

INFORMATIONAL DOCUMENT

Public Scoping Meeting for Proposed Revisions to the Toxicity Control Provisions of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California

December 2005

DIVISION OF WATER QUALITY
STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Introduction

As directed by the State Water Resources Control Board (State Water Board), staff is currently working to revise the toxicity control provisions in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP). Proposal changes include clarifying the appropriate form of effluent toxicity limits in National Pollutant Discharge Elimination System (NPDES) permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process.

Background

In order to implement the Clean Water Act, the California Water Boards (State Water Board and the Regional Water Quality Control Boards [Regional Water Boards]) follow the integrated approach to water quality-based toxics control recommended by the United States Environmental Protection Agency (USEPA). This approach combines the use of chemical-specific and whole effluent toxicity (WET) limits to control the discharge of toxics to California's waters. Chemical-specific limits provide control of known pollutants in a discharge, while toxicity limits provide control of unknown pollutants and the aggregate effects of combined pollutants. Both chemical-specific and toxicity limits are crucial to water quality-based toxics control in California.

Whole effluent toxicity is measured through aquatic toxicity tests that expose wastewater effluent or receiving waters to sensitive aquatic organisms and measure the ensuing effects on survival, growth and reproduction. These tests are used to determine compliance with the Objectives for toxicity in California's Regional Water Quality Control Plans (Basin Plans). These Basin Plans contain narrative toxicity Objectives, which generally state that "*all waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life;*" however, the specific language varies among Basin Plans. USEPA requires that regulatory authorities establish permit limits for WET when an effluent discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a numeric or narrative criterion [Objective] within an applicable State water quality standard (40 Code of Federal Regulations 122.44(d)).

The current toxicity control provisions, found in Section 4 of the SIP, briefly establish minimum chronic toxicity control requirements for implementing the narrative toxicity Objectives for aquatic life protection in the Basin Plans. The SIP requires that the California Water Boards impose chronic toxicity limits for discharges that have the reasonable potential to cause in-stream chronic toxicity. Compliance with toxicity Objectives and limits is to be determined through short-term chronic toxicity tests. These tests must be performed on at least three test species (a plant, an invertebrate, and a vertebrate) during a screening period, after which the most sensitive species can be used alone. Appropriate sources of test dilution water and the use of reference toxicants are also described. Appropriate chronic toxicity tests for discharges into fresh water are listed in Table 5, which includes references to USEPA methodology for each test. Test methods outlined in the California Ocean Plan are to be used for chronic toxicity testing associated with discharges into salt water. If repeated toxicity tests

reveal toxicity or if a discharge causes or contributes to chronic toxicity in a receiving water body, then a toxicity reduction evaluation (TRE) study, which may include a toxicity identification evaluation (TIE), must be performed. The TRE study is used to identify the source(s) of toxicity, after which the discharger must take all reasonable steps necessary to eliminate the toxicity. Chemical-specific permit limits will be assigned for toxins identified by the TRE. The provisions also allow for multiple dischargers coordinating TREs related to the same water body. Failure to comply with required toxicity testing and TRE studies within a designated period will result in the addition of chronic toxicity limits in the permit, or appropriate enforcement action.

Problem Statement

The SIP currently contains significant implementation gaps regarding the NPDES process to control toxicity. Most critically, the appropriate form and implementation of toxicity limits must be clarified. The SIP does not specify whether narrative or numeric limits should be used to control toxicity and this ambiguity has already led to the petitioning of NPDES permits by dischargers (see Water Quality Order 2003-012). In addition, the direction for assigning toxicity limits in the SIP is not clear. The SIP requires toxicity limits in permits for discharges that have reasonable potential to cause toxicity, but later states that toxicity limits will be imposed on dischargers that fail to comply with required toxicity testing and TRE studies. The latter statement is misleading as it implies that toxicity limits are not required unless a discharger is noncompliant with prescribed monitoring and TRE studies. The conditions under which toxicity limits are required should be clarified in the SIP.

