of impacts on land use and planning. At that time, project-level impacts to land use and planning will be analyzed.

14.3 IMPACT AND MITIGATION

Would the Proposed Regulations:

1. Physically divide an established community?
2. Cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

14.3.1 Impact 14-1 - Dividing Established Communities

Compliance with the Proposed Regulations by public water systems will not physically divide an established community. Reasonably foreseeable compliance projects include treatment facilities, which in most cases are likely to be constructed near existing well sites. Other drinking water infrastructure, such as distribution lines or storage tanks, are discrete and isolated structures that are not large enough to physically divide a community. Some compliance projects will include installation of new drinking water pipelines, which are generally buried underground. For these reasons, reasonably foreseeable compliance projects will not physically divide established communities and there is therefore **no impact.**

14.3.2 Impact 14-2 - Conflicts with Land Use Plans

It is not possible at this programmatic stage to know whether site-specific compliance projects will conflict with applicable land use plans, policies, or regulations of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance). Future compliance projects may occur anywhere in the state. During environmental review of future projects, the CEQA lead agencies will conduct focused environmental reviews of the projects' site-specific effects, including conflicts with land use plans, policies, or regulations. In some cases, there may be a potential conflict, but the State Water Board expects that project proponents and lead agencies will mitigate those potential conflicts through project design, land use approval terms, or other measures.

14.3.2.1 Mitigation Measure 14-2

The following actions may reduce potential impacts:

a) Review project proposals to avoid potential conflicts with land use plans, policies, and regulations.

b) Secure land use approvals from local jurisdictions prior to construction.

c) Comply with local zoning ordinances and conditional use permits.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 14-2 could reduce Impact 14-2 to less than significant, yet the ability to implement Mitigation Measures 14-2, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 14-2 is **potentially significant and unavoidable**.

14.3.3 Cumulative Impacts

Implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations may contribute to cumulative impacts on land use and planning from other projects occurring in the state. In particular, and as discussed in section 3.5, other drinking water projects that are like the reasonably foreseeable means of compliance have occurred and are likely to occur in the future. For instance, public water systems will continue

to install treatment and obtain new sources of water supply to address other drinking water contaminants regulated by the State Water Board and, in many cases, financed by the State Water Board's financial assistance programs. Likewise, public water systems will continue to consolidate with assistance from the State Water Board's SAFER program. Due to the number of public water systems (currently around 7,000) and their distribution throughout the state, the cumulative impact on land use and planning from the proposed regulation may be considerable in the context of these other projects. In addition, projects that are unrelated to the State Water Board's drinking water programs may impact land use and planning in the vicinity of site-specific projects to comply with the proposed regulation. Depending on the location, this cumulative impact may be significant.

The Proposed Regulations' contribution to this significant impact could be cumulatively considerable. Implementation of the project-level mitigation measures recommended in this chapter would effectively reduce the incremental contribution from the proposed regulation to a less-than-considerable level, but authority to require that mitigation will rest with agencies that will be authorizing site-specific projects, and not with the State Water Board at this time. Consequently, it is uncertain whether mitigation measures would be implemented, which precludes assurance that significant impacts would be avoided. Therefore, the State Water Board takes the conservative approach and discloses, for purposes of CEQA compliance, that the Proposed Regulations could result in a considerable contribution to a potentially significant cumulative impact on land use and planning.

CHAPTER 15 - MINERAL RESOURCES

This chapter describes the mineral resources in California and analyzes potential impacts that may occur to those resources from compliance with the Proposed Regulations.

15.1 ENVIRONMENTAL SETTING

A mineral resource is a naturally occurring mineral deposit with a feasible way to be economically extracted. California has a rich supply of fuel and non-fuel minerals. Fuel minerals consist of oil and natural gas and non-fuel mineral resources are herein classified into construction materials, industrial materials, and metallic and rare minerals. Mineral resources are intended to be reserved until legal extraction is technically and economically feasible.

California is an important producer of on-shore and off-shore oil and natural gas resources and is a top-10 oil-producing state. Most of the current natural gas production comes from the southern Central valley, the Los Angeles Basin, and the Central Coast.

Non-fuel minerals are numerous and are mined all over the state. Aggregate, which includes sand, gravel, and crushed stone, makes up the bulk of concrete and asphalt and is used in many other applications. It is the most important mineral commodity mined in California, mainly because of its use in construction (CDC 2022h). Other construction minerals include cinders, decomposed granite, decorative rock, dimensional stone, pumice, rock, and fill dirt. Aggregate products are typically excavated from rock quarries, ancient river channels, or coarse fluvial deposits.

Industrial minerals are geological materials which are mined for their commercial value, which are not fuel and are not sources of metals but are used in industries based on their physical and/or chemical properties. These include abrasives, borates, clay, diatomite, dolomite, feldspar, gypsum, lime limestone, saline compounds, seashells, shale silica, specialty sand, talc, vermiculite, and zeolites.

Metallic and rare earth minerals include metal ores that are typically extracted from hard rock mining or placer mining, and often as a by-product of aggregate production.

15.2 REGULATORY SETTING

15.2.1 FEDERAL

15.2.1.1 Executive Order 13817

Executive Order 13817 was signed in 2017 to ensure secure and reliable supplies of critical minerals. The United States Geological Survey (USGS) drafted a list of 35 critical minerals in 2018. The list was updated in 2022 and expands the list to 50 minerals (USGS 2022b). Thirty-four of the 35 original critical minerals have been discovered within the state, and many have been mined and produced, including tungsten, rare earth elements, chromite, lithium, platinum, potash, strontium, and tin.

15.2.1.2 Energy Act of 2020

The Energy Act of 2020 (Pub. L. No. 116-260 Dec. 27, 2020, 134 Stat. 1182.) defines a “critical mineral” as a non-fuel mineral or mineral material essential to the economic or national security of the U.S. and which has a supply chain vulnerable to disruption. Critical

minerals are also characterized as serving an essential function in the manufacturing of a product, the absence of which would have significant consequences for the economy or national security.

15.2.2 STATE

15.2.2.1 California Geological Survey's Mineral Resources Program

The California Geological Survey's Mineral Resources Program performs objective mineral land classification, based exclusively on geology and without regard to existing land use or ownership, to assist in the protection and wise development of California's mineral resources. The primary goal of mapping California's mineral resource potential is to ensure that important mineral resources do not become inaccessible due to uninformed land-use decisions. Knowing where different mineral resources are located helps inform local and statewide land-use decisions.

15.2.2.2 Surface Mining and Reclamation Act

In 1975, the California Legislature enacted the Surface Mining and Reclamation Act (Pub. Resources Code, § 2710 et seq.), which, among other things, provided guidelines for the classification and designation of mineral lands. Areas are classified based on geologic factors without regard to existing land use and land ownership. The areas are categorized into four Mineral Resource Zones (MRZs):

- MRZ-1: An area where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- MRZ-2: An area where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.
- MRZ-3: An area containing mineral deposits, the significance of which cannot be evaluated.
- MRZ-4: An area where available information is inadequate for assignment to any other MRZ zone.

Of the four categories, lands classified as MRZ-2 are of the greatest importance. Such areas are underlain by demonstrated mineral resources or are located where geologic data indicate that significant measured or indicated resources are present. MRZ-2 areas are designated by the State of California Mining and Geology Board as being "regionally significant." Such designations require that a Lead Agency's land use decisions involving designated areas be made in accordance with its mineral resource management policies and that it considers the importance of the mineral resource to the region or the State as a whole, not just to the Lead Agency's jurisdiction.

15.3 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This section discusses potential impacts to mineral resources from the implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations. Reasonably foreseeable means of compliance with the Proposed Regulations include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of impacts to mineral resources that could occur with implementation of the reasonably foreseeable means of compliance with the Proposed Regulations. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines.

Future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-specific assessments of impacts on mineral resources. At that time, project-level impacts to mineral resources will be analyzed.

15.4 IMPACT AND MITIGATION

Would the Proposed Regulations:

1. 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?
2. 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?

15.4.1 Impact 15-1 - Loss of Valuable Mineral Resources

Compliance with the Proposed Regulations by public water systems could potentially 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. If a public water system must construct new water system components such as treatment or a blending tank to comply with the Proposed Regulations, those components would likely be in areas already occupied by the existing water system and the community or business that the water system serves. However, new components could be situated in such a way that could result in the loss of immediate access to some mineral resources. The footprint of these new components would be small relative to significant mineral deposits and would also be situated in areas already occupied by water system infrastructure. Restricting access to mineral resources is usually less than significant when the project area is small relative to the mineral resource deposit. Hard rock mines are not hampered by infrastructure on the surface because the minerals can be accessed via underground tunnels. Aggregate mines which tend to cover large surface areas can avoid important infrastructure by excavating around it and leaving enough ground intact to access and support the structure.

Because there is a potential for compliance works to be constructed anywhere in the state, there is the potential for conflict with preserving access to mineral resources.

15.4.1.1 Mitigation Measures 15-1

The following actions may reduce potential impacts:

1) Prior to design and construction of the compliance projects, consult with the California Geological Survey's Mineral Resources Program mineral classification maps, technical reports, and data regarding mineral resources throughout the state, and if possible, avoid placing compliance projects in areas that would 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.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. The ability to implement Mitigation Measures 15-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 15-1 is **potentially significant and unavoidable**.

15.4.2 Impact 15-2 – Loss of Locally Important Mineral Resources

Compliance with the Proposed Regulations by public water systems may 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. If a public water system must construct new water system components such as treatment or a blending tank to comply with the Proposed Regulations, those components would likely be in areas already occupied by the existing water system and the community or business that the water system serves. For reasons stated above in Impact 15-1, is unlikely that a loss of availability to locally important mineral resources would be significant. However, for the reasons stated in Impact 15-1, compliance with the Proposed Regulations by public water systems may have a significant effect on locally important mineral resource recovery sites.

15.4.2.1 Mitigation Measure 15-2

The following actions may reduce potential impacts to locally important mineral resources:

a) Prior to design and construction of the compliance project, consult the city or county general plan, site-specific plan, or other land use plan to identify locally important mineral resource recovery sites, and if possible, avoid placing compliance projects in areas that would result in the loss of availability of those mineral resources.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. The ability to implement Mitigation Measures 15-2, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in

its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 15-2 is **potentially significant and unavoidable**.

15.4.3 Cumulative Impacts

Implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations may contribute to cumulative impacts on mineral resources from other projects occurring in the state. In particular, and as discussed in section 3.5, other drinking water projects that are like the reasonably foreseeable means of compliance have occurred and are likely to occur in the future. For instance, public water systems will continue to install treatment and obtain new sources of water supply to address other drinking water contaminants regulated by the State Water Board and, in many cases, financed by the State Water Board's financial assistance programs. Likewise, public water systems will continue to consolidate with assistance from the State Water Board's SAFER program. Due to the number of public water systems (currently around 7,000) and their distribution throughout the state, the cumulative impact on mineral resources from the proposed regulation may be considerable in the context of these other projects. In addition, projects that are unrelated to the State Water Board's drinking water programs may impact mineral resources in the vicinity of site-specific projects to comply with the Proposed Regulation. Depending on the location, this cumulative impact may be significant.

The Proposed Regulations' contribution to this significant impact could be cumulatively considerable. Implementation of the project-level mitigation measures recommended in this chapter would effectively reduce the incremental contribution from the proposed regulation to a less-than-considerable level, but authority to require that mitigation will rest with other agencies that will be authorizing site-specific projects, and not with the State Water Board. Consequently, it is uncertain whether mitigation measures would be implemented, which precludes assurance that significant impacts would be avoided. Therefore, the State Water Board takes the conservative approach and discloses, for purposes of CEQA compliance, that the Proposed Regulations could result in a considerable contribution to a potentially significant cumulative impact on mineral resources.

CHAPTER 16 - NOISE

This chapter describes existing noise conditions in California and analyzes potential impacts that may occur from the Proposed Regulations.

16.1 ENVIRONMENTAL SETTING

16.1.1 Noise

Sound that is loud, disagreeable, unexpected, or unwanted is generally defined as noise. Sound levels are measured using the decibel (dB) scale, which is a logarithmic scale. A sound level increase of 10 dB corresponds to 10 times the acoustical energy, and an increase of 20 dB equates to a 100-fold increase in acoustical energy. Because the human ear is not equally sensitive to loudness at all frequencies in the audible spectrum, A-weighted sound levels (dBA) are used to describe noise levels in the human environment. As acoustic energy spreads through the atmosphere from the source to the receiver, noise levels attenuate depending on ground absorption characteristics, atmospheric conditions, and the presence of physical barriers. Noise generated from mobile sources generally attenuate at a rate of 4.5 dB per doubling of distance. Stationary noise sources spread with more spherical dispersion patterns that attenuate at a rate of 6 to 7.5 dB per doubling of distance (Caltrans 2013, sec. 2).

The effects of noise on people include subjective effects of annoyance, nuisance, dissatisfaction; interference with activities such as speech, sleep, learning; and physiological effects such as hearing loss or sudden startling. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise. Thus, an important way of predicting a human reaction to a new noise is the way it compares to the existing environment to which one has adapted: the so called "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. Regarding increases in A-weighted noise level, the following relationships occur:

a) Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived.

b) Outside of the laboratory, a 3 dBA change is considered a just perceivable difference.

c) A change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and

d) A 10 dBA change is subjectively heard as approximately a doubling in loudness and can cause adverse response (Caltrans 2013 sec. 2).

Noise is commonly described using the following terms:

a) typically, equivalent sound level is used to describe noise over a specified period, typically one hour, in terms of a single numerical value. The Leq is the constant sound level which would contain the same acoustic energy as the varying sound level, during the same period (i.e., the average noise exposure level for the given period).

b) Lmax: the instantaneous maximum noise level for a specified time.

c) L50: the noise level equaled or exceeded 50 percent of the specified time. The L50 represents the median sound level.

d) L90: the noise level equaled or exceeded 90 percent of the specified time. The L90 is used to represent the background sound level.

e) Ldn: 24-hour day-night Leq with a 10-dB “penalty” applied during nighttime noise-sensitive hours, 10:00 PM to 7:00 AM.

f) CNEL: like the Ldn, the Community Noise Equivalent Level is an additional 5-dB “penalty” for the noise sensitive hours between 7:00 PM and 10:00 PM, which is typically reserved for relaxation, conversation, reading and watching television (Caltrans 2013 sec. 2).

The existing noise environment generally consists of transportation noise (e.g., highways, freeways, arterials, and local streets); railroad operations and ground rapid transit systems; noise from commercial and industrial operations; commercial, general aviation, heliport, and military airport operations and overflights; construction sites; schools (e.g., playing fields); residential and recreational areas (e.g., landscape maintenance activities, dogs barking, etc.). Existing drinking water infrastructure may produce noise, including the operation of pumps.

16.1.2 Groundborne Vibrations

Vibration is an oscillatory motion that can be described in terms of displacement, velocity, or acceleration. The vibration velocity level in decibel scale is called vibration decibels. Like noise, effects of vibrations on people include subjective feelings of annoyance, nuisance, and dissatisfaction. However, vibrations can also cause physical damage to buildings and structures. “Peak particle velocity is the maximum instantaneous positive or negative peak of the vibration signal. Peak particle velocity is often used in monitoring of construction vibration (such as blasting) since it is related to the stresses that are experienced by buildings and is not used to evaluate human response” (FTA 2018, p.110).

