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September 11, 2006

Judy Zavadil, Senior Project Manager
East Bay Municipal Utility District
MS #701
375 Eleventh Street
Oakland, CA 94607-4240

Re: Water Treatment and Transmission Improvements Project Draft Environmental Impact Report

Dear Ms. Zavadil:

This firm represents the City of Orinda in matters related to the Water Treatment and Transmission Improvements Program ("WTTIP" or "Project") proposed by the East Bay Municipal Utility District ("EBMUD"). This letter, in conjunction with the attached reports and exhibits, all of which are incorporated as if fully set forth herein, provides the City of Orinda's comments on the Draft Environmental Impact Report ("DEIR") for the Project.[1]

ORIN-1

Elected officials and community members from the City of Orinda have expressed serious concerns with the impact of the Project on the City's residents and neighborhoods. Orinda bears a disproportionate share of the burden of treating and distributing drinking water in the East Bay region; according to one estimate, only five percent of the water treated in Orinda is actually consumed by the City's residents.

Because either of the Project's main alternatives would require Orinda to shoulder an even greater burden in the future, City officials and residents alike have looked to the DEIR for a clear and compelling description of why the Project is needed and what can be done to avoid severe community disruption during and after construction. Unfortunately, the DEIR fails

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[1] A geotechnical review prepared by Darwin Myers Associates is attached as Exhibit 1. Additional comments on various sections of the DEIR, prepared by Orinda's City Engineer, are attached as Exhibit 2.

ORIN-1

to explain clearly why the Project is necessary. Nor does the DEIR adequately consider alternative sites or nationally recognized alternative technologies that could help avoid the serious impacts on the City of Orinda and its residents that would result from implementation of either Project alternative. ORIN-2

For these reasons, the City of Orinda cannot support either Alternative 1 or Alternative 2. Traffic congestion, road closures, noise, visual blight, and community disruption from projects throughout the City would be largely the same under either alternative. The DEIR thus should be revised to include consideration of real alternatives that will not increase the burden on Orinda. There may be other feasible locations for expanding the capacity of EBMUD's water treatment and distribution system. There are almost certainly other feasible treatment technologies that would enable EBMUD to maintain compliance with applicable regulations without subjecting the community to serious disruptions. In short, neither Alternative 1 nor Alternative 2 offers much of an "alternative" for Orinda. ORIN-3

That said, the City views Alternative 2 as clearly unacceptable. Decommissioning the Lafayette Water Treatment Plant raises serious public health and safety concerns. In previous projects, including the recent reduction of water levels in San Pablo Reservoir, EBMUD has cited redundancy as an essential factor in protecting the water distribution system from seismic disruption. The same concerns should apply to the Project under consideration here. It would be dangerous to concentrate water treatment and distribution operations in Orinda, which lies much closer to the Hayward Fault, without redundant capacity elsewhere in the system to provide water for drinking and firefighting after an earthquake. Seismic concerns aside, the Lafayette site is more appropriate for this type of industrial facility due to its distance from residential neighborhoods; significant expansion of the Lafayette site will be far less disruptive to neighbors and residents than would similar expansion of the Orinda site. ORIN-4

The City of Orinda is also concerned about the environmental impacts of the proposed Orinda WTP modifications, the Orinda-Lafayette Aqueduct (the "Aqueduct"), and Project elements proposed for construction in other parts of Orinda. As detailed below, the DEIR fails to adequately disclose or analyze the significant environmental impacts of the Project, and also fails to provide adequate mitigation for the impacts it does identify. Moreover, the DEIR does not contain sufficient information about the Project's components, its growth-inducing and cumulative effects, and the feasibility of alternatives to permit a reasoned and informed decision. As a result, the DEIR fails to meet the standards set forth in the California Environmental Quality Act ("CEQA"; Pub. Res. Code § 21000 et seq.) and the CEQA Guidelines (tit. 14, Cal. Code Regs., § 15000 et seq.). The DEIR must be revised and recirculated before any action may be taken on the Project or any of its component parts. ORIN-5

I. The DEIR Does Not Adequately Describe the Project.

Under CEQA, the inclusion in the EIR of a clear and comprehensive description of the proposed project is critical to meaningful public review. County of Inyo v. City of Los Angeles, 71 Cal. App. 3d 185, 193 (1977) (Inyo II). The court in Inyo II explained why a thorough project description is necessary:

> A curtailed or distorted project description may stultify the objectives of the reporting process. Only through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal (i.e., the "no project" alternative) and weigh other alternatives in the balance.

ORIN-6

Id. at 192-93. Thus, "[a]n accurate, stable and finite project description is the sine qua non of an informative and legally sufficient EIR." Santiago County Water District v. County of Orange, 118 Cal. App. 3d 818, 830 (1981).

Although the DEIR's project description is an improvement over the list of actions presented in the Notice of Preparation, it is still insufficient. Neither "project-level" nor "program-level" actions are described in enough detail to support informed decision-making. Moreover, the DEIR does not clearly or consistently correlate the Project's numerous objectives and purposes with its several elements. Instead, the DEIR describes a number of purposes and objectives, and a number of potentially interrelated actions, at a vague and general level that does not permit the decision-maker to undertake an informed balancing of benefits and environmental costs.

A. The DEIR's Descriptions of "Project-Level" Actions are Confusing and Lack Necessary Detail.

Under both principal variations of the Project, the description of the actions analyzed at a "project level" of detail in the DEIR is confusing and incomplete.[2] The planned

ORIN-7

[2] The DEIR analyzes two principal Alternatives. Alternative 1 calls for modifications to both the Orinda WTP and the Lafayette WTP, and would continue to serve customers with water from both plants. Under Alternative 2, EBMUD would decommission the Lafayette WTP and shift the burden of serving the Lafayette WTP's customers to the Orinda WTP. Accordingly, Alternative 2 would require far more extensive modifications to the Orinda WTP, as well as construction of a tunnel and pipeline from the Orinda WTP to the Lafayette WTP. Both Alternatives encompass numerous additional actions, including several discussed in detail in this letter: the Happy Valley Pumping Plant and Pipeline, the Ardith Reservoir/Donald Pumping

capacity of the Orinda WTP under both Alternatives provides a case in point. In its description of Alternative 2, the DEIR states that the Orinda WTP "would produce 175 mgd (average-annualized rate), but would operate at the slightly higher rate of 180 mgd, an increase of 5 mgd over existing conditions. (It would also operate at this slightly higher rate under Alternative 1 during peak demand periods.) " (DEIR at 2-59.) The DEIR does not explain how the plant could "operate" at a rate of 180 mgd but only "produce" 175 mgd. Nor does it clearly explain whether any difference between the Alternatives in this respect is a matter of design, or just one of operation. The DEIR's discussion of Alternative 1 does not mention any increase in capacity during peak demand periods or otherwise. (See DEIR, § 2.4.3, at 2-42 to 2-47.) Indeed, the Orinda WTP currently produces 175 mgd. (See DEIR at 2-18 (Table 2-4).) As a result, it is not clear whether the Project entails increasing capacity at the Orinda WTP, nor whether that increase will take place only during peak demand periods. It is also unclear whether the Alternatives differ in this respect. Such basic information about the Project must be presented more clearly.

ORIN-7

The DEIR's complex organization also forces readers to cross-reference between multiple sections and volumes in order to obtain a complete description of any particular Project element. The discussion of capacity (see above) is a case in point; the information about possible increased capacity at the Orinda WTP under Alternative 1 is provided in a parenthetical statement under the description of Alternative 2. Another example is the backwash recycle system proposed for the Orinda WTP under both Alternatives. For a description of Alternative 1, a reader must consult all of the following: (1) section 2.4.3, for a description of the improvements proposed under Alternative 1; (2) Figure 2-7, for "descriptions of the facilities and processes described" in section 2.4.3; (3) Table 2-6, for a "proposed schedule for design and construction" of the project-level upgrades; (4) Table 2-7, for "proposed work hours"; (5) Table B-OWTP-1, in a separate volume, for "construction sequencing, duration of specific construction activities, construction staffing, and parking information"; and (6) Map D-OWTP-1, for a visual representation of the project-level and program-level components of the Alternative. (See DEIR at 2-43.) This confusing organizational approach is characteristic of virtually every action discussed in the DEIR. The need for extensive cross-referencing limits the usefulness of the DEIR as an informational document, and thus undermines CEQA's core purpose.

ORIN-8

B. The DEIR Does Not Clearly Explain the Need for the Project.

The DEIR lists a number of goals, needs, and purposes for various components of the Project, yet these needs and purposes generally do not correspond to particular Project components. Without a clear indication that the Project is necessary, decision-makers will be unable to balance the substantial environmental disruption caused by the Project against its

ORIN-9

Plant, the Sunnyside Pumping Plant, and the San Pablo Pipeline.

ORIN-7

benefits. This lack of correlation between the Project and its purposes renders the DEIR deficient as an informational document. ORIN-9

1. The DEIR's Discussion of Purpose and Need is Vague and Contradictory.

The DEIR suggests in the vaguest of terms that aspects of the Project are necessary to comply with state and federal regulations.[3] For example, the DEIR states that flocculation and sedimentation treatment of raw water at the in-line plants, including the Orinda WTP, "may eventually be needed" in order to comply with the federal Long-Term 2 Enhanced Surface Water Treatment Rule. (DEIR at 2-20.) Similarly, a chlorine contact basin is "potentially" required by the Stage 2 Disinfectants/Disinfection Byproducts Rule. (Id.) The DEIR does not explain what might "eventually" occur to make these "potential" requirements into actual requirements. Are the regulations themselves expected to change further? Will aspects of this Project result in a change in source water quality that might require changes in treatment? The DEIR does not answer these questions. As a result, the public and decision-makers can only speculate as to whether many of the long-term actions evaluated in the DEIR will ever be necessary. ORIN-10

Table 2-3, which purports to summarize the need addressed by each specific water treatment improvement action, contradicts the text of the DEIR. For example, Table 2-3 states that the backwash system is necessary to comply with federal Surface Water Treatment Rules and the state Cryptosporidium Action Plan. (DEIR at 2-17.) A few pages later, however, the DEIR cites the federal Surface Water Treatment Rule in support of high-rate sedimentation processing at the Orinda WTP, without mentioning the backwash system. (DEIR at 2-20.) The California Cryptosporidium Action Plan requires backwash systems at the Walnut Creek and Lafayette WTPs because they discharge backwash into the Lafayette Aqueducts that supply the Orinda WTP; nowhere does the DEIR say that a backwash system at the Orinda WTP is required under the Action Plan. (See id.) Instead, the DEIR says the backwash system is required to address violations of the NPDES permit. (DEIR at 2-21.) Similarly, Table 2-3 states that the proposed clearwell, pipeline, pumping plant, and electrical substation are necessary to address the requirements of the state NPDES permit for the Orinda WTP. (DEIR at 2-17.) The NPDES permit is not cited, however, as requiring installation of a clearwell, pipeline, pumping plant, or electrical substation; rather, the need for these proposals is described as stemming from either ORIN-11a

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[3] The DEIR lacks a clear summary of federal and state regulations governing EBMUD's water treatment and distribution activities. The purpose and need section mentions some applicable regulations in general terms, but does not contain specific citations or information about which state or federal agencies are responsible for determining compliance. A section clearly explaining the regulatory scheme governing EBMUD's operations, and identifying the agencies responsible for its enforcement, would be extremely helpful to both the public and decision-makers in evaluating the need for particular Project components. ORIN-10

water demand requirements or infrastructure upgrades. (See DEIR at 2-14, 2-21 to 2-22.) As a result of these contradictions, the DEIR fails to explain clearly why any of these project components are necessary. ORIN-11a

The DEIR not only inadequately explains the need for the backwash recycling system proposed for the Orinda WTP under both Alternatives, but also fails to address potential impacts of, and alternatives to, installing this system. Although returning treated backwash water to the head of the plant could help conserve water currently discharged to San Pablo Creek, such an approach poses a certain risk of recycling solids and Crytosporidium. ORIN-11b Furthermore, the DEIR must analyze any secondary impacts to San Pablo Creek associated with eliminating current backwash discharges. ORIN-12 The DEIR also should acknowledge that conservation benefits may be limited, insofar as any discharged water would ultimately flow into San Pablo Reservoir. ORIN-13 The DEIR should analyze these risks and compare the relative benefits and drawbacks to those of alternative improvements to the current system. Such alternatives might include additional treatment, such as the use of ultraviolet light in the primary treatment train, or improvements to the reliability of existing equipment. By way of example, ultraviolet disinfection could require a smaller footprint than the proposed backwash facility, allow EBMUD to reduce its use of chloramine, and possibly eliminate the need for additional clearwells at the Orinda WTP. ORIN-14

Nor does the DEIR clearly explain why particular distribution system improvements—namely the new pumping plants, pipelines, and reservoir proposed for locations in Orinda—are necessary. Table 2-3 contains only a single reference to the entire "Distribution System," and then identifies several general reasons why improvements to this system are necessary. (DEIR at 2-17.) Other potential justifications for these improvements scattered throughout the document are stated in similarly general terms. Nowhere, however, does the DEIR explain in one coherent passage how the various Project components are interrelated, why they are all necessary under both alternatives, and whether there are any alternatives that would fulfill the Project objectives. Without any correlation between particular improvements and relevant needs, it is impossible for decision-makers or the public to determine why these improvements are necessary. The DEIR should be revised to present this information in a clear, meaningful, and unified form. ORIN-15

Finally, it is not clear how constructing the proposed clearwells at the Orinda WTP would improve water quality as compared to continuing to use the reservoirs west of the hills (the primary service area for water treated at the Orinda WTP). The capacity of the "project-level" clearwell under Alternative 2, 9.8 mg, represents about 5% of treatment capacity; this clearwell thus would provide only limited capability in the management of poor water quality during plant upsets. Information should be provided on the frequency of upsets that have resulted in water quality not meeting drinking water regulations. It is also not clear how this clearwell—which would add to already existing storage capacity—would reduce the age of ORIN-16

water in the distribution system. If deterioration of water quality over time is a significant problem in reservoirs west of the hills, then additional or retrofit of the storage reservoirs and changes in operation may be more effective in addressing this problem. These same concerns apply to the "program-level" clearwell proposed for the Orinda Sports Fields. Again, the use of this larger capacity clearwell would only add to the time that water is retained in the system and subject to deterioration. ORIN-16

As a result of these omissions and contradictions, the DEIR fails one of its most basic purposes: explaining why the project is necessary.

2. The Project Does Not Provide the Additional Treatment and Distribution Capacity Necessary to Meet the DEIR's Stated Goals.

Although the DEIR identifies "existing capacity deficiencies" and anticipated future needs as driving the need for theProject, the Alternatives considered do not address these concerns. Table 2-4 makes clear that capacity at the Orinda WTP is already sufficient to meet forecast demand capacity in 2030. (DEIR at 2-18.) Table 2-3, summarizing the needs addressed by specific Project actions, does not identify "demand" as a reason for any change proposed at the Orinda WTP. Moreover, although the DEIR is less than clear on this point, it appears that neither Alternative will actually expand capacity at the Orinda WTP beyond 180 million gallons per day ("mgd"), and no changes to the treatment process are planned to facilitate any expanded capacity. (See DEIR at 2-59.) ORIN-17

In this context, Alternative 2—decommissioning the Lafayette WTP—would not appear to achieve the DEIR's stated goals. According to the DEIR, the Lafayette WTP's current 25 mgd capacity is insufficient to meet current peak demands, which have reached 31 mgd, as well as projected future needs approaching 34 mgd. (See DEIR at 2-18 (Table 2-4).) Yet Alternative 2 proposes to shift all of that demand to the Orinda WTP *without any corresponding increase in capacity*. (See DEIR at 2-14 ("Under Alternative 2, the Orinda WTP would meet this need.").) At most, the Orinda WTP under Alternative 2 would produce 180 mgd. (DEIR at 2-59.) Current capacity, and projected future demand, are both 175 mgd. (DEIR at 2-18 (Table 2-4).) The DEIR does not identify any source for the additional 30 mgd necessary to replace water from the Lafayette WTP.[4] ORIN-18

[4] Improvements to the Walnut Creek and Sobrante WTPs—which would be the same under either Alternative—are not identified as sources of this extra capacity. (See DEIR at 2-18 (Table 2-4); 2-47 to 2-53.) Nor does the DEIR quantify any proposed increase in capacity at these two WTPs.

II. The DEIR's Analysis of "Program-Level" Actions is Inadequate.

The DEIR states that it is intended to serve as both a project and a program EIR. (See, e.g., DEIR at 3.1-2 to 3.1-3.) This is not, however, a typical program EIR, from which later analysis of specific projects will be tiered. Instead, the DEIR uses the terms "project" and "program" to distinguish between actions EBMUD actually proposes to undertake and other "potential future actions that may or may not be necessary depending on future circumstances." (DEIR at 3.1-2.) Thus the "program-level" analysis in the DEIR does not address a *program*; instead, it addresses specific *projects*, but only in a superficial manner.

The DEIR's approach is inconsistent with CEQA. The degree of specificity required in an EIR varies not with the label assigned to the EIR, but rather with the degree of specificity involved in the underlying activity. (CEQA Guidelines § 15146; Friends of Mammoth v. Town of Mammoth Lakes Redev. Agency (2000) 82 Cal.App.4th 511, 533 ("Designating an EIR as a program EIR . . . does not by itself decrease the level of analysis otherwise required in the EIR.").) The activities evaluated at a "program" level in the DEIR are not "programs" within the meaning of the CEQA Guidelines. (See CEQA Guidelines § 15168 (authorizing program EIR for evaluation of "a series of actions that can be characterized as one large project").) For example, "program" activities identified in the DEIR include construction of two clearwells, a low-lift pumping plant, and an electrical substation in specific locations at the Orinda WTP. (DEIR at 2-44, 2-47; Map D-OWTP-1.) Another "program" activity involves construction of a pipeline along San Pablo Dam Road and improvements to the San Pablo Tunnel. (DEIR at 2-86 to 2-87; Map B5.) These are specific activities; CEQA requires that they be analyzed with specificity. The term "program" may not be invoked as an excuse for inadequate analysis of *projects*.

ORIN-19

To the extent that EBMUD intends the DEIR to function as a program EIR for the entire Project, its environmental review of the Project as a whole and its individual components must still be meaningful. Program EIRs usually address broad planning documents, such as general plans, that then provide a framework for later analysis of specific projects. Even in those cases, the courts have required program EIRs to provide detailed analysis of known and foreseeable issues. (See, e.g., Friends of Mammoth, 82 Cal.App.4th at 535 (Town's failure to analyze "each proposed project, to the extent information was known or reasonably could have been known about each project, constituted a failure to proceed in the manner required by CEQA"); City of Carmel-by-the-Sea v. Board of Supervisors (1986) 183 Cal.App.3d 229, 249, 253 (EIR for general rezoning must address the "specific environmental effects arising from the rezoning, . . . substitut[ing] some degree of factual certainty for tentative opinion and speculation"); Envt'l Planning and Info. Council v. County of El Dorado (1982) 131 Cal.App.3d 350, 358 (holding that a general plan EIR must include "extensive detailed evaluations of the impacts of the proposed plans on the environment in its current state," or it "fail[s] as an informative document").) This DEIR similarly fails to provide the required analysis.

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The DEIR does not contain a meaningful "program-level" evaluation of the Project. The DEIR does not describe the Project as an integrated whole, nor does it address the overall impacts of Project approval. Instead, it focuses primarily on specific projects, the effects of which are addressed at levels of detail having more to do with EBMUD's planning process than with the requirements of CEQA. Analysis of specific Project components on a case-by-case level is not a substitute for programmatic, overarching analysis. By the same token, the DEIR's brief discussion of these individual Project components' "collective" impacts, presented as a subset of the cumulative impacts analysis (see DEIR at ch. 5.2), is also an inadequate replacement for true "program-level" assessment of the Project's broader implications. ORIN-21

The DEIR's cursory discussion of speculative "program-level" Project components contributes to the document's confusing organization and undermines its coherency. Moreover, these "program-level" analyses are so lacking that EBMUD will essentially have to start the CEQA process anew for each future action. (See CEQA Guidelines § 15168(b), (c).) This duplication of effort defeats many of the advantages offered by a program EIR. ORIN-22

In addition, as detailed throughout this letter, many of the DEIR's "project-level" discussions suffer from the same inadequate level of analysis as the "program-level" discussions. In short, the DEIR fails to provide enough information for decision-makers or the public to make informed "project-level" decisions. ORIN-23

III. The DEIR Does Not Adequately Disclose, Analyze, or Mitigate the Project's Potentially Significant Environmental Impacts.

An EIR must be detailed and complete, and must reflect a good faith effort at full disclosure. (CEQA Guidelines § 15151.) The document should provide a sufficient degree of analysis to inform the public about the proposed project's adverse environmental impacts and to allow decision makers to make intelligent judgments. (Id.) In reviewing the legal sufficiency of environmental review documents, the courts have emphasized that an EIR must support with rigorous analysis and substantial evidence the conclusion that environmental impacts will be insignificant and will be adequately mitigated. (Kings County Farm Bureau v. City of Hanford (1990) 221 Cal.App.3d 692.) As set forth below, the DEIR fails to comply with these standards. ORIN-24

A. The DEIR Inadequately Analyzes and Mitigates Land Use Impacts.

The DEIR combines three topics—land use, agriculture, and recreation—that typically are analyzed separately into one "Land Use, Planning, and Recreation" section. This section does not adequately address the Project's potentially significant conflicts with land use policies or neighboring land uses. ORIN-25

1. Thresholds of Significance Identified in the DEIR are Incomplete and Inadequate.

The DEIR fails to identify, and evaluate as potentially significant impacts, a number of potential conflicts with local land use plans, policies, and regulations. The CEQA Guidelines establish a threshold of significance for projects that conflict with plans, policies, and regulations of "a local agency with jurisdiction over the project" that were adopted for the purpose of avoiding or mitigating environmental impacts. (CEQA Guidelines, App. G, § IX(b).) Although the DEIR cites Appendix G as a source of thresholds of significance, this particular threshold is not discussed.[5]

Omission of this threshold is inappropriate under CEQA. A number of local agencies have jurisdiction to issue discretionary approvals for the Project. (See DEIR at 2-91 (Table 2-13).) Those decisions must be consistent with local general plans. (See Neighborhood Action Group v. County of Calaveras (1984) 156 Cal.App.3d 1176, 1182-86.) The DEIR describes a number of potential conflicts with dozens of local land use policies, most of which were plainly adopted for environmental purposes, and states that "actual determinations of project consistency" will be made by local jurisdictions "during project implementation." (See DEIR at 3.2-13.) These conflicts, however, are not merely problems to be addressed "during project implementation" by local agencies, but also potentially significant environmental impacts that must be disclosed, analyzed, and mitigated *by the lead agency* prior to project approval.

ORIN-26

2. The DEIR Fails to Disclose and Analyze a Potentially Significant Land Use Conflict at the Sunnyside Pumping Plant Site.

The City of Orinda is concerned that construction of the proposed Sunnyside Pumping Plant could result in a specific land use conflict. According to the DEIR, the privately owned parcel on which the Sunnyside plant would be constructed is surrounded by low-density residential uses and open space. (DEIR at 3.2-11.) The DEIR does not disclose, however, that the "open space" adjacent to the proposed site—and across which the access road for the site runs—is a parcel that was dedicated for preservation as a condition of the City's approval of the Orinda Downs subdivision. The adjoining landowner built and paved an access road across this dedicated open space area without permission from the City. It is the City's understanding that EBMUD now proposes to use some portion of this illegal road to construct and access the new Sunnyside plant. This is a potentially significant land use conflict that must be disclosed, analyzed, and mitigated in the DEIR.

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[5] Other sections of the DEIR explicitly incorporate local standards as thresholds of significance. (See, e.g., DEIR at 3.6-23 (local tree protection ordinances), 3.10-5 (local noise ordinances).) This approach should be applied consistently throughout the DEIR.

ORIN-26

B. The DEIR Inadequately Analyzes and Mitigates Impacts Related to Aesthetics and Visual Resources.

The DEIR does not properly account for either the short-term or long-term visual impacts of the various elements of the Project. Critical analyses and visual representations are missing, making it impossible to evaluate the DEIR's conclusions. (See Oro Fino Gold Mining Corporation v. County of El Dorado, 225 Cal.App.3d 872, 885 (1990).) The DEIR also fails to consider the significance of short-term construction-related visual impacts. (See CEQA Guidelines § 15126.2(a).) As a result, this section of the DEIR is not supported by substantial evidence and does not reflect a good-faith effort at full disclosure of impacts. In these respects, the DEIR violates CEQA. ORIN-28

1. The DEIR Does Not Adequately Analyze Conflicts With Local Plans and Policies Regarding Visual Resources.

The DEIR states that a number of factors, including "conformance with public policies regarding visual quality," guided significance determinations for the Project's visual impacts. (DEIR at 3.3-17.) The DEIR does not explain in detail how these factors were evaluated, however, and generally omits any specific discussion of local scenic policies. ORIN-29

The Camino Pablo corridor, for example, is designated in the City of Orinda's General Plan as a scenic corridor. (Orinda General Plan, Circulation Element, § 2.3.2, Implementing Policies P, Q, R, & S.) The DEIR acknowledges this designation (DEIR at 3.3-5; App. D at D-27), but does not analyze impacts in terms of the applicable policies and standards for scenic corridors. These local scenic resources policies should be considered in a manner that the public and decision-makers can understand and intelligently review.

2. The DEIR Inappropriately Discounts Potentially Significant Construction-Related Visual Impacts.

The DEIR's discussion of construction-related visual impacts is cursory and conclusory. The document lacks any site-specific analysis of particular construction projects. It also fails to explain its conclusion that all construction-related impacts will be less than significant. Nor does the DEIR explain how or whether the existing level of development at any particular location affects the determination of significance. This lack of analysis and support undermines the document's informational purpose. ORIN-30

At best, the DEIR suggests that these impacts are all less than significant because they are all temporary. (DEIR at 3.3-23.) This conclusion is not supported by the information in the DEIR. While all of the construction projects are "temporary," many are expected to last for several years. (See, e.g., DEIR at 2-58 (Table 2-8) (estimating four to six years for construction

of Alternative 2 project-level improvements at Orinda WTP, and two to three years for construction of the Aqueduct).) Similarly, pipeline projects through residential neighborhoods, such as the Happy Valley pipeline project, will take more than a year to complete. (DEIR, App. B, at B-23 (Table B-HVPP-2).) Notably, the duration of an impact is not a factor set forth in either the CEQA Guidelines or the DEIR itself for determining the significance of a visual impact. (See CEQA Guidelines, App. G, § I; DEIR at 3.3-17.) Indeed, an EIR must "giv[e] due consideration to both the short-term and long-term effects" of a project. (CEQA Guidelines § 15126.2(a).) The DEIR thus fails to support its conclusion that any of these impacts will be less than significant.

Construction of the Aqueduct under Alternative 2 illustrates the potential for significant construction-related impacts. Map D-OLA-1 contains a photograph of a "typical tunnel entry shaft construction site," showing a crane and several tall above-ground structures in addition to the shaft itself; Map D-OLA-3 confirms that such structures will likely be present during construction of the Aqueduct. Construction of the tunnel will proceed 24 hours per day, seven days per week, and the construction site will be illuminated at night. (DEIR at 2-36 (Table 2-7), 3.3-47.) While the DEIR contains three photographs of existing conditions at the Orinda Sports Fields (see Figure 3.3-OWTP-4), one of which (O10) purports to show the tunnel entry site, the document contains no simulated representation of what the site would look like during construction, no landscaping plan, no discussion of the area's potential visibility from the Camino Pablo scenic corridor or local residential areas, and no other information that would enable an informed decision concerning visual impacts of construction that could affect the City of Orinda for more than two years. These omissions undermine the document's informational purpose. ORIN-30

The DEIR also does not reveal whether night lighting would be required during dewatering phases at other construction sites (specifically the clearwells and backwash basins at the Orinda WTP and the Happy Valley pipeline near Lauterwasser Creek). The DEIR should be revised to include an analysis of these construction impacts and appropriate mitigation measures. ORIN-31

3. The DEIR Does Not Adequately Disclose or Mitigate Long-Term Visual Impacts.

In general, the DEIR's visual impacts analysis is incomplete and misleading. Visual simulations are either omitted entirely from the DEIR or not representative of how the facilities will actually appear to the public. Due to these omissions and misrepresentations, Orinda residents who have examined this portion of the DEIR have come away with the opinion that the document is deliberately misleading. The City strongly suggests that EBMUD attempt to remedy this situation by providing additional information regarding visual impacts, including complete and detailed vegetation plans, tree markings, and story poles for all physical structures ORIN-32

(including tanks, fences, and other improvements). Specific deficiencies are discussed in greater detail below. ORIN-32

Orinda WTP (Alternative 1)

Buildings associated with the backwash recycle system will be visible from Camino Pablo, even following landscaping treatment modeled in the DEIR. Although the DEIR claims that the architectural treatments for these buildings will be consistent with existing structures, it does not address other elements of the Orinda General Plan's policies for scenic corridors, such as the requirement that the natural environment be maintained as the "dominant visual element." (See DEIR, App. D, at D-27.) This may constitute a significant impact for many years, even after mitigation. ORIN-33

The DEIR's description of the buildings also contains an apparent error. The building housing the proposed solids pumping plant for the backwash recycle system is described as 16 feet tall, but only 35 square feet in area. This seems implausible, and contradicts visual representations showing a much larger structure. (Compare DEIR at 3.3-26 with Map D-OWTP-1.) These descriptions should be made consistent. ORIN-34

Orinda WTP (Alternative 2)

The DEIR does not adequately analyze the project-level actions proposed under Alternative 2, particularly the clearwell, pumping plant, and electrical substation proposed for the area north of Manzanita Drive. The DEIR contains one photograph showing current conditions at this location (Figure 3-3-OWTP-3, Photo O7), but does not include a simulation of post-Project conditions. Nor does the DEIR contain any representation of how these structures will appear at grade level. The DEIR claims that Figure 3.3-OWTP-5 will serve as the "conceptual landscaping plan" for this area. (DEIR at 3.3-26.) That plan, however, does not even depict the area containing the project-level improvements under Alternative 2. The only map showing this area is a large-scale aerial photograph that conveys little useful ground-level information; this photograph nonetheless reveals that the small amount of vegetation that might currently screen views along Manzanita Road is proposed for removal. (See Map C-OWTP-2.) As a result, there is nothing in the DEIR to support the conclusion that visual impacts at this location will be less than significant after mitigation. ORIN-35

Ardith Reservoir/Donald Pumping Plant

The DEIR entirely fails to disclose visual impacts on residents downhill from the Reservoir and pumping plant, particularly the residences on Lavina Court and Leslee Lane. There are no visual representations or viewpoints provided in the DEIR showing either current conditions or simulated future views from these locations. As a result, the DEIR provides no ORIN-36

basis for analysis of these impacts. Other simulated photographs of both existing and future conditions at the Ardith Reservoir site (see Figs. 3.3-ARRES-6, 7), showing views from along Ardith Drive, are potentially misleading. The viewpoint of the simulated photograph showing future conditions after landscaping is so close to the edge of the site that the effectiveness of the screening from other locations is difficult to discern. Photo A6 (Figure 3.3-ARRES-3), depicting views of the site from the back yards of residences along Westover Court, provides a better model for simulating the actual effectiveness of the landscaping treatment, and should be used (along with the other required simulations discussed herein) in a revised, recirculated DEIR. ORIN-36

Moreover, it is not clear that neighbors of the Ardith site received adequate notice that a visually imposing new reservoir is proposed for their community. The "Ardith Reservoir and Donald Pumping Plant" is mentioned in the Notice of Availability for the DEIR, but a footnote describes the reservoir and pumping plant as an "Existing EBMUD facility." (Notice of Availability, Table 1, footnote a.) This is misleading. A "Donald Pumping Plant" does already exist at the site, but the Project proposes that it be torn down and reconstructed in a different location. The "Ardith Reservoir" portion of the Project, moreover, would construct an entirely new and visibly massive above-ground tank in the middle of this residential neighborhood. By describing the Ardith site as an "existing facility," the Notice of Availability conveys the misleading impression that existing conditions will not change. Adequate notice must be provided to the neighbors of the Ardith facility.[6] ORIN-37

Happy Valley Pumping Plant

The DEIR's visual simulations at this location are incomplete and potentially misleading. Although the view of the site from Lombardy Lane is certainly important, the maps and photographs of the area also show a residence immediately adjacent to the site; it appears that the new pumping plant would be located within 50 feet of the back yard and swimming pool at this residence. (Fig. 3.3-HVPP-1; Map C-HVPP-1.) Map C-HVPP-1 shows that existing vegetation between the pumping plant and the residence will be removed, and the landscaping plan (Figure 3.3-HVPP-3) shows no replacement vegetation in this location. All of this information contradicts the DEIR's conclusion that existing trees and future landscaping will screen views from adjacent residences. (See DEIR at 3.3-42.) Again, the DEIR's conclusions regarding the significance of this impact are unsupported. ORIN-38

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[6] City staff have noted the conspicuous absence of the Ardith site's neighbors at informational meetings and City Council hearings. Neighbors of all of the other facilities proposed in Orinda have been very active in the public review and comment process; the silence of residents near Ardith Drive may well be due to the ineffectiveness of the notice. ORIN-37

C. The DEIR Inadequately Discloses, Analyzes, and Mitigates Impacts Related to Geology, Seismicity, and Soils.

Improvement projects discussed in the DEIR pose a number of potentially serious hazards related to slope, seismic, and soil instability. The City of Orinda has obtained a geotechnical report, prepared by Darwin Myers and Associates, and attached as Exhibit 1 to this letter, which details the DEIR's failure to provide necessary site-specific geotechnical information.

The DEIR defers analysis and mitigation of geologic hazards to a time after Project approval in violation of CEQA. (See Sundstrom v. Mendocino County (1988) 202 Cal. App. 3d 296.) A lead agency may not approve a project subject to conditions requiring the applicant to prepare future studies and mitigation measures, because in so doing the agency would be improperly delegating its legal responsibility to assess a project's environmental impact. (Id. at 307.) Rather, CEQA requires the lead agency itself to prepare or contract for the preparation of impact assessments (citing CEQA § 21082.1) that reflect the agency's "independent judgement." (Id.) The need for post-approval studies demonstrates the inadequacy of environmental review prior to project approval. (Id.) ORIN-39

Each of the major mitigation measures set forth in this section of the DEIR (Measures 3.4-1, -2, -3a, and -4) calls for site-specific geotechnical investigations to identify hazards and recommend appropriate mitigation. This is the kind of basic analysis of potential risks, impacts, and mitigation measures that should have been included in the DEIR itself. Omission of this analysis demonstrates the DEIR's inadequacy as an informational document.

Moreover, none of the measures contains performance standards that would permit a proper evaluation of the feasibility or effectiveness of the proposed mitigation. For example, Measure 3.4-4, concerning the potential for damage from soil liquefaction during earthquakes, states that the "performance standard" to be used in the geotechnical investigation "will be minimization of the hazards." (DEIR at 3.4-31.) This is an inadequate standard for two basic reasons. First and foremost, the "hazards" are not adequately identified in the DEIR; site-specific identification of liquefaction potential is deferred until after project approval. Second, without knowledge of site-specific hazards, it is impossible to determine what would be required to "minimize" those hazards, whether a "minimized" hazard is no longer significant for CEQA purposes, or whether the specific steps required to reduce the hazard to insignificance are feasible or practicable. Deferral also prevents analysis of the potential secondary or indirect environmental impacts of mitigation measures (for example, the impacts of dewatering, excavation, and soil replacement near creeks to mitigate the risk of liquefaction). (See CEQA Guidelines § 15126.4(a)(1)(D).) These examples illustrate the pitfalls of deferring analysis and mitigation of environmental impacts, and demonstrate why this approach does not satisfy CEQA. ORIN-40

Finally, the DEIR lists, but does not analyze, relevant provisions of the Safety Element of the Orinda General Plan. The City of Orinda requires preparation and peer review of a geotechnical investigation and report for facilities within the City that could create a geologic hazard. (Orinda General Plan, Safety Element, § 4.2.2.A, B; DEIR, App. D, at D-29.) The DEIR's deferral of site-specific geotechnical investigation could frustrate the City of Orinda's peer review process and threaten approval of encroachment permits where required under the Project. ORIN-41

D. The DEIR Inadequately Discloses, Analyzes, and Mitigates Impacts Related to Hydrology and Water Quality.

1. The DEIR's Reliance on Existing Permits, Conditions, and Regulations is Inadequate to Ensure that Impacts will be Less than Significant. ORIN-42

The DEIR relies extensively on existing federal and state regulations and permits in concluding that water quality impacts will be less than significant. Some of these permits pertain to construction at the various facilities, while others pertain to post-construction operations. In several instances, however, it is not clear from either the DEIR or the permits themselves that promises of compliance are sufficient to avoid or lessen significant impacts.

For example, the DEIR relies on the Regionwide General NPDES Permit for Discharges from Surface Water Treatment Facilities for Potable Supply ("Regionwide General Permit") in concluding that impacts from chloraminated discharges and changes in impervious surfaces will be less than significant. (See DEIR at 3.5-38, 3.5-42.) This permit will expire in August of 2008, prior to the start of construction at several locations (including the Orinda WTP). (Ex. 3, Regionwide General Permit, § D.18.) As a result, it is impossible to evaluate the conditions under which a majority of the Project will be constructed. ORIN-43

Moreover, the DEIR reveals that discharges into San Pablo Creek at the Orinda WTP have exceeded permit limitations on a number of occasions. (DEIR at 3.5-17 to 3.5-18.) Two of these discharges involved high acute toxicity levels. These exceedances demonstrate why claims of future permit compliance are not sufficient to mitigate potentially significant impacts; a proper mitigation measure would include not only an assertion that limitations exist, but also disclosure of what those specific limitations are, along with monitoring, reporting, and remedial action requirements in the event of exceedances. Instead, this DEIR relies on a permit that does not yet exist, and for which EBMUD might not even *apply* until early 2008. (Ex. 3, Regionwide General Permit, § D.18 (setting application deadline of February 28, 2008).) The DEIR thus fails to address potentially significant impacts resulting from permit violations and exceedances of permit limitations. ORIN-44

2. The DEIR's Proposed Mitigation Measures are Inadequate to Support its Conclusions.

Erosion from Construction

The DEIR defers development of site-specific plans for preventing discharges from construction in or near a number of watercourses throughout the Project area. There appear to be special risks of water pollution at the Orinda WTP, which is immediately adjacent to San Pablo Creek, the Happy Valley Pumping Plant, at the confluence of Lauterwasser Creek and a seasonal drainage, and the Happy Valley Pipeline, which crosses Lauterwasser Creek and three other drainages. The Happy Valley site lacks a stormwater system, and construction will occur roughly 50 feet uphill from the nearest watercourse. ORIN-45

The DEIR discusses these potential discharges in only the most general terms, and contains little information regarding particular risks at most locations. Nor does the DEIR propose specific mitigation measures, or even quantifiable performance standards, for the Project locations. Instead, the DEIR merely promises compliance with Section 01125 of the EBMUD construction specifications, which in turn requires preparation of a number of water quality control plans and compliance with applicable regulations. Because the Project's impacts are not disclosed in particular terms, the feasibility or effectiveness of mitigation measures to lessen those impacts cannot be assessed. Mitigation cannot be deferred in this manner. ORIN-46

The DEIR also fails to clarify whether Section 01125 is offered as a mitigation measure. On the one hand, the DEIR seems to rely on Section 01125 in concluding that construction-related impacts, although potentially significant, will be less than significant after mitigation. (See, e.g., DEIR at 3.5-24 (Table 3.5-2); 3.5-25.) On the other hand, compliance with Section 01125—and with the numerous other plans and provisions seemingly encapsulated within that section, such as Stormwater Pollution Prevention Plans and Best Management Practices—is not mentioned in either of the mitigation measures proposed for Impact 3.5-1. (See DEIR at S-36, 3.5-31.) If the DEIR is relying on Section 01125 in concluding that impacts can be avoided or mitigated to insignificance, it must identify Section 01125 as a mitigation measure, establish quantifiable and enforceable performance standards, and include them in a mitigation monitoring plan. ORIN-47

Finally, the DEIR provides an inadequate basis for issuance of necessary permits by responsible agencies. The Happy Valley Pipeline will require County encroachment permits for creek crossings, which in turn will require evidence of compliance with California Department of Fish & Game and Army Corps of Engineers regulations. The Department of Fish & Game, as a responsible agency, will need to rely on the DEIR in making its own determination regarding issuance of a streambed alteration agreement. The information presented concerning the location and design of stream crossings, however, is insufficient for the Department's ORIN-48

purposes. (See Fish & Game Code §§ 1602, 1603.) Nor may CEQA compliance be deferred until the Department actually receives an application for a streambed alteration agreement. CEQA requires analysis of the whole of the action, and does not permit such "piecemeal" analysis of environmental impacts. ORIN-48

Water Quality Degradation from Dewatering Discharges

Relying solely on compliance with Section 01125 and other applicable regulations, the DEIR impermissibly concludes that this impact will be less than significant (and that no mitigation is required) at all locations. (DEIR at 3.5-24 (Table 3.5-2.).) Yet the DEIR also states that discharges from the Orinda WTP and the Aqueduct could "adversely affect" water quality" in San Pablo, Lauterwasser, and Lafayette Creeks, implying that this would be a significant impact without mitigation. (DEIR at 3.5-32, 3.5-33.) This contradictory treatment results from the DEIR's improper deferral of analysis of both impacts and mitigation measures. For example, the detailed hydrologic study necessary to determine the volume and quality of water pumped during Aqueduct construction will not be performed until after Project approval. (DEIR at 2-64.) The DEIR must analyze and disclose these impacts, and prepare enforceable, specific mitigation measures. ORIN-49

The DEIR also fails to analyze the potential for discharges from dewatering at other locations. Dewatering of subsurface soil is among the mitigation measures proposed to address the potential for soil liquefaction, and dewatering may also be necessary where pipelines cross creeks. (See DEIR at 3.4-32, 3.5-34.) In this respect the DEIR fails to analyze the secondary environmental impacts of mitigation measures as required by CEQA. (CEQA Guidelines § 15126.4(a)(1)(D).) ORIN-50

Operational Discharges of Chloraminated Water

The DEIR acknowledges the risk that treated water—which could be highly toxic to aquatic organisms—could be discharged from a number of locations. (DEIR at 3.5-37.) According to the DEIR, these discharges would be "occasional" or "rare" events resulting from emergencies or accidents. (See DEIR at 3.5-38.) Recent news coverage, however, indicates that discharges of chloraminated water are a significant concern throughout EBMUD's service area. (See Ex. 4, Patrick Hoge, Water-Main Breaks Proving Deadly to Fish, San Francisco Chronicle (July 15, 2006), at B-1.) The DEIR promises to dechlorinate such discharges in accordance with applicable regulations, but it is not clear how this would be accomplished, especially given the "emergency" circumstances that would cause such a discharge in the first place. Again, this is a potentially significant impact that should be clearly disclosed and specifically mitigated. ORIN-51

Changes in Impervious Surfaces

Although the DEIR acknowledges that County municipal stormwater permits now require specific treatment control measures (the "C.3 provisions") for projects that create or replace more than 10,000 square feet of impervious surface, the document states that other permits—namely the Regionwide General Permit and "site-specific BMP" plans—supercede this requirement. It is not clear, however, that these superceding requirements are intended to address hydrologic impacts from an increase in impervious surfaces. This is not among the discharges covered in the Regionwide General Permit. (See Ex. 3, Regionwide General Permit, at 7-8.) Moreover, the "BMPs" discussed in the DEIR appear to apply only to construction-related (rather than operational) discharges. If the specific measures of the County permits are not applicable, the DEIR should explain exactly what measures are applicable. As currently written, the DEIR lacks any support for its conclusion that this impact is less than significant. ORIN-52

It is our understanding that staff of the Regional Water Quality Control Board intend to develop a regional storm water NPDES permit for Bay Area municipal storm water discharges in 2006-07 that may include additional or more restrictive requirements regarding impervious surfaces. Because the 2003 General Permit will need to be reissued prior to the commencement of construction of most Project components, it is possible that requirements similar to the C.3 provisions will be included that would apply to the Orinda WTP under Alternative 2 (90,000 square feet), the Donald pumping plant and Ardith reservoir sites, and potentially to the Orinda WTP under Alternative 1 (41,500 square feet). These potential future permit changes, however, do not absolve the DEIR of its responsibility to analyze and mitigate the potentially significant impacts of increasing impervious surfaces. ORIN-53

E. The DEIR Inadequately Analyzes and Mitigates Impacts on Biological Resources.

1. The DEIR Inadequately Discloses Impacts and Improperly Defers Development of Mitigation Measures.

The DEIR inadequately describes mitigation measures to address degradation of streams, wetlands, and riparian areas. For example, trenching across streams and associated removal of riparian vegetation "would result in significant effects." (DEIR at 3.6-34.) The mitigation measure proposed to reduce this impact, however, is vague. It is not clear that "confining activities to areas above or below the stream crossing," or using jack-and-bore construction "where feasible," will reduce these impacts. (DEIR at 3.6-39.) The DEIR must fully disclose impacts, and develop adequate mitigation, at particular stream crossings along each alignment. ORIN-54

By the same token, the DEIR impermissibly defers preparation of a complete wetland delineation until some later date, and then only if impacts to "potentially jurisdictional features" cannot be avoided or minimized. (See DEIR at 3.6-40.) A number of Project facilities will be constructed either adjacent to or across streams and riparian areas; it is therefore highly unlikely that all impacts to these jurisdictional features can be avoided or minimized. The DEIR promises that required permits and agreements will be obtained from the Army Corps of Engineers and the Department of Fish and Game; as previously discussed, however, the document does not describe jurisdictional impacts in enough detail to enable informed decision-making by responsible agencies. A wetland delineation, showing the location of jurisdictional features and detailing impacts, should have been prepared as part of the DEIR. ORIN-55

The DEIR also fails to analyze secondary environmental impacts of proposed mitigation. Measure 3.6-2d recommends placing energy dissipation devices "such as riprap" in creeks to minimize erosion. Although energy dissipation is necessary for overflow discharges, riprapping a creekbed can adversely affect instream habitat for aquatic species by removing natural stream structure and altering flow regimes. This impact should have been disclosed in the DEIR. ORIN-56

Finally, the DEIR contains inadequate information about the life cycles and breeding patterns of sensitive wildlife species, rendering evaluation of proposed mitigation measures difficult. The DEIR's general discussion of bat species, for example, provides insufficient background for evaluation of the specific buffer zones and seasonal limitations proposed in Measure 3.6-5. Similarly, the DEIR contains no information on the feasibility or potential success of woodrat nest relocation, nor does it reveal how successful relocation of California yellow-legged frog nests might be. The DEIR also repeatedly assures that a good deal of construction disturbance will be "temporary and primarily linear," although the document also admits that direct mortality of some species will occur. (See DEIR at 3.6-56.) It is thus clear that construction disturbance will result in direct mortality; the "linear" orientation and "temporary" duration of construction activities do not reduce the significance of this impact. In order to support findings regarding significant impacts to these sensitive species, both before and after mitigation, the DEIR must present substantially more information. ORIN-57

2. The DEIR Lacks Analysis Necessary to Conclude that "Program-Level" Impacts will be Less than Significant.

The DEIR's analysis of "program-level" impacts at the Orinda WTP and along the San Pablo Pipeline are insufficient to support any determination regarding the effectiveness of mitigation measures. The DEIR acknowledges that construction of clearwells and other facilities at the Orinda WTP could adversely affect tributaries to San Pablo Creek, and indicates that the San Pablo Pipeline will pass through critical habitat for the Alameda whipsnake. Particular information on biological resources and construction methods, however, is not ORIN-58

presented. The DEIR cannot support its conclusion that impacts will be less than significant merely by labeling this a "program-level" analysis. At both a "program" and a "project" level, actual disclosure and analysis of impacts and mitigation measures are necessary to justify any such conclusion. ORIN-58

3. The White-Tailed Kite is a "Fully Protected" Species.

California Fish & Game Code section 3511 lists certain bird species that are "fully protected" under California law. The white-tailed kite, which could occur in the Project area (particularly near the San Pablo Pipeline alignment), is a "fully protected" species. (Fish & Game Code § 3511(b)(12).) The DEIR's discussion of the regulatory framework should acknowledge this status. ORIN-59

F. The DEIR Inadequately Discloses Potential Impacts to Cultural Resources

The DEIR reveals that thorough surveys for archaeological and historical resources, particularly at sites in Orinda, have not yet been completed. The City of Orinda would also like to be included in discussions concerning the design of new facilities near the historic Orinda filter building.

