6 Environmental Impacts Analysis

6.1 Approach and Methods to this Assessment

The State Water Board has prepared this substitute environmental document to assess the potential environmental effects of adopting and implementing the proposed Policy for regulating wastewater discharges from onsite wastewater treatment systems. In general, the Policy will operate to protect the environment by ensuring that discharges from onsite wastewater treatment systems occur in a manner that does not pollute groundwater or surface water. However, there are potential environmental impacts associated with aspects of the proposed Policy.

The potential environmental impacts were identified and then reviewed for applicability and significance. Applicability was determined by assessing whether the impact would likely occur in each tier based on activities taken to comply with the proposed Policy. A description of each tier in the proposed Policy is provided in section 3.3.

Environmental impacts are the same for multiple tiers in several cases, while others are unique to a tier. If it was determined that activity within a tier would cause the identified impact, the significance of the impact was then assessed. This is particularly true in the case of Tier 2 where counties may deviate from Tier 1 in the proposed Policy and in the case when regional water boards may adopt or retain more protective requirements in their basin plans than the requirements of the proposed Policy. Where, due to variation in the Tier 2 program at the local level or due to variation from the difference between the proposed Policy and the incorporation of the proposed Policy with additional more protective standards in the regional water board basin plans, impacts are identified, those impacts are discussed and assessed with proposed mitigation, where necessary.

In this case, environmental impacts as a result from complying with the proposed Policy are no different from impacts that are reasonably foreseen as a result of the project itself. The proposed Policy allows OWTS to be operated and, in some cases (e.g. failing OWTS), will require that OWTS be repaired, constructed and replaced in a particular manner. The resulting discharges allowed by the proposed Policy, the resulting construction activities, and other environmental impacts are associated with complying with the proposed Policy.

In order to more accurately describe what the means of compliance are as a result of the proposed Policy, we have included a short description here as well as a more detailed description with expected costs in section 8 of the SED.

<u>Implementation by local and state agencies</u>: Local agencies and the state water boards and regional water boards are required to perform specific tasks for implementing of this proposed project. The State Water Board is the agency that adopts and maintains the proposed Policy, approves basin plans incorporating the proposed Policy, and resolves disputes between the regional boards, the local agencies, and the public. The regional boards are required by the proposed Policy to incorporate the proposed Policy into their basin plans, negotiate an agreement for implementation with the local agencies desiring to implement Tier 2, and oversee implementation of large OWTS, OWT that are subject to specific requirements in areas with impaired waters, any other OWTS that are outside

of a local agency management program. It is presumed that local agencies will continue to implement the basin plans through enforcement of their own ordinances. In addition, most local agencies will apply for authorization of a Tier 2 program, thus allowing the installation of OWTS that lie outside the requirements of Tier 1. As part of all local agency programs, local agencies will have to report to the regional water quality control boards. For the purposes of this analysis, while it takes staff time to perform these functions, the staff time associated with the duties required by the proposed Policy on the state and local agencies is expected to very small in the overall implementation scheme and as is not considered to result in an impact that would require any environmental impact analysis.

The means of compliance on the public require an environmental impact analysis, as some may result and clearly will result in impact to the environment, as discussed below. The public will be installing and operating an OWTS in compliance with the requirements of the proposed Policy. Depending of which tier, impacts are assessed accordingly. While many people may have a conceptual idea of what a standard septic tank and leachfield look like, the proposed Policy allows other designs for use in California. Depending upon which tier, the proposed Policy allows the following:

Tier 0: The proposed Policy allows all existing OWTS that are not failing or are not polluting waters of the state to continue operating. Existing OWTS can be anything from a standard OWTS to a supplemental treatment system. Examples of such OWTS are described in Tiers 1 and Tier 2.

Tier 1: Tier 1 consists of a conventional OWTS. Such OWTS are discussed in section 4.5.1 of this SED and shown in Figure 5.

Tier 2: Tier 2 allows a much wider range of OWTS. In terms of dispersal systems, Tier 2 can allow anything from a conventional leachfield system to any design described in section 4.5.4. In terms of OWTS treatment components, Tier 2 can allow anything from a standard septic tank to any supplemental treatment system fitting into the distinct types of treatment system categories listed in section 4.5.6.

Tier 3: Tier 3 requires OWTS to provide nitrogen treatment and disinfection. The systems are described in section 4.5.6.

Tier 4: Tier 4 requires OWTS to be repaired to applicable standards. Those standards are expected to be no different that those described in Tiers 1 and 2.

As part of the overall analysis, the assessment below includes cumulative impacts. According to section 15355 of the State CEQA Guidelines: “cumulative impacts” refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts including situations where:

(a) The individual effects may be changes resulting from a single project or a number of separate projects.

(b) The cumulative impact from several projects results in a change in the environment from the incremental impacts of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

This cumulative impacts analysis evaluates statewide conditions and related projects that could contribute to cumulative impacts along with the implementation of the proposed project. Extra attention is given to those situations where OWTS are contributing to, and the proposed project would contribute to, the most significant cumulative water quality impacts (i.e., in the watersheds of water bodies designated as impaired under Section 303[d] of the Clean Water Act) where OWTS have been determined by local regional water boards to be contributing to impairment (defined for purposes of this SED as "targeted impaired areas").

6.2 Water Quality Impacts

The siting, construction, and operation of OWTS can affect water quality and public health. Each of these mechanisms provides distinct avenues by which OWTS could affect water quality and public health. Improper siting of OWTS may result in ineffective treatment and failure of OWTS. Construction-related water quality impacts come from installing, upgrading, or repairing OWTS. Operation of OWTS causes direct impacts on water quality or public health through discharge of effluent.

Conventional OWTS that comply with Tier 1 are expected to work well for the removal of pathogens, and to a lesser extent some but not all other contaminants, when they are installed in areas with appropriate geology, soils, and hydrologic conditions. As discussed in this section, the amount of slope, soil permeability and texture, soil depths to bedrock, hardpan, or groundwater, amount and frequency of rainfall, and distances from drinking water sources and surface water bodies are major factors when considering septic system placement and design and the system's associated environmental effects. Specific soil conditions, such as soil texture, soil structure, pH, salinity, temperature, oxygen, and moisture, affect the soil microorganisms that are essential for breaking down and decomposing wastewater effluent.

Conventional OWTS and OWTS using supplemental treatment allowed under Tier 2 and within the regional water board basin plans are expected to also work well for the removal of pathogens and some but not all other contaminants when they are installed in areas with appropriate geology, soils, and hydrologic conditions. Similar to Tier 1, the amount of slope, soil permeability and texture, soil depths to bedrock, hardpan, or groundwater, amount and frequency of rainfall, and distances from drinking water sources and surface water bodies are major factors when considering the placement and design of OWTS and for determining a Tier 2 system's environmental effects. Specific soil conditions, such as soil texture, soil structure, pH, salinity, temperature, oxygen, and moisture, affect the soil microorganisms that are essential for breaking down and decomposing wastewater effluent.

Construction of OWTS is regulated by local agencies through the land use and development approval process (described in section 5, and in section 5.3, Land Use and Planning). The proposed Policy does not alter the authority of local agencies to approve construction of OWTS or the processes by which local agencies determine whether to allow development of specific properties and construction of OWTS on those properties.

OWTS construction procedures in accordance with Tier 1, Tier 2 and regional water board basin plans incorporating the proposed Policy, with or without more protective requirements, typically involve excavations for placement of septic tanks, supplemental treatment systems, dispersal systems, and electric lines (power and phone), seepage pits, shallow dispersal trenches, and groundwater monitoring wells. It also may involve soil disturbance for sites prepared for sand and gravel –filled beds. Such earthwork can cause the erosion of soil into nearby streams and receiving waters, especially if standard best management practices (BMPs) for erosion control are not implemented successfully. This impact is evaluated below. In addition, the proposed Policy could affect the number of OWTS installed in areas that have been designated as impaired under Section 303(d) of the Clean Water Act. The potential increase in the number of installations in these areas is addressed as well.

Once operational, different types of OWTS treat the pollutants found in wastewater to varying levels, and then discharge the treated effluent and its remaining contaminants into the soil and then groundwater below the dispersal fields. The most commonly used types of dispersal systems include dispersal trenches, seepage pits, mound systems, gravel-less chambers, and evapotranspiration and infiltration systems. Some pollutants, if not adequately removed, can eventually reach nearby surface waters and may create a public health risk or could adversely affect other beneficial uses.

The primary method used in the water quality and public health impact analysis consists of comparing water quality objectives to projected concentrations expected to result from discharges in compliance with the proposed Policy under the tiers, including Tier 2 where counties deviate from Tier 1 in the proposed Policy and when regional water boards adopt or retain more protective requirements in their basin plans with the requirements of the proposed Policy. Water quality objectives are numerical or narrative limits for constituents in or characteristics of water. Water quality objectives are listed in regional water board basin plans. Water quality objectives help to protect beneficial uses of surface water and groundwater by governing the needed restrictions and limits on waste discharges (from sources such as OWTS) and on waters to which sources discharge. An exceedance of water quality objectives resulting from waste discharges would not protect the beneficial uses of the state's water resources. Narrative objectives describe water quality conditions that must be met and often provide the basis for further development of numerical objectives, which usually describe pollutant concentrations, physical and chemical conditions, and toxicity to organisms.

The primary contaminants of concern were determined through the likelihood of their presence in OWTS effluent, their typical concentrations, and their physical and chemical characteristics in soil and groundwater. This analysis evaluates the projected concentrations of these constituents at the point where OWTS effluent contacts

groundwater (the point of compliance for water quality objectives under the Porter-Cologne Water Quality Control Act). Drinking water standards are used because groundwater is defined as having municipal and domestic beneficial uses (such as drinking water) unless specifically noted otherwise, and the drinking water standards are the most restrictive.

6.2.1 Thresholds of Significance

For the purpose of this analysis, a water quality impact is considered significant if implementation of the proposed project would result in exceeding any water quality objectives. These thresholds of significance are based on the California Environmental Quality Act (CEQA) Guidelines (State CEQA Guidelines) and relevant adopted water quality objectives. Consistent with State CEQA Guidelines, a public health impact is considered significant in this analysis if implementation of the proposed project would result in potential for exceeding any of these adopted water quality objectives related to public health.

Implementation of the proposed project would also result in significant public health impacts if it would:

- violate federal, state, or local criteria concerning exposure to pollutants or pathogenic microorganisms (including the Safe Drinking Water Act, federal Occupational Safety and Health Administration workplace standards, food safety laws, and other public health criteria); or
- violate any ambient water quality objective, contribute substantially to an existing or projected water quality violation, or expose sensitive receptors to substantial waterborne pollutant concentrations; or
- create a substantial public health hazard or involve the use, production, or disposal of materials that pose a hazard to people in the area affected.

6.2.2 Direct Impacts from Construction of OWTS (Tiers 1, 2, and 4)

OWTS covered by Tiers 1, 2, 4, and the basin plans that may include more protective requirements would require new and replacement systems to comply with requirements in specific cases, resulting in construction activities. While the potential exists for OWTS-related construction to result in water quality impacts related to sedimentation and erosion, the likelihood of uncontrolled releases of sediment from erosion or other releases of pollutants from such activities is small. These activities would be minimal and widely distributed throughout the state. In addition, since demand for new and repaired OWTS is not likely to be affected by the proposed Policy, the proposed Policy would not increase or decrease the rate at which OWTS are installed. Since the existing rate of installation would stay the same (linked to a demand for new housing) there would not be a significant change from baseline conditions. The proposed Policy also does not dictate where OWTS construction would occur.

In general, most OWTS installation, replacement, repair, or upgrade projects would disturb less than 1 acre, and are regulated by the local land use agency with a building permit that includes implementation of appropriate grading plans, siting, and erosion control measures. The proposed Policy would not remove or otherwise affect this authority. For instance, as identified in Tables 5-1 and 5-2, the example counties and

cities have requirements in place for siting of OWTS that include sediment and erosion control measures. While regional water boards do not have these requirements in their basin plans, under the auspice of the building permit process, those OWTS regulated by the regional water boards would still need to comply with the grading plans and erosion control measures.

While existing requirements to implement best management practices (BMPs) at the local level may be adequate to avoid significant water quality impacts in many or most situations, local agencies vary widely in the management measures required, and there may be some situations where those BMPs are not sufficient to avoid such impacts. Therefore, in instances where OWTS being installed, replaced, repaired, or upgraded would disturb less than 1 acre, the potential exists for construction to affect water quality related to sedimentation and erosion. However, the likelihood of uncontrolled releases of sediment from erosion or other releases of pollutants from such activities is small. Furthermore, these impacts, as with the initial construction impacts described in "Approach and Methods" above, would be minimal and widely distributed throughout the state, and associated with other development on generally the same sites; for instance, a home and septic system would be constructed on the same site, and future repairs would occur on that site.

The proposed Policy would not affect where development occurs. For these reasons, water quality impacts relating to typical ground disturbance from OWTS installation, repair, replacement, and upgrade are considered **less than significant**.

In the few instances where the area of ground disturbance affected by construction of new OWTS facility infrastructure and construction of staging areas would exceed 1 acre, OWTS installation, replacement, repair and upgrade would be subject to the requirements of the statewide NPDES storm water general permit for construction activity. In these situations, before OWTS construction activities can be approved, the project applicant is required under existing state regulatory requirements to apply for permit coverage. This would result in the project applicant preparing a storm water pollution prevention plan (SWPPP) and any other necessary engineering plans and specifications for pollution prevention and control. The SWPPP would identify and specify BMPs that must be in place throughout all site work and construction. Typical BMPs include the following:

- Use erosion and sediment control measures, including construction techniques that would reduce the potential for runoff and minimize discharge of sediment into nearby drainage conveyances; these BMPs may include silt fences, staked straw bales or wattles, sediment/silt basins and traps, geofabric, sandbag dikes, and temporary vegetation.
- Establish permanent vegetative cover to reduce erosion in areas disturbed by construction by slowing runoff velocities, trapping sediment, and enhancing filtration and transpiration.
- Use drainage swales, ditches, and earth dikes to control erosion and runoff by conveying surface runoff down sloping land, intercepting and diverting runoff to a watercourse or channel, preventing sheet flow over sloped surfaces, preventing runoff

accumulation at the base of a grade, and avoiding flood damage along roadways and facility infrastructure.

