

**STATE WATER RESOURCES CONTROL BOARD  
RESOLUTION NO. 2004 - 0051**

ADOPTION OF FINAL GENERAL WASTE DISCHARGE REQUIREMENTS (GWDRs) FOR LAND APPLICATION OF BIOSOLIDS FOR USE AS A SOIL AMENDMENT IN AGRICULTURE, SILVICULTURE, HORTICULTURE, AND LAND RECLAMATION ACTIVITIES AS IN THE REVISED FINAL PROGRAM ENVIRONMENTAL IMPACT REPORT (PEIR) AND [FINDINGS](#)

WHEREAS:

1. The SWRCB has certified the revised Final PEIR.
2. The SWRCB has prepared and circulated the Draft GWDRs for public review and comment.
3. The SWRCB has considered and responded to the comments received on the Draft GWDRs.
4. All mitigation measures identified in the Findings of the revised Final PEIR are incorporated in the Final GWDRs and in implementation procedures supporting the GWDRs.
5. The SWRCB has reviewed and considered the requirements within the Final GWDRs, and the Final GWDRs reflects the independent judgment of the SWRCB.
6. The RWQCBs have discretion in using the Final GWDRs for regulating land application of biosolids.

THEREFORE BE IT RESOLVED THAT:

The SWRCB adopts the Final GWDRs for the Land Application of Biosolids.

**CERTIFICATION**

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on July 22, 2004.

  
Debbie Irvin  
Clerk to the Board

**RESOLUTION OF THE  
CALIFORNIA STATE WATER RESOURCES CONTROL BOARD  
CERTIFYING THE  
FINAL STATEWIDE PROGRAM ENVIRONMENTAL IMPACT REPORT  
FOR THE GENERAL ORDER (GO) FOR GENERAL WASTE DISCHARGE  
REQUIREMENTS FOR THE DISCHARGE OF BIOSOLIDS TO LAND FOR USE IN  
AGRICULTURAL, SILVICULTURAL, HORTICULTURAL, AND LAND  
RECLAMATION ACTIVITIES IN CALIFORNIA**

**ATTACHMENT 2**

**PEIR FINDINGS,  
AND ADOPTION OF A MITIGATION MONITORING PROGRAM**

**July 2004**

**ATTACHMENT 2**

**PEIR FINDINGS,  
AND ADOPTION OF A MITIGATION MONITORING PROGRAM**

**ENVIRONMENTAL IMPACT REPORT CERTIFICATION**

The California State Water Resources Control Board (SWRCB) hereby certifies that the Program Environmental Impact Report (PEIR) covering General Waste Discharge Requirements (GWDRs) for Biosolids Land Application, State Clearinghouse Number 99062108, has been completed in compliance with the California Environmental Quality Act (CEQA). The subject document consists of the Draft PEIR, dated January 30, 2004, and the Final PEIR (which incorporates the Draft), dated June 29, 2004. These reports have been presented to the SWRCB, which prior to approving the GO, reviewed and considered the information contained in the Final PEIR, together with oral and written testimony from members of the public, SWRCB staff, municipalities and other public agencies.

Having received, reviewed, and considered the foregoing information as well as any and all other information in the record, including that presented at a public hearing held on March 2, 2004, this Board hereby finds that the Final PEIR reflects the independent judgement and analysis of the SWRCB. The findings are made in accordance with Public Resources Code Section 21081.

**FINDINGS**

**Section 1. Introduction and Background on the Proposed Project**

The SWRCB is proposing to adopt a General Order (GO) establishing GWDRs for the Discharge of Biosolids to Land for Use in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities in California. The GO is hereby incorporated by reference. Biosolids are defined as sewage sludge that has been treated, tested, and shown to be capable of being used beneficially as a soil amendment for agriculture, silviculture, horticulture, and land reclamation. The GO would establish a notification and permit review process applicable to all persons and public entities intending to apply biosolids to land for the purposes stated above. The GO defines discharge prohibitions, discharge and application specifications, transportation and storage requirements, and general procedures and provisions to which all land appliers would be required to adhere.

Consistent with 14 CCR 15091, findings must be made by the SWRCB before approval of the statewide PEIR in compliance with CEQA. The findings are based on analysis of the impacts of the SWRCB's adoption and implementation of a GO that would allow the issuance of GWDRs for land application of biosolids, providing consideration of the broad policy alternatives and their impacts and mitigation measures early in the regulatory process. CEQA requires that state and local government agencies consider the environmental consequences of projects over which they have

discretionary authority before taking action on those projects (Pub. Res. Code 21000 et seq.). The project analyzed in the PEIR is the SWRCB's discretionary action on the GO; the underlying activity associated with this action is the land application of biosolids. CEQA also requires that each public agency mitigate or avoid, wherever feasible, the significant environmental effects of projects it approves or implements.

The impact analysis has been completed so that the SWRCB can respond to the mandates of Section 13274 of the California Water Code and the judicial order of the Superior Court of California for the County of Sacramento. To meet these mandates, the PEIR has analyzed the effects of implementing the GO on a statewide basis. The PEIR considers on a program level the effects of applying biosolids to land at any location in the state that is not implicitly (wetlands, waterways, urbanized areas) or explicitly (exclusion areas) exempted from the GO. The analysis considered ongoing biosolids land application operations in the state, including the 50,000+ acres permitted under general waste discharge requirements of the Central Valley (and referred to in the judicial order) prior to initiation of the statewide GO effort.

## **Section 2. Description of the Proposed Project**

The proposed GO was developed to provide a single regulatory framework for the land application of biosolids in California and to streamline the permitting process that each RWQCB uses for biosolids application projects. Provisions of the GO are based largely on the federal Part 503 regulations promulgated by the United States Environmental Protection Agency (Title 40 of the Code of Federal Regulations, Part 503) to ensure that the state regulations incorporate the extensive health risk assessments and scientific review conducted for the development of the federal regulations. Baseline criteria that were established under the Part 503 regulations must be met under the GO and associated GWDRs. In addition, to ensure further protection of the health, safety, and welfare of Californians, the proposed GO contains a number of specific limitations, prohibitions, and discharge specifications that exceed federal standards.

The objective of the GO is to provide a clear and consistent regulatory process that is adequately protective of environmental resources, streamlines the permitting process for land application of biosolids, and includes policies and procedures that ensure continued refinement of biosolids disposal practices and protection of the environment. Therefore, the GO is intended to:

- comply with Section 13274 of the California Water Code and the judicial order by the Superior Court of California for the County of Sacramento by adopting statewide GWDRs for the discharge of dewatered, treated, or chemically fixed sewage sludge (biosolids) for beneficial use as a fertilizer and/or soil amendment;
- provide a regulatory framework for biosolids application to land that can be used by individual RWQCBs to act on Notices of Intent (NOIs) filed by potential dischargers in a manner that avoids or mitigates potentially adverse environmental effects; and

- provide a flexible regulatory framework that allows implementation of a biosolids beneficial use program for land application operations at the regional level and contains requirements that are based on sound science and best professional judgment.

The GO describes the types of biosolids that can be regulated under the GO, discharge requirements (including the amount of time after the application of biosolids when crops can be harvested), prohibitions (including areas in California that are not covered under the GO), and biosolids storage and transportation specifications.

For the purposes of the GO, biosolids are defined as only those sewage sludges produced at municipal wastewater treatment plants that meet the requirements of the Part 503 regulations. Unstabilized sewage sludge, septage, and wastes that do not meet the Part 503 regulations or are determined to be hazardous under Title 22, Division 4.5, Chapter 11, Article 3 of the CCR would not be regulated under the GO.