Typical outdoor sources of vibration waves that propagate through the ground and create perceptible groundborne vibrations in nearby buildings include construction equipment, steel-wheeled trains, and traffic on rough roads. If the roadway is smooth, the vibration from rubber-tired traffic is rarely perceptible. Building damage due to vibration is also rare but in extreme cases, such as during blasting or pile-driving during construction, vibration could cause damage to buildings. Groundborne vibrations in the 50-vibration dB range are below the perceptible level and 100 vibration dB is the threshold of potential damage to buildings. Although the perceptibility threshold is approximately 65 vibration dB, human response to vibration is not usually substantial unless the vibration exceeds 70 vibration dB. The effects of ground-borne vibration can include perceptible movement of floors in buildings, rattling of windows, shaking of items on shelves or hanging on walls, and low-frequency noise.

16.2 REGULATORY SETTING

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, historic sites, cemeteries, and recreation areas are also generally considered sensitive to increases in exterior noise levels.

Places of worship and transit lodging, and other places where low interior noise levels are essential are also considered noise sensitive.

County and city general plans contain noise elements, pursuant to Government Code section 65302, subdivision (f). Noise elements in general plans allow for cities and counties to consider noise in land use planning and serve as the basis for local noise abatement programs. The Governor's Office of Planning and Research publishes a technical guideline for cities and counties to use when preparing noise elements and includes generally acceptable noise levels for different environments. For instance, according to the guideline, a 60 dB CNEL or less is considered an acceptable noise level for low-density residential settings (OPR 2017, p. 378).

Cities and counties may have noise ordinances or regulations to implement their noise elements. For example, the City of Los Angeles enforces its noise regulations in Chapter XI of the Los Angeles Municipal Code, which establishes acceptable ambient sound levels and procedures for measuring the sound level of sources of noise. The city's noise regulation includes, among other things, a maximum noise level from construction equipment operated during daytime hours in residential settings.

16.2.1 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This section discusses potential noise impacts from the implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations. Reasonably foreseeable means of compliance with the Proposed Regulations include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of noise impacts that could occur with implementation of the reasonably foreseeable means of compliance with the Proposed Regulations. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines. It also considers, where available and appropriate, environmental documents prepared by public water systems for site-specific projects like the reasonably foreseeable means of compliance with the Proposed Regulations.

Future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-specific assessments of noise impacts. At that time, project-level noise impacts will be analyzed.

16.3 IMPACTS AND MITIGATION MEASURES

Would the Proposed Regulations result in:

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project more than standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

b) Generation of excessive ground borne vibration or ground borne noise levels?

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or a public use airport, would the project expose people residing or working in the project area to excessive noise levels?

16.3.1 Impact 16-1 - Increase in Ambient Noise Levels

Compliance with the Proposed Regulations by public water systems may result in substantial temporary increases in ambient noise levels from the construction of projects to comply with the Proposed Regulations. Heavy equipment, including graders and excavators, may be required, as well as power tools and portable generators. In its 2016 EIR for its proposed hexavalent chromium compliance project, the CVWD predicted a maximum unmitigated peak construction noise impact of 91.7 dBA Leq at 50 feet from the site boundaries of each location and determined that sensitive receptors could perceive a noise impact during construction of the project (CVWD 2016, 4.13-13). The CVWD determined that the impact would be less than significant with mitigation, however.

Noise impacts may also occur from operations of compliance projects. Installation of new groundwater wells could increase ambient noise levels in the immediate vicinity of the sites. In CVWD's 2016 EIR, the CVWD measured the noise levels of existing groundwater wells and estimated that the operational noise levels at groundwater wells with strong-base ion exchange to be 69.8 dBA Leq for well pumps and 51.2 dBA Leg for backup power generators (CVWD 2016, 4.13-15). Because the OPR recommends that local noise elements consider a CNEL greater than 65 dBA to be unacceptable to sensitive receptors, it is possible that noise impacts from operation of a new well would be significant if located in an area with sensitive receptors. For projects involving the installation of treatment at an existing well site, there may be minimal changes to noise. The CVWD found that "the noise levels at the existing SBA well sites after project equipment is installed would be the same as those associated with the existing CVWD well sites and would result in minimal changes to the operational noise environment of each existing facility" (*Id*). Nevertheless, operational noise impacts from future compliance projects will depend on the specifics of the projects and the environment, and the noise ordinances or regulations of the cities or counties in which the projects are located.

16.3.1.1. Mitigation Measure 16-1

The following actions may reduce potential impacts:

a) Comply with local plans, policies, and ordinances regarding acceptable noise and vibration levels.

b) Ensure noise-generating construction activities (including truck deliveries, rock drilling and blasting) are limited to the least noise-sensitive times of the day (e.g., weekdays during the daytime hours) for projects near sensitive receptors, and only occur between the hours prescribed in the applicable jurisdiction's noise ordinance or regulation.

c) Consider use of permanent noise barriers, such as berms and screening walls, to limit ambient noise at property lines, especially where sensitive receptors may be present.

d) Use temporary construction noise barriers during construction such as sound barrier fencing.

e) Ensure all construction equipment used are adequately muffled and maintained.

f) Ensure all stationary construction equipment (i.e., compressors and generators) is located as far as practicable from nearby sensitive receptors or are shielded.

g) Properly maintain mufflers, brakes and all loose items on construction and operational-related vehicles to minimize noise and ensure safe operations. Keep truck operations to the quietest operating speeds. Advise about downshifting and vehicle operations in sensitive communities to keep truck noise to a minimum.

h) Use noise controls on standard construction equipment.

i) Install mufflers on air coolers and exhaust stacks of all diesel and gas-driven engines.

j) Equip all emergency pressure relief valves and steam blow-down lines with silencers to limit noise levels.

k) Contain operations within buildings or other types of effective noise enclosures.

l) Employ engineering controls, including sound-insulated equipment and control rooms, to reduce the average noise level in normal work areas.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 16-1 could reduce Impact 16-1 to less than significant, yet the ability to implement Mitigation Measures 16-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 16-1 is **potentially significant and unavoidable**.

16.3.2 Impact 16-2 - Vibrations

Compliance with the Proposed Regulations by public water systems may generate ground borne vibration or ground borne noise levels, particularly during construction of future compliance projects. Vibration can result from the use of construction equipment and can impact surrounding sensitive receptors. The level of impact depends upon the equipment used, the distance to the affected structure, and the soil type. Although it is impossible in this EIR to estimate vibration impacts because those impacts will depend on site-specific factors, public water systems can estimate project-related vibration impacts using the Federal Transit Authority's vibration assessment methodology. Different jurisdictions may have restrictions on vibration, and it is possible that some future compliance projects may generate short-term vibrations that exceed local restrictions.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and

mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 16-1 could reduce Impact 16-2 to less than significant, yet the ability to implement Mitigation Measures 16-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 16-2 is **potentially significant and unavoidable**.

16.3.3 Impact 16-3 - Excessive Noise Levels Near Airports

Compliance with the Proposed Regulations by public water systems may have the potential to expose people residing or working within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, to excessive noise levels. As explained in Impact 16-1, future compliance projects may entail noise during construction and operation that, unless mitigated by project proponents or permitting agencies, may be significant. Future compliance projects may be located anywhere in the state, including near public airports or private airstrips. Mitigation Measures 16-1 or equally effective measures may be available to mitigate noise impacts from construction and operation of future compliance projects.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 16-1 could reduce Impact 16-3 to less than significant, yet the ability to implement Mitigation Measures 16-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 16-3 is **potentially significant and unavoidable**.

16.3.4 Cumulative Impacts

Implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations may contribute to cumulative impacts to noise and vibration from other projects occurring in the state. In particular, and as discussed in section 3.5, other drinking water projects that are like the reasonably foreseeable means of compliance have occurred and are likely to occur in the future. For instance, public water systems will continue to install treatment and obtain new sources of water supply to address other drinking water contaminants regulated by the State Water Board and, in many cases, financed by the State Water Board's financial assistance programs. Likewise, public water systems will continue to consolidate with assistance from the State Water Board's SAFER program. These infrastructure projects have the potential to adversely affect noise. Due to the number of public water systems (currently around 7,000) and their distribution throughout the state, the cumulative impact on noise from the Proposed Regulations may be considerable in the

context of these other projects. In addition, projects that are unrelated to the State Water Board's drinking water programs may impact noise in the vicinity of site-specific projects to comply with the Proposed Regulations. Depending on the location, the cumulative impact on noise may be significant.

The Proposed Regulations' contribution to this significant impact could be cumulatively considerable due to the development of new drinking water infrastructure that could affect noise. Implementation of the project-level mitigation measures recommended in this chapter would effectively reduce the incremental contribution from the Proposed Regulations to a less-than-considerable level, but authority to require that mitigation will rest with agencies that will be authorizing site-specific projects, and not with the State Water Board at this time. Consequently, it is uncertain whether mitigation measures would be implemented, which precludes assurance that significant impacts would be avoided. Therefore, the State Water Board takes the conservative approach and discloses, for purposes of CEQA compliance, that the Proposed Regulations could result in a considerable contribution to a potentially significant cumulative impact on noise and vibration.

CHAPTER 17 - POPULATION AND HOUSING

This chapter describes existing population and housing conditions in California and analyzes potential impacts that may occur from the Proposed Regulations.

17.1 ENVIRONMENTAL SETTING

17.1.1 Population

California is the most populous state in the nation. California's population as of July 1, 2020, is estimated to be 39,368,078, an increase of 2,048,528 since 2010 (U.S. Census Bureau 2020a). The most populous counties in California are in Southern California, with an estimated 9,943,046 people living in Los Angeles County; 3,332,427 people living in San Diego County; 3,166,857 people living in Orange County; 2,489,188 people living in Riverside County; and 2,189,183 people living in San Bernardino County (U.S. Census Bureau 2020b).

17.1.2 Housing

Housing units, households, and vacancy rates for California are shown in Table 17-1 (DOF 2022).

TABLE 17-1 CALIFORNIA HOUSING PROFILE

Housing Units	Value
Total	14,583,998
Single Detached	8,341,577
Single Attached	1,010,851
Two to Four	1,168,669
Five Plus	3,500,674
Mobile Homes	562,223
Occupied	13,612,650
Vacancy Rate	6.7%
Persons per Household	2.81

17.2 REGULATORY SETTING

California's Housing Element Law requires local governments to plan for increased housing based on regional allocations of new housing needs. (Gov. Code, § 65580 et seq.) Local governments must periodically update their housing elements as part of their general plan updates. The California Department of Housing and Community Development is statutorily authorized to notify the Office of the Attorney General if a local jurisdiction's housing element

is non-compliant. (Gov. Code, § 65585, subd. (j).) The Housing Accountability Act limits local governments' ability to disapprove housing development applications that meet certain requirements. (Gov. Code, § 65589.5.) In the most recent Regional Housing Needs Assessment, the state estimated a new housing need of 2.5 million homes, including one million homes for lower-income Californians (CDHCD 2022).

17.3 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This section discusses potential impacts to population and housing from the implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations. Reasonably foreseeable means of compliance with the Proposed Regulations include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of impacts to population and housing that could occur with implementation of the reasonably foreseeable means of compliance with the Proposed Regulations. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines. It also considers, where available and appropriate, environmental documents prepared by public water systems for site-specific projects like the reasonably foreseeable means of compliance with the Proposed Regulations.

For future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-specific assessments of impacts on population and housing. At that time, project-level impacts to population and housing will be analyzed.

17.4 IMPACTS AND MITIGATION MEASURES

Would the Proposed Regulations:

1. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?
2. Displace substantial numbers of people or housing, necessitating the construction of replacement housing elsewhere?

17.4.1 Impact 17-1 - Population Growth

The Proposed Regulations will not directly induce substantial unplanned population growth in an area, but compliance with the Proposed Regulations by public water systems could indirectly allow for increased population growth in areas. As discussed in the section on

growth-inducing effects in section 25.2 of this EIR, it is possible that some public water systems will undertake projects to obtain new sources of uncontaminated drinking water and during that process will oversize those projects to allow for future growth. Similarly, public water systems that consolidate with each other to comply with the Proposed Regulations may install drinking water pipelines that allow for future development in areas where development is currently infeasible due to a lack of drinking water access. In these cases, the implementation of the compliance projects could allow for future population growth, though these are hypothetical and speculative scenarios. In addition, these allowances for future population growth are unlikely to be both unplanned and substantial. In the case of water systems sizing new supplies in excess of current demand, water systems are unlikely to size new supplies beyond the demand from planned population increases because of the cost of developing those new supplies. In the case of consolidations, there is a greater risk of unplanned growth resulting from the installation of new water transmission pipelines, yet there is no evidence that unplanned growth would be substantial. On the contrary, any unplanned growth associated with a consolidation is likely to be insubstantial due to constraints on supplies for serving new customers. For these reasons, the Proposed Regulations are likely to have a **less than significant effect** on inducing substantial unplanned population growth.

17.4.2 Impact 17-2 - Housing Displacement

Compliance with the Proposed Regulations by public water systems is not expected to displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere. Compliance projects are not expected to occur primarily in residential areas, though some projects may, such as where an existing wellsite is in a residential area. For wells that are in residential areas, installation of treatment may be constructed on the existing site or, in some cases, on another lot in the area. In either case, installation of treatment would not require displacing substantial numbers of existing housing because of the size of treatment facilities. Similarly, construction of new wells would normally occur at sites where housing does not currently exist. Installation of new drinking water pipelines for the purchase of surface water or consolidation of public water systems generally occurs within public rights-of-way. For these reasons, consolidation projects are unlikely to result in displacement of housing units, let alone substantial numbers of housing units. Therefore, there is **no impact.**

17.4.3 Cumulative Impacts

Because reasonably foreseeable means of compliance with the Proposed Regulations are not expected to cause significant impacts associated with substantial, unplanned population growth or housing displacement, the Proposed Regulations are not expected to contribute to cumulative impacts to population and housing impacts in the state.

CHAPTER 18 - PUBLIC SERVICES

This chapter describes existing public services in California and analyzes potential impacts that may occur from the Proposed Regulations.

18.1 ENVIRONMENTAL SETTING

Public services are provided for public use and benefit, and generally include fire and police protection, libraries, and other public-support functions. This section identifies existing services and infrastructure.

18.1.1 Police Protection

California Highway Patrol provides police protection service on State and Interstate highways throughout California. It enforces the California Vehicle Code and criminal laws; manages traffic and emergencies; assists other law enforcement agencies; and protects the public and infrastructure. Cities and counties provide local law enforcement to prevent crime, respond to emergencies, and provide traffic enforcement on local roadways. Public water systems are located either in unincorporated county areas, which are generally served by county sheriff's departments, or within incorporated city limits, which are generally served by city police departments.

18.1.2 Fire Protection and Emergency Response

Statewide fire protection and emergency response is provided by CAL FIRE. CAL FIRE protects lives, property, and natural resources from fire; responds to emergencies of all types; and protects and preserves timberlands, wild lands, and urban forests. Local fire protection service is provided by local fire districts and agencies such as city and county fire departments. Most local fire agencies also provide emergency medical response within their service areas.