According to the DEIR, the Orinda WTP property was surveyed in 1987. (DEIR at 3.7-19.) It is not clear, however, how much of the property was surveyed at that time. Moreover, the surface reconnaissance of the Orinda Sports Field was incomplete because the area was "mostly covered by grasses." (Id.) The DEIR's discussion of these surveys should be expanded, and additional surveys should be conducted, in order to provide adequate disclosure of potential impacts. ORIN-60

The San Pedro Pipeline alignment appears especially vulnerable to these impacts. As the DEIR recognizes, there are numerous recorded prehistoric and historic sites in this "high sensitivity" area. (DEIR at 3.7-34 to 3.7-35.) EBMUD must conduct extensive surveys and thorough CEQA review before choosing to go ahead with this project or adopting a final alignment. Citation to general mitigation measures, such as Measure 3.7-1a, is not a sufficient basis for concluding that impacts to potentially unique resources can be mitigated to insignificance. ORIN-61

Finally, the City of Orinda is concerned about the effect of new construction at the Orinda WTP on the visual setting of the existing filter building, which is a City-designated historic landmark. The City would appreciate the opportunity to provide design-level input on architectural and landscaping treatments for all new buildings at the Orinda WTP, to ensure consistency with the historical designation. Providing such an opportunity would be consistent with EBMUD's goal of working to uphold the plans and policies of local jurisdictions. ORIN-62

G. The DEIR Inadequately Discloses and Analyzes Impacts and Mitigation Measures Related to Traffic and Circulation.

The City of Orinda is especially concerned about the traffic and circulation impacts resulting from simultaneous and overlapping construction of various Project elements within the City limits. The DEIR recognizes that encroachment permits from the City will be required for the Aqueduct, Happy Valley Pumping Plant and Pipeline, and Sunnyside Pumping Plant components of the Project. (DEIR at 2-91 (Table 2-13).) An encroachment permit requires specific findings that an encroachment is necessary and will not have an adverse effect on the public interest, safety, health, welfare, other property, or the environment in general. (Orinda Mun. Code § 12.08.040(C)(1), (2).) As discussed herein, the DEIR does not clearly establish that these encroachments are necessary. Moreover, the DEIR fails to disclose or analyze traffic and circulation impacts in sufficient detail and routinely downplays the significance of road closures and detours associated with pipeline projects. As a result, the DEIR not only fails to meet the requirements of CEQA, but also provides an insufficient basis for granting the apparently required encroachment permits. ORIN-63

The DEIR fails to substantiate its assumptions regarding vehicle capacity of area roads. All two-lane roads are assumed to be able to carry 15,000 vehicles per day, and all four-lane roads are presumed capable of carrying 25,000-30,000 vehicles per day. The DEIR provides no specific source for these assumptions, which seem especially dubious when applied to the narrow residential streets most adversely affected by roadway trenching activities. The DEIR lists only four references, two of which are web sites containing bus schedules, and the other two of which are Caltrans web sites containing traffic counts for *state highways*. (DEIR at 3.8-26.) A prominent notice on the Caltrans site states that "We do not collect traffic count information on locally maintained streets." (Traffic and Vehicle Data Systems Unit Home, at http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/index.htm.) The DEIR must substantiate its assumptions that local streets are not already beyond their capacity before reaching any conclusion regarding the significance of traffic impacts or the effectiveness of mitigation. ORIN-64

The DEIR also omits any project-specific analysis of construction-related traffic impacts at several sites in the City of Orinda. Although a few "examples" of "noticeable" project-related traffic increases are provided, the DEIR fails to discuss impacts at the Orinda WTP, Happy Valley Pumping Plant and Pipeline, and Sunnyside sites. (DEIR at 3.8-13.) This omission is especially glaring given that under Alternative 2, the Orinda WTP site will bear the brunt of construction for the entire Project. Oddly, Camino Pablo is not even listed as a "key local roadway" in the DEIR, despite carrying more than 26,000 vehicles per day. ORIN-65

The DEIR also fails to recognize that traffic conditions do not remain static. Construction of various Project elements will continue for many years into the future, yet the DEIR contains no projection of future traffic conditions or roadway capacity. This is a serious ORIN-66

omission, one that could require the production of substantial additional data and recirculation of the DEIR. ORIN-66

The DEIR also fails to address fully the impacts of pipeline projects along residential roads. Under either Alternative, construction traffic for the Happy Valley Pipeline will be using narrow roads through residential neighborhoods, and residents will be required to follow lengthy and circuitous detour routes during daytime hours for as long as two years. (See DEIR at 3.8-21.) The DEIR does not contain any information about current capacities, traffic counts, or impacts resulting from either construction or detour traffic on these predominantly residential roads. Again, this information could be sufficiently substantial to require recirculation of the DEIR. ORIN-67

Moreover, the mitigation for these impacts is entirely deferred and improperly delegated; under Measure 3.8-1, the *contractor* will be responsible for formulating traffic management plans sufficient to reduce impacts to insignificance. (DEIR at 3.8-13 to 3.8-14.) Although the contractor must "submit" these plans to the "agencies having jurisdiction over the affected roads," it is not clear that those agencies will have any approval authority. Nor does it appear that EBMUD, as lead agency, will ever evaluate the traffic plans to ensure that they contain measures sufficient to address site-specific concerns. This is an improper deferral and delegation of the lead agency's responsibility and authority to mitigate significant impacts. Furthermore, this deficiency infects the entire traffic section of the DEIR, because all but one of the other traffic mitigation measures simply require implementation of Measure 3.8-1. ORIN-68

Mitigation for impacts to County transit service through the Happy Valley Pipeline area—one of the few impacts that the DEIR identifies as significant and unavoidable—is also deferred and incomplete. The DEIR again delegates responsibility for mitigating this impact to the contractor, who must coordinate with County Connection officials to provide alternative transit service where possible. (See DEIR at 3.8-15.) In addition, the DEIR fails to acknowledge potential impacts on school bus service. Any coordination regarding road closures, delays, and/or detours also must include the Orinda Union School District. ORIN-69

Finally, the DEIR fails to acknowledge that long-term road closures affect not only transit routes but also riders. Where bus lines cannot be relocated, additional mitigation measures should be developed and evaluated by the lead agency prior to project approval. These measures should include exploration of some form of compensation or alternative transportation for transit riders whose livelihoods may be seriously affected by cessation of daytime bus service through the area affected by the Happy Valley Pipeline. The DEIR should have analyzed the needs of these transit riders and the feasibility of providing shuttle service or other alternatives to a cessation of bus service. The DEIR failed to disclose and analyze feasible mitigation strategies for these impacts. ORIN-70

H. The DEIR Inadequately Discloses and Analyzes Air Quality Impacts and Mitigation Measures.

The City of Orinda is concerned about the health effects of air pollution during construction of the various Project facilities. As the DEIR acknowledges, the Bay Area is currently designated as a non-attainment area for ozone and particulate matter. (DEIR at 3.9-3 (Table 3.9-1).) Data from the Concord monitoring station show high particulate matter concentrations east of the East Bay hills. (See DEIR at 3.9-7 (Table 3.9-3); see also Ex. 5, Bay Area Air Quality Management District ("BAAQMD"), Bay Area Pollution Summary 2004, at http://www.baaqmd.gov/pio/aq_summaries/pollsum04.pdf.) The adverse health effects of ozone and particulate matter pollution, especially PM2.5, are well-documented. ORIN-71

1. The DEIR Fails to Explain or Support its Estimates of Construction Emissions and its Conclusions Regarding Mitigation Measures.

The DEIR's emissions estimates for particulate matter are insufficiently detailed to allow for proper analysis by the public and decision-makers. The DEIR explains that the BAAQMD emissions factor for PM10 was "applied to estimated earthmoving quantities," but omits detailed calculations showing the precise relationships between the emissions factor, the amount of acreage disturbed at any one time, and total earthmoving quantities. The DEIR cites the BAAQMD CEQA Guidelines for the relevant emissions factors, but those guidelines make clear that the factor used in the DEIR is approximate; where emissions are to be quantified, the guidelines recommend dividing the construction process into component activities and using specific EPA emissions factors for each activity. (See Ex. 6, BAAQMD CEQA Guidelines (Dec. 1999), at 28-29.) It is not clear whether the conclusions stated in Table 3.9-4 were derived from the approximate emissions factor of 51 lbs/acre/day or a more specific application of emissions factors for various activities. It also appears that particulate matter from other construction activities, including construction equipment emissions and demolition of existing structures (e.g., the flocculation and sedimentation basins at the Orinda WTP) were not included in the total. The DEIR should be revised to explain the formulas and assumptions used in calculating emissions, including how the "acres/day" surface disturbance figures were calculated and their relationship to the actual amount of disturbed ground expected on any given day.[7] ORIN-72

The DEIR also relies almost entirely on compliance with fugitive dust control measures outlined in the BAAQMD CEQA Guidelines in concluding that impacts will be less ORIN-73

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[7] These surface disturbance figures appear to be averages over the duration of construction rather than representations of the quantity of earth that will be disturbed on any given day. These assumptions obviously affect the conclusions derived from application of emissions factors. In order for these figures and conclusions to be meaningful, the DEIR must explain how they were derived and how they relate to actual construction conditions. ORIN-72

than significant after mitigation. (See DEIR at 3.9-10.) The DEIR does not apply all of these measures, however, to all aspects of the Project. The DEIR claims that construction-related emissions are considered adequately mitigated "if BAAQMD-recommended dust-control measures are implemented." (DEIR at 3.9-10.) This is true, however, only if *all* of the control measures specified in Table 2 of the BAAQMD CEQA Guidelines are employed. (Ex. 6, BAAQMD CEQA Guidelines, at 14.) The DEIR would apply only the "basic" measures from Table 2 to projects commencing before 2011, and would apply "enhanced" measures only to the longer-term projects. (DEIR at 3.9-13.) Additional control measures recommended in Table 2 for large construction sites, and sites located near sensitive receptors, are not discussed in the DEIR. (See Ex. 6, BAAQMD CEQA Guidelines, at 15 (Table 2).) Most of the Project's construction sites—including all of the sites in the City of Orinda—are within a few hundred feet of sensitive receptors such as residences and schools.

ORIN-73

The DEIR's reliance on the BAAQMD CEQA Guidelines is therefore misplaced. As the Guidelines make clear, "[i]f all of the appropriate measures in Table 2 will not be implemented, then construction impacts would be considered to be significant (unless the Lead Agency provides a detailed explanation as to why a specific measure is unnecessary or not feasible)." (Ex. 6, BAAQMD CEQA Guidelines, at 14.) The DEIR does not provide any such detailed explanation, nor does it explain how its quantification of construction emissions supports its decision to use some, but not all, of the control measures specified in the BAAQMD CEQA Guidelines.

ORIN-74

This problem seems to arise from the DEIR's hybrid approach to construction emissions. On the one hand, the DEIR relies on the BAAQMD Guidelines' focus on control measures rather than quantified emissions, claiming that compliance with control measures automatically results in less-than-significant impacts. On the other hand, the DEIR purports to quantify construction emissions—albeit without any detailed explanation of the particular emissions factors or assumptions involved—and then uses this quantification to justify a decision *not* to employ all available control measures. (See DEIR at 3.9-13.) The DEIR thus does not follow either approach recommended in the BAAQMD CEQA Guidelines, and its conclusions regarding the significance of construction emissions after mitigation are unsupported.

ORIN-75

2. Assertions in the DEIR are Unsupported or Contradictory.

The DEIR contains inadequate information on particular impacts of the Project. In general, the DEIR fails to analyze emissions from stationary and construction equipment; analysis of diesel particulate emissions focuses only on haul routes and appears to omit construction sites. As previously discussed, it is not clear whether combustion emissions were included in the quantification of construction emissions; nothing in Table 3.9-4 or the

ORIN-76

accompanying discussion indicates that they were. This is a serious omission, one that should be corrected in a revised and recirculated DEIR. ORIN-76

Other discussions are internally contradictory. For example, Measure 3.9-1c asserts that line power (rather than diesel generators) will be used at the Aqueduct entry and exit tunnels to reduce diesel particulate emissions. (DEIR at 3.9-25.) In discussing the Aqueduct's noise impacts, however, the DEIR envisions nighttime use of "generators" at the entry shaft and possibly the exit shaft as well. (DEIR at 3.10-20.) The DEIR must clarify whether line power or generators will be used at this location. ORIN-77

The DEIR also notes that Project implementation would increase demand for electricity and emissions from power generation. (DEIR at 3.9-33.) Indeed, as discussed in the Public Services and Utilities section, the Project could require construction of additional electrical distribution facilities. (See DEIR at 3.12-17 to 3.12-18.) The DEIR fails to address the secondary environmental impacts of this increased power demand. The fact that these additional emissions might occur outside the air basin does not diminish the potential significance of these impacts, nor does it relieve the DEIR of responsibility to analyze them. By the same token, vague references to reliance on renewable energy sources, while generally laudable, are no substitute for analysis of actual impacts and feasible mitigation measures. The DEIR must be revised and recirculated with an adequate discussion of this impact. ORIN-78

Finally, the DEIR's discussion of "program-level" activities remains inadequate. For example, the second clearwell proposed for the Orinda WTP, which would require "extensive excavation," is only 15 feet from the southern edge of Wagner Ranch Elementary School's play fields. (DEIR at 3.9-34.) This aspect of the Project is not described in sufficient detail to support a conclusion that standard BAAQMD control measures will mitigate impacts to a less-than-significant level. Again, thorough CEQA review will be required before any further action may be taken on such "program-level" activities. ORIN-79

3. The DEIR Fails to Analyze the Potentially Serious Health Effects of Hydrogen Sulfide Emissions.

The DEIR mentions almost in passing that hydrogen sulfide could be encountered during Aqueduct tunneling operations. (DEIR at 3.9-28.) Hydrogen sulfide is not only extremely malodorous but also highly toxic. Concentrations above 600 ppm can cause death within minutes, and exposure to 1000 ppm has been reported to cause immediate respiratory arrest; indeed, hydrogen sulfide exposure "is reported to be the most common cause of sudden death in the workplace." (Ex. 7, California Office of Health Hazard Assessment, Determination of Acute Reference Exposure Levels for Airborne Toxicants, Acute Toxicity Summary, Hydrogen Sulfide (March 1999), at C-181 (available at http://www.oehha.ca.gov/air/acute_rels/pdf/7783064A.pdf).) Hydrogen sulfide is especially ORIN-80

lethal in enclosed situations (such as a tunnel), but accidental atmospheric releases from industrial facilities have also been fatal. (Id.) Exposure to concentrations ranging from 2.5 to 50 ppm, has been shown to cause conjunctivitis, respiratory irritation, and impaired lactate and oxygen uptake in the blood. (Id.) Although hydrogen sulfide gas has a "strong and offensive odor" at very low concentrations (the geometric mean odor detection threshold is a minuscule .008 ppm), olfactory fatigue prevents detection at higher, more dangerous concentrations, meaning that the signature rotten-egg smell of the gas will not alert workers or neighbors to the danger. (Id.) ORIN-80

Because detailed geotechnical studies for the Aqueduct tunnel have not yet been completed, the DEIR is unable to say whether methane and hydrogen sulfide will be encountered, and in what concentrations. Other tunnels in the area, however, including the Lafayette aqueducts along a similar alignment, were classified as "gassy" tunnels. (See DEIR at 3.11-4.) At the very least, the DEIR could have included some estimates of the potential for hydrogen sulfide emissions and possible concentrations of the gas based on data from other tunnels in the region. The DEIR also should have discussed applicable BAAQMD regulations governing hydrogen sulfide emissions. (Ex. 8, BAAQMD Rules and Regulations, Regulation 7 (odorous substances); Ex. 9, BAAQMD Rules and Regulations, Regulation 9, Rule 2 (inorganic gaseous pollutants).) Finally, the DEIR should have included specific information about the location of ventilation shafts and other potential conduits for gaseous emissions from the tunnel, both at entry and exit points as well as along the tunnel route. Given the potential for strong and unpleasant odors—and at worst, lethal poisoning of workers or others in the vicinity—these omissions must be corrected in a revised and recirculated DEIR. A good-faith effort at full disclosure requires no less. ORIN-81

4. The DEIR Contains No Analysis of PM2.5 Impacts.

The Bay Area air district is classified as a non-attainment area for PM2.5 under state law. These fine particulates pose especially grave health risks, as extensively documented by both federal and state authorities. The DEIR, however, omits any analysis of PM2.5 impacts. If analysis of direct and precursor emissions of PM2.5 shows that impacts will be more significant than those disclosed in the DEIR, then the DEIR must be revised and recirculated. ORIN-82

I. The DEIR Inadequately Analyzes and Mitigates Significant Noise Impacts.

1. The DEIR Uses Improper Thresholds of Significance.

By focusing narrowly on speech interference and local noise ordinances, the DEIR's thresholds of significance for noise do not accurately reveal noise impacts. Under CEQA, a substantial increase in ambient noise levels in the project vicinity "above levels existing without the project" is a significant impact, whether that increase is permanent, ORIN-83

temporary, or periodic. (CEQA Guidelines, App. G, § XI(c), (d).) Under CEQA, therefore, a substantial increase in noise at a normally quiet location may still be significant, even if it is not so loud as to make conversation impossible or violate noise ordinances. The DEIR's omission of this threshold underestimates some of the Project's more significant impacts. ORIN-83

The DEIR's use of the Leq measurement—which averages acoustical energy over a 24-hour period (DEIR at 3.10-1)—in evaluating the significance of noise from haul trucks is also inappropriate. (See DEIR at 3.10-35.) Haul truck noise is experienced as a periodic impact, not as a constant impact, and is therefore best evaluated by comparison of each event with prevailing ambient noise levels rather than an Leq level that tends to flatten out periodic events. ORIN-84

Finally, it is not clear what standard of significance the DEIR uses for evaluation of vibrational impacts at the Aqueduct construction site. Two possible standards are discussed: the .012 inch/second PPV "annoyance" standard and the .5 inch/second PPV "cosmetic damage" standard. (DEIR at 3.0-39 to 3.9-40.) Mitigation measures incorporate only the .5 inch/second PPV standard, suggesting that this standard functions as the significance threshold. (DEIR at 3.9-40.) The CEQA Guidelines, however, focus on "exposure of *persons*" to groundborne vibrations. (CEQA Guidelines, App. G, § XI(b) (emphasis added).) Therefore, the "annoyance" standard, which evaluates impacts on "persons," is a more appropriate threshold of significance (and performance standard for mitigation measures) than the higher standard, which focuses only on preventing damage to structures. ORIN-85

2. The DEIR Fails to Justify its Conclusions Regarding Significance of Impacts.

The DEIR's noise analysis suffers from a number of significant omissions and possible errors, especially concerning the effectiveness of mitigation measures at various locations in the City of Orinda. ORIN-86

Analysis of impacts at the Orinda WTP omits any consideration of the Wagner Ranch Elementary School as a sensitive receptor. The school's play fields are adjacent to the entry shaft for the Aqueduct; construction of additional "project-level" treatment facilities under Alternative 2 might also be audible from the school site. The DEIR should discuss whether indoor and outdoor uses at the school will be affected by Project noise.

The DEIR's analyses of noise impacts at the Happy Valley Pumping Plant and along the pipeline route are of significant concern to the City of Orinda. The pumping plant site is surrounded by residences and other sensitive receptors, some as close as 50 feet. (DEIR at 3.10-25.) According to Table 3.10-6, noise at the pumping plant construction site, even after controls are applied, will exceed the 70-dbA exterior speech interference threshold by between five and 11 dbA. (DEIR at 3.10-14, 3.10-25.) ORIN-87

The DEIR concludes that a noise barrier would be "adequate to reduce construction noise to a less-than-significant level" (DEIR at 3.10-25), but this conclusion is doubtful for at least two reasons. First, depending on feasible locations and designs for noise barriers, this measure may not reduce noise levels below the speech interference threshold. The DEIR does not provide enough information about barrier placement and design to support its conclusion. Second, the DEIR uses the wrong threshold of significance. Ambient daytime noise levels in the vicinity of the pumping plant average 54 dbA on weekends. (DEIR at 3.10-6 (Table 3.10-2.) Even if a noise barrier fitted with sound-absorbing material were somehow able to achieve a 15 dbA reduction at the site (see DEIR at 3.10-15 (Table 3.10-6, note c)), and allowing for a 1-3 dbA increase in ambient noise levels on weekdays, construction noise at the site would still reach 66 dbA—roughly *double* current average ambient levels. (See DEIR at 3.10-1 (10-dbA increase in continuous noise is perceived as a doubling of loudness).) Therefore, even under the most optimistic noise mitigation scenario, the project would still cause a "substantial temporary or periodic increase in ambient noise levels in the project vicinity," and would thus remain significant under the CEQA Guidelines. (CEQA Guidelines, App. G, § XI(d).) ORIN-88

Noise impacts along the Happy Valley Pipeline route, and the pipeline portion of the Aqueduct, would also remain highly significant even after application of all proposed mitigation measures. Again, sensitive receptors are located within 25 feet of the Aqueduct pipeline and within 50 feet of the Happy Valley Pipeline; noise levels at both locations after controls are applied are expected to exceed the 70-dbA speech interference threshold. (DEIR at 3.10-12 (Table 3.10-5).) The DEIR concludes that these impacts will be mitigated to a less-than-significant level at both locations. (DEIR at 3.10-23, 3.10-25.) ORIN-89

These conclusions cannot be sustained by the facts. According to the DEIR, Measure 3.10-1b, which adjusts construction hours for consistency with the Orinda noise ordinance, will adequately mitigate impacts at both locations. (Id.) This measure, however, does nothing to reduce the actual noise of construction below the speech interference threshold of significance. Moreover, sound barriers are *not* proposed as mitigation measures for pipeline projects. (See DEIR at 3.10-33 (Measure 3.10-1e).) In addition, jack-and-bore construction—which involves pile driving—may be used at stream crossings along pipeline projects to avoid aquatic impacts. (DEIR at 3.6-34, 3.10-30.) Pile driving produces much more noise than any of the impact activities analyzed for the pipeline routes. (Compare DEIR at 3.10-10 (Table 3.10-4) with 3.10-12 (Table 3.10-5).) Therefore, the noise level along both pipeline routes will exceed not only ambient noise levels without the project, but also the much higher ORIN-90

speech interference threshold used by the DEIR.[8] Accordingly, the DEIR's conclusion that impacts will be mitigated to a less-than-significant level is without foundation. ORIN-90

Noise impacts at the Sunnyside Pumping Plant and Ardith Reservoir sites, both located in quiet residential neighborhoods, also may be expected to cause substantial increases in ambient noise levels within the meaning of the CEQA Guidelines. (See DEIR at 3.10-13 to 3.10-14 (Table 3.10-5).) Again, the DEIR fails to consider this threshold of significance, and its conclusions regarding the significance of impacts are thus unsupported. ORIN-91

The DEIR's analysis of noise impacts at the Aqueduct entry shaft is also flawed. Specific "baseline" noise measurements and development of mitigation measures are improperly deferred until after project approval. (See DEIR at 3.10-32.) In addition, the DEIR's acknowledgment that a front-loader will need to be operated at night to dispose of tunnel muck contradicts a mitigation requirement that loader operations cease after 6 PM. (DEIR at 3.10-20, 3.10-32.) ORIN-92

Operational noise impacts at all of the pumping plant sites are of considerable concern to Orinda residents. The DEIR concludes that noise from transformers and pumps at the Donald, Happy Valley, and Sunnyside plants will be less than significant, but reaches this conclusion on the basis of general promises to locate vents so as to direct noise away from sensitive receptors. (See DEIR at 3.10-45 to 3.10-48.) All of these pumping plants are located in residential areas and are surrounded by sensitive receptors. Incorporation of measurable decibel limits at each of these receptors, and adoption of a monitoring program to ensure that the limitations of the City of Orinda's noise ordinance will not be exceeded, are necessary to support any conclusion that operational noise impacts will be less than significant. ORIN-93

Finally, the DEIR's analysis of "program-level" actions remains inadequate to support the conclusions drawn. Noise from excavation and microtunneling at the northern clearwell site will exceed speech interference thresholds, even with noise controls, a few feet from the Wagner Ranch Elementary School play fields. Construction of the San Pedro Pipeline also would occur adjacent to the school. These impacts must be fully analyzed and mitigated, with reference to proper thresholds of significance, before any conclusions can be reached or action can be taken. ORIN-94

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[8] Even at the much noisier locations along El Nido Ranch Road where the Aqueduct pipeline would be constructed, average daytime weekday ambient noise levels are around 70 dbA. (DEIR at 3.10-6 (Table 3.10-2).) Construction of the pipeline at this location would produce noise ranging from 80 to 87 dbA—thereby *at a minimum* doubling perceived noise. (See DEIR at 3.10-12 (Table 3.10-5).) Nor does the fact that these impacts would only last two weeks at any given receptor site reduce the significance of the impact; the CEQA Guidelines require consideration of the significance of temporary and periodic impacts. ORIN-90

J. The DEIR Inadequately Analyzes Impacts and Mitigation Measures Related to Hazards and Hazardous Materials.

The DEIR's analysis of hazardous materials impacts is deficient in several respects.

The DEIR prematurely concludes that there is a low risk of encountering hazardous materials in the soil or groundwater during construction at the Orinda WTP. Although the Orinda WTP site is listed in the CORTESE database, which collates information from a number of other databases, the DEIR concludes that there is little risk of encountering hazards because no reason is given in the database for the site's inclusion. (See DEIR at 3.11-23.) Yet the DEIR also acknowledges that "it would be necessary to conduct regulatory agency file reviews to evaluate the actual potential" for encountering hazardous materials. (DEIR at 3.11-11.) In the absence of complete information in the CORTESE database, this file review should have been conducted prior to publication of the DEIR. ORIN-95

Nor does the DEIR adequately explain how soil and groundwater hazards will be identified. According to the DEIR, Section 01125 of the EBMUD construction specifications requires preparation of various plans for protecting health and safety and disposing of hazardous materials. (DEIR at 3.11-21.) The nature of these plans would logically depend on the nature of the hazards faced; without any information regarding detection of those hazards, it is impossible to conclude that ultimate impacts will be less than significant. ORIN-96

Indeed, a Phase I environmental assessment—recommended as the first step in an improperly deferred mitigation measure—should have been conducted, and its results disclosed in the DEIR. By the same token, the deferred geotechnical study for the Aqueduct tunnel should have been conducted and discussed in the DEIR. A Tunnel Safety Order or other measures imposed to deal with gassy conditions may substantially affect several aspects of construction, including the placement and operation of ventilation systems, the frequency of work stoppages, and the overall duration of the project. (See DEIR at 3.11-30.) The DEIR should have attempted to ascertain and then disclose any identified effects, rather than deferring both analysis and mitigation to some later date. ORIN-97

Finally, as correctly noted in the DEIR, several of the Project elements (both "project-level" and "program-level") are located in the wildland-urban interface and other areas of extreme fire hazard. The City of Orinda would appreciate the opportunity, consistent with local plans and policies, for local fire district involvement in design-level review and implementation of Project elements within the district's jurisdiction. (See DEIR at 3.11-32.) ORIN-98

K. The DEIR Inadequately Analyzes Secondary Impacts Resulting from Increased Demand on Utilities.

The DEIR uses a threshold of significance that omits a critical factor set forth in the CEQA Guidelines: the "adverse physical impacts" associated with the need for new facilities. (See CEQA Guidelines, App. G, § XIII(a).) According to the DEIR, implementation of the Project will result in substantial increases in demand for energy, and will necessitate construction of two new substation banks and circuits. (See DEIR at 3.12-17 to 3.12-18.) The DEIR fails to analyze the environmental impacts associated with construction of these facilities, just as it fails to address increased emissions from power generation at locations outside the immediate air district. ORIN-99

The DEIR suggests that EBMUD's Renewable Energy Facilitation Plan, along with public utilities' efforts to achieve a certain renewable energy portfolio, will reduce the environmental impacts of increased energy demand. (DEIR at 3.12-18.) These efforts, while laudable, are not presented in sufficient detail to support any conclusion regarding their potential value as mitigation measures for this particular project. Electricity demand under Alternative 2 at the Orinda WTP could increase by more than 6,000 kilowatts. (Id.) The DEIR quantifies only a few of EBMUD's renewable options; none of these options approach the 6,000-kilowatt mark, and nowhere does the DEIR even claim that renewable energy will offset increased demand. Unfortunately, the DEIR's discussion of this important effort is thus potentially misleading.[9] ORIN-100

The DEIR also inadequately mitigates a potentially serious impact on local landfill capacity. Vast quantities of excavated soil will be disposed in local landfills during Project construction. (See DEIR at 3.12-20 (Table 3.12-7).) This massive infusion of material "could substantially increase the disposal rates of jurisdictions in the WTTIP area and would thereby lower their diversion rates for the purpose of calculating AB 939 diversion." (DEIR at 3.12-21.) Solid waste disposal thus could have a serious effect on both local jurisdictions and their residents. Yet the identified mitigation measures provide no quantifiable or enforceable basis for determining that impacts will be less than significant. Measure 3.12-4a requires EBMUD to "encourage" facility design and construction methods that "produce less waste, or that produce waste that could more readily be recycled or reused." (DEIR at 3.12-20.) Measure 3.12-4b requires contractors to "describe plans for recovering, reusing, and recycling wastes." (Id.) The ORIN-101

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[9] The DEIR's descriptions of renewable energy efforts by public utilities are also potentially misleading. At one point, the DEIR claims that approximately 30% of Pacific Gas and Electric's electricity is "derived from renewable energy resources." (DEIR at 3.9-33.) The DEIR does not explain what PG&E counts as "renewable" or whether PG&E's definition is consistent with the renewable energy portfolio standards of the State of California. Nor does the DEIR explain whether or how this figure relates to conclusions that additional generation and distribution capacity will be required to serve the Project. ORIN-100

DEIR does not provide an estimate of how much recycling or reduction could be achieved by these measures, nor does the DEIR reveal how much reduction would be necessary to reduce this impact to a level of insignificance. Once again, the DEIR's conclusions regarding significance after mitigation lack a foundation in the evidence.

ORIN-101

IV. The DEIR Inadequately Analyzes Growth-Inducing Impacts.

An EIR must address any growth-inducing impacts of the project. CEQA Guidelines § 15126(d). Specifically, the EIR must discuss "the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment." CEQA Guidelines § 15126.2(d). It must also address project characteristics "which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively," and may not "assume[] that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment." Id.

The DEIR's discussion of growth-inducing impacts relies on comparisons among projected water demands, projected population growth, and projected development under local general plans in concluding that the Project will not induce growth at a greater rate than already considered in local planning documents. These comparisons, however, often seem to involve proverbial apples and oranges.

ORIN-102

For example, the DEIR assesses growth-inducing impacts by reference to average daily water demand. (DEIR at 4-6.) The Project, however, is designed to provide maximum-day demand capacity. (See DEIR at 2-14, 4-6 n.8.) As a result, the DEIR projects an average daily demand of 232 mgd for the year 2030, based on analysis of local general plan land use designations, but the Project is designed to accommodate a maximum-day demand of 363 mgd for the same year. As the DEIR acknowledges, a key question in analyzing growth-inducing impacts is whether a project will remove an obstacle to growth and thereby directly or indirectly support more growth or construction than were anticipated under local land use plans. (DEIR at 4-1.) A key factor in answering this question is the relationship between average daily demand and maximum-day demand, i.e., the average daily demand that could be supported by a system designed for a maximum-day capacity of 363 mgd. If the Project enables EBMUD's facilities to operate at an average daily capacity greater than 232 mgd (allowing for conservation), then the Project would be capable of supporting greater population and development growth rates than considered in the DEIR or the EIRs for the general plans on which the DEIR relies. Again, the key question is whether the Project's additional *capacity* removes an obstacle to growth, not whether EBMUD's estimates of average demand growth square with those of other agencies. The DEIR must analyze the relationship between treatment capacity and planned growth.

Finally, it is not clear why the DEIR relies so heavily on population growth estimates by the Association of Bay Area Governments. EBMUD has the ability to predict future water usage based on adopted land use designations, as the DEIR explains. (See DEIR at 4-5 to 4-6.) To the extent that the DEIR relies on analysis and mitigation presented in other EIRs, it would appear that local general plans would provide a better basis for comparison than a general population estimate that has not been subjected to environmental analysis. ORIN-103

V. The DEIR Inadequately Discloses, Analyzes, and Mitigates Cumulative Impacts.

A. The DEIR's Analysis of "Collective and Overlapping" Impacts is Incomplete and Misleading.

In Chapter 5.2, the DEIR attempts to examine the environmental impacts of the Project as a whole, but the attempt falls short. The DEIR's discussions of overlapping impacts are cursory, and generally omit any particular comparison of actions, work schedules, and impacts. Instead, this section of the DEIR essentially repeats the conclusions of Chapter 3 regarding the impacts of particular Project elements, and then states in a conclusory fashion that there will be no collective impact. This ignores not only CEQA's requirement that an EIR analyze the whole of an action, but also CEQA's critical insight that particular impacts, although individually minor, may be collectively significant. (See CEQA Guidelines §§ 15355(b) (defining "cumulative impacts"), 15378(a) (defining "project").) Examples of this basic deficiency abound. ORIN-104

The DEIR also downplays the potential for health effects from diesel particulate matter emitted along haul routes. EBMUD promises to "coordinate project schedules" under Alternative 2 so that daily truck volume remains lower than 600 trucks per day, but does not identify the locations where coordination will be necessary, the receptors near these locations, or how coordination will be achieved. This lack of detail renders analysis of the feasibility of this promise difficult. ORIN-105

The DEIR also relies on vague and deferred "internal coordination" measures in addressing the collective fire risk posed by a number of projects in the City of Orinda, despite the potential for serious problems stemming from reduced emergency vehicle access. The City of Orinda is concerned with the potential for catastrophic fire caused by simultaneous construction projects in areas of high wildland fire risk, as well as delays in emergency vehicle response caused by construction traffic and road closures. Local fire officials from the Moraga-Orinda Fire District and Contra Costa County need to be involved in this coordination process from the beginning in order to respond effectively to emergencies and protect life and property. ORIN-106

This section of the DEIR again fails to analyze environmental impacts related to energy demand. Here, the DEIR states that construction of additional electricity distribution ORIN-107

facilities would render the Project's impact on electricity demand less than significant. (DEIR at 5-11.) The collective energy demand of the Project is driving the need for these new facilities, and thus the DEIR should have disclosed and analyzed the indirect environmental effects caused by construction of these facilities. The DEIR contains no such disclosure or analysis.

ORIN-107

Finally, the DEIR's discussion of collective impacts on landfill capacity is inaccurate and misleading. Hundreds of thousands of cubic yards of soil excavated from Project sites would be disposed in local landfills, reducing capacity and threatening additional costs for consumers and local governments alike. The DEIR claims that "[a]s described under Impacts 3.12-4 and 3.12-5 and presented in Table 3.12-5, however, most of this material would be reused on site . . . ." (DEIR at 5-12.) This claim is not true. At best, the DEIR's discussion of Impact 3.12-4 states that "some of this material would be stockpiled and used as backfill." (DEIR at 3.12-19.) Impact 3.12-5 does not promise reuse of material at all, and Table 3.12-5, which contains a summary of significance determinations, is similarly irrelevant. (See DEIR at 3.12-12, 3.12-21.) Table 3.12-7, however, clearly identifies the sources for the 230,000 to 375,000 cubic yards of soil "to be *disposed*" under the Project. (DEIR at 3.12-20 (emphasis added).) The mitigation measures offered to address this impact, as previously discussed, are vague, voluntary, and lack any quantifiable basis for determining feasibility or effectiveness. (See supra, § 3.L.) There is no basis for concluding that this collective impact will be less than significant.

ORIN-108

B. The DEIR Improperly Concludes that the Project Will Not Contribute to Cumulative Impacts.

An EIR must discuss significant "cumulative impacts." (CEQA Guidelines § 15130(a).) "Cumulative impacts" are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." (CEQA Guidelines § 15355.) "[I]ndividual effects may be changes resulting from a single project or a number of separate projects." (CEQA Guidelines § 15355(a).) A legally adequate "cumulative impacts analysis" views a particular project over time and in conjunction with other related past, present, and reasonably foreseeable future projects whose impacts might compound or interrelate with those of the project at hand. "Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time." (CEQA Guidelines § 15355(b).) Cumulative impacts analysis is necessary because "environmental damage often occurs incrementally from a variety of small sources [that] appear insignificant when considered individually, but assume threatening dimensions when considered collectively with other sources with which they interact."(Communities for a Better Env't v. Cal. Res. Agency, 103 Cal. App. 4th 98, 114 (2002).)

ORIN-109

Analysis of cumulative impacts must be based on either a "list of past, present, and probable future projects" or a summary of projections contained in a prior planning or

environmental document. (CEQA Guidelines § 15130(b)(1).) An EIR also must contain "[a] summary of the expected environmental effects to be produced by those projects" as well as "a reasonable analysis of [their] cumulative impacts." (CEQA Guidelines § 15130(b)(4), (5).)

The DEIR's cumulative impacts discussion fails to meet these standards. The list of projects in Table 5-1 appears to omit past projects, and many present projects, from consideration. This list nonetheless makes clear that a substantial portion of the region, including the City of Orinda, will be undergoing construction of one kind or another for many years to come. The DEIR, however, takes an inappropriately narrow view of the Project's cumulative contribution to the impacts associated with these numerous projects. Although the DEIR lists the numerous projects in the area, it barely discusses any of these specific projects' impacts on particular resources; it thus falls far short of providing the "summary" of impacts required under section 15130(b)(4) of the CEQA Guidelines. Moreover, where the DEIR analyzes particular projects at all, it does so only where construction periods overlap, and generally fails to recognize that the duration or geographical accumulation of an impact may be just as significant as its immediate intensity. This is not the "reasonable analysis" required by CEQA. (See CEQA Guidelines § 15130(b)(5).)

ORIN-109

The DEIR also relies very heavily on the assumption that other projects will comply with applicable laws and regulations, including CEQA, and thereby tends to conclude that cumulative impacts will not be significant. This is not necessarily a safe assumption. CEQA allows lead agencies to approve projects despite environmental impacts that remain significant after mitigation; it is conceivable that some of the projects listed in Table 5-1 could be approved with a statement of overriding considerations and cause significant environmental impacts. Moreover, even if all of the impacts of these projects are individually mitigated to a less-than-significant level, a cumulatively considerable impact could still exist. The DEIR's assumptions thus fall prey to the classic misconception that individually insignificant impacts cannot be cumulatively significant. The DEIR's assumptions thus contravene the very purpose of cumulative impacts analysis under CEQA, which is designed to ferret out just this type of impact. Several of the DEIR's cumulative impact discussions, including those for water quality, air quality, and biological resources, suffer from this basic deficiency.

ORIN-110

This portion of the DEIR also contains other deficiencies. For example, there is no basis for concluding that cumulative impacts to cultural resources will be less than significant when surveys, especially along the San Pablo Pipeline alignment, are not yet complete. Discussions regarding admittedly significant cumulative impacts related to traffic and noise rely almost entirely on vague post-approval "coordination" and deferred development of "specific measures to mitigate significant impacts." (See, e.g., DEIR at 5-47.) The DEIR again erroneously concludes, without any analysis, that cumulative impacts on solid waste disposal will be less than significant, even though this Project alone threatens to overwhelm landfill

ORIN-111

capacity. Again, such vague measures cannot support a finding that cumulative impacts will be less than significant. ORIN-111

Cumulative traffic impacts are of special concern. The DEIR recognizes that extending the duration of traffic disruptions, whether from increased construction traffic or construction in roadways, may lead to significant impacts. (DEIR at 5-45.) These impacts will be especially significant for residents along Miner Road, who will be faced with a trunk sewer project and underground utility installation beginning in 2008, and then will have to negotiate up to two years of daily road closures and lengthy detours once construction starts on the Happy Valley Pipeline. (See DEIR at 5-18 to 5-19 (Table 5-1).) Travelers along Camino Pablo will also experience traffic delays associated with a trunk sewer project and several other projects during the years leading up to work on the Orinda WTP. (See id.) Yet the DEIR concludes that future "coordination" will reduce this impact to a level of insignificance, despite the lack of any real analysis concerning the feasibility or effectiveness of the few specific measures mentioned (such as the provision of flagmen and selection of alternative haul routes).[10] ORIN-112

Finally, the City of Orinda recognizes that the DEIR considers coordination with local fire service providers important. With this number of projects proceeding in areas prone to wildland fire, and many projects taking place in roadways that must remain open to emergency vehicle access, such coordination will be essential. ORIN-113

VI. The DEIR's Alternatives Analysis is Insufficient to Support a Reasoned Choice.

Every EIR must describe a range of alternatives to the proposed project and its location that would feasibly attain the project's basic objectives while avoiding or substantially lessening the project's significant impacts. CEQA § 21100(b)(4); CEQA Guidelines § 15126(d). A proper analysis of alternatives is essential for the County to comply with CEQA's mandate that significant environmental damage be avoided or substantially lessened where feasible. CEQA § 21002; CEQA Guidelines §§ 15002(a)(3), 15021(a)(2), 15126(d); Citizens for Quality Growth v. City of Mount Shasta, 198 Cal. App. 3d 433, 443-45 (1988). As stated in Laurel Heights Improvement Association v. Regents of University of California, "[w]ithout meaningful analysis of alternatives in the DEIR, neither the courts nor the public can fulfill their proper roles in the CEQA process. . . . [Courts will not] countenance a result that would require blind trust by the public, especially in light of CEQA's fundamental goal that the public be fully informed as to the consequences of action by their public officials." 47 Cal. 3d 376, 404 (1988). The DEIR's discussion of alternatives in the present case fails to live up to these standards. ORIN-114

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[10] The DEIR suggests that "employing flagmen" also will help mitigate *noise* impacts, but does not explain how this will occur. (See DEIR at 5-47.) ORIN-112

A. The DEIR Fails to Consider Alternatives that Would Avoid Significant Impacts.

The DEIR discusses a handful of alternative sites and designs, but many of these alternatives would result in substantially the same environmental impacts as the proposed Project. For example, the proposed alternative site for the Happy Valley Pumping Plant is close to residences and likely to cause significant, unmitigated traffic and noise impacts. (See DEIR at 6-33, 6-35.) Although the alternative site would require a shorter pipeline, and is located somewhat further from the nearest residence (100 feet rather than 50 feet), long-term road closures, detours, and noise impacts would still occur during construction and operation. CEQA requires an EIR to consider alternatives that will avoid or substantially lessen such impacts; this DEIR fails to do so. ORIN-115

Other alternatives discussed in the DEIR, such as the Aqueduct alternative calling for conversion of the existing Lafayette Tunnel No. 1 to a two-way tunnel capable of carrying treated water east toward Lafayette, would not attain the Project's basic objectives. (DEIR at 6-59.) The DEIR does not discuss whether this alternative would avoid or substantially lessen the environmental impacts of the Project. In any event, the DEIR rejects this alternative because westbound raw water supplies would not be adequate during dry years—and thus presumably would fail to meet Project objectives. (See id.) Again, this does not satisfy CEQA's requirements. ORIN-116

Finally, it bears mention that alternative tunnel alignments that would reduce open trenching along the eastern segment of the Aqueduct were rejected due to a lack of site-specific geotechnical information. (See DEIR at 6-60.) This is somewhat ironic, given that a site-specific geotechnical study has yet to be performed for the preferred Aqueduct tunnel alignment, and that key information about the geology, hydrology, and potentially "gassy" character of the tunnel also are missing from the DEIR. Again, it is improper to defer this kind of basic analysis until after project approval—which the DEIR itself seems to recognize in rejecting these alternative alignments. ORIN-117

B. The DEIR's Comparison of Alternatives is Flawed.

In addition to Alternatives 1 and 2, the DEIR briefly describes four other alternatives, derived from EBMUD's Water Treatment and Transmission Master Plan. These alternatives, however, do not constitute a "reasonable range" as required by CEQA. All six alternatives involve extensive construction at the Orinda WTP; indeed, each of Alternatives 3 through 6 would have impacts in Orinda that are basically identical to those of Alternatives 1 and 2. (DEIR at 6-46 (Table 6-7).) The DEIR even concedes that "Alternative 4 does not meaningfully add to the range of EIR alternatives." (DEIR at 6-51.) Therefore, the range of alternatives considered in any detail for the Orinda WTP is effectively limited to Alternatives 1 ORIN-118

and 2. This binary choice between projects with significant impacts falls short of a "reasonable range." ORIN-118

Moreover, the DEIR omits information that would assist the public and decision-makers in assessing the environmental benefits and costs of various alternatives. For example, the DEIR contains a chart of "Alternatives Screening Criteria," containing numerical evaluation criteria for various factors, but does not provide a chart of raw scores for each alternative and evaluation category. (See DEIR at 6-50 (Table 6-9).) Raw scores would enable easy comparison of the how various alternatives performed according to different criteria. The DEIR, however, filters these scores through a set of five "weighting scenarios," without explaining why those particular weighting scenarios were chosen or what balance of criteria they were designed to elicit. (DEIR at 6-51 (Table 6-10).) Without raw scores and an explanation of the weighting criteria, the rankings provided in Table 6-11 are basically opaque to decision-makers. Rankings of this type frustrate, rather than facilitate, informed choices between alternatives. ORIN-119

C. The DEIR's Discussion of Meaningful Alternatives to Water Treatment in Orinda is Cursory and Conclusory.

The City of Orinda appreciates EBMUD's attention to the City's comments on the Notice of Preparation for the Project. The DEIR's discussion of alternatives that the City proposed, however, raises more questions than it answers.

For example, under "Alternative A," the DEIR evaluated two alternative sites for relocation of the Orinda WTP, both of which would require construction of a conventional plant to treat lower-quality reservoir source water. (DEIR at 6-52 to 6-53.) Obviously, construction of a full conventional treatment plant could be more costly and environmentally damaging than construction of an in-line filtration plant. The DEIR did not explore whether water from the Mokelumne Aqueducts could feasibly be delivered to an alternative treatment location. Alternatives B and C suffer from similar problems; the DEIR's brief descriptions of the various components of each alternative beg the question whether other configurations could help reduce costs and achieve EBMUD's goals. Finally, the DEIR never adequately explains its "objectives regarding source water quality," or how those objectives render particular alternatives more or less feasible. (See DEIR at 2-22 to 2-23, 6-54 to 6-55.) ORIN-120

VII. The DEIR Must Be Revised and Recirculated.

For the foregoing reasons, the DEIR does not comply with CEQA. Due to the many omissions outlined herein, preparation of an adequate document would require significant new information. This could necessitate recirculation of the DEIR. (CEQA Guidelines § 15088.5(a). ORIN-121

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP

Robert "Perl" Perlmutter

Kevin P. Bundy

EXHIBITS

1. Letter from Darwin Myers Associates to E. Ursu, Planning Director, re: Draft Environmental Impact Report (August 8, 2006).