Under the GO, the discharger is defined primarily as the landowner and generator, but may also include an individual, business, or organization involved in the transportation, use, and application of biosolids. The discharger would be legally responsible for implementing and complying with the provisions of the GWDRs issued by the RWQCB in accordance with the GO.

### **Section 3. Alternatives to the Proposed General Order**

In accordance with State CEQA Guidelines Section 15126.6, an EIR must describe a range of reasonable alternatives to the project, or to the location of the project. The alternatives would feasibly attain most of the basic project objectives of the proposed project but would avoid or substantially lessen any of the significant effects of the project. The EIR must evaluate the comparative merits of these alternatives. An EIR does not need to consider every conceivable alternative to a project; rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation.

The alternatives to the proposed project were developed to comply with CEQA and are based on input received during the public scoping period. The No-Project Alternative was developed to comply with CEQA. The Modified General Order Alternative is included because it would achieve the project's objectives and would result in reduced impacts compared with the proposed project. Although the Land Application Ban Alternative would not meet the project's basic objectives, it was included in the EIR alternatives analysis to respond to issues identified during the public scoping period. In response to litigation over the 2000 PEIR, the Class A Only and Food Crop Limitation Alternatives have been included as full alternatives.

### **Section 4. Findings on Significant Impacts and Mitigation Measures of the Proposed Project**

## Introduction

Public Resources Code Section 21002 states:

. . . public agencies will not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required by this division are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects.

The obligation of public agencies to adopt feasible mitigation measures that substantially lessen or avoid significant impacts is implemented, in part, through the adoption of CEQA findings, as required by Public Resources Code Section 21081 and CEQA Guidelines Section 15091. Under CEQA, public agencies are required to make written findings for each significant effect associated with a project prior to approval of the project. The possible findings are:

- Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR. (CEQA Guidelines Section 15091 [a][1])
- Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding, and have been or will be adopted by such other agency. (CEQA Guidelines Section 15091 [a][2])
- Specific economic, social, legal, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the FEIR. (CEQA Guidelines Section 15091 [a][3])

Each of these findings must be supported by substantial evidence in the administrative record.

This section identifies the impacts that can be fully avoided or reduced to a less-than-significant level through the incorporation of feasible mitigation measures into the project, as identified in the statewide PEIR on the GO.

The impacts identified in this section are considered in the same sequence in which they appear in the PEIR.

## Soils, Hydrology and Water Quality

The proposed project will not have any significant impacts on soils, hydrology or water quality.

### Land Productivity

#### **Impact: Changes in Soil Fertility and Salinity and Resulting Effects on Productivity**

Application of biosolids would increase the levels of nutrients and salts in the soil. Elements that would be added to the soil include nitrogen, phosphorus, potassium, calcium, magnesium, sodium, and chloride. Under unusual circumstances, plant nutrition and soil fertility could be adversely affected by biosolids applications. Although adverse crop productivity impacts from changes in soil nutrient and salt levels are unlikely to occur under the proposed GO, this impact is considered potentially significant.

**Mitigation Measures.** Implementation of the following mitigation measure will reduce this impact to a less-than-significant level:

- **4-1: Provide Soil- and Site-Screening Information with the Pre-Application Report.** The GO Pre-Application Report will be revised to require that WDR applicants provide sufficient soil and site information such that RWQCB staff can determine whether soils will be degraded and/or land productivity will be reduced as a result of biosolids application. In particular, providing the information is intended to ensure that 1) essential soil nutrients other than nitrogen are applied so that significant nutrient imbalances do not occur, 2) metals-related phytotoxicity does not occur, 3) metals related forage toxicity or mineral deficiencies and other trace metals related problems do not occur on hay lands and pasture lands, 4) increases in salinity do not occur to the point that the yields of the crop(s) typically grown at the site is appreciably reduced, and 5) appreciable accelerated soil erosion does not occur.

The Pre-Application Report already requires sufficient information with which effects of potential nutrient imbalances, metals phytotoxicity, and excessive salinity can be analyzed. This information will be used by a certified soil scientist or a certified agronomist to evaluate the above potential effects on land productivity. The soil scientist and/or agronomist will make recommendations in a letter report to accompany the Pre-Application report regarding the proper rate of biosolids applications, any soil management (such as supplemental fertilizers and pH adjustment), appropriate crop, and grazing practice recommendations, considering the nature of the application site soils and biosolids characterization data, and the need to preserve short term and long term land productivity. The GO Pre-Application Report also will be amended to include the erosion hazard (derived from

USDA soil survey reports<sup>1</sup>) of the proposed application site.

Additionally, the following table will be added to the GO Pre-Application Report. Applicants or qualified soil scientists or agronomists will use the table to further determine whether soils could be degraded or land productivity reduced.

<b>Parameter</b>	<b>Limitations to Land Application</b>		
	<b>Slight</b>	<b>Moderate</b>	<b>Severe</b>
Cation exchange capacity <sup>a</sup> (average milliequivalents per 100 g, 0-20 inches depth)	>15	10-15	<10
pH <sup>b</sup> (average 0-20 inches depth)	>6.5	5.0 to 6.5	<5.0
Erosion hazard rating <sup>c</sup>	None to slight	Moderate	High to severe

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<sup>a</sup> Cation exchange capacity limits based on professional judgment.  
<sup>b</sup> pH limits based on U.S. Department of Agriculture (1993).  
<sup>c</sup> Erosion hazard limits based on professional judgment.

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Sampling of biosolids and soils will follow the procedures and protocols currently approved by the EPA/DHS.

Provided that the applicant, a soil scientist, or agronomist has provided written confirmation to the RWQCB that soils will not be degraded and/or land productivity will not be reduced as a result of nutrient imbalances, metals-related phytotoxicity, or adverse salinity effects, biosolids may be applied on any site having a “slight” limitation as defined in the table. At sites having a “moderate” limitation, biosolids may be applied only where the crop is not known to be particularly sensitive to metals and nutrient imbalances, or is not known to be bioaccumulative of heavy metals. Sites having a “severe” limitation are excluded from eligibility under the GO and a site-specific waste discharge investigation and planning study will be conducted by a qualified soil scientist or agronomist to provide, in writing to the RWQCB, written confirmation that biosolids application will not cause soil degradation and will not reduce crop yield.

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<sup>1</sup> Where a soils survey report is not available for a proposed application site, the applicant will have a qualified soil scientist determine the erosion hazard (using NRCS guidelines), unless the slope of the site is 3% or less. Sites with slopes of 3% or less will be considered to have a slight erosion hazard.



The GO and the Pre-Application Report also will be amended to specify an absolute upper slope limit of 20% at sites in which the biosolids will not be immediately covered by sod or a sufficient mulch cover to control erosion.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO be revised to require that WDR applicants provide sufficient Soil-and Site-Screening Information with the Pre-Application Report such that RWQCB staff can determine whether soils could be degraded and/or land productivity could be reduced as a result of biosolids application. With this information, RWQCB staff could impose more restrictive controls on land application rates in its permit to avoid or minimize loss of soil productivity. With this change, impacts on land productivity will be rendered less than significant.

**Impact: Changes in Trace Elements and Heavy Metal Plant Toxicity in Soils and Resulting Effects on Productivity**

Trace elements and heavy metals present in biosolids in elevated amounts and incorporated in agricultural soils can, under certain unique circumstances, have direct adverse effects on soil productivity by reducing crop yields and affecting crop quality and appearance. Significant impacts relating to land productivity and heavy metals accumulation on agricultural soils could occur under the proposed GO for some combinations of California soils and crops and at poorly managed sites, but this circumstance will most likely be rare. The probability that the impact would not be widespread, however, does not reduce the potential for adverse effects in specific areas of California caused by the buildup over time of the bioavailable forms of heavy metals at phytotoxic levels in a small number of agricultural soil-crop combinations. Therefore, this impact is considered potentially significant.