- Identify the means of disposal of waste materials (i.e., brush, vegetation) removed from the site.
- Identify pollutants that are likely to be involved in construction activities that could be present in stormwater drainage and non-stormwater discharges and in other types of materials used for equipment operation.
- Establish spill prevention and contingency measures, including measures to prevent or clean up spills of hazardous waste and of hazardous materials used for equipment operation, and emergency procedures for responding to spills.

Several technical studies (California Stormwater Quality Association 2003, Huffman and Carpenter 2003, and USEPA 1999) have established that water quality control features such as revegetation, erosion control measures, and detention and infiltration basins are successful techniques for avoiding or minimizing construction-related water quality impacts (e.g., metals and organic compounds from stormwater are typically filtered out within the first few feet of soil beneath retention basins for groundwater). Technical studies by Huffman and Carpenter (2003) demonstrated that the use of various BMPs, such as source control, detention basins, revegetation, and erosion control, have maintained surface water quality conditions in adjacent receiving waters.

Given the adequacy of the existing NPDES and SWPPP program where applicable (for areas of disturbance of 1 acre or more) and the effectiveness of BMPs when used appropriately in such situations, the project's potential construction-related impacts on water quality are also considered **less than significant** for OWTS construction disturbing 1 acre or more.

No mitigation is required.

6.2.3 Direct Impacts from Construction of OWTS (Tier 3)

The proposed Policy would require most owners of conventional OWTS in Tier 3 to assess their OWTS to determine if it is contributing to the pollution of nearby surface waters. Those that find that their OWTS is contributing pollution will have to retrofit their OWTS to provide supplemental treatment. In those cases where supplemental treatment is required, construction-related impacts would possibly occur under Tier 3. Normal construction permit processes would not be affected. Conversion of conventional OWTS to OWTS with supplemental treatment would require some digging, trenching, grading, and other earthwork and the use of heavy construction vehicles on previously developed parcels. In cases of widespread conversion of systems and the resulting construction in these areas, this could lead to erosion, sedimentation, and deposition of hazardous materials on and off-site that could result in violation of state water quality regulations and adverse water quality impacts on surface water bodies.

Potentially, the proposed Policy could require all owners of conventional OWTS within surface water impairment boundaries to convert their existing conventional systems to OWTS with supplemental treatment units within a short time frame. This activity would

require digging, trenching, grading, and other earthwork using equipment within 100 or 600 feet of impaired surface waters.

As explained above for Tiers 1, 2, and 4, local BMP requirements related to sedimentation and erosion control for construction activities disturbing less than 1 acre and SWPPPs required for construction activities disturbing more than 1 acre, the potential for uncontrolled releases of sediment from erosion or other releases of pollutants from such activities is small. All construction would occur at existing sites; for instance, a home with a septic system would construct a supplemental treatment system on the same site, and future repairs would occur on the same site. For these reasons, water quality impacts relating to typical ground disturbance from OWTS installation, repair, replacement, and upgrade are considered **less than significant**

No mitigation is required

6.2.4 Direct Impacts from Pathogen Contamination Caused by Operation of OWTS Statewide

OWTS wastewater effluent contains pathogens that cause communicable diseases in humans. Some or all of the OWTS effluent discharged to a subsurface dispersal system may eventually reach groundwater. However, the amount of pathogenic contamination that reaches groundwater is dependent on many factors. Attenuation and removal of pathogenic bacteria, viruses, and protozoa in the soil is accomplished through such mechanisms as microbial predation, filtration/adsorption, and inactivation (die-off). These mechanisms are affected by the depth, texture, and structure of the soil, hydraulic loading or application rates, effluent quality, and various other physical and chemical soil conditions, such as temperature, pH, and oxygen. These factors may be unfavorable for pathogen survival. In addition, other soil conditions may affect residence time and the metabolic processes of resident microbial organisms that may prey on pathogens in the effluent.

Once pathogenic material reaches groundwater, dispersion or dilution is not typical because the discharge does not mix with the groundwater, instead staying intact as a distinct plume (USEPA 2002). Therefore, if pathogenic material reaches groundwater, the potential for human health risk exists because groundwater is sometimes accessed by drinking water wells and/or reaches surface water bodies. Pathogens (including protozoa, bacteria, and viruses) that are found in wastewater effluent can cause communicable diseases in humans through direct and indirect body contact or ingestion of contaminated water or shellfish.

Studies have shown that a mature biomat can be extremely important in pathogen removal (Van Cuyk *et al.* 2001b). These processes can effectively reduce or eliminate bacteria and parasites. Most bacteria are removed within the first 1 foot of distance vertically or horizontally from the trench-soil interface at the infiltrative surface of coarse soils with a mature biomat (University of Wisconsin 1978). However, most conventional OWTS require 2 to 4 feet of unsaturated soil conditions to ensure pathogen destruction (USEPA 2002).

The level of potential pathogen impact is different, depending on each tier:

Tier 0: Tier 0 encompasses existing OWTS that are functioning as designed with no surfacing effluent, do not require major repairs, are not utilizing a dispersal system that is in soil that is saturated with groundwater, are not failing as covered by Tier 4, and are not within the boundaries of impaired surface water bodies as defined in Tier 3. The percentage of OWTS that are contributing pathogen contamination to groundwater has not been estimated. Regardless, it is assumed that some number of OWTS are contributing pathogen contamination to groundwater, and as a result of the proposed Policy, these OWTS would continue to contribute pathogen contamination to groundwater. OWTS that comply with Tier 0 standards would continue to operate with no additional requirements (i.e., no change from environmental baseline). Since the environmental baseline includes potential pathogen contamination from existing OWTS, the potential pathogen contamination would continue as the result of the proposed Policy. **No new impacts** will result from OWTS covered under Tier 0 of the proposed Policy.

Tier 1: Standards of the proposed Policy would not require sterilization of pathogens. Therefore, pathogen contamination could potentially occur under Tier 1. However, Tier 1 requires that a minimum of 5 feet of soil separate the bottom of the dispersal system from groundwater. Since this separation exceeds the 2 to 4 foot separation cited in the literature for the removal of pathogens (USEPA 2002), it is expected that complete pathogen removal will occur for OWTS covered under Tier 1 and potential impacts are **Less Than Significant**.

Tier 2 and Basin Plans: In some cases, basin plans and Tier 2 programs may be similar to Tier 1 standards, since Tier 1 standards contain the type of baseline OWTS requirements common to most rules found throughout the state and nationwide. However, pathogen contamination could potentially occur under Tier 2 programs and basin plans because they may allow for implementation strategies and requirements different than those contained in Tier 1. For example, Tier 2 programs and basin plans may allow seepage pits. However, the industry standard for vertical separation from groundwater, thought to be protective against pathogen pollution from seepage pits, is ten feet, not five, as allowed under Tier 1. In most cases, different requirements that may translate into increased risk will be counterbalanced by increased risk management and increased protection. An example of this is the allowance of a reduced separation to groundwater allowed by Sonoma County (see Table 5.1). This is allowed if additional soil is placed at the site to create a mound system. Mound systems in Sonoma County are also monitored for performance making the system equally or more protective than the Tier 1 standards. Basin plans and Tier 2 programs with different protective requirements are expected to balance those different requirements with methods of risk management to make the probability of impacts associated with those programs comparable to Tier 1. By doing so, the Tier 2 programs and the regional board basin plans are expected to be equivalent to Tier 1 standards at the worst case and more protective than Tier 1 at the best case for pathogen risks.

Basin plan and Tier 2 programs cannot allow a separation between groundwater and the bottom of the dispersal system to be less than two feet. For that reason and because it has been found that OWTS require 2 to 4 feet of unsaturated soil conditions to ensure

pathogen destruction (USEPA 2002), we expect good protection where soils are appropriate for the siting. However, if the soils are inappropriate for less than five feet of separation (e.g. gravelly sand), degradation of the groundwater would be expected leading to pathogen impacts exceeding water quality objectives. A two foot separation may not provide a protective standard unless supplemental treatment is provided or the soil application rate is low. Tier 2 programs and basin plans could have **Potentially Significant Impacts** due to potential violations of pathogen water quality objectives.

Furthermore, since Tier 2 programs could allow for the use of seepage pits with a five foot separation from the bottom of the seepage pit to groundwater, this could also lead to **Potentially Significant Impacts**.

Tier 3: Because Tier 3 requires OWTS treatment of pathogens with supplemental treatment, it is found that the impacts to water and public health for Tier 3 are **Less Than Significant**.

Tier 4: **Potentially Significant Impacts** due to pathogen contamination could also occur under Tier 4, because Tier 4 could require failing OWTS to be upgraded to standards in a Tier 2 program.

Mitigation Measure 6.2.4:

1) In addition to the prohibitions in section of 9.4 of the proposed Policy, the State Water Board shall add a provision that prohibits the use of seepage pits when the seepage pit accepts septic effluent and where the seepage pit is closer than 10 feet from groundwater and does not incorporate supplemental treatment.

2) In addition to the prohibitions in section of 9.4 of the proposed Policy, the State Water Board shall add a prohibition for allowing an application rate greater than 0.4 where the groundwater is less than 3 feet from the bottom of the dispersal trench where the OWTS is using standard treatment.

Implementation: The State Water Board would implement this Mitigation Measure.

Significance after Mitigation: Implementing Mitigation Measure 6.2.4 would reduce water quality impacts associated with pathogens from OWTS to a ***Less Than Significant*** level because this requirement would prevent pathogen transport to groundwater from OWTS designed and operated under Tier 2, the basin plans and Tier 4.

6.2.5 Direct Impacts from Nitrogen Contamination from Operation of OWTS Statewide

Most of the nitrogen compounds in OWTS effluent will be nitrified as the effluent passes through the soil column and become nitrate below the infiltrative surface. Once nitrates from OWTS reach groundwater, they can travel hundreds of feet as long, narrow, and definable plumes in concentrations that may eventually exceed drinking water standards (USEPA 2002). The direction of groundwater flow, and thus the direction of the OWTS discharge plume, is generally not known, requires a costly study to determine, and can

change substantially with seasonal variations or groundwater pumping. In a fractured rock environment, it is rarely possible to predict or determine the direction of OWTS discharge flow, and nitrates can travel considerable distances with little or no dilution in these environments (Winneberger 1984).

Until the early 1990s, it was assumed that all nitrogen applied to the infiltration system, following transformation to nitrate, would ultimately leach to groundwater (Brown, Slowey, and Wolf 1978; Walker *et al.* 1973a, 1973b). However, Jenssen and Siegrist (1990) found, during a review of several studies, that denitrification, the anaerobic process that converts nitrate to nitrogen gas, can contribute to nitrogen reduction by up to 20% in wastewater percolating through the soil (USEPA 2002). Factors found to favor denitrification are fine-grained soils (silts and clays) and layered soils (alternating fine-grained and coarser-grained soils with distinct boundaries between the texturally different layers), particularly if the fine-grained soil layers contain organic material, because the process of denitrification also requires an adequate source of carbon.

Even though some level of denitrification may occur in the soil under the right conditions, total nitrogen concentrations in OWTS effluent are not likely to be sufficiently reduced to protect water quality or public health. Thus, OWTS discharges would have the potential to degrade groundwater quality and adversely affect the beneficial uses of groundwater and surface waters that are hydrologically connected to the groundwater. Barring Tier 0 from this impact, since it represents the regulatory baseline, OWTS in Tiers 1, 2 and 4 are found to cause nitrate pollution.

OWTS that comply with Tier 0 standards would continue to operate as they currently do (i.e., no change from environmental baseline). Since environmental baseline includes known nitrogen pollution problems from OWTS, existing pollution problems resulting in impacts from nitrogen discharges would continue. **No new impacts** will result from OWTS covered under Tier 0 of the proposed Policy.

Tier 1 requirements would ensure that OWTS meet minimum standards for protection of environmental and public health from OWTS effluent. However, Tier 1 requirements would not require supplemental treatment for the removal of nitrogen compounds. Therefore, impacts are possible. This possibility is already mitigated in the proposed Policy by the requirement 7.8 which states that all new OWTS in new subdivisions not be constructed if the average density is less than 2.5 acres per OWTS serving a household (single family dwelling unit). This density requirement will slow or stop severe nitrate pollution in the groundwater in areas where the groundwater basin is not discrete and bounded by barriers that limit groundwater movement, other than what is removed by pumping. In the case of discrete groundwater basins, impacts from nitrate accumulation in groundwater is expected to be **Potentially Significant**.

Overall, Tier 2 and basin plans with more protective requirements would be comparable to Tier 1 requirements, if the density limit was required to be maintained. However, Tier 2 and some basin plans do not require density to be maintained below one household per every 2.5 acres for new OWTS in new subdivisions. Even existing programs that contain density requirements do not have similar density requirements to Tier 1 (e.g. the Santa

Ana River Regional Water Board requires densities to not exceed over one household per acre). While different and more dense, the no-impact density at one location versus another location will vary due to groundwater aquifer characteristics. In fact, the only concrete statement regarding this issue is that OWTS will contribute nitrogen to the soils and groundwater at levels above background and likely above the water quality objectives. However, Tier 2 OWTS and OWTS conforming to basin plans could include nitrogen removal where required. Several local agencies include requirements for removing nitrogen (e.g. Santa Cruz and Sonoma Counties). Since all basin plans and all local ordinances do not require the removal of nitrogen prior to OWTS discharge, the impact potential for violating water quality objectives with nitrogen-based compounds from OWTS statewide is **Potentially Significant**.