2. Comments by Janice Carey, City Engineer, City of Orinda, on EBMUD WTTIP Draft Environmental Impact Report (August 8, 2006).

3. California Regional Water Quality Control Board, San Francisco Bay Region, Region Wide General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges from Surface Water Treatment Facilities for Potable Supply (General Permit), Order No. R2-2003-0062 (NPDES Gen. Permit No. CAG382001) (June 18, 2003).

4. Patrick Hoge, Water-Main Breaks Proving Deadly to Fish, San Francisco Chronicle (July 15, 2006), at B-1(available at http://sfgate.com/cgi-bin/article.cgi?file=/c/a/2006/07/15/BAGAVJVLHG1.DTL).

5. Bay Area Air Quality Management District ("BAAQMD"), Bay Area Pollution Summary 2004 (at http://www.baaqmd.gov/pio/aq_summaries/pollsum04.pdf).

6. Excerpts from Bay Area Air Quality Management District, BAAQMD CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans (Dec. 1999).

7. California Office of Health Hazard Assessment, Determination of Acute Reference Exposure Levels for Airborne Toxicants, Acute Toxicity Summary, Hydrogen Sulfide (March 1999), at C-181 (available at http://www.oehha.ca.gov/air/acute_rels/pdf/7783064A.pdf).

8. BAAQMD Rules and Regulations, Regulation 7 (odorous substances).

9. BAAQMD Rules and Regulations, Regulation 9, Rule 2 (inorganic gaseous pollutants).

DARWIN MYERS ASSOCIATES

ENVIRONMENTAL RESEARCH ■ ENGINEERING GEOLOGY

August 8, 2006

Emanuel Ursu, Planning Director
City of Orinda
P.O. Box 2000
14 Altarinda Road
Orinda, CA 94563

Subject: **Draft Environmental Impact Report**
East Bay Municipal Utility District
Water Treatment and Transmission Improvement Program
SCH #2005092019

Dear Mr. Ursu,

At your request we reviewed the geologic and geotechnical aspects of the Draft Environmental Impact Report (DEIR) prepared for the EBMUD project, focusing on the facilities proposed within the City of Orinda.

Our scope of work included review of the Geology, Soils, and Seismicity chapter of the DEIR. We also reviewed the primary documents used in preparation of this chapter, including EBMUD (1990),[1] Geomatrix (1998),[2] Jacobs Associates (2005)[3] and AGS, Inc. (2005).[4] In general, it is our opinion that neither the DEIR nor the supporting documents contain site-specific geologic or geotechnical information sufficient to evaluate the impacts of the project. Our specific comments are as follows: ORIN-122

1. Setting

The DEIR's discussion of the project's geologic setting does not characterize site conditions for the project components, nor does it reference any site-specific geotechnical ORIN-123

[1] EBMUD, 1990, *Geotechnical Investigation Report, Emergency Power Improvement, Orinda Filter Plant, Orinda, California.* EBMUD Job #49003 (July 1990).

[2] Geomatrix, 1998, *Final Report, Walnut Creek Water Treatment Plant Expansion, Seismic Study - Phase II,* Geomatrix Job #3970 (October 30, 1998).

[3] Jacobs Associates, 2005, *Conceptual Study for EBMUD WTTIP Lamorinda Tunnel,* JA Job #JN3941.0 (September 30, 2005).

[4] AGS, Inc., 2005, *Geotechnical Impact Assessment, EBMUD Water Treatment and Transmission Improvements Program (WTTIP), Contra Costa and Alameda Counties, California.* AGS Job #KE0304A (December, 2005).

investigations prepared for the various project components. Rather, it describes the general geology and topography of the California Coast Ranges, relying chiefly on published maps and results of investigations performed for other purposes. There appear to be no original geologic maps, and no geologic cross-sections, for the project component locations. The maps included in the DEIR are inadequate for analysis. For example, an interpretative map is presented in the DEIR which characterizes geologic hazards on a site in Orinda (Figure 3.4-2). The map scale is approximately 1" = 2,285 ft; landslide and liquefaction hazards are rated, but the boundaries of the hazard areas are not defined, and the criteria used in rating are not specified. Moreover, the DEIR does not clearly link the hazard rating for the site to the assessment of impacts. The DEIR's overall lack of information on the geology of specific sites makes it impossible to evaluate its conclusions regarding particular impacts and mitigation measures. ORIN-123

2. Project Impacts and Mitigation Measures

Because EBMUD has not yet performed detailed engineering geologic or geotechnical studies for the proposed facilities, the DEIR's approach to impact assessment remains largely conceptual. Put another way, many of the project components in the City of Orinda do not appear to be analyzed at a "project level" of detail as the DEIR claims. ORIN-124

One such component is the Orinda-Lafayette Aqueduct, a tunnel that is to link the Orinda Water Treatment Plant with facilities in Lafayette, approximately 2 miles to the southeast. A major issue for the tunnel is treatment and disposal of the groundwater that will likely infiltrate the tunnel during construction. According to Jacobs Associates (2005), experience with other tunnels in the general area indicates that major ground water infiltration problems are not anticipated. However, absent site-specific geotechnical studies, neither the Jacobs Associates report nor the DEIR has any way of predicting in detail the volume of ground water or its impurities. Typically, ground water pumped from tunnel construction includes sediment, traces of hydraulic oil, cement (from concrete and grouting operations), and minerals leached from the rock. The pH of the ground water also will need to be monitored because some soils in the vicinity are known to be corrosive. The Jacobs Associates report indicates that sedimentation basins will be needed on the ball field site to treat groundwater prior to discharge into San Pablo Creek, and that this phase of construction may require tertiary water treatment and/or an oil boom to meet water quality standards. The details of design of the groundwater treatment process, however, are not revealed in the DEIR, so the effectiveness of the process cannot be intelligently evaluated. ORIN-125

Table 3.4-5 presents a summary of other potential geology, soil and seismicity impacts resulting from the Orinda-Lafayette Aqueduct. The table indicates that significant slope stability, groundshaking, expansive soils and liquefaction impacts can be mitigated to a less-than-significant level. Because the project was analyzed only at a conceptual level, ORIN-126

however, required mitigation measures for impacts are not prescribed at a level of detail sufficient for proper evaluation. ORIN-126

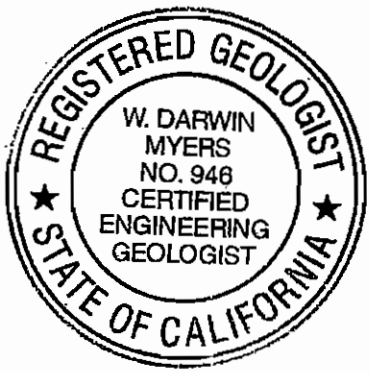
Additional geotechnical issues for the tunnel include squeezing ground (which can bind the tunneling equipment and cause delays), the possible presence of combustible gas, and the possibility of encountering dense rock/cemented rock that will slow construction or require special measures (e.g., blasting). Any one of these issues could dramatically alter the DEIR's assumptions about the duration of construction, the need for particular mitigation measures, and the ultimate environmental impacts of the tunnel. A detailed, site-specific geotechnical investigation might have answered many of these questions, and should have been included in the DEIR. ORIN-127

EBMUD should follow the example of other recent EIRs for projects in Orinda which contained detailed, site-specific geotechnical information. Recently the City of Orinda authorized commencement of grading on the Montanera project at the Gateway interchange off Highway 24. The EIR for that project identified detailed, specific mitigation measures to ensure that the project was consistent with its environmental setting and that the planned improvements were designed to yield a stable site. The DEIR for the EBMUD project should reflect a similar level of detail. ORIN-128

We trust this letter provides the evaluation and comments that you requested. Please call if you have any questions.

Sincerely,
DARWIN MYERS ASSOCIATES

Darwin Myers, CEG 946
Principal



EBMUD WATER TREATMENT AND TRANSMISSION IMPROVEMENTS PROGRAM

Draft Environmental Impact Report
SCH#2005092019

Comments By: Janice Carey, City Engineer
City of Orinda

Dated: August 8, 2006

Vol. 1 Maps D Need more information on the High Rate Sedimentation Unit adjacent to Manzanita Drive. Need information on the overall size of this unit and how far it is set back from the edge of pavement, the graphic suggests that the unit is within the Manzanita Drive road easement. ORIN-129

Page 2-36 **Table 2-7 Expected Construction Works Hours for WTTIP Project**
The proposed work hours for construction of WTTIP projects within the City of Orinda do not comply with the City noise ordinance. ORIN-130

Page 2-74 **Happy Valley Pumping Plant and Pipeline - Construction Characteristics**
Need reference to proposed "offsite parking location" construction workers are being transported to and from. ORIN-131

Page 3.2-6 **Orinda-Lafayette Aqueduct**
First paragraph - references the tunnel exit that would be constructed along El Nido Ranch Road. All maps indicate the tunnel exit would be constructed along East Altarinda Road near St. Stephens Drive. ORIN-132

Page 3.2-15 **Impact 3.2-1: Division of an established community.**
Mitigation measures to widen Happy Valley Road and provide left turns in and out of the Sunnyside Pumping Plant may be required at this blind curve. ORIN-133

Page 3.2-17 **Orinda WTP**
The asphalt trail along the north side of Camino Pablo along the southerly side of the Orinda WTP is used by school children walking to and from Wagner Ranch School. Any disruption in this path will require mitigation measures. ORIN-134

Page 3.3-1 **Table 3.3-1 Photographs of Existing Visual Conditions - WTTP Project Facility Sites.**
It would be beneficial to include photos of Orinda-Lafayette Aqueduct at St. Stephens/East Altarinda shaft site and a photomontage with landscape improvements. ORIN-135

Page 3.3-41	**Orinda-Lafayette Aqueduct** Discussion of proposed mitigation measures for landscape improvements at the tunnel shaft at St. Stephens/East Altarinda are missing and need to be included.	ORIN-136
Page 3.5-5	**Orinda-Lafayette Aqueduct** Watercourses in Lafayette are cited, but no mention is made of any Orinda watercourses though they are listed in Table 3.6-2 .	ORIN-137
Page 3.5-26	**Table 3.5-3 Summary of Applicable Requirements/Measures-Impact 3.5-1** Sunnyside Pumping Plant may require an Encroachment Permit from the City of Orinda for related roadway improvements that may be required on Happy Valley Road.	ORIN-138
Page 3.8-3	**Table 4.8-1 Characteristics of Roadways in the Project Area** Orinda-Lafayette Aqueduct exit shaft location is incorrectly identified throughout the Draft EIR. The existing shaft is located adjacent to East Altarinda Drive. Roadway characteristics on East Altarinda Drive are from Ellen Court (correct spelling from Elen) to St. Stephens Drive.	ORIN-139
Page 3.8-9	**Table 3.8-4 Summary of Applicable Mitigation Measures - Impacts 3.8-1 to 3.8-7** Measure 3.8-7 Document Pre- and Post-construction Pavement Conditions, and Repair as Required - The City of Orinda requires this column be marked for: Orinda WTP Alternative 1; Orinda WTP Alternative 2; Orinda-Lafayette Aqueduct Alternative 2 only; and Sunnyside Pumping Plant.	ORIN-140
Page 3.8-10	**Trip Generation - Overview** The proposed work hours for construction of WTTIP projects within the City of Orinda do not comply with the City noise ordinance. Implementation of mitigation measure 3.10-1b, requiring a change in work hours, will affect the Draft EIR's assumptions about construction traffic and associated noise and air pollution. Therefore, additional analysis of trip generation is required. This analysis also must consider the impact of shorter working hours on the overall duration of construction (i.e., the dates to begin and complete construction) of the proposed projects.	ORIN-141
Page 3.8-12	**Table 3.8-5 Estimated Maximum Vehicle Trip Generation - By WTTIP Project** Orinda-Lafayette Aqueduct Alternative 2 Pipeline Installation - Change haul route from Altarinda Drive to East Altarinda Drive to match actual location.	ORIN-142
Page 3.8-17	**Table 3.8-6 Methods for Maintaining Traffic Flow Affected by Project Construction** Orinda-Lafayette Aqueduct (pipeline portion) - Change Roadway/Segment from Altarinda Drive to East Altarinda Drive to match actual location.	ORIN-143

Page 3.8-17 **Table 3.8-6 Methods for Maintaining Traffic Flow Affected by Project Construction**
Happy Valley Pumping Plant and Pipeline - An alternate method to maintain traffic flow shall be considered on Miner Road and on Lombardy Lane. The City of Orinda would not look favorably on road closure with detour routing on Miner Road or on Lombardy Lane. Additional analysis of feasible alternatives to road closure must be conducted so that one lane of controlled traffic can be maintained along these heavily traveled roadways. ORIN-144

Page 3.8-19 **Project Impact - Stationary Locations (WTPs, Reservoirs, and Pump Plants)**
Orinda WTP - This section makes no reference to these temporary parking demands for the Happy Valley Pumping Plant and Pipeline location (see Page 2-74 "Happy Valley Pumping Plant and Pipeline - Construction Characteristics" proposes "offsite parking location" construction workers being transported to and from site). ORIN-145

Page 3.8-19 **Project Impact - Stationary Locations (WTPs, Reservoirs, and Pump Plants)**
Orinda WTP - Construction of the Clearwell on the ballfield site must be taken into account when discussing the availability of parking spaces onsite for workers; i.e., there is no consideration mentioned for construction equipment and staging in construction of the Clearwell. ORIN-146

Page 3.8-20 **Impact 3.8-5: Access disruption to adjacent land uses and streets for both general traffic and emergency vehicles, as well as disruption to bicycle/pedestrian access and circulation.**
Additional schools affected by construction include Wagner Ranch School and Sleepy Hollow School in Orinda. ORIN-147

Page 3.8-22 **Impact 3.8-6: Disruptions to transit service on pipeline alignment routes.**
Pipeline installation in Miner Road and Lombardy Lane fails to address bus service to and from Sleepy Hollow School provided by Durham School Services. ORIN-148

Page 3.8-24 **Orinda WTP**
The sentence "Construction-generated traffic would be temporary and therefore would not result in long-term degradation in operating conditions or level of service on project area roadways" is contradicted by examples of local roads that could be adversely affected as noted on page 3.8-23 "Impact 3.8-7: Increased wear-and-tear on the designated haul routes used by construction vehicles." Additionally, increased truck traffic significantly impacts pavement condition. ORIN-149

Page 3.8-27 **Table 3.9-6 Maximum One-Way Truck Trips by Project**
The number of truck trips suggests an estimated 100%-500% increase in truck traffic on Moraga Way (compared with data collected by the City). While the ORIN-150

number of vehicle trips may be considered insignificant, the total number of truck trips suggests that there may be an adverse effect on the pavement of the City's arterials. ORIN-150

Page 3.10-1 thru 56 **3.10 Noise and Vibration**
Proposed work hours for construction of WTTIP projects within the City of Orinda do not comply with ordinance. ORIN-151

Page 3.12-5 **Table 3.12-3 Schools, Hospitals, and Fire Stations in Project Vicinity**
Correct spelling of Orinda school: El Ray to Del Rey Elementary School
Change name of: North Bay Orinda School to Orinda Academy
Delete Orinda school: Springs Academy
Add Orinda school: Contra Costa Alternative School - 10 Irwin Way ORIN-152

Page 5.7 **5.2.7 Traffic and Circulation**
The Draft EIR states there would be no additive (overlapping) impact on El Nido Ranch Road, but the document does not consider the impacts of individual projects along El Nido Ranch Road. Without analysis of individual impacts, the Draft EIR cannot conclude that there will be no collective impact. ORIN-153

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. R2-2003-0062
NPDES GENERAL PERMIT NO. CAG382001

ORIN-154

REGION WIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR DISCHARGES FROM SURFACE WATER TREAMENT FACILITIES FOR POTABLE SUPPLY (GENERAL PERMIT)

June 18, 2003

CONTENT

ORIN-154

ORIN-154

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region, hereinafter called the Board, finds that:

General

1 *Authority*. States may request authority from U.S. EPA to issue general NPDES permits pursuant to Title 40, Code of Federal Regulations, (CFR), Part 122.28. On June 8, 1989, the State Water Resources Control Board (the State Board) submitted an application to the U.S. Environmental Protection Agency (U.S. EPA) requesting revisions to its NPDES Program in accordance with 40 CFR 122.28, 123.62, and 403.10. The application included a request to add general permit authority to its approved NPDES Program. On September 22, 1989, the U.S. EPA, Region 9, approved the State Board's request and granted authorization for the State to issue general NPDES permits.

2. *Coverage*. This National Pollutant Discharge Elimination System (NPDES) General Permit regulates discharges from surface water treatment facilities (See finding below for description of surface water treatment facility). This General Permit does not cover discharges from membrane filtration processes. However, this General Permit can cover other discharges from membrane filtration facilities, which are similar to those from a surface water treatment facility. These include product water from pipeline breaks, and raw water bypasses. The following are examples of discharges from surface water treatment facilities. This is not a complete list. Discharger should provide a complete list of discharges from its facility in the Notice of Intent.

ORIN-154

   a. Filter backwash water discharge and storage/settling basin discharge;
   b. Discharges from treatment unit overflow and broken waterline within the treatment facility;
   c. Leakage water;
   d. Treatment unit dewatering/drainage water;
   e. Treatment system flushing water during hydrotesting with facility start-up after facility shut down;
   f. Facility on-site water storage facility drainage;
   g. Excess raw water release if the Discharger alters the raw water at the treatment plant or upstream of the treatment plant, in any way, such as addition of chlorine, or other chemicals;

   These discharges are described in detail under Findings 14 through 20 of this General Permit.

   This General Permit does <u>not</u> cover the discharges listed below:

   a. Discharges to a sanitary sewer system;
   b. Sewage generated at the facility;
   c. Discharges from water conveyance systems outside the treatment facility;
   d. Discharges from raw/source water reservoir;
   e. Raw water, which is not altered by the Discharger, and
   f. Any discharge that is already covered under an individual NPDES permit or Waste Discharge Requirement (WDR).

3. *Notice of Intent (NOI)*. Persons seeking coverage under this General Permit shall submit an NOI. The NOI shall be submitted using the form attached to this General Permit. The NOI shall be accompanied by all the required information. A separate NOI must be submitted for each treatment facility.

4. *Notice of General Permit Coverage (NGPC)*: Board staff will review the NOI and notify the Discharger or its duly authorized representative if the NOI is complete or incomplete, and whether the proposed activity or discharge can be covered under this General Permit. After receipt of a complete NOI, the Executive Officer will issue a NGPC. Coverage under this General Permit starts from the effective date of the NGPC.

5. *Notice of Non-Applicability.* If owners or operators of surface water treatment facilities determine that this General Permit is not applicable to their facility(ies), the owner or operators of the facilities are required to submit a Notice of Non-Applicability to be exempted from this General Permit requirement. Any discharges from the exempted facilities will not be covered under this General Permit.

6. *Annual Waste Discharge Fee for Routine Discharges.* All Dischargers subject to this General Permit shall pay its annual fee in accordance with Title 23, Section 2200 of California Code of Regulation (revised on October 3, 2002). The annual fee for routine discharges is based on discharge flow rates stated on NOI forms, which is considered as discharge flow rate permitted by this Order. The first payment of annual fee shall be submitted with the NOI. This fee is subject to change if Title 23 changes.

7. *Annual Waste Discharge Fee for Non-Routine (unplanned or emergency) Discharges.* Some facilities only experience occasional emergency discharges, such as from instrument or equipment malfunctions and water pipe breaks. Those infrequent discharges may release very large volumes of water at one time. It is difficult to predict the maximum discharge volume or discharge flow rate. This general permit requires the facility which only discharges on emergency basis to pay a minimum annual fee of $1000. However, it is the intent of the Board to increase the fee base for such discharges in a subsequent year to an amount reflective of actual discharge flow rates for facilities that do experience emergency discharges.

ORIN-154

8. The U.S. Environmental Protection Agency (EPA) and the Board have classified the discharges covered by this General Permit as minor discharges.

Relationship of General Permit and Individual Permit

9. Although a discharge may be eligible for coverage under this General Permit, the Board may determine that the discharge would be better regulated under an individual or another general NPDES permit, or under a WDR for discharges to land. If an individual or general NPDES permit is issued, or if a WDR is issued for the discharge, then the applicability of this General Permit to the discharge is immediately terminated on the effective date of the individual permit or WDR.

Relationship of This General Permit to Municipal Storm Water NPDES Permits

10. The Board has issued municipal storm water NPDES permits to several cities and counties, including Alameda County, Santa Clara County, San Mateo County, Contra Costa County, City of Fairfield, City of Vallejo and City of American Canyon. The municipal storm water NPDES permits prohibit discharges other than storm runoff with certain exceptions. One of the exceptions is discharge from potable water sources. In accordance with their storm water permits, some cities and counties require drinking water treatment facilities within their jurisdiction to develop and implement best management practices for discharges from the water treatment facilities to their storm drain system. In order to regulate similar discharges consistently, this General Permit will supersede any coverage that the storm water permits may have provided for discharges from within surface water treatment

facilities. This General Permit covers only those discharges from sources within surface water treatment facilities, and not those that originate outside plant boundaries. Potable water discharges that are not covered by this General Permit will still be covered under applicable municipal storm water permit. Existing coverage under the local municipal storm water permit will continue for discharges from within treatment facilities until a Notice of General Permit Coverage is issued to the Discharger. Dischargers are required to comply with all conditions in this General Permit and conduct self-monitoring as required by the monitoring program attached to this Order for those discharges within treatment facilities upon receipt of a Notice of General Permit Coverage. Dischargers who have developed and implemented Best Management Practices (BMPs) plans for potable water discharges under the municipal storm water permit, may use these same BMPs plans to satisfy the BMPs plan requirement of this General Permit as long as the BMPs plans contain all items required by this Order.

Surface Water Treatment Facilities

11. Surface water treatment facilities defined in this General Permit normally include one or several of the following treatment process for water treatment: coagulation/flocculation, sedimentation, filtration and disinfection.

    Coagulation/flocculation This is step causes particle aggregation in the water being treated. Chemicals (coagulants) are added to the water to stabilize charges on the particles in the water, followed by gentle stirring to transform the suspended particles into larger floc. The chemicals used generally include aluminum sulfate, alum-polymer blend, iron-polymer blends, ferrous sulfate, ferric chloride, and lime.

    Sedimentation This process allows suspended particles to settle out.

    Filtration This process remove more suspended material by passing the water through filter media. Commonly used filter media include crushed anthracite coal, garnet, sand, and granular activated carbon (GAC), green sand, or combination of two or more filter media.

    Disinfection Disinfection reduces number of pathogenic microorganisms in water. Chlorine gas, chlorine dioxide, ozone and ultraviolet radiation are commonly used as disinfectants. Many treatment facilities add both ammonia and chlorine, either sequentially or simultaneously, for disinfection or chloramination. Chloramination prolongs the stability of residual disinfectant during distribution, and lessens the likelihood of forming chlorophenolic taste and odor substances, and trihalomethane, which is a carcinogen.

    Pre-treatment Some treatment facilities treat the source water before the coagulation/flocculation process. Pre-treatment processes include use of chemicals to improve water quality, and/or mechanical equipment to remove large particles in the raw water before coagulation/flocculation.

    Post-treatment Most treatment facilities further treat the water after disinfection. Post treatments generally include fluoridation for dental health, pH adjustment for corrosion prevention of water distribution system, and chloramination to add ammonia to extend chlorine residual residence time.

12. *Existing Facility.* An Existing Facility is a facility that has been in operation on or prior to the effective date of this General Permit. Currently, some Existing Facilities are regulated under individual NPDES permits for their discharges prior to adoption of this General Permit. Other Existing Facilities do not have an NPDES permit. This Order requires the Dischargers from all

ORIN-154

Existing Facilities (or Existing Dischargers) to submit a site-specific BMPs plan together with the NOI to obtain coverage under this General Permit.

13. *New Facility.* A New Facility is an one that is still under construction, or that has completed its construction but has not commenced discharge to State water by the effective date of this General Permit. A Discharger from a New Facility (New Discharger) must submit an NOI at least 180 days prior to commencement of discharge. A New Discharger has the option of submitting its site-specific BMPs plan 30 days prior to its operation. This is so because the New Discharger can develop a site-specific BMPs plan that is specific to its operation and to better identify which areas of the facilities' operations that need BMPs.

General Description of the Discharges Covered by This Permit

14. *Filter backwash water discharge and storage/settling basin discharge.* Filters require periodic backwashing to remove accumulated solids. The backwash frequency depends on the quality of the incoming water and number of hours the filter has been in service. The volume of backwash water generated during backwash varies from a few hundred thousand gallons to over a million gallons depending on the number of filters backwashed, the frequency of backwashing, the size of the filter and water quality, etc.

    Many facilities recycle the backwash water by pumping it into storage/settling basins, then into the incoming water lines to be treated together with the raw water. Most of facilities discharge backwash water intermittently; a few facilities do not recycle their backwash and discharge on a continuous basis. ORIN-154

    Other reasons for discharge of backwash water are operational error or severe storm events that result in basin overflow. Some facilities divert all their wastewaters, such as backwash water, treatment unit rinse water, treatment unit overflows, etc. and storm water runoff from the property to storage/settling basins. Discharge from the storage/settling basin consists of various wastewaters accumulated in the basin.

15. *Discharges from treatment unit overflow and broken waterline within the treatment facility.* These are normally non-routine discharges due to operational or instrument errors that cause one or several treatment units to overflow. These discharges are normally non-routine and emergency in nature. The overflow discharges to State waters directly or via a storm drain system.

16. *Leakage water.* Some filters and other treatment units include a system that collects any water leakage from the system. The collected leakage water is normally diverted to the backwash water-settling basin and discharged together with backwash water. Alternatively, the sub-drain system may connect to storm drain system and the drainage water discharges through storm drain system to receiving water.

17. *Treatment unit dewatering/drainage water.* Occasionally, treatment units must be taken out of commission for maintenance, or for seasonal shutdown of the facility. The drainage water is diverted to a storage/settling basin before discharge or is discharged directly to State waters.

18. *Treatment system flushing water during start-up after facility shut down.* Some treatment facilities are operated seasonally. When the facility is brought on line for the season, the treatment units and piping systems must be flushed. Water from system flushing flows to a storage/settling basin before discharge or is discharged directly to State waters.

19. *On-site water storage facility drainage.* Some facilities store clean water on-site for filter backwash. Some facilities store treated water on-site before distribution to their customers. Occasionally, these water storage facilities require maintenance and need to be drained. The drainage water sometimes discharges to State waters.

20. *Excess raw water released from the treatment facility.* Some facilities receive raw water transported by aqueducts from remote locations. Water demand varies hourly. Since it is infeasible to frequently adjust aqueduct flows to match water demand, excess aqueduct flows may need to be released to State waters. Sometimes, water treatment facilities need to dispose raw water (incoming water) due to operational situations. The general permit does not regulate those raw water discharges that Discharger has not altered the raw water quality, but it does apply if chemicals have been added, such as for corrosion control and/or algae control.

Applicable Plans, Policies and Regulations

Water Quality Control Plan (or Basin Plan)

21. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21,1995. This updated and consolidated plan represents the Board's master water quality control planning document. The State Board and the Office of Administrative Law approved the revised Basin Plan on July 20, 1995, and November 13, 1995, respectively. A summary of the regulatory changes is contained in Title 23 of the California Code of Regulations, Section 3912. The Basin Plan identifies beneficial uses and water quality objectives for waters of the State in the Region, including surface waters and ground waters. The Basin Plan also identifies discharge prohibitions intended to protect beneficial uses. This Order implements the Board's Basin Plan. ORIN-154

22. *Beneficial Uses.* The designated beneficial uses of surface waters throughout the Region may include municipal, domestic, industrial, and agricultural supply; water contact and non-contact recreation; navigation; groundwater recharge and freshwater replenishment; wildlife habitat; cold freshwater and warm freshwater habitat; fish migration and fish spawning; marine habitat; estuarine habitat; shellfish harvesting; areas of special biological significance; and preservation of rare and endangered species. The specific beneficial uses for a specific water body are specified in Chapter 2 of the Basin Plan.

State Implementation Policy (SIP)

23. The State Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (also known as the State Implementation Policy or SIP) on March 2, 2000, and the Office of Administrative Law (OAL) approved the SIP on April 28, 2000. The SIP applies to discharges of toxic pollutants in the inland surface waters, enclosed bays and estuaries of California subject to regulation under the State's Porter-Cologne Water Quality Control Act (Division 7 of the Water Code) and the federal Clean Water Act. The SIP establishes implementation provisions for priority pollutant criteria promulgated by the U.S. EPA through the National Toxics Rule (NTR) and California Toxics Rule (CTR), and for priority pollutant objectives established by the Regional Water Quality Control Boards in their water quality control plans (basin plans). The SIP also establishes monitoring requirements for 2,3,7,8-TCDD equivalents, chronic toxicity control provisions, and Pollutant Minimization Program.

24. The SIP allows for categorical exemption for discharges from drinking water conducted to fulfill statutory requirements under the federal Safe Drinking Water Act or the California Health and Safety Code, providing certain conditions are met. The Board finds that there is currently insufficient information with which to certify that discharges covered by this General Permit meet all conditions

for SIP exemption. The Discharger may, at its option, provide the information needed to the Board during the term of this General Permit, if the Discharger wishes the Board to consider this exemption when this General Permit is re-issued in 2008.

California Toxics Rule (CTR)

25. On May 18, 2000, the U.S. EPA published the *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* (Federal Register, Volume 65, Number 97, 18 May 2000, or the CTR). The CTR specifies water quality standards for numerous pollutants, many of which are applicable to the receiving waters covered in this General Permit.

Other Regulatory Bases

26. Water quality objectives and effluent limitations in this permit are based on the SIP; the plans, policies and water quality objectives and eriteria of the Basin Plan; CTR; applicable Federal Regulations (40 CFR Parts 122 and 131); NTR; and Best Professional Judgment (BPJ) as defined in the Basin Plan. Discussion of the specific bases and rationale for effluent limits are given in the associated Fact Sheet for this Permit, which is incorporated as part of this Order.

Basin Plan Prohibitions For Which Exceptions Are Necessary

27. *Basin Plan prohibitions.* The Basin Plan contains a prohibition against discharge of any wastewater, which has particular characteristics of concem to beneficial uses at any point at which the wastewater does not receive a minimum initial dilution of at least 10:1 (Prohibition 1 in Table 4-1 of Basin Plan). The Board finds that the discharges permitted under this Order are not subject to this prohibition because they do not contain particular characteristies of eoncems to beneficial uses of the receiving waters provided the Dischargers follow Best Management Practices and comply with the requirements of this General Permit. ORIN-154

Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations

28. *Requirement for Reasonable Potential Analysis.* As specified in 40 CFR 122.44(d) (1) (i), permits are required to include Water Quality Based Effluent Limitations for all pollutants "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard." However, currently there are only six sets of effluent data obtained from five water treatment plants operated by East Bay Municipal Utility District (EBMUD) with no ambient background data.

29. *Effluent and Receiving Water RP Monitoring.* This Order does not include Water Quality Based Effluent Limitations (WQBELs) for toxic pollutants due to lack of data to perform reasonable potential analysis. Instead of requiring data for analysis of full set of priority pollutants, this Order requires Dischargers to monitor just for metals specified in the California Toxic Rule and trihalomethanes (THMs). THMs are a group of four chemicals, chloroform, bromodichloromethane, dibromochloromethane and bromoform. THMs are formed along with other disinfection byproducts when chlorine or other disinfectants are used to control pathogenic organisms in drinking water. This limited monitoring strategy is to focus on those pollutants that the Discharger uses or generates. Schedule for effluent sampling and analysis is specified in Table 1 of Self-Monitoring Program, and schedule for receiving water sampling is specified in Table 3 of the Self-Monitoring Program.

30. *Use Existing data for Effluent and Receiving Water RP Monitoring.*
    (1) THMs, Some Dischargers already collected THMs data from their product water. THMs concentrations are considered to be the highest in product water. THMs data obtained from

product water can be considered as the worst-case scenario. If the analytical methods used to obtain these data are consistent with the methods specified in the SIP, the Dischargers may use these data to satisfy the monitoring requirements for this Order.

(2) Metals, Some Dischargers regularly analyze certain metal contents in their product water. If the samples are representative of the discharge, e.g. for discharge or release of product water, and the analytical methodologies meet requirements specified in Enclosure A of Board's August 6,2001 letter, the Dischargers may use these data to satisfy the monitoring requirements for this Order. However, if the discharge effluent consists other waters, e.g. filter backwash water, Discharger cannot use the data obtained from product water because the effluent qualities are different.

31. *Permit Re-opener.* This Order includes a re-opener provision to allow numeric effluent limitations to be added in the future for any constituent that exhibits reasonable potential to assure continued compliance with the exception to the Basin Plan Prohibitions described in previous Findings. The Board will make this determination based on monitoring results.

Pollutants Limited By This General Permit

32. *Chlorine Residual.* Chlorine is added to the raw water for odor control as well as for disinfection. Chlorine is toxic to aquatic organisms. The Basin Plan contains a toxicity objective stating, "All waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental responses to aquatic organisms".

33. *Solids.* Filter back wash water has high solids content and requires sedimentation prior to discharge. Solids may be present in the discharges that could cause violation of the Basin Plan's narrative objectives for sediment, settleable material, and suspended material. Some treatment facilities occasionally discharge large amounts of water in a short period due to operation error or equipment or instrument malfunction. High flow rates may cause stream bank erosion and discharging of a large amount of solids further downstream. This General Permit specifies development of a site-specific BMPs plan to minimize these impacts.

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34. *pH.* Lime or sodium hydroxide is added to the water to adjust water pH for corrosion protection in the water conveyance system. Water with high pH content may discharge to the streams and impact aquatic organisms. The Basin Plan contains a toxicity objective stating, "All waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental responses to aquatic organisms".

35. *Whole Effluent Acute Toxicity.* This Order includes effluent limits for whole effluent acute toxicity because there is reasonable potential for these discharges to cause an exceedance of the toxicity objective. Polymers are added to raw water for coagulation and flocculation and may discharge with filter backwash water and overflows from treatment units prior to filtration. In addition to chlorine and pH, polymers can cause fish toxicity by binding to fish gills. Additionally, acute toxicity has been found in the discharge from an existing discharger. The whole effluent acute toxicity limitation is to implement the Basin Plan's toxicity objective in order to protect beneficial uses of the receiving waters. The Basin Plan contains a toxicity objective stating that "All waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental responses to aquatic organisms" and that "there shall be no acute toxicity in ambient waters." The whole effluent toxicity limit is to ensure that the discharge will not be acutely toxic to the aquatic organisms in the receiving water. Compliance is based on 96-hour static renewal bioassays conducted in accordance with test methods for acute toxicity bioassays promulgated in 40 CFR Part 136.

BMPs and Monitoring Requirements

36. *Total Polychlorinated Biphenyls (PCBs).* Some water storage facilities were constructed with material with PCBs. PCBs are highly insoluble in water and tend to accumulate in sediments. This Order prohibits discharge of bottom sediments from water storage facilities. This Order also requires Dischargers to develop and implement a BMPs plan for water storage facilities dewatering discharge to eliminate sediment discharge to the maximum extent possible. BMPs plan requires the Discharger to conduct PCBs analysis if he suspects that PCBs was used during the storage facility construction. For this permit purpose, water storage facility is a general term, which includes but is not limited to tanks, ponds, reservoirs or any other water storage unit at the surface water treatment facilities.

37. *Copper and zinc.* Some water agencies add copper compounds to their raw water reservoirs for algae control. Some of existing discharge data also show high copper concentration (higher than CTR criteria). Zinc is used as pipe coating, primer, or in galvanized steel pipe for corrosion control. Zinc may release from corrosion control coating/primer to the water. This Order requires more frequent monitoring of copper and zinc. The monitoring result will be used in the future to determine if there is reasonable potential to cause exceedance of water quality criteria. This Order also requires the Discharger to reduce or eliminate the use of copper compounds in the site-specific BMPs plan to the maximum extent practicable.

38. *Site-Specific BMPs Plan.* This Order requires Dischargers seeking coverage under this General Permit to develop, update annually, and implement a site-specific BMPs plan for preventing and controlling pollutant discharges. The purpose of the site-specific BMPs plan is to (1) control and abate the discharge pollutants from the facility to surface waters; (2) achieve compliance with Best Available Technology Economically Achievable (BAT) or Best Conventional Pollutant Control Technology (BCT) requirement; and (3) achieve compliance with applicable water quality standards. ORIN-154

    Dischargers who are already implementing best management practices required by their municipalities under a municipal storm water NPDES permit for pollution prevention at the treatment facilities can submit a copy of its existing BMPs plan, or equivalent plan to the Board.

39. *Permit Re-opener.* This Order includes a re-opener provision to allow additional numeric effluent limitations to be added in the future for any constituent that exhibits reasonable potential. The Board will make this determination based on monitoring results.

Anti-degradation

40. Anti-degradation Policies: Federal Regulations (40 CFR 131.12) and State Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California" requires that any increase in pollutant loading to a receiving water shall be consistent with the following:

    a. Existing in-stream water uses and the level of water quality necessary to protect existing beneficial uses shall be maintained and protected; and

    b. Where the quality of the waters exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, the quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water

quality is necessary to accommodate important economic or social development in the area in which the waters are located.

41. Anti-degradation Results: This permit complies with State and Federal "anti-degradation" policies:

    a. The conditions and effluent limitations established in this Order for discharges of treated effluent from surface water treatment facilities to surface waters in this Region ensure that the existing beneficial uses and quality of surface waters in this Region will be maintained and protected; and

    b. Discharges regulated by this Order should not lower water quality if the terms and conditions of this Order are met.

CEQA and Public Notice

42. *NPDES Permit.* This Order serves as an NPDES General Permit. Adoption of this Order will not have significant water quality impacts and is exempt from the provisions of Chapter 3 (commencing with Section 21000) of Division 13 of the Public Resources Code [California Environmental Quality Act (CEQA)] pursuant to Section 13389 of the California Water Code. In addition, with respect to existing facilities, adoption of this Order is exempt from CEQA pursuant to California Code of Regulations, Title 14, Section 15301, because it involves negligible or no expansion of use of existing facilities.

43. *Notification.* Existing Dischargers and interested agencies and persons have been notified of the Board's intent to issue this General Permit and have been provided an opportunity to submit their written views and recommendations. Board staff prepared a Fact Sheet and Response to Comments, which are hereby incorporated by reference as part of this Order. ORIN-154

44. *Public Hearing.* The Board, in a public meeting, heard and considered all comments pertaining to this General Permit.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code, regulations, and plans and policies adopted hereunder, and to the provisions of the Clean Water Act and regulations and guidelines adopted hereunder, that all Dischargers indicating their intention to be regulated under the provisions of this General Permit shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. Discharge of effluent/treated wastewater at a location or in a manner different from that described in the NOI is prohibited.

2. Discharge of chlorinated water without dechlorination is prohibited.

3. The discharge of bottom sediments from water storage facilities to State waters in such manner as to cause nuisance or adversely affect beneficial uses is prohibited.

4. On-site storage of oil, fuel and any other chemical storage causing contamination of storm water runoff and/or water and wastewater discharge is prohibited.

5. The discharge shall not cause a condition of pollution, contamination, or nuisance as defined in Clean Water Act.

B. EFFLUENT LIMITATIONS

The effluent from each discharge outfall(s) as defined in the NOI shall not exceed the following limits:

1. Conventional Pollutants

Constituents	Instantaneous Max.	Daily Max.	Monthly Average	Weekly Average
a. Total Suspended Solids, mg/L			30	45
b. Total Chlorine Residual, mg/L [1]	0.0			
c. pH, in pH unit [2]	6.5-8.5			
d. Settleable Matter, ml/L-hr. [3]		1.0		

1 See Self-Monitoring Program footnote [6] for Tables 1, 2 and 4 for compliance consideration.

2 The pH shall not be less than 6.5 and not greater than 8.5 unless the ambient receiving water has a pH greater than 8.5. In this case, the effluent pH shall not be greater than 0.5 unit of the receiving water pH value.

3. Settleable matter limit only applies to on-site water storage facility dewatering effluent discharge.

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2. Whole Effluent Acute Toxicity

Representative samples of the effluent shall meet the following limits for acute toxicity. Compliance with these limits shall be achieved in accordance with Provisions F.9 and F.10 of this Order.

For Continuous discharge

a. The survival of bioassay test organisms in 96-hour static renewal bioassays of undiluted effluent shall be:
   i. a 3-sample median value of not less than 90 percent survival [b.i.]; and
   ii. a single-sample maximum of not less than 70 percent survival [b.ii.].

b. These acute toxicity limits are further defined as follows:
   i. 3-sample median limit:
   3-sample median is defined as follows: if one of the past two or fewer samples shows less than 90 percent survival, then survival of less than 90 percent on the next sample represents a violation of the effluent limitation.

   ii. Single-sample maximum:
   Any bioassay test showing survival of 70 percent or greater is not a violation of this limit. A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit.

For Intermittent discharge
Any bioassay test showing survival of 70 percent or greater is not a violation of this limit. A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit.

C. RECEIVING WATER LIMITATIONS

1. The discharge of waste shall not cause the following conditions to exist in waters of the State at any place and any time:

   a. Erosion to the stream bank and streambed;

   b. Floating materials including solids, liquids, foams and scum, suspendedand or deposited materials in concentration that cause nuisance, or adversely affect beneficial uses;

   c. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely effect to beneficial uses;

   d. Alteration of temperature or apparent color beyond present natural background levels;

   e. Visible, floating, suspended, or deposited oil or other products of petroleum origin; and

   f. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or which render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.

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2. The discharge shall not cause pH variation from normal ambient pH by more than 0.5 pH units.

3. The discharge shall not increase turbidity above background levels by more than the following:

Receiving Water Background	Incremental Increase
<50 units (NTU)	5 units, maximum
50-100 units	10 units, maximum
>100 units	10% of background, maximum

D. PROVISIONS

1. Notice of Intent (NOI)

Persons who seek coverage under this General Permit shall file a complete NOI (see attachment). Discharger from existing facilities shall submit a complete NOI within 90 days from the effective date of this Order, or submit a request for an extension for the NOI to the Board. If an extension is requested, the Discharger shall provide appropriate justification that more time is needed to complete its NOI. The Executive Officer may grant an extension, but the extension may not go beyond 180 days from the effective date of this Order. Discharger with a New Facilities shall submit a complete NOI at least 180 days prior to commencement of the discharge.

2. Notice of Non-Applicability
If an owner or operator of a surface water treatment facility determines that this General Permit is not applicable to their facilities; the owner or operator of the facility shall submit a Notice of Non-Applicability to be exempted from this General Permit requirement (see attachment).

3. NOI Review
Upon receipt of an NOI application package for its proposed discharge, Board staff will review the application package to determine if the NOI is complete and whether the applicant is eligible to discharge waste under this General Permit.

4. Notice of General Permit Coverage (NGPC)
If the Executive Officer determines that the proposed discharge is eligible to discharge waste under this General Permit and its NOI is complete, the Executive Officer will authorize the discharge by issuing a NGPC. The Discharger is authorized to discharge starting on the effective date of the NGPC. The NGPC will specify type(s) of wastewater and the maximum discharge flow rate allowed. In accordance with 40 CFR 122.28(b)(2)(iv), the Executive Officer may terminate or revoke coverage under this Order for any of the specified causes for an individual permit coverage set forth in 40 CFR 122.28(b)(3).

5. Permit Compliance
The Discharger shall comply with all sections of this General Permit and conditions in the NGPC upon effectiveness of a NGPC. Requirements prescribed by this Order supersede the requirements prescribed in any previous individual permit or Waste Discharge Requirements as of the effective date of the NGPC issued to a Discharger.

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6. Site-Specific BMPs Plan

a. *Existing Dischargers.* Existing Dischargers from Existing Facilities shall submit site-specific BMPs plans together with NOI.

b. Existing Dischargers who are already implementing best management practices required by their municipalities under municipal storm water NPDES permit for pollution prevention at the treatment facilities may, at its option, submit a copy of its existing BMP plan, or equivalent plan to Board in lieu of the BMPs plan required by Provision 6.a. above.

c. *Site-specific BMPs plan requirements.* The site-specific BMPs plan shall address all specific means of controlling the discharge of pollutants from the facility. The required contents of the site-specific BMPs plan are specified in the instruction for the NOI attached to this Order.

d. *New Dischargers.* A New Discharger from a new or proposed facility has the option of submitting its site-specific BMPs plan with the NOI or 30 days before the commencement of the operation.

e. *Implementation and review.* The Dischargers shall implement immediately the site-specific BMPs plans upon submittal to the Board. The Board Executive Officer may require additional pollutant control measures. The Dischargers shall review and update the effectiveness and adequacy of the implemented site-specific BMPs plans annually or as often as necessary. The Dischargers shall submit any updates made to the site-specific BMPs plans annually to the Board by July 1st of each year. If the Discharger decides that the

BMPs plan does not require update in a particular year after complete of its annual review, the Discharger shall submit a letter to the Board certifying that its BMPs plan has been reviewed and no update is necessary for this year. Copies of updated site-specific BMPs plan shall be maintained at the treatment facilities.

f. Annual training requirement. All the field personnel, and on-site supervisors and operators shall receive training on the site-specific BMPs plan at least annually.

7. BMPs plan for effluent discharge from on-site water storage facilities at treatment facility

The Discharger shall submit BMPs plan at least 30 days before the planned date of discharge of dewatering effluent. The Discharger may submit this BMP plan with its NOI if it is available at the time. The BMPs plan shall address all specific means of controlling the discharge of pollutants with the dewatering effluent. The minimum required contents for this BMPs plan is specified in the instruction for NOI attached to this Order.

8. Backwash Water Settling Basin Operation and Maintenance

The backwash water settling basins shall be operated so as to optimize solids settling. The Discharger shall submit appropriate sections in its Operation and Maintenance Manual regarding the basin's operation and maintenance procedures and/or requirements annually to the Board. A letter report describing any updates to a previously submitted Manual would be acceptable in lieu of the Manual itself.

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9. Acute Toxicity Testing

Compliance with the acute toxicity requirements of this Order shall be achieved in accordance with the following:

a. Compliance shall be based on 96-hour static renewal bioassays.

b. The organisms shall be either rainbow trout or fathead minnows unless specified otherwise in writing by the Executive Officer.

c. All bioassays shall be performed according to the latest U.S. EPA promulgated protocol in 40CFR 136, currently, the Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organism, 5th Edition. It is acceptable to use 4th Edition until ELAP certifies the laboratory for the 5th Edition, if the Discharger's laboratory is currently ELAP certified with 4th Edition only.