18.1.3 Schools

Many schools, both public and private, are served by local public water systems. Some schools, however, are standalone public water systems. Such schools are generally in rural areas, and because they are not within the service area of a public water system, they must rely on their own well to provide drinking water to their staff and students. Schools that are standalone public water system are considered NTNCWS because they are not a community water system and regularly serve at least 25 of the same persons over six months per year and would therefore need to comply with the Proposed Regulations. Schools whose water exceeds the proposed MCL may be able to come into compliance by installing BAT at the well, installing POUs or adopting other reasonably foreseeable alternative methods of compliance.

18.1.4 Parks

Many parks provide drinking water fountains for public use and public restrooms with sinks to wash hands; some have swimming pools with showers, or splash parks. If those uses entail human consumption, the park could constitute a public water system under the California Safe Drinking Water Act. (See Health & Saf. Code, § 116275, subd. (e).) Parks that are not part of a wider community water system may serve their drinking water needs from park-

operated wells. Such a park is considered a TNCWS because it is not a community water system and does not regularly serve at least 25 of the same persons over six months per year. TNCWS do not have to comply with the Proposed Regulations unless they are supplied by a surface water source and serve an average of more than 1,000 people a day or have been found at risk of potential contamination based on a sanitary survey.

18.1.5 Other Public Facilities

State and local governments operate a variety of other facilities available for public use or business. Examples include libraries, courthouses, city halls, and offices of agencies that distribute licenses or benefits like the Department of Motor Vehicles. In general, most of these facilities are served by a community water system.

18.2 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This chapter discusses potential impacts to public services from the implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations. Reasonably foreseeable means of compliance with the Proposed Regulations include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of impacts to public services that could occur with implementation of the reasonably foreseeable means of compliance with the Proposed Regulations. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines. It also considers, where available and appropriate, environmental documents prepared by public water systems for site-specific projects like the reasonably foreseeable means of compliance with the Proposed Regulations.

Future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-specific assessments of impacts on public services. At that time, project-level impacts to public services will be analyzed.

18.3 IMPACTS AND MITIGATION

Would the Proposed Regulations:

1. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental

impacts, to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

a. Fire protection?
b. Police protection?
c. Schools?
d. Parks?
e. Other public facilities?

18.3.1 Impact 18-1 - Alteration and Construction of Government Facilities

Compliance with the Proposed Regulations by public water systems could indirectly allow for increased population growth in areas. As discussed in the section on growth-inducing effects in section 25.2 of this EIR, it is possible that some public water systems will undertake projects to obtain new sources of uncontaminated drinking water and will oversize those projects to allow for future growth. Similarly, consolidation pipelines installed to comply with the Proposed Regulations may allow for future development in areas where development is currently infeasible due to a lack of drinking water access. In these cases, the implementation of the compliance projects could allow for future population growth. As discussed in section 25.2 of this EIR, some projects that install numerous and complex treatment systems to comply with the Proposed Regulations may require new employment; however, the additional employment is likely to be minor and would not induce substantial population growth in the public water system's service territory.

The purpose of the Proposed Regulations is not to expand water supply, and any increase in supply is speculative and would be incidental. Any population growth therefore would not entail the expansion of public services and the construction of new government facilities. Therefore, **no impact** associated with the provision of new or physically altered governmental facilities is expected from the Proposed Regulations.

18.3.2 Cumulative Impacts

Because reasonably foreseeable means of compliance with the Proposed Regulations are not expected to cause impacts associated with the provision of new or physically altered governmental facilities, they are not expected to contribute to cumulative impacts associated with the provision of new or physically altered governmental facilities from other projects occurring in the state.

CHAPTER 19 - RECREATION

This chapter describes existing recreation in California and analyzes potential impacts that may occur from the Proposed Regulations.

19.1 ENVIRONMENTAL SETTING

California is home to nine national parks and 28 units under management of the National Park Service, including national monuments; national historical sites, trails, and parks; and recreation areas. The U.S. Forest Service manages California's 18 national forests, covering over 20 million acres, and 65 wilderness areas, covering almost five million acres. These lands encompass 16,000 miles of trails, 1,000 campgrounds, and 25 ski areas. More than 35 million people annually visit Forest Service lands in California (USFS 2022). The Bureau of Land Management manages 15 million acres of land in California, 10 million acres of which is managed for conservation, including 92 wilderness areas, seven national monuments, and 116 miles of wild and scenic rivers. The Bureau of Land Management reports that 7.5 million hikers and campers annually visit their lands in California (BLM 2022). Different categories of federal land are managed under different statutory regimes, which allow for different types of recreational uses. For example, motorized recreation is not allowed in wilderness areas, while many Bureaus of Land Management lands are open to off-highway vehicle use. (16 U.S.C. § 1311; BLM 2022.)

California's State Park System consists of 280 units, encompassing more than 1.6 million acres; state park units include 88 state parks, 62 state beaches, 52 state historic parks, and 33 state recreation areas. California state parks recorded more than 81 million visits in 2019 (California State Parks 2019). Counties and local governments also operate parks and recreational facilities.

19.2 REGULATORY SETTING

19.2.1 California Department of Parks and Recreation

California's state park system is administered by the Department of Parks and Recreation. The mission of the California Department of Parks and Recreation is to provide for the health, inspiration, and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation. In addition to the lands it directly owns, the California Department of Parks and Recreation has certain jurisdiction over granted or ungranted tidelands or submerged lands abutting State Park system lands. (Pub. Resources Code, § 5003.5.)

19.2.2 California Coastal Act

The California Coastal Act (Pub. Resources Code, § 30000 et seq.) governs development within the Coastal Zone. One of the legislative findings and goals of the Coastal Act is to "maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resources conservation principles and constitutionally protected rights of private property owners." (Pub. Resources Code, § 30001.5.)

19.3 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This section discusses potential impacts to recreation from the implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations. Reasonably foreseeable means of compliance with the Proposed Regulations include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of impacts to recreation that could occur with implementation of the reasonably foreseeable means of compliance with the Proposed Regulations. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines. It also considers, where available and appropriate, environmental documents prepared by public water systems for site-specific projects like the reasonably foreseeable means of compliance with the Proposed Regulations.

Future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-specific assessments of impacts on recreation. At that time, project-level impacts to recreation will be analyzed.

19.3 IMPACTS AND MITIGATION

Would the Proposed Regulations:

1. 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?
2. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

19.3.1 Impact 19-1 – Increased Use of Recreational Facilities

Compliance with the Proposed Regulations by public water systems will not 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.

As discussed in Chapter 18, compliance with the Proposed Regulations by public water systems has the potential to result in unplanned population growth; however, any population growth is not expected to result in greater demand for, or use of, recreational facilities. Therefore, no impact associated with the increased use of recreational facilities is expected.

19.3.2 Impact 19-2 – Facility Construction or Expansion

As explained in the discussion of Impact 19-1, compliance with the Proposed Regulations by public water systems will not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. Therefore, **no impact** associated with the construction or expansion of recreational facilities is expected.

19.3.3 Cumulative Impacts

Because reasonably foreseeable means of compliance with the Proposed Regulations are not expected to cause impacts associated with increased use or construction or expansion of recreational facilities, they are not expected to contribute to cumulative impacts to recreational facilities in the state.

CHAPTER 20 - TRANSPORTATION

This chapter describes existing transportation conditions in California and analyzes potential impacts that may occur from the Proposed Regulations.

20.1 ENVIRONMENTAL AND REGULATORY SETTING

California has over 386,000 lane miles of roadway, including 51,000 lane miles of state highways and nearly 15,000 miles of interstate highway (Caltrans 2021, p. 43). It has over 24,000 bridges, 6,500 miles of freight rail track, more than 300 airports, 12 seaports, six international ports of entry, and over 300 transit agencies (Caltrans 2021, pp. 42-46).

Transportation planning is conducted at multiple levels and by numerous public agencies. The California Department of Transportation (Caltrans) is responsible for planning, designing, constructing, operating, and maintaining all state-owned roadways, and for implementing federal highway standards for interstate highways. Caltrans prepares a California Transportation Plan and updates it every five years. It provides a framework for Caltrans' development of six specific "modal" plans for each mode of transportation, including an Interregional Plan, Freight Plan, Rail Plan, Aviation Plan, Transit Plan, and Bicycle and Pedestrian Plan.

There are eighteen Metropolitan Planning Organizations in California, which, along with twenty-six Regional Transportation Planning Authorities, prepare and periodically update Regional Transportation Plans, which consider regional transportation planning needs for the following twenty years. (Gov. Code, § 65080.) Caltrans uses the Regional Transportation Plans to inform the development of the statewide California Transportation Plan.

Federal agencies are also involved in transportation planning and regulation in California, including the U.S. Department of Transportation, the Federal Railroad Administration, and the Federal Aviation Administration.

Numerous transportation planning documents may apply to a particular area where a public water system proposes to construct a reasonably foreseeable means of compliance with the Proposed Regulations. Local transportation planning documents include, without limitation, the circulation elements in city and county general plans, short- and long-range transit plans, public agency trail plans, regional bicycle and pedestrian plans, Americans with Disabilities Act transition plans, countywide long-range transportation plans, and tribal transportation plans. Other federal and state transportation planning documents include, without limitation, the California Rail Plan, Interregional Transportation Strategic Plan, California Aviation System Plan, Goods Movement Action Plan, Sustainable Freight Action Plan, California Freight Mobility Plan, Strategic Highway Safety Plan, California Strategic Highway Safety Plan, Corridor System Management Plans, and Federal Lands Management Plans.

20.2 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This section discusses potential impacts to transportation from the implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations. Reasonably foreseeable means of compliance with the Proposed Regulations include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of

contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of impacts to transportation that could occur with implementation of the reasonably foreseeable means of compliance with the Proposed Regulations. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines. It also considers, where available and appropriate, environmental documents prepared by public water systems for site-specific projects like the reasonably foreseeable means of compliance with the Proposed Regulations.

Future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-specific assessments of impacts on transportation. At that time, project-level impacts to transportation will be analyzed.

20.3 IMPACTS AND MITIGATION

Would the Proposed Regulations:

a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

d) Result in inadequate emergency access?

20.3.1 Impact 20-1 – Conflict with Circulation Programs

It is unlikely that compliance with the Proposed Regulations by public water systems will conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Reasonably foreseeable means of compliance with the Proposed Regulations do not constitute transportation infrastructure that would be subject to programs, plans, ordinances, or policies addressing the circulation system. To the extent that such plans apply to non-transportation projects that affect the circulation system indirectly, there could be minor impacts, however. For instance, in many cases, a reasonably foreseeable means of compliance with the Proposed Regulations could result in additional usage of the circulation system, particularly roadways for public water system employees and contractors conducting routine monitoring and maintenance, and for deliveries of supplies to the public water system. The impact on vehicle miles traveled is likely to be minimal and is discussed below. Whether this indirect impact on the circulation system would constitute a conflict with a program, plan, ordinance, or policy addressing the circulation system is speculative at this programmatic stage.

It is possible that programs, plans, ordinances, or policies pertaining to the circulation system exist in areas where future compliance projects will occur. In these cases, the construction of a reasonably foreseeable means of compliance with the Proposed Regulations could conflict with such a program, plan, ordinance, or policy. During CEQA review of the compliance project and its site-specific impacts, the project proponent and lead agency would be required to implement any feasible mitigation measures to reduce potential conflicts to less than significant. Below are possible mitigation measures that a project proponent or lead agency might implement to reduce potential conflicts during construction.

20.3.1.1 Mitigation Measure 20-1

a) Implement a Construction Traffic Control Plan and a Traffic Management Plan.

b) Use flaggers or warning signs to provide safe ingress and egress to/from the project site.

c) Coordinate with the local public transit administration so that bus routes or bus stops in work zones can be temporarily relocated.

d) Display bicycle and pedestrian safety signage in project area.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. The ability to implement Mitigation Measures 20-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently.

Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts during construction from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 20-1 is **potentially significant and unavoidable**.

20.3.2 Impact 20-2 - Vehicle Miles Traveled

The Proposed Regulations would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), which requires agencies to consider vehicle miles traveled when analyzing a project's impacts on transportation. In its EIR for its proposed hexavalent chromium treatment project, the CVWD estimated that each strong-base ion exchange wellhead treatment would require 4-8 additional trips per year per well for operations and maintenance (CVWD 2016, 4.17-23). Water systems must also conduct routine water quality testing under the Proposed Regulations, including monthly sampling where source water is treated. It is anticipated that public water systems will conduct sampling for hexavalent chromium while they sample for other contaminants under existing regulations. If public water systems did not consolidate water quality sampling for hexavalent chromium with sampling for other contaminants, they would conduct twelve sampling trips per year specifically for hexavalent chromium. In the case of strong-base ion exchange treatment, based on the CVWD's analysis in its EIR, each well site would require 16-20 trips per year for water quality sampling and operations and maintenance. There are 501 drinking water sources in the state with hexavalent chromium detections above the proposed MCL of 10 µg/L, as shown in the

State Water Board's Safe Drinking Water Information System (SDWIS) database, accessed June 21, 2021, and the Water Quality Information Replacement (WQIR) database, accessed July 27, 2021. (SWRCB 2023a, sec. 2.)If public water systems installed IX treatment at all 501 sources the Proposed Regulations would result in 8,016 to 10,020 additional trips per year throughout the state. This is an extreme number of additional site visits as it is not expected that all public water systems will install IX treatment. In addition, it would be more economical for public water systems to consolidate monitoring trips for multiple contaminants, including hexavalent chromium. Monitoring for hexavalent chromium is not expected to be done separately from monitoring for contaminants with existing MCLs.

To estimate the number of miles per monitoring or operations and maintenance trip, the State Water Board used a geographic information system (GIS) to estimate the average longest straight line across service areas of public water systems in California. That GIS dataset is available at the **California Drinking Water System Area Boundaries** website. Using the Minimum Bounding Geometry and other GIS tools, the State Water Board staff estimated the average longest straight line across service areas of public water systems in California to be seven miles. Accordingly, on average, and in a worst-case scenario, a monitoring or operations and maintenance trip would entail 14 miles, assuming that the public water system's headquarters and the well being monitored or maintained are on opposite ends of the longest straight line across the system's service area. Using the range of potential annual trips (8,016 to 10,020), the Proposed Regulations could result in 112,224 to 140,280 vehicle miles traveled each year.

This is a highly conservative estimate, and, in many cases, public water system employees will not be traveling the longest straight line across their system to monitor or maintain a particular treatment site. It is possible that contractors will be traveling to and from a farther distance outside the water system's boundaries, though it is infeasible to estimate those distances at this time. In addition, monitoring and maintenance trips are likely to be consolidated to avoid an inefficient expenditure of water system resources. Thus, trips are likely to consist of fewer miles, as public water systems visit multiple well sites on a single trip and the vehicle miles per trip decrease to far less than 14.