**Mitigation Measures.** Implementation of Mitigation Measure 4-1 identified above will reduce this impact to a less-than-significant level.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO will be revised to require that WDR applicants provide sufficient Soil-and Site-Screening Information with the Pre-Application Report such that RWQCB staff can determine whether soils could be degraded and/or land productivity could be reduced as a result of biosolids application. With this information, RWQCB staff could impose more restrictive controls on land application rates in its permit to avoid or minimize loss of soil productivity. With this change, impacts on land productivity will be rendered less than significant.

**Impact: Changes in Grazing-Land Productivity**

Agriculture-related impacts could result from two activities associated with long-term, excessive land applications of biosolids containing elevated levels of heavy metals or SOCs and from the subsequent ingestion by grazing animals of soils contaminated with heavy metals or SOCs:

- Nutritional deficiency or toxicity problems could become severe, acute, and lethal, causing mortality of animals and the corresponding devaluation of pastureland as unsuitable for grazing.
- Nutrition problems could occur that result in sublethal effects, including low animal weight, low reproductive success, or low milk yields (for dairy animals). Some of these problems could remain undetected.

Although the combination of circumstances that could lead to toxicity in grazing animals in California is probably only remotely possible, this impact is considered potentially significant.

**Mitigation Measures.** In addition to Mitigation Measure 4-1 described above, the following mitigation measure will be implemented to reduce this impact to a less-than-significant level.

- **4-2: Extend Grazing Restriction Period to Allow for SOC Biodegradation.** For grazing sites where biosolids applications are proposed, the GO will be revised to require that grazing of animals be deferred for at least 60 days after application of biosolids in areas with average daily (daytime) temperatures exceeding 50 degrees F or for at least 90 days after land application where such conditions are not met. These measures will promote maximum biodegradation of SOC and pathogens before grazing animals are exposed to the soil.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO be revised to require that WDR applicants provide sufficient Soil- and Site-Screening Information with the Pre-Application Report such that RWQCB staff can determine whether soils could be degraded and/or land productivity could be reduced as a result of biosolids application. With this information, RWQCB staff could impose more restrictive controls on land application rates in its permit to avoid or minimize loss of soil productivity. By extending the grazing restriction period to 60-90 days, SOC and pathogens will have an extended time to degrade or die-off naturally from exposure to sun and air. With this change, impacts on grazing-land productivity will be rendered less than significant.

### **Impact: Increases in Soil Erosion Rates and Resulting Effects on Production**

Soil erosion rates can accelerate when cultivated lands are disturbed by tilling operations, such as for biosolids incorporation, and the soil surface is left barren and unprotected from winter rains. Severe, long-term soil erosion can affect agricultural productivity through loss of fertile and productive topsoil layers. Incorporating biosolids on erodible soils could result in locally significant impacts on soil resources. The impact of erosion on farmland productivity is considered potentially significant.

**Mitigation Measures.** Implementation of Mitigation Measure 4-1 described above will reduce this impact to a less-than-significant level.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO be revised to require that WDR applicants provide sufficient Soil- and Site-Screening Information with the Pre-Application Report such that RWQCB staff can determine whether soils could be degraded and/or land productivity could be reduced as a result of biosolids application. With this information, RWQCB staff could impose more restrictive controls on land application sites with higher erosion potential in its permit to avoid or minimize loss of soil resources to erosion. With this change, impacts on land productivity will be rendered less than significant .

### **Impact: Effect on Agricultural Lands Caused by Public Concerns about Crop Contamination from Biosolids Applications**

For farmlands on which biosolids have been applied and that have subsequently been poorly managed, farm operators could lose access to certain markets (e.g., the organic produce market, the food processing market) if crop contamination is perceived as a possibility by consumers or wholesale produce buyers. Crop contamination concern, whether real or perceived, could have adverse effects on the ability of farm operators to effectively market their produce, thereby limiting the productive value of their land. The impact on farmers of lost commodity markets is potentially significant.

**Mitigation Measures.** In addition to Mitigation Measures 4-1 and 4-2 described above, the following mitigation measure will be implemented to reduce this impact to a less-than-significant level.

- **4-3. Track and Identify Biosolids Application Sites.** A program to identify and track applications of biosolids on agricultural lands should be established to mitigate the potential perception by produce buyers and consumers that crops have been contaminated or damaged by biosolids applications. The program should allow for public access to site location information. The program should also identify previous biosolids application sites and add them to the tracking system.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO be revised to require that WDR applicants provide sufficient Soil- and Site-Screening Information with the Pre-Application Report such that RWQCB staff can determine whether soils could be degraded and/or land productivity could be reduced as a result of biosolids application. With this information, RWQCB staff could impose more restrictive controls on land application rates in its permit to avoid or minimize loss of soil productivity. By extending the grazing restriction period to 60-90 days, SOC's and pathogens will have an extended time to degrade or die-off naturally from exposure to sun and air. Also a program to identify and track applications of biosolids on agricultural lands will be established by the SWRCB. With a biosolids application tracking system in place, farmers could verify that their existing farmland and any new land they

might purchase have not been used for the land application of biosolids. This information could be used to reduce real or perceived concerns by produce buyers and consumers. With these changes, impacts on land productivity resulting from public concerns will be rendered less than significant.

### **Impact: Changes in Soil Nutrient Properties and Resulting Effects on Productivity for Silvicultural Activities**

As with agricultural soils, potentially significant impacts on silvicultural sites, including reductions in forest productivity from soils with elevated heavy metals levels from long-term applications of heavy metals, particularly those not regulated under the 503 Rules, could occur under the proposed GO. Such impacts on forest soil are possible, but are most likely rare and would occur only in specific unusual conditions or combinations of unfavorable soil conditions and unusual biosolids chemistry. The chances of such an unusual combination of conditions occurring is increased under the proposed GO because it does not require complete testing of biosolids for all potentially phytotoxic heavy metals that could be added to forest sites. However, such adverse phytotoxicity effects on silvicultural operations are expected to be even more rare than for agricultural operations because of the presumed nonsensitivity of forest trees to heavy metals phytotoxicity in the soil concentration range expected to develop within the limits placed on biosolids loading. The impact is considered potentially significant.

**Mitigation Measures.** Implementation of Mitigation Measure 4-1 described above will reduce this impact to a less-than-significant level.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO be revised to require that WDR applicants provide sufficient Soil- and Site-Screening Information with the Pre-Application Report such that RWQCB staff can determine whether soils could be degraded and/or land productivity could be reduced as a result of biosolids application. With this information, RWQCB staff could impose more restrictive controls on land application rates in its permit to avoid or minimize loss of soil productivity for silvicultural activities. With this change, impacts on land productivity for silvicultural activities will be rendered less than significant.

### **Impact: Potential Soil Degradation**

Reclamation activities typically would include incorporation of biosolids into infertile soil materials, such as those from gravel-quarry waste or mine spoils. In reclamation site applications, the intent of the application is to improve soil conditions so that a vegetative cover can be established for soil stabilization. However, heavy-metal phytotoxicity problems could occur in reclamation projects, affecting the growth of the cover crop. As with agricultural soils, the degree of heavy metal-plant impact is often related to pH. Because some mine spoils are extremely acidic from oxidation of pyritic compounds present in the rock waste materials, heavy-metal phytotoxicity may be more common at these sites. Often there may be a preexisting heavy metals phytotoxicity problem simply

because of the inherent high level of heavy metals in the mine wastes or because of their acidity. In this case, biosolids applications can aggravate the problem, but also can be a part of spoils management and site stabilization, along with additions of other soil amendments, such as lime. The impact is considered potentially significant.