10. Toxicity Reduction Evaluation Requirement

The Discharger shall monitor and evaluate its effluent in order to demonstrate compliance with the Basin Plan narrative toxicity objective. Compliance with this requirement shall be achieved in accordance with the following except for infrequent intermittent discharges (those occurring no more than six times per year), which are exempted from this Provision.

a. If data from routine monitoring exceed the permit limitation, then the Discharger shall begin a new test in accordance with requirements specified in SMP.

b. If data from accelerated monitoring tests are found to be in compliance with the evaluation parameters, then routine monitoring shall be resumed.

c. If accelerated monitoring tests confirm the permit limit violations, then the Discharger shall submit a work plan for a Toxicity Reduction Evaluation (TRE).

d. The TRE shall be conducted in accordance with the following:

i. The TRE shall be initiated within 30 days of the date of completion of the accelerated monitoring test observed to exceed permit limit.

ii. The TRE shall be conducted in accordance with the proposed work plan.

iii. The TRE needs to be specific to the discharge and Discharger's facility, and be in accordance with current technical guidance and reference materials including U.S. EPA guidance materials. TRE shall be conducted as a tiered evaluation process, such as summarized below:
(a) Tier 1 consists of basic data collection (routine and accelerated monitoring).
(b) Tier 2 consists of evaluation of optimization of the treatment process including operation practices, and in-plant process chemicals.
(c) Tier 3 consists of a toxicity identification evaluation (TIE).
(d) Tier 4 consists of evaluation of options for additional effluent treatment processes.
(e) Tier 5 consists of evaluation of options for modifications of in-plant treatment processes.
(f) Tier 6 consists of implementation of selected toxicity control measures, and follow-up monitoring and confirmation of implementation success.
(g) The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity.
(h) The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity. All reasonable efforts using currently available TIE methodologies shall be employed.
(i) As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the source(s) and evaluating alternative strategies for reducing or eliminating the substances from the discharge. All reasonable steps shall be taken to reduce toxicity to levels consistent with toxicity evaluation parameters.
(j) The Board recognizes that acute toxicity may be episodic and identification of causes of and reduction of sources of acute toxicity may not be successful in all cases. Consideration of discretionary enforcement action by the Board will be based in part on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

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11. Self-Monitoring Program

The Dischargers shall comply with the SMP for this Order as adopted by the Board, or any amended Self-Monitoring Program (SMP) specified in the NGPC. The SMP may be amended by the Executive Officer pursuant to U.S. EPA regulations 40 CFR 122.62, 122.63 and 124.5.

12. Standard Provisions and Reporting Requirements

The Dischargers shall comply with all applicable items of the *Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993* (attached). Where provisions or reporting requirements specified in this Order are different from equivalent or related provisions or reporting requirements given in 'Standard Provisions', the specifications of this Order shall apply.

13. Facility Modification/Maintenance

The Dischargers shall submit a schedule for approval by the Executive Officer at least 30 days prior to any modification/maintenance of the facility, which the Discharger determines may result in violation of effluent limitations or alteration of the discharge location(s). The schedule shall contain a description of the modification/maintenance including the altered discharge characteristics or location(s) and its purpose; the period of modification/maintenance, including exact dates and times; and steps taken or planned to reduce, eliminate, and prevent occurrence of non-compliance.

14. Change in Control or Ownership

In the event of any change in control or ownership of land or waste discharge facilities as specified in NGPC, the current Discharger/permittee shall notify the Executive Officer and the succeeding owner or operator by letter at least 30 days in advance of the proposed transfer date. The letter shall include a written agreement between the existing and New Discharger/permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them. The succeeding Discharger shall either submit to the Board its own site-specific BMPs plan or a letter stating the agreement of implementing the existing site-specific BMPs plan from the previous Discharger.

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15. New Water Quality Objectives

As new or revised water quality objectives come into effect for the Bay and contiguous water bodies (whether statewide, regional or site-specific), effluent limitations in this Order will be modified as necessary to reflect updated water quality objectives. Adoption of effluent limitations contained in this Order are not intended to restrict in any way for future modifications based on legally adopted water quality objectives.

16. Permit Re-opener

The Board may modify, or revoke and reissue this Order and permit prior to its expiration date, if present or future investigations demonstrate that the discharge(s) governed by this Order will or have the potential to cause or contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters. This Order will be re-opened if necessary, before its expiration date, to (1) add effluent and/or receiving water limitations for CTR constituents that are shown to have reasonable potential based on the data collected pursuant to the Monitoring Program of this Order; (2) to incorporate waste load allocations developed during the TMDL process, or (3) to include limits for other pollutants that the Board finds are or may be discharged at a level which will cause, have a reasonable potential to cause, or contribute to an excursion above any water quality standard.

17. NPDES Permit

This Order shall serve as a National Pollutant Discharge Elimination System (NPDES) permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective on September 1, 2003, provided the U.S. EPA Regional Administrator has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

18. Order Expiration and Reapplication

This Order expires on August 31, 2008. Dischargers, who will discharge after August 31, 2008, must file an application for a NPDES permit no later than February 28, 2008, as application for reissuance of new waste discharge requirements.

I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on June 18, 2003.

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LORETTA K. BARSAMIAN
Executive Officer

Attachments:
A. Self-Monitoring Program
B. Standard Provisions and Reporting Requirements, August 1993
C. Notice of Intent (NOI) and NOI Instruction
D. Notice of Non-Applicability
E. Fact Sheet
F. August 6, 2001 letter

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Attachment A – Self-Monitoring Program

Attachment B – Standard Provisions and Reporting Requirements, August 1993
(Not included here due to length, available at
http://www.swrcb.ca.gov/rwqcb2/download.htm)

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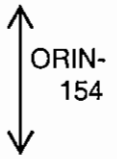
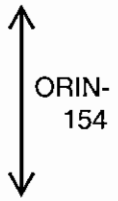
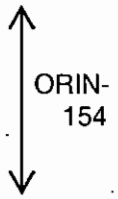
Attachment C – Notice of Intent (NOI) and NOI Instruction





Attachment D – Notice of Non-Applicability



Attachment E – Fact Sheet

Attachment F – August 6, 2001 Letter (Not included here due to length, available at http://www.swrcb.ca.gov/rwqcb2/download.htm)

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Print This Article

Water-main breaks proving deadly to fish

- Patrick Hoge, Chronicle Staff Writer
Saturday, July 15, 2006

Aquarium owners typically know that untreated tap water can kill fish.

And Bay Area water-quality regulators are increasingly concerned that drinking water spilling down storm drains and into creeks has caused fish kills in places like Berkeley and Marin County.

Regional Water Quality Control Board officials are particularly concerned about a disinfectant called chloramine that water agencies nationwide have started to use instead of chlorine. Chloramine, which regulators say is not toxic to humans, is more lethal to aquatic life.

Water officials locally and nationwide have been switching to chloramine -- a mix of chlorine and ammonia that water officials say produces fewer potentially dangerous by-products for people than chlorine. But chloramine is worse for fish because it lasts longer in the environment.

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"We need a more effective program put into place that will prevent these fish, frogs and other aquatic life from being killed," said Ann Riley, river and watershed restoration adviser for the San Francisco Regional Water Quality Control Board and co-founder of the Urban Creeks Council.

Riley and co-workers became concerned about chloramine after a series of East Bay Municipal Utility District water-main breaks sent hundreds of thousands of gallons of water into three creeks, killing fish on at least two occasions in Berkeley.

Riley has since concluded that EBMUD's protocols for handling breaks, cleaning fire hydrants and replacing pipes are not adequate to prevent chloramine from getting into creeks. Her agency has been preparing to issue a notice of violation to EBMUD.

EBMUD incidents include a water-main break last year that killed 30 Sacramento sucker fish in Strawberry Creek in Berkeley and at least two involving more than 100,000 gallons of water into Codornices Creek, one in 2000 and the other last year. Steelhead have been spawning again in that creek and taxpayer-funded habitat-restoration efforts are under way.

EBMUD spokesman Charles Hardy said that his agency does a good job containing water spills, given that there are 4,000 miles of EBMUD pipe.

On average, EBMUD crews arrive to breaks within 38 minutes, and they are trained to

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dechloraminate water before it runs into creeks, he said.

Riley, however, said it's not enough, considering that recently there have been about 100 pipe breaks a month, while the government is spending significant amounts of money to restore wildlife to creeks hit with spills.

The State Water Resources Control Board is updating its policy to set statewide chloramine discharge standards for the first time. The agency had considered requiring extensive field monitoring for chloramine but dropped the idea after numerous water agencies, including EBMUD, said it would be impractical.

After creek advocates complained, however, the state agency's water quality chief, Darrin Polhemus, said his agency would likely set discharge limits that local water quality control boards would enforce.

The Marin Municipal Water District, which started using chloramine in 1995, caused two fish kills in 2004. In all, the spills of drinking water killed 33 trout in Corte Madera Creek and Ross Creek. Those trout could have been protected steelhead.

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The San Francisco Public Utilities Commission in 2004 became the last major water agency in the region to start using chloramine. Agency spokesman Tony Winnicker said virtually all water that goes into city storm drains goes through the city's sewer system, and thus chloramine is removed before discharge into the bay or ocean. Most cities do not treat their storm water.

Some people question whether the chemical is safe for people, and a group has formed to protest San Francisco's shift to chloramine.

Federal regulators, however, say low levels of chloramine have been used to safely disinfect drinking water for nearly a century.

Chloramine facts

Used as a disinfectant for more than a century

In low doses, not toxic to humans

Produced by combining chlorine and ammonia

Compared with just chlorine, is less likely to react with organic material in water and cause potentially carcinogenic by-products

E-mail Patrick Hoge at phoge@sfchronicle.com.

URL: http://sfgate.com/cgi-bin/article.cgi?file=/c/a/2006/07/15/BAGAVJVLHG1.DTL

BAY AREA AIR POLLUTION SUMMARY — 2004

—See NOTES on back of this page

MONITORING STATIONS	OZONE							CARBON MONOXIDE			NITROGEN DIOXIDE			SULFUR DIOXIDE			PM_{10}				$PM_{2.5}$				
	Max 1-Hr	Nat Days	Cal Days	3-Yr Avg	Max 8-Hr	Nat Days	3-Yr Avg	Max 1-Hr	Max 8-Hr	Nat/Cal Days	Max 1-Hr	Ann Avg	Nat/Cal Days	Max 24-Hr	Ann Avg	Nat/Cal Days	Ann Avg	Max 24-Hr	Nat Days	Cal Days	Max 24-Hr	Nat Days	3-Yr Avg	Ann Avg	3-Yr Avg
North Counties	(pphm)				(pphm)			(ppm)			(pphm)			(ppb)			($\mu g/m^3$)				($\mu g/m^3$)			($\mu g/m^3$)	
Napa	9	0	0	0.0	7	0	6.6	3.7	2.0	0	6	1.1	0	-	-	-	20.7	60	0	1	-	-	-	-	-
San Rafael	9	0	0	0.0	6	0	4.9	3.2	2.0	0	6	1.5	0	-	-	-	17.9	52	0	1	-	-	-	-	-
Santa Rosa	8	0	0	0.0	6	0	5.1	2.7	1.6	0	5	1.1	0	-	-	-	18.0	48	0	0	27	0	32	8.3	9
Vallejo	10	0	1	0.0	7	0	6.5	4.0	3.4	0	5	1.2	0	5	1.3	0	19.6	51	0	1	40	0	39	11.1	11
Coast & Central Bay																									
Oakland	8	0	0	0.0	6	0	4.0	3.5	2.6	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Richmond	-	-	-	-	-	-	-	-	-	-	-	-	-	5	1.6	0	-	-	-	-	-	-	-	-	-
San Francisco	9	0	0	0.0	6	0	4.7	2.9	2.2	0	6	1.7	0	8	1.4	0	22.5	52	0	1	46	0	41	9.9	11
San Pablo	11	0	1	0.0	7	0	5.2	3.2	1.8	0	6	1.3	0	5	1.6	0	21.2	64	0	1	-	-	-	-	-
Eastern District																									
Bethel Island	10	0	1	0.0	8	0	7.5	1.2	0.9	0	3	0.8	0	6	1.6	0	19.5	42	0	0	-	-	-	-	-
Concord	10	0	1	0.0	8	0	7.9	2.7	2.0	0	7	1.2	0	10	1.0	0	18.6	51	0	1	74	1	40*	10.7*	11*
Crockett	-	-	-	-	-	-	-	-	-	-	-	-	-	7	1.7	0	-	-	-	-	-	-	-	-	-
Fairfield	10	0	1	0.0	8	0	7.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Livermore	11	0	5	1.0	8	0	8.3	3.5	1.8	0	6	1.4	0	-	-	-	20.0	49	0	0	41	0	37	10.3	11
Martinez	-	-	-	-	-	-	-	-	-	-	-	-	-	7	1.5	0	-	-	-	-	-	-	-	-	-
Pittsburg	9	0	0	0.0	8	0	7.3	4.1	1.9	0	5	1.1	0	7	2.0	0	21.7	64	0	1	-	-	-	-	-
South Central Bay																									
Fremont	9	0	0	0.0	7	0	6.4	3.0	1.7	0	6	1.5	0	-	-	-	18.6	49	0	0	40	0	32	9.4	10
Hayward	9	0	0	0.0	7	0	6.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Redwood City	10	0	1	0.0	7	0	6.0	4.8	2.1	0	6	1.5	0	-	-	-	20.5	65	0	1	36	0	32	9.3	9
San Leandro	10	0	1	0.0	7	0	5.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Santa Clara Valley																									
Gilroy	9	0	0	0.0	8	0	7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Los Gatos	9	0	0	0.0	8	0	7.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Jose Central*	9	0	0	*	7	0	*	4.4	3.0	0	7	1.9	0	-	-	-	23.1	58	0	4	52	0	*	11.6	*
San Jose East	9	0	0	0.0	7	0	6.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Jose, Tully Road	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26.0	65	0	3	45	0	35	10.4	10
San Martin	9	0	0	0.0	8	0	8.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sunnyvale	10	0	1	0.0	8	0	6.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Bay Area Days over Standard		0	7			0			0			0			0			0	7			1			

See notes of explanation on back of this page

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2004 NOTES

The annual Bay Area Air Pollution Summary summarizes measurements for the national and California pollutant standards.

***Station Information (see asterisks on front page)**

The San Jose 4th Street station was closed on April 30, 2002. It was relocated to San Jose Central on October 5, 2002. Three-year average ozone statistics and three-year average $PM_{2.5}$ statistics for San Jose Central have been omitted from this summary.

Due to roof damage at the Concord station during the fourth quarter of 2004, the $PM_{2.5}$ sampler could not be operated on some of the required sampling days. The $PM_{2.5}$ annual average and three-year average $PM_{2.5}$ statistics are based on available data.

Explanation of Terms

State and national excesses occur when pollutant concentrations surpass the indicated standards, with values in most cases rounded to the same number of decimal places.

MAX HR / MAX 8-HR / MAX 24-HR
The highest average contaminant concentration over a one-hour period, an eight-hour period (on any given day), or a 24-hour period (from midnight to midnight).

ANN AVG
The yearly average (arithmetic mean) of the readings taken at a given monitoring station.

NAT DAYS
The number of days during the year for which the monitoring station recorded contaminent concentrations in excess of the national standard.

CAL DAYS
The number of days during the year for which the station recorded contaminant levels in excess of the California standard.

TOTAL BAY AREA DAYS OVER STANDARD is not a sum of excesses at individual stations, but rather a sum of the number of days for which excesses occurred at any one or more stations.

3-YR AVG (1-hr ozone standard)
The average number of days per year during which ozone levels were in excess of the national 1-hour standard, based on the most recent three-year period. *An average higher than 1.0 at any monitoring station means the region will be considered out of attainment by the EPA.*

3-YR AVG (8-hr ozone standard)
The 3-year average of the fourth highest 8-hour average ozone concentration for each monitoring station. *A 3-year average greater than 8.4 at any monitoring station means that the region will be considered out of attainment by the EPA.*

PM_{10}
Particulate matter ten microns or smaller in size. (PM_{10} is only sampled every sixth day. *Actual* days over standard can be estimated to be six times the number shown.)

$PM_{2.5}$
Particulate matter 2.5 microns or smaller in size. $PM_{2.5}$ is a sub-category of PM_{10}.

PM_{10} ANN AVG and MAX 24-HR
California PM_{10} Annual Average and Maximum 24-Hour concentrations are reported at local temperature and pressure conditions. National PM_{10} Annual Average and Maximum 24-Hour concentrations are reported at standard temperature and pressure conditions. This table shows the California readings for PM_{10} Ann Avg and Max 24-Hr, which are generally slightly higher than the national readings.

3-YR AVG ($PM_{2.5}$ 24-hour standard)
The 3-year average of the annual 98th percentiles of the individual 24-hour concentrations of $PM_{2.5}$. *A 3-year average greater than 65 $\mu g/m^3$ at any monitoring station means that the region will be considered out of attainment by the EPA.*

3-YR AVG ($PM_{2.5}$ annual standard)
The 3-year average of the quarterly averages of $PM_{2.5}$. *A 3-year average greater than 15 $\mu g/m^3$ at any monitoring station means that the region will be considered out of attainment by the EPA.*

HEALTH-BASED AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Std	National Std
Ozone	1 Hour*	9 pphm	12 pphm*
	8 Hour	—	8 pphm
Carbon Monoxide	1 Hour	20 ppm	35 ppm
	8 Hour	9.0 ppm	9 ppm
Nitrogen Dioxide	1 Hour	25 pphm	—
	Annual	—	5.3 pphm
Sulfur Dioxide	24 Hour	40 ppb	140 ppb
	Annual	—	30 ppb
Particulates < 10 microns	24 Hour	50 $\mu g/m^3$	150 $\mu g/m^3$
	Annual	20 $\mu g/m^3$	50 $\mu g/m^3$
Particulates < 2.5 microns	24 Hour	—	65 $\mu g/m^3$
	Annual	12 $\mu g/m^3$	15 $\mu g/m^3$

*The U.S. EPA revoked the national 1-hour ozone standard on June 15, 2005.

Concentrations | **ppm** parts per million | **pphm** parts per hundred million | **ppb** parts per billion | **$\mu g/m^3$** micrograms per cubic meter

TEN-YEAR BAY AREA AIR QUALITY SUMMARY

DAYS OVER STANDARDS

YEAR	OZONE 1-Hr Nat	OZONE 1-Hr Cal	OZONE 8-Hr Nat	CARBON MONOXIDE 1-Hr Nat	CARBON MONOXIDE 1-Hr Cal	CARBON MONOXIDE 8-Hr Nat	CARBON MONOXIDE 8-Hr Cal	Nitrogen Dioxide 1-Hr Cal	Sulfur Dioxide 24-Hr Nat	Sulfur Dioxide 24-Hr Cal	PM_{10} 24-Hr* Nat	PM_{10} 24-Hr* Cal	$PM_{2.5}$ 24-Hr** Nat
1995	11	28	-	0	0	0	0	0	0	0	0	7	-
1996	8	34	-	0	0	0	0	0	0	0	0	3	-
1997	0	8	-	0	0	0	0	0	0	0	0	4	-
1998	8	29	16	0	0	0	0	0	0	0	0	5	-
1999	3	20	9	0	0	0	0	0	0	0	0	12	-
2000	3	12	4	0	0	0	0	0	0	0	0	7	1
2001	1	15	7	0	0	0	0	0	0	0	0	10	5
2002	2	16	7	0	0	0	0	0	0	0	0	6	7
2003	1	19	7	0	0	0	0	0	0	0	0	6	0
2004	0	7	0	0	0	0	0	0	0	0	0	7	1

*PM_{10} is sampled every sixth day—*actual* days over standard can be estimated to be six times the numbers listed.

**2000 is the first full year for which the Air District measured $PM_{2.5}$ levels.

BAAQMD CEQA GUIDELINES
Assessing the Air Quality Impacts of Projects and Plans

Prepared by the Planning and Research Division of the
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

ORIN-157

December, 1999

This document is intended to serve as a guide for those who prepare or evaluate air quality impact analyses for projects and plans in the San Francisco Bay Area. The GUIDELINES include information on legal requirements, BAAQMD rules, plans and procedures, methods of analyzing air quality impacts, thresholds of significance, mitigation measures, and background air quality information. Copies and updates are available from the BAAQMD Public Information Office at (415) 749-4900. Questions on content may be addressed to the BAAQMD's Planning and Transportation Section at (415) 749-4995.

Ellen Garvey - *Air Pollution Control Officer*
Peter Hess - *Deputy Air Pollution Control Officer*
Thomas Perardi - *Director, Planning & Research Division*
Jean Roggenkamp - *Manager, Planning and Transportation Section*

project or plan can be identified in the Initial Study (i.e., none of the significance thresholds are exceeded), the District recommends the Lead Agency either prepare a Negative Declaration or include in an EIR a statement indicating the reasons why potential air quality impacts were determined not to be significant.

Sources of air pollutant emissions complying with all applicable District regulations generally will not be considered to have a significant air quality impact.[2] Stationary sources that are exempt from District permit requirements because they fall below emission thresholds for permitting will not be considered to have a significant air quality impact (unless it is demonstrated that they may have a significant cumulative impact). The Lead Agency can and should make exception to this determination if special circumstances suggest that the emissions from the permitted or exempt source may cause a significant air quality impact. For example, if a permitted or exempt source may emit objectionable odors, then odor impacts on nearby receptors should be considered a potentially significant air quality impact.

2.3 Thresholds of Significance

This section describes the District's recommended thresholds of significance to be used by a Lead Agency when preparing an Initial Study. If, during the preparation of the Initial Study, the Lead Agency finds that any of the following thresholds may be exceeded, then an EIR should be prepared in order to more accurately evaluate project impacts and identify mitigation measures. These thresholds also may be used when preparing an EIR. If the more detailed analysis in an EIR indicates that any of these thresholds would be exceeded, the document should identify the impact as a significant air quality impact and propose mitigation measures. Chapter 3 explains how to calculate emissions to determine whether the thresholds have been exceeded. The following thresholds address impacts associated with: 1) project construction, 2) project operations, and 3) plans.

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Threshold of Significance for Construction Impacts

Construction-related emissions are generally short-term in duration, but may still cause adverse air quality impacts. Fine particulate matter (PM_{10}) is the pollutant of greatest concern with respect to construction activities.[3] PM_{10} emissions can result from a variety of construction activities, including excavation, grading, demolition, vehicle travel on paved and unpaved surfaces, and vehicle and equipment exhaust. Construction-related emissions can cause substantial increases in localized concentrations of PM_{10}. Particulate emissions from construction activities can lead to adverse health effects as well as nuisance concerns such as reduced visibility and soiling of exposed surfaces.

Construction emissions of PM_{10} can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions and other factors. Despite this variability in emissions, experience has shown that there are a number of

[2]CEQA Guidelines, Section 15064(i).

[3] Construction equipment emits carbon monoxide and ozone precursors. However, these emissions are included in the emission inventory that is the basis for regional air quality plans, and are not expected to impede attainment or maintenance of ozone and carbon monoxide standards in the Bay Area.

feasible control measures that can be reasonably implemented to significantly reduce PM_{10} emissions from construction. The District's approach to CEQA analyses of construction impacts is to emphasize implementation of effective and comprehensive control measures rather than detailed quantification of emissions.

The District has identified a set of feasible PM_{10} control measures for construction activities. These control measures are listed in Table 2. As noted in the table, some measures ("Basic Measures") should be implemented at all construction sites, regardless of size. Additional measures ("Enhanced Measures") should be implemented at larger construction sites (greater than 4 acres) where PM_{10} emissions generally will be higher. Table 2 also lists other PM_{10} controls ("Optional Measures") that may be implemented if further emission reductions are deemed necessary by the Lead Agency.

The determination of significance with respect to construction emissions should be based on a consideration of the control measures to be implemented. From the District's perspective, quantification of construction emissions is not necessary (although a Lead Agency may elect to do so - see Section 3.3 of these Guidelines, "Calculating Construction Emissions," for guidance). The Lead Agency should review Table 2. If all of the control measures indicated in Table 2 (as appropriate, depending on the size of the project area) will be implemented, then air pollutant emissions from construction activities would be considered a less than significant impact. If all of the appropriate measures in Table 2 will not be implemented, then construction impacts would be considered to be significant (unless the Lead Agency provides a detailed explanation as to why a specific measure is unnecessary or not feasible).

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Project construction sometimes requires the demolition of existing buildings at the project site. Buildings constructed prior to 1980 often include building materials containing asbestos. Airborne asbestos fibers pose a serious health threat. The demolition, renovation or removal of asbestos-containing building materials is subject to the limitations of District Regulation 11, Rule 2: Hazardous Materials; Asbestos Demolition, Renovation and Manufacturing. The District's Enforcement Division should be consulted prior to commencing demolition of a building containing asbestos building materials. Any demolition activity subject to but not complying with the requirements of District Regulation 11, Rule 2 would be considered to have a significant impact.

TABLE 2
FEASIBLE CONTROL MEASURES FOR CONSTRUCTION EMISSIONS OF PM_{10}

Basic Control Measures. - The following controls should be implemented at all construction sites.
• Water all active construction areas at least twice daily. • Cover all trucks hauling soil, sand, and other loose materials *or* require all trucks to maintain at least two feet of freeboard. • Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites. • Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites. • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
Enhanced Control Measures. - The following measures should be implemented at construction sites greater than four acres in area.
• All "Basic" control measures listed above. • Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more). • Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.) • Limit traffic speeds on unpaved roads to 15 mph. • Install sandbags or other erosion control measures to prevent silt runoff to public roadways. • Replant vegetation in disturbed areas as quickly as possible.
Optional Control Measures. - The following control measures are strongly encouraged at construction sites that are large in area, located near sensitive receptors or which for any other reason may warrant additional emissions reductions.
• Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site. • Install wind breaks, or plant trees/vegetative wind breaks at windward side(s) of construction areas. • Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph. • Limit the area subject to excavation, grading and other construction activity at any one time.

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Special emphasis should be placed on air quality resources that are rare or unique to the region and would be affected by the project (State CEQA Guidelines Section 15125 (a)). Regulatory requirements identify areas which are pristine and classified as Class I airsheds. These airsheds are subject to specific standards (Prevention of Significant Deterioration requirements). Within the Bay Area, the Point Reyes National Seashore is designated as a Class I area. Projects proposed in the vicinity of that area should note the project's proximity to a Class I area in the description of the project setting.

3.3 Evaluating Construction Emissions

Construction activities result in air pollutant emissions and should be addressed in environmental documents. Although construction-related emissions are generally temporary in duration, they can be substantial and can represent a significant impact on air quality. This is particularly true with respect to emissions of PM_{10}. Construction-related emissions come from a variety of activities including: 1) grading, excavation, roadbuilding and other earthmoving activities, 2) travel by construction equipment, especially on unpaved surfaces, and 3) exhaust from construction equipment. Demolition of buildings also generates PM_{10} emissions, and is of particular concern if the building(s) contain any asbestos-bearing materials.

PM_{10} emissions from construction activity can vary considerably depending on factors such as the level of activity, the specific operations taking place, and weather and soil conditions. As noted in Section 2.3, the District emphasizes implementation of effective and comprehensive control measures rather than detailed quantification of construction emissions. The District urges Lead Agencies to consider the size of the construction area and the nature of the activities that will occur, and require the implementation of all feasible control measures (indicated in Table 2). ORIN-157

If a Lead Agency wants to quantify construction emission, however, generalized emission factors are available. U.S. EPA has developed an approximate emission factor for construction-related emissions of total suspended particulate of 1.2 tons per acre per month of activity. This factor assumes a moderate activity level, moderate silt content in soils being disturbed, and a semi-arid climate. ARB estimates that 64% of construction-related total suspended particulate emissions is PM_{10}.[12] This yields the following **emission factors for uncontrolled construction-related PM_{10} emissions:**

- 0.77 tons per acre per month of PM_{10}, or
- 51 lbs. per acre per day of PM_{10}.[13]

The emission factors provided above are approximate values and do not reflect site-specific conditions and operations. EPA recommends that if construction emissions from a specific site are to be quantified, the construction process should be divided into component operations (e.g., bulldozing, loading of excavated materials, vehicular traffic, etc.) and more specific emission factors should be used. See Section 13.2.3, Heavy Construction Operations, and related sections

[12] California Air Resources Board, Methods for Assessing Area Source Emissions in California, September 1991.

[13] EPA's emission factor was derived based on the assumption that construction activity occurs 30 days per month. See Section 13.2.3, Heavy Construction Operations, U.S. EPA, Compilation of Air Pollutant Emission Factors, Volume I: Stationary, Point and Area Sources, AP-42, 5th Edition, January 1995.

of U.S. EPA, Compilation of Air Pollutant Emission Factors, Volume I: Stationary, Point and Area Sources, AP-42, 5th Edition, January 1995 for further information.

In addition to particulate emissions from earthmoving, air pollutants also are emitted in the exhaust of construction equipment. Table 7 presents emission factors for estimating construction equipment emissions (assuming an average of 0.27 gallons of fuel burned per cubic yard of earth moved). These emission factors represent a composite fleet of heavy and light duty construction equipment in the Bay Area. Emissions from construction equipment during building construction, as differentiated from earthmoving in site preparation, vary greatly from project to project. Table 7 can be used to estimate construction exhaust emissions based on gallons of fuel consumed or cubic yards of material moved. Lead Agencies also may consult the most recent edition of U.S. EPA's AP-42 for emission factors for specific types of construction equipment.

TABLE 7
HEAVY AND LIGHT DUTY CONSTRUCTION EQUIPMENT
EXHAUST EMISSION FACTORS

Contaminant	gm/yd^3*	gm/gallon**
PM_{10}	2.2	8.0
CO	138.0	511.0
ROG	9.2	34.0
NO_x	42.4	157.0
SO_x	4.6	17.0

* Grams per cubic yard of earth moved. ** Grams per gallon of fuel burned.

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Project construction sometimes involves the demolition of existing buildings. Demolition also produces PM_{10} emissions. PM_{10} emissions from demolition activities may be estimated using the following emission factor: 0.00042 lbs PM_{10} per cubic feet of building volume.[14] Buildings constructed prior to 1980 often include building materials containing asbestos. As noted in Section 2.3, Thresholds of Significance, the demolition, renovation or removal of asbestos-containing building materials is subject to District Regulations. The District's Enforcement Division should be consulted prior to commencing demolition of a building containing asbestos building materials.

The emission factors provided above represent uncontrolled emissions. Section 2.3, Thresholds of Significance, and Section 4.2, Mitigating Construction Impacts, provide information on mitigating construction-related emissions. If an environmental document will include quantification of construction emissions, the Lead Agency should be sure to apply the estimated control effectiveness to the appropriate emission source. For example, watering a construction site can reduce PM_{10} emissions from earthmoving activities, but will not reduce equipment exhaust emissions.

[14] South Coast Air Quality Management District, CEQA Air Quality Handbook, April 1993.

ACUTE TOXICITY SUMMARY

HYDROGEN SULFIDE

(sulfur hydride; sulfuretted hydrogen)

CAS Registry Number: 7783-06-4

I. Acute Toxicity Summary (for a 1-hour exposure)

Inhalation reference exposure level	**42 μg/m³**
Critical effect(s)	Headache, nausea, physiological responses to odor
Hazard Index target(s)	CNS

II. Physical and Chemical Properties (AIHA, 1991 except as noted)

Description	colorless gas
Molecular formula	H_2S
Molecular weight	34.08
Density	1.39 g/L @ 25°C
Boiling point	-60.7°C
Melting point	unknown
Vapor pressure	1 atm @ -60.4°C
Flash point	26°C
Explosive limits	upper = 4.3% by volume in air lower = 46% by volume in air
Solubility	soluble in water, hydrocarbon solvents, ether, and ethanol
Odor threshold	0.0081 ppm (Amoore and Hautala, 1983)
Odor description	resembles rotten eggs
Metabolites	bisulfite (HSO_3), thiosulfate ($S_2O_3^{2-}$) (Baxter and Van Reen, 1958)
Conversion factor	1 ppm = 1.4 mg/m³ @ 25°C

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II. Major Uses or Sources

Hydrogen sulfide (H_2S) is used as a reagent and an intermediate in the preparation of other reduced sulfur compounds. It is also a by-product of desulfurization processes in the oil and gas industries and rayon production, sewage treatment, and leather tanning (Ammann, 1986).

IV. Acute Toxicity to Humans

Hydrogen sulfide is an extremely hazardous gas (ACGIH, 1992). Hydrogen sulfide exposure is reported to be the most common cause of sudden death in the workplace (NIOSH, 1977). The mortality in acute hydrogen sulfide intoxications has been reported to be 2.8% (Arnold *et al.*, 1985) to 6% (WHO, 1981). While severe intoxication is especially of concern when exposure occurs in confined spaces, an accidental release of hydrogen sulfide into the air surrounding industrial facilities can cause very serious effects. For example, at Poza Rica, Mexico 320 people were hospitalized and 22 died (WHO, 1981). An inhalation LC_{Lo} of 600 and 800 ppm (840 and 1,120 mg/m^3) for 30 and 5 minutes, respectively, is reported (Hazardtext, 1994). A lethal exposure was documented for a worker exposed to approximately 600 ppm H_2S for 5-15 minutes (Simson and Simpson, 1971). Inhalation of 1,000 ppm (1,400 mg/m^3) is reported to cause immediate respiratory arrest (ACGIH, 1992). Concentrations greater than 200 ppm (280 mg/m^3) H_2S are reported to cause direct irritant effects on exposed surfaces and can cause pulmonary edema following longer exposures (Spiers and Finnegan, 1986). The mechanism of H_2S toxicity, cellular hypoxia caused by inhibition of cytochrome oxidase, is similar to that for cyanide and can be treated by induction of methemoglobin or with hyperbaric oxygen (Elovaara *et al.*, 1978; Hsu *et al.*, 1987).

At concentrations exceeding 50 ppm (70 mg/m^3), olfactory fatigue prevents detection of H_2S odor. Exposure to 100-150 ppm (140-210 mg/m^3) for several hours causes local irritation (Haggard, 1925). Exposure to 50 ppm for 1 hour causes conjunctivitis with ocular pain, lacrimation, and photophobia; this can progress to keratoconjunctivitis and vesiculation of the corneal epithelium (ACGIH, 1992). Bhambhani and Singh (1991) showed that 16 healthy subjects exposed to 5 ppm (7 mg/m^3) H_2S under conditions of moderate exercise exhibited impaired lactate and oxygen uptake in the blood. Bhambhani and Singh (1985) reported that exposure of 42 individuals to 2.5 to 5 ppm (3.5 to 7 mg/m^3) H_2S caused coughing and throat irritation after 15 minutes.

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In another study, ten asthmatic volunteers were exposed to 2 ppm H_2S for 30 minutes and pulmonary function was tested (Jappinen *et al.*, 1990). All subjects reported detecting "very unpleasant" odor but "rapidly became accustomed to it." Three subjects reported headache following exposure. No significant changes in mean FVC or FEV_1 were reported. Although individual values for specific airway resistance (SR_{aw}) were not reported, the difference following exposure ranged from -5.95% to +137.78%. The decrease in specific airway conductance, SG_{aw}, ranged from -57.7% to +28.9%. The increase in mean SR_{aw} and the decrease in mean SG_{aw} were not statistically significant. However, significantly increased airway resistance and decreased airway conductance were noted in two of ten asthmatic subjects which may be biologically significant.

Hydrogen sulfide is noted for its strong and offensive odor. Based on a review of 26 studies, the average odor detection threshold ranged from 0.00007 to 1.4 ppm (Amoore, 1985). The geometric mean of these studies is 0.008 ppm. In general, olfactory sensitivities decrease by a factor of 2 for each 22 years of age above 20 (Venstrom and Amoore, 1968); the above geometric mean is based on the average age of 40.

For hydrogen sulfide, concentrations that substantially exceed the odor threshold result in the annoying and discomforting physiological symptoms of headache or nausea (Amoore, 1985; Reynolds and Kauper 1985). The perceived intensity of the odor of hydrogen sulfide depends on the longevity of the concentration, and the intensity increases 20% for each doubling concentration (Amoore, 1985). Several studies have been conducted to establish the ratio of discomforting annoyance threshold to detection threshold for unpleasant odors (Winneke, 1975; Winneke and Kastka, 1977; Hellman and Small, 1974; Adams *et al.*, 1968; and NCASI, 1971). The geometric mean for these studies is 5, indicating that when an unpleasant odor reaches an average concentration of 5 times its detection threshold, the odor will result in annoying discomfort. Applying the 5-fold multiplier to the mean detectable level, 0.008 ppm, results in a mean annoyance threshold of 0.04 ppm. At the current California Ambient Air Quality Standard (CAAQS) of 0.03 ppm, the level would be detectable by 83% of the population and would be discomforting to 40% of the population. These estimates have been substantiated by odor complaints and reports of nausea and headache (Reynolds and Kauper 1985) at 0.03 ppm H2S exposures from geyser emissions. The World Health Organization (WHO) reports that in order to avoid substantial complaints about odor annoyance among the exposed population, hydrogen sulfide concentrations should not be allowed to exceed 0.005 ppm (7 $\mu g/m^3$), with a 30-minute averaging time (WHO, 1981; National Research Council, 1979; Lindvall, 1970).

Predisposing Conditions for Hydrogen Sulfide Toxicity

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Medical: Unknown

Chemical: Ethanol has been shown to potentiate the effects of H_2S by shortening the mean time-to-unconsciousness in mice exposed to 800 ppm (1,120 mg/m^3) H_2S (Beck *et al.*, 1979).

V. Acute Toxicity to Laboratory Animals

A median lethal concentration (LC_{50}) in rats exposed to H_2S for 4 hours was estimated as 440 ppm (616 mg/m^3) (Tansy *et al.*, 1981). An inhalation LC_{Lo} of 444 ppm for an unspecified duration is reported in rats, and a lethal concentration of 673 ppm (942 mg/m^3) for 1 hour is reported in mice (RTECS, 1994). In another study, mortality was significantly higher for male rats (30%), compared to females (20%), over a range of exposure times and concentrations (Prior *et al.*, 1988). A concentration of 1,000 ppm (1,400 mg/m^3) caused respiratory arrest and death in dogs after 15-20 minutes (Haggard and Henderson, 1922). Inhalation of 100 ppm (140 mg/m^3) for 2 hours resulted in altered leucine incorporation into brain proteins in mice (Elovaara *et al.*, 1978). Kosmider *et al.* (1967) reported abnormal electrocardiograms in rabbits exposed to 100 mg/m^3 (71 ppm) H_2S for 1.5 hours.

Khan *et al.* (1990) exposed groups of 12 male Fischer 344 rats to 0, 10, 50, 200, 400, or 500-700 ppm hydrogen sulfide for 4 hours. Four rats from each group were sacrificed at 1, 24, or 48 hours post-exposure. Cytochrome c oxidase activity in lung mitochondria was significantly

($p<0.05$) decreased at 50 ppm (15%), 200 ppm (43%), and 400 ppm (68%) at 1-hour post-exposure compared to controls. A NOAEL of 10 ppm was identified in this study for effects on lung mitochondrial cytochrome c oxidase activity.

VI. Reproductive or Developmental Toxicity

Xu *et al.* (1998) conducted a retrospective epidemiological study in a large petrochemical complex in Beijing, China in order to assess the possible association between petrochemical exposure and spontaneous abortion. The facility consisted of 17 major production plants which are divided into separate workshops, allowing for the assessment of exposure to specific chemicals. Married women (n = 2853), who were 20-44 years of age, had never smoked, and who reported at least one pregnancy during employment at the plant, participated in the study. According to their employment record, about 57% of these workers reported occupational exposure to petrochemicals during the first trimester of their pregnancy. There was a significantly increased risk of spontaneous abortion for women working in all of the production plants with frequent exposure to petrochemicals compared with those working in nonchemical plants. Also, when a comparison was made between exposed and non-exposed groups within each plant, exposure to petrochemicals was consistently associated with an increased risk of spontaneous abortion (overall odds ratio (OR) = 2.7 (95% confidence interval (95% CI) = 1.8 to 3.9) after adjusting for potential confounders). When the analysis was performed with the exposure information obtained from the women' interview responses for (self reported) exposures, the estimated OR for spontaneous abortions was 2.9 (95% CI = 2.0 to 4.0). The analysis was repeated by excluding those 452 women who provided inconsistent reports between recalled exposure and work history, and a comparable risk of spontaneous abortion (OR 2.9; 95% CI 2.0 to 4.4) was found. In analyses for exposure to specific chemicals, an increased risk of spontaneous abortion was found with exposure to most chemicals. There were 106 women (3.7% of the study population) exposed only to hydrogen sulfide, and the results for hydrogen sulphide (OR 2.3; 95% CI = 1.2 to 4.4) were significant. No hydrogen sulfide exposure concentration was reported.

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VII. Derivation of Acute Reference Exposure Level and Other Severity Levels (for a 1-hour exposure)

Reference Exposure Level (protective against mild adverse effects): 42 $\mu g/m^3$
(California Ambient Air Quality Standard)

Study	California State Department of Public Health, 1969; CARB, 1984; Reynolds and Kamper, 1985; Amoore, 1985
Study population	panel of 16 people; general population
Exposure method	inhalation of increasing concentrations of H_2S
Critical effects	headache, nausea
LOAEL	0.012-0.069 ppm (range of odor threshold)
NOAEL	≤ 0.01 ppm

Exposure duration	not stated (tested until odor detected)
Extrapolated 1 hour concentration	0.012-0.069 ppm (geometric mean = 0.03 ppm) (1 hour = minimum duration for an air standard)
LOAEL uncertainty factor	not used
Interspecies uncertainty factor	1
Intraspecies uncertainty factor	1
Cumulative uncertainty factor	1
Reference Exposure Level	0.03 ppm (0.042 mg/m^3; 42 μg/m^3)

The 1-hour California Ambient Air Quality Standard (AAQS) for hydrogen sulfide was originally based on an olfactory perception study by the California State Department of Public Health (1969). Sixteen individuals were each exposed to increasing concentrations of H_2S until his or her odor threshold was reached. The range of the odor thresholds was 0.012-0.069 ppm, and the geometric mean was 0.029 ppm (geometric standard deviation = 0.005 ppm). The mean odor threshold (rounded to 0.03 ppm) was selected as the AAQS for H_2S. However, others have reported that the odor threshold is as low as 0.0081 ppm (Amoore and Hautala, 1983). In 1984 CARB reviewed the AAQS for H_2S and found that the standard was necessary not only to reduce odors, but also to reduce the physiological symptoms of headache and nausea. (CARB, 1984). Furthermore, Amoore (1985) conducted a study that estimated 40% of the population would find 0.03 ppm (0.042 mg/m^3) to be an objectionable concentration. In public testimony before the ARB it was stated that some people reported headaches and other symptoms at the standard (Reynolds and Kamper, 1985). Thus this recommended level protective against mild adverse effects may be need to be reexamined as more data become available. ORIN-158

Level Protective Against Severe Adverse Effects

No recommendation can be made due to the limitations of the database.

An ERPG-2 of 30 ppm (AIHA, 1991) was based on experimental data showing that exposure of rats to 45 ppm (63 mg/m^3) H_2S for 4 hours resulted in no deaths (Rogers and Ferin, 1981). In addition, rabbits exposed to 71 ppm (100 mg/m^3) H_2S for 1.5 hours developed cardiac irregularities, measured by electrocardiogram, and decreased myocardial ATP phosphorylase (Kosmider *et al.*, 1967). The rationale for the margin of safety used for the ERPG-2 is not presented.

Level Protective Against Life-threatening Effects

No recommendation can be made due to the limitations of the database.

The AIHA ERPG-3 for hydrogen sulfide of 100 ppm (AIHA, 1991) was based on case reports of conjunctivitis, respiratory irritation, and unconsciousness in humans exposed to estimated concentrations of 200-300 ppm (280-420 mg/m^3) H_2S for 20 minutes to 1 hour (Ahlborg, 1951; Yant, 1930). In addition, a 1-hour LC_{50} of 712 ppm (997 mg/ m^3) in rats is cited (CIIT, 1983). The case reports cited in the ERPG document are inadequate to establish acute exposure levels in humans because the concentrations and durations of exposure are only estimates. In addition,

there are no LC_{50} data in the CIIT (1983) report. Rats (5 female and 5 male) exposed to H_2S concentrations ranging from 400-600 ppm (560-840 mg/m³) for 4 hours showed dose-dependent lethality rates ranging from 30% - 100% (Tansy *et al.*, 1981). On the other hand, two of three rhesus monkeys exposed to a concentration of 500 ppm (700 mg/m³) for only 35 minutes or less died, which suggests that primates are more sensitive to the lethal effect of H_2S than rats (Lund and Wieland, 1966). The rationale for the margin of safety used for the ERPG-3 was not presented.

NIOSH (1995) reports a (revised) IDLH for hydrogen sulfide of 100 ppm based on acute inhalation toxicity data in humans and animals, but the values from animals appear to be more heavily weighted than the human data in the selection of the IDLH.

VII. References

Adams DF, Young FA, Lahr RA. Evaluation of odor perception threshold test facility. TAPPI 1968;51(13):62A-67A.

Ahlborg G. Hydrogen sulfide poisoning in shale oil industry. AMA Arch Ind Hyg Occup Med 1951;3:247-266. [cited in: AIHA; 1991.]

Alberta Health. Report on H_2S Toxicity. Alberta Health 1990.

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(ACGIH) American Conference of Governmental Industrial Hygienists. Documentation of the Threshold Limit Values and Biological Exposure Indices. 6th ed. Vol II. Cincinnati: ACGIH; 1991. p. 786-788.

(AIHA) American Industrial Hygiene Association. Emergency response planning guideline for hydrogen sulfide. Set 6. Akron: AIHA; 1991.

Ammann HM. A new look at physiologic respiratory response to H_2S poisoning. J Hazard Mater 1986;13:369-374.

Amoore JE. The perception of hydrogen sulfide odor in relation to setting an ambient standard. California Air Resources Board Contract A4-046-33. April 1985.

Amoore JE, Hautala E. Odor as an aid to chemical safety: Odor thresholds compared with threshold limit values and volatilities for 214 industrial chemicals in air and water dilution. J Appl Toxicol 1983;3(6):272-290.

Arnold IM, Dufresne RM, Alleyne BC, Stuart PJ. Health implications of occupational exposures to hydrogen sulfide. J Occup Med 1985;27:373-376.

Baxter CF, Van Reen R. Some aspects of sulfide oxidation by rat-liver preparations. Biochim Biophys Acta 1958;28:567-573.

Beck JF, Cormier F, Donini JC. The combined toxicity of ethanol and hydrogen sulfide. Toxicol Lett 1979;311-313.

Bhambhani Y, Singh M. Effects of hydrogen sulphide on selected metabolic and cardio-respiratory variables during rest and exercise. Report submitted to Alberta Worker's Health and Safety and Compensation. June, 1985. [cited by Alberta Health; 1990.]

Bhambhani Y, Singh M. Physiological effects of hydrogen sulfide inhalation during exercise in healthy men. J Appl Physiol 1991;71:1872-1877.

California Air Resources Board. Report of the committee regarding the review of the AAQS for hydrogen sulfide. Memorandum from CARB to G. Duffy, 1984.

California State Department of Public Health. Recommended Ambient Air Quality Standards. (Statewide standards applicable to all California Air Basins). 1969;HS-3.

(CIIT) Chemical Industry Institute of Toxicology. Ninety day vapor inhalation toxicity study of H_2S in Fischer-344 rats. Docket #22063. Research Triangle Park (NC): Chemical Industry Institute of Toxicology; 1983.

Elovaara E, Tossavainen A, Savolainen H. Effects of subclinical hydrogen sulfide intoxication on mouse brain protein metabolism. Exp Neurol 1978;62:93-98.

Haggard HAW. The toxicology of hydrogen sulphide. J Ind Hyg 1925;7:113-121.

Haggard HW, Henderson Y. The influence of hydrogen sulfide on respiration. Am J Physiol 1922;61:289-297.

HAZARDTEXT™. Hall AH, Rumack BH, editors. Denver (CO): Micromedex, Inc.; 1994. (Edition expires 4/30/94).

(HSDB) Hazardous Substances Data Bank. National Library of Medicine, Bethesda (MD) (CD-ROM version). Denver (CO): Micromedex, Inc.; 1994. (Edition expires 4/30/94).

Hellman TM, Small FH. Characterization of the odor properties of 101 petrochemicals using sensory methods. J Air Pollut Control Assoc 1974;24:979-982.

Hsu P, Li HW, Lin Y. Acute hydrogen sulfide poisoning treated with hyperbaric oxygen. J Hyperbaric Med 1987;2(4):215-221.

Jappinen P, Vilka V, Marttila O, Haahtela T. Exposure to hydrogen sulfide and respiratory function. Br J Ind Med 1990;47:824-828.

Khan AA, Schuler MM, Prior MG *et al.* (1990) Effects of hydrogen sulfide exposure on lung mitochondrial respiratory chain enzymes in rats. Toxicol Appl Pharmacol 103: 482-490.