Compliance projects involving the installation of treatment may also cause additional vehicle miles traveled because of waste disposal. Depending on site-specific conditions and the details of future, site-specific projects, some public water systems that install treatment for hexavalent chromium will need to dispose of waste byproducts of treatment, such as spent resin, sludge, and brine. The frequency and distance of trips to dispose of those waste materials will depend on the treatment technology that a water system deploys; the concentrations of hexavalent chromium and other potentially hazardous material, such as arsenic and uranium, in the water source; the rate at which water is treated; and the system's capacity to store waste temporarily on-site. Because these specific characteristics of future compliance projects are not currently known, it is not feasible to estimate the additional vehicle miles traveled because of waste disposal. The State Water Board is aware of existing hexavalent treatment systems that currently entail the disposal of waste, however. For example, the CVWD's IX treatment systems generate multiple waste streams: spent brine that is transported to a facility in Rancho Cucamonga, California, five times per week; filter cakes that are transported to a hazardous waste facility in Beatty, Nevada approximately every three months; and spent resin that is either sent to a regular landfill or to a hazardous waste facility in Beatty, Nevada (approximately 2,200 miles away), depending on analysis of the resin by the manufacturer (Mayes 2022a; Mayes 2022b). Similarly, the Indio Water Authority's IX

treatment requires transportation of waste brine every 90 days during normal operation (Khurana 2022). California Water Service reports that waste from its IX treatment for Las Lomas and Oak Hills each dispose of waste brine annually to Beatty, Nevada, which is approximately 900 miles away (Tejada 2022b). These examples demonstrate that the installation of IX treatment entails additional vehicle miles traveled to dispose of waste from the treatment process.

For the reasons discussed above, the Proposed Regulations will likely result in additional vehicle miles traveled. The Office of Planning and Research recommends that CEQA lead agencies find that any increase in vehicle miles traveled (and any reduction less than a 15 percent reduction) be considered a significant impact (OPR 2018). Therefore, because the Proposed Regulations will result in additional vehicle miles traveled, Impact 20-2 is potentially significant. As discussed below in section 20.3.5 on Cumulative Impacts, this is essentially a cumulative impact analysis, considering the total additional vehicle miles traveled that the Proposed Regulations may cause throughout the state. On a per-project level, additional vehicle miles traveled may not be significant, as CEQA lead agencies for those future compliance projects use different thresholds of significance. For example, in accordance with the Office of Planning and Research recommendation, a public water system may find that a particular project involving no more than 110 trips per day is a less than significant transportation project (OPR 2018 p. 12). There may also be mitigation measures available to reduce the number of additional vehicle miles traveled, including consolidating monitoring and maintenance trips.

20.3.2.1 Mitigation Measure 20-2

Consolidate maintenance and monitoring trips for wells with hexavalent chromium to avoid unnecessary trips.

The feasibility of such measures will depend on the specifics of the public water system's hexavalent chromium compliance project, service area geography, and other operational characteristics. Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. The ability to implement Mitigation Measure 20-2, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently.

Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 20-2 is **potentially significant and unavoidable**.

20.3.3 Impact 20-3 - Design Hazards

The Proposed Regulations will not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). In most cases, public water systems are not expected to construct new roads or modify existing roads when implementing reasonably foreseeable means of compliance with the Proposed Regulations. Groundwater treatment will be located at or near wellheads (see

section 2.6.1.1.2), where there is already existing access for water quality sampling and operations and maintenance. Likewise, expansion of a surface water treatment plant to accommodate lost groundwater supplies contaminated with hexavalent chromium would occur at existing surface water treatment plants, where access necessarily already exists. Blending of existing sources or purchasing of surface water would not require construction of new roadways, either. Consolidations among public water systems often occur within rights-of-way of existing roadways where distribution lines are constructed and would generally not require modification of the roadway (see section 2.6.3.4).

Nevertheless, it is possible that some compliance projects in undeveloped areas my require construction of access roads. For instance, the CVWD proposed constructing a hexavalent chromium resin regeneration facility as part of its proposed project. That facility required a gravel access road and widening of the roadway for safe access onto the access road. (CVWD 2016, 4.17-12). The CVWD's project was a particularly large one, involving thirty separate well sites. Among public water systems in California with known detections of hexavalent chromium, the CVWD has the most contaminated sources – more than twice as many as the public water system with the second-highest number of contaminated sources (SDWIS and WQIR databases June 21, 2021). Thus, its proposed project, including regeneration facility, represents a potential outlier in terms of size, scale, and impacts. Nevertheless, because the CVWD's proposed project entailed construction of an access road and modification of the roadway, it is possible that one or more future projects to comply with the Proposed Regulations may entail construction of roadways. Accordingly, unless potential design hazards are mitigated during the design of the project and CEQA review by the lead agency, it is possible that the Proposed Regulations would result in an increase in hazards due to design features such as sharp curves or dangerous intersections.

20.3.3.1 Mitigation Measure 20-3

The lead agency shall prepare a traffic impact report to assess potential impacts on appropriate street segments and intersections. The traffic impact report shall identify impacts that exceed the agencies' guidelines for significance and identify appropriate mitigation. Acceptable mitigation measures may include:

a) Turn restrictions
b) Roadway widening to add turn lanes or shoulders
c) Flaring of intersections to add turn lanes
d) Provision of passing lanes or turnouts
e) Acceleration and deceleration lanes
f) Protected left turn pockets or free right turn lanes
g) Restriping to add lanes with or without parking removal
h) Roundabouts
i) Median construction/modification to restrict access
j) Removal of obstructions
k) Fair-share contributions to approved projects identified in the agency's Capital Improvement Plan
l) Fair-share contributions to traffic signals identified in the agency's traffic signal plan

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 20-3 could reduce Impact 20-3 to less than significant, yet the ability to implement Mitigation Measures 20-3, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 20-3 is **potentially significant and unavoidable**.

20.3.4 Impact 20-4 - Emergency Access

The Proposed Regulations will not result in inadequate emergency access. None of the reasonably foreseeable means of compliance would block emergency access to an area in the long-term, and any short-term impacts during construction would be temporary and less than significant. Public water systems constructing compliance projects could maintain access for emergency vehicles during construction. This is supported by existing CEQA documentation for prior proposed projects to address hexavalent chromium contamination, including, for instance, the CVWD 2016 EIR, which found that the state's largest proposed hexavalent chromium treatment project would have no impact on emergency access (CVWD 2016, 4.17-12). Therefore, the Proposed Regulations will have **no impact** on emergency access.

20.3.5 Cumulative Impacts

Implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations may contribute to cumulative impacts on transportation from other projects occurring in the state. In particular, and as discussed in section 3.5, other drinking water projects that are like the reasonably foreseeable means of compliance have occurred and are likely to occur in the future. For instance, public water systems will continue to install treatment and obtain new sources of water supply to address other drinking water contaminants regulated by the State Water Board and, in many cases, financed by the State Water Board's financial assistance programs. Likewise, public water systems will continue to consolidate with assistance from the State Water Board's SAFER program. These infrastructure projects may impact transportation. Due to the number of public water systems (currently around 7,000) and their distribution throughout the state, the cumulative impact on transportation from the Proposed Regulations may be considerable in the context of these other projects. In addition, projects that are unrelated to the State Water Board's drinking water programs may impact transportation in the vicinity of site-specific projects to comply with the Proposed Regulations. Depending on the location, this cumulative impact may be significant.

The Proposed Regulations' contribution to this significant impact could be cumulatively considerable due to the development of new drinking water infrastructure. As discussed under Impact 20-2, new treatment facilities would cause up to 140,280 additional vehicle miles traveled each year throughout the state, although this is an extremely conservative estimate,

and the actual cumulative impact is likely to be substantially less (as discussed above). Other transportation impacts are susceptible to mitigation. Implementation of the project-level mitigation measures recommended in this chapter would effectively reduce the incremental contribution to those impacts from the Proposed Regulations to a less-than-considerable level, but authority to require that mitigation will rest with agencies that will be authorizing site-specific projects, and not with the State Water Board at this time. Consequently, it is uncertain whether mitigation measures would be implemented, which precludes assurance that significant impacts would be avoided. Therefore, the State Water Board takes the conservative approach and discloses, for purposes of CEQA compliance, that the Proposed Regulations could result in a considerable contribution to a potentially significant cumulative impact on transportation.

CHAPTER 21 - TRIBAL CULTURAL RESOURCES

This chapter describes existing tribal and cultural resources in California and analyzes whether possible changes in those resources may occur from compliance with the Proposed Regulations.

21.1 ENVIRONMENTAL SETTING

There are 109 federally recognized Indian tribes, including several tribes with lands that cross state boundaries. There are also about 81 Native American groups seeking federal recognition (BIA 2022). California has the highest Native American population in the country. According to the 2010 U.S. Census, California represents 14 percent of the total Native American population (Norris et. al. 2012). Approximately 720,000 Californians identified themselves as Native American. Over one-half of the state's Native American population is composed of individuals (and now their descendants) who were relocated to large urban areas as part of the federal government's termination policy.

Federally recognized tribes are sovereign nations and domestic water systems on tribal land are regulated by the U.S. EPA not the State Water Board. The U.S. EPA regulates drinking water for total chromium. The current federal drinking water standard for total chromium is 0.1 mg/l or 100 µg/l. Hexavalent chromium is not regulated unless it exceeds the total chromium MCL.

A search of the SDWIS dataset found five water systems affiliated with Native American tribes that are regulated by the state or by local primacy agencies who regulate small water systems on behalf of the state. One water system is a clinic serving tribal youth operated by a federal agency, the Indian Health Services Northern California Youth Treatment Center (Sacred Oaks) water system. The remaining systems are the Yokayo Tribe of Indians water system, the Ione Band of Miwok Indians water system, and the Cosumnes River Indian Assoc. whose well appears to be in the Wilton Rancheria but is regulated by Sacramento County, and the Morongo Golf Course at Tukwet Canyon owned by the Morongo Band of Mission Indians. All these systems use groundwater sources. Two systems have detected hexavalent chromium in the water, one is less than the Proposed MCL and one exceeds the Proposed Regulation.

21.2 REGULATORY SETTING

AB 52 introduced by Assemblyman Gatto in 2014 and codified in Public Resources Code section 21080.3.1 established a new category of resources in CEQA called tribal cultural resources. Tribal cultural resources are defined as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" that are either listed or eligible for listing on the California Register of Historical Resources or a local register of historical resources. (Pub. Resources Code, § 21074.) A lead agency may also determine that a resource qualifies as a tribal cultural resource if it meets the criteria for listing on the California Register of Historical Resources. (*Id.*) A historical resource or unique archaeological resource may also be classified as a tribal cultural resource. (*Id.*)

AB 52 also established a consultation process with all California tribes on the Native American Heritage Commission List. Consultation with a California Native American tribe that has requested such consultation may assist the lead agency in determining whether the project may adversely affect tribal cultural resources, and if so, how such effects may be

avoided or mitigated. AB 52 requires formal notice to California tribes of an opportunity to consult with the lead agency prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report if the tribe is traditionally and culturally affiliated with the geographic area of the proposed project and has requested formal notification. The requirements to consider tribal cultural resources and to consult with California tribes apply to CEQA projects for which the lead agency issues a notice of preparation or a notice of intent to adopt a negative declaration or mitigated negative declaration on or after July 1, 2015.

On October 26, 2021, the State Water Board sent notification letters that it was preparing an EIR for the Proposed Regulations to the 35 tribes who requested to receive notification of proposed State Water Board projects. Formal consultation was requested by the Colorado River Indian Tribes (Tribe) in a letter dated November 22, 2021. The State Water Board staff subsequently sent emails to the Tribe requesting to meet. Despite repeated attempts to schedule a consultation meeting with the Tribe, the Tribe has not engaged in the consultation process thus far. Although formal consultation with the Tribe has not occurred, the Tribe was informed that they may still provide input on the Proposed Regulations through the public participation process.

21.3 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This section discusses potential tribal cultural resource impacts from the implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations. Reasonably foreseeable means of compliance with the Proposed Regulations include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of tribal cultural resource impacts that could occur with implementation of the reasonably foreseeable means of compliance with the Proposed Regulations. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines. It also considers, where available and appropriate, environmental documents prepared by public water systems for site-specific projects like the reasonably foreseeable means of compliance with the Proposed Regulations.

Future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-specific assessments of tribal cultural resource impacts. At that time, project-level impacts to tribal cultural resource will be analyzed.

21.4 IMPACTS AND MITIGATION

Would the Proposed Regulations:

Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

b) 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 Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.

21.4.1 Impact 21-1 - Adverse Changes in Tribal Cultural Resources

Compliance with the Proposed Regulations may have the potential to cause a substantial adverse change in the significance of a tribal cultural resource listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1, subdivision (k). Impacts to tribal cultural resources would most likely result from site-specific construction projects. While some construction impacts, such as auditory impacts would be temporary, others such as grubbing or trenching through Native American cultural heritage sites would be permanent. The operation of treatment facilities or other means of compliance are much less likely to cause impacts to tribal cultural resources, but like construction impacts, must be evaluated on an individual project-level basis.

Because the installation of treatment and other means of compliance with the Proposed Regulations could occur anywhere in the state, there is a potential to significantly impact tribal cultural resources. Project specific impacts, in many cases, can be avoided or mitigated when tribal cultural resources in the proposed project area are identified early in project planning. Best practices for the identification of tribal cultural resources in the project area typically begin with a cultural resources investigation including a records search from the appropriate regional information center of the California Historical Resources Information System, a Sacred Lands File search from the NAHC, outreach letters to tribes on the NAHC tribal contact list, and a pedestrian survey of the project area by qualified archaeologist in coordination with tribes culturally affiliated with the geographic area of the site. Consultation with tribes who have requested project notification from the lead agencies pursuant to Public Resources Code sections 21080.3.1 and 21080.3.2 is key to identifying tribal cultural resources, especially those that are intangible, for assessing the significance of impacts to known tribal cultural resources, and for determining appropriate methods to mitigate those impacts. Even when tribal cultural resources are identified early in planning, if they cannot be avoided by construction, potentially significant and unavoidable impacts may occur.

The State Water Board expects that the installation of treatment or other reasonably foreseeable alternative means of compliance will consist of site-specific projects that undergo individual CEQA review to assess environmental impacts, including impacts to tribal cultural resources. The State Water Board anticipates that, as part of those environmental reviews for site-specific projects, the CEQA lead agencies will require compliance with CEQA and consult with tribes to avoid, minimize, and mitigate significant adverse impacts to tribal cultural

resources. In addition, there are recognized practices and mitigation measures that lead agencies may require of site-specific projects to avoid or minimize potentially adverse impacts to tribal cultural resources.