OWTS that fall under Tier 4 conditions would be required to come into compliance under Tier 1 or Tier 2 standards. Since Tier 1 and Tier 2 could potentially cause environmental impact, then Tier 4 impacts would also **Potentially Significant**.

Therefore, the proposed Policy may result in impacts that are **Potentially Significant** due to the release of nitrogen to groundwater.

Mitigation Measure 6.2.5:
Modify the proposed Policy to include the following additional requirements:

All OWTS in Tiers 1, Tier 2, and Tier 4 shall be designed to meet the nitrogen removal performance requirements for supplemental treatment contained in Section 10 of the proposed Policy.

Implementation: This mitigation measure is the responsibility of the State Water Board under Tier 1 and the local agencies under a Tier 2 or Tier 4 program.

Significance after Mitigation: If the mitigation measures are implemented by the State Water Board, discharges from OWTS in Tiers 0, 1, and 2 would meet the water quality objectives for nitrate-nitrogen (10mg/L) at the point of compliance. As stated above, this is a potential impact, and may not occur in all soil and groundwater conditions. If implemented, the mitigation measures would result in the need for installation of large numbers of OWTS with nitrogen removal systems designed to reliably meet the 10 mg/L total nitrogen requirement. Supplemental treatment systems are very costly; current costs range from $26,000 to $50,000 and the cost for such systems would be borne by the owners. Recognizing that complying with the proposed Policy may, in some cases, impose a significant monetary hardship to homeowners, the State, in cooperation with EPA, has set aside funds from its State Revolving Fund Program that can be made available to local qualified agencies who can then provide low-interest loans to homeowners to install, repair, replace, or upgrade their OWTS. The homeowners would still bear the primary financial responsibility for these improvements, but could potentially qualify for lower interest (than market rate) loans. If this mitigation measure is adopted, the water quality and public health impacts associated with nitrogen contamination from operation of OWTS would be reduced to **Less Than Significant** level. However, if the State Water Board determines, for fiscal, socioeconomic, or other

reasons, that this mitigation measure is infeasible and cannot be implemented, the impact associated with nitrogen contamination from operation of OWTS would be **Significant and Unavoidable.**

6.2.6 Direct Impacts from Contamination of Other Constituents of Concern from Operation of OWTS Statewide

There are many constituents of concern in domestic wastewater, including OWTS effluent that could contribute to degradation of water quality if discharged into the OWTS in lieu of disposing using other means. Researchers have evaluated a wide range of contaminants associated with domestic wastewater over the years. Constituents of particular concern are those that might contaminate surface water or groundwater.

Any such contamination could directly or indirectly affect beneficial uses of the waters. Contaminants included in this group are trace minerals and phosphorus, metals, salts, organic compounds and a group of compounds known as endocrine disrupting compounds. A brief summary of health concerns related to these contaminants follows.

Phosphorus. Phosphorus is an aquatic plant nutrient that can also contribute to eutrophication (algal blooms) of inland and coastal surface waters and reduction of dissolved oxygen. In contrast to some forms of nitrogen, phosphorus is not directly toxic to humans, but has been shown to be involved in several water quality problems related to eutrophication that can affect human or animal health. Examples include the formation of carcinogenic trihalomethanes during the chlorination of waters that have recently experienced algal blooms (Kotak *et al.* 1994); consumption by livestock or humans of waters containing cyanobacteria blooms or the neuro- and hepatotoxins released when these blooms die (Martin and Cooke 1994); and, most recently, the effect on human health of neurotoxins and other toxic constituents released by dinoflagellates, such as *Pfiesteria piscicida*, that bloom in phosphorus-limited eutrophic coastal waters (Burkholder and Glasgow 1997).

Metals. Some metals in drinking water may cause human health problems. Metals including lead, mercury, cadmium, copper, and chromium can cause physical and mental developmental delays, kidney disease, gastrointestinal illnesses, and neurological problems (DeWalle *et al.* 1985). In the aquatic ecosystem, they are also toxic to aquatic life and accumulate in fish and shellfish that might be consumed by humans. Metals can be present in raw household wastewater from commonly used household products; aging interior plumbing systems that can contribute lead, cadmium, and copper; foodstuffs; and human waste (USEPA 2002).

Several USEPA priority pollutant metals have been found in domestic septic tank effluent (including nickel, lead, copper, zinc, barium, and chromium), although at low concentrations. Copper and zinc were the only trace metals found in any significant amounts, and those concentrations were less than in tap water (Whelan and Titmanis 1982). Reviews and studies to date, although not extensive, have suggested there is very little need for concern over heavy metals in domestic septic tank effluent (Siegrist *et al.* 2000). The fate of metals in soil is varied and depends on complex physical, chemical, and biochemical interactions. Although studies appear to indicate possible removal in

both the septic tank and soils, some risk remains, and groundwater contamination in specific cases, although unlikely, is possible (USEPA 2002).

The primary processes controlling the fixation or mobility of metals in subsurface infiltration systems are adsorption onto negatively charged soil particles and interaction with organic molecules. The solubility of metals is pH dependent and tends to be lowest between pH 6 and 8. Acidic conditions can reduce the sorption of metals in soils, leading to increased solubility and therefore increased risk of groundwater contamination (Evanko and D Zombak 1997, USEPA 2002).

Salts. Increases in dietary salt in humans via water or foods are associated with an increase in heart disease, but the levels of concern and effects are still under debate.

Chloride and sulfide cause taste and odor problems in drinking water. Sodium and to a lesser extent potassium can be deleterious to soil structure and OWTS dispersal system performance, although normal or conservative residential uses of salts and household bleaches are not detrimental to the microbial population (Bounds 1997). Sodium is commonly present in background levels in groundwater. However, the sodium concentration is considerably higher in discharges from an OWTS when the OWTS receives discharge from water softeners. Concentrations of boron and calcium in septic tank effluent typically reflect those found in the water supply source. Major natural sources of sulfate in drinking water are from oxidation of metallic sulfide compounds (such as FeS) found in bedrock. Domestic wastewater contains additional sulfate concentrations from the oxidation of reduced sulfur compounds present in fecal matter. Higher concentrations of sulfate in OWTS effluent typically are from the source water in the domestic supply (domestic well water or municipal water) as part of the natural water quality of the region. In general, dissolved inorganic compounds may affect the soil structure and function, which may subsequently reduce the effectiveness of the soil to treat OWTS effluent before it reaches groundwater.

Organic Compounds. Organic compounds are present in many routine household chemicals, cleaning products and solvents, and components of pharmaceuticals and personal care products that include prescription and nonprescription drugs and caffeine. Potential negative health effects from ingesting water containing these compounds include neurological and developmental problems, and cancer. In addition, concentrations of these chemicals in wastewater may affect some functions of both conventional and supplemental treatment systems, causing indirect effects such as a reduction in treatment of specific pollutants. The primary pathways of exposure to humans would be through ingestion of drinking water contaminated by organic chemicals, direct contact with water, such as bathing or swimming, and respiration of droplets from bathing or other aerosols.

Organic compounds can be present in groundwater and surface water from anthropogenic pollution sources. This type of pollution, once present, can be very difficult to remove. Some of these pollutants accumulate and concentrate in ecosystem food chains. Commonly used surfactants (or foaming agents) are linear alkylbenzene sulfonate (LAS), alcohol ethoxylate (AE), and alcohol ether sulfate (AES). They are readily removed via biodegradation in septic systems or sorption onto soils, even under worst-case conditions

(Nielsen *et al*. 2002). As an example of persistence in the environment, Gamma-BHC, commonly called Lindane, is an isomer (one of several chemical forms) of the chemical hexachlorocyclohexane (HCH) and is used as an insecticide on fruit, vegetables, and forest crops. It is also used as a lotion, cream, or shampoo to treat head and body lice and scabies. It is banned in many, but not all countries and remains legal for use in the United States. Lindane has not been produced in the United States since 1976 but continues to be imported for insecticide use (ATSDR 2004).

Surfactants, or foaming agents, are commonly used in laundry detergents and other soaps to decrease the surface tension of water and increase wetting and emulsification. Surfactants are the largest class of human-produced organic compounds present in raw domestic wastewater. They can be found in most domestic septic system effluents (Wisconsin Department of Commerce 1998, USEPA 2002). Surfactant molecules contain both strongly hydrophobic (not easily mixing with water) and strongly hydrophilic (easily mixing with water) properties and thus tend to concentrate at interfaces where water meets air, oily material, and particles.

Hinkle *et al*. (2005) found nine organic wastewater compounds in more than 90% of groundwater samples from a monitoring network down gradient of OWTS dispersal system effluent:

- acetyl-hexamethyl-tetrahydro-naphthalene (AHTN)
- caffeine
- cholesterol
- hexahydrohexamethyl-cyclopentabenzopyran
- N,N-diethyl-meta-toluamide (DEET)
- tetrachloroethene
- tris (2-chloroethyl) phosphate
- tris (dichloroisopropyl) phosphate
- tributyl phosphate

Detection of these compounds provides evidence that some of them may be useful indicators of human waste effluent dispersal in some hydrologic environments. Studies have shown mixed results regarding removal of organic compounds using conventional OWTS. Reductions depend on the chemical type and a multitude of environmental factors. Although several studies found complete or nearly complete removal of organic compounds below OWTS (USEPA 2002; Ayres Associates 1993a, 1993b; Robertson 1991; Sauer and Tyler 1991), other studies found variable results in the potential for such chemicals to reach and flow with groundwater (USEPA 2002). Studies have indicated that the common LAS, AE, and AES surfactants are readily removed from groundwater in soils below the soil dispersal fields, even in situations with minimal unsaturated soil zones. The most successful processes for removing these surfactants are likely biodegradation and sorption (USEPA 2002, Nielsen *et al*. 2002). Surfactants do not usually create public health concerns, although methylene blue active substances, common in household laundry detergent, can affect the aesthetic quality of water if present in significant quantities by inducing foaming. No investigations have been found that identify cationic or nonionic surfactants in groundwater that originated from soil

dispersal fields (WI DOC 1998, USEPA 2002). However, with the unpredictability of removal, groundwater contamination must be assumed to be taking place in some specific cases.

Endocrine-Disrupting Compounds. The presence of common hormones, drugs, and chemicals from personal care products (e.g., shampoo, cleaning products, and pharmaceutical products) in wastewater and receiving water bodies is an emerging water quality and public health concern. Endocrine-disrupting compounds (EDCs) are substances that alter the function of the endocrine system (secretions, such as hormones, distributed through the body by way of the bloodstream) and consequently cause adverse health effects on exposed organisms or their offspring. EDCs may be present in such common items as medicines, over-the-counter therapeutics, pesticides, soaps, shampoos, hair colors, plastics and plasticizers, polychlorinated biphenyls (PCBs), spermicides, preservatives, and specific metals. Only recently has the presence of EDCs been detected in water bodies of the United States at a high frequency; however, measured concentrations have been low and usually below drinking water standards (in the cases of those compounds for which standards have been established). Specific studies have found EDCs in water bodies in sufficient quantity that they could potentially cause endocrine disruption in some fish. The extent of human health risks and dose responses to EDCs in concentrations at the low levels found in the environment are still unknown. The specific category of EDCs includes both natural compounds, such as phytoestrogens, and synthetic chemicals, which are of increased concern. Congress has directed EPA to study the transmission of EDCs through drinking water. Some EDCs have been implicated in accelerating the growth of breast cancer cell cultures, thereby raising questions about other human health effects (Felsot 1994, MacMahon 1994, Safe 1995).

These effects were seen at concentrations measured in parts per trillion, levels at which most chemicals have never been tested. Other than the product-intended oral or dermal uses, exposure routes, after transmission to an OWTS, include ingestion of contaminated drinking water or foodstuffs, bathing or swimming in contaminated water, and possible respiratory contact.

Although some of the contaminants identified in Section 303(d) as contributing to impairment of water bodies in California are categorized as EDCs, EDCs as a category are not currently regulated as water quality contaminants in federal or state water quality objectives. EPA is currently studying the transmission pathways and effects of EDCs and although some scientific studies have investigated their effects on human health, these compounds are not currently regulated or classified as contaminants or pollutants by any federal, state, or local public health agency. If additional information becomes available indicating that EDCs pose a risk to human health and/or the environment, this issue may merit further consideration by public health agencies and the State Water Board.

All of the substances presently identified as hormone disruptors are now widely distributed throughout the environment. Some are common constituents of consumer products, and many are now found in human tissues and have been shown to affect the health, reproduction, and behavior of animals.

Although hormone-related diseases have not been clearly linked to environmental chemicals, it is probable that endocrine disruptors are contributing to human diseases and dysfunction (Ankley *et al*. 1997). The EPA, through the 1996 reauthorization of the Safe Drinking Water Act, was directed to address the issue of possible endocrine disruptors in drinking water. The White House convened an interagency task force of national experts to improve the national response to the issue and evaluate consumer exposures, workplace exposures, and facility releases of chemicals (Ankley *et al*. 1997).

These "endocrine disruptors" include both natural compounds and synthetic chemicals. Some, called phytoestrogens, occur naturally in a variety of plants. Living things have evolved with these natural substances and have mechanisms to metabolize or degrade them so they do not bioaccumulate. Of current concern are the synthetic estrogens produced either through industrial manufacture or as byproducts of such processes or burning. Some of these have been found to speed the growth of cultures of breast cancer cells, raising questions about human health effects (Felsot 1994, MacMahon 1994, and Safe 1995). The effects have been detected at chemical concentrations of parts per trillion, levels at which most chemicals have never been tested.

