COMMENT LETTER 12 - STATE OF CALIFORNIA DEPARTMENT OF FISH AND GAME REGION 3, BRIAN HUNTER (OCTOBER 7, 1996), RECEIVED OCTOBER 7, 1996

Response to Comment 12-1

Comment Summary: The comment states that the City of Santa Rosa has developed a thorough, rigorous evaluation of environmental impacts associated with the proposed project, and references specific comments presented later in the letter.

The Draft EIR/EIS authors appreciate the Department's assistance with this Project. Specific concerns are addressed in Responses12-2 through 12-82.

Response to Comment 12-2

Comment Summary: The comment suggests that a review process be provided for the Irrigation Conservation and Management Programs (ICMPs).

The EIR/EIS authors agree that the Irrigation Conservation and Management Programs (ICMPs) should be reviewed by resource agencies prior to implementation.

Therefore, the following changes are made to the Draft EIR/EIS:

Page 2-21. The second paragraph of the Description section is revised as follows:

> Each ICMP will contain measures which control the application of irrigation water and integrate irrigation with other resource management needs. At a minimum, the individual Irrigation Conservation and Management Programs prepared by the City of Santa Rosa will incorporate procedures and restrictions presented in Mitigation Measures 2.2.2 through 2.2.7. The appropriate resource agencies will be allowed adequate time to review and comment on each ICMP prepared by the City of Santa Rosa. Other guidelines for the development of individual Irrigation Conservation and Management Programs are provided in *the Irrigation Management Guidelines* Technical Memorandum (Questa 1996).

Response to Comment 12-3

Comment Summary: The comment asks if reservoirs for holding irrigation water on private land also require preparation of an ICMP.

Construction of storage reservoirs would not require the preparation of an ICMP, as it is anticipated that all biotic resources would either be removed or destroyed. These impacts will be mitigated through the implementation of Mitigation Measure 2.3.11: Sensitive Resource Conservation Program (pages 2-76 through 2-84 of the Draft EIR/EIS).

Response to Comment 12-4

Comment Summary: The comment asks if the valley oaks that are found on much of agricultural land on the Santa Rosa Plain are included as "protected trees as defined by the Sonoma County and Marin County tree ordinances."

Valley oaks are considered a "Protected Tree of Special Significance" under the Sonoma County Tree Ordinance. However, additional irrigation in the Santa Rosa Plain is not proposed under any of the Project alternatives evaluated in this Draft EIR/EIS.

Response to Comment 12-5

Comment Summary: The comment states that including information from technical appendices in the main body of the EIR/EIS would make interpretation of the analysis easier.

The EIR/EIS is intended to meet the needs of a broad range of reviewers from non-technical to highly technical. Each reviewer may have a different opinion about what is too much or too little information in the main body of the EIR/EIS versus the information that should be contained only in the technical appendices. The EIR/EIS authors exercised professional judgment when determining how much information from technical appendices to repeat in the main body of the EIR/EIS, considering limitations of space and readability. Refer to Master Response 1, located in Section 6.2 of this document, concerning the overall organization of the EIR/EIS.

Response to Comment 12-6

Comment Summary: The comment states that the term "impacts" is used throughout the Draft EIR/EIS but the document fails to differentiate between beneficial and adverse impacts. The comment also requests differentiation of policy based and biological based criteria .

Beneficial impacts are identified in Section 4.6. Table 4.6-27, identifies criteria for considering both beneficial and adverse impacts to be significant. Use of the term "impacts" refers to an adverse impact, unless the impact is explicitly identified as beneficial. The one exception to this approach is the special site criterion, which addresses the Gulf of the Farallones Marine Sanctuary. This criterion identifies any change as significant. Several impacts in the Sanctuary, such as a change in salinity, a decrease in the manure nitrogen load, and an increase in dissolved oxygen are not necessarily adverse, and some of these changes would be considered beneficial were it not for the Sanctuary's interpretation of the regulations of the Sanctuary and their approach to Sanctuary management. Refer to Response to Comment 12-14 and to Response to Comment 12-16 for changes to the Draft EIR/EIS text to clarify this issue.

Response to Comment 12-7

Comment Summary: The comment refers to page 1-62 and asks why reduced irrigation in West County would not avoid significant adverse impacts.

The special site evaluation criterion states that any water quality change is considered significant. All of the reduced irrigation options in West County will result a water quality change, and thus a significant impact, in the National Marine Sanctuary.

Response to Comment 12-8

Comment Summary: The comment refers to Table 4.6-1, asks for the average and range of conductivity in reclaimed water, and asks for a comparison of reclaimed water and receiving water conductivity.

Conductivity in reclaimed water averaged 724 µmhos/cm with a minimum of 644 and a maximum of 803 µmhos/cm. Also refer to Response to Comment 8-15, which revises Table 4.6-1 to add these data. Data for conductivity in the Russian River, Laguna, and Santa Rosa Creek are found in Tables 4.6.3, 4.6.11, and 4.6.13 of the Draft EIR/EIS, respectively. Seasonal averages of conductivity in the Russian River range from 235 to 268 µmhos/cm above the Laguna and 234 to 289 µmhos/cm below the Laguna. Seasonal averages of conductivity in the Laguna range from 565 to 733 µmhos/cm above Santa Rosa Creek and 328 to 598 µmhos/cm below Santa Rosa Creek. Seasonal averages of conductivity in Santa Rosa Creek above the discharge range from 392 to 599 µmhos/cm. No data are available in Santa Rosa Creek below the discharge.

Response to Comment 12-9

Comment Summary: This comment asks what effect will continued and/or expanded discharge of inorganic salts have upon aquatic life in the Laguna de Santa Rosa.

Constituents of reclaimed water, including inorganic salts, are described in Appendix H-2 (Reclaimed Water Quality) and Appendix H-3 (Reclaimed Water Quality Update). Water quality data for the Laguna de Santa Rosa are given in Appendix I-4 (Laguna de Santa Rosa Water Quality Monitoring Results). Present and any future expanded discharge of reclaimed water into the Laguna is and would be during the winter months only (November to May). The present discharge practices cause an increase of nutrients (pages 2 and 3 in Appendix I-4) and conductivity, a measure of total inorganic salts (Table 6 in Appendix I-4), in the Laguna in winter but have not resulted in a long-term buildup of salts or other inorganic constituents. Laguna conductivity is highest (due to evaporation) in summer when no discharges occur (Table 6 in Appendix I-4). The same is true for Santa Rosa Creek and Mark West Creek, neither of which is exposed to reclaimed water (Tables 7 and 8 in Appendix I-4). As illustrated in Figure 4-1 though 4-12 in Appendix I-17 (Water Quality Impact Analysis Report Volume II - Figures), Project alternatives will primarily increase the *frequency* (number of days per year) with which high reclaimed water concentrations occur in the Laguna, and not the maximum

concentration. The maximum concentration will not differ much from the maximum which occurs under existing conditions. Because no material changes in water quality are expected, no adverse affects on aquatic life are expected.

Response to Comment 12-10

Comment Summary: The comment states that the seasonal averages of water quality parameters in Table 4.6-3 provide only part of the picture and that since fish and aquatic life are most adversely affected by extremes of water quality parameters, ranges should be included.

The data supporting the seasonal averages provided in Table 4.6-3, as well as the data supporting all water quality summary tables in the Draft EIR/EIS, are generally included in appendices or are available in the EIR/EIS library or from the Regional Board. The exceptions to this are the data for Tables 4.6-5, 4.6-6, and 4.6-7. These data are added as Appendices to the Draft EIR/EIS.

The following changes are made to the Draft EIR/EIS:

Page 2, Appendix I-7. The second paragraph is revised as follows:

> …between those sections of the River that impact plant growth. The complete data which are summarized in this report are included in Appendices 1-3.

Page 11, Appendix I-7. The following are added as Appendices 1 through 3 following this page.

Appendix 1

Biomass of Attached Algae in the Russian River

Sampling Location*	River Feet	Sampling Date	Sampling Device	Sample Vol (ml)	Chlor *a* (mg/L)	Chlor *a* (mg/m^2)	Substrate Type**
Jenner	9500	9-Jun-94	quadrat	450	0.2	1.0	cobble
Hwy 1	14000	9-Jun-94	ponar	895	0.2	8.1	coarse sand
Farm/beach	22500	25-May-94	quadrat	755	2.2	17.9	cobble
Casini Ranch	39000	25-May-94	quadrat	555	2.7	16.1	cobble
A-frame	48000	26-May-94	ponar	905	0.5	20.8	gravel/cobble
Monte Rio	54500	26-May-94	quadrat	750	5.2	42.0	cobble
Johnsons Beach	80500	26-May-94	ponar	550	0.0	0.5	gravel/sand
Oddfellows	97500	26-May-94	quadrat	880	1.3	12.3	cobble

Appendix 1

Biomass of Attached Algae in the Russian River

Sampling Location*	River Feet	Sampling Date	Sampling Device	Sample Vol (ml)	Chlor *a* (mg/L)	Chlor *a* (mg/m^2)	Substrate Type**
Burkes	123000	26-May-94	quadrat	940	5.9	59.7	cobble
Alder Rock	142000	7-Jun-94	quadrat	540	0.4	2.2	cobble
Alder Rock	142000	7-Jun-94	ponar	660	0.5	15.1	sand
Kaiser shore	149000	7-Jun-94	quadrat	350	0.4	1.5	gravel
Kaiser pool	149000	7-Jun-94	ponar	700	0.5	16.1	sand
Oddfellows	97500	9-Jun-94	quadrat	510	2.7	14.8	cobble
Jenner	9500	19-Jul-94	quadrat	670	0.2	1.4	cobble
Hwy 1	14000	20-Jul-94	ponar	900	2.6	101.3	sand
Farm/beach	22500	20-Jul-94	quadrat	810	6.7	58.4	cobble
Casini Ranch	39000	19-Jul-94	quadrat	710	1.6	12.2	cobble
A-frame	48000	19-Jul-94	ponar	880	0.6	21.3	gravel
Monte Rio	54500	19-Jul-94	quadrat	970	8.2	85.6	cobble
Johnsons Beach	80500	20-Jul-94	ponar	660	0.5	15.1	sand/gravel
rep2	80500	20-Jul-94	ponar	670	1.0	27.8	sand/gravel
rep3	80500	20-Jul-94	ponar	870	0.2	6.0	gravel
Oddfellows	97500	19-Jul-94	quadrat	1000	1.5	16.1	cobble
rep2	97500	20-Jul-94	ponar	1000	0.2	7.8	gravel/sand
rep3	97500	20-Jul-94	quadrat	560	2.4	14.5	cobble
Burkes	123000	20-Jul-94	quadrat	640	0.9	6.3	cobble
Vineyard pump	133000	19-Jul-94	ponar	980	3.7	157.0	gravel
Alder Rock	142000	19-Jul-94	quadrat	720	0.3	2.2	cobble
Kaiser shore	149000	19-Jul-94	quadrat	780	0.2	1.7	gravel
Kaiser pool	149000	19-Jul-94	ponar	800	0.5	16.6	sand
Jenner	9500	13-Sep-94	quadrat	995	0.5	5.5	cobble
Hwy 1	14000	13-Sep-94	ponar	980	0.2	8.1	sand
Farm/beach	22500	13-Sep-94	quadrat	360	0.7	2.6	cobble
Casini Ranch	39000	13-Sep-94	quadrat	530	1.4	8.0	cobble
A-frame	48000	16-Sep-94	ponar	970	0.1	2.9	gravel