Although clarifying the appropriate use of toxicity limits is of primary importance to this proposed amendment, this amendment may also address additional implementation gaps in the SIP related to the NPDES process to control toxicity. Before a toxicity limit is set, data must be collected, assessed for representativeness, and analyzed to determine if the discharge causes, contributes or has the reasonable potential to contribute to toxicity in receiving waters. If a toxicity limit is required, then either the limit itself (for numeric limits) or a toxicity monitoring trigger (for narrative limits) must be calculated. Whether or not toxicity limits are required, monitoring schedules for toxicity must be developed. Requirements for TREs should be formulated and clearly defined in the permits. And finally, potential enforcement steps should be outlined. The current toxicity control provisions in the SIP do not address these steps. Minimum requirements for the implementation of the above stated processes should be included. Section 1 of the SIP addresses the implementation required to set limits for priority pollutants. Excerpts of Section 1 could be directly applicable to toxicity control implementation, while other implementation strategies may need to be adapted for use with toxicity control. In addition, the USEPA has provided guidance on toxicity control implementation in several documents, some of which could be incorporated into the SIP.

Potential Revisions Subject to Scoping Consideration

1) Clarify the use of Chronic Toxicity Limits in the SIP

If a discharge is found to have reasonable potential to cause or contribute to an in-stream excursion of a narrative toxicity Objective, then a toxicity limit must be included in the NPDES permit (40 CFR 122.44(d)(1)(v)). Two USEPA approved options for setting toxicity limits in NPDES permits are numeric limits and narrative limits with numeric monitoring triggers. Each of these options is discussed below. State Board staff is also exploring a separate toxicity limit provision for Publicly Owned Treatment Works (POTWs) that would address the challenges of influent variability inherent to this discharge class.

Option 1: Numeric Toxicity Limits

Proposal: The SIP may be amended to require the use of numeric toxicity limits for discharges that have a reasonable potential to cause or contribute to in-stream toxicity, and to add compliance schedule provisions, where necessary. Numeric toxicity limits provide an efficient regulatory tool because the measurement of compliance is clearly defined. In this scenario, the burden of achieving and maintaining compliance lies entirely with the discharger. Once a limit is exceeded, the discharger must take all reasonable steps necessary to return to compliance in order to avoid further violations. Such steps may include performing a TRE, or other methods to reduce and control toxicity. Numeric limits represents a compliance-driven model of toxicity control, where the regulating agency assesses the compliance status of the discharge but does not provide management of the dischargers' attempts to reduce toxicity.

The use of numeric toxicity limits can become problematic when a noncompliant discharger is aggressively pursuing the necessary steps to identify and reduce the source(s) of the observed toxicity, but is continually accruing violations. In very rare instances, a discharger with a NPDES permit that relies solely on toxicity limits to control pollution could receive a mandatory minimum penalty (MMP) of three thousand dollars for every fourth or greater violation within any consecutive six-month period (California Water Code §13385(i) (CWC)). MMPs do not apply to toxicity violations if the NPDES permit contains at least one chemical-specific limit for a toxic pollutant. Since most California NPDES permits contain chemical-specific limits for toxic pollutants, MMPs for toxicity violations would be very rare.

Most California NPDES permits for POTWs with discharges that have a reasonable potential to cause or contribute to toxicity currently contain narrative toxicity limits. The transition to a numeric limit can be a significant regulatory change and may require a TRE before compliance can be achieved. The use of temporary schedules of compliance, where authorized, could provide regulatory flexibility for dischargers adjusting to new numeric limits. The compliance schedule would include interim limits, a monitoring schedule, and a schedule of deadlines for steps within the TRE process.

With the numeric limit option, NPDES permits for discharges found to have reasonable potential to cause or contribute to toxicity in receiving waters would be required to contain a calculated toxicity limit. Methods for limit calculation would most likely follow the current

methods in the SIP, which are provided for chemical-specific limits. An alternative would be to calculate limits using USEPA's methods described in the *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001). A schedule of compliance for new numeric toxicity limits could be provided for a period as short as practicable, but not exceeding five years. The drawbacks of this option include the potential of assigning violations to POTW dischargers that are genuinely attempting to reduce toxicity through an aggressive TRE process. The numeric limit option would provide the benefit of a highly efficient regulatory tool that will assure the protection of water quality.

Option 2: Narrative Toxicity Limits with Numeric Monitoring Triggers

Proposal: The SIP may be amended to require the use of narrative toxicity limits with monitoring triggers to initiate a stringent TRE for discharges that have a reasonable potential to cause or contribute to in-stream toxicity. Narrative effluent limits to control toxicity generally state that *'there shall be no toxics in toxic amounts'* in the receiving waters. The use of a narrative toxicity limit should be accompanied by a numeric monitoring trigger which, when exceeded, requires a regime of accelerated toxicity testing and possibly a TRE to reduce and control the source(s) of toxicity. Narrative limits do not provide a clear measurement of compliance and thus represent an oversight-driven model of toxicity control, where the regulatory agency must carefully manage the dischargers' efforts to reduce and control toxicity.