Diseases that are associated with general environmental exposure to toxic pollutants or other environmental contaminants are not well reported and the causes are difficult to pinpoint, even at some of the more infamous sites of exposure, such as the Love Canal in New York or other hazardous waste sites where high levels of contaminants can be found. At very low levels, such as those found in OWTS effluent or in foods, the risks are measured in terms of a lifetime of chronic exposure. No data are available that can be used to relate any type of OWTS-effluent related exposure to any occupational or consumer-related exposure to chemicals that could be meaningfully interpreted. Further investigation would require expenditure and work effort that is beyond the requirements of CEQA. **No conclusion can be made at this time.**

No Mitigation is Required.

6.2.7 Indirect Impacts related to the Relaxation of Existing Local Regulations

The policy requires that the regional water boards incorporate the requirements established in the Policy by amending their basin plans within 12 months of the effective date of this Policy, pursuant to Water Code Section 13291(e). In so doing, the regional water boards are required to consider whether it is necessary and appropriate to retain or adopt any more protective standards. To the extent that a regional water board determines that it is necessary and appropriate to retain or adopt any more protective standards, they need to reconcile those region-specific standards with the policy to the extent feasible, and shall provide a detailed basis for its determination that each of the more protective standards are necessary and appropriate. The State Water Board ultimately determines adequacy of the standards included in the basin plans, including the basis for any more protective standards. Therefore, the standards could potentially be relaxed due to non-inclusion or non-adoption at the regional water board level or because of non-adoption of those more restrictive standards at the State Water Board. However,

the tiers, as analyzed in this SED, already identify the impacts that are reasonably anticipated.

No Mitigation is Required

6.2.8 Cumulative Water Quality and Public Health Impacts

This section addresses potential cumulative impacts of the proposed project in combination with related projects (e.g. TMDL implementation and ongoing development). Cumulative impacts are of particular concern in these situations:

►impaired water bodies where OWTS have been determined to be contributing to impairment and

► developing areas that rely on OWTS where there is shallow or sandy soil and an underlying hydrogeology that could expose consumers to potential public health hazards.

The major cumulative impacts of concern on water quality involve nutrients (e.g., nitrate) and pathogen contamination, particularly in areas where beneficial uses are impaired by these contaminants. Surface water impairment, either directly (through mechanisms such as storm water runoff or surfacing OWTS effluent) or indirectly (through hydrologic connection with contaminated groundwater) is also of concern (USEPA 2004). Potential impairment of beneficial uses that would negatively affect public health and biological resources is also of concern.

Impaired Areas Where OWTS Are Adjacent To Surface Waters

Regional water boards are in the process of developing and implementing TMDLs, or have implemented such standards, for all of the state's impaired surface water bodies. By design, and when fully implemented, the TMDL addresses cumulative water quality impacts in a watershed because it not only implements TMDLs that are intended to protect the different types of beneficial uses that would be impaired without the TMDLs, it also uses load allocations and other methods to reduce the contributions of the different related projects that are contributing to the impairment. Cumulative water quality impacts in impaired water bodies where TMDLs have not yet been fully implemented may be significant because related WQOs and related beneficial uses may not be protected until the TMDLs are fully implemented. Over time and once the TMDLs are fully implemented, cumulative water quality impacts in areas with fully implemented TMDLs should be reduced to **Less Than Significant** levels.

The proposed project's contribution to cumulative water quality impacts in targeted impaired areas would be less than significant because the proposed regulation would require the owners of conventional OWTS to convert to supplemental treatment in areas adjacent to impaired water bodies (100 feet for pathogens and 600 feet for nutrients). The proposed project would also generally improve the operation and management of OWTS via mandatory inspections, improved design standards, and other operational features described in that section. Therefore, the proposed project's contributions to cumulative impacts in the targeted impaired areas would not be cumulatively considerable.

In impaired areas where OWTS are not contributing to the impairment, owners would not be required to convert to supplemental treatment systems. Additional OWTS-related mitigation in these situations is not warranted because regional water boards have determined that OWTS are not contributing to impairment in these areas. In other words, the impairment of local beneficial uses is being caused by other sources of pollutants and OWTS contributions to impairment in these areas are either minor or are not occurring. The ongoing development and implementation of TMDLs in these watersheds is also expected to reduce pollutant loads to the point where beneficial uses are no longer impaired.

As explained above, various OWTS constituents of secondary concern are known to occur in wastewater effluent and have been identified in addition to those noted above. These could enter the water body directly as runoff from surfacing OWTS effluent or indirectly through hydrologic connection between surface water and groundwater. However, surfacing OWTS effluent requires repairs under the proposed project. Pollutants entering surface water through groundwater would depend on the constituent. In the case of surfacing effluent, the proposed project is written to specifically address the pollution. For pollutants of secondary concern that may result from hydrologic connection,,not enough is known about their concentration in wastewater effluent, and at what concentration they would adversely affect public health or biological resources. Much uncertainty also surrounds the characteristics that determine the transport and fate of the contaminants and how effective properly sited and functioning OWTS systems are in attenuating these contaminants. Because of the lack of information or inconclusive nature of information currently available about these constituents in OWTS effluent, any additional analysis regarding potential cumulative impacts on water quality, public health, or biological resources related to these constituents would be too speculative.

OWTS in Areas That Have Shallow Or Sandy Soil And An Underlying Hydrogeology That Could Expose Consumers To Potential Public Health Hazards

Wastewater discharged from OWTS can cause diseases such as infectious hepatitis, typhoid fever, dysentery, and various gastrointestinal illnesses (USEPA 1977). It is also known that dissolved contaminant plumes of nitrate from conventional OWTS can travel hundreds of feet in groundwater and exceed drinking water standards (USEPA 2002). Domestic wells are often sited between 100 and 200 feet from an OWTS. The same areas of the state that have relatively high densities of OWTS also have relatively high densities of private drinking water wells, and thus have the potential for nitrate and pathogens from OWTS discharges to contaminate drinking water supplies. The site characteristics and placement of an OWTS determine how adequately viruses and bacteria (but not nitrogen) are removed from OWTS effluent before the effluent reaches groundwater. Sites that can adequately remove viruses and bacteria have the following characteristics:

► unsaturated soil with adequate amounts of organic matter (i.e., soil types other than sand and rocks),

► a suitable infiltration rate (fast enough to handle effluent loads and slow enough to enable microbial and physicochemical treatment), and

► a sufficient depth (at least 3 feet with conventional systems and 2 feet with supplemental treatment).

However, the presence of certain soil types and hydrogeologic conditions (discussed below) along with the presence of OWTS discharges substantially raises the risk of public health hazards for owners of onsite drinking water wells. In these situations, cumulative public health hazards may be significant.

OWTS discharges and other human activities that result in the release of nitrogen and pathogens into groundwater will increase over time as future related projects are implemented, especially more residential, commercial, industrial, and agricultural development. The types of cumulative public health impacts described above have the potential to be significant in the situations described above, and these will become more significant over time because the Sierra foothill and Central Valley counties are expected to experience large increases in population and development. Although the proposed project would reduce the potential (compared with existing regulations) for adverse impacts in these areas by requiring the regional water boards and the local agencies to work cooperatively together, it also would allow existing conventional systems to continue discharging and, unlike the regulations for targeted impaired areas, would not require supplemental treatment to be used when new systems are installed or existing systems are replaced. Therefore, the proposed Policy's contributions to these potentially significant public health impacts are considerable because the proposed Policy would continue to allow these discharges, resulting in continued risk of contamination of drinking water wells.

To reduce OWTS contributions to a less-than-considerable level in fractured bedrock and other groundwater environments, additional regulatory requirements or mitigation would be needed. Such mitigation could consist of requiring all existing, new, and replaced conventional systems in fractured bedrock environments to convert to, or use systems that include disinfection and nitrogen removal capabilities and substantially remove nitrogen to levels that would meet total nitrogen WQOs with little or no soil treatment. In the alternative, such systems could be required only if local well samples indicate pathogens or high levels of nitrogen from human activities.

However, requiring systems with disinfection and nitrogen removal capabilities may be infeasible in many instances. These systems would be very costly and, given the uncertainty that any single OWTS may contribute to this impact, may be financially infeasible. If such systems are installed, the water quality and public health impacts associated with pathogen and nitrogen contamination from operation of all existing, new, and replaced OWTS in fractured bedrock environments would be reduced to a **Less Than Significant** level. On the other hand, if the State Water Board determines, for fiscal, socioeconomic, or other reasons, that it is not feasible and reasonable to require these systems, the potential impacts discussed in this section would be **Significant and Unavoidable**.

No Mitigation Required.

6.3 Biological Resources

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 the deserts along the eastern border. Each of these regions can be further subdivided into many habitats and associated wildlife species. Habitat types include coastal dunes and scrub, desert and valley riparian, mixed conifer, oak woodland, riverine, and annual grassland, and more human-influenced habitats such as agricultural land, pastureland, and urban areas (Jones and Stokes 1999).

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. As a consequence of habitat conversion to agriculture and residential and commercial development, many of these species have become rare, threatened, or endangered (CDFG 1998a, 1998b). Plant species have been state listed as endangered, threatened, or rare under Section 1904 (Native Plant Protection Act of 1977) and Sections 2074.2 and 2075.5 (California Endangered Species Act of 1984) of the Fish and Game Code. Also, plant species have been federally listed as endangered or threatened under the Federal Endangered Species Act of 1973, and other plant species are proposed or candidates for listing. Additionally, animals have been state or federally listed as threatened or endangered, while other animal species are classified as candidates for state listing or proposed for federal listing. Many others are considered special-status species by local, state, and federal agencies (SWRCB 1999).

THRESHOLDS OF SIGNIFICANCE

The potential for the OWTS regulations to result in significant environmental effects was analyzed using information and criteria provided in the California Environmental Quality Act (CEQA) Guidelines. Pursuant to the suggested thresholds in Appendix G of the State CEQA Guidelines, the proposed project would have a significant impact on biological resources if it would:

- have a substantial adverse effect, either directly or indirectly through habitat modifications, on the population of any species identified as a candidate, sensitive, or special-status species in regional or local plans, policies, or regulations, or by DFG or USFWS;
- have a substantial adverse effect on any riparian or other sensitive natural community identified in local or regional plans, policies, or regulations or by DFG or USFWS;
- have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh and vernal pools) through direct removal, filling, hydrological interruption, or other means;

- 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;
- conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted habitat conservation plan, natural communities conservation plan, or other approved local, regional, or state habitat conservation plan.

6.3.1 Impacts on Fisheries, Sensitive Habitats and Communities, Special-Status Species, and Federally Protected Wetlands from Construction of OWTS

The proposed Policy could lead to an increase in OWTS repairs, replacements, and upgrades. These changes would occur on sites that already have been disturbed and contain existing OWTS and associated residential or commercial structures, and by virtue of their ongoing use are highly unlikely to support sensitive habitat that could be affected by repairs or replacement.

New OWTS, as previously described, do not alter the local land use agency process associated with ground-disturbing activities from residential and commercial development. The proposed Policy does not dictate whether land uses associated with OWTS would be permitted. However, the proposed Policy would require most owners of conventional OWTS in targeted areas of impairment to potentially convert their existing systems to OWTS with supplemental treatment units. As explained above for Tiers 1, 2, and 4, local BMP requirements related to sedimentation and erosion control for construction activities disturbing less than 1 acre are required and the likelihood of uncontrolled releases of sediment from erosion or other releases of pollutants from such activities is small and their resulting impact on biological resources is even smaller. For this reason, the impacts on biological resources from disturbances of less than one acre near impaired waters is found to be **Less Than Significant.**

Where areas larger than 1 acre could be disturbed, the potential for environmental impacts, while similar to those discussed above, are simply greater in magnitude and therefore more of a threat. However, construction activities greater than one acre would be subject to the requirements of the statewide National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Construction Activity. Given the adequacy of the existing NPDES and SWPPP program where applicable (for areas of disturbance of 1 acre or more) and the effectiveness of BMPs when used appropriately in such situations, the project's potential construction-related impacts on biological resources are also considered **Less Than Significant** for OWTS construction disturbing 1 acre or more.

No Mitigation required.

6.3.2 Indirect Impacts on Biological Resources from Pathogen Contamination Caused by Operation of OWTS Statewide

This section addresses potential indirect impacts on biological resources (e.g., fisheries and special-status species that occur in, or rely on, sensitive habitats or communities such as freshwater and marine ecosystems and federally protected wetlands) that would occur under the proposed Policy from pathogens contaminating surface waters through OWTS discharges. While OWTS may contaminate groundwater and surface water with pathogens, surface water contamination is of particular concern because it affects biological resources.

The degree to which pathogens found in OWTS effluent may affect wildlife is not well known. Around 2001, dead or stranded sea otters were being found along the shoreline of the Central Coast. Tissue samples of the dead otters were examined and the affects of a protozoa, Toxoplasma gondii, which is spread through domestic cat feces, was found to be lethal to the otters (Contrad *et al*. 2005). Additionally, sea otters have been infected by *Cryptosporidium*, a protozoan that causes severe diarrhea in humans (Conrad *et al*. 2005). Both these protozoa are thought to have infected the otters through stormwater runoff or sewage outfalls, not OWTS discharges. Currently, contamination by pathogens in marine and freshwater systems is monitored by examining the concentrations of *Cryptosporidium* oocysts in bivalves (e.g., mussels, clams) residing in waters contaminated by fecal matter (Conrad 2005, SWRCB 2007).

In addition, the retention and die-off of most, if not all, observed pathogenic bacterial indicators and viruses occurs within 2 – 3 feet below the soil's surface, in a properly designed and sited, normally functioning OWTS (Anderson *et al.* 1991; Anderson *et al.* 1994; Ayers Associates 1993a, 1993b; Bouma *et al.* 1972; McGaughey and Krone 1967; Van Cuyk *et al.* 2001), and most bacteria are removed with the first 1 foot vertically or horizontally from the trench-soil interface at the infiltrative surface of coarse soils with a mature biomat (University of Wisconsin-Madison 1978). Moreover, soil filtration is more likely to remove protozoa than other waterborne pathogens because protozoa are larger.