ORIN-158

Kosmider S, Rogala E, Pacholek A. Electrocardiographic and histochemical studies of the heart muscle in acute experimental hydrogen sulfide poisoning. Arch Immunol Ther Exp 1967;15:731-740.

Lindvall T On sensory evaluation of odorous air pollutant intensities. Nord Hyg Tidskr 1970;Suppl 2:1-181.

Lund OE, Wieland H. Pathologic-anatomic findings in experimental hydrogen sulfide poisoning: A study on rhesus monkeys. Int Arch Gewerbepathol Gewerbehyg 1966;22:46-54.

NCASI. Evaluation of the use of humans in measuring the effectiveness of odor control technology at the source. Atmospheric Quality Improvement Technical Bulletin No. 56. New York: National Council of Paper Industry for Air and Steam Improvement; 1971.

(NIOSH) National Institute for Occupational Safety and Health. Criteria for a recommended standard...Occupational exposure to hydrogen sulfide, DHEW (NIOSH) #77-158. Cincinnati (OH): National Institute for Occupational Safety and Health; 1977.

(NIOSH) National Institute for Occupational Safety and Health. Chemical listing and documentation of revised IDLH values (as of March 1, 1995). Available at http://www.cdc.gov/niosh/intridl4.html.

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National Research Council. Hydrogen sulfide. Baltimore: University Park Press: 1979.

Prior MG, Sharma AK, Yong S, Lopez A. Concentration-time interactions in hydrogen sulphide toxicity. Can J Vet Res 1988;52:375-379.

Reynolds R L, Kamper RL. Review of the State of California Ambient Air Quality Standard for Hydrogen Sulfide (H_2S). Lakeport (CA): Lake County Air Quality Management District; 1984.

(RTECS®) Registry of Toxic Effects of Chemical Substances. National Institute of Occupational Safety and Health, Cincinnati (OH) (CD-ROM version). Denver (CO): Micromedex, Inc.; 1994. (Edition expires 4/30/94).

Rogers RE, Ferin J. Effect of hydrogen sulfide on bacterial inactivation in the rat lung. Arch Environ Health 1981;36:261-264. [cited in AIHA, 1991.]

Simson RE, Simpson GR. Fatal hydrogen sulphide poisoning associated with industrial waste exposure. Med J Austral 1971;2:331-334.

Spiers M, Finnegan OC. Near death due to inhalation of slurry tank gases. Ulster Med Soc 1986;55(2):181-183.

Tansy MF, Kendall FM, Fantasia J, Landlin WE, Oberly R, Sherman W. Acute and subchronic toxicity of rats exposed to vapors of methyl mercaptan and other reduced-sulfur compounds. J Toxicol Environ Health 1981;8(1-2):71-88.

Venstrom P, Amoore JE. Olfactory threshold in relation to age, sex or smoking. J Food Sci 1968;33:264-265.

Winkler K. Zur Diskussion Gestellt Imissionsgrenzwerte Zur Vehrinderung von. Geruchsbelastigungan Wasser Luft Betrieb 1975;19:411.

Winneke G, Kastka J. Odor pollution and odor annoyance reactions in industrial areas of the Rhine-Ruhr region. In: Olfaction and Taste VI. J Le Magnen, P MacLeod, editors. pp. 471-479. London: Information Retrieved; 1977.

(WHO) World Health Organization. Hydrogen sulfide. Environmental Health Criteria No. 19. Geneva: WHO; 1981.

Xu X, Cho SI, Sammel M, You L, Cui S, Huang Y, *et al.* Association of petrochemical exposure with spontaneous abortion. Occup Environ Med 1998;55(1):31-36.

Yant WP. Hydrogen sulphide in industry: Occurrence, effects, and treatment. Am J Publ Health 1930;20:598-608.

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REGULATION 7
ODOROUS SUBSTANCES

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REGULATION 7
ODOROUS SUBSTANCES

7-100 GENERAL

7-101 Description: This Regulation places general limitations on odorous substances and specific emission limitations on certain odorous compounds. A person must meet all limitations of this Regulation, but meeting such limitations shall not exempt such person from any other requirements of the District, state or federal law. See also Rule 1, Sulfur Dioxide and Rule 2, Hydrogen Sulfide, of Regulation 9, Inorganic Gaseous Pollutants.

7-102 Citizen Complaints: The limitations of this Regulation shall not be applicable until the APCO receives odor complaints from ten or more complainants within a 90-day period, alleging that a person has caused odors perceived at or beyond the property line of such person and deemed to be objectionable by the complainants in the normal course of their work, travel or residence. When the limits of this regulation become effective as a result of citizen complaints described above, the limits shall remain effective until such time as no citizen complaints have been received by the APCO for 1 year. The limits of this Regulation shall become applicable again when the APCO receives odor complaints from five or more complainants within a 90-day period. (Amended May 21, 1980)

7-110 Exemptions: The following buildings, materials and operations are exempted from this regulation:

110.1 Single family dwellings.

110.2 Restaurants and other establishments for the purpose of preparing food for human consumption employing less than 5 persons.

110.3 Materials odorized for safety purposes.

110.4 Materials possessing strong odors for reasons of public health and welfare, and where no suitable substitute is available and where best modern practices are employed.

110.5 Agricultural operations as described in the California Health and Safety Code, Section 41705.

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7-200 DEFINITIONS

7-201 Odor Free Air: Air which as been passed through a drying agent followed by two successive beds of activated carbon.

7-202 Kraft Pulp Mill: Any combination of industrial operations which converts wood to pulp, and which uses in the pulping process an alkaline sulfide cooking liquor containing sodium hydroxide and sodium sulfide.

TABLE I
DILUTION RATES

Elevation of Emission Point above Grade in Meters (Feet)	Dilution Rate (Volumes of odor-free air per volume of source sample)
Less than 9 (30)	1,000
9 to 18 (30 to 60)	3,000
18 to 30 (60 to 100)	9,000
30 to 55 (100 to 180)	30,000
greater than 55 (180)	50,000

7-300 STANDARDS

7-301 General Limit on Odorous Substances: A person shall not discharge any odorous substance which remains odorous after dilution with odor-free air as specified in Table I. Samples shall be collected and analyzed as prescribed in Section 7-400.

7-302 Limit on Odorous Substances at or Beyond Property Line: A person shall not discharge any odorous substance which causes the ambient air at or beyond the property line of such person to be odorous and to remain odorous after dilution with four parts of odor-free air.

7-303 Limit on Odorous Compounds: A person shall not discharge concentrations of odorous compounds in excess of those specified in Table II, except that this Section shall not apply to kraft mills.

TABLE II
MAXIMUM ALLOWABLE EMISSION CONCENTRATIONS IN PPM

Compound or Family of Compounds	Type A Emission Point	Type B Emission Point
Dimethylsulfide $(CH_3)_2S$	0.1	0.05
Ammonia NH_3	5000	2500
Mercaptans calculated as Methylmercaptan CH_3SH	0.2	0.1
Phenolic compounds calculated as phenol C_6H_5OH	5.0	2.5
Trimethylamine $(CH_3)_3N$	0.02	0.02

7-400 ADMINISTRATIVE REQUIREMENTS

7-401 Collection of Samples: Samples shall be taken and transported in a manner which minimizes alteration of the samples either by contamination or loss of odorous material. ORIN-159

7-402 Analysis of Samples: All samples shall be evaluated as soon after collection as possible in accordance with the procedures set forth in Sections 7-403, 7-404 and 7-405.

7-403 Evaluation Apparatus: The evaluation apparatus consists of a dynamic olfactometer (variable dilution device) which accepts a field sample, dilutes it with odor-free air and conducts it to an inhalation mask at a flow rate of approximately 14 liters/minute (0.5 cfm).

7-404 Evaluation Procedure: Three subjects, selected by the APCO, are seated out-of-sight of the evaluation apparatus and fitted with the inhalation mask. The subjects shall be selected in accordance with procedures approved by the APCO and which are designed to eliminate prospective subjects who have olfactory sensitivity deemed by the APCO to be unduly sensitive or unsensitive at the time of the test. A signal lamp and a signal switch are in front of each subject. The subjects are given 20 presentations, each of 5 seconds duration and 10 seconds apart, for appraisal. Half the presentations (10) are diluted field sample, and half (10) consists only of odor-free air. The presentations of sample and odor-free air are given in random order. At the time each presentation is made, each subject's response is solicited by lighting the subject's signal lamp. If the subject can detect any odor, he responds by pressing his signal switch. The operator records each subject's affirmative or negative response. If the presentation of a sample elicits an affirmative response in less than 5 seconds, odor-free air is substituted for the remainder of the 5 second presentation period. During the 10 second relaxation period between presentations, odor-free air is supplied to the mask.

7-405 Evaluation Analysis: For the purpose of this Regulation, a diluted sample shall be deemed odorous if during evaluation as prescribed in Section 7-404 at least two of the subjects gave negative responses to at least 8 of the 10 odor-free or "blank"

presentations and affirmative responses to at least 8 of the 10 sample presentations. Samples deemed to be odorous in accordance with the evaluation analysis described in this Section shall be deemed to be a violation of the limits established in Sections 7-301 and 7-302.

7-600 MANUAL OF PROCEDURES

7-601 Collection of Samples: Samples of odorous compounds specified in Section 7-303, Table II, shall be collected as prescribed in the Manual of Procedures, Volume IV, ST-1, ST-8, ST-11, ST-16, ST-22. (Amended March 17, 1982)

7-602 Sampling Equipment and Techniques for Collection: Sampling equipment and techniques for collection purposes in Section 7-401 are prescribed in the Manual of Procedures, Volume IV. (Amended March 17, 1982)

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REGULATION 9
INORGANIC GASEOUS POLLUTANTS
RULE 2
HYDROGEN SULFIDE

INDEX

REGULATION 9
INORGANIC GASEOUS POLLUTANTS
RULE 2
HYDROGEN SULFIDE

9-2-100 GENERAL

9-2-101 Description: This rule limits ground level concentrations of hydrogen sulfide (H_2S). Persons subject to this Rule may also be subject to the requirements of Regulation 7: Odorous Substances, and Regulation 12: Kraft Pulp Mills.

9-2-110 Exemptions: The limitations of this Rule shall not apply to concentrations of hydrogen sulfide occurring on the property where the emissions occur providing that such property, from the emission point to the point of any such concentrations, is controlled by the person responsible for the emission.

9-2-300 STANDARDS

9-2-301 Limitations on Hydrogen Sulfide: A person shall not emit during any 24 hour period, hydrogen sulfide in such quantities as to result in ground level concentrations in excess of 0.06 ppm averaged over three consecutive minutes or 0.03 ppm averaged over any 60 consecutive minutes.

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9-2-500 MONITORING AND RECORDS

9-2-501 Area Monitoring Requirements: The APCO may require any person emitting hydrogen sulfide from any source to comply with the monitoring, maintenance, records and reporting requirements of Regulation 1, including Sections 1-510, 1-530, 1-540, 1-542, 1-543, and 1-544. The APCO shall notify the affected person in writing that this requirement is being imposed. (Amended October 6, 1999)

9-2-600 MANUAL OF PROCEDURES

9-2-601 Ground Level Monitoring: The monitoring requirements for ground level concentrations of hydrogen sulfide, including siting procedures and instrument specifications, calibration and maintenance procedures, are described in the Manual of Procedures, Volume VI, Section 1. (Amended March 17, 1982)

2.9 City of Orinda

ORIN-1 The issues regarding the impact of the project on the City's residents and neighborhoods identified by the City of Orinda and other concerned individuals are addressed throughout this Response to Comments document. Regarding the letter prepared by Darwin Myers Associates referenced in footnote 1 of this comment, see **Response ORIN-39**.

ORIN-2 This comment summarizes more detailed comments presented later in the letter; refer to **Responses ORIN-6** through **ORIN-18** regarding project need and **ORIN-114** through **ORIN-118** regarding alternatives. Please also refer to Section 2.1.2, Master Response on Benefits to Orinda, for further response to the issues raised in this comment.

ORIN-3 The DEIR discusses a range of alternatives in Chapter 6. In addition, as discussed in the DEIR (p. S-18, p. 6-69) the Orinda-Lafayette Aqueduct project would only be associated with Alternative 2 and thus that project's impacts over a one- to two-year period would be avoided under Alternative 1. Consequently, Alternative 1 is considered environmentally superior to Alternative 2 with respect to impacts in the City of Orinda. With respect to alternatives, refer to **Responses ORIN-114** through **ORIN-120**. Please also refer to Section 2.1.2, Master Response on Benefits to Orinda, for further response to the issues raised in this comment.

ORIN-4 As noted throughout the DEIR, Alternative 1 is the preferred alternative and is environmentally superior to Alternative 2 for some of the reasons listed at the end of this comment (and in the DEIR, p. 6-69). The DEIR also considers a range of alternatives, factoring in redundancy concerns and other factors.

ORIN-5 This comment summarizes more detailed comments presented later in the letter (refer to **Responses ORIN-24** through **ORIN-70**). As indicated in subsequent responses, the DEIR discusses the project's impacts and meets the standards of CEQA.

ORIN-6 This comment states CEQA requirements for EIR project descriptions, and asserts that the WTTIP DEIR project description is deficient. The comment bases this assertion on (a) a purported lack of detail for project-level and program-level elements, and (b) the claim that the DEIR "does not clearly and consistently correlate the Project's numerous objectives and purposes with its several elements . . . [and] does not permit the decision-maker to undertake an informed balancing of benefits and environmental costs."

Regarding the level of detail of project-level and program-level elements, refer to **Responses ORIN-7**, **ORIN-19** through **ORIN-23**, and Section 2.1.1 of this Response to Comments document.

The relationship between the WTTIP's purposes and objectives is as follows:

- *Needs*: On p. 2-14, the DEIR explains that EBMUD needs to make improvements to its water system. WTTIP improvements are driven by a variety of overlapping needs, including meeting existing and future water demands, meeting anticipated future regulatory standards related to water quality, complying with environmental permit conditions, and replacing and upgrading aging infrastructure. These needs are described on DEIR pp. 2-14 though 2-22 and in Table 2-3. (Regarding clarifications to DEIR Table 2-3, refer to **Response ORIN-11**.) The needs specifically addressed by proposed improvements at each WTP are discussed in Sections 2.4 and 2.5; the needs specifically addressed by each water transmission and distribution system improvement (common to both WTTIP alternatives) are discussed in Section 2.6.

- *Purpose*: As stated on DEIR p. 2-2 and elsewhere in the document, the purpose of the WTTIP projects is to meet the needs summarized above (meeting the need to replace and upgrade aging infrastructure, etc.)

- *Objectives*: The project objectives, presented in Table 2-5 (DEIR p.2-22), exemplify the purpose of and need for the WTTIP and reflect EBMUD's mission and obligations as the water supplier for about 1.4 million people. Major considerations reflected in the objectives (the left-hand column of Table 2-5) include reliability, regulatory and water quality issues, operations, implementation, environmental issues, and economics. The objectives were used to develop system wide alternatives; identified alternatives were evaluated by their performance relative to project objectives. Refer to DEIR pp. 6-44 through 6-51 for more information.

Regarding a comparison of project benefits and environmental costs, the DEIR includes a section on "Who Benefits" (pp. 2-22 and 2-23) specifically to aid readers in understanding the benefits of the WTTIP to EBMUD customers. In response to comments, this document includes an expanded discussion of benefits specific to Orinda (see Section 2.1.2). The environmental costs (impacts) are described in detail throughout Chapter 3 of the DEIR and summarized by project and by city in Tables S-4 through S-9.

ORIN-7 The comment states that the actions analyzed at a project level of detail in the DEIR are confusing and incomplete.

Proposed project-level improvements under Alternative 1 and Alternative 2 are necessarily analyzed in different sections of the DEIR in order to facilitate understanding of the various components and impacts of each proposed element. EBMUD regrets any confusion that the organization of the DEIR might have caused and made efforts to avoid this by including tables and summaries.

With regard to the description of the Orinda WTP, the text on DEIR p. 2-59 has been revised to clarify the capacity at which the plant would operate under each alternative. This information is also included in the tables in Chapter 2.

In response to **Comment ORIN-7**, DEIR p. 2-59, paragraph 1 has been revised (refer to Section 3.2, Text Revisions, in this Response to Comments document).

Regarding the text in Footnote 2, the text also generally characterizes the alternatives. Note that during the winter months, all of the Lamorinda area is currently served by the Orinda WTP.

ORIN-8 The DEIR is necessarily complex because the WTTIP projects are complex and numerous. The organization of the DEIR project description and the need for cross-referencing reflect a balancing of CEQA directives to be concise and avoid redundancies while meeting the requirements specified in CEQA Guidelines Section 15124 (contents of a project description). Regarding the discussion of the capacity of the Orinda WTP, see the response above.

The comment cites three types of information on Alternative 1: text, graphics, and tables. In preparing the DEIR, EBMUD believed that it was necessary and useful to employ these formats to describe a project. Regarding the assertion that the DEIR's organization requires "extensive cross-referencing," and thereby "limits the usefulness of the DEIR as an informational document," of the five pieces of information cited in the comment, three are in Section 2.4.3 (Orinda Water Treatment Plant) and two are not: Map D-OWTP-1 and Table B-OWTP-1. Map D-OWTP-1 is one of 66 maps included at the end of the project description. All maps are grouped by map type and each set of maps is tabbed to enable the reader to quickly locate them. Similarly, the table of construction details cited in the comment (Table B-OWTP-1) is one of 27 such tables; consolidating this information in one location improves the readability of the project description. It should be noted that many entities and individuals who were interested in the DEIR have reviewed the DEIR on CD or on the EBMUD website; these electronic versions were set up with bookmarks to enable the user to quickly locate referenced sections, maps, tables and appendices. Moreover, the DEIR summary includes detailed tables with page citations to enable reader to proceed directly to a description of a specific project or a description of a specific impact attributable to a specific project.

ORIN-9 The comment states that the DEIR lists a number of goals, needs, and purposes, but does not correlate those needs and purposes to particular Project components. Please see **Response ORIN-6** for clarification of the relationship between the WTTIP project needs, purposes and objectives.

Regarding WTTIP project needs in particular, Section 2.2.2 of the DEIR provides detailed explanations of the project needs, which include: meeting Water Demands; Water Quality Regulations (Stage 2 Disinfectants/ Disinfection Byproducts Rule; Long-Term Enhanced Surface Water Treatment Rule; California Cryptosporidium Action Plan; Water Quality Problems caused by Aging); NPDES permit requirements; and Infrastructure Replacement and Technology Upgrades. At the end of each explanation of a particular need is a list of the WTTIP projects that satisfy the

need. For example, the DEIR text on p. 2-14 that discusses Water Demands states that facilities serving the Lamorinda/Walnut Creek area are currently insufficient to reliably meet summer water demands. The text goes on to say that under Alternative 1, the capacity of the Lafayette WTP would be expanded to meet this need, and under Alternative 2, the Orinda WTP would meet this need. In addition to the overall discussion of needs in section 2.2.2, the specific need for each facility is included along with the description of the facility in Sections 2.4, 2.5 and 2.6 of the DEIR.

ORIN-10 The comment states that the DEIR does not adequately describe those aspects of the WTTIP that are necessary to comply with state and federal regulations.

The DEIR makes clear that WTTIP improvements are driven by a variety of overlapping needs, including state and federal regulations; however, as emphasized on DEIR pp. 2-18 and 2-19, it is the practice of EBMUD to establish internal water quality goals that meet or exceed state or federal requirements. EBMUD sets these independent goals to ensure that it can meet regulations with an acceptable margin of safety, to plan for future regulatory changes, to accommodate changes in source water quality, and to provide reliable, high quality service.

Please see **Responses BM-7** and **BM-8** for a discussion of compliance with current and anticipated regulations and federal treatment and distribution rules, and the ways in which the actions were developed to satisfy these requirements and other needs.

ORIN-11A The comment states that Table 2-3 (DEIR p. 2-17), summarizing the need addressed for each specific water treatment improvement, contradicts the text of the DEIR. Due to an editorial error, the column headings in summary Table 2-3 were not in the correct order. Table 2-3 on DEIR p. 2-17 has been corrected and follows this page. Also included is a version of the table that sets forth DEIR page references where each "need" is discussed. The text on DEIR pp. 2-18 through 2-21 explains the need for each improvement, including the backwash systems. The text on DEIR p. 2-21 explains that the proposed backwash system at the Orinda WTP is needed to comply with the state NPDES permit in order to eliminate discharges to San Pablo Creek.

The comment also questions why the Orinda WTP backwash water system is not required under the California Cryptosporidium Action Plan (CAP) while the systems at the Walnut Creek and Lafayette WTPs are being implemented to satisfy this requirement.

The current backwash water system at Orinda, in contrast to the Walnut Creek or Lafayette WTPs, does not need to comply with the CAP as it discharges to San Pablo Creek rather than to the influent of a downstream WTP. However, as stated on p. 2-20, the proposed backwash water recycle system will return the treated water to the influent of the Orinda WTP and therefore will also need to comply with the CAP similar to the Lafayette and Walnut Creek WTPs. In other words, the elimination of the backwash discharge system is being undertaken to address NPDES permitting concerns but the new system is being designed to comply with the CAP.

TABLE 2-3
SUMMARY OF NEED ADDRESSED BY SPECIFIC WATER TREATMENT IMPROVEMENT PROJECTS

Facility & Project	Alternatives	Demand	Disinfection Byproduct Rules (Federal)	Surface Water Treatment Rules (Federal)	California Cryptosporidium Action Plan (State)	NPDES Permit (State)	Infrastructure and Technology
Lafayette WTP							
Increase Capacity from 25 mgd to 34 mgd	1	x					x
Clearwells	1	x					x
Chlorine Contact Basin	1		x				x
Blower Building	1						x
Backwash Water Recycle System	1	x			x		x
Sodium Hypochlorite Storage and Feed Building (Lafayette Aqueduct and WTP)	1,2		x				
Raw Water Bypass Pipe	1						x
Leland and Bryant Pumping Plants and Pipelines	1	x					x
Electrical Substation	1	x					x
Lafayette Reclaimed Water Pipeline	1				x		x
High-Rate Sedimentation Units [a]	1			x			
Ultraviolet Light Disinfection [a]	1			x			
Orinda WTP							
Backwash Water Recycle System	1,2				x	X	
Clearwell	2	x					
Los Altos Pumping Plant No. 2	2	x					
Orinda-Lafayette Aqueduct	2	x					
Electrical Substation	2	x					
Additional Clearwell [a]	1,2			x[b]			
High-Rate Sedimentation Units [a]	1,2			x			
Chlorine Contact Basin [a]	1,2		x				
Ultraviolet Light Disinfection [a]	1,2			x			
Walnut Creek WTP							
Increase Capacity from 96 mgd to 115 mgd (add filters)	1,2	x					
Leland Pumping Plant	1,2	x					x
High-Rate Sedimentation Units [a]	1,2			x			
Ultraviolet Light Disinfection [a]	1,2			x			
Sobrante WTP							
Ozone Upgrades	1,2						x
Filter-to-Waste Equalization Basin	1,2						x
Backwash Water Equalization Basin	1,2						x
High-Rate Sedimentation Units	1,2						x
Chlorine Contact Basin	1,2		x				
Upper San Leandro WTP							
Ozone Upgrades	1,2						x
Filter-to-Waste Equalization Basin	1,2						x
Distribution System Improvements	1,2	x		x[b]			x

[a] Program-level projects.
[b] As it relates to water aging and mixing

TABLE 2-3
DEIR PAGE REFERENCES TO NEED ADDRESSED BY SPECIFIC WATER TREATMENT IMPROVEMENT PROJECTS

Facility & Project	Alternatives	Demand	Disinfection Byproduct Rules (Federal)	Surface Water Treatment Rules (Federal)	California Cryptosporidium Action Plan (State)	NPDES Permit (State)	Infrastructure and Technology	Second Reference
Lafayette WTP					DEIR Page Reference			
Increase Capacity from 25 mgd to 34 mgd	1	14					22	29
Clearwells	1	14					22	34
Chlorine Contact Basin	1		20				22	34
Blower Building	1						22	34
Backwash Water Recycle System	1	14			20		22	30
Sodium Hypochlorite Storage and Feed Building (Lafayette Aqueduct and WTP)	1,2		20					34
Raw Water Bypass Pipe	1						22	30
Leland and Bryant Pumping Plants and Pipelines	1	14					22	34
Electrical Substation	1	14					22	35
Lafayette Reclaimed Water Pipeline	1				20		22	40
High-Rate Sedimentation Units [a]	1			20				
Ultraviolet Light Disinfection [a]	1			20				40
Orinda WTP								
Backwash Water Recycle System	1,2				20	21		42
Clearwell	2	14						44
Los Altos Pumping Plant No. 2	2	14						59
Orinda-Lafayette Aqueduct	2	14						59
Electrical Substation	2	14						59
Additional Clearwell [a]	1,2		44	44				
High-Rate Sedimentation Units [a]	1,2			20				47
Chlorine Contact Basin [a]	1,2		20					47
Ultraviolet Light Disinfection [a]	1,2			20				47
Walnut Creek WTP								
Increase Capacity from 96 mgd to 115 mgd (add filters)	1,2	14		14				47
Leland Pumping Plant	1,2	47					47	47
High-Rate Sedimentation Units [a]	1,2			20				50
Ultraviolet Light Disinfection [a]	1,2			20				50
Sobrante WTP								
Ozone Upgrades	1,2						50	50
Filter-to-Waste Equalization Basin	1,2						52	52
Backwash Water Equalization Basin	1,2						52	52
High-Rate Sedimentation Units	1,2						52	52
Chlorine Contact Basin	1,2		20					
Upper San Leandro WTP								
Ozone Upgrades	1,2						54	
Filter-to-Waste Equalization Basin	1,2						54	
Distribution System Improvements	1,2	18		21			22	Sec 2.6

[a] Program-level projects.
[b] As it relates to water aging and mixing

As noted on DEIR pp. 2-42 and 2-43, the backwash system would include settling and UV disinfection before return to the influent of the plant. The approach would provide a dual barrier of against recycling of viable cryptosporidium.

ORIN-11B The comment suggests that the DEIR inadequately explains the need for the Backwash Recycle System at the Orinda WTP and fails to address the potential impacts of, and alternatives to, installing the backwash system at the Orinda WTP.

See **Response ORIN-11A** regarding the need for the Backwash Water Recycle System. The impacts of the backwash system are addressed in pertinent sections throughout Chapter 3 of the DEIR.

The backwash system proposed at the Orinda WTP is the same design as the recently implemented (October 2006) backwash system at the Walnut Creek WTP. A consultant report evaluating alternative backwash water treatment systems for the Walnut Creek WTP recommended the system based on its reliability. The same backwash system design was chosen for the Orinda and Lafayette WTPs based the previous review of alternatives for the Walnut Creek WTP. In addition, implementing consistent systems among similar WTPs will lead to more efficient District-wide operations.

ORIN-12 For purposes of the DEIR analysis, discontinuation of discharge from the filter backwash treatment system was assumed to have an adverse effect on water quality if it affected beneficial uses of San Pablo Creek. As stated on DEIR p. 3.5-3, these beneficial uses include fish migration, noncontact water recreation, warm freshwater habitat, and wildlife habitat. However, as noted in the 2004 Contra Costa Creeks Inventory and Watershed Characterization Report prepared by the Contra Costa Clean Water Program, habitat for steelhead in the San Pablo Creek Watershed is limited to stream reaches below San Pablo Dam. Therefore, discontinuation of the discharge would not affect fish migration because the Orinda WTP is located upstream of the San Pablo Reservoir.

As noted in Section 3.6 of the DEIR, Biological Resources (pp. 3.6-13 and 3.6-15), San Pablo Creek adjacent to the Orinda WTP is swift and has variable water levels due to urban runoff and discharges from the WTP. The WTP discharges consist of (a) surplus raw water from the Lafayette Aqueducts and (b) the backwash flows. While the total amount of water discharged from the Orinda WTP ranges from approximately 10 percent to 50 percent of the total creek flow, the backwash discharge component accounts for only about 2 percent to 15 percent of the total flow. The project would not change the quantity of water discharged to the creek from the Aqueducts and would have a minimal impact on overall flows. The variable creek flows likely make the habitat unsuitable for special status species, including California red-legged frog and western pond turtles.

In addition, discontinuation of discharge from the filter backwash treatment system would eliminate a potential source of toxicity to San Pablo Creek and therefore would be beneficial to aquatic life in general.

ORIN-13 Refer to **Response ORIN-12**.

ORIN-14 The comment states that alternatives to the proposed backwash water recycling system at the Orinda WTP might be preferable. The comments states in particular that use of ultraviolet disinfection could create a smaller footprint, allow EBMUD to reduce its use of chloramine, and possibly eliminate the need for additional clearwells at the Orinda WTP.

As noted in **Response BM-9**, the use of UV in the primary treatment train would not eliminate the need for certain facilities, particularly the backwash facilities, nor would it result in any changes to the desired chloramines dosages in the distribution system. See **Response BM-9** for more in-depth discussion on these topics.

ORIN-15 The comment suggests that the DEIR does not clearly explain why particular distribution system improvements are necessary. The comment further says that the DEIR does not "explain in one coherent passage how the various project elements are interrelated, why they are all necessary under both alternatives, and whether there are any alternatives that would fulfill the Project objectives."

An overview of the need for the distribution system projects to meet demand and to upgrade infrastructure is included in DEIR Section 2.2.2. In addition, the need for each improvement is given along with the description of the improvement in DEIR Section 2.6. There is no single reason or need that uniformly applies to all of distribution system improvements. For example, as noted in DEIR Section 2.6.5, the Happy Valley Pumping Plant and Pipeline is planned to remedy a problem with inadequate pumping capacity and to meet existing and anticipated future demand, while the Highland Reservoir described in DEIR Section 2.6.6, is intended to remedy operational and service problems in the pressure zone.

One of the District's objectives in preparing the EIR was to present to the public a comprehensive understanding as to how these individual water projects fit into EBMUD's larger water treatment, storage and distribution operational scheme for the Lamorinda/western Walnut Creek portion of its service area. All of the distribution system projects are within the pressure zones serving this portion of the service area as discussed on DEIR p. 2-11 and shown in DEIR Figure 2-3. The distribution system improvements in the DEIR are required regardless of the alternative (Alternative 1 or 2) selected to address the water treatment and treated water transmission needs. Although many project components stand alone operationally, they are all part of an integrated regional water system. Alternatives to the individual distribution system improvements are discussed in Chapter 6, Analysis of Alternatives, Sections 6.6 through 6.9 and in Section 6.10.3.

ORIN-16 The comment inquires about how the proposed clearwells at the Orinda WTP under Alternatives 1 and 2 would improve water quality as compared to continuing to use the reservoirs west of hills.

As described in the DEIR (pp. 2-44 – 2-47, pp. 2-55 – 2-56), the proposed program-level clearwell at the Orinda WTP would improve water quality by preventing water that does not meet water quality regulations from entering the Claremont Tunnel, and therefore the distribution system, as can occur when water is stored in the reservoirs west of hills. The proposed clearwell would also reduce water age and further improve water quality in the distribution system by allowing the water in the clearwells to turn over during a single day. The last paragraph that begins on DEIR p. 2-44 explains this.

The clearwell proposed for the Orinda Sports Field site is analyzed at a program level of detail in the DEIR (see DEIR Table S-3, Map D-OWTP-1 and Map D-OWTP-2). Should EBMUD decide to pursue additional storage capacity at this location, the District will undertake further environmental review pursuant to CEQA. See **Response BM-8** regarding additional discussions on the need for clearwells.

As described on DEIR p. 2-59, the project-level clearwell under Alternative 2 would provide equalization storage for the intake to the proposed Los Altos Pumping Plant No. 2.

ORIN-17 The comment questions whether the Alternatives 1 and 2 address the identified needs. Refer to **Responses ORIN-7** and **ORIN-11a**. As indicated in **Response ORIN-11a,** due to an editorial error, the column headings in summary Table 2-3 were not in the correct order. The corrected version of the table now indicates that four of the proposed project-level facilities at the Orinda WTP under Alternative 2 address demand. These are not improvements to the treatment process train *per se*, since the Orinda WTP has sufficient *treatment* capacity[1], but are improvements that would be needed to pump and convey the water from the Orinda WTP eastward to the service area of the Lafayette WTP.

As indicated in **Response ORIN-18**, below, operations at the Orinda, Sobrante and Upper San Leandro WTPs would be altered such that the Orinda WTP could make up for the decommissioning of the Lafayette WTP.

ORIN-18 Alternative 2 would indeed achieve the project's stated goals (refer to **Responses ORIN-7** and **ORIN-11**). Less water from the Orinda WTP would flow to the area west of hills under Alternative 2 and would instead flow east to Lafayette WTP via the new tunnel; the Sobrante and Upper San Leandro WTPs would be operated at higher rates to supply the area west of hills. The text on DEIR p. 2-14 has

[1] Refer to DEIR Figure 2-10, a series of schematic flow diagrams indicating the various steps in water treatment processing, and those aspects of Orinda WTP operations proposed for improvement under Alternatives 1 and 2. As shown, there is no need to expand filtration capacity at the Orinda WTP under either Alternative 1 or Alternative 2.

been revised to clarify this (refer to Section 3.2 of this Response to Comments document). As shown in DEIR Table 2-4, the existing capacity of Sobrante and Upper San Leandro WTPs is sufficient to meet this additional demand. Thus, no corresponding increase in capacity is necessary.

ORIN-19 Please refer to Section 2.1.1, Master Response on Program- and Project-Level Distinctions, for detailed discussion of the issues raised by this comment. The District disagrees that the approach taken in the DEIR with respect to program-level elements is inconsistent with CEQA and with the comment's statement that the evaluation of program-level elements is superficial. As explained in the DEIR and at the public meetings, the improvements discussed at a program level will not be implemented by EBMUD without further environmental review under CEQA. The WTTIP EIR is therefore properly a program EIR from which EBMUD will "tier" its later environmental review of specific activities that may be implemented as part of the WTTIP program if certain factors are present in the future.

ORIN-20 EBMUD agrees that a program EIR – like any other EIR – must provide a detailed analysis of known and foreseeable issues at the time it is developed. However, the level of detail required in a program EIR depends on the nature of the project elements being analyzed and how far the program activities have been developed. (CEQA Guidelines § 15152(b)).

The WTTIP EIR is consistent with the tiering principles in CEQA. It also follows an approach that has been used for other water projects to accommodate the unique nature of these projects. In this document, EBMUD has analyzed the environmental impacts of the treatment and transmission system improvements, including the elements discussed at a programmatic level, with as much specificity as is feasible – that is, to the extent such impacts are reasonably foreseeable and non-speculative at this time – and has proposed mitigation for such impacts where appropriate under CEQA. With respect to the program-level elements, this analysis may be found in the DEIR on the following pages:

- Pp. 2-40, 2-44 to 47, 2-50, 2-61, 2-85 to 87 (describing activities);
- Pp. 3.2-19 to 22 (analysis and mitigation of land use impacts);
- Pp. 3.3-48 to 50 (analysis and mitigation of visual quality impacts);
- Pp. 3.4-33 to 36 (analysis and mitigation of geology, soils, and seismicity impacts);
- Pp. 3.5.46 to 51 (analysis and mitigation of hydrology and water quality impacts);
- Pp. 3.6-70 to 79 (analysis and mitigation of biological resource impacts);
- Pp. 3.7-32 to 35 (analysis and mitigation of cultural resource impacts);
- Pp. 3.8-23 to 26 (analysis and mitigation of traffic and circulation impacts);
- Pp. 3.9-33 to 35 (analysis and mitigation of air quality impacts);

- Pp. 3.10-51 to 56 (analysis and mitigation of noise and vibration impacts);
- Pp. 3.11-38 to 41 (analysis and mitigation of hazards and hazardous materials impacts);
- Pp. 3.12-21 to 22 (analysis and mitigation of public services and utilities impacts);
- Chapter 4 (growth-inducement potential and secondary effects of WTTIP project, including all program-level elements);
- Chapter 5 (cumulative impacts of WTTIP project, including all program-level elements).

For all of the elements discussed at a programmatic level, including most notably the large clearwell proposed for the Orinda WTP, the WTTIP EIR is not the final environmental document. Environmental review by EBMUD, as well as approval by the EBMUD Board, will take place prior to issuance of any design and/or construction contracts for program-level WTTIP elements (see Section 2.7 of the DEIR). Where a more specific and detailed analysis of an impact becomes feasible at the time of this subsequent environmental review, EBMUD will undertake such an analysis, in compliance with CEQA. (Sections S.3.1, S.6, 2.7, 3.1.2, and 3.1.4 of the DEIR).

Please also refer to the Section 2.1.1, Master Response on Program- and Project-Level Distinctions, for a more detailed discussion of the issues raised by this comment.

ORIN-21 The WTTIP is a collection of projects to upgrade the water treatment and transmission system. The EIR describes it as such and analyzes the impacts of each individual element, the impacts of the projects collectively, and the impacts of the projects in combination with other cumulative development.

The EIR serves as both a project EIR and a program EIR. With as much detail as is feasible, the WTTIP EIR describes each of the program-level and project-level elements, including how these elements are related to each other and to the WTTIP project as a whole (DEIR Chapter 2) and analyzes the environmental impacts of both elements discussed at a programmatic level and the elements discussed at a project level (DEIR Chapters 3.1 through 3.12). The WTTIP elements are all part of an integrated regional water system. The WTTIP also contains chapters analyzing the growth-inducing potential (Chapter 4) and cumulative impacts (Chapter 5) of the WTTIP, both of which assume full implementation of all elements of the WTTIP.

Please also refer to the Section 2.1.1, Master Response on Program- and Project-Level Distinctions, for a more detailed discussion of the issues raised by this comment.

ORIN-22 The DEIR has acknowledged that subsequent environmental review, and CEQA documentation and approval will be required prior to implementation of any of the

program-level elements of the WTTIP project. (Sections S.3.1, S.6, 2.7, 3.1.4 of the DEIR.)

By including the program-level elements along with the project-level elements in the WTTIP EIR, EBMUD has provided the public and the EBMUD Board with an opportunity to review and consider the reasonably foreseeable environmental impacts of the WTTIP project as a whole, before making a decision about any portion of the project. In doing so, EBMUD is fulfilling three important goals of the CEQA process: (1) providing for environmental review at the earliest feasible time; (2) avoiding "piecemeal" review that could underestimate the environmental impacts of a large, complex project such as the WTTIP project; and (3) identifying issues of concern to agencies and other interested persons early to help scope subsequent environmental documentation on program-level elements.

The CEQA process will not have to be started anew for each programmatic element described in the EIR. Rather, the subsequent review will build on, and tier from, the analysis provided in the EIR.

Please also refer to the Section 2.1.1, Master Response on Program- and Project-Level Distinctions, for a more detailed discussion of the issues raised by this comment.

ORIN-23 The DEIR includes extensive analysis of WTTIP project-level elements. The potential impacts of those projects are discussed and presented in hundreds of pages of text and graphics in Chapters 3, 4 and 6. These chapters also discuss and provide mitigation where appropriate for all project-level actions.

Please also refer to the Section 2.1.1, Master Response on Program- and Project-Level Distinctions, for a more detailed discussion of the issues raised by this comment.

ORIN-24 This comment summarizes CEQA requirements for impact analyses and then asserts that the EIR fails to meet these requirements based on subsequent comments. Refer to subsequent responses.

ORIN-25 The EIR preparers disagree with the assertion that Land Use, Planning, and Recreation must be addressed in separate sections of an EIR.

The DEIR (pp. 3.2-12 and 3.2-13) addresses consistency between the WTTIP and general plans and other plans in accordance with CEQA Guidelines Section 15125(d). DEIR Appendix D summarizes the content of general plans prepared for the WTTIP area by land use planning agencies and the EBMUD *East Bay Watershed Master Plan*. DEIR pp. 3.2-12 and 3.2-13 note that overall, implementation of the WTTIP appears to be consistent with general and regional plans. In addition, the WTTIP would help local jurisdictions achieve general plan goals and policies to provide a high-quality water

supply, address capacity deficiencies, and improve emergency response capabilities by increasing the water available for firefighting. This section of the DEIR also describes several potential inconsistencies with the land use and zoning designations of applicable jurisdictions and with the general plans of local jurisdictions (including with City of Orinda Safety Implementing Policy 4.2.2.N regarding adequate medical and other emergency services). The DEIR also notes that, in accordance with state law, determinations of project consistency with general plans would be made by the land use jurisdictions.

Further, Section 3.2.3 of the DEIR evaluates whether proposed project components would conflict with adjacent existing land uses, resulting in division of an established community.

ORIN-26 See **Response ORIN-25** regarding the DEIR discussion of consistency between the proposed WTTIP and general plans and other plans which is addressed in accordance with CEQA Guidelines Section 15125(d). Section 15125(d) requires that EIRs discuss any inconsistencies between a project and general and regional plans as part of the Environmental Setting. The Guidelines (Sections 15358(b), 15382, *et seq*) also emphasize that the impacts analyzed under CEQA must be related to a *physical* change in the environment. A potential inconsistency with a general plan policy does not in all cases mean that a significant change in the physical environment is expected to result.

CEQA Guidelines Section 15064.7, Thresholds of Significance, indicates that (a) each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects and that (b) thresholds of significance are to be adopted for general use as part of the lead agency's environmental review process and must be adopted by ordinance, rule, or regulation, and developed through a public review process. EBMUD adopted the CEQA Guidelines in their entirety, as periodically updated.

The environmental checklist was used for the proposed project to identify issues that warranted further evaluation in the EIR, and some checklist items addressing specific conditions in the physical environment were adapted as significance criteria. In Section 3.2, the DEIR discusses local plans and policies and consistency with these in accordance with CEQA. The DEIR notes that generally inconsistencies are expected to be short term because the impacts would last only during construction. Exceptions have been discussed in the DEIR and the physical impacts would be mainly to biological resources, visual quality and traffic. Refer to Sections 3.3, 3.6, and 3.8.

ORIN-27 DEIR p. 3.2-11 acknowledges that the proposed Sunnyside Pumping Plant project site is surrounded by low-density single-family residential development and open space. Project site development and DEIR preparation included extensive review of local area general plan and zoning maps and documentation, and contact with local

planning departments. City of Orinda Planning Maps appear to identify the Sunnyside Pumping Plant project site within City of Orinda boundaries as Residential SF (1-2 units per acre). The City of Orinda Planning Department identified parcel #365-450-008, within the City of Orinda, as owned by Orinda Downs Homeowner Association, but did not indicate any land dedication for that parcel. On the basis of information provided in this comment, text on DEIR p. 3.2-11 (paragraph 1 and paragraph 4) has been revised (refer to Section 3.2, Text Revisions, in this Response to Comments document).

Please also refer to Section 2.1.3, Master Response on EBMUD Obligations to Comply with Local Ordinances and Obtain Local Agency Approvals for further response to the issues raised by this comment.

ORIN-28 This comment is a general summary of certain CEQA regulations and court decisions regarding analysis of visual quality. This summary does not take into account all relevant language in the CEQA regulations and court rulings that may apply in specific circumstances, including those involving documents such as the WTTIP EIR. This comment summarizes more detailed comments presented in Comments ORIN-30 through ORIN-38; refer to **Responses ORIN-30** through **ORIN-38**.

ORIN-29 The following discussion highlights the reasons the project would conform to the Orinda General Plan, Circulation Element Scenic Corridor policies.

Policy 2.3.2-P: Camino Pablo from its intersection with Santa Maria Way north to the City limits is among the routes that are designated Scenic Corridors on the General Plan.

To address the commenters' concern, eight photographs were taken along the designated Scenic Corridor portion of Camino Pablo to document a range of existing visual conditions found within this roadway corridor (Figures 3 and 4). In Figures 3 and 4, Photos 29a, 29b, 29e, and 29f convey the project's visual setting and demonstrate the project's conformity with Scenic Corridor policies that apply to development located within the Camino Pablo corridor viewshed. The photos portray a variety of existing development that can be seen in foreground views. For example, commercial buildings appear prominently in views from Camino Pablo near Santa Maria Way, south of the Orinda WTP (Photos 29a and 29b). In the immediate project area, residential buildings appear in foreground views from Camino Pablo near Manzanita Drive (refer to Photos 29e and 29f). North of the Orinda WTP site, single family residential structures and portions of the Wagner Ranch Elementary School are noticeable elements seen in the foreground views from Camino Pablo.

As indicated on DEIR pp. 3.3-38, due to the presence of dense roadside vegetation, the project would only be visible from a relatively short segment of Camino Pablo. DEIR Figures 3.3-S3a and 3.3 S3b show close range "before" and "after" views of the project without landscaping and with landscaping at five years of maturity as seen

29a. Camino Pablo looking southeast towards Santa Maria Way

29b. Camino Pablo looking north from Camino Sobrante

29c. Looking east from El Toyonal at Camino Pablo

29d. Camino Pablo looking southwest near North Lane

SOURCE: Environmental Vision

Figure 3

Existing Visual Character along Camino Pablo

29e. Camino Pablo looking southwest from near Claremont Avenue

29f. Camino Pablo looking west from near Manzanita Drive

29g. Camino Pablo looking northwest toward Monte Vista Road

29h. Camino Pablo looking east toward Wagner Ranch Elementary School

SOURCE: Environmental Vision

Figure 4

Existing Visual Character along Camino Pablo

from Camino Pablo. As indicated in the visual simulation (DEIR Figure 3.3-5b), within five years the proposed landscaping would substantially screen views of the building and storage tank as seen from the Camino Pablo corridor. Given the presence of dense roadside vegetative screening and the substantial additional screening that would be achieved within five years, the project would not substantially change the existing visual character experienced along the Camino Pablo designated Scenic Corridor. For these reasons and the documentation of existing visual conditions, the project's appearance is considered consistent and compatible with the existing visual character experienced from Camino Pablo corridor in the project vicinity.

Policy 2.3.2-Q. Special care shall be taken to provide a well landscaped and open feeling along Scenic Corridors, especially at the entrance to the City, utilizing such techniques as generous landscaped setbacks and open space acquisition, where appropriate.

The new structures proposed at the Orinda WTP would be set back more than 100 ft. from Camino Pablo. The conceptual landscape plan presented as DEIR Figure 3.3-L2 calls for clusters of drought tolerant trees and shrubs to be installed near portions of the new above ground facilities. The new planting would compliment the existing mature landscaping currently seen along Camino Pablo and Manzanita Drive. As discussed above and demonstrated in DEIR Figure 3.3 S3b, within five years the proposed landscaping would substantially screen views of the new structures. The project therefore conforms to General Plan Circulation Element Scenic Corridor Policy 2.3.2-Q.

Policy 2.3.2-R: Any proposed development or subdivision along a Scenic Corridor or Scenic Highway shall be designed to blend with and permit the natural environment to be maintained as the dominant visual element. It shall not lessen the scenic value of existing visual elements.

The existing visual character found along the Camino Pablo Scenic Corridor includes a variety of natural and built features, including houses and commercial buildings as well as areas of dense roadside vegetation. Given the presence of dense roadside vegetative screening and the additional landscape screening that would be achieved within five years, the project would not substantially change the existing visual character along the Camino Pablo corridor in the project vicinity, nor would it lessen the scenic value of existing visual elements. The project therefore conforms to General Plan Circulation Element Scenic Corridor Policy 2.3.2-R.

Policy 2.3.2-S: Where structures are permitted, they shall be designed to blend with and permit the natural environment to be maintained as the dominant visual element.

Based on the previous discussion outlined under General Plan Circulation Element Scenic Corridor Policies 2.3.2-P through R and in light of the analysis presented on DEIR p. 3.3-38 and illustrated on DEIR Figure 3.3 S3b, it can reasonably be

expected that the project would blend with the surrounding landscape setting and would therefore conform with General Plan Circulation Element Scenic Corridor Policy 2.3.2-S.