21.4.1.1 Mitigation Measures 21-1

Following CEQA statutes and regulations pertaining to both cultural resources and tribal cultural resources are required and are often incorporated into project specific environmental documents as best management practices or mitigation measures.

a) The lead agency for the project specific CEQA analysis should consider the impact of the project on tribal cultural resources and follow consultation requirements pursuant to Public Resources Code sections 21080.3.1, 21080.3.2, and 21082.3.

b) Accidental discovery of historical or unique archaeological resources – If tribal cultural resources that are historical or unique archaeological resources are accidentally discovered during construction, provisions must be made for a qualified archaeologist to immediately evaluate the significance of the find. If the find is determined a historical or unique archaeological resource, contingency funding, and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation must be made available. (Cal. Code Regs., tit. 14, § 15064.5, subd. (f).)

c) Discovery of human remains – In the event that human remains are encountered during construction activities, the project proponent must comply with section 15064.5, subdivision (e)(1), of the CEQA Guidelines and Public Resources Code section 7050.5. All project-related ground disturbance in the vicinity of the human remains shall be halted until the county coroner has been notified. If the coroner determines that the remains are Native American, the coroner will notify the NAHC to identify the most likely descendants of the deceased Native American. Project-related ground disturbance in the vicinity of the find shall not resume until the process detailed in CEQA Guidelines section 15064.5, subdivision (e), has been completed.

d) Upon discovery of Native American human remains during construction, following California law protects Native American human remains including inhumations, cremations, and in any state of decomposition or skeletal completeness, and associated grave goods and provides for the sensitive treatment and disposition of those remains. (Health & Saf. Code, § 7050.5; Pub. Resources Code, § 5097.9 *et seq*.)

e) Implement the following mitigation measures, as described in Public Resources Code section 21084.3: Avoidance and preservation of the resources in place; treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource; permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places; and protecting the resource.

Other mitigation measures commonly used, but not codified in existing statutes and regulations are:

f) Monitoring by tribal representatives of ground disturbing construction activities.

g) In the event of accidental discovery of archaeological material of Native American origin, contact tribal representatives from consulting tribes and allow them to visit the site and participate in the evaluation with the professional archaeologist.

h) Develop, in collaboration with consulting tribe(s), a Monitoring and Discovery Plan that is written and agreed to prior to construction. The plan should prescribe roles and responsibilities, pre-construction requirements, construction monitoring requirements, and procedures to follow if archaeological and/or human remains are discovered during construction.

Also see section 8.4.1.1 Mitigation Measures 8-1 in Chapter 8 Cultural Resources for additional measures that may also reduce impacts to tribal cultural resources.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. The ability to implement Mitigation Measures 21-1, 8-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 21-1 is **potentially significant and unavoidable**.

21.4.2 Cumulative Impacts

Implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations may contribute to cumulative impacts on tribal cultural resources from other projects occurring in the state. In particular, and as discussed in section 3.5, other drinking water projects that are like the reasonably foreseeable means of compliance have occurred and are likely to occur in the future. For instance, public water systems will continue to install treatment and obtain new sources of water supply to address other drinking water contaminants regulated by the State Water Board and, in many cases, financed by the State Water Board's financial assistance programs. Likewise, public water systems will continue to consolidate with assistance from the State Water Board's SAFER program. These infrastructure projects may impact tribal cultural resources. Due to the number of public water systems (currently around 7,000) and their distribution throughout the state, the cumulative impact on tribal cultural resources from the Proposed Regulations may be considerable in the context of these other projects. In addition, projects that are unrelated to the State Water Board's drinking water programs may impact tribal cultural resources in the vicinity of site-specific projects to comply with the Proposed Regulations. Depending on the location, this cumulative impact may be significant.

The Proposed Regulation's contribution to this significant impact could be cumulatively considerable due to the development of new drinking water infrastructure. As discussed under Impact 21-1, construction impacts are likely to be significant while operational impacts are not expected to be significant, but still must be considered on the project-specific, case-by-case basis. Many potential impacts to tribal cultural resources can be avoided, minimized, or mitigated. Implementation of the project-level mitigation measures recommended in this chapter would effectively reduce the incremental contribution to those impacts from the Proposed Regulations to a less-than-considerable level, but authority to require that mitigation will rest with agencies that will be authorizing site-specific projects, and not with the State Water Board at this time. Consequently, it is uncertain whether mitigation measures would be

implemented, which precludes assurance that significant impacts would be avoided. Therefore, the State Water Board takes the conservative approach and discloses, for purposes of CEQA compliance, that the Proposed Regulations could result in a considerable contribution to a potentially significant cumulative impact on tribal cultural resources.

CHAPTER 22 - UTILITIES AND SERVICE SYSTEMS

This chapter describes existing water, drainage, sewer, power (electricity and gas), and solid waste disposal utilities in California and analyzes potential impacts that may occur from the Proposed Regulations.

22.1 ENVIRONMENTAL SETTING

22.1.1 Water Supply

As described in Section 2.1, above, the State Water Board regulates over 7,000 public water systems, which are defined as having at least 15 service connections or regularly serving at least 25 individuals daily at least 60 days out of the year. (Health & Saf. Code, § 116275, subd. (h).) There are three types of public water systems:

a) Community Water Systems (CWS), which serve at least 15 service connections used by yearlong residents or regularly serve at least 25 yearlong residents of the area served by the system.

b) Non-transient Noncommunity Water Systems (NTNCWS), which are public water systems that are not community water systems, and regularly serve at least 25 of the same persons over six months per year. Examples include schools or business parks with their own water systems.

c) Transient Noncommunity Water Systems (TNCWS), which are not community water systems and do not regularly serve at least 25 of the same persons over six months per year. Examples include gas stations, restaurants, and campgrounds with their own water systems. They serve at least 25 people, but they are generally not the same people. Note that businesses may be categorized as NTNCWS if they have at least 25 employees.

Of the public water systems in the state, approximately 2,800 are CWS, 1,500 are NTNCWS, and 3,000 are TNCWS. CWS may be publicly or privately owned. Privately owned systems include large investor-owned utilities and small mutual water companies. Publicly owned CWS include municipalities and special districts, among others. The source of the water served may include groundwater, surface water, and recycled water.

Many people, especially those in rural communities, rely on private domestic wells for their water. It is estimated that there may be 500,000-700,000 active domestic wells in California. Domestic wells are not required to meet drinking water standards, and individuals are responsible for testing the quality of the water from their wells and taking any steps to correct deficiencies in quality, including installing treatment.

22.1.2 Sewer

Municipal wastewater collection and treatment for developed and metropolitan areas is typically provided by local wastewater service districts or agencies that typically are operated by the local jurisdiction (e.g., city or county). These agencies treat the wastewater, and to discharge the treated wastewater to land or surface water, they must obtain a permit from the applicable Regional Water Quality Control Board.

In areas that are remote or not served by a wastewater service provider, people rely on an individual septic tank or other on-site wastewater treatment method. These methods generally need to be approved by the local land use authority and sometimes the applicable Regional Water Quality Control Board.

22.1.3 Storm Water Drainage

In urban areas storm water drainage is typically addressed with curbs and gutters linked to the local jurisdiction's storm drain system. In rural areas, drainage naturally infiltrates into the soil or flows into natural drainage channels, such as creeks and streams. Development that adds impervious surfaces, such as asphalt, roofs, sidewalks, and concrete surfaces, prevents natural drainage and infiltration of storm water through soil. Runoff from impervious surfaces has a greater volume and rate of flow and can cause erosion and siltation on-and off-site. Construction sites greater than an acre are required to enroll under the State Water Board's Construction Stormwater Permit, which requires actions to mitigate storm water discharges from construction sites.

22.1.4 Power

California relies on a wide range of sources to create energy, including natural gas, hydroelectric, nuclear, solar, and wind. California has approximately 80,000 MW of electric generation capacity installed across the state among more than 1500 power plants (CEC 2018). Total installed renewable generation capacity is 26,500 MW with almost 12,000 MW from solar and 6,000 MW from wind. Large hydroelectric power plants provide 12,000 MW of capacity. California's last remaining operational nuclear power plant, Diablo Canyon, provides 2,400 MW. Natural gas-fired power plants make up about 41,000 MW, or about half the state's total generating capacity. (*Id*.) Energy use has been declining in recent years, in part due to energy efficiency programs and the installation of behind-the-meter solar photovoltaic systems that directly displace utility-supplied generation. For example, in 2018 behind-the meter generation was estimated to be 13,582 gigawatt-hours, a twenty percent increase from the year before (*Id*.) Power is provided by several different kinds of service providers, including investor-owned utilities, publicly owned utilities, electric cooperatives, community choice aggregators, and electric services providers. By 2030, the state's electric utilities are required to procure sixty percent of their retail sales from renewal energy sources (Sen. Bill No. 1078 (2001-2002 Reg. Sess.); as amended by Sen. Bills 350 (2015-2016 Reg. Sess.) and Sen. Bill 100 (2017-2018 Reg. Sess.).

22.1.5 Solid Waste

CalRecycle is responsible for regulating the operations of disposal and recycling of non-hazardous solid waste generated in California. (For a discussion of hazardous waste disposal see Chapter 12). CalRecycle develops and adopts regulations at the state level, which are implemented at the local level. In 2019, California generated 77.5 million tons of waste, and of that 42.2 million tons of material were disposed in out-of-state and in-state landfills (CalRecycle 2021). An estimated 28.9 million tons of the waste was recycled or diverted (*Id.*)

Solid and recycling waste management facilities are typically owned and operated by local government agencies or private companies in California. Facilities that manage solid waste include landfills, material recovery facilities, compostable material handling facilities, and transfer and processing facilities. According to CalRecycle's Solid Waste Information System,

there are 519 actives and permitted facilities. Information on specific solid waste facilities, operations, and disposal sites can be found at **SWIS Information Site**.

22.1.5.1 Assembly Bill 341 Mandatory Commercial Recycling

California AB 341 requires all commercial businesses and multi-family properties to be recycled. The legislation became effective July 1, 2012, and was designed to help meet California's recycling goal of 75% by the year 2020.

22.1.5.2 Assembly Bill 1826 Mandatory Organics Recycling

AB1826 requires businesses including multi-family buildings with five (5) or more units that generate a specified amount of organic waste (yard trimmings, food scraps, and food-soiled paper) per week to arrange for recycling services for that waste, and for jurisdictions to implement a recycling program to divert organic waste from businesses subject to the law, as well as report to CalRecycle on their progress in implementing an organic waste recycling program.

22.1.5.3 Senate Bill 1383 Organic Waste, Landfills

In September 2016, Senate Bill 1383 was signed into law, establishing methane emissions reduction targets in a statewide effort to reduce emissions of short-lived climate pollutants in various sectors of California's economy. As it pertains to solid waste management, SB 1383 establishes targets to achieve a 50 percent reduction in the level of the statewide disposal of organic waste from the 2014 level by 2020 and a 75 percent reduction by 2025. The law grants CalRecycle the regulatory authority required to achieve the organic waste disposal reduction targets and establishes an additional target that not less than 20 percent of currently disposed edible food is recovered for human consumption by 2025.

22.2 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

This section discusses potential impacts to utilities from the implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations. Reasonably foreseeable means of compliance with the Proposed Regulations include installation of treatment, drilling new wells, expansion of existing surface water treatment plants, construction of interties with other public water systems, blending sources of contaminated water with uncontaminated sources, and consolidations between public water systems.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of impacts to utilities that could occur with implementation of the reasonably foreseeable means of compliance with the Proposed Regulations. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines. It also considers, where available and appropriate, environmental documents prepared by public water systems for site-specific projects like the reasonably foreseeable means of compliance with the Proposed Regulations.

Future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-specific assessments of impacts on utilities. At that time, project-level impacts to utilities will be analyzed.

22.3 IMPACTS AND MITIGATION

Would the Proposed Regulations:

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

c) Result in determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

d) Generate solid waste more than State or local standards, or more than the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

22.3.1 Impact 22.1 – Relocation or Construction of New Utility Facilities

Implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations may have the potential to require relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. Installation of BAT, drilling new wells, blending with an uncontaminated source, and consolidating with another public water system would all require new, expanded, or modified public water system facilities. New and expanded facilities may cause impacts, as described throughout this EIR, though those impacts may be mitigated to less than significant by project proponents and public agencies approving the projects. Construction and operation of facilities may also cause a variety of impacts, which are detailed throughout this document. Treatment facilities would likely be installed near existing wells and within the existing footprint of public water system facilities. Furthermore, it is anticipated that construction of the reasonably foreseeable methods of compliance would be in areas that are already disturbed. Nevertheless, construction and operation of reasonably foreseeable means of compliance may cause significant environmental effects.

Facilities constructed to comply with the Proposed Regulations will also require energy, which may require construction of power lines. Expansion of surface water facilities could require upgrades to existing utilities.

There is speculation that wastewater treatment facilities could also be indirectly affected by the Proposed Regulations and require upgrades to equipment to address hexavalent chromium. The argument has been made that because some regional water quality control boards have adopted into their water quality control plans language that prospectively

incorporates MCLs as water quality objectives that wastewater treatment plants would have to treat to the MCL. However, most of the water entering a wastewater treatment plant will have been treated by the public water system. Although some untreated groundwater contaminated with hexavalent chromium could infiltrate into the wastewater treatment plant, this should be a small amount compared to the wastewater that came from homes.[17] Therefore, it is unlikely wastewater treatment plants will have difficulty meeting the new hexavalent chromium MCL.

22.3.1.1 Mitigation Measure 22-1

a) To the extent possible, install equipment and infrastructure improvements within or adjacent to existing facility boundaries to take advantage of existing utility connections and reduce the need for expansion of services.

b) Consult with local utilities prior to the design of the site-specific compliance project to reduce impacts to local utilities.

c) Participate in local or regional electrical demand management programs.

d) Design project to ensure that its water requirements are consistent with available local supplies of water.

e) To protect natural stormwater draining, retain the natural conditions of the site to the extent possible, with an emphasis on limiting site disturbance to the maximum extent practical.

f) If major changes to the site are needed, which may change or alter the site's permeability and natural drainage, incorporate onsite stormwater retention to ensure excess flows from large-scale stormwater events are discharged off-site in a controlled and non-erosive manner.

g) For wastewater disposal, only discharge to local sanitary sewer system with permission. If discharging wastewater to land, obtain a permit from the regional water quality control board. If wastewater cannot be discharged to sanitary sewer system or to land, dispose of it at appropriate landfill.

h) Implement mitigation measures identified above for the protection resources from construction activities, such as Mitigation Measures 7-1, for the protection of biological resources; Mitigation Measures 8-1 and 8-3, for the protection of cultural resources; Mitigation Measures 10-2, for protection of soils from erosion; Mitigation Measures 10-6, for the protection of paleontological resources; and Mitigation Measures 21-1 for the protection of tribal cultural resources.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. The ability to implement Mitigation Measures 22-1, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Mitigation Measures 22-1 could reduce Impact 22-1 to less than significant, yet the ability to implement Mitigation Measures 22-1, or equally

[17] Excessive inflow and infiltration of groundwater into the sewer system should be addressed by upgrading leaky pipes.

effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 22-1 is **potentially significant and unavoidable.**

22.3.2 Impact 22-2 - Water Supply Impacts

The purpose of the Proposed Regulations is to set an MCL for hexavalent chromium to ensure that water provided by public water systems is protective of public health. Therefore, the project will have a beneficial impact on the water supply generally.

The Proposed Regulations could, however, impact water supplies available to serve reasonably foreseeable future development during normal, dry, and multiple dry years. For example, existing regulations require that public water systems discontinue the use of a source if the concentration of the inorganic chemical exceeds ten times the MCL. (Cal. Code Regs., tit. 22, § 64432, subd. (h)(2).) Several public water systems are known to have levels of hexavalent chromium that exceed that threshold, and there is a possibility that after systems start monitoring more will be identified. This could cause the system to not have sufficient water supplies available to serve its customers. However, this would be a temporary impact because the public water system could continue to use the source after treatment is installed. In addition, public water systems with no other options could receive permission to continue to use the source (*Id.*)

Similarly, the installation of treatment could reduce the amount of water available for delivery to customers. The amount of water required for the operation of treatment depends upon the design of the treatment system. CVWD, for example, identified that in its two weak-base IX treatment facilities, 2.9 million gallons of water would be required for initial setup, but that this water would be continually recycled onsite and minimal additional water following start-up would be required (CVWD 2016 at 4.18-7). CVWD estimated that its regeneration facility would require 75,000 gallons of water to fill its process tanks, but after that, the water would be continually recycled internally and used in the regeneration process and would require minimal additional process water after the initial start-up (CVWD 2016, 4.18-7).