The occurrence and concentration of pathogenic microorganisms in wastewater depend on the sources contributing to the wastewater, the existence of infected persons in the population, and environmental factors that influence pathogen survival rates. Viruses and protozoa appear in septic tank effluent intermittently, in varying numbers, reflecting the combined infection and carrier status of OWTS users. Therefore, such pathogens are difficult to monitor and little is known about their frequency of occurrence and rate of survival in traditional OWTS effluent. Nevertheless, pathogens from OWTS would generally have to travel vertically through the soil and horizontally in groundwater before reaching surface waters. The likelihood of pathogens from OWTS discharges causing substantial effects on biological resources would be low because of factors that would reduce pathogen concentrations and/or viability (i.e., predation in the soil, inactivation and die-off over time, physicochemical conditions, lack of a host).

Pathogens that affect wildlife include bacteria, viruses, and parasites such as protozoa, which may exist in OWTS effluent. Therefore, impact is possible for all tiers except Tier 3. In the case of Tier 3, it requires OWTS to disinfect wastewater using supplemental

treatment, thereby eliminating potential impact from pathogen contamination. Tier 2 and management associated with that tier is expected to address the threat from OWTS to biological resources by requiring proper, scientifically-based requirements that, when applied, reduce the threat of pathogens. Some examples include but are not limited to supplemental treatment and disinfection, adequate soil depth based on soil type, and program monitoring. When OWTS are sited and designed to operate properly, basin plans with more protective, yet different standards have not been found to increase the risk for that group, due to the comparable level of protectiveness and additional impact to biological resources is avoided. For that reason, it is found that this impact is **Less Than Significant**.

No Mitigation is Required.

6.3.3 Indirect Impacts on Biological Resources from Nitrogen Contamination Caused by Operation of OWTS Statewide

Excessive nutrient enrichment of aquatic ecosystems can lead to intensive growth of algae and aquatic macrophytes (eutrophication). The consequences of this enhanced growth include reduced sunlight underwater, hypoxic (low oxygen) conditions in the water, and a loss of habitat for aquatic plants and animals. Hypoxia can result in fish kills or cause fish to leave the area and can cause stress or kill bottom-dwelling organisms that cannot leave the hypoxic zone. Additionally, excess nutrients can result in "harmful algal blooms" (HABs). HABs are blooms of microscopic and macroscopic algae that produce biotoxins. These biotoxins can have toxic effects on humans and other organisms; physically impair fish and shellfish; and release odors and discolor waters or habitats (Boesch *et al.* 1997). Thus, introducing excessive nutrients into aquatic systems may result in conditions that could lead to mortality of sensitive fish and benthic organisms, and alteration and degradation of biological communities and sensitive aquatic habitat.

The proposed Policy encourages that OWTS in all tiers be sited and designed to operate properly. Tier 2 programs and some basin plans will allow the design of new and replaced OWTS to include shallow dispersal systems, supplemental treatment and placement in soil types that may facilitate some nitrogen removal through the process of denitrification. Additionally, Under Tier 2, use of shallow dispersal systems, including, but not limited to drip systems, at-grade systems and mound systems, may facilitate more plant uptake of nutrients discharged from OWTS because the dispersal systems could be placed within the root zone of landscape vegetation. Also, the density requirements in Tier 1, with a 2.5 acre lot minimum for new OWTS in a "new" subdivision, are expected to reduce the impact from nitrogen originating from OWTS. Discharges from OWTS are still likely to introduce nitrogen in the form of nitrates to groundwater, as noted above. While it would be unlikely that the nitrate loading contributed by a single OWTS discharge to a surface water body would excessively enrich the water with nitrogen and degrade water quality to the extent that biological resources could be affected, high densities of OWTS near a surface water body may cause or substantially contribute to eutrophication of the surface water, which in turn could negatively effect biological resources. However, the regional water boards are charged with monitoring water quality and protecting beneficial uses of surface waters. Regional water boards require compliance with regulations designed to protect those beneficial uses. Furthermore, in

such an instance, those OWTS would be subject to Tier 3. Tier 3 is intended to protect the environment from such impacts. For those reasons, impacts on aquatic biological resources, including fisheries; special-status species; sensitive habitats or communities, including slow-moving streams, lakes, bays, and estuaries; or federally protected wetlands would be **Less Than Significant.**

No Mitigation Required

6.3.4 Indirect Impacts on Biological Resources from Operational Discharges of Other Constituents of Concern Caused by Operation of OWTS Statewide

OWTS constituents of concern have been identified and discussed in section 6.2.6, in addition to those of primary concern. These other constituents are known to occur in wastewater effluent, including OWTS effluent. The concentration of constituent may vary depending upon the level of treatment required under the tiers and the basin plan requirements, where more protective than the proposed Policy. However, no viable conclusion can be made on this issue at this time.

As described in impact 6.2.6, various OWTS constituents of concern have been identified in addition to those of primary concern (nitrogen and pathogens). These other constituents are known to occur in wastewater effluent. For some constituents, not enough is known (numerous studies have been completed but they are inconclusive) about their concentration in wastewater effluent, and at what concentration they would adversely affect public health (e.g., traces of EDCs, pharmaceuticals, and personal care products). For others, the characteristics that determine the transport and fate of the contaminants and the effectiveness of properly sited and functioning OWTS systems are sufficient to attenuate the contaminants, effectively limiting their ability to adversely affect biological resources. Because of the lack of or inconclusive nature of information currently available about these other constituents of secondary concern in OWTS effluent, any additional analysis regarding the impact associated with discharge of these constituents from new and replaced OWTS on biological resources would be speculative. The proposed policy would not impose requirements to address other constituents of secondary concern, but further research is under way on this topic by federal and state agencies and research groups. In the future, if research indicates there is a substantial public health concern associated with these constituents, the State Water Board would consider the regulatory framework for addressing attendant issues. At this time, however, no further analysis can be conducted based on the existing information and **no conclusion** can be made.

No Mitigation Required

6.3.5 Cumulative Biological Resource Impacts

OWTS have the potential to indirectly affect biological resources that may occur in or rely on surface water resources where OWTS contribute to surface water contamination. The mass loading from high densities of OWTS within a watershed, combined with inputs from other sources such as agriculture, recreation (e.g., golf courses), stormwater, or urban runoff can contribute sediment, pathogens, nutrients, and other constituents to

aquatic environments. These constituents can lead to eutrophication and hypoxia, resulting in impacts on aquatic biological resources, including aquatic habitats, fish, wildlife, and other organisms.

Contributions to contamination of surface waters as a result of increased development and population throughout the state, including additional OWTS, stormwater runoff, and construction-related runoff, would be addressed through the development approval process by local jurisdictions (e.g., general plans, development project EIRs, zoning codes, construction permits) and likely would not contribute to cumulative effects. In areas where surface water bodies are identified as impaired, such contributions are addressed by existing TMDLs.

Degradation and/or eutrophication of surface waters resulting from increased pathogen and/or nutrient loading could lead to a decline in fisheries and adverse effects on other species associated with aquatic habitats, which in turn could affect the diversity and reproduction of special-status species. However, declaring these worst-case scenarios to be significant cumulative impacts would be speculative. It is more likely (although still speculative) that these contributions, while usually not beneficial to the receiving environments (habitats and affected fish and wildlife), would be incremental over time and at some point would be remediated by implementation of new regulatory authority through impairment designations and/or revised regional or local regulations.

Impacts on biological resources may be cumulatively considerable in areas where eutrophication is leading to algal blooms and degradation of aquatic habitat conditions. For the reasons previously described, most WQOs in basin plans and throughout the state should be complied with over time and therefore, in areas with full regulatory compliance (e.g., implementation of TMDLs or other regulatory measures deemed necessary) and appropriate conditions for siting OWTS, future cumulative impacts on biological resources would be **Less than Significant**..

No Mitigation Required.

6.4 Geology and Soils

As a result of California's location along the Pacific Rim, California's geology and its related soils and minerals are unique. California is divided into eleven Geomorphic Provinces. Each region displays unique, defining features based on geology, faults, topographic relief and climate. These geomorphic provinces are remarkably diverse (CA DOC and CGS 2002). This diversity includes the amount of soils available for OWTS use, the amount of mineral resources available for OWTS construction, and the geology and geologic process that assisted in the formation of each province.

As part of the Pacific Rim, California's future and history includes earthquakes from faults, igneous rock-forming events from volcanoes and erosion events associated with the weather patterns due its geographic location. All of these events, separately and in combination, have created the state of the State's geology, minerals and soils in addition to flat valleys, steep slopes and unstable landforms. From the deep fertile valleys that make up the basis for California's agricultural industry to specialty mining for anything

from asbestos to zeolite, or structural building materials in the form of rock or gravel, the state is truly a function of its geology. This also includes landforms like bluffs and mountain-tops that provide beautiful views. Each region of California has a separate and distinct supply of these resources that make up the environment specific to that area.

THRESHOLDS OF SIGNIFICANCE:

Thresholds for determining the significance of impacts related to Geology and Soils are based on relevant provisions of CEQA, the State CEQA Guidelines, checklist questions for geology and soils set forth in Appendix G of the Guidelines, and professional standards and practices.

The proposed statewide policy for OWTS would have a significant impact on Geology and Soils if it would:

- cause Seismic-related ground failure, including liquefaction;
- cause landslides;
- result in substantial soil erosion or the loss of topsoil;
- allow the use of soils incapable of adequately supporting the use of septic tanks or alternate wastewater disposal systems where sewers are not available for the disposal of wastewater; or
- 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.

6.4.1 OWTS Construction will 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

OWTS construction uses aggregate for material during septic tank placement and in the dispersal system to support trenches (Tier 1) and, often, seepage pits (Tier 2). In addition, Tier 2 dispersal systems may include mound and at-grade dispersal systems that also use gravel and, for mounds, sand as part of the treatment media. Furthermore, Tier 2 OWTS treatment systems that may require mineral resources as part of their treatment train include: sand filled trenches, sand filters, rock filters, gravel-filled subsurface wetlands, and others. Many of these OWTS technologies are allowed in areas of the state. It is, therefore believed that this practice will continue under the proposed Project.

In 2009, California was fourth in the nation for the production of nonfuel mineral resources. Sand and gravel made up the highest value product in that category (USGS 2001) at over $900,000,000. Industrial grade sand and gravel is produced much less, although still grossed $42,000,000 in sales. Accordingly, California has a lot of resources when it comes to sand and gravel.

The use of these materials for use in OWTS will increase the demand for them, causing a diversion of sand and gravel to OWTS construction and away from other uses. However, to state that the OWTS use of sand and gravel is likely to be a significant use of sand and gravel compared to other higher volume uses, like concrete, road base, and drainage/erosion control project, would be speculative.

No Mitigation Required.

6.5 Land Use Planning and Aesthetics

This section analyzes the potential effects of the proposed statewide regulations on land use and planning.

THRESHOLDS OF SIGNIFICANCE

Thresholds for determining the significance of impacts related to land use and planning are based on relevant provisions of CEQA, the State CEQA Guidelines, checklist questions for land use and planning set forth in Appendix G of the Guidelines, and professional standards and practices.

The proposed statewide policy for OWTS would have a significant impact on land use and planning if it would:

► Physically divide an established community;

► 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;

► Conflict with any applicable habitat conservation plan or natural community conservation plan.

► Conflict with established land uses;

►Substantially degrade visual quality in adjacent areas;

The proposed statewide policy would not result in the physical division of a community. Under current conditions, OWTS are installed within the boundaries of individual land parcels in areas throughout the state. These systems are part of the overall parcel development and do not present physical barriers that can divide communities. Implementation of the proposed statewide policy would not result in any physical change that would cause an impact relating to the physical division of a community; therefore, this issue is not discussed further in this section.

6.5.1 Conflicts with Applicable Land Use Plans, Policies, or Regulations Adopted for the Purpose of Avoiding or Mitigating an Environmental Effect

Through State of California planning law, local jurisdictions retain the authority to enact policies, programs, and ordinances to regulate how and where development may occur in

local communities throughout the State. Implementation of the proposed Policy will not diminish the ability of cities and counties to exercise their land use planning functions, in accordance with State planning law. CEQA requires government agencies to consider the environmental consequences of their actions before approving plans and policies or committing to a course of action on a project. Therefore, a local jurisdiction proposing to amend its sewage disposal ordinance in a way that could result in a direct or reasonably foreseeable indirect physical change in the environment not previously addressed by this CEQA document or others would be required to evaluate the environmental effects of the proposed action, in accordance with the requirements of CEQA. The proposed Policy would not change the regulatory framework that allows local governing bodies and regional water boards to share authority over land use decisions that could affect water quality in the State. Under the Policy Section "Responsibilities and Duties" and Section 9.0, the Policy addresses how local agencies and regional water boards retain the option of adopting guidelines and standards for OWTS, thus allowing comparable or greater levels of protection to the environment and public health than the proposed standards specified within the proposed Policy. It is possible that situations could occur where a particular siting criterion for OWTS under the basin plans or local ordinances would be different but equally or more protective of the environment than the proposed Policy; however, the resulting conflict would generally not result in a significant impact to the environment. Implementation of the proposed Policy would result in no new significant effects on the environment compared to existing conditions in local areas or regions that are presently subject to local OWTS regulations.

Land use planning functions are carried out by local jurisdictions through State of California planning laws. Of those laws that provide the basis for local jurisdictions to govern development within communities, the general plan (Government Code Section 65300 et seq.) and state zoning law (Government Code Section 65800 et seq.) are of primary use to cities and counties working to direct the type, location, and intensity of growth in an area or region. The proposed Policy for management of OWTS would not affect the authority or purpose of state planning law. For any local municipality, either one with more restrictive or less restrictive standards for siting of individual OWTS, the proposed Policy would not enable development to occur in places other than where it is allowed by the local governing body in communities throughout the state.