ORIN-30 The DEIR (p. 3.3-17) identifies the significance criteria used in the DEIR (substantial degradation of existing visual character, substantial damage to scenic resources, substantial adverse effect on a scenic vista, and substantial new sources of light and glare). The DEIR further describes the specific factors used to determine what is "substantial":

- extent of project visibility from sensitive viewing areas such as designated scenic routes, public open space, or residential areas;
- the degree to which the various project elements would contrast with or be integrated into the existing landscape;
- the extent of change in the landscape's composition and character; and
- the number and sensitivity of viewers.

Consideration of the duration of visual impacts is implicit in the significance criteria. The DEIR properly characterizes both shorter-term construction-phase and longer-term visual changes at project sites consistent with CEQA and with these significance criteria. EBMUD provides a thorough description of the visual quality and character, as well as the public views and view corridors, for each project site (see DEIR pp. 3.3-4 through 3.3-17); associated figures (at the end of DEIR Section 3.3) support the site-specific project narratives.

The DEIR (p.3.3-19, last paragraph; p.3-3.3-23, first two paragraphs) indicates that the degree to which construction activities would be noticeable varies among the sites based on existing conditions (DEIR p. 3.3-19). The analysis highlights the projects that would involve construction activities at undeveloped sites, and identifies the 10 sites that are within the context of an existing water facility, where most construction activity could be less noticeable. There would be less change to the landscape's composition and character in areas where there are existing water facilities. Similarly, the DEIR notes that construction at proposed WTTIP sites would occur within generally developed urban/suburban areas where temporary construction activity might be expected (DEIR p. 3.3-23). Although all construction-related impacts were considered to be less than significant, EBMUD has still committed to implementing the following mitigation measure (DEIR p. 3.3-23, new text is underlined):

> **Measure 3.3-1:** For stationary (non-pipeline) projects expected to be constructed over a period of one year or more, the District will require the contractor to ensure that construction-related activity is as clean and inconspicuous as practical by storing building materials and equipment within the proposed construction staging areas or in areas that are generally away from public view and by removing construction debris promptly at regular intervals <u>and placing black fabric fence screening on fences where feasible</u>.

The comment states that some construction projects could last a long period of time. Some of these projects with longer durations are examined at a program level. Subsequent CEQA analysis of program-level elements would characterize (and, if deemed necessary, mitigate) construction-phase visual impacts. In terms of project-level elements in Orinda, some of these are pipeline projects which while highly visible, would progress from one roadway segment to the next typically at a rate of about 80 feet per day (see Figure 2-9, DEIR p.2-38, for a description of construction techniques). The stationary projects based in Orinda include the Orinda WTP, Happy Valley Pumping Plant, Ardith Reservoir and Donald Pumping Plant, and the shafts of the Orinda-Lafayette Aqueduct. All of these sites all have some level of vegetative screening, as described in the setting, which would assist in addressing construction-phase visual impacts. These stationary projects are also subject to Measure 3.3-1, which would serve to reduce any visible negative aesthetics of the construction site itself.

Regarding the Orinda-Lafayette Aqueduct, while Map D-OLA-1 is a photograph of a typical tunnel entry shaft construction site, the photograph was taken by someone suspended from the crane and does not represent a view available to any residents living near the tunnel shaft sites or to vehicles on nearby streets. Measure 3.10-1e (DEIR p. 3.10-33) would require the contractor to erect sound barriers around the shaft sites to "interrupt the line-of-sight" between some equipment and residential receptors. The sound barrier, therefore, would also function as a visual barrier. The crane would extend above the barrier; however, the crane would not significantly disrupt or encroach on views. (It should also be noted that EBMUD staff is not recommending Alternative 2.)

ORIN-31 Night lighting will not be required for dewatering. EBMUD also will not be working at night during the construction of the basins at the Orinda WTP and Happy Valley pipeline near Lauterwasser Creek. Therefore, night lighting will not be required during construction in these areas.

ORIN-32 The DEIR includes a set of visual simulations that show proposed project features from 15 representative public vantage points. New visual simulations from additional vantage points are also presented in this Response to Comments document (Figures 7, 8, 17, 18, 19, 20, 27, 28, 29, 30). In order to provide a complete depiction of potential visual impacts, the visual simulations portray proposed project features at two stages 1) without any landscape screening and 2) with the landscaping at 5 years of maturity.

Computer modeling and rendering techniques were employed to produce the visual simulation images. The computer-generated visual simulations are the results of an objective analytical and computer modeling process. Steps in the computer-assisted simulation process include shooting site photography with a single lens digital camera and documenting photo viewpoint locations using GPS recording, photo log sheet and basemap annotation. Subsequent steps include developing an initial digital model of existing conditions based on topographic data and a three–dimensional

model of the proposed project components based on project engineering design data. Computer "wireframe" perspective plots were overlaid on photographs to verify scale and viewpoint location before digital visual simulation images were produced based on computer renderings of the 3-D model combined with digital versions of selected photographs. The visual simulations are based on conceptual engineering design data provided in digital and hardcopy format by District engineers. The visual simulations are accurate within the constraints of available data.

In addition, conceptual landscape plans, designed to provide screening of new facilities, are proposed as part of the WTTIP. The planting concepts (presented in the DEIR 3.3 Visual Quality Figures section) are also intended to enhance the appearance of the new facilities and to integrate them with their visual setting. In addition, proposed landscaping is designed to provide a measure of erosion control at the project sites. The WTTIP conceptual landscape plans include a recommended plant palette of drought-tolerant trees and shrubs. Table 3.3-3 (on DEIR pp. 3.3-20) provides a suggested list of the trees and shrubs, with estimates of plant heights at both 5- and 20-year maturity levels.

ORIN-33 See **Response ORIN-29**.

ORIN-34 EBMUD acknowledges the typographical error. The new solids pumping plant will have an approximate footprint of 800 square feet.

ORIN-35 DEIR Map D-OWTP-3 presents two cross-section drawings showing the above-ground and at-grade structures in the area of the site north of Manzanita Drive. As noted on the DEIR p. 3.3-39 and illustrated on DEIR Map C-OWTP-2, some vegetation clearing would occur in the area north of Manzanita Drive; however, the existing vegetation along the site's Camino Pablo and Manzanita Drive frontage would be preserved. It is expected that this perimeter vegetation would generally screen views toward the site interior. Therefore the new at-grade and above-ground facilities would not be particularly noticeable. In addition, Measure 3.3-2a specifies that "the District will also install replacement vegetation: 1) north of Manzanita Drive at the Orinda WTP (Alt. 2) in order to provide additional screening of new above ground facilities and 2) along Mt. Diablo Blvd, at the eastern edge of the Lafayette WTP (Alt. 2), near the exit drive." (DEIR p. 3.3-35)

Figure 5 presents four new photos taken from Manzanita Drive. The additional photos, taken in October 2006, illustrate the fact that mature perimeter landscaping and earth berms provide considerable screening with respect to views of the site interior from Manzanita Drive. These additional photos support the conclusion that with implementation of Measure 3.3-2a through 3.3-2c the visual impact at this location would be less than significant.

35a. Manzanita Drive near Camino Pablo looking northeast

35b. Manzanita Drive at entry gate looking west towards Camino Pablo

35c. Manzanita Drive east of entry gate looking northwest

35d. Manzanita Drive east of entry gate looking northeast

SOURCE: Environmental Vision

EBMUD Water Treatment and Transmission Improvements Program . 204369

Figure 5

Views from Manzanita Drive

ORIN-36 Figure 6 presents four new photos taken from the residential area located downhill to the north and northwest. Photos 35a and 35b were taken from Leslee Lane looking southwest and south respectively. The photos demonstrate the presence of dense intervening vegetation. Photo 35b includes a filtered view of the site. Photos 35c and 35d, taken from Lavina Court, indicate that views of the site from this area are generally screened by dense intervening vegetation or residential development. These additional photos support the conclusion that with implementation of Measure 3.3-2a through 3.3-2b the visual impact at this location would be less than significant.

DEIR Figure 3.3ARRES-5 is a conceptual landscape plan for the Ardith Reservoir and Donald Pumping Plant site. The plan includes clusters of trees and shrubs at the north and northwest side of the site which are designed to screen potential views from the private residential properties located downhill to the north and northwest.

To respond to the commenters' concern that the visual simulations for Ardith Reservoir are potentially misleading, Figures 7 and 8 present new "before" and "after" views of the Ardith Reservoir from a slightly elevated vantage point. The photo was taken near the top of the slope embankment situated along the east side of Ardith Drive (refer to DEIR Figure 3.3 ARRES-3, Photo A6 and Map 3.3-ARRES-1). The visual simulations indicate that existing vegetation and new landscaping proposed as part of the project would largely screen views of the new reservoir. In addition, Photo A5 on DEIR Figure 3.3 ARRES-3 demonstrates the fact that, as seen from this area rear yard fences generally obstruct residential views toward the Ardith Reservoir site. Therefore the visual impact at this location would still be considered be less than significant.

ORIN-37 EBMUD regrets that neighbors of the Ardith site on Lavina Court and Leslee Lane were inadvertently left off the mail list for the public meetings held in Orinda on July 27 and August 2. After this lack of individual notice was discovered, EBMUD was able to notify the neighbors on September 6 and EBMUD held a special neighborhood meeting on September 12 to discuss the improvements at the Donald Pumping Plant site. Although it is not required by CEQA, EBMUD endeavors to individually notify landowners directly impacted by District projects where possible.

The new Ardith Reservoir and relocated Donald Pumping Plant are described in Section 2.6.1 of the DEIR. The proposed layout for the new tank and relocated pumping plant, as well as the existing facility to be demolished, are shown on Map D-ARRES-1 and D-ARRES-2. The description of the proposed hydraulic improvements taking place at an "Existing EBMUD facility" is correct. The intent of the footnote was to inform the readers that the work would take place on existing EBMUD property (i.e. at the site of the existing facility), as opposed to EBMUD purchasing and developing new property for the project. The footnote was not intended to be misleading, but instead was intended to provide further information on the status of properties, including the property off Ardith Drive.

35a. Leslee Lane looking southwest

35b. Leslee Lane looking south

35c. Lavina Court near Ivy Drive looking southeast

35d. Lavina Court looking south

SOURCE: Environmental Vision

EBMUD Water Treatment and Transmission Improvements Program . 204369

Figure 6

Views from Leslee Lane and Lavina Court

Existing View looking west from Ardith Drive embankment

Visual Simulation of Proposed Improvements without landscaping

For Viewpoint Location Refer to: 3.3-ARRES-1

EBMUD Water Treatment and Transmission Improvements Program . 204369

SOURCE: Environmental Vision

Figure 7

Visual Simulation without Landscaping -
Ardith Reservoir from Ardith Drive Embankment

Existing View looking west from Ardith Drive embankment

Visual Simulation of Proposed Improvements with landscaping at 5 years Maturity

For Viewpoint Location Refer to: 3.3-ARRES-1

EBMUD Water Treatment and Transmission Improvements Program . 204369

SOURCE: Environmental Vision

Figure 8

Visual Simulation with Landscaping -
Ardith Reservoir from Ardith Drive Embankment

ORIN-38 Existing vegetation would provide a measure of screening with respect to views from the adjacent residence. The new perimeter wall/fence would provide additional visual screening.

In order to address site-specific visual concerns that could potentially arise, Measure 3.3-2a indicates that the District will coordinate with and involve neighborhood representatives during development of the final landscaping plan for the Happy Valley Pumping Plant. Measure 3.3-2c specifies that the Happy Valley Pumping Plant structures and buildings will include architectural treatment and design elements to enhance their appearance and to reduce potential visual contrast with the surrounding landscape setting. In addition, Measure 3.3-2c specifies that the design of new walls, gates and fences at the Happy Valley Pumping Plant will include aesthetic architectural treatment.

ORIN-39 This comment improperly characterizes Darwin Myers' August 8, 2006 letter as a geotechnical report. As noted in the first footnote of the comment letter, the Darwin Myers letter is a "review." The letter Mr. Myers prepared, at the request of the City of Orinda, provides his technical comments on the Geology, Seismicity, and Soils chapter of the DEIR and on the supporting documentation used to complete the DEIR chapter. Mr. Myers' letter does not constitute a standard geotechnical report because Mr. Myers did not conduct geotechnical exploration and testing and does not provide recommendations and conclusions for soils or foundation engineering. Responses to Mr. Myers' comments on the DEIR are found below.

The DEIR does not defer analysis of geologic hazards to a time after project approval. The Draft Geotechnical Impact Assessment (AGS, 2005) uses available data and information to analyze and disclose the potential geological and seismic hazards at the project sites, which could occur given the various local geologic environments. Other sources, including the Draft Lamarinda Tunnel Conceptual Study (Jacobs Associates, 2005), the Seismic Stability Evaluation Report, Moraga Reservoir Dam (EBMUD, 2003), and published geologic data from the California Geological Survey (CGS) supplemented and were incorporated into the geological evaluations presented in the Geotechnical Impact Assessment report. The geologic data and information used to develop the supporting studies relied on findings from published reports and mapping, field reconnaissance, previous geotechnical evaluations, and subsurface boring and tunneling data. The DEIR presents a geologic evaluation for each project site and provides that information in Section 3.4.2, Setting, and Section 3.4.3, Impacts and Mitigation Measures. For instance, Section 3.4.2 (DEIR pp. 3.4-2 through 3.4-4) defines, for each project site, the soil type, range in slope, erosion hazard, potential for expansive soils, and corrosivity. The seismicity section (DEIR pp. 3.4-4 through 3.4-8) describes the seismic setting for each site and provides the predicted peak ground acceleration and distance to major faults for each project element site. Section 3.4.3 discusses each of the project sites, whether it is affected by an identified geologic hazard, and whether the hazard constitutes a significant impact. For instance, the DEIR (p. 3.4-16, Impact 3.4-1) addresses slope conditions and

whether there is a potential impact related to unstable slopes. Under this particular impact, the analysis describes the slope condition at each project site, and concludes whether, based on the available data and knowledge of the site, a potentially significant impact could occur. The DEIR characterizes site conditions for each project component including the geologic and seismic conditions and potential hazards and provides an analysis of each related impact on a site by site basis.

The DEIR does not defer mitigation of geologic hazards "to a time after project approval," as asserted in the comment. The DEIR does, however, provide a means to minimize the impacts relating to geology and seismicity to a less-than-significant level through standard geotechnical engineering practices. The DEIR's approach to mitigation of geological impacts is adequate under CEQA because it prescribes mitigation measures that 1) EBMUD is committed to completing; 2) are tied to specific performance standards, or desired end results of the mitigation; 3) provide a range of options, based on established industry standards, to achieve the performance standards; and in some cases, 4) are tied to a recognized guideline or established practice.

Measures 3.4-1 though 3.4-4 require that EBMUD commit to completing design-level geotechnical studies during the design phase of all the WTTIP project components. Design-level geotechnical studies are standard practice throughout the engineering industry and are intended, in part, to inform the design structural engineer as to the specific foundation requirements with consideration to soil type, site topography, and underlying geologic materials. In some cases, geotechnical investigations are necessary to determine whether it is feasible to construct in a particular area; this is not the case, however, for the WTTIP projects because EBMUD considered construction feasibility during their preliminary site selection process. Design-level geotechnical investigations are typically not conducted prior to project approval because site-specific development plans may change during the CEQA process; it is not practical to embark on a geotechnical exploratory or testing program without first establishing final development plans. EBMUD, as standard practice, performs geotechnical investigations as part of the final design phase of its facility development and, therefore, would be committed to incorporate into project specifications geotechnical engineering recommendations to reduce or eliminate existing or potential geologic and seismic hazards.

Mitigation measures prescribed in the DEIR, (Measures 3.4-1 through 3.4-4) are based on performance standards for the end result that the mitigation must achieve. Evaluation and mitigation of geologic and seismic hazards through a design-level geotechnical investigation ensures that, as the end result, the hazard would be reduced to a less-than-significant level. Unlike most other subject areas in the EIR, the performance standards for geology and seismic hazards do not have numerically-based performance standards; the mitigations rely on standard geotechnical engineering practices and strategies to reduce the hazard. The comment states that none of the mitigation measures contain performance standards. To address this comment, each of the mitigation measures and the accompanying performance standards are discussed

below and, where appropriate, text has been added to provide additional clarification regarding the measure.

Measure 3.4-1

The performance standard within Measure 3.4-1 is the reduction and elimination of potential slope failure hazards; i.e., that all slopes affected by the project shall remain stable under both static and dynamic conditions. Slope stability would be achieved through standard geotechnical investigation methods and implementation of engineering recommendations developed by the investigation. Methods of investigation could include, as stated in the measure (DEIR p. 3.4-26), field reconnaissance, slope stability modeling and soil testing. Unstable slopes identified during design of WTTIP projects would be evaluated and mitigated to current engineering standards by California registered engineers and geologists. The comment states that this measure lacks adequate performance standards; to assist in understanding the standards, the text of Measure 3.4-1 has been revised to provide clarification (refer to Section 3.2, Text Revisions, in this Response to Comments document). The mitigation 1) commits the District to complete the appropriate geotechnical study, 2) establishes parameters for the performance standard, and 3) provides a range of options to achieve the stated performance standard.

Measure 3.4-2

The performance standard for Measure 3.4-2 (DEIR, p. 3.4-25) is to design structures to "withstand the highest expected peak acceleration, set forth by the CBC for each site." Recommendations to achieve this would be developed by a geotechnical engineer and would be incorporated into the final design and construction of the proposed facilities. This measure is adequate because it specifies that the District will commit to the mitigation and establishes parameters for the performance standard.

Measure 3.4-3a

The performance standard described in Measure 3.4-3a is to reduce or eliminate the adverse effects of expansive or compressible soils. The geotechnical investigation would identify the problematic soil conditions and develop the most appropriate strategy to correct them. Typically, poor soil conditions are reduced or eliminated through standard geotechnical engineering practices and grading strategies, as listed in the measure. The comment states that this measure lacks adequate performance standards; to assist in understanding the standards, the text of Measure 3.4-3a is revised to provide clarification(refer to Section 3.2, Text Revisions, in this Response to Comments document). The measure 1) commits the District to complete the appropriate geotechnical study, 2) establishes parameters of the performance standard, 3) is tied to established guidelines (the Uniform Building Code [UBC]), and 4) provides a range of options to achieve the performance standard.

Measure 3.4-3b

The performance standard within Measure 3.4-3b requires that all fill materials placed during construction be selected, placed, compacted and inspected to the specifications of a California registered professional engineer, in accordance with project plans and specifications that are based on standard and accepted engineering practice. The text revision clarifies the performance standard (refer to Section 3.2, Text Revisions, in this Response to Comments document). This measure is adequate because 1) it commits the District to complete fill placement under the supervision of a registered professional with knowledge in soil engineering, 2) it relies on established practices, and 3) it establishes parameters for the performance standard.

Measure 3.4-4

The performance standard within Measure 3.4-4 is the minimization of secondary ground failure due to liquefaction; the desired future condition through mitigation is that underlying geologic materials would not be susceptible to liquefaction during an earthquake. This would be achieved through standard geotechnical investigation methods, which would include collection of subsurface soil data to determine the liquefaction potential, as stated in the measure (DEIR p. 3.4-32). If a liquefaction hazard is identified, the conditions would be rectified using appropriate and feasible measures that are common in geotechnical engineering practice and are used in construction throughout the San Francisco Bay Area. The comment states that this measure lacks adequate performance standards; to assist in understanding the standards, the text of Measure 3.4-4 is revised to provide clarification (refer to Section 3.2, Text Revisions, in this Response to Comments document). The mitigation 1) commits the District to complete the appropriate geotechnical study, 2) establishes parameters for the performance standard, 3) is tied to a recognized guideline (SP-117)[2], and 4) provides a range of options to achieve the performance standard.

The comment states that deferral of mitigation "also prevents the analysis of potential secondary or indirect environmental impacts of mitigation measures" and gives the example of dewatering excavations and soil replacement near creeks to mitigate liquefaction. Standard construction engineering strategies, intended to reduce or eliminate geologic or seismic hazards, are rarely expected to result in significant secondary impacts. Since many of the proposed project sites have been previously developed and geologic conditions are generally known, it is not anticipated that any geotechnical mitigation measure implemented during this project would cause significant secondary or indirect environmental effects or require public comment before project approval. In addition, all construction projects are required to complete a Stormwater Pollution Prevention Plan (SWPPP) and obtain a permit prior to discharging dewatering water to the storm drain or sanitary sewer. Fill placement in

[2] SP-117 applies to areas that have been zoned under the Seismic Hazards Mapping Act (SHMA) as having a potential for earthquake-induced landslides and liquefaction. Requiring conformance with SP-117 for proposed project sites with a potential for liquefaction and not only those subjected to zoning under the SHMA, provides a reliable and consistent program for assessing potential liquefaction sites.

creeks, if determined necessary during the design-level geotechnical investigation, would at least be regulated under the SWPPP and would likely require a permit through the California Department of Fish and Game and/or the U.S. Army Corps of Engineers. Engineered slope repair, soil densification, soil replacement, deep foundations, soil compaction, and other remedies stated above all occur in the construction area and are part of standard construction operations.

ORIN-40 Refer to **Response ORIN-39**. As noted, many of the proposed project sites have been previously developed and geologic conditions are generally known.

ORIN-41 As discussed in **Response ORIN-39**, EBMUD is committed, through the mitigation measures in the DEIR, to conduct design-level geotechnical investigations for sites with the potential to result in geologic and seismic hazards. It is not expected that this process would frustrate applicable approval processes, and the findings and recommendations resulting from these investigations would be made available to the City of Orinda for review where the encroachment permits are required. Please also refer to Section 2.1.3, Master Response on EBMUD Obligations to Comply with Local Ordinances and Obtain Local Agency Approvals for further response to the issues raised by this comment.

ORIN-42 The significance criteria addressed by NPDES permit compliance are whether the project would:

- Violate any water quality standards or waste discharge requirements;
- Substantially alter the existing drainage patterns in a manner that would result in substantial erosion or siltation on or off the site;
- Create or contribute runoff water that would exceed the capacity of existing or proposed stormwater drainage systems or provide substantial additional sources of polluted runoff.

All stormwater and treated water discharges occurring under the WTTIP would be conducted under an NPDES permit issued by the RWQCB as discussed in Section 3.5 of the DEIR, Hydrology and Water Quality. Because compliance with these permits requires compliance with water quality regulations as well as the plans, policies, objectives and criteria of the Basin Plan, water quality objectives deemed protective of water quality by the State of California would be met. Since it would not be appropriate for the EIR to assume that the NPDES permit conditions would be willfully violated, water quality impacts related to a discharge regulated by an NPDES permit would be less than significant, as further discussed below.

Each NPDES permit specifies discharge and receiving water limitations based on the *Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries* (State Implementation Policy); plans, policies, and water quality objectives and criteria of the Basin Plan; *Water Quality Standards, Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* (California

Toxics Rule); applicable federal regulations (Title 40 of the Code of Federal Regulations, Parts 122 and 131); the National Toxics Rule; and best professional judgment as defined in the Basin Plan. To ensure compliance with these criteria, each permit requires preparation of plans describing the methods that will be used to achieve the stated water quality goals (subject to the approval of the RWQCB); self monitoring and reporting to demonstrate compliance with these criteria; and corrective actions if permit limitations are exceeded.

Furthermore, the RWQCB may amend or revoke, and reissue the NPDES permit if investigations show that the discharge could potentially cause or contribute to adverse effects on water quality and/or beneficial uses of the receiving waters. They can also amend the permit if water quality objectives change or additional pollutants could exceed water quality objectives, or to incorporate waste load allocations determined during the TMDL process. The RWQCB may also revoke the permit in accordance with federal regulations if the discharger fails to meet the permit requirements, or if the RWQCB finds that the permitted discharge endangers human health or the environment.

These permit modification and revocation provisions ensure that discharges will remain in compliance with water quality objectives should the nature of the discharge or applicable water quality criteria and policies change.

The specific components of applicable NPDES permits that would ensure compliance with water quality criteria and objectives are discussed in individual responses below.

ORIN-43 NPDES permits are typically issued for a period of five years. The Regionwide General NPDES Permit would likely be reissued when it expires, and discharges from the water treatment plants would be managed in accordance with the requirements of the reissued permit. Because any discharge to surface water requires an NPDES permit, these discharges would be managed in accordance with applicable NPDES requirements, including an individual NPDES permit if necessary, at the time of construction regardless of whether if the Regionwide General Permit is reissued.

See **Response ORIN-42** regarding how permit compliance ensures that water quality impacts related to discharges of storm water and treated water are less than significant. Please also refer to Section 2.1.3, Master Response on EBMUD Obligations to Comply with Local Ordinances and Obtain Local Agency Approvals for further response to the issues raised by this comment.

ORIN-44 Effluent and receiving water limitations as well as monitoring requirements of the current Regionwide General NPDES permit are discussed on DEIR pp. 3.5-39 to 3.5-41. As noted by the commenter, and discussed in the DEIR (pp. 3.5-17 and 3.5-18), discharges from the backwash water treatment system at the Orinda WTP have exceeded discharge limitations on four past occasions. These exceedances were

identified through the self-monitoring program required by the NPDES permit, and are the driving factor in discontinuing this discharge under the proposed project. This is not a fault of the permitting process, but demonstrates how compliance with NPDES monitoring requirements allowed identification of a water quality issue. Construction of the new backwash water recycle system, which would eliminate discharge of backwash water to San Pablo Creek, demonstrates EBMUD's commitment to complying with water quality standards. All discharges under the WTTIP would continue to comply with NPDES permit requirements, including self monitoring, and corrective action would be taken should discharge limitations be exceeded. With regard to the comment on permit reissuance, see **Response ORIN-43** above.

Specific discharge limitations, monitoring and reporting requirements, and corrective action requirements are addressed in the Section 3.5 of the DEIR, Hydrology and Water Quality, and more specifically in individual comments regarding specific discharges. Please also refer to Section 2.1.3, Master Response on EBMUD Obligations to Comply with Local Ordinances and Obtain Local Agency Approvals for further response to the issues raised by this comment.

ORIN-45 As discussed in Impact 3.5-1 (DEIR p. 3.5-25) erosion control measures would be specified in the SWPPP prepared in accordance with Section 01125 of the EBMUD construction specifications and the statewide General Permit for Stormwater Discharges Associated with Construction Activity (Construction General Permit) described on DEIR p. 3.5-21. As stated in the DEIR, compliance with Section 01125 of the EBMUD construction specifications and the Construction General Permit would ensure that water quality at all WTTIP sites, including the Orinda WTP, Happy Valley Pumping Plant, and Happy Valley Pipeline, is protected during construction. Specific requirements of the Construction General Permit, which would ensure compliance with water quality objectives, include the following.

- *Implementation of Best Management Practices*. The Construction General Permit states that it is not feasible to establish numeric effluent limitations for pollutants in stormwater discharges from construction activities. However, it requires implementation of Best Management Practices to control and abate the discharges of pollutants. This permit requires that storm water discharges from covered construction sites shall not cause or threaten to cause pollution, contamination, or nuisance. Receiving water limitations require that:
  - Storm water discharges to any surface or groundwater shall not adversely affect human health or the environment.
  - The SWPPP developed for the construction activity shall be designed and implemented so that stormwater discharges shall not cause or contribute to an exceedance of any applicable water quality standards contained in a statewide water control plan or the applicable RWQCB's basin plan.
- *Temporary and Permanent Erosion Control BMPs*. The SWPPP, which must be approved by the RWQCB, must include a description and schedule for

deployment of temporary and permanent erosion control BMPs and practices to minimize erosion on disturbed areas of a construction site and prevent a net increase in sediment loads in storm water discharges relative to preconstruction levels. The proposed measures must consider site-specific and seasonal conditions and are required at the appropriate locations along the site perimeter and at all operational internal inlets to the storm drain system at all times during the rainy season. During the non-rainy season, adequate measures must be available to control sediment discharges at downgrade perimeter and operational inlets in the event of a predicted storm.

- *Examples of Erosion Control BMPs*. Although specific erosion control measures would be recommended in the SWPPP prepared by the contractor, they will include measures such as directing runoff from disturbed areas; stabilizing disturbed areas; using barriers to control sediment-laden runoff from disturbed areas; installing temporary slope breakers; placing silt fencing to promote sedimentation behind the fence; creating storm water retention basins; protecting stockpiled soil from runoff with hay bales or silt fencing; or immediately revegetating disturbed areas.

- *Inspection and Maintenance Program*. The SWPPP must also include a discussion of the program to inspect and maintain all BMPs for the entire duration of the project, and a qualified person must be assigned the responsibility to conduct the inspections. Inspections must be performed before and after storms, and once each 24-hour period during extended storm events to identify BMP effectiveness and implement repairs or design changes as soon as feasible. Equipment, materials, and workers must be available for rapid response to failures and emergencies. Inspectors must be adequately trained. The contractor must also certify annually that construction activities are in compliance with the SWPPP and General Permit.

- *Corrective Action for Exceedances*. If it is determined by the discharger, SWRCB, or RWQCB that stormwater discharges are causing or contributing to an exceedance of an applicable water quality standard, the discharger would be required to immediately implement corrective actions, notify the RWQCB by phone within 48 hours, and follow up with a written report within 14 days. The report must identify the cause of the exceedance, corrective actions already taken, additional corrective actions to be implemented, and any required repair or maintenance of BMPs. The report must include an implementation schedule for corrective actions and describe actions taken to reduce the pollutants causing or contributing to the exceedance. The SWPPP and monitoring program must also be revised immediately after the report to the RWQCB to incorporate additional requirements. Any other instances of non-compliance must be reported to the RWQCB within 30 days. If the RWQCB determines that water quality can not be adequately protected under the Construction General Permit, it may require an individual NPDES permit for construction activities.

ORIN-46 See **Response ORIN-45** regarding performance standards and how permit compliance requires and reasonably ensures adequate protection of water quality during construction activities.

ORIN-47 Section 01125 of the EBMUD construction specifications is included in all construction contracts issued by the District, and therefore compliance with the

requirements of this section is considered part of the project, and not a mitigation measure. As discussed in Impact 3.5-1, the contractor is required by this section of the construction specifications to implement erosion and sedimentation control measures and protect receiving water quality for all projects, and to comply with NPDES stormwater permitting requirements for applicable projects. Adherence to the requirements of this section is monitored through contract compliance monitoring by the District.

ORIN-48 The DEIR acknowledges in Impact 3.5-1 (DEIR p. 3.5-29) and Table 3.5-4 that county encroachment permits will be required for stream crossings for the Happy Valley Pipeline as well as other projects. Compliance with encroachment permitting requirements is specified in Measure 3.5-1b. This measure also specifies compliance with CDFG and the U.S. Army Corps of Engineers requirements pertaining to wetlands or streambeds, including associated water quality protection requirements of the RWQCB.

Permits obtained from the CDFG, US Army Corps of Engineers, and RWQCB, specified in Measure 3.5-1b and in Measure 3.6-2c of the Biological Resources section of the DEIR, would specify measures for the protection of water quality and fish and wildlife resources and the information included in the DEIR is sufficient to support the development of those measures. The DEIR also proposes, and EBMUD commits to implementing, a range of mitigation measures designed to minimize potential impacts to these resources. Mandatory compliance with the terms and conditions of the required permits and EBMUD-proposed mitigation measures would reduce impacts on these resources to less-than-significant levels.

Measures proposed in the DEIR for the protection of water quality and fish and wildlife resources are presented in Measures 3.6-2a through 3.6-2f of the Biological Resources section of the DEIR and include confining construction activities to areas above or below the stream crossing, or through use of jack-and-bore construction where feasible. Other mitigation measures include: establishing a minimum 25-foot construction exclusion zone; conducting work activities in creeks during low-flow periods unless otherwise approved by the permitting agencies; minimizing removal of riparian and wetland vegetation; installing silt fencing at the edge of established buffer zones; storing equipment and materials away from waterways to the extent feasible; prohibiting debris within 60 feet of a creek channel for most projects; requiring proper and timely maintenance for vehicles and equipment used during construction; conducting maintenance and fueling away from the creek; implementation of interim measures to protect the creek from erosion during construction; and recontouring and revegetating portions of the creek following construction.

Further, in their July 16, 2006 comment letter, the Contra Costa County Flood Control & Water Conservation District states that the DEIR addresses their concerns about natural watercourses (see **Comment C3FC-5**).

Please also refer to Section 2.1.3, Master Response on EBMUD Obligations to Comply with Local Ordinances and Obtain Local Agency Approvals for further response to the issues raised by this comment.

ORIN-49 The statements in the DEIR that dewatering discharges could affect water quality within a water body are meant to indicate that water quality could be affected without proper controls. However, as discussed in the impact analysis for Impact 3.5-2, preparation of a water control and disposal plan in accordance with Section 01125 of the EBMUD construction specifications, including compliance with the regulations of the RWQCB, CDFG, county flood control districts, and any other regulatory agency having jurisdiction would ensure that water quality impacts related to construction dewatering would be less than significant for all projects requiring dewatering, including the Orinda-Lafayette Aqueduct; therefore, no mitigation is required. **Response ORIN-42** describes how compliance with NPDES permitting requirements ensures that water quality impacts related to discharge to a waterbody would be less than significant.

ORIN-50 Creek crossings are noted in the discussion of Impact 3.5-2. For each project that would include a creek crossing, the potential for dewatering is noted. As discussed in **Response ORIN-49**, preparation of a water control and disposal plan in accordance with Section 01125 of the EBMUD construction specifications, including compliance with the regulations of the RWQCB, CDFG, county flood control districts and any other regulatory agency having jurisdiction, would ensure that water quality impacts related to construction dewatering would be less than significant for all projects requiring dewatering; no mitigation is required.

Discharges of water required for mitigation of liquefaction hazards, discussed in Impact 3.4-4, would also be less than significant with preparation of a water control and disposal plan in accordance with Section 01125 of the EBMUD construction specifications, including compliance with the regulations of the RWQCB, CDFG, county flood control districts, and any other regulatory agency having jurisdiction.

ORIN-51 According to the referenced article, incidents attributed to EBMUD include a water main break last year that reportedly killed 30 Sacramento Sucker fish in Strawberry Creek in Berkeley. However, to the contrary, a representative of the Urban Creeks Council said a solvent release was responsible for the reported fish loss.

Unplanned discharges are more difficult to control than planned discharges due to their unpredictable nature and location. The State Water Resources Control Board in developing the draft Total Residual Chlorine and Chlorine-Produced Oxidants Policy, found that it is "…infeasible to regulate potable water discharges that occur in the field due to the activities of drinking water utilities or agencies." The SWRCB's draft policy further directs permitting agencies to regulate these discharges "….through requirements for appropriate Best Management Practices." EBMUD has

developed and implements Best Management Practices to prevent or eliminate adverse impacts to the maximum extent practicable from such sources.

A 2004 American Water Works Association Research Foundation study titled "Assessment and Renewal of Water Distribution Systems" estimates that the nationwide leak rate for mains to be in the range of 23 to 27 leaks per 100 miles per year. The study identifies a rate of 20 leaks or less per 100 miles per year as a benchmark for a well-maintained system. For the past 20 years, the average for EBMUD's District-wide system has been 20 leaks per 100 miles per year, with the last five years averaging 19 leaks per 100 miles per year.

Key elements of EBMUD's surface water protection programs include: Best Management Practices for Dechlorination, Leak Response Program, Pipeline Replacement Program, Leak Detection Program and Training. EBMUD provides a 7-day, 24-hour response capability in responding to water line leaks. A District response can be initiated by calling 1-866-40-EBMUD. Based on data collected over a 2-year period, the average response time for an EBMUD inspector to arrive onsite for all responses is 38 minutes. EBMUD inspectors are fully equipped and authorized to start dechlorination activities immediately upon arrival at a leak site. Given EBMUD's implementation of these surface water protection programs, the potential for water quality impacts related to an emergency discharge would be less than significant and no mitigation is necessary.

ORIN-52 As discussed in the Setting section of Section 3.5, Hydrology and Water Quality (DEIR p. 3.5-13), municipal NPDES Permit No. CAS0029912 issued to the Contra Costa Clean Water Program by the San Francisco Bay RWQCB requires new development and redevelopment projects that create or replace 10,000 or more square feet of impervious surfaces to incorporate certain design and landscape features. These features are intended to maximize infiltration, promote retention or detention, slow runoff, and minimize impervious surfaces so that post-development pollutant loads from a site are reduced to the maximum extent possible. The general types of stormwater control measures that could be used to achieve these goals are described in Section 3.2, Text Revisions, in this Response to Comments document. In addition, projects that create or replace more than one-acre of impervious surfaces would be required to manage post-construction runoff not to exceed pre-construction levels if the increase in peak runoff flows or runoff volume could cause increased erosion of creek beds or banks, silt pollutant generation, or other adverse effects that would affect beneficial uses of the receiving water.

All of the water treatment plant projects and the proposed reservoir construction and replacement projects (Ardith Reservoir and Donald Pumping Plant, Fay Hill Reservoir, Highland Reservoir, and Moraga Reservoir) would involve the creation of impervious surfaces. However, all of these sites, with the exception of the Walnut Creek WTP, disturb one or more acres of land for construction and will require a General Construction Stormwater Permit as described in the Setting and Impact 3.5-1.

Upon completion of construction, a post-construction stormwater management plan describing stormwater controls would be prepared, including a maintenance schedule for installed post-construction BMPs, as required by the General Construction Stormwater Permit, and coverage under the General Construction Stormwater Permit would not be terminated until this plan is in place, permanent erosion control measures are in place, and the site is in compliance with all local stormwater management requirements. With compliance with these requirements, water quality impacts related to creation or replacement of impervious surfaces would be less than significant.

In the case of the Walnut Creek WTP, the project would increase the impervious surface by 11,350 square feet under both alternatives. However, approximately 8,000 square feet of the impervious area is the construction of the filter basins which will retain rainfall and will not contribute to runoff from the site and therefore will have a less-than-significant impact.

Changes have been made to the text to address this information and to clarify the conclusion that impacts are less than significant (refer to Section 3.2, Text Revisions, in this Response to Comments document).

Please also refer to Section 2.1.3, Master Response on EBMUD Obligations to Comply with Local Ordinances and Obtain Local Agency Approvals for further response to the issues raised by this comment.

ORIN-53 If the new municipal stormwater permit has lower thresholds for impervious surfaces, EBMUD will comply with the new permit requirements. As noted in response to **ORIN-52**, the DEIR has analyzed and provided measures to address potential impacts of increasing impervious surfaces.

ORIN-54 Section 15151 of the CEQA Guidelines sets forth the Standards for Adequacy of an EIR. The Guidelines confirm that a CEQA document is judged in the light of what is reasonably feasible.

The DEIR discloses the full range of impacts that could result from project activities. DEIR pp. 3.6-34 through 3.6-39 characterizes for each project-level element (and both alternatives): (a) whether construction activities would occur at or near (within 100 feet of) streams, wetlands, or riparian habitat; (b) direct effects to these resources (e.g., where pipeline alignments cross creeks – Lafayette WTP under Alternative 1, Moraga Road Pipeline, etc.); (c) quantification of these impacts where possible, based on available information (e.g., Lafayette WTP – Alternative 1, Lafayette Reclaimed Water Pipeline, Moraga Road Pipeline); and (d) potential indirect effects (e.g., soil run-off from earthwork). The DEIR also proposes, and EBMUD commits to implementing, a range of mitigation measures designed to minimize potential impacts to less-than-significant levels. The mitigation measures proposed to reduce these impacts reflect a preference for avoidance and minimization of impacts to

streams, wetlands, and riparian habitat (see Measures 3.6-2a and 3.6-2b) over compensating for the impacts by replacing the damaged resources (Measure 3.6-3c). The feasibility of trenchless construction techniques for pipelines depends on some factors that cannot be fully known with certainty at this time (e.g., conditions in an encroachment permit); nevertheless, the mitigation strategy set forth in Measures 3.6-2a through 3.6-2f ensures that these impacts can be reduced to less-than-significant levels. The DEIR thus has adequately disclosed impacts and proposes adequate mitigation measures pertaining to streams and wetlands.

Permits required for the WTTIP project as a whole or for specific project elements may include a Nationwide or Individual Permit from the Corps, a Water Quality Certification from the RWQCB, and a Streambed Alteration Agreement (SAA) from CDFG. These permits, obtained prior to project implementation, contain conditions of approval designed to minimize adverse effects on wetland resources. The processes for obtaining any state or federal wetlands permits involve the development of compensatory actions similar to CEQA-derived mitigation in scope and intent, including the completion and verification of a wetland delineation and the development of mitigation options and methods. Mandatory compliance with the regulations regarding wetland and stream protection, as well as compliance with the terms and conditions of any required permits, would reduce potential direct impacts to streams to less than significant

ORIN-55 The DEIR includes a discussion of the presence of wetlands and potential impacts in Chapter 3. Because the DEIR commits EBMUD 1) to fulfill a regulatory requirement by preparing a wetland delineation for sites where stream or wetland impacts are unavoidable, and 2) to implement additional specific mitigation measures designed to minimize stream and wetland impacts, the failure to include a wetland delineation as part of the DEIR is not an impermissible deferral of mitigation, as this comment asserts. The DEIR does not imply that all impacts to jurisdictional waters can be minimized or avoided but, rather, states that EBMUD will attempt to do so wherever feasible (see previous response). A formal wetland delineation is not a required element of an EIR, and is not, in itself, considered to be a mitigation measure, but is instead a part of the wetland permitting process independent of the CEQA review for a project. Preparation of a wetland delineation in the context of wetland permitting is a regulatory requirement under most circumstances. EBMUD must prepare and have verified a wetland delineation before implementing project elements that will occur in the vicinity of streams and wetlands. The wetland permitting process will impose terms and conditions in addition to the mitigation measures proposed in the DEIR. Compliance with these terms and conditions, which are designed to minimize impacts to streams and wetlands, as well as implementation of the DEIR wetland mitigation measures, will reduce potential impacts to streams and wetlands to less-than-significant levels.

ORIN-56 EBMUD acknowledges the potential for habitat impacts as a result of the use of energy dissipation devices and the DEIR provides for mitigation of these impacts if

they cannot be avoided. The DEIR text is revised to clarify this (refer to Section 3.2, Text Revisions, in this Response to Comments document).

ORIN-57 The discussion in the text (Section 3.6 of the DEIR) and the information presented in Appendix D of the DEIR, present information on the habitat requirements of special-status wildlife, including bats, that may occur within the project area, as well as their potential to occur at specific sites. Mitigation measures proposed in the DEIR to minimize impacts to specific species are based on Biological Opinions and other guidelines and protocols promulgated by the various agencies, such as CDFG and USFWS, responsible for wildlife protection, as well as on consultation with these agencies for many similar projects. Biological Opinions and species-specific guidelines and protocols are prepared by and/or rely upon the expertise of wildlife biologists who are familiar with the habitat requirements, life cycles, and breeding habits of the species in question. The preparers of this DEIR assume that the proposed mitigation measures are feasible and adequate for protection of the species in question.

ORIN-58 The analysis of biological resources impacts is consistent with the information currently available on the program-level elements (see Section 2.1.1, Master Response on Program- and Project-Level Distinctions). The DEIR preparers describe the habitat characteristics in the vicinity of the Orinda WTP and San Pablo Reservoir in the draft document. The DEIR indicates that the development of the program-level elements near the Orinda WTP, including the San Pablo Pipeline, would require substantial excavation near creeks and the San Pablo Reservoir. There are established protocols accepted by the agencies charged with regulating these resources for mitigating impacts to creeks and Alameda whipsnake habitat to less-than-significant levels (see **Response ORIN-57**). The DEIR acknowledges that specific design and construction information on program-level elements has not been developed and therefore cannot be analyzed at this time. Additional project-specific analysis pursuant to CEQA will be required prior to approval of any program-level element. Nonetheless, the EIR preparers are unaware of any potential design and construction scenarios for these project elements that would cause unavoidable impacts to these resources.

ORIN-59 This comment regarding the status of the white-tailed kite is acknowledged. DEIR text on p. 3.6-17 has been revised to acknowledge the fully protected status (refer to Section 3.2, Text Revisions, in this Response to Comments document).

ORIN-60 The comment states that thorough surveys for archaeological and historical resources have not been conducted and asks that the City of Orinda be included in discussions concerning the design of facilities near the Orinda filter building.

As described on DEIR p. 3.7-8 (under the heading Field Methods) a field reconnaissance was conducted in 2005 by an archaeologist to obtain a general impression of the area's potential to yield significant cultural resource sites and to

visually inspect project areas in relation to known archaeological sites. Because the majority of the project area is highly developed, standard archaeological survey methods have little to no value due to the lack of visible native ground surface and significant alteration of the topographic setting, including those at the Orinda WTP and Orinda Sports Field sites. However, a number of areas of high cultural sensitivity, such as previously undisturbed pipeline routes and undeveloped reservoir sites, were subjected to intensive pedestrian surveys. In these cases, the proposed pipeline route or project facility footprint was walked, using zigzagging transects, and the ground surface inspected for archaeological deposits (e.g., stone artifacts, organic soil residues, fire-cracked rock, etc.). In addition, an architectural historian/preservation planner conducted a field reconnaissance to visually inspect the project sites for known or potential historic architectural resources, including the Orinda WTP property, which had last been surveyed in 1987. The cultural resource surveys discussed above, and the adequate disclosure of potential impacts in the EIR, are adequate to comply with CEQA at this juncture.

Regarding City input on the design of Backwash Water Recycle Facilities, refer to **Response ORIN-62**.

Please also refer to Section 2.1.3, Master Response on EBMUD Obligations to Comply with Local Ordinances and Obtain Local Agency Approvals for further response to the issues raised by this comment.

ORIN-61 The comment states that the San Pablo Pipeline (not the San Pedro Pipeline) could adversely affect cultural resources. The DEIR acknowledges that portions of the San Pablo Pipeline are sensitive for encountering cultural resources during construction, especially near the present-day intersection of San Pablo Dam Road and Bear Creek Road, as well as near the margins of San Pablo Reservoir, as discussed on DEIR pp. 3.7-34 – 3.7-35. As noted throughout the DEIR, however, this element has been evaluated programmatically and EBMUD will conduct project-level CEQA review before approving this or any other program-level project, or prior to adopting this particular alignment as stated throughout the DEIR (see pp. S-5, 2-4, and 3.1.3 for more information). For the San Pablo Pipeline program-level project in particular, the DEIR indicates that measures similar to those described in Measure 3.7-1 (p. 3.7-24) would also likely apply based on the impacts that are likely to be expected when the project-level analysis is conducted. It is also likely that during future, project-level CEQA analysis of this project element, EBMUD will identify the need for additional mitigation, such as Measure 3.7-1b (pp. 3.7-24 – 3.7-25), along part or all of the San Pablo Pipeline alignment. Finally, the DEIR identifies an alternative to the San Pablo Pipeline that the District will evaluate further (reconstructing the San Pablo WTP - see DEIR p. 6-14 for more detail) which will entirely avoid the culturally sensitive areas described above, eliminating the need for any mitigation. As such, the DEIR appropriately characterized the San Pablo Pipeline's potential effects on cultural resources; mitigation measures that would likely apply to this future, program-level element; and a potential alternative to avoid such impacts altogether.

ORIN-62 EBMUD recognizes the sensitive visual and historic setting of the Orinda WTP, and will provide the City of Orinda an opportunity to comment on the proposed designs' compatibility with the treatment plant. Design-level input by the City of Orinda will be taken into consideration by EBMUD. This opportunity for input will be provided even though, as stated on DEIR p. 3.7-15, the Orinda Filter Plant is a water conveyance facility owned and operated by EBMUD is subject to provisions of Section 53091 of the California Government Code. Please also refer to Section 2.1.3, Master Response on EBMUD Obligations to Comply with Local Ordinances and Obtain Local Agency Approvals for further response to the issues raised by this comment.