When narrative toxicity limits are used, the regulatory agency must ensure that the dischargers are taking all reasonable steps necessary to control effluent toxicity by careful scrutiny of the TRE process. The iterative approach of using TRE studies to detect and reduce the cause(s) of toxicity was designed by USEPA to compliment a numeric effluent limit, which provides incentive for the dischargers to aggressively pursue the elimination and prevention of effluent toxicity. Current USEPA guidance on TRE studies does not incorporate the level of management necessary to implement this process without the incentive of numeric limits. For example, the recommended TRE processes would not address recurring toxic pulses as long as the pulse lasted less than 30 – 60 days and could potentially allow continuous toxicity excursions to continue for months to years while the process is slowly proceeding. To prevent this from occurring, the TRE requirements would need to be significantly strengthened if narrative limits are used. Potential changes to these requirements may include an increase in the number of toxic-free tests required before ending the initial stages of a TRE, a more aggressive TIE approach, and consideration of the frequency and pattern of observed toxicity in any particular facility. A narrative toxicity effluent limit with a numeric monitoring trigger can be used to successfully implement the State toxicity objectives provided that a stringent TRE requirement is in place, and strict oversight by the regulatory agency is possible.

With the narrative limit option, NPDES permits for discharges found to have reasonable potential to cause or contribute to in-stream toxicity would be required to contain clear language describing the narrative toxicity effluent limit, numeric monitoring triggers, accelerated testing requirements to determine the need for a TRE, and detailed, site-specific implementation for a stringent TRE process, including clear deadlines. Regional Water Board staff would need to carefully review the TRE plan and may add additional requirements. Regional Water Board staff must also be prepared to closely monitor the TRE process once it is initiated. The drawbacks of

this option include the considerable Regional Water Board resources that would be required to ensure that water quality is protected. The benefits of the narrative limit option include the avoidance of assigning violations to dischargers that are genuinely attempting to reduce toxicity through an aggressive TRE process.

Option 3: Separate Requirements for POTWs

Proposal: The SIP may be amended to require that different toxicity limit forms be applied to POTWs and non-POTWs. POTW discharges that have a reasonable potential to cause or contribute to in-stream toxicity would receive narrative toxicity limits with monitoring triggers to initiate a stringent TRE. Non-POTW discharges with a reasonable potential to cause or contribute to in-stream toxicity would receive numeric toxicity limits. POTWs face the unique challenge of treating a highly variable and partially unrestricted influent. For this reason the State Water Board may consider the use of a separate toxicity limit provision to regulate discharges of this class. For example, when an industrial discharger observes toxicity there is a finite list of possible causes of that toxicity. This creates a fairly straightforward means of investigating and controlling the sources of toxicity. However, toxicity in a POTW's influent could result from a number of sources, including the use of new household products. Investigating and controlling toxicity observed in POTW effluent can be a lengthy and technically difficult process. Source control may include implementing new pretreatment or public awareness programs. The State Water Board may consider the use of narrative toxicity limits exclusively for POTWs in order to avoid penalizing these facilities while they are aggressively pursuing a TRE to control toxicity.

2) Clarify and Expand the General Toxicity Control Implementation in the SIP

Significant implementation gaps in the SIP regarding the NPDES process to control effluent toxicity have been problematic for Regional Water Board staff, dischargers, and other California stakeholders. The main issues that need to be addressed are discussed below and potential strategies to clarify and standardize toxicity control implementation are listed. The State Water Board may address some or all of these issues through this SIP amendment.

Consideration of Acute Provisions

Proposal: The SIP may be amended to clarify the State's approach to both chronic and acute toxicity control. The SIP does not currently address acute toxicity. USEPA recommends using either chronic or acute toxicity limits in each permit and provides a calculation method to determine which type of limit would be most protective for each discharge. However, most Regional Water Boards currently assign both acute and chronic limits for dischargers that have a reasonable potential to cause or contribute to in-stream toxicity. The State Water Board may consider the efficacy of relying on only chronic toxicity limits to protect water quality.