**Mitigation Measures.** Implementation of Mitigation Measures 4-1 and 4-2 as described above for agricultural operations will reduce the impact to a less-than-significant level.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO be revised to require that WDR applicants provide sufficient Soil- and Site-Screening Information with the Pre-Application Report such that RWQCB staff can determine whether soils could be degraded and/or land productivity could be reduced as a result of biosolids application. With this information, RWQCB staff could impose more restrictive controls on land application rates in its permits for soil reclamation to avoid or minimize loss of soil productivity and increases in phytotoxicity. By extending the grazing restriction period to 60-90 days, SOC's and pathogens will have an extended time to degrade or die-off naturally from exposure to sun and air. With these changes, impact on soil degradation will be rendered less than significant.

## Public Health

### **Impact: Potential for Increased Incidence of Disease Resulting from Ingestion of Pathogenic Organisms in Crops Grown on Land Application Sites or Animals Fed with Crops Grown on Land Application Sites**

Because an increased amount of biosolids will be applied to land as populations increase, there will be an increase in pathogens of human origin entering the soil. Such pathogens could be transmitted to humans through crops grown on biosolids-amended soils or in foods produced from animals fed on crops grown in these soils. Bacteria and viral diseases will be prevented if growers follow the provisions of the GO. This impact is considered potentially significant because of the survival times of potential pathogens.

**Mitigation Measures.** The following mitigation measure will be implemented to reduce this impact to a less-than-significant level.

- **5-2. Extend Grazing Restriction Period to Allow for Pathogen Reduction.** For grazing sites where application of biosolids is proposed, the GO will be revised to require that grazing of animals be deferred for at least 60 days after application of biosolids in areas with average daily (daytime) air temperatures exceeding 50 degrees F or for at least 90 days after land application where such conditions are not met. These measures will promote maximum degradation of pathogens (and SOCs) before grazing animals are exposed to the soil. See also Mitigation Measure 4-2.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO be revised to extend the grazing restriction period to allow for pathogen reduction. By extending the grazing exclusion period to 60-90 days, pathogens will have an extended time to die-off naturally from exposure to sun and air. With this change, impacts on public health will be rendered less than significant.

### **Impact: Potential for Exposure of Residents and Agricultural Workers to Unsafe Levels of Radionuclides After Long-Term (50- to 100-year) Application of Biosolids**

Radioactive materials may enter the waste stream that is being treated at individual POTWs. In some cases, where excessive radioactive materials are present, this can create hazards for those who come in contact with lands to which biosolids produced by that plant are applied. Over periods of 50 to 100 years, the application of biosolids containing radioactive materials to fields may lead to impacts on the health of residents and agricultural application workers from exposure to radon. This impact is considered potentially significant.

**Mitigation Measures.** The following mitigation measure will be implemented to reduce this impact to a less-than-significant level.

- **5-4. POTW Operators Maintain Awareness of Potential Radioactive Materials in the Wastestream.** As part of its GO, the SWRCB shall require the operators of POTWs that produce land applied biosolids to follow the recommendations contained in ISCORS’s November 2003 draft report entitled “Assessment of Radioactivity in Sewage Sludge: Recommendations on Management of Radioactive Materials in Sewage Sludge and Ash in Publicly Owned Treatment Works” (ISCORS Technical Report 2003-04), for screening, identification, and consultation.

The purpose of this measure is to reduce exposure outside the POTW should the operator identify elevated levels of radioactive materials. This may be accomplished by reducing the flow of such materials from their source to the POTW. It may also be accomplished by changing the approach by which the biosolids from that POTW are managed. As described in ISCORS Technical Report 2003-04, the POTW operator may consider any of the following, dependent upon the specific circumstances:

- Reduce the number of years of application to the site;
- Reduce the frequency of applications to the same site;
- Increase the holding times at the POTW before land application to allow for the decay of radionuclides with relatively short half-lives;
- Divert biosolids management from land application to landfill disposal or land reclamation; and
- Consider other alternative biosolids use and disposal practices.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO be revised to require the operators of POTWs that produce biosolids that are to be applied to land to follow the recommendations contained in ISCORS Technical Report 2003-04, for screening, identification, and consultation. By following the ISCORS recommendations, the amount of radioactive materials being applied to an individual site would be reduced. With this change, impacts on public health will be rendered less than significant.

### **Land Use and Aesthetics**

#### **Impact: Application of Class B Biosolids at Locations That May Conflict with Existing Land Uses in Urban Areas; Recreation Areas; or Other Sensitive Areas, Including Schools, Hospitals, and Recreation/public Assembly Areas**

The GO currently contains specifications, exclusions, and prohibitions designed to minimize conflicts with land uses adjacent to application sites. For example, it specifies areas of the state identified as “unique and valuable public resources” that are not regulated by the GO and for which site-specific permits would be required; it requires compliance with the provisions of Part 503 regulations regarding the land application of biosolids that meet provisions for vector reduction; it stipulates the use of tillage procedures that minimize wind erosion; and it prohibits application within 500 feet of residential buildings. Although the proposed GO identifies the types of land uses

where the high potential for public exposure could occur, it does not prohibit the use of biosolids adjacent to these areas. The application of Class B biosolids near these sensitive receptors could conflict with the land use (i.e., activities could be disturbed as a result of increased noise, traffic, odors, blowing dust). This impact is considered potentially significant.

**Mitigation Measures.** The following mitigation measure will be implemented to reduce this impact to a less-than-significant level.

- **6-1: Require injection of biosolids in areas defined as having a high potential for public exposure for Class B biosolids.** The GO will be modified to state that no application of Class B biosolids shall be permitted within an area defined in the GO as having a high potential for public exposure unless the biosolids are injected into the soil.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO be revised to require that Class B biosolids be injected beneath the soil surface at the application site if they are applied in areas having a high potential for public exposure. By requiring injection of biosolids, the traffic and noise associated with the two-step process of spreading and subsequent tilling for incorporation into the soil would be avoided. Also, odors and blowing dust associated with material applied to the surface would be reduced. With this change, impacts on land use will be rendered less than significant.

#### **Impact: Reduced Visual Quality Resulting from Truck Transport of Biosolids Through Residential And/or Recreational Areas**

If land application projects are approved under the GO, biosolids haulers may use roadways that traverse residential and/or recreational areas, resulting in the potential for reduced visual quality because of the potential increase in noise, dust, and traffic (see Chapter 11 of the PEIR for a discussion of noise impacts). This impact is considered significant.

**Mitigation Measures.** The following mitigation measure included in the noise chapter will be implemented to reduce this impact to a less-than-significant level.

- **11-1: Avoid the Use of Haul Routes near Residential Land Uses.** The project applicant and or transporter will avoid the use of haul routes near residential land uses to the extent possible. If the use of haul routes near residential land uses cannot be avoided, the project applicant and or transporter will limit project-related truck traffic to daylight hours.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO be revised to avoid the use of haul routes near residential lands. If trucks carrying biosolids are routed away from residences, there will be less chance for exposure of



people to the noise and dust associated with truck traffic. With this change, impacts on visual quality are rendered less than significant.