ORIN-63 Regarding the assertion that the DEIR does not demonstrate that issuance of encroachment permits is necessary, the commenter presumably is referring to assertions expressed in previous comments regarding the need for the project. Refer to **Responses ORIN-9** through **ORIN-16**. Please also refer to Section 2.1.3, Master Response on EBMUD Obligations to Comply with Local Ordinances and Obtain Local Agency Approvals for further response to the issues raised by this comment.

Section 3.8 of the DEIR analyzes traffic and circulation conditions at a level of detail corresponding to expected impacts from project construction activities. The project would not cause long-term effects (e.g., long-term degradation in operating level-of-service conditions on area roadways) because the various project facilities, once installed, would require only maintenance activities similar to those that are now required. The duration of the potential significant impacts would be limited to the period needed to construct the project. Therefore, the DEIR focuses its analysis of impacts and identification of mitigation measures on the non-permanent nature of construction activities.

The DEIR analyzes a full range of potential impacts associated with the WTTIP, specifically short-term increases in vehicle trips by construction workers and construction vehicles (Impact 3.8-1), and reduction in the number of, or the available width of, travel lanes on roads where pipeline construction would occur. In some cases, this would require road closure and detours during construction work hours (Impact 3.8-2); demand for parking spaces for construction worker vehicles; temporary displacement of on-street parking along pipeline alignment routes (Impact 3.8-3); potential traffic safety hazards on public roadways (Impact 3.8-4); access disruption to adjacent land uses and streets for both general traffic and emergency vehicles (Impact 3.8-5); disruptions to transit service (Impact 3.8-6); and increased wear-and-tear on the haul routes used by construction vehicles (Impact 3.8-7).

The DEIR analysis describes in detail the potential impacts associated with each proposed facility focusing on the maximum number of daily and hourly vehicle trips that are estimated to occur during the construction at each facility. The number of construction-related trips would vary among the different facilities, and among the

tasks required. Impacts during other (lower trip-generating) tasks would be less than those described.

In Chapter 5, the DEIR evaluates potential impacts associated with each WTTIP facility project. Final construction scheduling may result in simultaneous or overlapping construction for more than one facility; therefore, potential traffic and circulation impacts associated with overlapping construction are also evaluated.

ORIN-64 Traffic volumes counted on roadways do not measure the capacity of those roads. As stated on DEIR p. 3.8-2, the theoretical daily carrying capacity is the highest traffic volume that can travel on a roadway in a day. The capacity of a roadway is a function of various factors (e.g., the number of lanes, whether traffic streams are separated by a median, the spacing of intersections, whether those intersections are signalized, the existence or absence of left-turn lanes at those intersections, and whether parking is allowed). However, for purposes of planning level analyses, transportation analysts developed average daily traffic volume capacities for different types of road. Based on planning applications of the 2000 *Highway Capacity Manual*, the Florida Department of Transportation has formulated roadway capacity levels (applicable throughout the country) for different types of roads, in urban, suburban and rural settings. For urban areas like the Bay Area, the daily capacity is about 15,000 to 16,900 vehicles (two-lane undivided roads), about 24,000 to 26,000 vehicles (four-lane undivided roads without left-turn lanes at intersections), and about 31,700 to 34,500 vehicles (four-lane divided roads). The theoretical daily carrying capacities cited in the DEIR are at or below these ranges, providing a conservative assessment of the carrying capacity of area roads to accommodate the residential nature of many of the affected routes.

ORIN-65 The DEIR does not omit project-specific analysis of WTTIP facilities in Orinda, as stated in the comment. Table 3.8-5 (DEIR p. 3.8-12) presents estimated maximum daily and hourly one-way vehicle trip generation for each facility, including the Orinda-based facilities, tied to the task during which the maximum daily trips would occur. It also identifies the roadways that construction-generated vehicles would use traveling to and from the worksites. The commenter misinterpreted the examples of noticeable project-related traffic increases, which are, as stated on DEIR p. 3.8-13, on local-serving roadways for which increases in traffic volume would be most noticeable. Camino Pablo is not listed because it is a major arterial, and, as stated on the same page, the increase in traffic on the arterials serving the worksites would not be substantial relative to background traffic volume. The estimated maximum daily one-way vehicle trip generation in Table 3.8-5 would increase the daily traffic volume by less than 3 percent, an increase that is unlikely to be noticed by motorists.

Although the maximum daily one-way vehicle trip generation for the Happy Valley Pumping Plant and Pipeline would not be substantial, text has been added to the bullet list under Project Impact – Facility-Specific on DEIR p. 3.8-13 (refer to Section 3.2, Text Revision, in this Response to Comments document).

ORIN-66 Section 3.8 of the DEIR, Traffic and Circulation, describes the projected traffic, disruption of traffic flows and street operations, as well as other potential impacts due to construction at the project sites. As stated on DEIR p. 3.8-7, a WTTIP project that would cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system is considered to have a significant impact on the environment. Measure 3.8-1 (DEIR p. 3.8-14) stipulates that, to the extent feasible and as needed to avoid adverse impacts on traffic flow, the contractor(s) will be required to schedule truck trips outside of peak commute hours. Therefore, if higher traffic volumes at the time of a WTTIP construction project caused peak-commute-hour congestion to trigger the need to avoid adding truck trips during that period, then Measure 3.8-1 would ensure that impacts were minimized.

ORIN-67 The DEIR addresses impacts associated with pipeline projects along the affected roads, including residential roads, on pp. 3.8-15 through 3.8-18, and pp. 3.8-20 and 3.8-21. Although the project schedule on p. 2-68 indicates both the pumping and pipeline construction would span one to two years, based on the expected average of about 80 feet of pipeline installation per day in paved areas, the Happy Valley pipeline installation would take about 16 weeks. Road closures are caused by insufficient pavement width to safely maintain (at a minimum) alternate one-way traffic flow, not by the capacity or traffic volumes. Specific detour routing is identified on DEIR p. 3.8-21 for Miner Road and Lombardy Lane. While the detour routing during construction work hours would be an inconvenience to motorists, it would not have a significant impact. The added traffic on the detour-route roads could be noticeable; however, its effect on traffic flow would be less than significant because the traffic volumes would remain at levels clearly less than the carrying capacity of the roads.

ORIN-68 EBMUD will undertake some actions directly and will otherwise ensure that the contractor(s) will implement necessary traffic and circulation mitigation measures. EBMUD will review and approve all traffic safety / traffic management plans (and other information needed for the encroachment permit application process) that the contractor(s) will be required to prepare to ensure that they address site-specific concerns. To clarify this point, DEIR Measure 3.8-1 has been revised (refer to Section 3.2, Text Revisions, in this Response to Comments document).

The agencies to whom the traffic plans will be submitted will have approval authority because it is those agencies that issue the encroachment permits for roads for which they have jurisdiction.

ORIN-69 See **Response ORIN-68** regarding the commenter's concern that mitigation for impacts is deferred. Measures are added to the list of requirements in Measure 3.8-1 on DEIR p. 3.8-13 that would be incorporated into contract specifications for the project (refer to Section 3.2, Text Revisions, in this Response to Comments document).

ORIN-70 As stated on DEIR p.3.8-22:

> Pipeline installation in Miner Road and Boulevard Way would require road closure to through-traffic (except emergency vehicles) during construction work hours (as described in Impact 3.8-5, above). Road closures during the hours of transit service would displace the County Connection bus lines that travel on those roads. Unless adequate alternative routing were provided, such displacement would have a significant impact on transit service **and on people who use that service** [emphasis added]. While there would be detour routing available for regular traffic during temporary closure of Miner Road (Happy Valley Pipeline) and Boulevard Way (Tice Pipeline) (as described in Impact 3.8-5, above), those detour routings would not serve as adequate replacement routing for the affected bus lines. County Connection would be consulted to devise acceptable mitigation on a segment-by-segment basis in order to minimize impacts on transit service for riders on the affected bus lines.

As indicated in the text, EBMUD will consult with County Connection regarding additional mitigation (which could include shuttle service) on a segment-by-segment basis; however, the DEIR assumes that for Miner Road, this impact would be unavoidable because adequate replacement routing for buses is not available. Regarding the duration of construction of the Happy Valley Pipeline, refer to **Response ORIN-67**. Regarding compensation, refer to Section 2.1.5, Master Response on Social and Economic Costs.

ORIN-71 Regarding the comment's statement that "Data from the Concord monitoring station show high particulate matter concentrations…," Table 3.9-2 (DEIR p. 3.9-7) indicates that no daily state or federal standards for particulate matter (PM_{10} or $PM_{2.5}$) were exceeded in 2003. The BAAQMD air quality monitoring data for 2004 (see **Comment ORIN-156**) also indicate that the federal standard for $PM_{2.5}$ and PM_{10} was not exceeded and the state standard for PM_{10} was exceeded on only one day in 2004, at the Concord station. The non-attainment status of the air basin as a whole is acknowledged on DEIR p. 3.9-2 (paragraph 3) and p. 3.9-4 (paragraph 4).

ORIN-72 Table 3.9-4, Construction Dust Emissions, in the DEIR identifies grading quantities for all WTTIP projects based on Appendix B, Project-Specific Construction Assumptions. Total grading quantities were converted to a daily rate based on the estimated construction duration for excavation and backfilling phases of each project as outlined in Appendix B. Daily grading quantities were then converted from cubic yards/day to acres/day, and the BAAQMD's emissions factor of 51 pounds per acre per day for uncontrolled construction-related PM_{10} emissions was applied (see ORIN-157, BAAQMD CEQA Guidelines, page 28). For example, in the first row of Table 3.9-4 (Moraga Road Pipeline), a total of 0.15 acres per day was estimated for the project based on grading estimates in Appendix B; when this is multiplied by 51 pounds per acre per day (0.15 x 51), the product is 7.65 pounds per day, which was rounded to 8 pounds per day.

As noted at the top of page 14 of the BAAQMD CEQA Guidelines (**Comment ORIN-157**), the BAAQMD states, *"The District's approach to CEQA analyses of construction impacts is to emphasize implementation of effective and comprehensive control measures rather than detailed quantification of emissions… From the District's perspective, quantification of construction emission is not necessary (although a Lead Agency may elect to do so – see Section 3.3 of these Guidelines, "Calculating Construction Emissions, for guidance)."* "In accordance with the BAAQMD CEQA Guidelines, this EIR does not provide an extensive, detailed quantification of construction dust emissions, but emissions are estimated using the BAAQMD's generalized emissions factor of 51 pounds per acre per day of PM_{10} (consistent with Section 3.3 of these Guidelines as described in the previous paragraph). Generalized emissions estimates are presented to provide an additional frame of reference to support the BAAQMD's emphasis on implementation of control measures rather than quantification of emissions. Generalized emissions estimates are presented to allow for public disclosure and informed Lead Agency decision-making. In Section 3.3, the BAAQMD acknowledges that PM_{10} emissions can be highly variable on a daily basis, depending on factors such as the level of activity, the specific operations taking place, as well as weather and soil conditions (see **Comment ORIN-157**, BAAQMD CEQA Guidelines, page 28).

ORIN-73 Table 3.9-7 (DEIR p. 3.9-30) indicates that the enhanced measures apply to all but five of the WTTIP projects. While basic dust control measures are required for ***all*** WTTIP projects, the enhanced measures were not appropriate for five of the WTTIP projects because of the developed nature of the site (such as the Fay Hill Pumping Plant which is in a shopping center parking lot within an underground vault), limited surface disturbance (Lafayette WTP Alternative 2 would involve decommissioning equipment, which would result in minimal surface disturbance), or where enhanced measures (e.g., limiting travel speeds on unpaved roads or hydroseeding inactive areas) would not be appropriate because of the developed nature of the site. To clarify this, the sentence on DEIR p. 3.9-13 (last sentence of the first full paragraph) has been revised (refer to Section 3.2, Text Revisions, in this Response to Comments document).

In the referenced Table 2 (see **Comment ORIN-157**, BAAQMD CEQA Guidelines, page 14), the BAAQMD recommends that basic control measures be applied to all construction sites, while enhanced control measures be applied "at construction sites greater than four acres in area." For comparison purposes, the playing surface of a football field is slightly over one acre and the BAAQMD recommends that enhanced measures be applied to projects that disturb an area of approximately four football fields. Despite the BAAQMD's recommendation, the DEIR conservatively requires that enhanced control measures be implemented on WTTIP projects with construction sites that involve daily surface disturbance of less than four football fields in equivalent area (i.e., four acres). In addition, the DEIR requires implementation of five exhaust control measures on all WTTIP projects

(Measure 3.9-1c on DEIR p. 3.9-25), even though these measures are not specified or required by the BAAQMD CEQA Guidelines.

ORIN-74 By requiring all of the basic control measures at all WTTIP sites and enhanced measures where more extensive grading would occur, the DEIR correctly and conservatively applies the BAAQMD CEQA Guidelines. Total daily surface disturbance (in acres) is estimated for each project and for the entire WTTIP (all sites) in Table 3.9-4 (DEIR p. 3.9-12) to compare project-related areas of disturbance relative to the BAAQMD threshold of four acres for the enhanced control measures. This table indicates that total area of surface disturbance on a daily basis for the entire WTTIP would be three acres or less, depending on the alternative. The BAAQMD threshold for applying the enhanced control measures is four acres. Therefore, the DEIR's requirement of enhanced measures at all but five of the sites would be more conservative than the BAAQMD's guidelines suggest.

The BAAQMD CEQA Guidelines (**Comment ORIN-157**, page 13) state that optional measures *may* be implemented if further emission reductions are deemed necessary. BAAQMD Guidelines state that basic and enhanced control measures "should be implemented," whereas the BAAQMD "strongly encourages" the optional measures.

The comment notes the four optional dust control measures that are recommended by the BAAQMD for a site which is large, which is located near sensitive receptors, or which for any other reason may warrant additional emissions reductions. These measures are not recommended for this project because of the following feasibility/effectiveness concerns:

- *Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site*. Wheel washers are practical only on sites large enough to accommodate haul trucks which actually leave paved streets and drive onto an undeveloped site. This measure would not be effective on small sites; the daily street sweeping required under basic controls would provide more effective dust control on smaller sites. Although it is not required to mitigate WTTIP impacts to a less-than-significant level, EBMUD would consider requiring contractors to implement this measure on any WTTIP sites (WTP and some reservoir sites) where trucks would travel off-road.

- *Install wind breaks, or plant trees/vegetative winds breaks at windward site(s) of construction areas.* Wind breaks would not be an effective control measure since any trees planted at the beginning of project construction would not have enough time to become an effective wind break during the one- to six-year construction periods.

- *Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph.* Compliance monitoring for dust control is generally accomplished by visual monitoring (if dust is visible, then construction activities are not in compliance).

- *Limit the area subject to excavation, grading and other construction activity at any one time.* This measure is typically implemented on large project sites, where dust generation could be considerable if the entire site were graded and disturbed for a long period of time. It would not be applicable to the WTTIP. Table 3.9-4 (DEIR p. 3.9-12) of the DEIR indicates that surface disturbance at each WTTIP site would range between 0.00 and 0.51 acre per day.

ORIN-75 As stated on DEIR p. 3.9-10, although the BAAQMD does not require quantification of construction emissions, the EIR analysis quantifies construction emissions associated with the WTTIP "because of the unique characteristics of the WTTIP — the number of individual projects, the size of some of the projects, and the overall duration of construction activities..." As noted above, the "hybrid approach" supports the conclusion that impacts will be mitigated to a less-than-significant level for each individual project as well as the WTTIP combined. The DEIR requires all WTTIP sites to implement the basic control measures, as required by BAAQMD CEQA Guidelines (see Table 3.9-7 of the DEIR p. 3.9-31). The DEIR also requires all but five WTTIP sites to implement the enhanced control measures (see Table 3.9-7, DEIR p. 3.9-31). Based on the surface disturbance areas listed for WTTIP sites in Table 3.9-4 of the DEIR, this requirement is more conservative than what is required by the BAAQMD CEQA Guidelines. In addition, the DEIR requires implementation of five exhaust control measures on all WTTIP projects (Measure 3.9-1c on DEIR p. 3.9-25), even though these measures are not specified or required by the BAAQMD CEQA Guidelines. Nevertheless, EBMUD would consider requiring contractors to implement applicable enhanced control measures at the five remaining WTTIP sites where they are not currently required, even though current control measures are expected to reduce construction-related dust emissions to a less-than-significant level.

ORIN-76 The BAAQMD CEQA Guidelines (**Comment ORIN-157**) acknowledge that PM_{10} emissions from construction activities can vary considerably depending on factors such as the level of activity, the specific operations taking place, and weather and soil conditions. Similar to its approach to construction dust emissions, the BAAQMD emphasizes implementation of effective and comprehensive control measures for PM_{10} rather than detailed quantification of construction emissions. Current studies of actual construction sites by the South Coast Air Quality Management District (Dr. Steve Smith, CEQA Section, personal communication) demonstrate a high degree of inaccuracy in the computer model assumptions of equipment usage and fuel consumption, as well as high day-to-day variability.

Nevertheless, for the same reasons outlined above under **Response ORIN-75**, this EIR analysis quantifies construction exhaust emissions associated with the WTTIP "because of the unique characteristics of the WTTIP—the number of individual projects, the size of some of the projects, and the overall duration of construction activities...." Exhaust emissions are quantified for each WTTIP site based on cubic yards of material moved (in accordance with the methodology outlined by the BAAQMD for estimating construction equipment exhaust emissions; see

Comment ORIN-157, page 29, BAAQMD CEQA Guidelines) and results are presented in Table 3.9-5, DEIR p. 3.9-14. In addition, the DEIR requires implementation of five exhaust control measures on all WTTIP projects (Measure 3.9-1c, DEIR p. 3.9-25), even though these measures are not specified or required by the BAAQMD CEQA Guidelines. Please note, as discussed in **Response ORIN-82** it is difficult to assess impacts associated with diesel or $PM_{2.5}$ when evaluating short-term construction impacts. Diesel exhaust control measures required under Measure 3.9-1c (DEIR p. 3.9-24) and actions addressed on DEIR p. 3.9-28 would mitigate potential impacts associated with $PM_{2.5}$ to a less-than-significant level.

ORIN-77 The impact analyses in Sections 3.9 and 3.10 of the DEIR both assume that in worst-case conditions generators, not line power, would be used at tunnel shafts. Use of line power is a recommended mitigation measure for air quality (Measure 3.9-1c) and is cross-referenced as a mitigation in the noise impact discussion (see cross-references on DEIR p. 3.10-18 for Orinda WTP, Alternative 2 and DEIR p. 3.10-22, Orinda-Lafayette Aqueduct, Alternative 2 Tunnel).

It is not known, however, whether adequate voltage for heavy equipment operations can be supplied at each construction site in a reasonably economical manner, or whether power lines can be run without affecting other environmental concerns (visual, biology, land use, etc.). Use of line power instead of generators is therefore recommended *where feasible*. A specific finding of feasibility will be made for each individual construction site. Since line power may not be available at all locations and a generator may be used, the noise analysis also includes mitigation measures to ensure noise impacts from any stationary noise sources or equipment, in the event they are used, are adequately mitigated (Measure 3.10-1a, DEIR p. 3.10-30).

ORIN-78 Secondary impacts from power consumption cannot be predicted with accuracy because of the deregulated power market. Electricity used by expanded water distribution facilities can come from anywhere in the western United States. Therefore, there is no direct correlation between on-site power use and any particular power generation facility in the Bay Area Air Basin. Nonetheless, DEIR p. 3.9-33 has attempted to analyze the PG&E contributions to the regional power grid and noted projections in increases in renewable resources. Also see **Response ORIN-100**.

ORIN-79 "Program-level" activities will be subject to project-level CEQA analysis if those activities are determined to be necessary and when a more detailed project description (e.g., for the second clearwell at the Orinda WTP that might be necessary in the future) has been developed. A thorough CEQA review is not feasible without such a detailed project description. It is the BAAQMD's conclusion that standard mitigation measures will achieve a less-than-significant construction dust impact except in unusual circumstances. Any "unusual" construction projects, by virtue of their nature or their location near sensitive land uses, would likely incorporate

additional mitigation beyond standard BAAQMD recommendations as a result of project-level review.

ORIN-80 As noted by the commenter, hydrogen sulfide exposure is an occupational hazard in underground construction for which worker protection measures must be in place. If ventilation air contains excessive levels of hydrogen sulfide or methane, then it must be scrubbed or diluted before discharge into the atmosphere (see Measure 3.9-3). The discharge air from an underground tunnel flows through a confined space, making it amenable to capture and treatment. Industrial hygiene regulations require such treatment for worker safety in very close proximity to the point of discharge. Public exposure is several orders of magnitude less than restricted worker exposure because of additional dilution effects. The OSHA worker protection requirements for personnel working in a tunnel or other confined space ensure that public exposure will not be health-threatening. See Appendix H for more information regarding the regulatory framework for hazards and hazardous materials.

ORIN-81 "Gassy" refers to the methane levels in the construction tunnel. A gassy tunnel may or may not also have hydrogen sulfide in concentrations which exceed worker safety levels. When tunnels are gassy, a large number of OSHA worker-protection requirements are triggered. As noted above, achieving mandated worker protection creates a high likelihood of corresponding public protection because of the dramatic dilution factor of the worker exposure air versus the levels that will ultimately reach the public.

There are no ventilation shafts or other potential conduits for gaseous emissions from the tunnel proposed along the tunnel alignment. The only two locations where tunnel emissions could occur would be the tunnel entry and exit shafts. The DEIR assumes ventilation systems would only be at these two locations. Please see the Tunnel Classification and Safety section of Appendix H beginning on page H-5 for more information.

ORIN-82 The "grave health risks" cited by the commenter that are associated with $PM_{2.5}$ exposure derive primarily from the diesel exhaust component of $PM_{2.5}$. Soil particles from fugitive dust do not readily break down into $PM_{2.5}$, and most soil material is fairly inert. Diesel exhaust health risk is assessed based on continuous, long-term exposure to an emissions source (exposure of a resident to a specified level of diesel $PM_{2.5}$ outside their home for 24 hours per day, 365 days per year, over 70 years). Therefore, a health risk assessment, which assumes this level of long-term exposure, is clearly inappropriate for evaluating $PM_{2.5}$ exposure due to a temporary construction project because of the shorter project duration and expectation that any exposure would be brief.

Because of the variability and unknown behaviors of source and receptor distributions, it is not feasible to prepare an accurate impact assessment for $PM_{2.5}$ exposure. It should be noted that the $PM_{2.5}$ estimates presented in the DEIR are

based on real-life documentation. In addition, the ISCST3 computer model routinely used for this type of analysis works best when applied to point sources (smokestacks, etc.) or area sources (large grading areas, entire airports, shipyards, landfills, etc.), not line sources (single roadways).

In the BAAQMD CEQA Guidelines recommendations for construction, the emphasis of the impact assessment is on mitigation because the quantification of emissions and risks is imprecise. Diesel exhaust control measures required under Measure 3.9-1c (DEIR p. 3.9-24) and actions addressed on DEIR p. 3.9-28 would mitigate potential impacts associated with $PM_{2.5}$ to a less-than-significant level. EBMUD will also consider requiring contractors to use soot filters on construction equipment exhaust where diesel equipment will operate in proximity to sensitive receptors.

ORIN-83 To be considered substantial (which the commenter does not define), an increase in ambient noise must be at a level that creates an adverse human response. Noise ordinances are generally written such that a violation of ordinance standards is presumptive proof of a noise nuisance. The sleep disturbance and speech interference, thresholds applied in the DEIR, are intended to identify nuisance potential even if levels do not exceed some ordinance standards. Application of these thresholds is based, in part, on findings of the U.S. Environmental Protection Agency,[3] which determined that public health and welfare can be degraded when environmental noise interferes with a range of human activities including: speech communication in conversation and teaching; telephone communication; listening to TV and radio broadcasts; listening to music; concentration during mental activities; relaxation; or sleep.

A change in noise levels from one day to the next, even if clearly noticeable, does not constitute a significant impact if it does not substantially interfere with normal human activities. The human perception threshold of changes in noise levels is approximately 3 dB under ambient conditions. To provide an example, in a country setting, if normally one car passed by the house during the day the passage of two cars per day would increase noise levels by 3 dB. While this is humanly perceptible, it is not, as the commenter appears to suggest, a significant noise impact in most settings. In formulating the DEIR analysis, a definition of substantial change based on decibel levels or audibility alone without considering whether there is any adverse human reaction, as suggested by the commenter, was not considered to be appropriate. This is the reason that EBMUD used the detailed significance criteria described on DEIR pp 3.10-5 and 3.10-8 to evaluate noise impacts and it is consistent with the approach taken in other EIRs.

[3] U.S. Environmental Protection Agency, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974.

ORIN-84 Leq is not a 24-hour measurement parameter as suggested, but rather the average during a specific measurement period. The commenter references DEIR p. 3.10-1, which defines Leq as the acoustical energy of a given measurement, whereas the text goes on to define Leq (24) as the steady-state energy level measured over a 24-hour period. Traffic noise on public roadways is typically evaluated in terms of the weighted 24-hour average (CNEL), a General Plan noise standard, because local jurisdictions are pre-empted from regulating on-road noise through local codes. Since haul trucks would only operate during the daytime, the use of CNEL would dilute the predicted impact. Therefore, daytime Leq during the hauling period was used in this analysis as a more conservative, worst-case analysis parameter. Table 3.10-7 (DEIR p. 3.10-34) identifies noise levels as Leq, not Leq (24).

The commenter also states that truck noise should be evaluated as a single noise event. Table 3.10-4 (DEIR p. 3.10-10) lists the single event or Lmax noise level (Lmax noise level of 91 dBA at 50 feet from a single passing truck). This noise level is adjusted in Table 3.10-5 for distance to predict the noise level from a single passing truck at the closest receptor to each facility site (worst-case conditions). This predicted level is then compared to the speech interference criterion at each facility site as well as the applicable noise limit for each site under unmitigated and mitigated conditions.

ORIN-85 CEQA does not specify significance thresholds but, instead, encourages jurisdictions to adopt their own thresholds. The DEIR presents a range of thresholds to characterize the range of effects that can result from vibration.

Although the DEIR (p. 3.10-36) notes that humans can feel vibrations as low as 0.012 inches/second (in/sec), it also notes that no complaints were received in other construction projects when vibration velocities were maintained at much higher vibration levels of 0.10 in/sec or less. Sheet-pile driving or controlled detonation near residences can sometimes exceed 0.10 inches per second without violating the 0.5 inch/second cosmetic damage threshold. Other equipment operations would not likely cause 0.1 inch/second to be exceeded at off-site residential structures. Measure 3.10-3a (DEIR p. 3.10-40) notes that the cosmetic damage threshold is applied. Although Measures 3.10-3a and 3.10-3b would be adequate to reduce potential vibration impacts both from annoyance and cosmetic damage to a less-than-significant level, EBMUD will expand the measure (Measure 3.10-3b, second bullet item) to include notification of adjacent residents about planned pile driving activities, if used, controlled detonation activities currently specified.

ORIN-86 As shown in Table 3.10-5 (DEIR p. 3.10-12), the closest sensitive receptors are residences located 500 feet from the tunnel entry portal. Maximum construction noise levels are predicted for the closest receptors to reflect worst-case conditions. The Wagner Ranch School play fields are at least 530 feet from this shaft, while the classrooms are at least 750 feet from the portal. At these distances, the field and classrooms would be subject to lower noise levels than those listed in Table 3.10-5 for

this entry shaft. This table indicates that mitigated noise levels are expected not to exceed the 70-dBA speech interference criterion. Even if the lower recreational speech interference criterion of 60 dBA were applied to the play fields (see DEIR p. 3.10-8, first paragraph), mitigated noise levels (with noise controls) would still not exceed this threshold (except possibly for impact equipment, which could at times exceed this threshold by 1 dBA). Therefore, the DEIR's significance determination under Alternative 2 would be the same for both residential and school receptors.

Similarly, noise impacts associated with Alternative 2 treatment facilities are also estimated in Table 3.10-5 (DEIR p. 3.10-11) under "Orinda WTP – Alternative 2" at the closest receptors (170 feet away) in order to reflect worst-case conditions. The Wagner Ranch School play fields are located approximately 1,300 feet from the proposed clearwell, (the closest project-level treatment facility under this alternative), while the classrooms are at least 1,500 feet from this facility. Therefore, noise impacts at the school would be less than those listed for this facility in the table.

The only proposed facility that would be located closer to the Wagner Ranch Elementary School, than identified residential receptors to the west and east, would be the potential future clearwell under both Alternatives 1 and 2. The potential noise impacts on the school are evaluated at a program-level on DEIR p. 3.10-51. When and if the clearwell is determined to be necessary, and when a detailed project description has been developed for this facility, a more detailed, project-level noise evaluation would be completed and more specific mitigation measures would be specified.

ORIN-87 Table 3.10-5 (DEIR p. 3.10-14, under Happy Valley Pumping Plant) and the impact discussion on DEIR p. 3.10-25 indicates that the 70-dBA speech interference criterion would be exceeded by 5 to 11 dBA even with implementation of feasible noise controls specified in Measure 3.10-1a. The DEIR also notes that a temporary noise barrier will be required to separate construction activities from the nearest neighbors around the Happy Valley Pumping Plant. Noise reductions of 10 to 15 dB are readily achievable with such barriers. The DEIR states that construction activity noise impacts will be reduced to below the 70-dB speech interference criterion with the use of such a barrier (see Measure 3.10-e, DEIR p. 3.10-33).

ORIN-88 Use of speech interference, not the relative change in ambient noise levels, is an appropriate significance threshold for construction noise since it characterizes the effect of construction on daytime activities. (See **Response ORIN-83** regarding the appropriateness of using speech interference as a significance criterion.) This is further supported by the fact that construction-related noise controls specified by the Orinda Zoning Ordinance (Section 17.39.3) restrict hours and days of construction, and do not specify construction noise limits. Also, the DEIR (p. 3.10-33) notes that although mitigation measures would reduce construction noise levels to meet the speech interference criterion (Table 3.10-5) or applicable noise limits (Table 3.10-6),

mitigated construction noise could still cause occasional disturbance at the closest noise-sensitive receptors.

Measure 3.10-1e (DEIR p. 3.10-33) requires that temporary barrier heights exceed equipment stack heights by 5 to 10 feet to produce the desired effectiveness. With respect to the design of the barrier, good engineering practice for sound barriers requires that the tangent of the angle subtended by the barrier be such that the effective length of the barrier is four times the distance from the barrier to the source to prevent leakage around the edge. This can be achieved either by barrier length or by curving the barrier around the source to achieve an equally effective level of shielding. Therefore, provision of a temporary noise barrier is considered to be feasible at this location.

ORIN-89 For projects where the speech interference criterion could be exceeded even with implementation of feasible noise controls (Measure 3.10-1a), temporary sound barriers are recommended under Measure 3.10-1e for all construction projects with fixed or discrete locations (treatment plant construction zones, reservoirs, pumping plants, etc.). However, since pipeline projects progress linearly and affect different locations on an almost daily basis, erection of temporary sound barriers along the pipeline alignment is not a practical or feasible mitigation. Since pipeline projects result in construction activities continually moving along the alignment and affecting different receptors, duration (time exposure) at a given receptor must be considered when determining impact significance of WTTIP pipeline projects. Given the difference in impact potential at a residence adjacent to a reservoir versus a residence adjacent to a pipeline alignment, construction duration must be a factor when determining significance. Consideration of this factor when assessing the significance of pipeline-related construction impacts is clearly stated in impact discussions under each WTTIP pipeline project (DEIR pp. 3.10-23 to 3.10-30).

The DEIR (p. 3.10-16) states that sensitive receptors are located closer to pipeline-related construction activities than would be the case at other facility sites (as close as 25 feet), and construction noise levels would exceed the speech interference criterion with or without feasible noise controls. However, pipeline construction progresses along an alignment (rather than persisting at one location) so that any given sensitive receptor is typically subject to construction noise for approximately two weeks (not for the entire duration of project construction indicated in Table 3.10-5), followed later by a couple of additional days for paving the trench (at any particular receptor, constructions activities would likely occur within the 25-foot setback for one day of excavation, one day of pipe-laying, and one day of backfilling, backfill compaction and surface restoration). Refer to Figure 2-9 (DEIR p. 2-39) for a description of pipeline construction.

ORIN-90 Impact significance is based on a number of factors: 1) whether noise levels exceed the speech interference criterion; 2) consistency with hourly time limits and noise limits (if applicable) specified by local noise ordinances; and 3) the duration of a

receptor's exposure to construction noise. For pipeline projects, it is these factors *combined* that determine whether a construction noise impact is mitigated to a less-than-significant level. Under all WTTIP pipeline projects where the speech interference criterion is exceeded even with noise controls, the DEIR notes that this potentially significant impact is considered to be adequately reduced by Measures 3.10-1a (noise controls) and 3.10-1b (time limits) due to the short duration of exposure at any particular receptor (approximately two weeks). This statement was made in the pipeline discussion of the Orinda-Lafayette Aqueduct-Alternative 2 project on DEIR p. 3.10-23, but was inadvertently omitted from the Happy Valley Pipeline impact discussion on DEIR p. 3.10-25. Therefore, the text has been added to DEIR p. 3.10-25, paragraph 2 (refer to Section 3.2, Text Revisions, in this Response to Comments document).

This clarification does not change the significance determination of Impact 3.10-1 for the Happy Valley Pipeline.

Also, see **Response ORIN-89** for explanation of why temporary barriers are not considered practical or feasible for the daily progression of pipeline construction. The daily erection, dismantling and relocation a few feet further along the pipeline alignment is not considered reasonable, desirable or necessary given the brief duration of the impact at any given receptor and the potential to increase the overall duration of the project.

Table 3.10-4 (DEIR p. 3.10-10) presents single-event Lmax noise levels associated with pile drivers (i.e., the instantaneous noise level generated when the driver hits the pile). Table 3.10-5 presents a Leq noise level for pile driving activities, which integrates a series of pile driving noise events over a given time period. As indicated in Table 3.10-5, construction noise impacts are evaluated in Leq for all equipment types except for trucks, which applies the Lmax, single event noise level. Truck-related Leq noise impacts are evaluated separately in Table 3.10-7 under Impact 3.10-2.

It also should be noted that jack-and-bore construction does not necessarily require pile driving. Piles could be bored or driven using a vibrating driver. If pile driving is required at a jack-and-bore pit, Measure 3.10-1a (third and fourth bullets, DEIR p. 3.10-30) requires that pile holes be pre-drilled to minimize the duration and noise levels associated with pile driving and that equipment be hydraulically or electrically-powered with mufflers and acoustic shrouds. Given the limited potential need for pile driving at jack-and-bore pits (due to the limited size of these pits) and the limited duration of such noise, these measures are expected to be adequate to reduce potential temporary noise impacts associated with jack-and-bore construction to a less-than-significant level.

ORIN-91 See **Response ORIN-83** regarding appropriateness of using any increase in ambient noise levels as a CEQA significance criterion. Similar to the Happy Valley Pumping Plant, temporary sound barriers (Measure 3.10-1e) will be required at the Donald Pumping Plant/Ardith Reservoir site, since construction would occur within 150 feet of residences. This measure was not required at the Sunnyside Pumping Plant since the current design locates construction at 175 feet or more from the closest residential receptor. Any design changes resulting in construction limits that are 150 feet or less from the closest residential receptor, would require temporary sound barriers (Measure 3.10-1e) to reduce construction noise impacts.

ORIN-92 The DEIR's noise impact assessment is based on weekday and weekend "baseline" noise measurements conducted at two locations near the proposed tunnel entry portal site (see Table 3.10-2, DEIR p. 3.10-6, Sites 1 and 2). Once equipment has been selected, construction staging areas are designated, and sound barrier design, facility design, and facility locations are finalized, baseline noise measurements required in Measure 3.10-1b would be conducted at the closest sensitive receptors. Typically, such measurements are not required and the noise abatement program is developed based on baseline measurements collected as part of the EIR. Requirement of additional baseline measurements provides an extra layer of protection for neighbors and ensures that all final design elements are considered in the noise abatement program. Mitigation measures outlined in the DEIR (Measures 3.10-1a through 3.10-1e) are adequate to mitigate construction noise impacts to a less-than-significant level.

Regarding the front loader, EBMUD proposes to limit front loader operation in the tunnel portal vicinities to the daytime hours (not after 6 p.m.) as stated on page 3.10-21, second paragraph of the DEIR and reiterated in Measure 3.10-1d, fourth bullet (DEIR p. 3.10-32). While this will be incorporated into contract specifications, the EIR acknowledges (as reflected in Measure 3.10-1d) that there may be special situations or emergencies where operation of the front loader after 6 p.m. becomes necessary for safety reasons; otherwise, tunnel muck would normally be stockpiled during the night and loaded out the next day.

ORIN-93 The recommendation to locate vents or openings away from the closest residential receptors is based on noise measurement data collected at other enclosed pumping plants, which indicated a 20-dB difference between the side of the pump enclosure with no vents versus the side of the enclosure with the vent or opening (see Table 3.10-8, footnote a, DEIR p. 3.10-42). Measure 3.10-4 requires that equipment used in WTTIP facilities not cause ambient noise levels to exceed the applicable nighttime noise limits specified by local ordinances and listed in Table 3.10-8 for each facility site (measurable decibel limits). Since these noise limits are specified in Measure 3.10-4, the EIR's Mitigation Monitoring and Reporting Program (required under CEQA) will ensure that this mitigation measure is implemented properly and that these limits are not exceeded at each pumping plant.

Please also refer to Section 2.1.3, Master Response on EBMUD Obligations to Comply with Local Ordinances and Obtain Local Agency Approvals for further response to the issues raised by this comment.

ORIN-94 Program-level improvements cited and analyzed in the DEIR would be subject to additional CEQA environmental review if and when they are determined to be necessary. Please also refer to Section 2.1.1, Master Response on Program- and Project-Level Distinctions, of this Response to Comments document.

ORIN-95 A 1,000 gallon gasoline underground storage tank was removed from the northern portion of the Orinda WTP in 1998, and gasoline, benzene, toluene, ethylbenzene, and xylenes, and methyl tert-butyl ether were not detected in confirmation samples collected from the tank excavation at the time of removal. The reason for the listing of the Orinda WTP in the Cortese database is not certain.

There is a low risk of encountering contamination in the area of planned construction at the Orinda WTP. If contamination were identified during construction, any necessary follow-up actions would be conducted under the oversight of the DTSC in accordance with a voluntary cleanup agreement (see comments DTSC-1 and DTSC-3 regarding DTSC oversight and applicability of the voluntary cleanup agreement). Furthermore, the construction contractor would prepare and implement a site health and safety plan, a materials disposal plan, and a water control and disposal plan in accordance with Section 01125 of the EBMUD construction specifications (described on DEIR p. 3.11-21) to ensure that contaminated materials are identified and handled in a safe and appropriate manner. Completion of these activities under the oversight of the DTSC and in accordance with Section 01125 of the EBMUD construction specifications would ensure that impacts related to handling of contaminated soil and groundwater, if present, are less than significant.

ORIN-96 Impacts related to potential contaminants in soil and groundwater will be less than significant with oversight by the DTSC and preparation and implementation of appropriate plans in accordance with Section 01125 of the EBMUD construction specifications. (See **Response DTSC-2** and the DTSC letter as a whole which notes that the CEQA documentation "adequately addresses any remediation of hazardous substance releases that may be necessary.")

ORIN-97 See **Responses ORIN-95** and **ORIN-96** regarding how impacts related to contaminants in soil and groundwater will be less than significant with oversight by the DTSC and preparation and implementation of appropriate plans in accordance with Section 01125 of the EBMUD construction specifications.

As discussed in Impact 3.11-3, impacts related to potentially gassy conditions in the tunnel would be less than significant with compliance with the Tunnel Safety Orders which specify requirements for the monitoring of explosive vapors, ventilation, and the restriction of potential ignition sources in tunnels.

Impacts related to the types and placement of ventilation equipment for the tunneling project are evaluated in Section 3.10, Noise and Vibration. As required by Measure 3.10-1d, the contractor would be required to 1) retain an acoustical engineer to design sound-abatement measures to meet local ordinance limits, including design specifications for a sound barrier and the specific ventilation fan to be used at tunnel portals; and 2) use quiet tunnel ventilation fans directed away from sensitive receptors. The fans must meet noise ordinance limits; additional measures could be employed as necessary to meet these limits. Measure 3.10-1e also requires construction of a sound barrier where sensitive receptors are located within 150 feet of a construction site. With implementation of these noise control measures, the use of appropriate equipment, implementation of noise control measures, and compliance with noise ordinance limits, noise impacts related to ventilation fans would be less than significant, regardless of the placement or type of equipment used.

The project schedule has been established with the assumption that conditions in the tunnel will be gassy and that the tunneling project will comply with the tunnel safety orders; therefore gassy conditions in the tunnel should not cause schedule delays or excessive work stoppages.

ORIN-98 EBMUD will coordinate with the Orinda Fire Department during implementation of the projects in its jurisdiction. Please also refer to Section 2.1.3, Master Response on EBMUD Obligations to Comply with Local Ordinances and Obtain Local Agency Approvals for further detail regarding the issues raised by this comment and EBMUD coordination with local agencies.

ORIN-99 The environmental impacts associated with increases in demand for energy are discussed in the DEIR as explained below:

Need for Improvements at PG&E Substations

As described on DEIR pp. 3.12-17 and 3.12-18, PG&E has indicated that additional electric distribution facilities (new substation bank and circuit) could be required by 2014 at the Lakewood circuit due to increased electricity use at the Lafayette WTP (Alternative 1) or at the Sobrante 1103 circuit due to increased demand at Orinda WTP (Alternative 2). The WTPs would not be the only proposed future electrical loads on PG&E's circuits; rather, they would form part of that load. PG& E's evaluation (Chan, 2006) is, in fact, based on a horizon year of 2011; construction of the Lafayette WTP expansion (Alternative 1) would start in 2012. As part of their planning process, PG&E will update their electric load forecasts before 2012 so the forecast electrical loads for these circuits, and therefore the facility improvements needed to meet forecast increases, will undoubtedly change.

PG&E's planning process will involve conducting load studies to anticipate future load growth, meeting with local authorities regarding land use issues, and obtaining any local permits required for construction and operation of the new substation.

PG&E is required to obtain authorization from the California Public Utilities Commission (CPUC) for a project (as defined by CEQA) involving expansion of a substation pursuant to CPUC General Order 131-D. PG&E would also be required to submit an application to the CPUC including a Proponent's Environmental Assessment. As the lead agency for PG&E's project, the CPUC would then carry out the CEQA review for the project.

Detailed review of the substation bank and circuit, and its impacts, and identification of potential mitigation measures are not possible at this stage, as the details and facts of the proposed substation will not be known until the PG&E planning process begins. The DEIR includes an analysis of the impacts of increasing generation to the extent possible, but determination of site-specific impacts and proposed mitigations would be speculative since neither the site nor the project details are known. (See CEQA Guidelines Section 15145.) As noted above, any necessary environmental documentation on the substation implementation would be done as part of the required CPUC process on approval of the substation.

Increased Emissions From Power Generation

Contrary to the comment's assertion, the DEIR addresses increased emissions from power plants in the Air Quality section under Impact 3.9-6: "Secondary Emissions at power plants due to the generation of electricity to operate pumps and other facilities...." DEIR p. 3.9-33.

ORIN-100 The comment states that the DEIR's claims regarding "EBMUD's Renewable Energy Facilitation Plan, along with public utilities' efforts to achieve a certain renewable energy portfolio, are not presented in sufficient detail to support any conclusion regarding the potential value as mitigation measures for this particular project." The Renewable Energy Facilitation Plan was commissioned by EBMUD in 2002 to plan for the district's role in renewable energy use and is not considered a mitigation measure in the DEIR. The significance criterion used in the DEIR states that if an action were to "substantially interfere with or change the demand for utilities" (DEIR p. 3.12-11) then it would be considered significant.

As noted in the DEIR, EBMUD reduces its peak energy demand and costs by "turning off distribution system pumping plants during peak energy time of use, from noon to 6:00 p.m." (DEIR p. 2-47). On a typical summer weekday, the District as a whole is able to shift 10-15 Megawatts of load from the peak-period. This shifting of the pumping plant load to off-peak hours reduces peak load on the electric distribution system, reducing Independent System Operator (ISO) power shortage emergencies in the PG&E service area and decreasing the incidence of rolling blackouts. In addition, any significant incremental shifting of load from on-peak periods to the off-peak supports the best use of the existing energy infrastructure.

The comment further states that the descriptions of renewable energy are misleading and requests definition of renewable energy.

The EBMUD Renewable Energy Facilitation Plan identifies renewable energy to be electricity generated from renewable resources that are replenished, including the sun, wind, water, biomass, and geothermal (the earth's heat). Renewable technologies include photovoltaics, wind turbines, small hydroelectric dams, biomass and biogas, and geothermal (ICF Consulting, 2003). For more details see DEIR p. 3.12-18. PG&E identifies a similar list of renewable energy sources: biomass & waste, geothermal, small hydrological dams, solar, and wind (PG&E, 2002).

The PG&E figures cited are based on publicly distributed announcements that state that 30% of the customer load is supplied by renewable resources: 18% from large hydroelectric facilities and 12% from smaller renewable resources that qualify under the California's Renewable Portfolio Standard (RPS) Program.

The commenter correctly notes that the DEIR indicates that electricity demand under Alternative 2 could increase by more than 6,000 kilowatts (or 6 megawatts) based on estimates provided by PG&E. Alternative 1, the Preferred Alternative, would increase electricity demand by much less in PG&E's estimation. It should be noted that PG&E's estimates are conservative and based on maximum theoretical load. In addition, those estimates also do not recognize the likely incremental nature of the increased electricity demand. In other words, under Alternative 1 for example, some of the estimated increased demand at the Orinda WTP would be offset by the demand eliminated by closing the Lafayette WTP.

Nevertheless, the little more than 2.3 megawatt increase for Alternative 1 and 6.3 megawatt increase for Alternative 2 are relatively small and will not result in significant secondary impacts, particularly in light of the District's ability to shift peak loads and its commitment to increasing use of renewable energy technologies.

ORIN-101 In response to this comment and the statement that measures should be more explicit in providing quantifiable and enforceable bases for determination that impacts will be less than significant, Measures 3.12-4a and 3.12-4b have been revised (refer to Section 3.2, Text Revisions, in this Response to Comments document).

These changes do not alter the EIR's conclusions regarding impact significance.

ORIN-102 This comment raises questions about the basis of the projected average day demand, the relationship between average day demand and maximum day demand, and the appropriate projection to be considered in the growth inducement analysis. The DEIR analyzes the project's growth inducement potential with reference to the projected average day demand which the project has been designed to accommodate, as the comment states. The DEIR does not itself project the average daily demand. The projected average day demand discussed in Chapter 4 was developed by EBMUD in

background studies that provide the basis for the WTTIP, including the *Districtwide Update of Water Demand Projections* Study (Demand Study) (EBMUD and Montgomery Watson, 2000) and subsequent pressure zone studies. Chapter 4 (DEIR pp. 4-4 through 4-11) describes EBMUD's land use unit demand (LUD) approach to developing the water demand projections based on predicted development over the planning period of approved land uses. The projections that were developed include adjustments to account for water conservation and recycling. Annual demands for the future years in the planning period were forecasted for each pressure zone. The average day demand was calculated by dividing the annual demand for each year by 365 (as noted in Chapter 4).