Appendix 1

Biomass of Attached Algae in the Russian River

Sampling Location*	River Feet	Sampling Date	Sampling Device	Sample Vol (ml)	Chlor *a* (mg/L)	Chlor *a* (mg/m^2)	Substrate Type**
Monte Rio	54500	15-Sep-94	quadrat	690	4.0	29.7	cobble
Johnsons Beach	80500	15-Sep-94	ponar	550	0.8	17.9	sand/gravel
rep2	80500	15-Sep-94	ponar	590	0.1	3.1	sand/gravel
rep3	80500	15-Sep-94	ponar	730	0.4	11.1	gravel
Oddfellows	97500	15-Sep-94	quadrat	970	1.7	17.8	cobble
rep2	97500	15-Sep-94	quadrat	640	2.2	15.2	cobble
Burkes	123000	12-Sep-94	quadrat	885	2.4	22.9	cobble
Vineyard pump	133000	12-Sep-94	ponar	880	2.0	76.2	gravel
Alder Rock	142000	12-Sep-94	quadrat	680	0.6	4.7	cobble
Kaiser shore	149000	12-Sep-94	quadrat	720	0.2	1.7	gravel
Kaiser pool	149000	12-Sep-94	ponar	830	0.3	10.4	sand
Jenner	9500	11-May-95	quadrat	815	0.4	3.3	cobble
Casini Ranch	39000	10-May-95	quadrat	610	0.3	2.1	gravel/sand
Monte Rio	54500	10-May-95	quadrat	445	0.0	0.1	cobble/gravel
Oddfellows	97500	10-May-95	ponar	850	0.0	0.7	sand
Vineyard pump	133000	10-May-95	ponar	790	0.0	0.2	sand/gravel/cobble
Kaiser shore	149000	10-May-95	ponar	840	0.0	0.2	sand/gravel
Jenner	9500	6-Jul-95	quadrat	700	1.3	9.8	cobble
Hwy 1	14000	6-Jul-95	ponar	1030	0.4	18.3	sand/silt
Farm/beach	22500	6-Jul-95	quadrat	640	1.4	9.6	gravel/sand
Casini Ranch	39000	6-Jul-95	quadrat	655	2.6	18.3	cobble
A-frame	48000	6-Jul-95	ponar	955	0.2	8.3	gravel
Monte Rio	54500	6-Jul-95	quadrat	440	2.1	9.9	cobble
Johnsons Beach	80500	6-Jul-95	ponar	1040	0.2	9.5	gravel
Oddfellows	97500	6-Jul-95	quadrat	880	0.6	5.8	cobble
Burkes	123000	6-Jul-95	quadrat	970	1.0	10.4	cobble/gravel
Vineyard pump	133000	5-Jul-95	ponar	2140	0.1	4.6	sand/gravel
rep 2	133000	5-Jul-95	quadrat	250	0.9	2.4	gravel/sand

Appendix 1

Biomass of Attached Algae in the Russian River

Sampling Location*	River Feet	Sampling Date	Sampling Device	Sample Vol (ml)	Chlor *a* (mg/L)	Chlor *a* (mg/m^2)	Substrate Type**
Alder Rock	142000	5-Jul-95	quadrat	330	1.4	5.0	cobble/gravel/sand
rep2	142000	5-Jul-95	ponar	1420	3.1	190.6	sand/gravel
Kaiser shore	149000	5-Jul-95	quadrat	470	1.3	6.6	cobble/gravel/sand
Kaiser pool	149000	5-Jul-95	ponar	985	0.5	20.5	sand
Jenner	9500	9-Aug-95	quadrat	745	6.1	48.9	cobble
Hwy 1	14000	9-Aug-95	quadrat	240	3.1	8.0	cobble
Farm/beach	22500	9-Aug-95	ponar	730	1.1	34.8	sand/gravel/cobble
Casini Ranch	39000	9-Aug-95	quadrat	455	5.2	25.5	cobble
A-frame	48000	9-Aug-95	ponar	1020	0.3	14.1	sand/gravel
Monte Rio	54500	9-Aug-95	quadrat	390	0.8	3.4	cobble
Johnsons Beach	80500	10-Aug-95	ponar	930	0.4	14.5	sand/gravel
rep2	80500	10-Aug-95	ponar	820	0.4	14.6	sand/gravel
rep3	80500	10-Aug-95	ponar	940	0.3	12.2	silt/sand
Oddfellows	97500	10-Aug-95	quadrat	530	1.2	6.8	gravel/sand
rep2	97500	10-Aug-95	ponar	790	0.7	24.3	sand
rep3	97500	10-Aug-95	ponar	1100	0.6	26.2	sand
Burkes	123000	10-Aug-95	quadrat	780	1.4	11.8	gravel/sand
Vineyard pump	133000	10-Aug-95	ponar	1030	0.3	13.4	sand/gravel
Alder Rock	142000	10-Aug-95	quadrat	790	0.5	4.5	cobble
rep2	142000	10-Aug-95	ponar	850	0.4	12.9	sand
Kaiser shore	149000	10-Aug-95	quadrat	770	0.2	2.0	gravel
Kaiser pool	149000	10-Aug-95	ponar	805	0.3	11.2	sand

* Replicates were collected at various locations to represent cross-sections of the river. These replicates appear as averages in the table for similar substrates.

** Substrate was defined for sampling locations as “sand” if only sand, as “gravel” if any gravel-sized rocks (<1-inch diameter) occurred with sand, and “cobble” if any cobble-sized rocks (>1-inch diameter) occurred with sand or gravel.

Appendix 2

Biomass of Submergent Macrophytes in the Russian River

Location	River Feet	Date	River Width (ft)	% Cover (percent)	Height (ft)	Wet Weight (g/m^2)
Hwy 1 Bridge	14000	9-Jun-94	280	1	0.33	no sample*
Farm/beach	22500	9-Jun-94	260	0.5		no sample*
Houses	25000	9-Jun-94	282	32		2480
rep 2	25000	9-Jun-94	282	32		2480
rep 3	25000	9-Jun-94	282	32		4400
Casini Ranch	39000	9-Jun-94	205	0		no sample*
Bridge Road	45500	9-Jun-94	310	16	3.5	3680
rep 2	45500	9-Jun-94	310	16	4	6480
Monte Rio	52000	9-Jun-94	195	9	1	2640
Hwy 1 Bridge	14000	13-Sep-94	360	16	various	2880
Farm/beach	22500	13-Sep-94	260	12	1	440
Houses	25000	13-Sep-94	280	16		4000
Casini Ranch	39000	13-Sep-94	200	50		no sample*
Bridge Road	45500	13-Sep-94	165	50		no sample*
Monte Rio	52000	13-Sep-94	195	51		3560
Guerneville	80500	16-Sep-94	160	11		2160
Oddfellows	94500	15-Sep-94	78	12		2520
Kaiser beach	149000	15-Sep-94	100	0		no sample*
Vineyard pump	183000	15-Sep-94	150	40		1160
Hwy 1 Bridge	14000	9-Aug-95	360	50	15	no sample*

June 9, 1994 sampling: no submerged macrophytes observed Monte Rio to Burkes.
September 13-16, 1994 sampling: few submerged macrophytes above Monte Rio.
May 8-11, 1995 sampling: no submerged macrophytes observed.
July 5-6, 1995 sampling: no submergents observed.
August 9-11, 1995 sampling: no submergents upstream of Hwy 1 bridge.
* samples not collected when biomass to low and/or filamentous algae too fine to collect

Appendix 3

Biomass of Emergent Macrophytes in the Russian River

		Relative to Laguna	Area of Emergents (sq ft)	
River section	River feet		Jun-94	Sep-94
Emergent Macrophytes - Russian River 1994				
Kaiser Beach to Alder Rock	149000-141000	above	2044	4495
Alder Rock to Vineyard Pump	141000-133000	above	210	1980
Vineyard Pump to Burkes	133000-123000	above	5738	9690
Burkes to Hacienda Bridge	123000-112000	below	2178	3075
Hacienda Bridge to Oddfellows	112000-98000	below	2778	9814
Oddfellows to Guerneville Bridge	98000-80000	below	1975	5548
Guerneville Bridge to Monte Rio Bridge	80000-54000	below	4330	11639
Monte Rio Bridge to Casini Ranch	54000-39000	below	22.5	172
Casini Ranch to Jenner	39000-0	below	0	0
Emergent Macrophytes - Russian River 1995				
Kaiser Beach to Alder Rock	149000-141000	above	3315	
Alder Rock to Vineyard Pump	141000-133000	above	3003	
Vineyard Pump to Burkes	133000-123000	above	3265	
Burkes to Hacienda Bridge	123000-112000	below	2872	
Hacienda Bridge to Oddfellows	112000-98000	below	3623	
Oddfellows to Guerneville Bridge	98000-80000	below	5202	
Guerneville Bridge to Monte Rio Bridge	80000-54000	below	7973	
Monte Rio Bridge to Casini Ranch	54000-39000	below	378	
Casini Ranch to Jenner	39000-0	below	0	

May 8-11, 1995 sampling: no emergents observed
July 5-6, 1995 sampling: no emergents observed
August 9-11, 1995 survey: vegetation all primrose with exception of 80 sq ft of *Scirpus*-like grass

Response to Comment 12-11

Comment Summary: The comment refers to page 4.6-40 and asks how the reported conductivity of the City of Petaluma's wastewater compares to that of the City of Santa Rosa and other dischargers to the Russian River system.