**Impact: Reduced Visual Quality Resulting From Land Application Activities Adjacent to Schools, Hospitals, or Recreation/Public Assembly Areas**

Land application projects approved under the GO could be conducted adjacent to schools, hospitals, or recreation and public assembly areas as long as the application site is set back 50 feet from roadways and 500 feet from non-agricultural buildings. Sites that would receive biosolids generally have previously been used for agriculture; however, it is possible for land application sites to be located near these sensitive receptors. This impact is considered less than significant .

**Mitigation Measures.** This impact is reduced to a less-than-significant level because of the setbacks included in the GO and the PM10 reduction measures (typically, best available control measures) that are currently or that will be imposed by air quality management districts and air pollution control districts in the major agricultural areas.

**Finding per Section 15091(a)(2): Responsibility of Other Agencies.** The SWRCB finds that implementation of this mitigation measure is within the responsibility and jurisdiction of other public agencies that can and should implement the measure. Specifically, SB 700 of 2003 (Chapter 479 of the Statutes of 2003) empowers the air quality management districts and air pollution control districts within the Central Valley to regulate air emissions from agricultural operations as they would other stationary sources. This includes adopting regulations or rules requiring agricultural operations to implement best available control measures to minimize the production of fugitive dust. As Central Valley air pollution control districts implement particulate controls on farming operations, the potential for land application of biosolids in the vicinity of schools, hospitals or other areas of public assembly to create air quality nuisances will be reduced. This will ensure that biosolids application activities will not raise unacceptable levels of dust and affect visual quality.

**Impact: Reduced Visual Quality Resulting from Spillage of Biosolids on Public Roads**

Although the GO includes provisions requiring biosolids to be transported in leak-proof and covered trucks, there are no requirements for proper wash down, loading, and maintenance of transport vehicles. Therefore, if biosolids are loaded onto vehicles in a manner that results in their adhering to the outside or tires of the vehicle, they could be spilled on the roadways, resulting in a reduction in visual quality. This impact is considered significant.

**Mitigation Measures.** The following mitigation measure will be implemented to reduce this impact to a less-than-significant level.

- **6-2: Require the Maintenance of Biosolids Transport Trucks after Biosolids**

**Are Loaded in the Trucks.** The GO will be modified to stipulate that dischargers ensure that any biosolids adhering to the outside of biosolids transport trucks and tires be removed before trucks leave the dischargers' sites or application areas. Implementation of this mitigation measure will prevent biosolids from being spilled in roadways.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO be revised to require maintenance for biosolids transport trucks after biosolids are loaded in the trucks. This will reduced the amount of biosolids material that may be blown or dropped off of vehicles on roadways en route to land application sites. With this change, impacts on visual quality will be rendered less than significant.

## Biological Resources

### **Impact: Reduction in the Number of a Special-Status Plant or Wildlife Species**

The GO does not address threatened or endangered species in its prohibitions, nor does it require dischargers to disclose information about the actual or potential occurrence of threatened or endangered species in the NOI or direct the RWQCB to address potential effects of biosolids application on threatened or endangered species during its review of the NOI. Therefore, the proposed project has the potential to significantly affect special-status plant and wildlife species by authorizing activities that could result in the reduction in the number of individuals of these species. Depending on the individual species and the magnitude of the loss or reduction in number of special-status plant or wildlife species, this could be considered a significant impact.

**Mitigation Measures.** The following mitigation measure will be implemented to reduce this impact to a less-than-significant level.

- **7-1: Modify Pre-application Report and Provide Biological Information.** The Pre-Application Report shall be revised to include a section for the discharger to indicate whether the land application site contains natural terrestrial habitat areas or whether it has been fallow for more than 1 year. The discharger must submit a report that states whether special-status species occur on the site. If special-status species occur on the site, the report must identify the measures that will be taken to mitigate or avoid impacts on these species; this report must be forwarded to the appropriate regional office of the DFG and the Endangered Species Unit of the USFWS in Sacramento for review and approval of the mitigation strategy. The report must be prepared by a qualified biologist.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO be revised to require that a site assessment of any natural terrestrial habitat and fallow lands for special-status plant and wildlife species be conducted and submitted with the Pre-Application Report for proposed biosolid land applications sites that have been fallow for more than one year. If special-status species occur on the site, the report must identify the measures that will be taken to mitigate or avoid impacts on these species; this report must be forwarded to the appropriate regional office of the DFG and the Endangered Species Unit of the USFWS in Sacramento for review and approval of the mitigation strategy. With this change, impacts on biological resources will be rendered less than significant.

## **Impact: Substantial Disturbance of Biologically Unique or Sensitive Natural Communities**

The GO specifically excludes biosolids applications in several areas that have been recognized to contain unique and valuable public resources. The GO also prohibits biosolids applications in surface waters and on saturated soils, including wetlands. However, the GO does not address unique or sensitive natural communities that lie outside of the specified exclusion areas. Therefore, the proposed project has the potential to adversely affect biologically unique or sensitive natural communities, such as seasonal wetlands and vernal pools. The use of biosolids to enhance the fertility of lands considered to be of marginal value as range or cropland or to convert rangeland to pasture or cropland could have a significant impact on sensitive natural communities such as native grasslands, oak woodlands, and saltbush scrub. The substantial disturbance of more than 10% or 10 acres of a biologically unique or sensitive natural community, whichever is less, would be a significant impact.

**Mitigation Measures.** The following mitigation measure will be implemented to reduce this impact to a less-than-significant level.

- **7-2: Modify Pre-application Report and Provide Information on Biologically Unique or Sensitive Natural Communities.** The Pre-Application Report shall be revised to include a section for the discharger to indicate whether the land application site contains biologically unique or sensitive natural communities. If the application site contains these communities, the discharger must submit a biological report with the Pre-Application Report that indicates measures that will be taken to mitigate or avoid impacts on these communities. This report must be forwarded to the appropriate regional office of the DFG and the Endangered Species Unit of the USFWS in Sacramento for review and approval of the mitigation strategy. The report must be prepared by a qualified biologist.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO be revised to require that a site assessment for biologically unique or sensitive natural communities be conducted and submitted with the Pre-Application Report for proposed biosolids land application sites that have been fallow for more than one year. If the application site contains these communities, the discharger must submit a biological report with the Pre-Application Report that indicates measures that will be taken to mitigate or avoid impacts on these communities. This report must be forwarded to the appropriate regional office of the DFG and the Endangered Species Unit of the USFWS in Sacramento for review and approval of the mitigation strategy. With this change, impacts on biological resources will be rendered less than significant.

## Fish

### **Impact: Potential for Acute Toxicity to Fish from Leaching of Biosolids Constituents from Application Sites to Surface Waters**

Surface water increases in metals, organic compounds, and nitrates resulting from land application of biosolids could be acutely toxic to fisheries, depending on the quantity of the contaminant that enters the surface water and the susceptibility of the fish species to the increased level of metals, organic compounds, and nitrates. For these elements to enter the surface water, they would have to leach into the groundwater and travel laterally at least 100 feet (because the GO prohibits land application of biosolids within 100 feet of surface waters). In most situations, land application of biosolids would not result in surface water quality degradation resulting from leaching of trace metals, organic compounds, or nitrates into the groundwater. In areas with sandy soils underlain by shallow hardpans (present in some desert regions of southern California), leachate could travel greater distances. Small water bodies with no external drainage that are habitat for protected fish species (such as pupfish) could be adversely affected. In these unique conditions, the effect could be potentially significant.

**Mitigation Measures.** The following mitigation measure will be implemented to reduce this impact to a less-than-significant level.