The amounts needed could impact available water supplies, especially during multiple dry years. However, in some circumstances, such as the CVWD project, the millions of gallons of water needed was a one-time requirement, and little additional water was required after.

Reasonably foreseeable alternative methods of compliance could also have an impact on water supply. Drilling new wells in a different aquifer, relying more on surface water instead of contaminated groundwater, intertying or consolidating with other public water systems, and blending sources of contaminated water with uncontaminated sources, could affect the availability of supplies to serve other reasonably foreseeable future development during normal, dry, and multiple dry years. Although reasonably foreseeable alternative methods of compliance would not change the amount of water used by public water systems to serve their customers, the source of water in these methods of compliance would change, potentially impacting development that might also depend on those same sources.

22.3.2.1 Mitigation Measure 22.2

Design project to ensure that its water requirements are consistent with available local supplies of water.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 22-2 could reduce Impact 22-2 to less than significant, yet the ability to implement Mitigation Measures 22-2, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 22-2 is **potentially significant and unavoidable.**

22.3.3 Impact 22-3 - Wastewater Capacity

Compliance with the Proposed Regulations by public water systems may result in a determination by the wastewater treatment provider that serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments. As described in section 3.2.2.2, above, the operation of the BAT may result in waste streams that are not suitable for disposal in the local sanitary sewer and would require additional treatment before discharge would be allowed. For example, the Soquel Creek Water District, in the Mitigated Negative Declaration prepared in 2015 for its Chromium 6 Treatment project, identified that if it were to dispose to the sewer, it would first have to treat to remove the hexavalent chromium, and then the liquid waste could potentially be disposed to the sewer, in quantities and concentrations consistent with its sewer connection permit (SCWD 2015).

In addition to having to treat, public water systems will need to ensure that the local wastewater treatment facility has capacity. For example, waste brine is produced from IX treatment, and this can either be disposed of into the local sanitary sewer or hauled off site for disposal. The amount of brine that would need to be discharged would depend on the individual project. Of existing, permitted IX treatment for hexavalent chromium, there is considerable variation in the quantity and frequency of brine disposal by public water systems. For example, Coachella Valley Water District, Cove Community disposes of brine five times per week, at 5,000 gallons per load (Mayes 2022b). Indio Water Authority disposes up to 4,400 gallons of brine every ninety days (SWRCB 2015; Khurana 2022). Cal Water Las Lomas and Cal Water Oak Hills each dispose of 55 gallons of waste brine annually (Tejada 2022b).

Unlike IX treatment, RCF treatment does not require regeneration of the media (or resin) as the removal process is physical straining and not adsorption. Filter media is typically cleaned by backwashing. Depending on the concentration of chromium in backwash, it may be disposed of in a sanitary sewer or may require disposal in a hazardous waste facility; chromium may be removed from the backwash through dewatering, allowing the water to be reused. Currently, only one California public water system uses RCF to treat chromium. California Water Service's system in Las Lomas uses RCF treatment to remove chromium

from one of its wells; it reports that backwash is discharged into the sanitary sewer (Tejada 2022b).

22.3.3.1 Mitigation Measure 22-3

- Only discharge to local sanitary sewer system with permission.
- Test waste stream to ensure that the levels of constituents, particularly hexavalent chromium, and salts, do not exceed requirements set by the wastewater treatment provider.
- If discharge to sanitary sewer system is not feasible, do not discharge to land without permit from the Regional Water Quality Control Board.
- If wastewater cannot be discharged to land or into sanitary sewer system, dispose of it at appropriate landfill.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 22-3 could reduce Impact 22-3 to less than significant, yet the ability to implement Mitigation Measures 22-3, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 22-3 is **potentially significant and unavoidable.**

22.3.4 Impact 22-4 - Solid Waste

The implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations may generate solid waste more than State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.

The implementation of BAT is the only reasonably foreseeable means of compliance that would generate solid waste. The amount of waste generated would, in part, depend upon the design of the system. As explained in section 2.6.1.3, most of the BAT would generate solid and liquid waste that would need to be disposed of. (See Chapter 12 regarding disposal of hazardous wastes).

For treatment with POU devices, the membrane and carbon filters would require replacement and disposal in a landfill. The filters would require replacement about every six months to a year; the membrane would require replacement after about three years; the whole device would require replacement after about ten years.

For IX treatment, the process of regenerating resin with a strong saturated brine solution that displaces the chromium with negative charged ions (chloride) results in waste brine, which is delivered to an on-site brine waste tank and either disposed of into the local sanitary sewer or hauled off site for disposal. The waste brine can be further treated to precipitate out the hexavalent chromium from the waste brine. The precipitant (iron sludge) goes through a filter

press and the solids are hauled away for disposal at a landfill or hazardous waste disposal facility. A public water system would need to have the waste tested to determine proper disposal. For example, the Coachella Valley Water District estimated that for hexavalent-chromium treatment the resins would be disposed of every two years and would be classified as non-RCRA hazardous waste and LLRW (CVWD 2016, p. 4-9-19).

The City of Glendale performed a demonstration-scale test of RCF to remove hexavalent chromium between 2010 and 2012, which resulted in the generation of approximately 7,700 pounds of solid residuals over seven months of operation (Blute 2013, pp. 32-34). The solid residuals were temporarily stored on site before disposal at CleanHarbors' hazardous waste disposal facility in Buttonwillow because even though the solid residuals tested below the threshold chromium concentration for classification as RCRA hazardous waste, they tested above the threshold for classification as a non-RCRA hazardous waste (Blute 2013, pp. 29-32; see also discussion in 12.4.1.2, above regarding impacts related to hazardous waste).

22.3.4.1 Mitigation Measure 22-4

- Test solid waste and dispose of all solid waste properly, depending on whether waste meets RCRA and non-RCRA hazardous waste levels; or is considered LLRW.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be evaluated in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 22-4 could reduce Impact 22-4 to less than significant, yet the ability to implement Mitigation Measures 22-4, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 22-4 is **potentially significant and unavoidable.**

22.3.5 Impact 22-5 - Solid Waste Reduction Measures

The implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulations would not likely interfere with federal, state, and local management and reduction statutes and regulations related to solid waste.

Although the implementation of BAT would generate waste, the requirements for solid waste management and reduction do not apply to the type of entities or wastes that would be at issue. Most programs for waste reduction apply either to state agencies or facilities, and there are only a few state-run public water systems. Most public water systems are operated by private entities or local jurisdictions, such as cities or districts. Similarly, waste reduction requirements for local jurisdictions apply to organic waste, and not to the type of waste that would be generated by the implementation of BAT.

There would therefore be **no impact** to solid waste reduction measures from the implementation of the Proposed Regulations.

22.3.6 Cumulative Impacts

Implementation by public water systems of reasonably foreseeable means of compliance with the proposed regulation may contribute to cumulative impacts to utilities from other projects occurring in the state. In particular, and as discussed in section 3.5, other drinking water projects that are like the reasonably foreseeable means of compliance have occurred and are likely to occur in the future. For instance, public water systems will continue to install treatment and obtain new sources of water supply to address other drinking water contaminants regulated by the State Water Board and, in many cases, financed by the State Water Board's financial assistance programs. Likewise, public water systems will continue to consolidate with assistance from the State Water Board's SAFER program. These infrastructure projects have the potential to adversely affect utilities, including impacts to water supply and wastewater capacity. Due to the number of public water systems (currently around 7,000) and their distribution throughout the state, the cumulative impact on utilities from the proposed regulation may be considerable in the context of these other projects. In addition, projects that are unrelated to the State Water Board's drinking water programs may impact utilities in the vicinity of site-specific projects to comply with the proposed regulation. Depending on the location, the cumulative impact on utilities may be significant.

The Proposed Regulations' contribution to this significant impact could be cumulatively considerable due to the development of new drinking water infrastructure that could affect utilities. Implementation of the project-level mitigation measures recommended in this chapter could effectively reduce the incremental contribution from the proposed regulation to a less-than-considerable level, but authority to require that mitigation will rest with agencies that will be authorizing site-specific projects, and not with the State Water Board at this time. Consequently, it is uncertain whether mitigation measures would be implemented, which precludes assurance that significant impacts would be avoided. Therefore, the State Water Board takes the conservative approach and discloses, for purposes of CEQA compliance, that the Proposed Regulations could result in a considerable contribution to a potentially significant cumulative impact on utilities.

CHAPTER 23 - WILDFIRE

This chapter describes existing wildfire risks in California and analyzes potential impacts that may occur from the Proposed Regulations.

23.1 ENVIRONMENTAL SETTING

The number and intensity of wildfires in California have increased over the past several decades. Since 2000, the annual average acres burned has been double the annual average during the 1960s. In addition, with the ever-increasing number of people and structures exposed to wildland fire risks, California has seen its largest and most destructive fires in the last few years. Eighteen of the 20 largest wildfires in California history have occurred since 2000; 14 occurred since 2010 (CAL FIRE 2022c).

Although wildfire has historically been a key component in ecosystem dynamics, several factors have disrupted the natural fire regime in many of California's ecosystems. In many cases, the type of wildland fire and the pattern of its occurrence—when compared to historical conditions—are adversely affecting ecosystem composition, structure, and function. Factors such as fire suppression, land use, exotic invasive species, and climate change all place stresses on the way fire interacts with ecosystem health, function (such as biodiversity), and sustainability.

Warming and drying resulting from human-caused climate change are estimated to have approximately doubled the total area burned by forest fire in the western United States between 1984 and 2015, compared to the total area expected to have burned without climate change (Abatzoglou 2016). Frequent wildfires reduce the recovery of shrubs and trees—especially shrubs and trees that must produce seeds to regenerate after fire—and increase invasion by nonnative grasses. Nonnative grasses are generally more flammable than the chaparral and sage scrub vegetation they replace; thus, such conversion exacerbates wildfire hazards (UC DANR 2009).

Based on current monitoring data, nine wells with hexavalent chromium levels above the proposed MCL are in areas at risk for wildfire (Elliott 2022). One well is in a Local Resources Area Very High Fire Hazard Zone; that well is in Riverside County. Eight wells are in State Resources Area (SRA) Very High Fire Hazard Zones; those wells are in Los Angeles, Mariposa, Monterey, San Bernardino, Santa Barbara, Tehama, and Ventura Counties.

23.2 REGULATORY SETTING

23.2.1 State

23.2.1.1 CAL FIRE

CAL FIRE is dedicated to the fire protection and stewardship of more than 31 million acres of California's wildlands. The Office of the State Fire Marshal supports CAL FIRE's mission to protect life and property through fire prevention engineering programs, law and code enforcement, and education. The State Fire Marshal enforces fire-related laws in state-owned or operated buildings; investigates arson fires in California; licenses entities that inspect and service fire protection systems; approves fireworks as safe and sane for use in California; regulates the use of chemical flame retardants; evaluates building materials against fire safety

standards; regulates hazardous liquid pipelines; and tracks incident statistics for state and local government emergency response agencies.

CAL FIRE identifies Fire Hazard Severity Zones throughout California for both State Responsibility Areas (SRAs) and Local Responsibility Areas (LRAs). SRAs are the areas of the state where the State of California is financially responsible for preventing and suppressing wildfires. SRAs do not include lands within city boundaries or in federal ownership. LRAs include lands on which neither the state nor the federal government has any legal responsibility for providing fire protection.

The State Board of Forestry and Fire Protection (SBFFP) is a government-appointed body within CAL FIRE. The SBFFP is responsible for developing the state's general forest policy, determining CAL FIRE's guidance policies, and representing the state's interest in federal forestland in California. Together, the SBFFP and CAL FIRE work to carry out the California Legislature's mandate to protect and enhance the state's unique forest and wildland resources. The SBFFP is charged with protecting all wildland forest resources in California that are not under federal jurisdiction. These resources include major commercial and noncommercial stands of timber, areas reserved for parks and recreation, woodlands, brush-range watersheds, and private and state lands that contribute to California's forest resource wealth.

Government Code sections 51175 through 51189 direct CAL FIRE to identify areas of very high fire hazard within LRAs. Mapping of Very High Fire Hazard Severity Zones is based on data and models of potential fuels over a 30- to 50-year time horizon and their expected fire behavior and burn probabilities to quantify the likelihood and nature of vegetation fire exposure (including firebrands) to buildings.

23.2.1.2 Strategic Fire Plan for California

The SBFFP has adopted strategic fire plans for California since the 1930s and updates the plans periodically to reflect the current and anticipated needs of California's wildlands. The Strategic Fire Plan is the state's road map for reducing wildfire risks through planning and prevention to reduce firefighting costs and property losses, increase firefighter safety, and contribute to ecosystem health. The Strategic Fire Plan is adopted to better respond to the changes of the environmental, social, and economic landscape of California's wildlands, and to provide CAL FIRE with appropriate guidance for adequate statewide fire protection of state responsibility areas.

CAL FIRE implements and enforces the SBFFP's policies and regulations. The Strategic Fire Plan (CAL FIRE 2018) provides direction and guidance to CAL FIRE and its 21 field units. The 2018 Plan sets forth several goals focused on fire prevention, natural resource management, and fire suppression efforts, which are summarized here:

- Improve the availability and use of consistent, shared information on hazard and risk assessment.
- Promote the role of local planning processes, including general plans, new development, and existing developments, and recognize individual landowner/homeowner responsibilities.
- Foster a shared vision among communities and the multiple fire protection jurisdictions, including county-based plans and community-based plans such as Community Wildfire Protection Plans.

- Increase awareness and actions to improve fire resistance of man-made assets at risk and fire resilience of wildland environments through natural resource management.
- Integrate implementation of fire and vegetative fuels management practices consistent with the priorities of landowners or managers.
- Determine and seek the needed level of resources for fire prevention, natural resource management, fire suppression, and related services; and
- Implement needed assessments and actions for post-fire protection and recovery.

23.2.1.3 California Office of Emergency Services (Cal OES)

The Cal OES coordinates the overall state government response to major disasters in support of local governments. The agency is responsible for ensuring the state's readiness to respond to and recover from all hazards—natural or man-made emergencies and disasters—and for assisting local governments in their emergency preparedness, response, recovery, and hazard mitigation efforts. The Cal OES Fire and Rescue Division coordinates the statewide response of fire and rescue mutual-aid resources to all types of emergencies, including hazardous materials. The Fire and Rescue Division's Operations Section coordinates the California Fire and Rescue Mutual Aid System. Coordinated response through the Mutual Aid System includes responses to major fires, earthquakes, tsunamis, hazardous materials, and other disasters.