Page 4.6-40 in the Draft EIR/EIS does not list Petaluma's wastewater conductivity, and available information indicates that conductivity is not routinely measured in Petaluma's wastewater. Page 4.6-40 does, however, list Petaluma's wastewater TDS concentration which is related to conductivity. As listed in Table 4.6-20 on page 4.6-40, Petaluma's average wastewater TDS concentration is 705.2 mg/L. The concentration of TDS in Santa Rosa's reclaimed water averages 444 mg/L. Refer to Response to Comment 8-15 for additional data on TDS and conductivity. Representatives of some of the major dischargers to the Russian River (Ukiah, Cloverdale, Healdsburg) were contacted but none measure either conductivity or TDS in their treated effluent. However, their sources of water are similar to Santa Rosa's (primarily Russian River or wells near the Russian River), and so the TDS in their wastewater would be expected to be similar to that of Santa Rosa's.

Response to Comment 12-12

Comment Summary: The comment states that manure is a source of inorganic salts that can affect the suitability of West County streams for aquatic life.

The EIR/EIS authors concur.

The following change is made to the Draft EIR/EIS:

Page 4.6-43. The third sentence of the sixth paragraph is revised as follows:

> Manure decreases the dissolved oxygen in the creeks and contributes salt, ammonia and, substantial nutrients.

Response to Comment 12-13

Comment Summary: The comment states that the Department of Fish and Game's interpretation of the special site criterion (as defined on page 4.6-54) is that "any change" could mean either a beneficial or an adverse change.

The comment is correct; both beneficial and adverse water quality changes are considered significant under the special site criterion. Several impacts in the Sanctuary, such as a change in salinity, a decrease in the manure nitrogen load, and an increase in dissolved oxygen are not necessarily adverse, and some of these changes would be considered beneficial were it not for the Sanctuary's interpretation of regulations of the Sanctuary and their approach to Sanctuary management. The impact on the Sanctuary is considered significant, but not all such impacts are considered adverse by the EIR/EIS authors. Also Refer to Response to Comment 2-20 and 12-25.

Response to Comment 12-14

Comment Summary: The comment expresses the opinion that the creeks that feed into the Esteros are degraded.

This opinion is consistent with the information on page 225 of Appendix I-16 of the Draft EIR/EIS. Also refer to Response to Comments 12-13 and 2-20.

Response to Comment 12-15

Comment Summary: The comment expresses the opinion that beneficial water quality impacts of Alternative 3 outweigh adverse impacts, and that the special site evaluation criterion inappropriately prevents balancing of beneficial and adverse impacts.

The stringent special evaluation site criterion is considered by the EIR/EIS authors to be necessary in light of the Sanctuary's interpretation of Sanctuary regulations, as discussed on page 4.6-66 of the Draft EIR/EIS. Also refer to Response to Comment 12-13.

Response to Comment 12-16

Comment Summary: The comment requests that potentially beneficial impacts in the Sanctuary be identified as such. The comment also requests that the basis for the special site criterion as policy-driven rather than biology-driven be identified.

The EIR/EIS authors concur that the basis for the special site criterion should be clarified.

Therefore, the following changes are made to the Draft EIR/EIS:

Page 4.6-66. The following sentence is added at the end of the Special Sites Criteria section.

> This evaluation criterion is based on the Sanctuary's interpretation of the federal regulations for the Sanctuary and findings of significance do not necessarily mean that the water quality change would adversely affect aquatic life or the suitability of Sanctuary habitat for aquatic life.

Page 4.6-89. The following sentence is added at the end of the first paragraph of the Analysis under Impact 6.7.3:

> Were it not for the policy-based evaluation criterion, some of the water quality changes in the Sanctuary (such as increased dissolved oxygen and decreased manure load) would be considered beneficial.

Page 4.9-68. The following sentence is added at the end of the first paragraph of the Analysis under Impact 9.5.6:

As discussed on page 4.6-66 and 4.6-89, the impact on salinity is considered significant due to the Sanctuary's interpretation of Sanctuary regulations, but may not result in adverse impacts to aquatic life.

Page 4.9-79. The following sentence is added to the end of the second paragraph:

As discussed on page 4.6-66 and 4.6-89, the impact on salinity is considered significant because of the Sanctuary's interpretation of Sanctuary regulations, but may not result in adverse impacts to aquatic life.

Page 216, Appendix I-16. The following paragraph is added before the Total Dissolved Solids section:

The evaluation criterion for impacts in the esteros (which is part of the Sanctuary) is that any water quality change is considered significant because of the Sanctuary's interpretation of Sanctuary regulations. Were it not for this policy-based evaluation criterion, some of the water quality changes in the Sanctuary (such as increased dissolved oxygen and decreased manure load) would be considered beneficial.

Page 4.6-81. Table 4.6-31 is revised as follows:

Table 4.6-31

Surface Water Quality Impacts by Component - Storage Reservoirs

Evaluation Criteria	Point of Significance	Impact	Type of Impact[1]	Level of Significance[2]
Will the storage reservoir component cause water quality changes to occur in an Area of Special Biological Significance or in the Sanctuary?				
• West County reservoirs	Any water quality change This evaluation criterion is based on NOAA's interpretation of the regulations of the Sanctuary and findings of significance do not necessarily mean that the water quality change would adversely affect aquatic	The concentration of water quality constituents will change	C O&M	== ●

Table 4.6-31

Surface Water Quality Impacts by Component - Storage Reservoirs

Evaluation Criteria	Point of Significance	Impact	Type of Impact[1]	Level of Significance[2]
	life or the suitability of Sanctuary habitat for aquatic life			

Page 4.6-86. Table 4.6-32 is revised as follows:

Table 4.6-32

Surface Water Quality Impacts by Component – Agricultural Irrigation

Evaluation Criteria	Point of Significance	Impact	Type of Impact[1]	Level of Significance[2]
6.7.3. Will the agricultural irrigation component impact special sites?				
The Project may cause water quality changes to occur in an Area of Special Biological Significance or in the Sanctuary.	Any water quality change			
• West County Irrigation	This evaluation criterion is based on NOAA's interpretation of the regulations of the Sanctuary and findings of significance do not necessarily mean that the water quality change would adversely affect aquatic life or the suitability of Sanctuary habitat for aquatic life	The concentration of water quality constituents will be affected in the esteros	O&M O&M-CP	● ●
• South County and Sebastopol Irrigation		None	O&M	==
6.7.4. Will the agricultural				

Table 4.6-32

Surface Water Quality Impacts by Component – Agricultural Irrigation

Evaluation Criteria	Point of Significance	Impact	Type of Impact[1]	Level of Significance[2]
irrigation component cause sediment quality evaluation criteria to be exceeded?				
All sediment criteria			O&M O&M-CP	❍ and == ❍ and ==

Page 4.6-150. Table 4.6-58 is revised as follows:

Table 4.6-58

Summary of Impacts and Mitigation Measures - Surface Water Quality

Impact	Level of Significance	Mitigation Measure
Agricultural Irrigation Component		
6.7.1 Dissolved copper. The agricultural irrigation component may cause numeric-based criteria to be exceeded.	Alt 3 - ⊙	2.5.2 Control Program for Dissolved Copper Levels in West County Creeks.
6.7.3. Salinity, ammonia, dissolved oxygen, planktonic algae, benthic algae, and metals. The agricultural irrigation component may cause the special site criterion to be exceeded. Were it not for the policy-based evaluation criterion, some of the water quality changes in the Sanctuary (such as increased dissolved oxygen and decreased manure load) would be considered beneficial.	Alt 3 - ●	No feasible mitigation has been identified.
Discharge Component		
6.9.1. Conductivity. The discharge component may cause numeric-based criteria to be exceeded.	Alt 5A - ●	No feasible mitigation has been identified.
6.9.1. Cyanide. The discharge component may cause numeric-based criteria to be exceeded.	Alt 1 - ● Alt 5B - ⊙	2.5.5. Cyanide Monitoring and Source Control Program.
6.9.1. Dissolved oxygen. The discharge component may cause numeric-based criteria to be exceeded.	Alt 5B - ●	No feasible mitigation has been identified.

Table 4.6-58

Summary of Impacts and Mitigation Measures - Surface Water Quality

Impact	Level of Significance	Mitigation Measure
6.9.2. Biostimulatory Substances. The discharge component may cause narrative based criteria to be exceeded.	Alt 1 - ● Alt 2 - ● Alt 3 - ● Alt 4 - ● Alt 5 - ●	2.5.4 Discharge Operations.
6.9.2. Biostimulatory Substances. Beneficial. The discharge component may cause narrative-based criteria to be exceeded.	Alt 1 - + Alt 2 - + Alt 3 - + Alt 4 - + Alt 5 - +	None required.

Page 4.6-156. Table 4.6-60 is revised as follows:

Table 4.6-60

Summary of Significant Adverse and Beneficial Surface Water Quality Impacts[1]

Evaluation Criterion	Santa Rosa Creek	Laguna	Russian River	West Co. Creeks	Esteros	Tolay Creek	Petaluma River	Other Waters
Dissolved Copper	None	None	None	~~Irrig~~	*Irrigation & Storage (any water quality change is significant, and changes in many parameters are predicted)* *Were it not for the policy-based evaluation criterion, some of the water quality changes in the Sanctuary (such as increased dissolved oxygen and decreased manure load) would be considered beneficial.*	None	None	None

Table 4.6-60

Summary of Significant Adverse and Beneficial Surface Water Quality Impacts[1]

Evaluation Criterion	Santa Rosa Creek	Laguna	Russian River	West Co. Creeks	Esteros	Tolay Creek	Petaluma River	Other Waters
Ammonia	See Waste Red. Strategy	See Waste Red. Strategy	None	~~Storage~~		~~Storage~~	None	None
Conductivity	Criterion not applicable		*20% River*	Criterion NA		Criterion not applicable		
Cyanide	~~20%,~~ *NP*	~~20%,~~ *NP*	None	None		None	None	None
Dissolved Oxygen	**20%**	20%	None	~~Storage~~		~~Storage~~	None	None
Hydrogen Sulfide	None	None	None	~~Storage~~	None	~~Storage~~	None	None
Biostimulatory Substances - Benthic algae					*Irrigation & Storage (any water quality change is significant, and changes in many parameters are predicted). Were it not for the policy-based evaluation criterion, some of the water quality changes in the Sanctuary (such as*			
• Adverse	1%,20%, 20% River, *NP*, G	1%, 20%, 20% River, *NP*, G	20%, 20% River, *NP*	None		None	None	None
• Beneficial	1%, **20%,** 20%River, G, *NP*	1%, **20%,** 20%River, G, *NP*	1%, **20%,** 20%River, G, *NP*	None		None	None	None

Table 4.6-60

Summary of Significant Adverse and Beneficial Surface Water Quality Impacts[1]

Evaluation Criterion	Santa Rosa Creek	Laguna	Russian River	West Co. Creeks	Esteros	Tolay Creek	Petaluma River	Other Waters
					increased dissolved oxygen and decreased manure load) would be considered beneficial.			
Biostimulatory Substances Planktonic algae								
• Adverse		1%, 20%River	20%, 20% River	None		None	None	None
• Beneficial	20%, *NP*	20%, *NP*	20% River	None		None	None	None
Turbidity								
• Adverse			~~20% River~~					
• Beneficial	*NP*~~, 20%~~	*NP*~~, 20%~~	20% River					
Waste Reduction Strategy			Criterion not applicable					
• Total Nitrogen								
♦ Adverse	~~20%,~~ *NP*							
♦ Beneficial	1%, 20% River, G							
• Ammonia N								

Page 4.6-154. The fifth paragraph is revised as follows:

> …The combined effect of reduced animal waste and slightly increased flow will have a small, but significant impact on water quality in the esteros. No mitigation has been identified which will completely avoid impacts in the esteros. Were it not for the policy-based evaluation criterion, these water quality changes in the Sanctuary would be considered beneficial.