- **8-1: Increase Setback from Enclosed Water Bodies If Pupfish Are Present.** Proposed land applications in the habitat range of the pupfish will be reviewed for their proximity to enclosed water bodies that could be occupied by pupfish. If such water bodies are near the land application areas, setbacks of 500 feet will be required. There are several species of pupfish in southern California. Their current occupied habitat is confined to several small springs, Salt Creek and the Amargosa River in southern Inyo and northern San Bernadino counties in the vicinity of Death Valley National Monument, and San Felipe Creek and the Salton Sea in Imperial County. Exact locations of habitat can be found in Moyle et al. 1989.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO be revised to require that a setback from enclosed water bodies will be increased if pupfish are present for biosolids land application sites in the habitat range of the pupfish. The increased setback will reduce the chance that potentially harmful materials leached from biosolids could move laterally in shallow groundwater to adjacent surface waters. With this change, impacts on fisheries will be rendered less than significant.

### **Impact: Potential for Reduced Fisheries Productivity Resulting from Runoff and Erosion**

Land application of biosolids could increase soil erosion and thus increase sedimentation and turbidity of aquatic habitats. Temporary discharges of sediment and suspended solids could cause direct and indirect impacts on fisheries resources. Direct impacts on fish species could include

increased mortality and reduced feeding opportunities for sight-feeding fish. Indirect impacts could include asphyxiation of developing eggs under sediments, degradation of spawning and rearing habitats, and decreased food production. Generally, the proposed project is not expected to result in runoff and erosion. Runoff and erosion could occur in extreme situations (low-probability storm events, accidental spills), but the potential is low. This impact is considered potentially significant.

**Mitigation Measures.** Mitigation Measure 4-1, “Provide Soil- and Site-Screening Information with the Pre-Application Report”, identified above, will reduce this impact to a less-than-significant level.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO be revised to require that WDR applicants provide sufficient Soil- and Site-Screening Information with the Pre-Application Report such that RWQCB staff can determine whether soils will be degraded and/or land productivity will be reduced as a result of biosolids application. With this information, RWQCB staff could impose more restrictive controls on land application sites with higher erosion potential in its permit to avoid or minimize erosion-related increases in turbidity in adjacent water bodies. With these changes, impacts on fisheries will be rendered less than significant.

### **Traffic**

The proposed project will not have any significant impacts on traffic.

### **Air Quality**

The proposed project will not have any significant impacts on air quality.

### **Noise**

#### **Impact: Exposure of Noise-Sensitive Land Uses to Noise Resulting from the Transport of Biosolids**

Application of biosolids on agricultural lands would result in transportation-related noise impacts on sensitive receptors located along delivery or haul routes. A typical application of biosolids would generate between 80 and 120 round trips per 40- to 60-acre application site per day or approximately 10 to 15 round trips per hour (based on an 8-hour day). Because the GO does not specify the use of specific transport routes, it is possible that transporters may use routes through existing residential areas. Because of the potential for project-related truck traffic to result in substantial noise increases to residential areas along transport routes, this impact is considered significant.

**Mitigation Measures.** The following mitigation measure will be implemented to reduce this impact to a less-than-significant level.

- **11-1: Avoid the Use of Haul Routes near Residential Land Uses.** The project applicant and or transporter will avoid the use of haul routes near residential land uses to the extent possible. If the use of haul routes near residential land uses cannot be avoided, the project applicant and or transporter will limit project-related truck traffic to daylight hours.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO be revised to require that use of haul routes near residential land uses be avoided. If trucks carrying biosolids are routed away from residences, there will be less chance for exposure of people to the noise associated with truck traffic. With this change, impacts on noise-sensitive land uses will be rendered less than significant.

### **Cultural Resources**

#### **Impact: Damage to or Destruction of Cultural Resources on Lands Not Previously Disturbed by Agricultural Activities**

If biosolids are applied and incorporated into soil on lands not previously disturbed by agricultural activities, then cultural resources, either known or unknown, could be affected. This impact is considered significant because activities associated with land application of biosolids could affect significant cultural resources.

**Mitigation Measures.** The following mitigation measure will be implemented to reduce this impact to a less-than-significant level.

- **12-1: Conduct a Cultural Resources Investigation.** A cultural resources investigation will be conducted before disturbance is permitted on land that has not been disturbed previously. The cultural resources investigation will include a records search for previously identified cultural resources and previously conducted cultural resources investigations of the project parcel and vicinity. This records search will include, at a minimum, contacting the appropriate information center of the California Historical Resources Information System, operated under the auspices of the California Office of Historic Preservation. In coordination with the information center or a qualified archaeologist, a determination can be made regarding whether previously identified cultural resources will be affected by the proposed project and if previously conducted investigations were performed to satisfy the requirements of CEQA. If not, a cultural resources survey may need to be conducted. The purpose of this investigation will be to identify resources before they are affected by a proposed project and avoid the impact. If the impact is unavoidable, mitigation will be determined on a case-by-case basis.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The

SWRCB directs that the GO be revised to require that a cultural resources investigation be conducted on proposed biosolids land application sites that have not been previously disturbed. Cultural resources investigations could locate sensitive resources and allow these sites to be avoided during land application activities. With this change, impacts on cultural resources will be rendered less than significant.

**Impact: Damage to or Destruction of Unknown Cultural Resources on Lands Currently in Agricultural Production**

On lands currently in agricultural production, grading and tilling activities associated with biosolids use could result in the unearthing of previously unknown cultural resources. If human remains of Native American origin are uncovered, this impact could be significant.

**Mitigation Measures.** The following mitigation measure will be implemented to reduce this impact to a less-than-significant level.

- **12-2: Comply 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.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO be revised to require that state laws regarding disposition of Native American burials be complied with if such remains are found on biosolid land application sites. With this change, impacts on cultural resources will be rendered less than significant.

#### **SECTION 4. FINDINGS ON SIGNIFICANT CUMULATIVE IMPACTS IDENTIFIED IN THE EIR**

##### **Impact: Cumulative Nitrate Contamination of Groundwater**

Widespread land application of biosolids resulting from many individual permits, in combination with certain environmental conditions, has the potential to contribute to groundwater impairment from nitrates. The impact has the greatest potential to occur in nitrate-sensitive areas, which include the many areas of California where nitrate concentrations are approaching or already exceeding drinking water standards, where beneficial uses have been impaired by nitrate contamination, or where naturally high levels of nitrate exist but may not be identified due to lack of monitoring or use for domestic supplies. Even if biosolids are applied at agronomic rates, groundwater could be significantly impaired by nitrates if the following conditions exist:

- other nitrogen inputs from unregulated applications of fertilizers occur, resulting in total applied nitrogen levels in excess of the assimilative capacity of the soil-cropping system;
- either timing of biosolids application, rate of mineralized nitrogen losses, or irrigation/rainfall water exceeds the soil water-holding capacity and results in nitrates leaching into groundwater;
- other sources of nitrogen are added to the groundwater in areas adjacent to the proposed biosolids applications areas, including dairy and feedlot operations, sewage treatment operations, industrial waste discharges, and on-site septic system leachate;
- long-term overdraft of shallow, unconfined aquifers reduces the existing groundwater assimilative capacity for nitrate contributions;
- biosolids are applied at the agronomic rate and monitoring is not conducted to ensure compliance in areas where depth to groundwater is greater than 25 feet; and
- biosolids are applied at the agronomic rate, but site-specific hydrogeology, groundwater assimilative capacity, or municipal and domestic well vulnerability are not considered.