The following local municipalities described in Tables 5-1a and 5-1b within "Existing Regulatory Framework and Project Description" of this document are used as case studies for this analysis—Santa Cruz County, Riverside County, Sonoma County, Inyo County, and the Town of Paradise. These areas represent a range of conditions in the state where OWTS are permitted, installed, repaired, and replaced. The respective general plans for each of these communities include goals, policies, and objectives that address density of development, siting of septic systems, and limiting development to protect sensitive resources (e.g., water quality, rural and agricultural lands, and soils). Each of these municipalities has adopted a sewage disposal ordinance for the installation and management of OWTS, which must be consistent with its adopted general plan, and in accordance with the body of planning case law establishing that any action, program, or project undertaken by a city or county affecting land use and development must be consistent with the general plan. The proposed Policy would not weaken this regulatory

framework. To the extent that local regulations for management of OWTS are at least as restrictive as the proposed Policy, no change would occur.

Through MOUs or Tier 2 program approvals with the regional water board, local governing bodies throughout the state use their authority to implement and enforce regulations for permitting, installation, and management of OWTS to protect water quality and public health. Local jurisdictions with a more restrictive standard for siting of OWTS (e.g., greater depth to groundwater than would be required under the proposed Policy) could propose relaxation of such a standard and be consistent with the proposed Policy. It is important to note that this CEQA document applies to changes and approvals made to basin plans and local ordinances that are consistent with the program descriptions in this proposed Policy.. Any local governing body proposing to amend a sewage disposal ordinance or other type of plan that was adopted to ensure the protection of water quality and public health would be required to review this document and address the potential significant effects due to proposed requirements not addressed in this action, in accordance with the requirements of CEQA.

It has been suggested during State Water Board discussions in previous efforts that a proposed statewide Policy could increase development pressures in areas where soil conditions may be particularly well suited for installation of OWTS (e.g., high-quality agricultural lands). Potential future development proposals by local jurisdictions to annex land (e.g., rural agricultural and open space lands) to increase developable areas within local communities would be considered discretionary actions subject to environmental review under CEQA. Such proposals would be subject to review by all affected jurisdictions and possibly to approval by the applicable Local Agency Formation Commission. Potential suitability of soils for installation of OWTS would not drive decisions by local governing bodies to pursue annexation of lands at the fringe of developed areas. Rather, local governing bodies would be required to weigh far-reaching variables related to growth and development. Key variables include regional economic trends, market demand for residential and nonresidential uses, land availability and cost, the availability and quality of transportation facilities and public services, proximity to employment centers, the supply and cost of housing, and regulatory policies or conditions.

Section 21084 of the Public Resources Code requires the State CEQA Guidelines to include a list of classes of projects that have been determined not to have a significant effect on the environment and that would be exempt from the provisions of CEQA. In response to that mandate, the Secretary of Resources established classes of projects that are considered categorically exempt from the requirement to prepare environmental documents (State CEQA Guidelines Section 15300). Class 8 consists of actions taken by regulatory agencies, as authorized by state or local ordinance, to assure the maintenance, restoration, enhancement, or protection of the environment where the regulatory process involves procedures for protection of the environment. It is important to note that, "[C]onstruction activities and relaxation of standards allowing environmental degradation are not included in this exemption." (State CEQA Guidelines Section 15308). In instances where a local governing body has adopted a sewage disposal ordinance with a restriction on installation of OWTS that is more protective of the environment, CEQA

does not provide a mechanism that would allow the governing body to amend its ordinance in a way that would result in a relaxation of environmental protection standards without an evaluation of the environmental impacts associated with the discretionary action.

As described above under "Protection of Water Quality in California," the State Water Board sets statewide policy for the implementation of state and federal laws and regulations that address protection of water quality, including the Porter-Cologne Act (Water Code Section 13000 et seq.). Section 13002 addresses the power of a city or county to adopt and enforce additional regulations limiting the disposal of waste or any other activities that could degrade waters of the state. Consistent with this mandate, local jurisdictions often exercise their authority to adopt specific guidelines and standards to achieve water quality objectives locally, while acknowledging the requirement to comply with the minimum standards contained in the respective Basin Plans.

The case studies in this analysis provide a basis for understanding the level of responsibility that county and city departments (e.g., county departments of environmental health) assume for protection of water quality and public health. Each of the local municipalities discussed in this section has an adopted sewage disposal ordinance as part of its municipal code. In Santa Cruz and Sonoma Counties, high population density, unique geophysical conditions, and historical problems with OWTS-related groundwater and surface water contamination have led to development of detailed code requirements by those two municipalities. High population density in the western half of Riverside County and the historical rate of installation and replacement of OWTS (between 1996 and 2006 it was estimated that Riverside County had 4,000–6,000 installation and replacement annually) present challenges for protection of surface and groundwater quality in that county. The Town of Paradise in Northern California is relatively small with a population of less than 30,000 people; however, the community is unsewered and the Town has adopted local regulatory guidance for permitting, installation, and repair of OWTS through formation of its on-site wastewater disposal zone and adoption of Chapter 13.04 of the Town's municipal code. Most of the development in Inyo County is located in small communities located near Highway 395. Although some areas are sewered, others rely on septic systems that also use individual or community water wells for potable water. Through an MOU with the Lahontan Regional Water Board, the Inyo County Department of Environmental Health is authorized to oversee management of OWTS in the county. Inyo County's sewage disposal ordinance is brief and nonspecific, and the county relies primarily on guidance and standards contained in the Basin Plan for the Lahontan Regional Water Board (1995), EPA's On-site Wastewater Treatment Systems Manual (EPA 2002), and the Uniform Plumbing Code. The Inyo County General Plan addresses allowable density of development on parcels with individual sewage disposal systems.

Tables 5-1 and 5-2 compare selected criteria of the proposed Policy with local regulations for Santa Cruz County, Riverside County, Sonoma County, Inyo County, and the Town of Paradise. Under the first section, "Minimum Operating Requirements," elements of the proposed policy were selected based on their potential

to affect siting of OWTS on a parcel of land. For the five municipalities examined in this section, a comparison of selected criteria leads to the following general conclusions:

► **Depth to groundwater.** For the most part, regulatory guidelines for the local agencies are at least as protective of the environment as the proposed Policy would be. Potential conflicts include the following:

• For enhanced treatment systems, Santa Cruz County may allow 1 foot of continuous unsaturated soil to seasonal high groundwater if the minimum horizontal distance to a well, stream, spring, or other waterbody is 51–250 feet or greater. For this particular siting requirement, implementation of the proposed policy would require the County to apply for a Tier 2 program. Under an approved Tier 2 Program, this will not be allowed, as no requirements in Tier 2 are allowed to permit groundwater separations less than two feet. The Santa Cruz County regulatory requirements for installation of OWTS are relatively complex and detailed, and while implementation of the new depth requirement may result in regulatory dialog between the county and the regional water board, it would conflict with Santa Cruz County land use regulations that have been adopted to avoid and mitigate potential effects to the environment. As such, the proposed Policy would, if anything, be more protective of the environment for groundwater protection. This, however, could cause harm to existing communities and those homeowners and business owners that have existing structures with inadequate site conditions for a replacement OWTS. This represents a conflict in local government land use policy and an impact that is **Potentially Significant** due to the potential for homes and businesses that may not be able to meet the two foot requirement when required to replace their OWTS.

• For new standard and pretreatment systems, the Town of Paradise specifies a minimum depth of 2 feet to the temporary water table. As with the case of Santa Cruz County, under a Tier 1 program under the policy, anything below a 5-foot separation is considered inadequate. The proposed policy would require a minimum depth of 5 feet to groundwater under a Tier 1 system, but a lesser separation would be allowed under an approved Tier 2 regulatory approach. Based the approval conditions and monitoring mutually agreed upon by the regional water quality control board and Santa Cruz County, allowing depths of less than 5 feet would not result in a notable regulatory conflict or a significant impact to the environment. This does not represent a conflict in land use for new OWTS.

• For mound systems, both Riverside and Sonoma Counties allow a minimum depth of 2 feet to groundwater from the original (or native) ground surface. Under the proposed Policy, a mound system is considered a Tier 2 type of conventional OWTS, which requires the local government and the regional board to mutually agree to a program that allows the reduced separation to groundwater. Thus, the requirement would not result in a conflict with local land use regulations that have been adopted to avoid and mitigate potential effects to the environment.

► **Limits for rocky soils.** The proposed Policy specifies that for conventional OWTS, "…Rock content of soil surrounding the dispersal system shall not exceed 65 percent by weight of the materials or 50 percent by volume." If this requirement cannot be met, the OWTS could still be allowed under a Tier 2 Program. (Refer to Section 8.1.70 of the proposed Policy.) Both Sonoma County and the Town of Paradise have special requirements if rock content exceeds 50%. As such, the requirement does not present a conflict or result in a significant impact to the environment.

► **Use of seepage pits.** The Town of Paradise does not allow the use of seepage pits but other counties do allow them as standard practice. As discussed above, Section 13002 of the Water Code provides that local governing bodies retain authority to adopt and enforce additional regulations limiting the disposal of waste or any other activities that could degrade waters of the State. The proposed Policy includes a provision that is consistent with this section of the State Water Code: "Regional Water Boards shall incorporate the requirements established in this Policy by amending their basin plans … shall consider whether it is necessary and appropriate to retain or adopt any more protective standards. To the extent that a regional water board determines that it is necessary and appropriate to retain or adopt any more protective standards, it shall reconcile those region-specific standards with this policy to the extent feasible, and shall provide a detailed basis for its determination that each of the more protective standards are necessary and appropriate." (Section 4.2 of the proposed Policy) Also, under an approved Tier 2 program, local agencies could allow the use of seepage pits. Therefore, no regulatory conflict would occur due to the inherent flexibility of the proposed Policy.

► **Reduction factor allowed.** The proposed Policy does not allow the use of gravel-less chambers to meet the requirements for dispersal systems in a Tier 1 program. However, as shown in Tables 5-1a and 5-1b, some (e.g. Solano County) allow a 0.7 reduction factor in the size of the leachfield. In practice, the reduction factor allows the total length of a leachfield to be reduced to 70% of the original design size of the leachfield that might have otherwise been required, which may or may not affect the ability of a landowner to install a septic system on a smaller lot than would have otherwise been allowed. However, the proposed policy would not dictate whether or not a city of county could approve development of a parcel of land. In other words, the proposed Policy would not cause development to occur in places other than where it is allowed by the local governing body. Also, local regulating agencies consider various environmental factors to assess suitability of a site for a septic system. Site evaluation procedures of local governing bodies would continue in effect. In addition, the 0.7 reduction factor may be included in the Tier 2 requirements. Therefore, the proposed Policy would not result in a notable conflict with adopted regulations of local municipalities that limit siting of OWTS to avoid or minimize potential significant effects to the environment.

► **2.5 Acre Density for New OWTS in New Subdivisions.** Section 7.8 (Tier 1) of the proposed Policy requires that new OWTS in new Subdivisions must have an average density of one OWTS per 2.5 Acres or greater. Since this requiremente only applies to new OWTS in new subdivisions under a Tier 1 program, it is unlikely that this requirement represents a significant conflict with general plans and specific plans in the state. Furthermore, it is not expected to conflict with any applicable land use plan, policy, or regulation of the local agencies, where different densities are generally adopted for the purpose of avoiding or mitigating an environmental effect. If a local government implementing Tier 1 were to adopt a local plan or policy and the density requirement was less than required for the local plan or policy, that more protective standard would govern. On the contrary, if the density was less than 2.5 acres for each OWTS, the more protective requirements in the proposed Project would apply and no environmental impacts would occur. Therefore, no conflict is identified.

Table 5-3 summarizes provisions of the proposed Policy and regional water boards' basin plans. As shown in that table, the regulation of septic systems at the state level is usually governed by the basin plans. Waste discharge requirements are usually conditionally waived by the regional water board because the local governing body (e.g., the County Environmental Health Services Departments) is adequately regulating OWTS in conformance with the basin plan.

The purpose of the proposed Policy is to establish minimum requirements for the permitting, monitoring, and operation of OWTS to prevent conditions of pollution and nuisance. Consistent with the existing regulatory process, the proposed Policy could be entirely or partially implemented by a local agency through agreement. Implementation of the proposed Policy would be accomplished in part through conditional waivers of WDRs by the State Water Board or the regional water boards. Implementation of the proposed Policy would not dismantle the regulatory framework related to the permitting, siting, and management of OWTS that is shared between the regional water boards and local governing bodies in the state. In fact, it will enhance communication between the regional water boards and the local agencies within the regulatory framework.

The proposed Policy would require notification of the applicable regional water board for work to be performed on any OWTS with capacity to treat over 10,000 gpd (2.6.3 of the proposed Policy). However, in Santa Cruz County, the Santa Cruz County Environmental Health Services Department retains authority for regulation of septic systems in the County under an MOU with the Central Coast Regional Water Board. Santa Cruz County addresses management of septic systems in the San Lorenzo River Watershed through implementation and enforcement of requirements contained in its *Wastewater Management Plan for the San Lorenzo River Watershed* (Santa Cruz County 1995a). The Central Coast Regional Water Board usually issues WDRs to owners of OTWS with the capacity to treat over 2,500 gpd. Ongoing work by the County to improve water quality within the San Lorenzo River watershed through implementation of the wastewater management plan provides the basis for local management of OWTS within the watershed, including those on-site treatment systems that are permitted to treat up to 20,000 gpd of wastewater. Implementation of the proposed Policy would not prevent the

Santa Cruz County Environmental Health Services Department from exercising its regulatory authority over OWTS in the San Lorenzo River watershed, provided that the County continued to meet or exceed the minimum requirements of Central Coast Regional Water Board, including those that are more protective of the environment than the proposed Policy.