Maximum day demand for each pressure zone was calculated by applying a "peaking factor" to the average day demand, based on peak demand data from the respective pressure zone. The peaking factor is the ratio of maximum day demand to the average day demand calculated using the following formula:

> Gross Maximum Day Demand / Gross Average Day Demand = Demand Study Peaking Factor[4]

The maximum day demand was obtained from the District's Operations Network System Capacity Improvements Database. The maximum day demand measures actual maximum usage in a pressure zone, including unaccounted-for water, and represents the highest 24-hour demand occurring in a specified calendar year. The Demand Study calculated maximum day demand for a particular pressure zone by multiplying the pressure zone's projected average day demand by the peaking factor for that particular pressure zone (EBMUD and Montgomery Watson, 2000).

Engineering standard practices specify that facilities be sized to meet maximum day (or peak) demand (EBMUD and Montgomery Watson, 2000). The District criteria for sizing facilities include industry standards and regulatory requirements and recommendations.

The average daily demand that could be supported by a system designed for a maximum-day capacity is the average daily demand, rather than the maximum demand, unless actual demand patterns were to change drastically (as postulated below) to reduce the difference between average and peak demand. In the Lamorinda area, the land uses are primarily residential. The maximum day water demand for residences in this area occurs in summer and is directly related to landscape irrigation. The system must be designed to meet that maximum day demand, taking into consideration a host of other factors (such as time of use for pumps, fireflow requirements, and system losses). Based on an analysis of demand for the District's

[4] Gross demand includes unaccounted-for water. As stated in DEIR Chapter 4 (footnote 6) unaccounted-for water is the difference between the total water produced at the water treatment plants and the total water consumption billed, and includes leaks in the distribution system, water treatment plant process uses, meter errors, unmetered construction uses, firefighting, and hydrant flushing.

East of Hills Area over three years (1995-1997), demand peaks in summer and decreases in winter. Although a system capacity designed to meet the maximum day demand could operate at the maximum day capacity for extended periods, operation at this level is not sustainable on a year-round basis. The project is not capable of supporting greater development because growth beyond the level reflected in the projected average day demand would simply result in higher peak demand. That is, peak demand would not flatten across the annual demand bell curve and to accommodate such additional growth additional capacity would be needed.

Only with a dramatic change in demand patterns would the maximum-day-demand based system capacity accommodate more people than projected and assumed in the growth inducement analysis. For example, if all residences in Orinda, Lafayette, Moraga and Walnut Creek replaced landscaping with hardscape (i.e., pavement or structures), then the difference between the maximum and average day demands would decrease and more residents could be served. This is not expected, however, and the result of this is uncertain, because either more people could be served or the WTTIP could be revised to eliminate many of its projects. Nonetheless, nothing in the land use plans of jurisdictions in the Walnut Creek/Lamorinda area supports speculation about such drastic land use changes. While the District has programs to encourage conservation and other demand reduction methods, the projections already assume that these conservation and recycling programs are going to be fully implemented (see Table 4-1, DEIR p. 4-6).

Therefore, as the above discussion indicates, the forecasted average day demand referenced in the growth inducement analysis – not the maximum day demand – is the appropriate level of demand against which to assess the level of growth that would be supported in the project area.

ORIN-103 The projections of local general plans provide a central point of comparison with the WTTIP's proposed capacity improvements in the growth inducement analysis. (See, for example, "Local Planning Agency Projections" ([DEIR p. 4-13 et seq.] and Table 4-5.) The analysis also discusses ABAG projections as another point of information and comparison, as they reflect the expectations for growth in the area of the regional planning agency. In addition, because ABAG projections extend to 2030, the WTTIP's planning horizon, a general comparison of rates of growth over the planning period reflected in ABAG projections is presented. A similar comparison with general plan projections is not possible because of the differences in planning horizons reflected in the various general plans and the WTTIP. For this reason, an average annual growth rate was calculated based on the projections in the general plans to provide a means of comparison. ABAG projections are presented for reference, with the general plan and WTTIP information.

The analysis presented in Chapter 4 indicates that the demand projections developed by the WTTIP for the Walnut Creek/Lamorinda area are consistent with growth anticipated in the local general plans. (As discussed in Chapter 4 and noted in this

comment, EBMUD's land-use based approach to projecting demand is intended to ensure consistency between the water demand projections and the approved growth in the service area.) The impacts of that planned growth have already been evaluated, and measures to reduce or eliminate those impacts have been identified by the respective cities and Contra Costa County in the EIRs and Mitigated Negative Declarations prepared for their general plans and general plan elements. The growth inducement analysis therefore appropriately refers to the impacts and mitigation measures identified by the Cities and County themselves, in identifying the effects of growth that would, in part, be supported by the WTTIP.

ORIN-104 Section 5.2 of the DEIR presents the collective impacts of all project-level and program-level projects included in the WTTIP. This collective impact discussion provides a synthesis of impacts described in DEIR Chapter 3 (Volume 2) and indicates the potential for overlapping impacts or synergistic effects from multiple projects within the overall program. The section is not intended to repeat the project impacts previously analyzed and described in DEIR Chapter 3.

The collective impacts are examined by environmental resource topic, and the potential for overlapping impacts or synergistic effects depends on the geographic scope.

As explained in Section 5.2 of the DEIR, for many resource areas (including land use, planning, visual, geology, cultural resources, operational noise, and hazardous materials), the environmental impacts are site specific and limited to the immediate vicinity at individual project sites, with no potential for overlapping effect or synergistic effects. In these cases, the environmental effects of the WTTIP as a whole, or the collective impact, is the same as all of the project-level and program-level impacts described in Chapter 3 and is not repeated. However, as described in Section 5.2, there could be potential for overlap or synergistic impacts in the areas of recreation, water quality, biological resources, traffic, air quality, construction noise, wildland fire, and public services. These impacts are discussed and analyzed for the potential for the WTTIP projects, with mitigation, to determine whether they could result in a cumulatively considerable impact. In these cases, it was determined that the individual mitigation measures for particular facilities, coupled with the District's ongoing coordination and scheduling of overall WTTIP implementation activities, were deemed sufficient to reduce the potential collective impacts of the WTTIP project as a whole to less-than-significant levels, and no additional mitigation measures would be required.

ORIN-105 As described under Impact 3.9-2 (DEIR p. 3.9-25), exposure of sensitive receptors (homes, schools, playgrounds, etc.) to diesel exhaust particulates along haul routes was analyzed. However, because of the variability of actual truck emissions and the presence of people, it is not feasible to prepare an accurate impact assessment for exposure for all WTTIP project components, and thus a screening level approach was used with 600 one-way truck trips as a threshold. The analysis determined that

individual projects as well as the WTTIP as a whole would be unlikely to exceed this threshold, particularly when projects were occurring on the same haul route and within the same time frame. Nevertheless, diesel exhaust control measures would be required under Measure 3.9-1c (DEIR pp. 3.9-24 – 3.9-25). In addition, as described in **Response ORIN-82**, EBMUD would consider requiring contractors to use soot filters on construction equipment exhaust for WTTIP projects where diesel equipment would operate in proximity to sensitive receptors. This would substantially reduce the diesel exhaust emissions and any associated potentially adverse temporary health impacts.

ORIN-106 As described on DEIR p. 5-11, the collective impact analysis identifies the potential for increased fire risk in Orinda, particularly where WTTIP projects are in areas of wildland fire risk and share a major access route. Individual project-level mitigation would require specific fire protection restrictions and precautions for these projects. In addition, Measure 3.8-5 will require contractors to reduce access impacts, and Measure 3.12-1e will require notification to local fire departments. The District will conduct ongoing coordination and scheduling of WTTIP implementation activities in order to minimize disruption to local communities. When final WTTIP construction schedules are developed, the District will maintain ongoing coordination and notification with local agencies during construction in these jurisdictions, including coordination and notification of local fire services. Please also refer to Section 2.1.3, Master Response on EBMUD Obligations to Comply with Local Ordinances and Obtain Local Agency Approvals for further response to the issues raised by this comment.

ORIN-107 Section 5.2.11 of the DEIR describes the potential, collective energy impact of the WTTIP as a whole. As indicated in Impact 3.12-2 (DEIR p. 3.12-17), the District is pursuing strategies to increase use of renewable energy technologies within its service territories, installing a solar photovoltaic system at the Sobrante WTP, and considering purchase of renewable energy from offsite facilities. Therefore, it can be expected that renewable energy resources would provide a significant portion of the increased energy demand. The nature of the specific need for construction of additional electricity distribution facilities cannot be determined at this time, but the DEIR has predicted that the long-term increase in energy demand would not be significant. Refer also to **Responses ORIN-78** and **ORIN-99**. The indirect environmental effect associated with overall implementation of the WTTIP is discussed under Impact G-1, secondary effects of planned growth, and under Impact 3.9-6, secondary emissions at power plants.

ORIN-108 As discussed in Section 5.2.11 of the DEIR, the estimated range of total estimated solid waste that would be generated by the sum of all WTTIP construction activities is from 230,000 to 376,000 cubic yards. In the WTTIP vicinity, active landfills include Keller Canyon Landfill and Altamont Landfill with 68,279,670 and 124,400,000 cubic yards remaining estimated capacity, respectively (California Integrated Waste Management Board, website www.ciwimb.ca.gov/Profiles/county/,

2006). The maximum estimated volume solid waste that would be generated by the WTTIP as a whole would be less than 0.2% of the remaining capacity of these two landfills alone, and there are numerous other active landfills in Contra Costa and Alameda Counties that could also be used such that the impact on the capacity of these two landfills would be even less. Furthermore, implementation of Measures 3.12-4a and 3.12-4b would encourage contractors to recycle and reuse materials and reduce solid waste disposal requirements to the extent feasible. Therefore, the collective impact of the WTTIP on solid waste and landfill capacity is considered less than significant.

The fifth paragraph in Section 5.2.11 of the DEIR has been revised (refer to Section 3.2, Text Revisions, in this Response to Comments document).

ORIN-109 Table 5-1 presents a list of over 150 past, present and reasonably foreseeable future projects that were deemed to have potential impacts that could compound or interrelate with impacts identified for the WTTIP. It includes past projects that were completed as far back as 2001 as well as future projects planned as far ahead as 2016; there are also numerous projects with unknown construction schedules. This list provides a comprehensive and adequate representation of the range and extent of other projects in the WTTIP vicinity that could contribute to cumulative impacts.

Section 5.3 of the DEIR focuses on describing the potential contribution of the WTTIP to the overall cumulative impacts associated with the 150+ projects listed in Table 5-1. The section does not attempt to analyze or summarize the specific environmental impacts associated with the 150+ cumulative projects, which would indeed be extensive and far-reaching, since much of that information is unknown at this time and would be speculative to present. Instead, the section provides an overview of the scope and type of impact that could occur under each resource area based only on a very generalized description of each cumulative project and whether the impacts identified for the WTTIP could compound or interrelate with similar impacts associated with any of the 150+ cumulative projects.

In most cases, the potential for the WTTIP to compound or interrelate with impacts from any of the 150+ cumulative projects would depend on whether the WTTIP sites were in proximity to any of the cumulative projects' locations (or haul routes) and if the WTTIP construction schedule would overlap with or extend any of the cumulative projects' schedules. This is because in most cases, the WTTIP impacts are associated with the construction phase of the projects, particularly in the impact areas of traffic, air quality, noise/vibration, hazards, and services/utilities. This analysis identifies the potential for impacts to be prolonged, exacerbated or intensified as result of the combination of the WTTIP and other projects. In the case of long-term impacts, such as visual, geology, water quality, biological resources and cultural resources, the cumulative analysis examined a broader scope of potential impact, as defined under each resource area.

The cumulative analysis for each resource area determined whether the proposed program's incremental contribution would be considered cumulatively considerable and if so, whether the incremental impact would be adequately mitigated by identified mitigation measures. In all cases, either the program's incremental impact was not determined to be cumulatively considerable or the mitigation measures previously identified for the individual WTTIP projects were determined to adequately reduce the incremental impact to levels that were not cumulative considerable. This analysis and approach is consistent with CEQA Guidelines Section 15130.

ORIN-110 It is a reasonable assumption that all projects listed in the cumulative impacts analysis would be required to comply with applicable laws and regulations, including CEQA, and it would be speculative to assume otherwise. While the other projects could be adopted with statements of overriding considerations, they would still have to comply with applicable laws and regulations. In the case of impacts on water quality, air quality and biological resources, there are numerous laws and regulations designed to protect these resources, and these laws were developed in consideration of a comprehensive application to a wide range of projects and situations. In the case of water quality, applicable water quality regulations have been developed on a regional basis, as administered in the WTTIP study area by the California Regional Water Quality Control Board, such that applicable regulations (e.g., NPDES permit requirements) are intended to protect entire watersheds within the region and account for cumulative effects of activities within the region; compliance with these regulations by definition would be consistent with a regional approach to mitigation. Similarly, air quality regulations, as administered in the WTTIP study area by the Bay Area Air Quality Management District, are based on protection of entire air basins, not on isolated project locations. Regulation of biological resources considers species and habitat as a whole and compliance with applicable permits and regulations would in large part provide the appropriate level of protection. By preparing an EIR that encompasses all the WTTIP projects, the District is in effect notifying the resource agencies of the range and extent of potential impacts of the WTTIP project elements as a whole, and is conducting an environmental analysis that seeks to consider this range. This will allow subsequent permit requirements to account for the incremental contribution of the WTTIP to cumulative impacts to the affected resource and ensure individual project mitigation.

Refer to **Response ORIN-109** which describes the basis for determining that the WTTIP's cumulative contribution would be less than significant. The DEIR has analyzed the impacts of the WTTIP projects in combination with other projects, and the determination that the impacts will not be cumulatively considerable is not based solely on the determination that the projects will be individually mitigated to a less-than-significant level. A number of factors, including the nature of the projects and nature of the impacts, have been considered.

ORIN-111 Section 5.4.6 of the DEIR analyzes the potential for cultural resources impacts of the WTTIP to compound or interrelate with cumulative impacts associated with projects listed on Table 5-1 within the context of the two affected counties. The analysis determines that the incremental impacts of the WTTIP would not be cumulatively considerable, with implementation of Measures 3.7-1 to 3.7-3. This would be true regardless of the outcome of surveys along the San Pablo pipeline alignment, since Measures 3.7-1 and 3.7-2 provide for contingencies in the event of the discovery of an unknown resource. The discussion is not intended to analyze or mitigate the cumulative impacts on cultural resources of all the cumulative projects.

As described on page 5-38, the District has initiated discussion with Moraga, Orinda, Walnut Creek, Lafayette, Oakland, and Contra Costa County, as well as with other utility districts and agencies regarding the coordination of WTTIP project construction with other planned and proposed projects in the WTTIP study area. As project development continues, the District would continue to conduct ongoing coordination throughout the design, pre-construction, construction, post-construction, and operation stages to help minimize disruption to the local communities. In order to provide further assurance of and commitment to ongoing coordination with other jurisdictions' projects, Measure C-7 has been added to the EIR (specifically in regard to Impacts C-7 and C-9). The new mitigation measure will commit the District to providing regular, ongoing notification and communication (approximately every six to twelve months or more often if needed) with local jurisdictions with regard to the status, schedule and location of WTTIP projects and associated haul routes and any other District projects within that jurisdiction).

See **Response ORIN-108** regarding cumulative impacts on solid waste disposal.

ORIN-112 The DEIR acknowledges the potential for significant cumulative traffic impacts to occur, indicates that EBMUD is committed to coordinating with other agencies to minimize multiple disruptions (see also the new mitigation measure C-7 in Chapter 3 of this document), and also indicates a means by which the City of Orinda, through the encroachment permit process, can further coordination of multiple projects.

Regarding Miner Road, the DEIR (in Table 5-1) identifies the utility undergrounding and Central Contra Costa Sanitary District (CCCSD) projects, both of which would overlap spatially, but not temporally, with the Happy Valley Pumping Plant and Pipeline project. The utility undergrounding and CCCSD projects are currently scheduled to be completed prior to construction of the Happy Valley Pumping Plant and Pipeline project. CCCSD is planning to construct the Miner Road trunk sewer line project from April to December 2008. EBMUD would construct the Happy Valley Pumping Plant and Pipeline project beginning in 2011. The major traffic impacts associated with the Happy Valley Pumping Plant and Pipeline are from pipeline construction, which is projected to last 18 weeks (the 1-2 year construction period is associated with pumping plant and pipeline construction) and would proceed from one street segment to the next at a rate of 80 feet per day. Coordination

among the utility agencies could provide opportunities to construct linear projects in Miner Road at the same time (e.g., the utility undergrounding project and the Happy Valley Pipeline) to avoid attenuation of traffic impacts.

ORIN-113 The concern regarding coordination with fire services is acknowledged. Pursuant to Measure 3.8-1, EBMUD will adopt as a condition of project approval the commitment to coordinate with emergency service providers regarding construction activities and procedures during road closures.

See **Response ORIN-106**.

ORIN-114 This comment sets forth CEQA requirements for identifying and analyzing alternatives in an EIR (also summarized on DEIR p. 6-1) and asserts that the DEIR's discussion of alternatives does not meet cited standards.

Except for the final sentence, this comment is a general summary of certain CEQA statutes, regulations, and court decisions. This summary does not take into account all relevant language in the CEQA regulations (including Guidelines section 15126.6) and court rulings that may apply in specific circumstances, including those involving documents such as the WTTIP EIR. Please see **Response ORIN-115**, which is responsive to these assertions.

ORIN-115 The comment asserts that the alternatives analysis does not satisfy the CEQA requirements.

As noted on page 6-1 of the DEIR, CEQA requires an EIR to "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." Guidelines § 15126.6(a). However, "[a]n EIR need not 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. An EIR is not required to consider alternatives which are infeasible." Guidelines § 15126.6(a).

Overall, EBMUD conducted a comprehensive screening of potential WTTIP alternatives, including alternative sites, and ultimately considered over 60 alternatives. (DEIR, Table 6-1 (pp. 6-3 and 6-4).) The sources of these alternatives included background reports prepared for the WTTIP project, suggestions made in responses to the NOP and at public meetings held for the WTTIP, and the EIR preparers (DEIR p. 6-2). Section 6.10 of the DEIR provides a detailed description of the alternatives screening process and the eliminated alternatives.

Specifically with respect to the Happy Valley Pumping Plant, the primary constraint in identifying feasible alternatives is location (refer to the section entitled "Siting

Constraints" in Section 2.1.4 in this Response to Comments document regarding the need for the Happy Valley Pumping Plant). There are a limited number of potentially suitable locations for a pumping plant in this area, particularly without displacing existing residences. The impacts cited in the comment (road closures, detours, and noise impacts) would occur for either alternative considered in-depth in the EIR and indeed for any other potentially feasible alternative, given the geographic constraints of the project.

ORIN-116 The comment specifically questions the adequacy of the alternatives analysis for the Orinda-Lafayette Aqueduct. Four potential alternatives were examined and eliminated prior to preparation of the draft EIR, including conversion of the existing aqueduct and three alternative alignments. All were determined either to be infeasible or to involve greater environmental impacts. The comment incorrectly states that conversion of the existing Lafayette Aqueduct No. 1 to a eastbound treated water facility was rejected based on ability to meet the project objectives. The alternative was eliminated based on infeasibility: EBMUD would not have sufficient capacity to transmit raw water westbound in dry years. Because of this threshold finding of infeasibility, the environmental impacts of this alternative were not examined in detail. (CEQA Guidelines §15126.6[c].) Given the constraints in the area and the tunnel requirements, this analysis complies with CEQA. (See DEIR, Table 6-1 [p. 6-3], pp. 6-59 to 6-60.)

ORIN-117 The comment states that it is improper to defer geotechnical analysis and to reject alternatives without site-specific geotechnical information.

A substantial amount of information regarding geology and geotechnical conditions is available, from the construction of the two previous tunnels near the proposed alignment of the Orinda-Lafayette Aqueduct, and was utilized by Jacobs Associates in the *Draft Lamorinda Water System Improvements Program, Tunnel Constructability, Cost and Schedule Report* (Jacobs Associates, 2005). Contrary to the comment's assertion that there is no geotechnical analysis available for the Orinda-Lafayette Aqueduct, Lafayette Aqueducts No. 1 and 2 essentially represent two very long borings that are parallel to and near the proposed alignment for the Orinda Lafayette Aqueduct. The engineers and the geologists who worked on Lafayette Aqueducts No. 1 and 2 chose to terminate the tunneled portions of those aqueducts west of the area where El Nido Ranch Road passes beneath Highway 24 at least in part because of the significant overburden in this area.

ORIN-118 The comment questions the adequacy of the alternatives analysis for the water treatment plant (WTP) elements of the WTTIP project. As indicated in DEIR Table 6-1 (p.6-3), twelve alternatives involving the Orinda WTP were considered. Among these twelve, three were retained for evaluation in the DEIR and nine were eliminated based on infeasibility, inability to meet the project's basic objectives, inability to reduce project impacts, and/or inability to meaningfully add to the range of alternatives.

In addition to Alternatives 1 and 2, analyzed in detail in the DEIR, four other potentially feasible alternatives developed by EBMUD were examined but eliminated from further study. (DEIR, § 6.10.1.) These four alternatives included supply from Walnut Creek WTP (Alternative 3), supply from Lafayette and Orinda WTPs (Alternative 4), supply from Lafayette and Walnut Creek WTPs (Alternative 5), and supply from Orinda and Walnut Creek WTPs (Alternative 6). (DEIR pp. 6-44 to 6-52, including Table 6-7.) Alternatives 1 through 6 were then analyzed and compared with one another pursuant to 24 screening criteria based on project objectives, including environmental factors (described at DEIR p. 6-44 and listed in Table 6-9 [p. 6-50]) under five different criteria-weighting scenarios (listed in Table 6-10 [p. 6-51]), which generated rankings amongst the six alternatives (listed in Table 6-11 [p. 6-51]). As shown in Table 6-11, under the four scenarios in which environmental factors were weighted between 20 and 30 percent of the score (scenarios A, B, C, and E), Alternatives 1 and 2 were ranked the top two alternatives. In the fifth scenario (scenario D), in which environmental factors were only weighted at 10 percent, Alternatives 1 and 2 were ranked 1st and 3rd. Given these rankings, EBMUD concluded that Alternatives 1 and 2 were the feasible alternatives that could best meet the project objectives, including minimization of environmental impacts, and therefore excluded Alternatives 3 through 6 from further study and analysis. (DEIR pp. 6-44, 6-49 to 6-52.)

Moreover, EBMUD also considered three other alternatives that were suggested during EIR scoping by this commenter (the City of Orinda) and others, all of which involved relocating or decommissioning the Orinda WTP to minimize project impacts on the City of Orinda. These alternatives (discussed in the DEIR at pp. 6-52 through 6-55), included relocation of the Orinda WTP, which was analyzed with respect to two alternative sites (Alternative A), elimination of transmission of treated water to West of Hills from Orinda WTP (Alternative B), and expansion of Lafayette WTP combined with decommissioning of Orinda WTP (Alternative C). Although the 2003 EBMUD Water Treatment and Transmission Master Plan (WTTMP) concluded that the Orinda WTP is essential to existing and future operations based on water quality, cost, reliability, and operational flexibility, all of which are project objectives, (DEIR, p. 6-53 and Table 6-8), EBMUD conducted an analysis of each of these three alternatives, including both alternative sites for Alternative A, and eventually concluded that none of them merited further study under CEQA, as they were infeasible, unable to meet core project objectives, and did not lessen environmental impacts. (DEIR, pp. 6-52 to 6-55.) Significantly, all of these alternatives would have resulted in a substantially larger construction cost to EBMUD ratepayers (between $1.4 billion and $2.3 billion) than Alternatives 1 or 2 (between $223 million and $268 million, respectively). (DEIR pp. 2-89, 6-54, 6-55.)

Please also refer to Section 2.1.3, Master Response on EBMUD Obligations to Comply with Local Ordinances and Obtain Local Agency Approvals for further response to the issues raised by this comment.

ORIN-119 The comment asserts that the DEIR "omits information that would assist the public and decision-makers in assessing the environmental benefits and costs of various alternatives" and cites an example.

DEIR Chapter 6 provides a summary of the Lamorinda Water Systems Improvements Program Facilities Plan. (See DEIR section 6.10.1 and Table 6.7). The purpose of the Facilities Plan was to identify, analyze and screen alternatives involving the water treatment plants, thereby allowing one or more alternatives to be selected for further development and environmental review. The draft Facilities Plan was also provided to the City of Orinda very early in the process and prior to publication of the DEIR. The nine-page summary of the Facilities Plan in the DEIR presents information to allow the reader to understand (a) the alternatives considered; (b) the screening process used; (c) the results of the screening process; and (d) the reasons certain alternatives were eliminated from further study. Note that DEIR Table 6-11 provides raw scores for each alternative for each weighting scenario. The raw scores are in parentheses next to the ranking of each alternative. Table 6-9 describes the project objectives, the 24 screening criteria, and points associated with each criterion.

The comment states that the DEIR does not explain why the "particular weighting scenarios were chosen or what balance of criteria they were designed to elicit." As stated on DEIR p. 6-44:

> Weighting factors were developed to measure the relative importance of the different categories of project objective: reliability, regulatory and water quality, operations, environment, and economics. The District established five different weighting scenarios to evaluate the sensitivity of the alternative ranking to the weighting scenario, as shown in Table 6-10. In each scenario, different weighting factors were applied to each category.

Table 6-10 (DEIR p.6-51) identifies the specific weighting percentages assigned to each category of objectives for each of the five weighting scenarios. For example, under Weighting Scenario A, Economics (cost) is assigned the highest percentage. Under Weighting Scenario B, Implementation is assigned the highest percentage. Table 6-11 then presents the results of the alternative rankings by weighting scenario.

See **Response ORIN-115** for a general discussion of alternatives.

ORIN-120 The Mokelumne Aqueducts convey water directly from the Pardee Reservoir on the Mokelumne River to the Orinda, Lafayette and Walnut Creek WTPs. Because of the high quality of the Mokelumne source water, these WTPs require less treatment. The treatment process at these WTPs is referred to as in-line filtration. The commenter asserts the DEIR did not explore whether water from the Mokelumne Aqueducts could feasibly be delivered to an alternative treatment plant, which would require only in-line, rather than conventional, filtration.

All newly constructed water treatment plants were assumed to require conventional water treatment processes. This conservative approach maximizes a plant's operational flexibility and reliability under a wide variety of raw water quality conditions. However, construction of an in-line filtration WTP instead of a conventional WTP under Alternative A – WTP Near Briones Dam is potentially feasible since this plant is situated so that it can receive direct supply from the Mokelumne Aqueducts. Construction of an in-line water treatment plant rather than conventional water treatment plant in Alternative A – WTP Near Briones Dam would reduce the cost of the alternative by approximately $350 million. As noted in the DEIR, however, this alternative would require the construction of additional large diameter pipelines from the treatment plant on Bear Creek Road to the Orinda WTP.

Under Alternative A – WTP in Scow Canyon the Moklumne Aqueducts would be discharging into San Pablo Creek which also receives lower quality local runoff. Alternative A – WTP in Scow Canyon requires a conventional water treatment plant because the source water would come from San Pablo Reservoir. An in-line plant at this location would require the construction of a raw water supply transmission system to serve this water treatment plant from the Mokelumne aqueducts. Due to the distant location of Alternative A – WTP in Scow Canyon relative to the termination of the Mokelumne Aqueduct raw water transmission system at the current site of Orinda WTP, the additional cost to extend the raw water supply transmission piping to serve this water treatment plant would be approximately $450 million. Thus, replacing the conventional water treatment plant with an in-line water treatment plant would reduce the cost of the water treatment plant by approximately $350 million. However, the cost savings would be more than offset by the necessary raw water transmission system at a cost of approximately $450 million and the additional environmental impacts. Both of the variations of Alternative A were rejected due to cost and environmental impacts.

Construction of an in-line water treatment plant rather than conventional water treatment plant in Alternative B would reduce the cost of the alternative by approximately $350 million. However, as noted in the DEIR, the new water treatment plant for Alternative B would have to be located at or very near the Claremont Center. The Claremont Center is surrounded by residences and a school. EBMUD could not build a WTP near the Claremont Center without acquiring multiple residential properties, which probably would not be feasible nor prudent. The alternative was rejected due to cost, environmental impacts, and feasibility/implementation concerns.

Although Alternative C would use water from the Mokelumne Aqueducts, the alternative proposes a membrane filtration plant rather than in-line filtration plant due to space limitations. Alternative C would treat Mokelumne Aqueduct water at the Lafayette WTP and then convey treated water to Orinda and the West of Hills area via the existing Lafayette Aqueducts and Claremont Tunnel. This alternative would also require a new aqueduct to convey raw water to and from Briones Reservoir. As

noted in the DEIR, this alternative was rejected due to uncertainties with regard to the feasibility/implementation of the technology for a plant of this size, cost and potential environmental impacts.

Other alternatives for treating water directly from the Mokelumne Aqueducts, including alternative locations, would not be feasible because of land use constraints along the aqueducts and the significantly higher costs and increased environmental impacts associated with a new water treatment plant and the required additional raw water and treated water transmission pipelines and tunnels.

The District's objectives on DEIR p. 2-22 were used to develop and evaluate alternatives in the Lamorinda Water Systems Improvement Program Facilities Plan and the DEIR. In developing and evaluating alternatives the District focused on alternatives that maximize the direct use of the higher quality Mokelumne River Water to meet the District's regulatory and water quality objectives as efficiently as possible. The District also focused on alternatives that maximized the use of the existing configuration of the very large raw water and treated water transmission lines and the water treatment facilities to meet the District's implementation, environmental, and economics objectives.

ORIN-121 For reasons stated throughout this Responses to Comments Document, EBMUD staff believe the DEIR adequately meets CEQA requirements and need not be recirculated.

ORIN-122 See **Response ORIN-39** and **Responses ORIN-123** through **ORIN-128**.

ORIN-123 As described in **Response ORIN-39**, geologic conditions were characterized at each project site using several sources, including published reports and maps, site reconnaissance, and geotechnical investigation reports prepared for existing facilities. These sources are cited throughout the section. The selection and range of geologic sources used are appropriate for the purposes of describing and analyzing geologic and seismic conditions in this EIR.

The description of regional geologic information, as noted by the commenter, is included in the section in accordance with the requirements of CEQA; regional geologic and seismic information is necessary to fully describe the existing conditions. In addition to the regional setting description, as described in **Response ORIN-39,** there is site-specific geotechnical information for each project site. As an example, the DEIR (p. 3.4-28, Impact 3.4-4) addresses the potential impact associated with liquefaction at each project site. The impact analysis discusses the type of subsurface materials and groundwater conditions based on the geotechnical impact assessment performed by AGS, Inc., liquefaction mapping conducted by the Association of Bay Area Governments (ABAG), liquefaction mapping using California Geological Survey (CGS) and US Geological Survey (USGS) sources, and site-specific subsurface data. These sources together were used to determine whether a potentially significant impact could occur.

Many of the projects, such as the improvements to the various water treatment plants, are located on developed properties with a known history of slope and seismic stability. Geologic findings and geotechnical recommendations previously reported for these sites were considered in this EIR and provide adequately detailed information on the underlying geology and slope stability. While the mitigation measures provided in Section 3.4 of the DEIR would still require an updated geotechnical evaluation for the proposed project elements, these previous investigations provide an adequate basis for determining a range of potential geologic and soil hazards.

DEIR Figures 3.4-2 through 3.4-5 depict potential geologic, seismic, and soil hazards at the various sites. These maps were not used as the basis for analysis of impacts but merely to provide the reader a graphical summary of the geologic and seismic hazards at each project site and the distribution of these hazards throughout the project area. To present the information schematically, the scale is appropriately small (approximately 1 inch = 2000 feet) and the potential hazard at each site is clearly indicated by a letter and number code. Because these maps were intended to provide a graphical schematic, the boundaries of the hazard areas are intentionally not defined. The criteria used to determine the particular hazard at each site are described in the text; the hazard rating used on the maps is considered in the assessment of overall impacts.

ORIN-124 **Response ORIN-39** describes the approach to the impact assessment analysis. Each impact discussion, including the projects at the Orinda Water Treatment Plant, includes a project-level analysis (DEIR pp. 3.4-22, 3.4-29, 3.4-32 and 3.4-33). In addition, site-specific data for soil properties (DEIR p. 3.4-3), peak ground acceleration calculations (DEIR p. 3.4-11), and distance to major active faults (DEIR p. 3.4-11) are also considered. Geologic information for the Orinda area was obtained from data compiled by the ABAG, CGS, and the USGS as well as site-specific data that were contained in a previous geotechnical investigation for the Orinda Water Treatment Plant, titled *Orinda Filter Plant Washwater Control Facilities Phase II – Geotechnical Investigation Report*, 1987, as referenced in AGS *Geotechnical Impact Assessment*, 2005. These data were consistent with other resources (ABAG, CGS, USGS) and together provided adequate information on potential geologic impacts for the proposed projects in Orinda.

ORIN-125 Potential discharges of groundwater during construction of the Orinda-Lafayette Aqueduct are discussed on DEIR p. 3.5-33. As noted by the comment, this discharge could contain sediment, traces of hydraulic oil, cement, and metals. Without proper precautions, discharge of this water could cause adverse water quality effects in the receiving water. The groundwater treatment system for this discharge could include sedimentation basins and tertiary treatment to remove oil. However, specific details of the design of the treatment system are not set forth in the DEIR because, as discussed in Impact 3.5-2, the discharge would be subject to NPDES permitting requirements. As discussed in **Response ORIN-42**, the NDPES permit for discharge

of the groundwater would establish discharge limitations and the contractor would be required to conduct self monitoring to demonstrate compliance with permit requirements and to take corrective action should permit limitations be exceeded. Therefore, permit compliance would ensure compliance with water quality regulations as well as the plans, policies, and water quality objectives and criteria of the Basin Plan.

As discussed in Impact 3.5-2, methods for discharge of groundwater would be addressed in a water control and disposal plan submitted to EBMUD and would comply with regulations of the RWQCB, CDFG, county flood control districts, and any other regulatory agency having jurisdiction as specified in Section 01125 of the EBMUD construction specifications. With implementation of these requirements, water quality impacts related to discharge of groundwater during construction of the Orinda-Lafayette Aqueduct would be less than significant.

ORIN-126 As discussed in **Response ORIN-39,** the measures prescribed to mitigate potential impacts of the Orinda-Lafayette Aqueduct are adequate because, as revised in this Response to Comments document, they 1) commit the District to complete the appropriate geotechnical study; 2) establish parameters for the performance standard; 3) are tied to recognized guidelines, where applicable; and 4) provide a range of options to achieve the stated performance standard.

The analysis of the proposed aqueduct was based largely on a tunneling feasibility report (Jacobs Associates, 2005) that considered conditions and tunneling details encountered at the two tunneling projects (existing Lafayette Tunnels No. 1 and 2 located on either side of the proposed Orinda-Lafayette Aqueduct, as well as the BART Tunnel). The geologic information and tunneling data from these completed projects provide adequate data to predict the conditions that could be encountered during construction of the Orinda-Lafayette Aqueduct. Furthermore, the potential geologic and seismic hazards identified as potentially significant impacts, as well as the challenges of tunnel engineering in this region, are inherent in typical tunneling projects and do not present insurmountable engineering difficulties. The prescribed mitigation in conjunction with the knowledge gained during two nearby major tunneling projects is sufficient to analyze potential impacts in this EIR.

ORIN-127 The analysis for the proposed Orinda-Lafayette Aqueduct and the potential for squeezing ground on the project is discussed on DEIR p. 3.4-32. Squeezing ground is a common problem encountered when tunneling in rock. Measure 3.4-5 describes a standard engineering practice that has been used in many tunneling projects to reduce the potential of the squeezing ground conditions to compromise the structural integrity of the tunnel. EBMUD engineers and consultants have expertise in tunneling developed through constructing and upgrading the Claremont Tunnel and tunneling in the Orinda/Lafayette/Berkeley area, coupled with information and lessons learned during the BART tunneling project. With this expertise, conditions and hazards associated with the Orinda-Lafayette Aqueduct tunnel projects (i.e.

squeezing ground, combustible gas, and dense cemented rock) can be readily predicted and strategies to mitigate the hazards can be developed and incorporated into project specifications. The long-standing performance of these tunnels provides ample data for estimating construction methods, challenges, and duration to complete the proposed Orinda-Lafayette Aqueduct. It is unlikely that a site-specific geotechnical investigation (especially an investigation for a linear, deep tunnel project) would yield additional or more applicable information than is available through actual experience with tunneling in the project vicinity. Even with a detailed site-specific investigation, actual conditions encountered may vary from what can be estimated through exploratory borings. Furthermore, the problems related to squeezing ground, combustible gas, and dense cemented rock are common in tunneling and are accounted for in developing engineering approaches and construction schedules during the final design phase of the project.

The potential for encountering combustible gas in the tunnel is discussed on the DEIR p. 3.11-30 in Section 3.11 of the DEIR, Hazards and Hazardous Materials. The construction records for Tunnel No. 1 and No. 2 indicate limited occurrence of gas; nevertheless, EBMUD will be required to adhere to the requirements of the Division of Industrial Safety designed to ensure that potential impacts of combustible gas remain less than significant.

In accordance with industry standards, the tunneling feasibility report prepared by Jacobs Associates included a detailed analysis of anticipated ground behavior and provided rock classifications according to Terzaghi's Rock Mass Classification System for the various formations to be encountered along the proposed aqueduct route. The analysis of proposed tunnel construction by Jacobs Associates indicates that blasting would not be necessary because the anticipated bedrock materials can be excavated with the tunnel-boring machine described on DEIR p. 2-63.

ORIN-128 As described in **Response ORIN-39,** the measures provided in the DEIR are adequate under CEQA to mitigate the potential geologic impacts of the projects, including those in Orinda. The projects in Orinda cannot be accurately compared to a highway grading project, where the work occurred within a single project area and was limited to grading and roadway construction. The DEIR contains an appropriate level of detail and analysis as required by CEQA for the projects described. The mitigation measures have been developed in response to the varying environmental conditions and would result in geologically and seismically stable facilities.

ORIN-129 The High-Rate Sedimentation Unit is a program-level element. The box on DEIR Figures D-OWTP-1 and D-OWTP-2 shows the overall scale and potential location of the facility. If and when that facility is required (due to future water treatment requirements including source water quality considerations), EBMUD will engage in environmental review, develop conceptual design plans, conduct project-level review, and consult with the City of Orinda. The facility will not be located in the right-of-way of Manzanita Drive.

ORIN-130 Measures 3.10-1a through 3.10-e (DEIR pp. 3.10-30 through 3.10-33) present the detailed controls that EBMUD would adopt as conditions of project approval to attenuate noise generated during project construction. As noted in Measure 3.10-1a EBMUD would abide by the daily and hourly restriction in the City's Noise Ordinance "except during critical water service outages or other emergencies and special situations, " the text in Measure 3.10-1b (DEIR p.3.10-31) has been revised to indicate that EBMUD would coordinate with City staff for construction work that needs to occur after 6:00 p.m. and before 7:00 a.m. (refer to Section 3.2, Text Revisions, in this Response to Comments document).

ORIN-131 The offsite parking location for construction workers' vehicles has not yet been selected. EBMUD will notify the City of Orinda when the location is selected. The Orinda WTP is a possible parking location.

ORIN-132 The reviewer is correct in noting that the Orinda-Lafayette Aqueduct tunnel shaft exit would be on East Altarinda Rd near St. Stephens Drive. This location is "near the St. Stephens Drive/El Nido Ranch Road intersection" as noted on p. 3.2-6 of the DEIR. The first sentence of the first paragraph under the Orinda-Lafayette Aqueduct heading on DEIR p. 3.2-6 is revised (refer to Section 3.2, Text Revisions, in this Response to Comments document).

In response to this comment, DEIR p. 3.2-6, paragraph 3 has been revised (refer to Section 3.2, Text Revisions, in this Response to Comments document).

ORIN-133 As stated on page 3.2-14 of the DEIR, the proposed Sunnyside Pumping Plant would be a relatively small, compact facility that would not disrupt or divide the local community. Regarding the commenter's statement about the need to widen Happy Valley Road to provide a left turn lane at the site access, EBMUD understands that the turning lanes are currently under construction.

ORIN-134 Construction along the asphalt trail along the north side of Camino Pablo could occur as a result of program-level elements north of Manzanita Drive, depending on (for example) the alignments of pipelines like the San Pablo Pipeline. Program-level elements require additional, project-specific review under CEQA prior to approval and implementation. As part of that review, EBMUD would evaluate the potential for impacts to the asphalt trail to occur.

Truck traffic from project-level improvements at the Orinda WTP is a concern with regard to pedestrian safety, especially when children are walking to and from the Wagner Ranch Elementary School in the morning and afternoon. The addition of truck traffic at those times would heighten the need for drivers, school personnel, parents, and children to be alert. The last bullet on DEIR p. 3.8-14 (part of Measure 3.8-1) has been revised (refer to Section 3.2, Text Revisions, in this Response to Comments document).

ORIN-135 The exit shaft site is an undeveloped grassy area adjacent and upslope of Highway 24. The visual character of the site is of marginal value because of its size, location, and orientation relative to sensitive viewpoints (views of the site are very limited; the elevation of the site is such that it is not visible from Highway 24). No trees would be removed for shaft construction. With construction of the Orinda-Lafayette Aqueduct (not part of the preferred Alternative 1), a 30-foot diameter concrete slab would replace an equivalent area of the undeveloped grassy area. The net change in visual character at the exit shaft site would not be significant. The concrete slab would be very low profile and would not impede any views. Construction of the exit shaft cover at the site would not generate significant visual impacts.

ORIN-136 Refer to previous response.

ORIN-137 The Setting section of Section 3.5 of the DEIR, Hydrology and Water Quality is organized by watershed to facilitate evaluation of water quality impacts. The referenced text on DEIR p. 3.5-5 describes that portion of the Orinda-Lafayette Aqueduct in the Las Trampas Creek watershed. Water bodies in Orinda are located within the San Pablo Creek watershed and are discussed on DEIR p. 3.5-3.

ORIN-138 See **Response ORIN-133** regarding the suggested roadway improvements on Happy Valley Road associated with the Sunnyside Pumping Plant. Please also refer to Section 2.1.3, Master Response on EBMUD Obligations to Comply with Local Ordinances and Obtain Local Agency Approvals for further response to the issues raised by this comment.

ORIN-139 The corrected name of East Altarinda Drive and the corrected spelling of Ellen Court are acknowledged. See **Response ORIN-132** regarding the location of the exit shaft.

ORIN-140 As shown in Table 3.8-3 (DEIR p. 3.8-8), the project-generated truck trips would have a less-than-significant impact on roadways used to access the work sites for the Orinda WTP, Orinda-Lafayette Aqueduct, and Sunnyside Pumping Plant, and Measure 3.8-7 is not applicable. This impact determination is based on consideration of roadway design (i.e., the projects' impacts to roads designed to handle a mix of vehicle types, including heavy trucks, are expected to be negligible), and project-generated truck trips (see Table 3.8-5, page 3.8-12, and Appendix B, in the DEIR).

ORIN-141 See **Response ORIN-130** regarding the work hours for project construction and the City of Orinda Noise Ordinance. No additional trip generation analysis is needed.

ORIN-142 The corrected name of East Altarinda Drive is acknowledged.

ORIN-143 The corrected name of East Altarinda Drive is acknowledged.

ORIN-144 In response to this and other comments, EBMUD has added measures to Measure 3.8-1 (DEIR p. 3.8-13) to further reduce the impact of road closures. Regarding the need for the Happy Valley Pumping Plant and Pipeline Project, refer to Section 2.1.4 of this Response to Comments document. Regarding the expected duration of construction along Miner Road and Lombardy Lane, refer to **Response ORIN-67**. Regarding construction corridor widths required for pipeline construction, refer to Figure 2-9 (DEIR p.2-38).

ORIN-145 Text is added to the list of project facilities where full onsite accommodation of parking demand would not occur (page 3.8-19 of the DEIR) (refer to Section 3.2, Text Revisions, in this Response to Comments document).

ORIN-146 Note that construction of a clearwell at the ballfield area is a program-level element, requiring additional supplemental, quantitative evaluation of traffic and parking impacts at a project-level. However, the ballfield area itself and adjacent parking lot provide ample staging space for construction of a clearwell at that location.

ORIN-147 Text is added as the fourth sentence in the second paragraph under Impact 3.8-5, page 3.8-20 of the DEIR (refer to Section 3.2, Text Revisions, in this Response to Comments document).

Impact 3.8-5 addresses potential impacts to access to land uses and streets adjacent to pipeline installation. Access for the Wagner Ranch Elementary School on Camino Pablo (where no pipeline would be installed) would not be adversely affected by pipeline construction of project-level elements (refer to **Response ORIN-134**). Section 3.12 of the DEIR, Public Services, also discusses effects on other schools in the vicinity of the project.

ORIN-148 See **Response ORIN-69** regarding the commenter's concern about the project's effects on school bus service on affected roads.

ORIN-149 See **Response ORIN-140** regarding the project's less-than-significant impact on pavement conditions on roadways used to access the Orinda WTP.

ORIN-150 The context of the comment is not clear because Table 3.9-6 (on page 3.9-27 of the Air Quality section) does not contain any reference to Moraga Way, and the commenter does not provide the existing number of trucks per day on Moraga Way (per data collected by the City of Orinda). However, pertaining to the commenter's statement about the effect of project-generated truck trips, as described on DEIR pp. 3.8-22 and 3.8-23 (in Section 3.8, Traffic and Circulation), major arterials such as Moraga Way are designed to handle a mix of vehicle types including heavy trucks, and the project's impact is expected to be negligible.

ORIN-151 As stated on DEIR p. 3.10-31, Measure 3.10-1b states that, "Construction at the WTTIP project sites will be restricted to the hours of operation specified by each

jurisdiction's noise ordinance (as listed in Table 3.10-1, including restrictions provided in footnotes and any other ordinance exceptions and provisions in effect at the time of EIR publication), except during critical water outages or other emergencies and special situations. Any equipment operating beyond these hours will be subject to the day and night noise limits of each jurisdiction (as listed in Table 3.10-1) for various activities in single-family residential zones."

The text in Measure 3.10-1b (DEIR p.3.10-31) has been revised (refer to Section 3.2, Text Revisions, in this Response to Comments document).

ORIN-152 In response to this comment, Table 3.12-3 has been revised (refer to Section 3.2, Text Revisions, in this Response to Comments document).

ORIN-153 The finding of no collective traffic (and traffic-related) impacts on El Nido Ranch Road due to the proposed project is based on the fact that the schedules for construction of the tunnel portion of the Orinda-Lafayette Aqueduct under Alternative 2 and the Sunnyside Pumping Plant would not overlap (as stated on DEIR p. 5-7). The DEIR analyzes the impacts of individual project facilities in Chapter 3.

ORIN-154 This comment refers to the copy of the Regionwide General NPDES Permit for Discharges from Surface Water Treatment Facilities for Potable Supply included as an attachment to the City of Orinda comments. The applicability of this permit is addressed in **Responses ORIN-43**, **ORIN-44**, and **ORIN-51**. Please also refer to Section 2.1.3, Master Response on EBMUD Obligations to Comply with Local Ordinances and Obtain Local Agency Approvals for further response to the issues raised by this comment.

ORIN-155 This comment refers to the copy of the July 15, 2006 article regarding discharges of chloraminated water by EBMUD included as an attachment to the City of Orinda comments. Discharges referred to in this article are discussed in **Response ORIN-51**.

ORIN-156 The text identified is referenced in support of an earlier comment. See **Response ORIN-71**.

ORIN-157 The text identified is referenced in support of an earlier comment. See **Responses ORIN-72**, **ORIN-73**, **ORIN-74**, and **ORIN-76**.

ORIN-158 The text identified is referenced in support of an earlier comment. See **Responses ORIN-80** and **ORIN-81**.

ORIN-159 The text identified is referenced in support of an earlier comment. See **Responses ORIN-80** and **ORIN-81**.

ORIN-160 The text identified is referenced in support of an earlier comment. See **Responses ORIN-80** and **ORIN-81**.