Data Collection

Proposal: The SIP may be amended to recommend (or require) that at least ten valid and representative WET testing data points be used to evaluate the need for toxicity effluent limits in a NPDES permit. The Regional Water Boards use WET testing data to decide if a discharge requires a toxicity effluent limit in the NPDES permit. It is important that a sufficient

amount of data is used to adequately determine the potential of a discharge to cause toxicity in receiving waters. Using at least ten data points will reduce the variability inherent to very small data sets.

For new discharges that have not previously been permitted, temporary interim limits should be used for up to 18 months while the discharger collects at least ten representative WET testing data points. This can be achieved by using short-term compliance schedule orders. For permit renewals, all representative WET data can be used to determine the need for a toxicity effluent limit in the reissued permit. If less than 10 valid WET data points are available, the Regional Water Board should require the discharger to collect additional data *before* the current permit expires. This can be achieved by issuing written requests under Section 13267 of the CWC. All new or reissued permits should require dischargers to collect at least 10 valid and representative WET testing data points before the permit expires (regardless of assigned monitoring frequency).

Valid and Representative Data

Proposal: The SIP may be amended to recommend (or require) that a standardized data evaluation form be used to ensure that all WET data points are valid and representative when evaluating the need for toxicity effluent limits in NPDES permits. It is essential that all data used to assess the need for a toxicity effluent limit is valid and representative of the discharge (40 CFR 122.41(j)(1)). In order to ensure the use of valid data, Regional Water Board staff should evaluate all WET data for proper collection, preservation, shipment, storage, test method(s), data calculation, and data presentation before accepting the data. This could be implemented by requiring dischargers to submit a signed form that delineates each of these factors with each WET sample. Similarly, staff should ensure that data are representative of the discharge by considering local seasonal variation, seasonal patterns in uses of pollutants (domestic and industrial), and any variation in plant treatment and/or management procedures.

Calculation of Reasonable Potential

Proposal: The SIP may be amended to describe the appropriate method(s) of determining whether a discharge may cause, have the reasonable potential to cause, or contribute to toxicity. The method(s) may be adapted from both Section 1.3 of the SIP and USEPA's recommended method. The SIP may also be amended to recommend (or require) that toxicity data be expressed in a particular format and analyzed by a standard statistical method to determine whether a discharge has a reasonable potential to cause or contribute to toxicity. Section 1 of the SIP outlines a process to determine whether a discharge may (1) cause, (2) have a reasonable potential to cause, or (3) contribute to an excursion above applicable Criterion or Objectives for priority pollutants. In this process, effluent data is reviewed to determine the observed maximum effluent concentration (MEC) for a given pollutant. If the MEC is greater than or equal to the pollutant objective, then an effluent limit is required. If the MEC is less than the applicable Objective, the ambient data is reviewed to determine the observed maximum ambient background concentration for the pollutant. If the maximum background concentration of the pollutant is found to be above the pollutant Objective *and* any amount of the pollutant is detected in the effluent, then an effluent limit is required for the discharge. For a more detailed description of this process, see Section 1.3 of the SIP. USEPA

recommends a method to determine reasonable potential that is similar to the method found in the SIP but also accounts for the variation in the evaluated data (EPA/505/2-90-001). Consideration of data variability is important in toxicity monitoring because these excursions can be periodic and unpredictable.

Toxicity data can be expressed in several different forms including percent survival, point estimates (i.e., LC₅₀ or EC₂₅), No Observed Effect Concentration (NOEC), Lowest Observed Effect Concentration (LOEC), and as 'pass/fail.' Point estimate, NOEC and LOEC data can also be reported as Toxic Units (TU) by multiplying the reciprocal of those values by 100. All of the above mentioned data formats, except 'pass/fail,' can include censored data (greater than or less than a given value), which requires advanced statistical techniques to properly evaluate reasonable potential.

Determination of Permit Limit or Numerical Monitoring Triggers

Proposal: The SIP may be amended to describe the appropriate method of toxicity limit or monitoring trigger calculation and to recommend (or require) that toxicity limits be based on a specific type of analysis (i.e., hypothesis testing or point estimate). The SIP may also be amended to include guidelines for setting averaging periods for toxicity limits. Once the need for a toxicity effluent limit is determined, then the numerical limit or monitoring trigger must be calculated. Section 1.4 of the SIP describes a procedure to calculate effluent limits for priority pollutants that incorporates the pollutant objective, discharge dilution credit, ambient concentrations, effluent variability, and monitoring frequency. USEPA describes an effluent limit calculation that accounts for the above factors and is specific to toxicity limits in the *Technical Support Document for Water Quality-Based toxics Control* (EPA/505/2-90-001).