Table 5-1 compares selected elements of the proposed Policy with local regulations for the selected local municipalities. Under the first section, "Minimum Operating Requirements," elements of the proposed regulations were selected based on their potential to affect siting of OWTS on a parcel of land. The second section, "Local Implementation," addresses the shared authority for oversight and implementation of the proposed regulations. Similarly, Table 5-2 compares selected criteria of the proposed Policy with the criteria for individual waste disposal systems contained in the Basin Plans for selected regional water boards. A comparison of selected criteria leads to the following general conclusions:

► **Depth to groundwater.** For depth limits, siting criteria of the Lahontan and Central Valley Regional Water Boards are equally protective of the environment. The North Coast Regional Water Board allows less than 3 feet for non-standard (e.g. mound and at-grade) dispersal system) and for OWTS that use supplemental treatment. This is allowed in Tier 2 and consistent with the proposed Policy. Also, the proposed Policy allows the regional water boards implementing the proposed Policy to retain the option of establishing requirements for OWTS that are more protective of water quality than specified. Therefore, in instances where regional water boards require greater depths to groundwater below the leaching trench or disposal facility, no regulatory conflict would occur that could result in a significant impact to the environment. Where the regional board allows lesser separation, the addition of filter media or supplemental treatment provides additional assurance of equal or more protective standards and is allowed by the policy. Such requirements will have to be included when the regional boards reconcile their basin plans. This makes the impact to water quality planning **Not Significant.**

► **Limits for rocky soils.** The Basin Plans and related documents that address siting criteria for sewage disposal systems for the Lahontan and Central Valley Regional Water Boards do not specify limits for rock content in soil beneath the leaching trench. As discussed previously, local agencies retain the authority to adopt and enforce regulations and guidelines to achieve water quality objectives provided that minimum standards contained in the application Basin Plans are met. Because many environmental factors are considered during site testing, the limits for rocky soils in the proposed Policy would not result in a notable conflict with the regional water board basin plans.

► **Use of seepage pits.** The Basin Plans and related documents that address siting criteria for sewage disposal systems for the Lahontan and Santa Ana Regional Water Boards address the use of seepage pits. The Santa Ana Regional Water Board's *Guidelines for Sewage Disposal from Land Developments* (Santa Ana

Regional Water Board 1979) addresses minimum criteria for siting of OWTS. If discharge of effluent is through a seepage pit, the percolation rate may not be less than 1.1 gallons per square foot per day. No minimum depth to groundwater below the seepage pit is specified; however, depth to high groundwater from the ground surface in the disposal area may not be less than 10 feet. If the percolation rate is faster than 5 mpi, either additional testing will be required to determine compliance with particle size specifications (depth to high groundwater may not be less than 5 feet for soils containing at least 10% particles smaller than 0.08 inches [2 millimeters]) or the minimum required depth to groundwater below the disposal facilities will be 40 feet. The proposed Policy includes a provision that is consistent with this section of the State Water Code: "Regional Water Boards shall incorporate the requirements established in this Policy by amending their basin plans … shall consider whether it is necessary and appropriate to retain or adopt any more protective standards. To the extent that a Regional Water Board determines that it is necessary and appropriate to retain or adopt any more protective standards, it shall reconcile those region-specific standards with this policy to the extent feasible, and shall provide a detailed basis for its determination that each of the more protective standards are necessary and appropriate." (Section 4.2 of the proposed Policy) Therefore, no regulatory conflict would occur due to the inherent flexibility of the proposed Policy.

► **Reduction factor allowed.** This allows reduced dispersal field size and may result in similar or lesser treatment, depending upon soil type, due to the reduced leachfield size and the fact that it appears that no regional water board seems to include this allowance explicitly in their basin plans at this time, based from Table 2-2. However, scientific literature exists that supports the claim that no lesser treatment of OWTS effluent will result with smaller Gravelless leachfields reduced at levels to 70 percent or even less (Siegrist 2000). Furthermore, regional boards could decide to retain more protective standards where it is determined that a lesser leachfield size would not be appropriate. Therefore, an allowance for reduced leachfield size based on scientific literature poses no significant conflict with regional water board planning..

► **2.5 Acre Density for New OWTS in New Subdivisions.** Section 7.8 (Tier 1) of the proposed Policy requires that new OWTS in new Subdivisions must have an average density of one OWTS per 2.5 Acres or greater. Some basin plans do contain different density requirements (e.g. Santa Ana River Regional Water Board has 1 dwelling per one acre). However, since this clause only applies to new OWTS in new subdivisions, this policy does not conflict with subdivisions already allowed by the regional water board. If a regional water board were to currently contain a basin plan or policy with a density requirement that is less than required for the policy, that more protective standard would replace it. On the contrary, if the density was greater than 2.5 acres for each OWTS, the requirements in the proposed Project would be trumped and fewer environmental impacts would occur based on the more protective standard. Therefore, no conflict is identified.

Implementation of the proposed Policy would neither dismantle nor change the regulatory framework related to the permitting, siting, and management of OWTS that is shared between the regional water boards and local governing bodies in the state.

The proposed Policy for management of OWTS would not affect the authority or purpose of State planning law. Nor would it affect the land use planning processes of local governing bodies that are undertaken in accordance with State planning law. Any local governing body proposing to amend a sewage disposal ordinance or other type of plan that was adopted to ensure the protection of water quality and public health would be required to address the potentially significant effects of that action, in accordance with the requirements of CEQA. Section 3.0 of the proposed Policy addresses how local agencies and regional water boards retain the option of adopting guidelines and standards for OWTS that are more protective of the environment and public health than the proposed regulations, which is consistent with Section 13002 of the State Water Code. Implementation of the proposed Policy would neither dismantle nor change the regulatory framework related to the permitting, siting, and management of OWTS that is shared between the regional water boards and local governing bodies in the State.

This impact is considered **Potentially Significant** for structures in neighborhoods and communities with existing OWTS when a replacement dispersal field is needed where those OWTS were originally allowed to have less than 2 feet of soil beneath the dispersal system and groundwater.

Mitigation Measure 6.5.4.
Modify the proposed Policy to include the following additional requirements:

Replace Section 9.4.9 to read:

"Separation of the bottom of dispersal system to groundwater less than two (2) feet for replacement OWTS and for existing OWTS unless the OWTS is designed to meet the nitrogen removal and fecal coliform removal performance requirements for supplemental treatment contained in Section 10 of the proposed Policy."

Implementation: This mitigation measure is the responsibility of the State Water Board as part of the policy.

Significance after Mitigation: If the mitigation measures are implemented by the State Water Board, discharges from replaced OWTS with high groundwater would be allowed to upgrade and to further protect groundwater from degradation at levels not currently met. However, the discharges from replaced OWTS would not meet the water quality objectives for nitrate-nitrogen (10mg/L) at the point of compliance and may not meet the water quality objectives for fecal coliform. This is a potential impact but may not occur in all soil and groundwater conditions. If implemented, the mitigation measures would result in the need for installation of OWTS with nitrogen removal and fecal coliform removal systems. Supplemental treatment systems are very costly and the cost for such systems would be borne by the owners. Recognizing that complying with the proposed Policy may, in some cases, impose a significant monetary hardship to homeowners, the

State, in cooperation with USEPA, has set aside funds from its State Revolving Fund Program that can be made available to local qualified agencies who can then provide low-interest loans to homeowners to install, repair, replace, or upgrade their OWTS. The homeowners would still bear the primary financial responsibility for these improvements, but could potentially qualify for lower interest (than market rate) loans. If this mitigation measure is adopted, the land use impacts associated with rendering existing structures in neighborhoods and communities would be reduced to a **less-than-significant** level. However, if the State Water Board determines, for water quality, socioeconomic, or other reasons, that this mitigation measure is infeasible and cannot be implemented, the impact associated with nitrogen contamination from operation of OWTS would be **Potentially Significant and unavoidable.**

6.5.2 Conflicts between Adopted Habitat Conservation Plans or Natural Community Conservation Plans

This land use analysis includes representative overviews of the local and regional planning environments for selected municipalities. As an example, Santa Cruz County and the City of Scotts Valley have been coordinating with USFWS to develop a draft Interim Programmatic Habitat Conservation Plan (IPHCP) that proposes an off-site mitigation program for landowners in the Sandhills region of Santa Cruz County whose properties are zoned residential within existing residential areas on parcels smaller than 1 acre. An off-site mitigation site is being planned to protect selected species. USFWS is preparing an environmental assessment on the IPHCP, which is part of the 3- to 5-year project to develop a regional HCP.

In another example, the Riverside County Board of Supervisors adopted the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) in June 2003, which is focused on conservation of species and their associated habitats in western Riverside County. The MSHCP plan area encompasses approximately 1.26 million acres. It is one of several large, multi-jurisdictional habitat planning efforts in Southern California with the overall goal of maintaining biological and ecological diversity within an urban region. Large-scale Habitat Conservation Plan (HCP) planning efforts have been completed in San Diego and Orange Counties and a similar effort is underway in the Coachella Valley in Riverside County. As previously described, the Western Riverside County MSHCP policies govern development standards with regard to the MSHCP plan area.

Similar habitat management planning and management efforts are being pursued in other parts of the state. The process to adopt and implement HCPs and Natural Community Conservation Plans (NCCPs) involve discretionary actions by local municipalities that require separate environmental review under CEQA and/or the National Environmental Policy Act (NEPA). All feasible mitigation for any significant environmental effects would be implemented with adoption of the HCP or NCCP.

As discussed previously in this SED, California State law has established the general plan as the basic land use charter that embodies fundamental land use decisions and governs the direction of future land uses at the local level. (*City of Santa Ana v. City of Garden Grove* [1979] 100 Cal.App.3d 521, 532; *see also DeVita*, 9 Cal. 4th at 763.) Furthermore,

any decision by a city or county that will affect land use and development must be consistent with the adopted general plan. Otherwise, an amendment to the general plan would be required, in accordance with Government Code Section 65350 et seq.

For example, the Riverside County Integrated Project (RCIP) includes the Western Riverside County MSHCP, and the Riverside County General Plan. The open space element of the General Plan includes Policy OS 17.1, which states, "Enforce the provisions of applicable MSHCP's, if adopted, when conducting review of development applications." The RCIP is a collection of policies, guidelines, and implementation measures, which have been adopted to achieve common goals related to development and growth within Riverside County. No aspect of the proposed Policy would preempt the authority of local jurisdictions to guide the ultimate patterns of development for communities throughout the state, as shown by the examples provided for Santa Cruz County and Riverside County.

Furthermore, implementation of the proposed policy would affect siting of OWTS by requiring compliance with minimum standards, which include maintaining certain depths of continuous unsaturated soil and limits on allowable use of engineered fill to meet minimum depth requirements. No aspect of these or other proposed regulatory requirements of the proposed project would conflict with policies or guidelines contained in HCPs or NCCPs in the state, which have been adopted as tools to avoid environmental degradation of sensitive habitat areas that are critical to species survival.

Implementation of the proposed Policy would not lead to preemption of guidelines, policies, or regulations that local planning agencies have in place to direct development in a way that avoids impacts to sensitive habitats and protected species, including HCPs or NCCPs. This impact is **less than significant**.

No Mitigation Required

6.5.3 OWTS Placement, because of Siting and Design, Could Substantially Degrade Visual Quality in Adjacent Areas

The establishment of new or replacement OWTS within designated scenic areas may have an adverse effect on scenic resources. OWTS under Tier 0 will have no new impacts on scenic resources since these systems are already in place and are operating properly. New systems under Tier 1 or Tier 2 will be installed along with the development of homes or other facilities that will need approval from local authorities. Most local authorities have ordinances in place dictating the character and appearance of developments within scenic areas that assure that the scenic character of the area is preserved. The proposed policy will not affect these requirements and impacts on scenic resources are not expected due to the development of new OWTS.

Existing OWTS that need to be replaced to Tier 1 or Tier 2 standards and/or repaired under Tier 4 or modified under Tier 3 within designated scenic areas may require the clearing of land for installation of new leach fields. The City of Calabasas has identified failing OWTS within designated scenic highway areas that would require the removal of established trees in order to install new leach fields (Pers. Comm., Maureen Tamuri,

Community Development Director, City of Calabasas). Although this may have a significant effect on scenic resources, many local authorities have native tree protection ordinances that require mitigation where no other feasible alternative exists to the removal of native trees. Mitigation includes the planting of replacement trees on-site at some established ratio. If on-site mitigation is infeasible, off-site mitigation or an in-lieu fee, where the fees are used to fund restoration or creation of native habitat within the local area, is required (City of Malibu 2002; Ventura County 2011). With the mitigation required by local ordinances, impacts to scenic resources should be reduced to **Less Than Significant** levels. In those cases where the impacts will still be significant, the local agencies will need to address those projects during the environmental review of the permits for tree removal.

No Mitigation Required.

6.5.4 Cumulative Land Use Impacts

The proposed Policy does not affect land use planning functions of local jurisdictions throughout the state; these functions are retained by local jurisdictions through State of California planning laws. Of those laws that provide the basis for local jurisdictions to govern development within communities, the general plan (Government Code Section 65300 et seq.) and state zoning law (Government Code Section 65800 et seq.) are of primary use to cities and counties working to direct the type, location, and intensity of growth in an area or region. The proposed Policy for OWTS would not affect the authority or purpose of state planning law. Nor would the proposed Policy affect the land use planning processes of local governing bodies that are undertaken in accordance with state planning law. For any local municipality, regardless of which tier they operate under, the proposed Policy would not enable development to occur in places other than where it is allowed by the local governing body in communities throughout the state. Development will continue to occur in some areas and not in other areas throughout the state, based on regulatory and planning decisions made by the local jurisdictions, and cumulative land use impacts may result from those decisions. However, the proposed statewide OWTS regulations would not control those development decisions or contribute to any resulting cumulative land use impacts. For that reason, cumulative impacts on Land Use Planning are found to be **Less than Significant.**

No Mitigation Required.