In California, typical areas where cumulative impacts could occur include existing nitrate-impaired groundwater basins such as the Salinas Valley, Orange County, Upper Santa Ana River watershed, southern San Joaquin Valley, and the sandy soil areas of the central coast and southern California. This cumulative impact is considered potentially significant because many of the environmental factors and actions described above are either unregulated or administered and regulated by more than one resource management agency.

**Mitigation Measures.** The following mitigation measures will be implemented to reduce this cumulative impact to a less-than-significant level.

- **13-1. Minimize Contribution to Groundwater Nitrate Contamination from Land Application of Biosolids Conducted under the GO.** As a condition for the review of each individual NOI submitted for a proposed biosolids application project under the GO, the RWQCB engineer responsible for issuing the NOA will:
  - evaluate whether the proposed discharge will occur within an area designated as having existing nitrate contamination problems and
  - evaluate whether the proposed discharge will pose an imminent threat of contributing to or causing exceedances of water quality standards for nitrate.

If the responsible engineer finds that either condition exists, the RWQCB will minimize the potential water quality impacts of the project by requiring the applicant to modify the proposed discharge activities or provide additional information to verify that the proposed discharge will not cause or contribute to violations of water quality standards. Verification that the proposed project will not cause or contribute to water quality degradation will require that sufficient information be submitted by a qualified civil engineer, agricultural engineer, or other professional hydrogeologist or water quality specialist such that the RWQCB engineer could make a finding that the proposed discharge will be in compliance with provisions of the GO. If the RWQCB finds that modifications to the proposed discharge are necessary for compliance with provisions of the GO, such modifications will consider, but will not be limited to, the following:

- requirements for the discharger to use the services of a certified agronomist, crop advisor, or agricultural engineer to develop additional management practices related to: 1) determining the agronomic rate for biosolids application projects that includes all sources of nitrogen applied to the application site; 2) developing overall farm water, cropping, and fertility management practices; and 3) evaluating the potential for nitrate leaching or impairment of offsite groundwater use;
- requirements of the discharger to provide additional groundwater monitoring in areas where groundwater is found at depths greater than 25 feet

or there exist other identified local hydrogeologic conditions that could make the groundwater susceptible to contamination;

- requirements of the discharger to identify whether the proposed biosolids application site is within an area where Drinking Water Source Water Assessment and Protection (DWSWAP) Program setback requirements are implemented for municipal and domestic wells; and
- requirements of the discharger to consider the unique local site and hydrogeologic conditions in the design of the project and/or other groundwater quality management or regulatory programs that are currently active in the area.

- **13-2A: Reduce Sources of Nitrate Contamination (SWRCB).** The SWRCB will continue to identify causes of cumulative nitrate loading in nitrate sensitive groundwater areas and develop an effective strategy for reducing those sources.

Each RWQCB will continue to implement existing groundwater pollution protection permit programs and policies to prevent or reduce nitrate contamination of groundwater. Such programs may include evaluating increased enforcement procedures, or modifying the permitting programs for other agricultural activities (e.g., confined animal feeding operations, dairies, poultry farms), industrial and municipal NPDES-permitted discharges of wastes and reclaimed water to land, and NPDES storm water management regulations.

**Finding per Section 15091(a)(1): Mitigation Has Been Incorporated into Project.** The SWRCB directs that the GO be revised to include specific directions for the RWQCB engineer responsible for issuing the NOA regarding the potential for increased nitrates resulting from the land application of biosolids. With this change, cumulative impacts for groundwater nitrate contamination will be rendered less than significant.

- **13-2B: Reduce Sources of Nitrate Contamination (Other Agencies).** Other local, state, and federal permitting authorities will evaluate, integrate, increase enforcement of, or modify their existing policies and procedures to reduce the cumulative contribution of nitrates to groundwater. Examples of other regulatory programs that will be evaluated and considered in areas that will have biosolids application include groundwater management programs, residential onsite septic tank system approval, municipal landfill management plans, agricultural cooperative extension programs, and forestry management programs.

**Finding per Section 15091(a)(2): Responsibility of Other Agencies.** The SWRCB finds that implementation of this mitigation measure is within the responsibility and jurisdiction of other public agencies that can and should implement the measure. With this change, cumulative impacts

for groundwater nitrate contamination will be rendered less than significant.

## Section 5. Findings on Project Alternatives Considered in the PEIR

The statewide PEIR considered five alternatives:

No-Project Alternative  
Modified GO Alternative  
Class A Only Alternative  
Food Crop Limitation Alternative  
Land Application Ban Alternative

The findings on each alternative are as follows.

### No-Project Alternative

Under the No-Project Alternative, it is assumed that land application of biosolids would continue in its current form and be regulated by the RWQCBs through individual WDRs or exemptions and by county governments through local ordinances and regulations. Existing land application operations would continue and would be controlled by the conditions contained in their individual permits. Biosolids generation would continue to increase, and the amount of material going to land application sites would increase proportionately. The types of conditions and prohibitions placed on existing and new land application operations would be similar to those imposed in existing permits from the RWQCBs. Because it is not possible to predict how county and city governments might alter their regulation of land application of biosolids in the future if a statewide GO were not in place, it is assumed that local regulation would remain in its current form.

**Finding: Infeasible.** The SWRCB finds that the No-Project Alternative is infeasible because without implementing the project, the SWRCB would not be able to comply with the California Water Code Section 13274 and the judicial order of the Sacramento County Superior Court. In particular, Section 13274 directs the SWRCB to adopt general waste discharge requirements that will authorize the land application of biosolids.

### Modified GO Alternative

Land application of biosolids, as allowed under the proposed GO, has the potential to result in several significant impacts. To provide for addressing these impacts while still meeting the objectives of the proposed project, an alternative was developed that incorporates the mitigation measures that are necessary to address potentially significant effects as modified provisions and specifications. These added provisions and specifications would be as follows:

- Dischargers shall provide sufficient information in their Pre-Application Reports to determine the potential for soil degradation or reduced land productivity and shall ascertain, or use the services of a qualified soil scientist or qualified agronomist to ascertain, that no such soil degradation or reduced land productivity will occur as a result

of biosolids application.

- After an application of Class B biosolids, the discharger shall ensure that animals are not grazed on that land for at least 90 days.
- Prior to application of biosolids to agricultural land, the discharger shall enter site assessor parcel numbers into a statewide tracking system, accessible to the public, that can identify whether a parcel of land has received an application of biosolids.
- Land application of Class B biosolids shall be prohibited within ½ mile of areas defined as having a “high potential for public exposure”.
- Dischargers shall ensure that biosolids transporters develop truck routing plans that avoid traffic in primarily residential neighborhoods.
- All biosolids shall be transported in trucks that have been adequately cleaned to remove biosolids from the exterior of the vehicles prior to leaving the site of generation and the site of land application.
- There shall be no discharge of biosolids to uncultivated land or land otherwise undisturbed, or lands left fallow for more than 1 year without a site assessment being conducted for special-status plant and wildlife species or biologically unique or sensitive natural areas.
- There shall be no discharge of biosolids within 500 feet of enclosed water bodies potentially occupied by desert pupfish.
- The transport of biosolids shall not generate daily emissions of nitrogen oxides or particulate matter in excess of daily thresholds included in the policies of California air districts responsible for achieving attainment status under the federal and state Clean Air Acts.
- Dischargers shall control fugitive dust on unpaved access roads to land application sites.
- There shall be no discharge of biosolids to uncultivated land or land otherwise undisturbed without a cultural resources investigation being conducted, and if significant resources are found, development of a mitigation plan.
- Operator’s of POTWs that produce land-applied biosolids must follow the recommendations contained in the ISCORS’ November 2003 draft report entitled “Assessment of Radioactivity in Sewage Sludge: Recommendations on Management of Radioactive Materials in Sewage Sludge and Ash in Publicly Owned Treatment Works” (ISCORS Technical Report 2003-04), for screening, identification, and consultation.