Also refer to response to comment 92-91.

Response to Comment 12-17

Comment Summary: The comment asks for the basis of the alkalinity criterion point of significance, which is 20,000 µg/L.

The alkalinity criterion is explained in Tables 1 and 4 of Appendix I-12 (Development of Evaluation Criteria for Potential Water Quality Impacts) of the Draft EIR/EIS. It is based upon the EPA water quality criterion, which establishes a minimum alkalinity objective.

Response to Comment 12-18

Comment Summary: The comment refers to page 4.6-59 and asks why the alkalinity objective cannot be attained.

Page 4.6-59 of the Draft EIR/EIS indicates that the alkalinity point of significance is a minimum threshold of 20,000 µg/L, and that the project will not cause alkalinity to be less than 20,000 µg/L because the alkalinity of reclaimed water is always greater than 20,000 µg/L.

Response to Comment 12-19

Comment Summary: The comment asks for the background alkalinity of the Laguna and Russian River.

Alkalinity values are provided in Appendices I-4 (Laguna de Santa Rosa Water Quality Monitoring Results) and I-6 (Russian River Water Quality Monitoring Results) of the Draft EIR/EIS, and range from 100,000 to 250,000 µg/L.

Response to Comment 12-20

Comment Summary: The comment asks for justification of the temperature point of significance.

The justification is the water quality objectives provided in the Basin Plan and State Thermal Plan, as described on page 49 in Appendix I-12 (Development of Evaluation Criteria for Potential Water Quality Impacts) of the Draft EIR/EIS.

Response to Comment 12-21

Comment Summary: The comment indicates that the use of average temperature values alone is inappropriate and that "absolute data" should also be used.

The monthly average temperature of reclaimed water discharged from ponds was compared to the monthly average receiving water temperature at the point of discharge under existing conditions to evaluate for differences, and temperature differences are presented in Figure 4-17 in Appendix I-16 (Water Quality Impact Analysis Report Volume I - Text) of the Draft EIR/EIS. Average monthly values were evaluated because they provide an index of the impact on the long-term (monthly or seasonal) thermal regime, and because the long-term impacts are considered to be important to the suitability of habitat to aquatic life. The impacts on monthly average temperature are considered less than significant because the estimated change was less than the 5°F point of significance established in the Regional Board's Basin Plan. In response to this comment, the estimated maximum hourly temperature was evaluated for each month in the three-year water quality model simulation. As described below, the Project impact on maximum hourly temperature is also considered to be less than significant.

The following changes are made to the Draft EIR/EIS.

Pages 53 through 55, Appendix I-16. The temperature section is revised as follows:

> *Temperature*
>
> The predicted average monthly changes in temperature from the existing conditions baseline for the different discharge alternatives are shown in Figure 4-17. The predicted maximum hourly changes in temperature each month (Maximum Monthly Temperature) from the existing condition baseline (maximum temperature) were also examined for the different discharge alternatives. The point of significance for temperature is a 5 °F increase. Therefore, any increases in temperature greater than or equal to 5 °F are considered significant. Little temperature change is expected since the storage ponds are normally unstratified and therefore approximate ambient temperature
>
> **One Percent Design Discharge**. Predicted impacts from a 1 percent design discharge on temperature are less than a 1 degree change from the existing conditions baseline in Santa Rosa Creek, the Laguna, and the Russian River below the confluence with the Laguna. Predicted maximum increases in maximum monthly temperature from a 1 percent design discharge are 3.2 degrees in Santa Rosa Creek, 1.2 degrees in the Laguna, and less than one degree in the Russian River. Therefore the model does not predict any significant impact to temperature from a one percent design discharge.
>
> **Five Percent Design Discharge**. Predicted impacts from a 5 percent design discharge on temperature are less than a one degree change from the existing

conditions baseline in Santa Rosa Creek, the Laguna, and the Russian River below the confluence with the Laguna. Predicted maximum increases in maximum monthly temperature from a 5 percent design discharge are 2.6 degrees in Santa Rosa Creek and less than one degree in the Laguna and in the Russian River. Therefore the model does not predict any significant impact to temperature from a 5 percent design discharge.

Ten Percent Design Discharge. Predicted impacts from a 10 percent design discharge on temperature are less than a one degree change from the existing conditions baseline in Santa Rosa Creek, the Laguna, and the Russian River below the confluence with the Laguna. Predicted maximum increases in maximum monthly temperature from a 10 percent design discharge are 2.6 degrees in Santa Rosa Creek and less than one degree in the Laguna and in the Russian River. Therefore the model does not predict any significant impact to temperature from a 10 percent design discharge.

Twenty Percent Design Discharge to the Laguna. Predicted impacts from a 20 percent design discharge to the Laguna on temperature in Santa Rosa Creek range from a 0.1 degree decrease from existing conditions baseline (January, February, March, and April dry year) to a 1.9 degree increase from existing conditions baseline (November normal year). Predicted impacts from a 20 percent design discharge on temperature in the Laguna de Santa Rosa range from a 0.3 degree decrease from existing conditions baseline (January dry year) to a 1.8 degree increase from existing conditions baseline (November normal year). Predicted impacts from a 20 percent design discharge on temperature in the Russian River below the confluence with the Laguna are all less than one degree. Predicted maximum increases in maximum monthly temperature from a 20 percent design discharge to the Laguna are 1.2 degrees in the Laguna and less than one degree in Santa Rosa Creek and in the Russian River. No significant impacts on temperature are predicted for Santa Rosa Creek, the Laguna, or the Russian River below the confluence with the Laguna with a 20 percent design discharge to the Laguna.

Twenty Percent Design Discharge to the Russian River. Predicted impacts from a 20 percent design discharge to the Russian River on temperature are less than a one degree change from the existing conditions baseline in Santa Rosa Creek, the Laguna, and the Russian River above and below the confluence with the Laguna. Predicted maximum increases in maximum monthly temperature from a 20 percent design discharge to the Russian River are 3.2 degrees in Santa Rosa Creek, 1.2 degrees in the Laguna, and less than one degree in the Laguna and in the Russian River. Therefore the model does not predict any significant impact to temperature from a 20 percent design discharge to the Russian River.

No Project. Predicted impacts from discharge related to a No Project alternative on temperature in Santa Rosa Creek range from a 0.2 degree decrease from

existing conditions baseline (January dry year) to a 1.8 degree increase from existing conditions baseline (November normal year). Predicted impacts from discharge related to a No Project alternative on temperature in the Laguna de Santa Rosa range from a 0.1 degree decrease from existing conditions baseline (May normal and wet years) to a 1.5 degree increase from existing conditions baseline (November normal year). Predicted impacts from a discharge related to a No Project alternative on temperature in the Russian River below the confluence with the Laguna are all less than one degree. No significant impacts on temperature are predicted for Santa Rosa Creek, the Laguna, or the Russian River below the confluence with the Laguna with discharge related to a No Project alternative. Predicted maximum increases in maximum monthly temperature from discharge related to a No Project alternative are 1.1 degrees in the Laguna and less than one degree in Santa Rosa Creek and in the Russian River.

Geysers. Predicted impacts from discharge related to a Geysers alternative on temperature are less than a one degree change from the existing conditions baseline in Santa Rosa Creek, the Laguna, and the Russian River below the confluence with the Laguna. Therefore the model does not predict any significant impact to temperature from discharge related to a Geysers alternative. Predicted maximum increases in maximum monthly temperature from discharge related to a Geysers alternative are 3.2 degrees in Santa Rosa Creek, 1.2 degrees in the Laguna, and less than one degree in the Laguna and in the Russian River.

Water Quality Simulation Model Results - Zero Discharge Baseline

Water quality conditions without Santa Rosa's discharge (zero discharge baseline conditions) were simulated, and the results of the simulation are summarized in Table 4-4. Water quality conditions relative to the zero discharge baseline are presented in this section for benthic algae, planktonic algae, dissolved oxygen, and ammonia.

Benthic Algae

The predicted average monthly percent changes from a zero discharge baseline for benthic algae for the different discharge alternatives are shown in Figure 4-18.

One Percent Design Discharge to the Laguna. Predicted impacts from a 1 percent design discharge on benthic algae in Santa Rosa Creek range from a 1 percent decrease from a zero discharge baseline (January wet year) to a 23 percent increase from a zero discharge baseline (April wet year). Predicted impacts from a 1 percent design discharge on benthic algae in the Laguna de Santa Rosa range from less than a 1 percent change (most months and years) to a two percent increase (April normal year). Predicted impacts from a 1 percent design discharge on benthic algae in the Russian River are less than a 1 percent change except in April of a normal year where a four percent increase is predicted.

Five Percent Design Discharge to the Laguna. Predicted impacts from a 5 percent design discharge on benthic algae in Santa Rosa Creek range from a 17 percent decrease from a zero discharge baseline (February dry year) to a 22 percent increase from a zero discharge baseline (April wet year). Predicted impacts from a 5 percent design discharge on benthic algae in the Laguna de Santa Rosa range from a nine percent decrease from a zero discharge baseline (February normal year) to a six percent increase from a zero discharge baseline (June dry year). Predicted impacts from a 5 percent design discharge on benthic algae in the Russian River below the confluence with the Laguna range from no change from a zero discharge baseline (several months, all years) to a 15 percent increase from a zero discharge baseline (April, normal year).

Response to Comment 12-22

Comment Summary: The comment states that municipal wastewater discharges to estuaries can affect salinity and thereby affect aquatic habitat. The comment states that if a nearshore discharge is proposed short term salinity changes can affect benthic habitat over a large area.