Toxicity is measured differently than chemical-specific pollutants. Rather than quantifying a chemical concentration in effluent, toxicity tests quantify a concentration of effluent that causes a certain level of toxicity. For example, a discharger with a dilution credit may be given a limit of *no chronic toxicity at less than or equal to 75 percent effluent*. This requires that a toxicity test with 75 percent effluent and 25 percent control water is absent of statistically significant effects on the growth, reproduction or survival of test organisms, as compared to 100 percent control water. In this example, toxicity may be observed in higher concentrations of effluent (> 75 percent) because there is sufficient receiving water dilution to protect water quality. This limit could be described as $NOEC \geq 75$ percent or $TU_c \leq 1.33$ ($TU_c = 100/NOEC$). This type of testing, known as hypothesis testing, identifies a toxicity threshold (no observed effect or lowest observed effect) by comparing a series of diluted effluent to a control.

Limits can also be set as point estimates, which are interpolated from the concentration-response relationship between increasing concentrations of effluent and observed toxicity (analogous to dose-response). A common point estimate for acute toxicity is the LC₅₀, which describes the concentration of effluent at which 50 percent of the test organisms are killed. A common point estimate for chronic toxicity is the EC₂₅, which describes the concentration of effluent at which 25 percent of the test organisms experience a deleterious effect (e.g., reduced growth or reproduction). In the above example of a discharger with a dilution credit, a point

estimate-based chronic toxicity limit may be expressed as $EC_{25} \geq 75$ percent or $TUc \leq 1.33$ ($TUc = 100/EC_{25}$).

While hypothesis testing compares the effects of one effluent concentration to another, point estimates can predict the effect level at any effluent concentration. Toxicity effluent limits based on hypothesis testing are restricted to the dilution series concentrations (e.g., 6.25 percent, 25 percent, 50 percent, 75 percent and 100 percent effluent) while those based on point estimates can be set at any effluent concentration. The use of point estimates would allow toxicity effluent limits to be expressed as calculated, rather than as the nearest dilution concentration available. As a measure of compliance, hypothesis testing does not identify the precise NOEC but rather the range that the NOEC falls within. For example, if toxicity is observed in 25 percent effluent but not in 6.25 percent effluent, then the actual threshold of toxic effects will be anywhere between 6.25 and 25 percent. The use of a point estimate-based effluent limit would use the concentration-response relationship to interpolate the precise effluent concentrations where significant toxic effects begin to occur.

Toxicity limits have also been expressed as percent survival of test organisms in 100 percent effluent. Test replication is very important with this method because a dilution series is not employed. In general, toxicity tests that use dilution series are considered more robust because the concentration-response relationship is considered. This test is only used for acute toxicity testing.

A toxicity effluent limit must be connected to an averaging period. Averaging periods are commonly monthly, weekly or daily. Some Regional Water Boards average a certain number of consecutive tests to determine compliance with a toxicity limit. The most significant issue to consider in setting averaging periods for toxicity limits is achieving adequate representation of the discharge.

Monitoring Schedules for all dischargers (with or without limits)

Proposal: The SIP may be amended to provide guidelines for setting toxicity monitoring schedules. Dischargers must be given a monitoring schedule for toxicity testing whether or not a toxicity limit is added to the permit. When determining appropriate monitoring schedules, the most significant issue is ensuring that the monitoring will accurately represent the discharge. Issues such as local seasonal variation, seasonal patterns in uses of pollutants (domestic and industrial), and any variation in plant treatment and/or management procedures should be considered. USEPA recommends weekly testing for dischargers with a toxicity limit. Most dischargers currently sample on a monthly basis.

Monitoring requirements should be less strenuous for discharges that shown no reasonable potential to cause or contribute to toxicity. However, the sampling should provide a representative profile of the discharge. All dischargers should be given clear direction for accelerated testing requirements that describes the point of initiation, frequency, reporting and the point of transition to a TRE.