**Finding: Infeasible.** The SWRCB finds that the Modified GO Alternative is infeasible because it would require the incorporation of mitigation measures into the GO that could not be practically or legally required of each individual waste discharge requirement recipient, but should be performed by the SWRCB or RQWCBs or other agencies. These measures include:

- Establishment of a statewide program to identify and track applications of biosolids on agricultural lands and make the information accessible to the public, and
- Reduction of sources of nitrate contamination by reviewing existing groundwater pollution permit programs and modifying these programs as necessary to address potential pollution contributions from other agricultural activities (e.g., confined animal feeding operations, dairies, and poultry farms), industrial and municipal NPDES-permitted discharges to land, and NPDES storm water management regulations.

### **Class A Only Alternative**

This alternative would allow the land application of Class A biosolids only under the GO. Land application of Class B biosolids could still be allowed under individual WDRs. This alternative incorporates the same non-pathogen related mitigation measures that are included in the Modified GO Alternative.

**Finding: Infeasible.** The SWRCB finds that the Class A Only Alternative is infeasible because it would restrict the options available to POTWs for the land application of biosolids and substantially increase their management costs. In particular, adopting a GO limited to Class A biosolids would subject the application of Class B biosolids to individual waste discharge requirements/permits (WDRs). This would effectively discourage the application of Class B biosolids by increasing the uncertainty over whether a WDR could be granted for a specific site.

Having options available is necessary in order to enable POTWs to effectively manage their biosolids at a realistic cost. The health-related distinction between Class A biosolids and Class B biosolids, when applied subject to Part 503 regulations and the additional provisions of the GO, is negligible. Both result in essentially the same level of protection for the public. As discussed in the FEIR, there have been no documented cases of health impacts directly related to the land application of biosolids. Adoption of the Class A Only Alternative would create an additional economic burden for POTWs for negligible advantages in health and safety protections.

A number of POTWs are treating their biosolids to Class A standard, either on site or elsewhere. As discussed in the FEIR, Class B biosolids make up by far the largest fraction of biosolids currently being produced in California. As described in the comments from POTWs contained in the FEIR, Class A treatment is generally more expensive than Class B treatment because of the additional steps necessary to eliminate most pathogens from the biosolids. Conversion of substantially larger amounts of Class B biosolids to Class A standard would place a substantial economic burden on POTWs and their rate payers. Disposal of Class B biosolids in landfills is similarly expensive in

relation to land application and consumes landfill space that would otherwise be available for acceptance of municipal solid wastes. Therefore, the Class A Only Alternative is economically infeasible.

Given the economic constraints to conversion to Class A treatment, the Class A Only Alternative would be expected to result in a decrease in the beneficial use of biosolids in land application.

### **Food Crop Limitation Alternative**

This alternative would prohibit the application of all biosolids to agricultural lands where food crops are presently grown, or would be grown either within a given time period or in perpetuity. Application of both Class A and Class B biosolids to agricultural lands growing food crops could still be allowed under individual WDRs. This alternative incorporates the same mitigation measures that are included in the Modified GO Alternative.

**Finding: Infeasible.** The SWRCB finds that the Food Crop Limitation Alternative is infeasible because it would restrict the options available to POTWs for the land application of biosolids. This alternative would discourage the use of Exceptional Quality, Class A, and Class B biosolids on land that would produce food crops by making such applications subject to individual WDRs. This increases the level of uncertainty relative to approval and conditions of approval in comparison to compliance with general WDRs. While food crops do not make up a major portion of the agricultural land to which biosolids are currently being applied (as discussed in the FEIR), food crops represent tens of thousands of acres of land that could potentially be used (with a willing farmer) for land application. Discouraging their availability for land application could potentially limit a major future source of land available for the application of biosolids.

Having options available is necessary in order to enable POTWs to effectively manage their biosolids at a realistic cost. The health-related distinction between Class A biosolids and Class B biosolids, when applied subject to Part 503 regulations and the additional provisions of the GO, is negligible. Both result in essentially the same level of protection for the public. As discussed in the FEIR, there have been no documented cases of health impacts directly related to the land application of biosolids. Adoption of the Food Crop Limitation Alternative would limit management flexibility for POTWs with negligible advantages in health and safety protections. It would also limit the choice of farmers with marginal lands that would benefit from the application of biosolids through improved water-holding capacity and soil texture.



## **Land Application Ban Alternative**

Under this alternative, land application of biosolids would not be facilitated by regulation. Regulation of land application for agricultural, horticultural, silvicultural, or land reclamation purposes would be sufficiently restrictive to make the activity economically uncompetitive. Biosolids generators would be encouraged to pursue other options, such as use of landfills, incineration, and development of dedicated disposal sites (monofills). Each of these disposal options was mentioned in the scoping process. It is assumed that this policy approach would result in an effective ban on land application for beneficial reuse. Although this alternative does not meet the objectives of the proposed GO, it does reflect numerous comments received from the public during the scoping process requesting that the SWRCB consider biosolids disposal options rather than land application for beneficial reuse. This alternative is not considered the environmentally superior alternative because it is not within the reasonable range of alternatives and it does not meet the project objectives.

**Finding: Infeasible.** The SWRCB finds that implementing this alternative is infeasible because it would not meet the basic objectives of the proposed project. In addition, it would result in unacceptable significant environmental effects beyond those identified for the proposed project. The State Water Code (Section 13274) requirements for general waste discharge requirements would not be met and a more consistent regulatory framework for the land application of biosolids would not be provided to the RWQCBs. The alternative also would not foster the implementation of a biosolids land application program based on sound science and best professional judgement.

## **Section 6. Adoption of the Mitigation Monitoring Program**

### **Adoption**

Public Resources Code Section 21081.6 requires a public agency making findings required by subdivision (a) of Section 21081 to adopt a reporting and monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment.

The Board hereby adopts the Mitigation Monitoring Plan, dated July 22, 2004 and presented to the Board on this date. The Board further finds that said program meets the requirements of Public Resources Code Section 21081.6 by ensuring compliance during project implementation of the mitigation measures identified in the statewide PEIR for the Biosolids Land Application.

## **Mitigation Monitoring Plan**

### **Responsibilities**

Responsibility for compliance with the provisions of this program rests primarily with SWRCB staff.

### **Mitigation Monitoring and Reporting**

Mitigation monitoring is the follow-up effort by a public agency to ensure that mitigation measures are implemented. In most instances, the monitoring work can be accomplished as project plans are reviewed. In some instances, field inspection may be necessary. In other instances, additional work may be required to coordinate design aspects of the mitigation between various contractors or agencies.

Written documentation of the monitoring effort is a necessary and important part of the mitigation program. Documentation provides SWRCB staff with a written record of the mitigation program. It also provides an opportunity to review the success of the conditions applied to the project so that SWRCB staff can refine the conditions necessary to achieve a desired mitigation.

The program specifies each adopted mitigation measure, the agency responsible for monitoring the measure, and the mechanism to ensure that the mitigation measure is implemented. The Mitigation Monitoring Program is contained in Chapter 15 of the Draft PEIR. The Mitigation Monitoring Program is included by reference along with changes indicated in the Final PEIR and this Findings document.