No direct discharge to tidal waters is proposed. The project will affect the salinity of the esteros, which is discussed in Section 6 of Appendix I-16 (Water Quality Impact Analysis Report Volume I - Text). Also refer to Response to Comment 2-8 and to Master Response 10, located in Section 6.2 of this document, regarding saline habitats.

Response to Comment 12-23

Comment Summary: The comment states that the 20 percent point of significance for the turbidity criterion is too high, and a 5 percent value would be more appropriate. The comment states that the 20 percent value appears to be based on model precision.

The turbidity criterion was established at 20 percent to be consistent with the 20 percent value established in the North Coast Regional Board Basin Plan, and is intended to address aesthetic concerns. Also refer to Response to Comment 8-9 for discussion of development points of significance for the turbidity criterion. The turbidity criterion is not based on model precision.

To clarify the basis of the 20 percent point of significance, the following changes are made to the Draft EIR/EIS:

Page 4.6-61, Table 4.6-27 is revised as follows:

Page 13, Appendix I-16. Table 3-1 is revised as follows:

Table 4.6-27

Evaluation Criteria with Point of Significance - Surface Water Quality

Evaluation Criteria	As Measured by	Point of Significance		Justification[1]
		Fresh-water	Salt-water	
Temperature	°F	5 °F increase in monthly average temperature	4 °F increase in monthly average temperature in estuaries	Basin Plans narrative criteria
Turbidity - Adverse	monthly average planktonic algal biomass as chlorophyll *a*	20% increase	20% increase	Basin Plans narrative criterion. of 20%, ~~established by professional judgment,~~ to protect visual-related beneficial uses (i.e., aesthetics and fish feeding). Other causes of turbidity (i.e., soil, streambed, and streambank erosion) are addressed in Sections 4.3 (soil) and 4.4 (streambed and bank).

Source: *Development of Evaluation Criteria for Potential Water Quality Impacts*, Merritt Smith Consulting 1996f

1 Two types of justification are provided in this column: justification for further consideration and justification for no further consideration. For substances that are considered further, the justification column contains the source of the criteria that are potentially exceeded as a result of component implementation. For substances that are not considered further, the justification column states why they are not further considered.

2 EPA Final Chronic Values used because EPA criteria are based on the FDA action level for human consumption of fish. The EPA is uncertain whether the Final Chronic Values are completely protective of all fish species

3 Criteria of significance are hardness dependent. Value shown is for a hardness of 119 (average hardness of the Russian River).

4 EPA concluded that the available data on freshwater acute-chronic ratios do not allow calculation of a freshwater Final Chronic Value, but if one could be calculated it will have to be less than the 0.039 µg/L that adversely affected brook trout.

5 Criteria are temperature and pH dependent. Values shown are for 20°C and pH = 8 which reflect the long-term averages in the lower Russian River (Merritt Smith Consulting 1996n)

6 Basin Plan also has a 90th percentile criterion for conductivity which is based on all values for a calendar year. The 50th percentile upper limit point of significance for conductivity is more stringent than the 90th percentile upper limit point of significance. Therefore, compliance with the 50th percentile upper limit point of significance was evaluated.

7 EPA has established criteria to protect aquatic life against short- and long-term cyanide exposure (22 and 5.2 µg/L, respectively). 5.2 µg/L is used in this analysis to evaluate the significance of effects of component that result in long-term exposure (i.e., discharge) and 22 µg/L is used to evaluate the significance of effects of component that result in short-term exposure (i.e., pipeline rupture).

Table 3-1.

Evaluation Criteria for the Protection of Aquatic and Benthic Life with Criteria of Significance - Surface Water Quality and Sediment Quality

Evaluation Criteria	Point of Significance			Justification[a]
	Fresh-water	Salt-water	As Measured By	
Temperature.	5 °F increase in monthly average temperature	4 °F increase in monthly average temperature in estuaries	° F	Basin Plans narrative criterion
Turbidity - Adverse.	20% increase	20% increase	Monthly average planktonic algal biomass as chlorophyll *a*	Basin Plans narrative criterion. 20%, ~~established by professional judgment,~~ to protect visual-related beneficial uses (i.e., aesthetics and fish feeding).

Source: Development of Evaluation Criteria for Potential Water Quality Impacts Technical Report (MSC 1996)

[a] Two types of justification are provided in this column: justification for further consideration and justification for no further consideration. For substances that are considered further, the justification column contains the source of the criteria that are potentially exceeded as a result of component implementation. For substances that are not considered further, the justification column states why they are not further considered.

[b] Criteria of significance are hardness dependent. Value shown is for a hardness of 119 (average hardness of the Russian River).

[c] EPA Final Chronic Values used because EPA criteria are based on the FDA action level for human consumption of fish. The EPA is uncertain whether the Final Chronic Values are completely protective of all fish species

[d] EPA concluded that the available data on freshwater acute-chronic ratios do not allow calculation of a freshwater Final Chronic Value, but if one could be calculated it would have to be less than the 0.039 µg/L that adversely affected brook trout.

[e] Criteria are temperature and pH dependent. Values shown are for 20°C and pH =8 which reflect the long-term averages in the lower Russian River (*Russian River Water Quality Monitoring Results* Technical Report, MSC 1996)

[f] Basin Plan also has a 90th percentile criterion for conductivity which is based on all values for a calendar year. The 50th percentile upper limit point of significance for conductivity is more stringent than the 90th percentile upper limit point of significance. Therefore, compliance with the 50th percentile upper limit point of significance was evaluated.

[g] EPA has established criteria to protect aquatic life against short- and long-term cyanide exposure (22 and 5.2 µg/L, respectively). 5.2 µg/L is used in this analysis to evaluate the significance of effects of component that result in long-term exposure (i.e., discharge) and 22 µg/L is used to evaluate the significance of effects of component that result in short-term exposure (i.e., pipeline rupture).

EPA Criteria for the protection of aquatic life are described in EPA (1986). Basin Plan references is NCRWQCB (1994) and SFRWQCB (1995).

Response to Comment 12-24

Comment Summary: The comment states that the special site criterion point of significance of any water change is unrealistic and too stringent.

Refer to Responses to Comments 12-13 through 12-16.

Response to Comment 12-25

Comment Summary: The comment states that a water quality change in the Sanctuary is, from a biological perspective, not necessarily an adverse impact. The comment also states that the project proponent should minimize adverse impacts and offset unavoidable impacts.

Refer to Response to Comment 2-20 concerning water quality changes in the Sanctuary.

The special site evaluation criterion (with the point of significance being any water quality change) was established to be consistent with the Sanctuary's interpretation of Sanctuary regulations, not because a water quality change is necessarily adverse. Measures 2.2.1 through 2.2.12, 2.5.1, 2.5.2, and 2.5.3 are included in the project to minimize impacts, but the stringent point of significance of the special site criterion (any change) will not allow impacts to be mitigated to a less than significant level, as discussed on page 225 in Appendix I-16 (Water Quality Impact Analysis Report Volume I - Text) of the Draft EIR/EIS.

Response to Comment 12-26

Comment Summary: The comment refers to Section 4.6 and states that toxicity should be discussed in a more comprehensive manner.

Toxicity is discussed in greater detail on page 47 in Appendix I-12 (Development of Evaluation Criteria for Potential Water Quality Impacts) and on pages 35 and 116 in Appendix I-16 (Water Quality Impact Analysis Report Volume I - Text) of the Draft EIR/EIS.

Response to Comment 12-27

Comment Summary: The comment states that the point of significance for toxicity of "any increase" is not stringent enough.

Refer to Response to Comments 12-45 through 12-47.

Response to Comment 12-28

Comment Summary: The comment asks for a description of the impact of existing manure management practices on streams in the project area.

The data in Appendix I-3 (Environmental Conditions in West County Waterways) of the Draft EIR/EIS describe the effect of manure management practices on waterways in the West County. Other irrigation areas are not considered to be adversely affected by manure.

Response to Comment 12-29

Comment Summary: The comment asks for a description of the project effect on manure management practices and water quality.

Measure 2.2.6 in the Draft EIR/EIS (page 2-34) describes the requirement for a manure management strategy as a provision of receiving reclaimed water. Section 6 in Appendix I-16 (Water Quality Impact Analysis Report Volume I - Text) of the Draft EIR/EIS describes the reduced nutrient and enhanced dissolved oxygen impacts of improved manure management. However, even impacts of improved manure management on the Sanctuary are considered to be significant as a result of the policy-based point of significance for the special site evaluation criterion.

Response to Comment 12-30

Comment Summary: The comment states that Appendix I-14 characterizes the project impact on the Petaluma River salinity as being beneficial, and asks for justification of the finding.

Page 12 in Appendix I-14 (Hydrologic/Water Quality Evaluation of Irrigation of Baylands [Reyes Soils] with Reclaimed Water) of the Draft EIR/EIS concludes that, in general, the project will improve the quality of Bay Flats-area drainage flows. However, Appendix I-14 does not address the impact of the discharge of drainage flows on the Petaluma River. The impact of drainage water discharge on the Petaluma River is described on page 241 in Appendix I-16 (Water Quality Impact Analysis Report Volume I - Text) as being less than significant. Also refer to Response to Comment 2-8 and Master Response 10, located in Section 6.2 of this document, regarding saline habitats.

Response to Comment 12-31

Comment Summary: The comment states that dissolved oxygen minima should be an important part of the impacts analysis, but that page 4.6-72 does not indicate if dissolved oxygen minima were evaluated.

Dissolved oxygen minima were not evaluated in the Draft EIR/EIS but they have since been considered to amplify and clarify the data in the Draft EIR/EIS. No significant impacts were identified from this evaluation. Refer to Response to Comment 8-21.

Response to Comment 12-32

Comment Summary: The comment states that dissolved oxygen minima should be considered.

Refer to Response to Comment 8-21.

Response to Comment 12-33

Comment Summary: The comment states that the water quality objective for ammonia applies to the Russian River and the Laguna and should be used as the point of significance for the evaluation of project impacts.

As described in Appendix I-12 (Development of Evaluation Criteria for Potential Water Quality Impacts) of the Draft EIR/EIS, the ammonia concentration objective was applied to the Russian River, but the Regional Board's waste load reduction goal for ammonia was the basis for evaluating the significance of project impacts. The waste reduction goal was used because it is the Regional Board's site-specific approach for attaining the ammonia water quality objective, which is not currently attained.

Response to Comment 12-34

Comment Summary: The comment states that using average values for receiving water temperatures and pH to calculate un-ionized ammonia may significantly understate the situation. The comment also states that a more careful assessment of un-ionized ammonia concentration in the Laguna needs to be developed to evaluate a more accurate risk assessment.