TRE Requirements

Proposal: The SIP may be amended to include guidance on the appropriate implementation of TREs to reduce and control toxicity. The California Water Boards and USEPA are developing TRE guidance recommendations for California. It may be helpful to include guidance in the SIP regarding the following: accelerated testing, detailed, site-specific TRE plans, reasonable TRE timelines, reporting requirements and general guidelines for TIEs.

Potential Enforcement Steps

Proposal: The SIP may be amended to include potential enforcement options for toxicity control. It may be helpful to outline potential enforcement steps in the toxicity control provisions in the SIP. Appropriate methods for requiring extra data, addressing compliance with monitoring and reporting requirements, enforcing TRE plans, and addressing toxicity violations should be described.

Statewide Consistency

Proposal: Toxicity implementation in the SIP could be expanded to address the issues listed above by simply expanding the current provisions, or by creating statewide implementation policy that supersedes the toxicity implementation currently described in the Basin Plans. Currently the toxicity control provisions in the SIP describe the minimum requirements and do not supersede toxicity provisions in the Basin Plans. A statewide policy of toxicity control implementation would not supersede toxicity objectives in the Basin Plans. A statewide policy would provide clarity and consistency to toxicity control in California and would allow State Water Board staff to better provide assistance to all Regional Water Boards regarding the implementation of toxicity control.

Conclusions

Toxicity control is a complex issue in California. The State Water Board is working to create successful toxicity control regulation that will be protective of water quality and fair to dischargers. A truly comprehensive toxicity control policy is necessary to effectively standardize toxicity control implementation and to assure adequate protection of water quality throughout California.

Environmental Checklist Form

1. **Project title:** Proposed Revisions to the Toxicity Control Provisions in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California.

2. **Lead agency name and address:**
 State Water Resources Control Board
 Division of Water Quality
 1001 I Street, 15th Floor
 Sacramento, California 95814

3. **Contact person and phone number:**
 Regina Linville
 916-341-5579

4. **Description of project:**
 Revise and expand Toxicity Control Provisions in the SIP to address existing implementation gaps and to clarify the appropriate use of toxicity effluent limits in NPDES permits.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology /Soils |
| <input type="checkbox"/> Hazards & Hazardous Materials | <input type="checkbox"/> Hydrology / Water Quality | <input type="checkbox"/> Land Use / Planning |
| <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise | <input type="checkbox"/> Population / Housing |
| <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation | <input type="checkbox"/> Transportation/Traffic |
| <input type="checkbox"/> Utilities / Service Systems | <input type="checkbox"/> Mandatory Findings of Significance | |

EVALUATION OF ENVIRONMENTAL IMPACTS:

Issues:

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|---|---|--|---|----------------------|
| I. AESTHETICS -- Would the project: | | | | |
| a) Have a substantial adverse effect on a scenic vista? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| II. AGRICULTURE RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project: | | | | |
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|--|---|--|---|----------------------|
| III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project: | | | | |
| a) Conflict with or obstruct implementation of the applicable air quality plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| d) Expose sensitive receptors to substantial pollutant concentrations? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| e) Create objectionable odors affecting a substantial number of people? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| IV. BIOLOGICAL RESOURCES -- Would the project: | | | | |
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|--|---|--|---|----------------------|
| c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| V. CULTURAL RESOURCES -- Would the project: | | | | |
| a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| d) Disturb any human remains, including those interred outside of formal cemeteries? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| VI. GEOLOGY AND SOILS -- Would the project: | | | | |
| a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |

| | Potentially Significant Impact | Less Than Significant with Mitigation Incorporation | Less Than Significant Impact | No Impact |
|--|---|--|---|----------------------|
| i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| ii) Strong seismic ground shaking? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| iii) Seismic-related ground failure, including liquefaction? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| iv) Landslides? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| b) Result in substantial soil erosion or the loss of topsoil? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| VII. HAZARDS AND HAZARDOUS MATERIALS - Would the project: | | | | |
| a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |

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|---|---|--|---|----------------------|
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| VIII. HYDROLOGY AND WATER QUALITY | | | | |
| -- Would the project: | | | | |
| a) Violate any water quality standards or waste discharge requirements? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |

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|---|---|--|---|----------------------|
| manner which would result in substantial erosion or siltation on- or off-site? | | | | |
| d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| f) Otherwise substantially degrade water quality? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| j) Inundation by seiche, tsunami, or mudflow? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| IX. LAND USE AND PLANNING - Would the project: | | | | |
| a) Physically divide an established community? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| b) 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |

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|---|---|--|---|----------------------|
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| X. MINERAL RESOURCES -- Would the project: | | | | |
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| XI. NOISE -- Would the project result in: | | | | |
| a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |

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|---|---|--|---|----------------------|
| XII. POPULATION AND HOUSING -- Would the project: | | | | |
| a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| XIII. PUBLIC SERVICES | | | | |
| a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | | | | |
| Fire protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| Police protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| Schools? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| Parks? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| Other public facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| XIV. RECREATION -- | | | | |
| a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |

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|--|---|--|---|----------------------|
| b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| XV. TRANSPORTATION/TRAFFIC -- Would the project: | | | | |
| a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| e) Result in inadequate emergency access? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| f) Result in inadequate parking capacity? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| XVI. UTILITIES AND SERVICE SYSTEMS -- Would the project: | | | | |
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |

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|--|---|--|---|----------------------|
| 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 effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| 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 effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| g) Comply with federal, state, and local statutes and regulations related to solid waste? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| XVII. MANDATORY FINDINGS OF SIGNIFICANCE -- | | | | |
| a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |

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|--|---|--|---|----------------------|
| b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |
| c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | X |

EVALUATION OF ENVIRONMENTAL IMPACTS:

I.a.,b.,c.,d. There is nothing in the proposed SIP revision that will impact designated scenic vistas or highways, or have a demonstrable negative aesthetic affect, or result in increase glare.

II.a.,b.,c. The proposed SIP revision will not convert any land including farmland, change existing zoning for agricultural use, or change any existing environment due to its location or nature that could result in the conversion of farmland to non-agricultural use.

III.a.,b.,c.,d.,e. The proposed SIP revision will not adversely affect air quality, result in increase exposure to sensitive species through the air pathway, or result in changes in temperature, humidity, precipitation, winds, cloudiness, or other atmospheric conditions.

IV.a.,b.,c.,d.,e.,f. The proposed SIP revision is not expected to cause any significant adverse effects to plants and animals, including rare, threatened, or endangered species. The SIP revision is based on USEPA recommended implementation procedures to protect aquatic biological resources.

V.a.,b.,c.,d. The proposed SIP revision will have no direct or indirect impact on any cultural resources.

VI.a.i.,ii.,iii.,iv.,b.,c.,d.,e. The proposed SIP revision will not affect any geologic or soil conditions.

VII.a.,b.,c.,d.,e.,f.,g.,h. The proposed SIP revision will have no impact to the above areas.

VIII.a.,b.,c.,d.,e.,f.,g.,h.,i.,j. The proposed SIP revision will not affect absorption rates, drainage patterns, surface runoff, flooding, quantity or quality at surface or groundwater, surface water currents, or groundwater flow or supply.

IX.a.,b.,c. The implementation of the proposed SIP revision does not require specific property to be used in any way or prohibit property use.

X.a.,b. The proposed SIP revision will not result in the loss, recovery, or interfere with a plan regarding mineral resources.

XI.a.,b.,c.,d.,e.,f. The proposed SIP revision will not result in an increase in existing noise levels or cause exposure to people to severe noise levels.

XII.a.,b.,c. The proposed SIP revision will not affect population growth, development patterns, or affect existing housing.

XIII.a. The proposed SIP revision will not result in any adverse impacts to fire, police, schools, parks, or other public facilities.

XIV.a.,b. The implementation of the proposed SIP revision will not increase the use of parks, recreational facilities, or require construction or expansion of recreational facilities that would physically effect the environment.

XV.a.,b.,c.,d.,e.,f.,g. The proposed SIP revision will not impact existing transportation or traffic circulation patterns.

XVI.a.,b.,c.,d.,e.,f.,g. The proposed SIP revision will not directly impact any utility or service system. Even though the proposed SIP revision may have more stringent implementation provisions, permitted dischargers can, in most cases, attain the toxicity effluent limits based on the toxicity objectives set forth in the Basin Plans. The actual objectives are not affected here.

XVII.a.,b.,c. The proposed SIP revision does not have the potential to degrade the quality of the environment, substantially reduce fish or wildlife habitat, cause fish or wildlife population to

drop below self-sustaining levels, or threaten to eliminate a plant or animal community. Also, the SIP revision will not cause effects on human beings directly or indirectly.