23.2.1.4 California Building Standards Code (CBC)

The CBC identifies building design standards, including those for fire safety. (Cal. Code Regs., tit. 24, part 2.). The code is updated every three years. It is effective statewide, but a local jurisdiction may adopt more restrictive standards based on local conditions under specific amendment rules prescribed by the CBC Commission. Commercial and residential buildings are plan-checked by city and county building officials for compliance with the CBC. Typical fire safety requirements include installing fire sprinklers in all new residential, high-rise, and hazardous materials buildings; establishing fire resistance standards for fire doors, building materials, and particular types of construction; and clearing debris and vegetation within a prescribed distance from occupied structures in wildfire hazard areas.

In late 2005, effective in 2008, the CBC Commission adopted CBC Chapter 7A, which required that new buildings in Very High Fire Hazard Severity Zones use ignition-resistant construction methods and materials. Chapter 7A applies to building materials, systems, and/or assemblies used in the exterior design and construction of new buildings in a Wildland-Urban Interface Fire Area. Chapter 7A establishes the minimum standards for the protection of life and property by increasing the ability of a building in any fire hazard severity zone in SRAs or any Wildland-Urban Interface Fire Area to resist the intrusion of flames or embers projected by a vegetation fire. By doing so, Chapter 7A contributes to a systematic reduction in losses from conflagrations. Very High Fire Hazard Severity Zones are delineated and used to identify properties whose owners must disclose natural hazards when selling their property and must provide a defensible-space clearance of 100 feet.

23.2.1.5 California Fire Code

The California Fire Code incorporates by adoption the International Fire Code of the International Code Council, with California amendments. (Cal. Code Regs., tit. 24, part 9.) The code is updated every three years. It is effective statewide, but a local jurisdiction may adopt more restrictive standards based on local conditions under specific amendment rules

prescribed by the CBC. The California Fire Code regulates building standards in the CBC, fire department access, fire protection systems and devices, fire and explosion hazards safety, storage and use of hazardous materials, and standards for building inspection.

23.2.2 Local

Numerous local jurisdictions (i.e., cities and counties) are located throughout California. Most, if not all, of these jurisdictions have adopted general plans that identify goals and policies related to public safety and hazards, such as exposure to wildfires.

23.3 ENVIRONMENTAL ANALYSIS APPROACH AND METHODS

The following evaluation of wildfire risk was prepared by considering applicable regulations and guidelines, and typical construction activities and operations that would be attributable to compliance with the Proposed Regulations. This analysis takes into consideration the questions and mandatory findings of significance as outlined in section 15065 of the CEQA Guidelines. The following discussion of environmental impacts is limited to those potential impacts that could result in some level of potentially significant environmental change due to implementation or compliance with the Proposed Regulations.

This is a programmatic assessment of potential environmental impacts from site-specific compliance projects undertaken by public water systems in the future. At this time, the specific location, type, and number of future projects undertaken by public water systems is not known and will depend on numerous factors not within the control or authority of the State Water Board. The environmental impact analysis at this programmatic level necessarily entails a degree of generalization. Nonetheless, the analysis presented in this chapter provides a good-faith disclosure of the general types of wildfires impacts that could occur with implementation of the reasonably foreseeable means of compliance with the Proposed Regulations. This analysis considers the questions posed in Appendix G and the mandatory findings of significance in section 15065 of the CEQA Guidelines. It also considers, where available and appropriate, environmental documents prepared by public water systems for site-specific projects like the reasonably foreseeable means of compliance with the Proposed Regulations.

For future site-specific projects by public water systems to comply with the Proposed Regulations would require environmental review consistent with CEQA. The environmental review process under CEQA for future compliance projects by public water systems would include site-specific assessments of wildfire impacts. At that time, project-level wildfire impacts will be analyzed.

23.4 IMPACTS AND MITIGATION

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Proposed Regulations:

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, because of runoff, post-fire slope instability, or drainage changes?

23.4.1 Impact 23-1 - Emergency Response Plans

A project undertaken to comply with the Proposed Regulations by public water systems will not impair an adopted emergency response plan or emergency evacuation plan, regardless of whether a project is in or near state responsibility areas or lands classified as very high fire hazard severity zones. As described in the discussion of transportation impacts, none of the reasonably foreseeable means of compliance would block emergency access to an area in the long-term, and any short-term impacts during construction would be temporary and less than significant. Public water systems constructing compliance projects would maintain access for emergency vehicles during construction. This is supported by existing CEQA documentation for prior proposed projects to address hexavalent chromium contamination, including the CVWD 2016 EIR, which found that the state's largest proposed hexavalent chromium treatment project would have no impact on emergency access (CVWD 2016, 4.17-12.) Therefore, **no impact** to an adopted emergency response plan or emergency evacuation plan is expected.

23.4.2 Impact 23-2 - Wildfire Risks

A project undertaken by a public water system to comply with the Proposed Regulations would not exacerbate wildfire risks due to slope, prevailing winds, and other factors, exposing project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire, regardless of whether it is in or near state responsibility areas or lands classified as very high fire hazard severity zones.

Reasonably foreseeable methods of compliance with the Proposed Regulations will therefore not expose a community to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. **No Impact.**

23.4.3 Impact 23-3 - Installation of Infrastructure

A project undertaken by a public water system to comply with the Proposed Regulations located in or near state responsibility areas or lands classified as very high fire hazard severity zones could require the installation or maintenance of infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.

Public water systems may need to install and maintain infrastructure, such as power lines, pipelines, and water sources, and treatment facilities. There is a potential that the installation of these facilities could exacerbate fire risk or result in temporary or ongoing impacts to the environment. Therefore, it is anticipated that the impact is potentially significant.

23.4.3.1 Mitigation Measure 23-3

The following actions may reduce potentially significant impacts:

a) A project-specific fire prevention plan for construction and operation of the project should be prepared by the project proponent and submitted to relevant state or local agency for review before the start of construction activities.

b) The draft copy of the fire prevention plan should be provided to each fire agency (e.g., CAL FIRE and county or local municipal fire agencies) before the start of any construction activities.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 23-3 could reduce Impact 23-3 to less than significance, yet the ability to implement Mitigation Measures 23-3, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 23-3 is **potentially significant and unavoidable**.

23.4.4 Impact 23-4 - Runoff, Post-Fire Slope Instability, Drainage

A project undertaken by a public water system to comply with the Proposed Regulations located in or near state responsibility areas or lands classified as very high fire hazard severity zones has the potential to expose people or structures to significant risks, including downslope or downstream flooding or landslides, because of runoff, post-fire slope instability, or drainage changes. As described in previous chapters, while installation of treatment is expected to result in modest expansion of facility footprints, installation of treatment and other reasonably foreseeable alternative methods of compliance, such as pipelines, may entail ground disturbance, creation of impervious surfaces, soil compaction, and conversion of forest land, which may cause changes in runoff, post-fire instability, and drainage. Therefore, the impact is considered potentially significant.

23.4.4.1 Mitigation Measure 23-4

The following actions may reduce potentially significant impacts:

a) Prohibit construction activities during the rainy season with requirements for seasonal weatherization and implementation of erosion prevention practices.

b) Prepare a site design and development plan that avoids or minimizes ground disturbance and prevents stormwater discharge.

Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. Mitigation Measures 23-4 could reduce Impact 23-4 to less than significance, yet the ability to implement Mitigation Measures 23-4, or equally effective and feasible measures, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not

the State Water Board currently. Consequently, there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects. This EIR therefore takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that Impact 23.4 is **potentially significant and unavoidable**.

23.4.5 Cumulative Impacts

Implementation by public water systems of reasonably foreseeable means of compliance with the Proposed Regulation may contribute to cumulative impacts on wildfire risks from other projects occurring in the state. In particular, and as discussed in section 3.5, other drinking water projects that are like the reasonably foreseeable means of compliance have occurred and are likely to occur in the future. For instance, public water systems will continue to install treatment and obtain new sources of water supply to address other drinking water contaminants regulated by the State Water Board and, in many cases, financed by the State Water Board's financial assistance programs. Likewise, public water systems will continue to consolidate with assistance from the State Water Board's SAFER program. Due to the number of public water systems (currently around 7,000) and their distribution throughout the state, the cumulative impact on wildfire risks from the Proposed Regulation may be considerable in the context of these other projects. In addition, projects that are unrelated to the State Water Board's drinking water programs may impact wildfire risks in the vicinity of site-specific projects to comply with the Proposed Regulations.

The Proposed Regulations' contribution to this significant impact could be cumulatively considerable due to the development of new drinking water infrastructure that impacts wildfire risks during construction and operation. Implementation of the project-level mitigation measures recommended in this chapter may reduce the incremental contribution from compliance with the Proposed Regulations to a less-than-considerable level, but authority to require that mitigation will rest with agencies that will be authorizing site-specific projects, and not with the State Water Board at this time. Consequently, it is uncertain whether mitigation measures would be implemented, which precludes assurance that significant impacts would be avoided. Therefore, the State Water Board takes the conservative approach and discloses, for purposes of CEQA compliance, that the Proposed Regulations could result in a considerable contribution to a potentially significant impact on wildfire risks.

CHAPTER 24 - MANDATORY FINDINGS OF SIGNIFICANCE

24.1 ENVIRONMENTAL SETTING

As noted previously, the environmental setting of the Proposed Regulations is the entire state. All public water systems within the state would be required to comply with the Proposed Regulations. Where drinking water sources exceed the proposed MCL of 10 µg/L, public water systems will need to implement local, site-specific projects to comply. The reasonably foreseeable means of compliance include treatment using ion exchange, RCF, and reverse osmosis. Alternative means of compliance include: (1) blending contaminated water with other existing uncontaminated sources; (2) drilling a new groundwater well; (3) increasing reliance on surface water; (4) purchasing water from or consolidating with another water system; and (5) using stannous chloride treatment. It is not possible to know at this time what compliance projects public water systems will undertake in the future or where exactly they will be located.

24.2 - FINDINGS OF SIGNIFICANCE

Do the Proposed Regulations:

1) Have the potential to substantially 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?
2) 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)
3) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

24.2.1 Impact 24-1 Potential to substantially degrade environment

Although it is unlikely that the individual projects undertaken to comply with the Proposed Regulations would substantially degrade the quality of the environment, including substantially impacting fish, wildlife, or plant species, or eliminating important cultural sites, this EIR has taken a conservative approach and has recognized the potential for significant impacts to occur. Because future compliance projects are unknown at this time, the State Water Board cannot predict what exactly those projects' impacts will be or the precise mitigation measures that will be required to reduce potential impacts to less than significant. Project-level impacts and mitigation measures will be addressed in future site-specific environmental analyses conducted by CEQA lead agencies approving those projects. The ability to require implementation of mitigation measures, however, is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, because there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects, this EIR therefore takes a conservative approach in

its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that the potential to substantially degrade the environment is **potentially significant and unavoidable**.

24.2.2 Impact 24-2 Cumulatively considerable impacts

Cumulative impacts and mitigation measures are discussed in chapter 3.5 and in individual resource chapters. A summary of the resource categories that could experience significant and unavoidable cumulative impacts is set out in section 25.1. **Potentially significant cumulative impacts** were identified for all resource chapters but recreation and public services.

24.2.3 Impact 24-3 Adverse effects on human beings

The Proposed Regulations will have a beneficial impact on human beings. Reducing hexavalent chromium in drinking water provided by public water systems will protect the health of Californians and is expected to result in approximately 892 less cancer cases over 70 years statewide (SWRCB 2023a, sec. 5.2.5.) Nonetheless, compliance projects implemented by public water systems have the potential to result in environmental effects that cause substantial adverse effects on human beings, either directly or indirectly. Although mitigation can be applied to reduce and/or eliminate these impacts, the ability to require implementation of mitigation measures is within the purview of the CEQA lead agencies and responsible agencies approving or permitting future compliance projects, not the State Water Board currently. Consequently, because there is inherent uncertainty in the degree of mitigation that may ultimately be implemented to reduce potentially significant impacts from future compliance projects, this EIR takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that the **potential to have environmental effects which will cause substantial adverse effects on human beings, directly or indirectly**.

CHAPTER 25 - OTHER CEQA CONSIDERATIONS

25.1 SUMMARY OF CUMULATIVE IMPACTS

Cumulative impacts and mitigation measures are discussed in chapter 3.5 and in individual resource chapters. As discussed above, cumulative impacts to the following resources may be significant and unavoidable:

- Aesthetics
- Agricultural and Forest Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

The following resource chapters did not find cumulative impacts:

- Public Services
- Recreation

25.2 GROWTH-INDUCING IMPACTS

The Proposed Regulations will not directly foster economic or population growth. The Proposed Regulations could indirectly lead to new economic or population growth because of projects undertaken by public water systems to comply with the Proposed Regulations.

There are not existing constraints on growth due to hexavalent chromium contamination in drinking water supplies. Public water systems that currently serve drinking water with hexavalent chromium levels above the proposed MCL are not prohibited from adding new service connections. It is possible that some people currently opt against moving to

communities served by public water systems with high levels of hexavalent chromium, but this is speculative. In many cases, public water systems will choose to treat their existing drinking water sources to meet the proposed MCL. In these cases, it is unlikely that the installation of treatment will lead to new growth because the installation of treatment will not remove an impediment to growth or expand the amount of drinking water available for growth.

In other cases, public water systems may opt to develop a new source of drinking water that is not contaminated with hexavalent chromium, rather than treat an existing contaminated source. For instance, a public water system might decide to a drill a new well in an area with less hexavalent chromium contamination, or to connect to a source of surface water supply. In these cases, it is possible that a public water system may choose to upsize the new well or surface water connection to consider future growth projections or to otherwise enable more service connections in the future. In these cases, the public water system's compliance project could allow for future growth, particularly of new housing, especially in areas where existing supplies (including contaminated supplies) are currently insufficient to meet projected future demand. However, public water systems may develop new sources of drinking water to accommodate future growth regardless of whether the Proposed Regulations are adopted.

In addition, where public water systems choose to consolidate as a means of compliance with the Proposed Regulations, the consolidation project may involve installation of a drinking water pipeline between communities. The presence of this pipeline could potentially facilitate the construction of new homes or businesses in the vicinity of the drinking water pipeline, where previously it would have been uneconomical or infeasible for a particular development to occur in the absence of available drinking water. Whether the presence of new drinking water transmission infrastructure would induce growth is speculative. For instance, water supplies might be inadequate to serve additional growth.

Few, if any, compliance projects are expected to create new employment that would create significant new economic opportunities or population growth. Some particularly large compliance projects, such as those involving numerous contaminated wells and treatment facilities, may require additional staffing to operate. For instance, the CVWD estimated that it would require 41 full-time equivalent employees to operate its proposed hexavalent chromium project (CVWD 2016, 5-1). The CVWD concluded that many of these positions would be filled by existing personnel, and that the growth in employment opportunities would be minor (CVWD 2016 sec. 5-1). Therefore, it is assumed that even where a large and technically complex compliance project is undertaken by a public water system, the additional employment opportunities would be minor, and any growth-inducing impacts would likewise be insignificant.

25.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

There are unlikely to be significant irreversible environmental changes from implementation of the Proposed Regulations. Installation of drinking water treatment systems at existing groundwater wells and associated environmental impacts are not irreversible since public water systems can later decide to remove those treatment systems if they wish (while meeting the requirements of the Proposed Regulations through other means). Alternative means of compliance are similarly reversible, such as a new groundwater well that could later be decommissioned. One possible exception are consolidations between public water systems involving installation of pipelines, which are unlikely to be abandoned in the future and may

commit future users to distribution of drinking water by the newly enlarged public water system.