Average temperature and pH were not used to calculate un-ionized ammonia but rather to determine the total ammonia criterion (criteria exist for both un-ionized and total ammonia). The total ammonia criterion was used to evaluate range and significance of impacts on predicted maximum monthly total ammonia in the Russian River since the Russian River Water Quality Model does not predict the pH and TDS necessary to calculate un-ionized ammonia. In the Russian River, the yearly average temperature and pH were used to determine an ammonia criterion because the more conservative 4-day criterion (CCC) rather than a 1-hour criterion (CMC) were being used. It was considered by the EIR/EIS authors to be unlikely that the combined conditions of a maximum temperature, a maximum pH and high ammonia concentrations would occur over a four day period. In addition, using annual average temperature was somewhat conservative since most of the discharge will occur in the colder winter months. The ammonia criterion increases (i.e. becomes less restrictive) as temperature decreases. Thus, a higher temperature was used to calculate the point of significance than would occur during most of the discharge season.

The range of impacts of total ammonia in the Laguna are described in Section 4.1.5 in Appendix I-16 (Water Quality Impact Analysis Report Volume I - Text) of the Draft EIR/EIS. Predicted waste load reduction was used to evaluate significance of ammonia impacts in the Laguna, not ammonia concentration. Also refer to Response to Comment 12-33.

Response to Comment 12-35

Comment Summary: In reference to the discussion of Impacts 6.1.1-4 on page 4.6-76, the comment asks whether it wouldn't be more accurate to state that "no mitigation is included" rather than "no mitigation is proposed", as the No Action Alternative is included for comparison only and not as an acceptable alternative.

The comment is correct, in that mitigation will not be applied to the No Action (No Project) Alternative. If the City takes "no action" on the Project, they will not have an opportunity to adopt mitigation. An evaluation of the No Action (No Project) Alternative is provided for comparison and to fulfill the requirements of CEQA and NEPA. It is accurate to say "No mitigation is included". It is also accurate, as stated in the Draft EIR/EIS, that "No mitigation is proposed".

Response to Comment 12-36

Comment Summary: The comment states that urban irrigation has an effect on surface water quality because urban irrigation uses reclaimed water that would otherwise be discharged (and affect) surface waters.

Project components (such as pipelines, storage reservoirs, and irrigation area) were sized so that the remaining volume of reclaimed water could be discharged within the design discharge rate at the specified reliability of 19 out of 20 months (refer to Chapter 3 of the Draft EIR/EIS). The relationship of the project components is implicit in the project description, and the impact of one component on another is not evaluated. The impact of each component is evaluated independently. While the comment is correct, the analysis in the Draft EIR/EIS only refers to direct impacts of urban irrigation, which do not affect surface water quality.

Response to Comment 12-37

Comment Summary: The comment refers to page 4.6-80 and asks that changes in streamflow be discussed in a more informative manner. The comment also asks how the siting of a reservoir changes streamflow and existing water quality.

The text to which the comment refers is part of a brief narrative summary of impacts that are described elsewhere in greater detail. Reservoir and irrigation impacts on streamflow are described further in the Draft EIR/EIS on page 4.6-84 (under Impact 6.5.3), page 4.6-89 (under Impact 6.7.3), and in the appendices of Appendix L-7 (Aquatic Biological Resources Impact Analysis Report). The impact of reservoirs on water quality is described in greater detail on pages 4.6-82 through 4.6-85, and in Section 6 of Appendix I-16 (Water Quality Impact Analysis Report - Volume I - Text).

Response to Comment 12-38

Comment Summary: The comment asks if storage impacts on streamflow and water quality are beneficial or adverse to fish and wildlife.

The impact of storage on streamflow and water quality at locations downstream of each proposed storage reservoir is addressed beginning on page 4.9-55 of the Draft EIR/EIS, and in Appendix L-7 (Aquatic Biological Resources Impact Analysis Report). Numeric estimates of storage impacts on streamflow are described in appendices A through C in Appendix L-7. The effects of the streamflow changes on aquatic habitat are described in Impacts 9.5.1 through 9.5.9 (beginning on page 4.9-55 of the Draft EIR/EIS). The impacts of storage reservoirs on aquatic biological resources are predicted to be significant before mitigation but less than significant after mitigation for all storage reservoirs with the exceptions of the Carroll Road and Adobe Road storage reservoir sites. For Carroll Road and Adobe Road storage reservoirs, no impact on aquatic biological resources are predicted. Impacts 9.5.1 through 9.5.9 also describe the effects of storage on aquatic habitat at each storage site.

Response to Comment 12-39

Comment Summary: The comment asks for the basis of the 5.0 mg/L dissolved oxygen point of significance that applies to West County streams.

The North Coast Basin Plan (page 3-3.00) provides for the instantaneous minimum dissolved oxygen concentration of 5.0 mg/L for West County streams, as indicated in the Draft EIR/EIS. Refer to Table 4.6-27, Tables 1 and 4 of Appendix I-12 (Development of Evaluation Criteria for Potential Water Quality Impacts), and Table 6-1 of Appendix I-16 16 (Water Quality Impact Analysis Report - Volume I - Text).

Response to Comment 12-40

Comment Summary: The comment states that dissolved oxygen in streams with salmonids should be maintained at 7.0 mg/L minimum. The comment also asks how reservoir leakage would affect downstream habitat value.

The North Coast Basin Plan (page 3-3.00) states that the dissolved oxygen of waters in which salmonids spawn shall be maintained at 7.0 mg/L minimum. The EIR/EIS authors are aware of no evidence that salmonid spawning occurs in waters downstream of reservoirs. Refer to Response to Comment 1-14, Impact 9.5.4 beginning on page 4.9-62 of the Draft EIR/EIS, and Appendices L-4 (Aquatic Habitat Survey Results) and L-5 (Aquatic Life Survey Results) of the Draft EIR/EIS. The flow effect of reservoir leakage on habitat is addressed beginning on page 4.9-55 of the Draft EIR/EIS, and in Section 4.1 of Appendix L-7 (Aquatic Biological Resources Impact Analysis Report). The water quality effect of reservoir leakage is addressed in Impact 6.5.1 beginning on page 4.6-82 in the Draft EIR/EIS, and beginning on page 194 of Appendix I-16 (Water Quality Impact Analysis Report - Volume I - Text). Also refer to Response to Comment 12-38.

Response to Comment 12-41

Comment Summary: The comment refers to Table 4.6-31 and asks that the water quality and habitat suitability impacts of reservoirs be put in perspective by relating the "degree" of the changes.

Table 4.6-31 in the Draft EIR/EIS is a summary of significant water quality impacts. The full range of impacts on water quality is described in Sections 6 and 7 of Appendix I-16 (Water Quality Impact Analysis Report - Volume I - Text). The full range of impacts on aquatic life is described in Appendix L-7 (Aquatic Biological Resources Impact Analysis Report).

Response to Comment 12-42

Comment Summary: The comment refers to the discussion of Impact 6.7.3 in Section 4.6 of the Draft EIR/EIS and asks that the impacts on the esteros be described in greater detail.

Additional detail is provided Section 6 of Appendix I-16 (Water Quality Impact Analysis Report - Volume I - Text), and in Response to Comments 92-237 and 5-77.

Response to Comment 12-43

Comment Summary: The comment asks if the dissolved oxygen impact analysis is based on average or minimum values.

Dissolved oxygen minima were not evaluated in the Draft EIR/EIS; they have since been considered and are discussed in Response to Comment 8-21.

Response to Comment 12-44

Comment Summary: The comment asks how a Project with significant adverse water quality impacts can be implemented in light of the State Water Resource Control Board's Antidegradation Policy.

Compliance of alternatives with the Antidegradation Policy is discussed on pages 4.6-4 and 4.6-5 of the Draft EIR/EIS.

Response to Comment 12-45

Comment Summary: The comment asks for the basis of the 6.1 percent point of significance for toxicity.

The 6.1 percent point of significance was developed using the approach described in the Draft EIR/EIS on page 4.6-127, on pages 116 through 118 of Appendix I-16 (Water Quality Impact Analysis Report - Volume I - Text), and in Table 4-15 of Appendix I-16. The 6.1 percent point of significance represents the estimated frequency that the

reclaimed water concentration in Santa Rosa Creek is such that lethal toxicity conditions may be present under the existing discharge condition.

Response to Comment 12-46

Comment Summary: The comment states that "any increase in frequency of demonstrated toxicity should be considered significant."

As described on pages 116 through 118 of Appendix I-16 (Water Quality Impact Analysis Report - Volume I - Text), significance was evaluated based on any increase in frequency relative to existing conditions. However, the Regional Board has a narrative water quality objective that prohibits toxicity in receiving water. Thus, Table 4.6-49 in the Draft EIR/EIS shows that the existing condition is not in attainment of the objective and the Regional Board could require that the impact be mitigated. Mitigation Measure 2.5.7 in the Draft EIR/EIS is based on Regional Board policy, and is thus the appropriate approach for addressing toxicity under the existing condition. Table 4-15 in Appendix I-16 of the Draft EIR/EIS also shows that a 5 and 10 percent design discharge would not attain the Regional Board toxicity objective. Since these alternatives would reduce the toxicity impact relative to the existing condition, the impact is considered less than significant in the EIR/EIS. Nonetheless, the Regional Board could require implementation of Mitigation Measure 2.5.7 for the 5 and 10 percent design discharge alternatives.

To reflect this, the following changes are made to the Draft EIR/EIS:

Page A-23, Appendix A. The last paragraph is revised as follows:

> Toxicity: The 5% and 10% options would cause toxicity to occur in the receiving water at a frequency that is less than the existing condition. Therefore, ~~T~~the 5% and 10% options were determined to have a less than significant impact on toxicity, and the 20% Laguna discharge alternative (Alternative 5B) was found to have a significant impact on toxicity (Merritt Smith Consulting 1996b). Mitigation Measure 2.5.7 may nonetheless be imposed by the Regional Board if the 5% or 10% options are implemented because such discharges would not attain the Regional Board toxicity objective which prohibits toxicity in receiving water. Although, t~~T~~he impact of the 15% option was not specifically evaluated, interpolation suggests that the impact will be significant. Therefore, the impact of the 15% option is considered to be significant.