6.6 Cultural Resources

Thresholds of Significance

According to CEQA, an impact is considered significant if it would disrupt or adversely affect a prehistoric or historic archaeological site or a property of historic or cultural significance to a community or an ethnic or social group. The State CEQA Guidelines define a significant historical resource as a resource listed or eligible for listing in the California Register of Historical Resources (CRHR) (Pub. Res. Code Section 5024.1). A historical resource may be eligible for inclusion in the CRHR if it:

- is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage

- is associated with the lives of persons important in the state's past;
- embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of an important creative individual, or
- possesses high artistic values; or
- has yielded, or may be likely to yield, information important in prehistory or history.

If a project proponent agrees to avoid affecting cultural resources identified in the project area, evaluation of these resources for their potential to be listed in the CRHR is not required. If avoidance or protection of a significant cultural resource is not possible, mitigation measures must be implemented, as set forth in Public Resources Code 21083.2(c)-(l). A cultural resource that does not meet the criteria to be considered significant need not be given further consideration (Pub. Res. Code Section 21083.2[h]).

6.6.1 Indirect Impacts to Cultural Resources from Construction of OWTS

The construction of OWTS in areas where disturbance has already occurred (i.e., areas that are actively farmed or where an active business) would not represent a new impact on cultural resources. Therefore, significant cultural resources, as defined by CEQA, would not be affected on lands currently under agricultural production.

However, if OWTS are constructed on lands not previously disturbed, then cultural resources, either known or unknown, could be affected. However, the construction and use of an OWTS must conform to all local land use plans and zoning. Such planning and zoning actions must also comply with CEQA at the time of approval. For this reason, this impact is considered **less than significant**.

Although, given the above, on lands currently in use and previously surveyed for cultural resources, OWTS construction could result in the unearthing of previously unknown cultural resources. If human remains of Native American origin are uncovered, this impact could be **potentially significant**. While this may seem to contradict the above finding, this SED finds that there is always an unknown component to impact assessments when digging is involved. Thus, this SED does not exclude the remote possibility that historic or cultural resources may be encountered during construction of an OWTS, even if the area was previously disturbed or an initial evaluation for cultural resources was conducted.

Mitigation Measure 6.6.1.
Require compliance with State Laws regarding disposition of Native American burials, if such remains are found. If human remains of Native American origin are discovered during project activities, it is necessary to comply with state laws relating to the disposition of Native American burials, which are under the jurisdiction of the Native American Heritage Commission (Pub. Res. Code Section 5097). If human remains are discovered or recognized in any location other than a dedicated cemetery, excavation or

disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains will stop until:

- the county coroner has been informed of the discovery and has determined that no investigation of the cause of death is required; and
- if the remains are of Native American origin:
    - the descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of the human remains and any associated grave goods with appropriate dignity, as provided in Public Resources Code Section 5097.98, or
    - the Native American Heritage Commission is unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission.

According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the California Native American Heritage Commission.

Implementation: This mitigation measure is the responsibility of all people involved in conducting and overseeing the construction of OWTS.

Significance after Mitigation: Compliance with this law mitigates this impact to **less than significant**.

6.6.2 Indirect Impacts from Population Growth in Other Areas Because of Restrictions on Housing Developments in Certain Areas

It has been suggested during State Water Board discussions in previous efforts that a proposed statewide Policy would increase development pressures in areas where soil conditions may be particularly well suited for installation of OWTS (e.g., high-quality agricultural lands). Similarly, local jurisdictions may annex land (e.g., rural agricultural and open space lands) to increase developable areas, changing population growth within local communities. Such actions in themselves would be considered discretionary actions subject to environmental review under CEQA. Such proposals would also be subject to review by neighboring jurisdictions and possibly subject to approval by an applicable Local Agency Formation Commission.

Potential suitability of soils and other requirements in the proposed Policy for installation of OWTS would not drive decisions by local governing bodies to pursue annexation of lands at the fringe of developed areas. Rather, local governing bodies would be required to weigh far-reaching variables related to growth and development. Key variables include regional economic trends, market demand for residential and nonresidential uses, land

availability and cost, the availability and quality of transportation facilities and public services, proximity to employment centers, the supply and cost of housing, and regulatory policies or conditions.

Land use planning functions are carried out by local jurisdictions through State of California planning laws. Of those laws that provide the basis for local jurisdictions to govern development within communities, the general plan (Government Code Section 65300 et seq.) and state zoning law (Government Code Section 65800 et seq.) are of primary use to cities and counties working to direct the type, location, and intensity of growth in an area or region. The proposed Policy for management of OWTS would not affect the authority or purpose of state planning law. Nor would they affect the land use planning processes of local governing bodies that are undertaken in accordance with state planning law. For any local municipality, either one with more restrictive or less restrictive standards for siting of individual OWTS, the proposed Policy would not enable development to occur in places other than where it is allowed by the local governing body in communities throughout the state. For these reasons, the impact of this issue is considered **less than significant**.

No Mitigation is Required

6.7 Utilities and Service Systems

The proposed Policy would require owners of conventional OWTS in Tier 3 (adjacent to impaired waters) to assess their OWTS to determine if it is contributing to the pollution of nearby surface waters. Those that find that their OWTS is contributing pollution, conceivably an entire watershed full of homes and businesses, will have to retrofit their OWTS to provide supplemental treatment or possible convert the community to centralized sewage collection and treatment. In those cases where supplement treatment or centralized sewage treatment is is required, impacts would possibly occur under Tier 3. Converting their existing conventional systems to centralized sewage collection and treatment would require extensive planning and construction (digging, trenching, grading, and other earthwork) whether the location needed to be connected into an existing centralized sewage collection and treatment system or a new wastewater treatment system.

In addition, the Scoping Document indicated a need to address increased septage disposal needs as a result of the proposed Policy. Septage is a necessary result from wastewater treatment. Septage consists of settleable material at the bottom of the septic tank mixed with the scum layer floating inside the tank with water inside the septic tank. It is mixed at the time that the septage is pumped from the tank.

THRESHOLDS OF SIGNIFICANCE

Thresholds for determining the significance of impacts related to utilities and service systems are based on relevant provisions of CEQA, the State CEQA Guidelines, checklist questions for utilities and service systems set forth in Appendix G of the Guidelines, and professional standards and practices.

The proposed statewide policy for OWTS would have a significant impact on utilities and service systems if it would:
a) Result in an exceedence of wastewater treatment requirements issued by the applicable Regional Water Quality Control Board.

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts.

c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts;

d) Require new water supplies to serve the project from existing entitlements and resources, or require new or expanded entitlements;

e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it demands additional capacity beyond the provider's existing commitments;

f) Require additional landfill space under the existing permitted capacity to accommodate the project's solid waste disposal needs; or

g) Result in a violation of a federal, state, or local statutes and regulations related to solid waste.

6.7.1 Communities and Groups of Properties using Conventional OWTS may be Found Contributing to the Impairment of Surface Waters, Requiring those Properties to Convert to Centralized Sewage Collection

While the proposed project is not expected to increase the number of OWTS installed over time, it could lead to an expansion of existing centralized sewage collection and treatment systems or the construction of new centralized sewage collection and treatment systems. The construction of new collection systems as opposed to individual OWTS or an expansion of an existing sewer system conveyance capacity or in the capacity of centralized treatment plants is a possible solution that is a result of the proposed Policy. Such possibilities could result if the cost of supplemental treatment is greater than the cost of centralized sewage collection and treatment. The relatively high costs of most supplemental treatment OWTS, which can often be twice the cost of conventional systems, may make the option of constructing community collection systems and consolidating financial resources attractive to members of a neighborhood or community where local siting conditions are challenging or not appropriate for individual systems.

Thus, the proposed project could lead to the construction of more centralized sewage collection and treatment systems or the expansion of existing sewer lines or treatment plant capacities. Such construction or expansion activities have the potential to cause significant environmental impacts. However, construction or either new or additional capacity is not expected and is, at best, speculative because OWTS operate independently of the centralized wastewater treatment facilities. While similar issues have occurred in the state, similar to that planned at Monte Rio, CA along the Russian River in the past, a determination that the proposed Project would result in either new or additional

centralized sewage collection and treatment is speculative. Even if this wasn't speculative, the potential environmental impacts associated with the expansion of existing centralized sewage collection and treatment systems or any conversion of OWTS to centralized sewage collection and treatment systems would require its own to environmental assessment. Therefore, no further consideration is required.

No Mitigation Required

6.7.2 The Proposed Policy Would Result in Additional Waste Needing Disposal in a Landfill with Sufficient Permitted Capacity to Accommodate the Project's Solid Waste Disposal Needs.

OWTS require periodic maintenance in the form of septage pumping and disposal. The proposed Policy could increase the amount of OWTS septage that would be treated at centralized treatment if such maintenance has been deferred and occurs within a short time period as a result of enlightened awareness regarding proper care of OWTS and due to the proposed Policy. Septage is disposed at wastewater treatment plants or disposed in lined septage ponds in compliance with Title 27, or through prescribed land application in accordance to permitting requirements and the Part 503 regulations in Title 40 of the Code of Federal Regulations. Treatment of septage at centralized treatment plants would generate a solid waste byproduct referred to as biosolids. Biosolids are typically disposed of in landfills; if existing landfill capacities are not sufficient, the proposed project could indirectly cause an expansion in landfill capacities.

The proposed Policy will not result in a net increase in septage over time; as such an occurrence is necessarily associated with an increase in the population. A survey done in California (SWRCB 2002) indicates that more than 230 million gallons of septage are being treated and disposed annually in California. The quantity of septage received by the type of facility is distributed as follows; 84% wastewater treatment plants, 2% land application, 2% independent treatment facilities (proprietary systems), and 11% septage ponds. The same survey indicated that the amount of anticipated septage correlated well with the number of OWTS. This indicates that it is unlikely that increased enlightenment regarding OWTS maintenance will result in increase septage. Accordingly, it is found that the proposed Policy would result in additional waste needing disposal in a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs. This impact is found to be **less than significant.**

No Mitigation Required.

6.8 Cumulative Air Quality and Greenhouse Gas Emission Impacts

The operation of OWTS systems typically generates small amounts of some criteria air pollutants, primarily hydrogen sulfide and possibly oxides of nitrogen (an ozone precursor) if the OWTS includes denitrification, as well as methane, a greenhouse gas (GHG). The amounts of these pollutants emitted by an individual OWTS are minimal. Methane, for example, is produced in the septic tank during decomposition of solids; an individual system produces approximately 0.13 pound per day of methane (CH_4), with

the 1.2 million systems in California producing approximately 76 tons per day. Currently, most air basins in California are in non-attainment for ozone (i.e., the standard was violated during the latest 3-year period), and only a small portion of the Mojave Desert Air Basin (in San Bernardino County) is in non-attainment for H_2S emissions (ARB 2006). Although CH_4 is acknowledged to be a GHG and a significant contributor to climate change, it is not a criteria pollutant regulated by air basins in California.

In September 2006, Governor Arnold Schwarzenegger signed Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006 (Chapter 488, Statutes of 2006, enacting Sections 38500–38599 of the Health and Safety Code). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs the California Air Resources Board (ARB) to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 (which regulates GHG emissions from vehicles, but is currently the subject of litigation) should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32. AB 32 does not specifically apply to the proposed project.

Senate Bill 97, signed in August 2007 (Chapter 185, Statutes of 2007, enacting Sections 21083.05 and 21097 of the Public Resources Code), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directs the OPR to prepare, develop, and transmit guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions to the California Resources Agency, as required by CEQA by July 1, 2009. The California Resources Agency is required to certify and adopt those guidelines by January 1, 2010.

Previously adopted state regulations include AB 1493 (Chapter 200, Statutes of 2002) (amending Section 42823 of the Health and Safety Code and adding section 43018.5 of the Health Safety Code), which requires that ARB develop and adopt, by January 1, 2005, regulations that achieve “the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks and other vehicles determined by ARB to be vehicles whose primary use is noncommercial personal transportation in the state.” In 2005, Executive Order S-3-05 was signed by Governor Schwarzenegger; this executive order stated that GHG emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80% below the 1990 level by 2050. Executive Order S-3-05 directed the Secretary of the California Environmental Protection Agency to coordinate a multi-agency effort to reduce GHG emissions to the target levels.

The proposed project would not affect applicable air quality plans. Although OWTS contribute a small amount of greenhouse gas emissions (e.g., methane), the proposed regulations would not affect the volume of methane production by OWTS, the number of OWTS, or the volume of wastewater discharged to OWTS. Therefore, the proposed

project's contribution to cumulative air quality impacts would not be considerable. Other sources of air emissions, such as transportation, industrial activities, and power generation, are the major contributors to significant cumulative air quality impacts.

6.9 Cumulative Traffic Impacts

The proposed project would increase the installation of supplemental treatment units and increase maintenance requirements for OWTS in California. Such activities could result in additional traffic on local and rural roadways. This increase in traffic would be minimal and on an infrequent basis. It is possible that operation and maintenance activities could occur as a result of the proposed Policy, including inspections and increased potential for pumping. That would impact roads where traffic loads are relatively light. The major contribution to cumulative traffic impacts would be from other sources: future development projects and associated growth. Mitigation may be needed in some areas to address cumulative increases in traffic resulting from development, but such mitigation would be addressed by local land use planning and transportation agencies independently of the proposed project. The proposed project's contribution to any cumulative traffic impacts would not be considerable.