25.4 SIGNIFICANT UNAVOIDABLE IMPACTS

This EIR takes a conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that compliance with the Proposed Regulations may result in significant unavoidable impacts, as listed in Table ES1-1 in the Summary and discussed in detail in Chapters 4-24.

Adoption of the Proposed Regulations would require findings and a statement of overriding considerations, explaining that specific economic, legal, social, technological, or other benefits of the Proposed Regulations outweigh the unavoidable adverse environmental effects. As discussed in Chapter 2, the objectives of the Proposed Regulations include avoiding significant risks to public health from drinking water supplied by public water systems in California; reducing cancer and non-cancer public health risks from human consumption of drinking water contaminated with hexavalent chromium; and complying with the statutory mandate to adopt a primary drinking water standard for hexavalent chromium, as required by Health and Safety Code section 116365.5.

CHAPTER 26 - ALTERNATIVES ANALYSIS

26.1 SELECTION OF ALTERNATIVES

An EIR must describe a range of reasonable alternatives to the project that could feasibly attain its objectives while avoiding or substantially reducing any of its significant environmental effects and evaluate the comparative merits of the alternatives. (Cal. Code Regs., tit. 14, § 15126.6, subd. (a).) To identify a reasonable range of project alternatives, the State Water Board assessed potential alternatives and considered whether they: (1) can substantially reduce significant environmental impacts; (2) can attain most of the basic project objectives; (3) are potentially feasible; and (4) are reasonable and realistic.

As discussed in Chapter 2, the objectives of the Proposed Regulations include:

- Avoiding significant risks to public health from drinking water supplied by public water systems in California.
- Reducing cancer and non-cancer public health risks from human consumption of drinking water contaminated with hexavalent chromium.
- Complying with the statutory mandate to adopt a primary drinking water standard for hexavalent chromium, as required by Health and Safety Code section 116365.5.

26.2 ALTERNATIVES CONSIDERED

26.2.1 Alternative #1: No Project Alternative

An environmental impact report must include a “no project” alternative describing the existing conditions at the time the notice of preparation is published and what would be reasonably expected to occur in the foreseeable future if the proposed project were not approved. (Cal. Code Regs., tit. 14, § 15126.6, subd. (e).) In this EIR, the no project alternative is the continuation of the State Water Board’s drinking water regulatory program without a primary drinking water standard for hexavalent chromium.

Under this alternative, public water systems would not need to install treatment for hexavalent chromium or implement alternative means of compliance. Public water systems with hexavalent chromium contamination above the proposed MCL would continue to serve that water to their customers, continuing the present risk to public health from hexavalent chromium in California drinking water supplies. Public water systems would not have to construct treatment plants, new wells, surface water infrastructure, or consolidation pipelines to supply the public with drinking water free of unsafe levels of hexavalent chromium. The environmental impacts of projects specifically intended for compliance with the proposed regulation would not occur.

Similar projects are likely to proceed to address other contaminants, however. Under the no project alternative, public water systems subject to the California Safe Drinking Water Act would need to continue meeting existing primary drinking water standards. These include the primary drinking water standard for total chromium, which has a maximum contaminant level of 0.05 mg/L. (Cal. Code Regs., tit. 22, § 64431, Table 64431-A.) They also include primary drinking water standards for other inorganic and organic chemicals. Further, it is reasonably likely that they will include future standards for previously unregulated contaminants, such as n-nitroso

dimethylamine (NDMA), and newly emerging contaminants, such as per- and poly-fluoroalkyl substances (PFOA and PFOS).[18]

In most cases, the means of compliance with these other existing and future standards will be like the means of compliance with the proposed hexavalent chromium MCL: installation of treatment or addition of an uncontaminated water source. Therefore, many of the environmental impacts that would result from the Proposed Regulations are likely to occur even if the no project alternative is selected. Environmental impacts resulting from removal and disposal of hexavalent chromium would also occur to the extent that water systems treating for other contaminants also remove hexavalent chromium.

The no project alternative is ultimately infeasible, however, because the California Safe Drinking Water Act requires the State Water Board to adopt a primary drinking water standard for hexavalent chromium. (Health & Saf. Code, § 116365.5.) Therefore, declining to adopt a primary drinking water standard for hexavalent chromium is not a feasible alternative.

26.2.2 Alternative #2: Addition of Stannous Chloride Reduction Treatment to List Of Best Available Technologies

The Proposed Regulations identify ion exchange, reduction-coagulation-filtration (RCF), and reverse osmosis as the best available technologies for removing hexavalent chromium from drinking water. Under Alternative #2, stannous chloride reduction treatment would be added as a best available technology.

Stannous chloride, like RCF, reduces chromium from its hexavalent to trivalent form; but unlike RCF, stannous chloride treatment does not remove chromium; instead, the chromium remains in the distribution system (Dummer 2021, p.8). Unlike the best available technologies identified in the Proposed Regulations, stannous chloride would not require disposal of potentially hazardous spent resins, filters, brine, or sludge.

Alternative #2 would meet the objectives of the Proposed Regulations. Its adoption would allow the State Water Board to comply with the statutory mandate to adopt a primary drinking water standard for hexavalent chromium. To the extent that stannous chloride reduction proves to be an effective and useful treatment technology, it will reduce cancer and non-cancer public health risks from human consumption of drinking water contaminated with hexavalent chromium, and it will avoid significant risks to public health from drinking water supplied by public water systems in California. To the extent that stannous chloride reduction is shown to be ineffective or poses a risk to public health, its use will not be permitted by the State Water Board's Division of Drinking Water.

Water systems subject to the Proposed Regulations are not required to use best available technologies to treat for hexavalent chromium. Thus, water systems may use stannous chloride reduction treatment regardless of whether the State Water Board adopts the Proposed Regulations or Alternative #2. In either case, a water system would need a permit from the State Water Board to use stannous chloride reduction. Designation of a treatment as a best available technology is not a substitute for individualized permitting decisions. Nevertheless, the designation could cause more water systems to consider the treatment technology. This is especially true in the case of stannous chloride reduction, which may be less costly than the best available treatment technologies identified in the Proposed Regulations. Therefore, under

[18] SWRCB Res. No. 2022-0007

Table Alternative #2, it is plausible that more water systems would decide to treat with stannous chloride reduction if they can demonstrate its effectiveness and safety for their system.

If water systems that would have installed ion exchange or reverse osmosis instead install—and receive permits to operate—hexavalent chromium treatment facilities using stannous chloride reduction, there may be less hazardous waste produced because of treatment as discussed in Chapter 12. This may reduce the environmental impact of the Proposed Regulations because there would be less need for the handling, transportation, and disposal of hazardous waste.

Because there are some concerns with safety and efficacy with the use of stannous chloride reduction treatment, it cannot be identified as a best available technology under the California Safe Drinking Water Act.[19] (Health & Saf. Code, § 116370.) Nevertheless, public water systems may be able to treat with stannous chloride if they can demonstrate its effectiveness for their specific system. Although the State Water Board determined that stannous chloride reduction treatment was not a best available technology for addressing hexavalent chromium contamination, there may be specific conditions under which it is a viable treatment technology for some systems (SWRCB 2021b). With additional data showing its effectiveness and no adverse health consequences, it is possible that stannous chloride may be permitted for some systems even if the State Water Board does not identify stannous chloride reduction treatment as a best available technology.

26.2.3 Alternative #3: alternative MCL Values of 1-9 and 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 25, 30, 35, 40, and 45 micrograms per liter

Under this alternative, the State Water Board would adopt a different MCL value than the proposed value of 10 ug/L. The State Water Board described twenty alternative MCL values in its Initial Statement of Reasons or ISOR.[20] These alternative MCL values included 1-9 ug/L, 11-15 ug/L, 20, 25, 30, 35, 40, and 45 ug/L. For purposes of this EIR, the State Water Board considers each of these alternative MCL values as an alternative to the proposed MCL of 10 ug/L.

At each alternative MCL value, a different number of drinking water sources in the state would require treatment or an alternative means of compliance. Fewer sources would exceed a higher, less health protective MCL. Table 26.1 shows the estimated number of contaminated sources at each alternative MCL value, based on existing data.

TABLE 26-1 CONTAMINATED SOURCES UNDER ALTERNATIVE MCLS

MCL value	Number of contaminated sources	Difference from proposed project (10 ug/L)
1	4,182	3,681 more sources
2	3,027	2,526 more sources

[19] See Section 2.6.3.5 of this EIR.

[20] The Administrative Procedure Act requires the State Water Board to describe reasonable alternatives to a Proposed Regulation. (Gov. Code, § 11346.2, subd. (b)(4)(A).)

3	2,313	1,812 more sources
4	1,781	1,280 more sources
5	1,358	857 more sources
6	1,094	593 more sources
7	896	395 more sources
8	745	244 more sources
9	611	110 more sources
10 (proposed project)	501	0
11	440	61 fewer sources
12	385	116 fewer sources
13	330	171 fewer sources
14	292	209 fewer sources
15	258	243 fewer sources
20	125	376 fewer sources
25	66	435 fewer sources
30	42	459 fewer sources
35	29	472 fewer sources
40	19	482 fewer sources
45	11	490 fewer sources

As Table 26.1 shows, at higher alternative MCL values, fewer public water systems would have to install treatment or implement alternative means of compliance. Accordingly, a higher MCL value would likely have less environmental impact due to compliance projects by affected public water systems than the proposed MCL value of 10 ug/L.

As the number of contaminated sources differs at each alternative MCL value, geographical differences emerge, too. Table 26.2 shows the number of counties with contaminated sources at each alternative MCL value.

TABLE 26-2 NUMBERS OF COUNTIES WITH CONTAMINATED SOURCES UNDER ALTERNATIVE MCLS

Alternative MCL values in micrograms per liter	Number of counties with sources above the MCL
1	53
2	50
3	49
4	48
5	45
6	44
7	41
8	39
9	37
10 (proposed project)	34
11	33
12	33
13	33
14	28
15	27
20	22
25	19
30	16
35	12
40	9
45	6

As Table 26.2 shows, at higher alternative MCL values, public water systems required to treat for hexavalent chromium would become less geographically widespread. Accordingly, a higher

alternative MCL value would likely have less environmental impact than the proposed MCL value of 10 ug/L. To better convey these geographical differences, Appendix E contains maps that show the geographic distribution of contaminated sources at each alternative MCL value.

26.3 DISCUSSION AND COMPARISON OF ALTERNATIVES

Under each alternative MCL value, a different number of drinking water sources would require installation of treatment, or another means of compliance. Table 26.1 above shows the difference between the number of contaminated sources under each alternative MCL and the number of contaminated sources under the proposed MCL of 10 ug/L, for purposes of comparison. 3,681 more sources would require installation of treatment, or another means of compliance under the alternative MCL value of 1 ug/L. At the other extreme, 490 fewer sources would require installation of treatment, or another means of compliance under the alternative MCL value of 45 ug/L.

At higher alternative MCL values, there would be fewer public water system drinking water sources with hexavalent chromium above the MCL – as many as 490 fewer sources in the case of the alternative MCL of 45 ug/L. Fewer sources requiring installation of treatment, or an alternative means of compliance, would result in fewer environmental impacts. Likewise, at higher alternative MCL values, fewer regions in the state – as delineated by county boundaries – would be impacted by the MCL, as shown previously in Table 26.2. Compared to the proposed MCL of 10 ug/L, an alternative MCL of 45 ug/L would mean 28 fewer counties throughout the state with public water system drinking water supplies contaminated with hexavalent chromium above the alternative MCL (34 counties in the case of 10 ug/L and 6 counties in the case of 45 ug/L). Therefore, there would be environmental impacts from installation of treatment or alternative means of compliance in 28 fewer counties than there would be under the proposed MCL.

Fewer sources requiring installation of treatment, or another means of compliance would result in fewer environmental impacts because there would be less construction and operation of treatment plants, fewer new groundwater wells drilled, and – to the extent systems find it feasible to obtain surface water – fewer surface water intakes (which may impact aquatic and wetland species) and other infrastructure constructed. Therefore, under alternative MCL values higher than the proposed MCL of 10 ug/L, each potentially significant environmental impact discussed in this EIR may be less than the impacts under the proposed MCL of 10 ug/L.

Under these higher alternative MCL values, there would also likely be fewer consolidations of public water systems because fewer systems would look to consolidation as a solution to hexavalent chromium contamination. In the short term, this would result in fewer environmental impacts associated with construction of consolidation-related infrastructure, such as transmission pipelines, interties, and new or improved distribution infrastructure.

In addition to the number and location of sources, alternative MCL values may affect the operation of treatment plants as compared to their operation at the proposed MCL of 10 ug/L. For instance, at lower MCL values (i.e., more health-protective values), systems that install treatment may need to change filter media more often and dispose of brine backwash more frequently. To the extent that these waste streams are hazardous, a lower MCL alternative would likely cause an increase in the amount of hazardous waste requiring onsite storage and offsite disposal from treatment plants. In addition, treating to a lower MCL value may require more pumping of brine for regeneration (if regenerating ion exchange media onsite), and that additional pumping would require additional energy usage and could contribute to further

greenhouse gas emissions. Therefore, impacts 12.1 and 12.2 (hazardous waste); impact 9.1 (energy); and impact 11.1 (greenhouse gas emissions) may be worsened by adoption of an alternative MCL value below the proposed 10 ug/L.

A conservative assumption is that a higher MCL value (i.e., a less health-protective value) would entail fewer environmental impacts from treatment plants than those plants that would be required for compliance with the proposed MCL of 10 ug/L. As a result, an alternative MCL value higher than the proposed 10 ppb is likely to reduce potentially significant environmental impacts associated with the operation of treatment plants.

For the reasons described above, the alternative MCL values of 11, 12, 13, 14, 15, 20, 25, 30, 35, 40, and 45 ug/L would likely entail fewer significant environmental impacts than the proposed project. However, these alternatives are ultimately being rejected by the State Water Board because they are not legally feasible. The State Water Board is legally required to adopt a primary drinking water standard at a level that is as close as feasible to the corresponding public health goal placing primary emphasis on the protection of public health. (Health & Saf. Code, § 116365). If the State Water Board finds that the proposed MCL of 10 ug/L is technologically and economically feasible, then any alternative MCL value higher than 10 ug/L would not be “as close as feasible” to the public health goal of .02 ug/L. Therefore, if the State Water Board finds that the proposed MCL of 10 ug/L is technologically and economically feasible, then the alternative MCL values of 11, 12, 13, 14, 15, 20, 25, 30, 35, 40, and 45 ug/L are legally infeasible.

26.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Because the State Water Board cannot identify project-specific impacts or impose mitigation measures at this time, an alternative MCL of 45 ug/L is the environmentally superior alternative because it would require the fewest compliance projects by public water systems with drinking water contaminated with hexavalent chromium. This alternative would allow more drinking water to remain contaminated with hexavalent chromium than the proposed MCL of 10 ug/L. However, as noted above, it is not legally feasible because it does not set the MCL as close to the PHG as is technologically and economically feasible.

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