Page 116, Appendix I-16. The last paragraph is revised as follows:

> Although not shown in Table 4-15, the concentration of reclaimed water in the Laguna would also exceed 25 percent for the 20 percent design Laguna discharge and No Project discharge components. However, the concentration of reclaimed water resulting from design discharge would not exceed 25 percent in the Russian River. T~~hus, t~~he impact on toxicity in the Laguna is considered to be significant

for the 15%, 20% Laguna discharge and No Project alternatives, and the impact on toxicity in the Russian River is considered to be less than significant for all alternatives. The 5 and 10 percent design Laguna discharge would cause toxicity to occur in the receiving water at a frequency that is less than the existing condition; therefore, the impact of these design discharge alternatives is considered to be less than existing conditions. However, such discharges would not be, and the existing condition is not, in attainment of the Regional Board toxicity objective which prohibits toxicity in receiving water, and mitigation could be required by the Regional Board.

Response to Comment 12-47

Comment Summary: The comment asks for the mitigation of toxicity impacts.

Mitigation for toxicity impacts is described in Mitigation Measure 2.5.7 of the Draft EIR/EIS (page 2-133).

Response to Comment 12-48

Comment Summary: The comment states that, regardless of the existence of numeric-based criteria, increasing conductivity of the receiving waters affects the habitat suitability for all species of fish and aquatic life. The comment also states that since salts are not removed through conventional waste treatment, the Draft EIR/EIS must discuss the impacts of salts in wastewater in the context of the State's Antidegradation Policy, and their effects upon fish, wildlife, and agricultural productivity.

Refer to Response to Comment 12-9, concerning conductivity. Compliance of alternatives with the Antidegradation Policy is discussed on page 4.6-4 and 4.6-5 of the Draft EIR/EIS.

Response to Comment 12-49

Comment Summary: The comment states that, although the Draft EIR/EIS acknowledges that the Laguna is rarely in attainment of the Basin Plan objective for dissolved oxygen, Table 4.6-36 indicates no significant change under any of the proposed alternatives. The comment states also that the effects of discharge would be better reflected in an analysis of the frequency and duration of minimum and maximum concentrations of dissolved oxygen.

Table 4.6-36 of the Draft EIR/EIS indicates a significant impact for Alternative 5B (Laguna Discharge). Dissolved oxygen minima were not evaluated in the Draft EIR/EIS; they have since been considered and no significant dissolved oxygen impacts were identified in the evaluation. Refer to Response to Comment 8-21. Impacts on dissolved oxygen were evaluated with respect to Basin Plan criteria. Basin Plan criteria do not consider dissolved oxygen maxima, nor do they consider frequency and duration of dissolved oxygen minima except with respect to monthly averages and instantaneous

maxima. Therefore, dissolved oxygen impacts were not assessed relative to frequency and duration of maximum and minimum dissolved oxygen concentrations.

Response to Comment 12-50

Comment Summary: The comment states that the impacts of discharge alternatives upon concentrations of dissolved oxygen within receiving water in the Laguna and Russian River cannot be adequately evaluated upon the basis of monthly averages.

Dissolved oxygen minima were not evaluated in the Draft EIR/EIS; they have since been considered and no significant dissolved oxygen impacts were identified in the evaluation. Refer to Response to Comment 8-21.

Response to Comment 12-51

Comment Summary: The comment states that the diurnal effect of algal photosynthesis and respiration creates daily extremes which are not adequately considered by averaging the data set.

Dissolved oxygen minima were not evaluated in the Draft EIR/EIS; they have since been considered and are discussed in Response to Comment 8-21.

Response to Comment 12-52

Comment Summary: The comment states that the degree of stress imposed on sensitive fish and aquatic life should be evaluated using the minimum predicted dissolved oxygen The comment also states that the 0.5 mg/L criterion may be appropriate for minima but not for averages.

Refer to Response to Comment 8-21.

Response to Comment 12-53

Comment Summary: The comment asks if the model simulations predict any of the proposed alternatives will significantly increase the average receiving water dissolved oxygen concentrations in the Laguna.

The model simulations predict some increases in the average dissolved oxygen concentrations in the receiving water. The range of predicted dissolved oxygen concentrations with proposed alternatives are presented in the Draft EIR/EIS in Section 4.1.5 of Appendix I-16 (Water Quality Impact Analysis Report - Volume I - Text).

Response to Comment 12-54

Comment Summary: The comment asks if the predicted significant increases in biostimulatory substances will create increased oxygen demand and thus significantly impact the receiving water dissolved oxygen concentration and pH.

Dissolved oxygen in receiving waters could be affected by discharge alternatives in a variety of ways, such as through algal biostimulation (oxygen production and consumption through photosynthesis and respiration), flow changes (which affects re-aeration from the atmosphere and flushing of organic matter), and discharge of organic matter (which affects bacterial uptake of oxygen). Each of these factors were modeled, and the results of this analysis are presented in the Draft EIR/EIS in Section 4.1.5 of Appendix I-16 (Water Quality Impact Analysis Report - Volume I - Text). The project impact on pH was not modeled directly because of the extreme complexity of modeling acid/base chemistry in the presence of biota, but pH impacts were modeled indirectly through the evaluation of impacts on algae. pH changes are expected to result from uptake (during photosynthesis) and production (during respiration) of carbon dioxide by algae. Thus, impacts on pH are expected by the EIR/EIS authors to correlate with impacts on algae, which have been considered in great detail.

Response to Comment 12-55

Comment Summary: The comment states that the distinction between Table 4.6-37 and 4.6-39 is unclear.

Table 4.6-37 of the Draft EIR/EIS presents the maximum adverse effects of *design* discharge on algal biomass in the three modeled years (dry, normal, and wet). Table 4.6-39 presents the maximum adverse effects of design discharge and contingency discharge on algal biomass in the driest of the 70-year period of flow record.

Response to Comment 12-56

Comment Summary: The comment refers to page 4.6-115 and states that mitigation will have secondary impacts. The comment also states that it assumes that such impacts are beneficial.

Page 4.6-115 of the Draft EIR/EIS states that mitigation will have beneficial and adverse impacts, and these impacts are described on pages 4.6-116 through 4.6-118. Mitigation impacts include a higher frequency of beneficial impacts on benthic and planktonic algae (refer to Table 4.6-42 of the Draft EIR/EIS). Mitigation would also result in an impact on ammonia in the Russian River, as described in the first paragraph of page 4.6-117.

Response to Comment 12-57

Comment Summary: This comment asks under what flow scenario and in what month does the significant impact from Alternative 5B contingency discharge occur.

The significant impact from 5B contingency discharge occurs under mitigation operations modeled for the driest year on record (1977). The predicted significant impact on maximum ammonia concentrations from Alternative 5B contingency discharge with mitigation operations occur in January and February, as shown in Figures 4-53 through 4-55 of Appendix I-17 (Water Quality Impact Analysis Report Volume II - Figures).

To clarify this, the following changes are made to the Draft EIR/EIS:

Page 4.6-117. The first paragraph is revised as follows:

> In the case of Alternative 5B, contingency discharge with mitigation operations (Measure 2.5.4) is predicted to cause increases in the maximum ammonia concentration in two ~~one~~ months of the year (January and February) that exceed the point of significance. Ammonia is of concern because high concentrations are toxic to aquatic life.

Page 144 (page 143 CD-ROM version), Appendix I-16. The first sentence of the last paragraph is revised as follows:

> Ammonia concentrations in the Russian River below the confluence with a 20 percent contingency discharge to the Laguna and biostimulatory substances mitigation operations are predicted to exceed the point of significance for ammonia in ~~one~~ two months (January and February).

Page 144 (page 143 CD-ROM version), Appendix I-16. Table 4-32 is revised as follows:

Table 4-32

Number of Significant Adverse Impacts of Contingency Discharge Under Project and Mitigation Operations

Discharge Component	Max. No.[a]	Benthic Algae		Planktonic Algae		Dissolved Oxygen		Ammonia		Temp-erature	
		Proj	Mit	Proj	Mit	Proj	Mit	Proj	Mit	Proj	Mit
10%	6[b]	0	0	2	2	0	0	0	0	0	0
20%	9[c]	3	3	2	2	0	0	0	~~1~~2	0	0
20%R	12[d]	0	0	4	3	0	0	0	0	0	0

[a] This column show the maximum number of significant impacts that could be identified using this evaluation approach.
[b] 6 = 3 stream segments x 1 type of year x 2 months/year that include contingency discharges.
[c] 9 = 3 stream segments x 1 type of year x 3 months/year that include contingency discharges.
[d] 12 = 4 stream segments x 1 type of year x 3 months/year that include contingency discharges.

Response to Comment 12-58

Comment Summary: The comment asks how such ammonia exceedences might affect fish and aquatic life.

High concentrations of ammonia are toxic to aquatic life. The text of the Draft EIR/EIS has been revised to reflect this. Refer to Response to Comment 12-57.

Response to Comment 12-59

Comment Summary: The comment asks if the statement on page 4.6-117 cited in comment 12-57 is referring to monthly, daily, or hourly average, or instantaneous ammonia-nitrogen concentrations, or that for toxic concentrations of un-ionized ammonia.

The significant impact from Alternative 5B contingency discharge with mitigation operations refers to a monthly maximum total ammonia-nitrogen concentration. Ammonia was modeled on an hourly time step, so the monthly maximum is the maximum of all hourly values in the month.

Response to Comment 12-60

Comment Summary: The comment asks, if the ammonia exceedence cited on page 4.6-117 is based on toxic concentrations of un-ionized ammonia, were predicted increases based upon average pH and average temperature.

As discussed in Response to Comment 12-34, predicted maximum monthly total ammonia concentrations in the Russian River were evaluated using a total ammonia criterion based on average temperature and average pH.

Response to Comment 12-61

Comment Summary: The comment asks how the magnitude of the two contingency discharge ammonia exceedences might change under extreme, rather than average conditions.

The exceedences are based on estimates of maximum ammonia concentration. The total ammonia criterion decreases with increasing temperature and pH. This is because the un-ionized ammonia is the toxic fraction of ammonia and the percentage of total ammonia that is un-ionized increases with increasing temperature and pH. However, the toxicity of un-ionized ammonia decreases with increasing temperature and pH. Average temperature and pH values were used to determine an appropriate total ammonia criterion because the EIR/EIS authors consider it unlikely that maximum ammonia concentrations, temperature, and pH will occur simultaneously and continuously for a four day period.

Response to Comment 12-62

Comment Summary: The comment asks how predicted increases in algal biomass might affect minimum and maximum concentrations of dissolved oxygen and un-ionized ammonia.

Project impacts on minimum and maximum dissolved oxygen concentrations due to factors such as increases in algal biomass are described in the Draft EIR/EIS in Section 4.1.5 of Appendix I-16 (Water Quality Impact Analysis Report - Volume I - Text). Increases in algal biomass can cause an increase in pH. Whether or not an increase in pH occurs and the magnitude of the increase depends greatly on factors such as the actual increase (if any) of algal productivity and the buffering capacity of the water. If an increase in pH occurs, the fraction of un-ionized ammonia will increase. Also refer to Response to Comment 12-54.

Response to Comment 12-63

Comment Summary: The comment asks if predicted increases in algal biomass would create more significantly adverse effects on fish and aquatic life through changes in dissolved oxygen and un-ionized ammonia concentrations.

Project impacts on dissolved oxygen are described in the Draft EIR/EIS in Section 4.2.5 of Appendix I-16 (Water Quality Impact Analysis Report - Volume I - Text). As described in Response to Comment 12-34, the impacts of total ammonia rather than un-ionized ammonia were modeled. Since un-ionized ammonia is a component of total ammonia and evaluation criteria exist for total ammonia, the EIR/EIS authors consider the adverse effects of ammonia on fish and aquatic life to be addressed in the analysis of project impacts on total ammonia. The results of this analysis are presented in Section 4.2.5 of Appendix I-16. Also refer to Response to Comment 12-62.

Response to Comment 12-64

Comment Summary: The comment asks how the proposed mitigation for biostimulatory impacts will reduce the risk of deleterious effects to less than significant.

No impacts related to ammonia from design discharge components were identified. Although mitigation for biostimulatory substances is predicted to reduce project impacts on algal biomass, the frequency of dissolved oxygen impacts is predicted to slightly increase with biostimulatory substances mitigation. The biostimulatory substances mitigation is predicted to cause the ammonia criterion to be exceeded under contingency discharge conditions. Refer to page 4.6-116 of the Draft EIR/EIS. Thus the proposed mitigation to revise discharge operations reduces some impacts, but actually increases others. The EIR/EIS authors consider the net impacts of mitigation to be less than that without mitigation. Should increased discharge be implemented the City will work with regulatory agencies to determine which discharge scenario should be used.

Response to Comment 12-65

Comment Summary: The comment states that the impact analysis should more specifically identify the temporal and spatial aspects of each parameter and its potential impact to the quality of aquatic habitat.

The Russian River water quality model represents a river system as a series of reaches which are regions of the river with similar hydraulic and water quality characteristics. Each reach is subdivided into two or more computational elements. The concentrations of all water quality parameters modeled are calculated for each computational element on an hourly time step. Thus, the temporal and spatial aspects are taken into account for parameters modeled by the Russian River water quality model. Conservative constituents, the impacts of which were evaluated using a dilution model, generally do not have regular temporal cycles (except that caused by discharge rate variations which are described in Figures 4-1 through 4-17 of Appendix I-17), so analysis of conservative constituents on a temporal basis would not provide additional meaningful information.

Response to Comment 12-66

Comment Summary: The comment refers to Table 4.6-43 and states that the analyses of both beneficial and adverse effects on algal biomass is confusing and that the base condition upon which assignments of beneficial or adverse impacts are evaluated is unclear.

The values in Table 4.6-43 in the Draft EIR/EIS are not used to determine if significant impacts are occurring, but rather to summarize the relative number of adverse and beneficial impacts for parameters in which both types of impacts were identified. Table 4.6-43 and the associated text is a summary of information that is fully explained in Appendix I-16 (Water Quality Impact Analysis Report - Volume I - Text) of the Draft EIR/EIS. The comment also states that significance is not an average condition, but rather a spatial and temporal impact on the extremes of the data. As explained in Response to Comment 12-65, the Russian River water quality model evaluates impacts on a spatial and temporal basis. In addition, although the average predicted algal biomass concentrations are presented, the conditions of discharge in a dry year represent extreme conditions.

Response to Comment 12-67

Comment Summary: The comment states that Table 4.6-43 says that dissolved oxygen is not included because no criteria for beneficial impacts have been developed. The comment also states that some sense of beneficial effects could be derived from careful evaluation of alternatives which may raise minimum dissolved oxygen or stabilize wide fluctuations in dissolved oxygen concentrations in known areas of dissolved oxygen impairment, such as in the Laguna.

No criteria for beneficial impacts were developed because the analysis of dissolved oxygen impacts was done on average concentrations. An increase in average dissolved oxygen is not necessarily beneficial since it might be the result of an increase in algal productivity (which is considered by many to be an adverse impact).

The evaluation of minimum dissolved oxygen has been addressed in Response to Comment 8-21. The potential for beneficial impacts is discussed in that response.

Response to Comment 12-68

Comment Summary: The comment states that discussion of the effects of the West County Alternative on water quality of Stemple Creek/Estero de San Antonio must be characterized by parameter; and more importantly, as beneficial or adverse to achievement of the Stemple Creek/Estero de San Antonio Watershed Enhancement Plan.

Effects of the West County Alternative on water quality in Stemple Creek/Estero de San Antonio are characterized by parameter in Section 6.1.2 of Appendix I-16 (Water Quality Impact Analysis Report - Volume I - Text). The EIR/EIS authors concur that the matter of beneficial versus adverse impacts should be addressed.

Therefore, the following changes are made to the Draft EIR/EIS:

Page 4.6-131. The first paragraph is revised as follows:

> …Under the evaluation criteria established to evaluate the significance of potential impacts in the Esteros, the impact of the Stemple Creek/Estero de San Antonio Watershed Enhancement plan, Santa Rosa's irrigation and storage components, or both will be considered significant. This evaluation criterion is based on the Sanctuary's interpretation of regulations of the Sanctuary and findings of significance do not necessarily mean that the water quality change would adversely affect aquatic life or the suitability of Sanctuary habitat for aquatic life. The Stemple Creek/Estero de San Antonio Watershed Enhancement Plan was developed to provide a beneficial impact on the Estero de San Antonio.

Response to Comment 12-69

Comment Summary: The comment states that, regardless of the existence of numeric-based criteria, the effect of discharge alternatives on receiving water conductivity in the Laguna is of concern.

Refer to Response to Comment 12-9.

Response to Comment 12-70

Comment Summary: The comment states that in Table 4.6-58 the level of significance for the water quality impact (Impact 6.7.3) for Alternative 3 needs to be qualified, or re-evaluated as positively or negatively affecting water quality parameters.

Refer to Response to Comment 12-16.

Response to Comment 12-71

Comment Summary: The comment refers to a statement on Page 4.6-154, "the combined effect of reduced animal waste and slightly increased flow will have a small, but significant impact on water quality in the esteros," and asks if the impact is based on the criterion that any change is significant or if there is a real adverse impact on water quality. The comment also states that if it is only an impact based on the criterion that any change is significant, it should be clearly stated and if there is actually an adverse or beneficial impact to water quality, that also should be clearly stated.

The impact is significant due to the policy-based evaluation criterion that any change to the Sanctuary is significant. Reduced animal waste is predicted to reduce nutrient input and thus reduce algal growth and dissolved oxygen variations. Were it not for the policy-based evaluation criterion, these water quality changes in the Sanctuary would be considered beneficial. Also, refer to Response to Comment 12-16.

Response to Comment 12-72

Comment Summary: The comment states that comment 12-71 is applicable in many other places in the document and that the clarification should be made at all those locations.

Refer to Response to Comment 12-16.

Response to Comment 12-73

Comment Summary: The comment states that in Table 4.6-60, the manner in which the criterion that "any change is significant" is applied makes it impossible to evaluate the true impacts, or benefits, of Alternative 3 on the esteros. The comment further suggests that there could be two evaluations of impacts under "Esteros", one presenting impacts as measured by the policy-based criteria of the National Marine Service and one presenting the adverse or beneficial impacts as measured by a biological or scientific criterion.

Refer to Response to Comment 12-16.

Response to Comment 12-74

Comment Summary: The comment suggests that the EIR/EIS should present two or more discrete categories of significance for California Native Plant Society (CNPS) List 2, 3, and 4 plants based on the rarity of the species in question. The comment suggests that a point of significance of 5 percent may be established if the species range is limited to one or two counties and a greater percentage (e.g. 25 percent) if the species range is both within and outside a two county area.

This approach would not alter the findings of the Draft EIR/EIS. The table below summarizes the distribution information for species potentially impacted by the project.

All species occur within both Marin and Sonoma counties and range outside the counties as well. Therefore no reevaluation of analysis is necessary.

Response to Comment 12 - Table 12-1

CNPS List 2, 3, and 4 Plant Species Distribution Potentially Impacted by The Santa Rosa Subregional Long-Term Wastewater Project

Plant Species	CNPS Status	Sonoma Occurrences	Marin Occurrences	Other Counties of Distribution
Bristly linanthus (*Linanthus acicularis*)	List 4	3	7	Alameda, Butte, Contra Costa, Mendocino, Fresno, Humboldt, Lake, Napa, and San Mateo
Hayfield tarplant (*Hemizonia congesta* ssp. *leucocephala*)	List 3	24	13	Mendocino
Gairdner's yampah (*Perideridia gairdneri*)	List 4	7	3	Del Norte, Humboldt, Kern, Lassen, Mendocino, Monterey, Modoc, Napa, San Benito, Santa Clara, Santa Cruz, Siskiyou, San Luis Obispo, Solano, and Trinity
Green monardella (*Monardella viridus* ssp. *viridus*)	List 4	5	0	Lake, Mendocino, Napa
Lobb's aquatic buttercup (*Ranunculus lobbii*)	List 4	18	9	Alameda, Contra Costa, Mendocino, Napa, Solano, and Santa Clara
Mt. St. Helena morning-glory (*Calystegia collina* ssp. *oxyphylla*)	List 4	6	0	Lake and Napa
Serpentine bird's-beak (*Cordylanthus tenuis* ssp. *brunneus*)	List 4	6	0	Lake and Napa

Source: *Inventory of Rare and Endangered Vascular Plants of California* (CNPS, 1994)

Response to Comment 12-75

Comment Summary: The comment suggests that the EIR/EIS establish a significance gradient for loss of natural plant communities which considers community abundance and distribution.

Establishing a gradient of significance that considers each natural plant community's abundance and distribution would be an overly burdensome task for the EIR/EIS. Much of the detail of the true abundance and extent of natural plant communities in the region and in the State is not developed or not validated. It is the assumption of the EIR/EIS authors that abundance and distribution were known and considered for those communities evaluated as sensitive by the California Department of Fish and Game. In the EIR/EIS analysis, any loss to these "sensitive communities" is considered significant. Although this may be conservative, it is the most appropriate approach with the data gaps considered.

Response to Comment 12-76

Comment Summary: The comment suggests that the EIR/EIS assign the lowest threshold when more than one threshold (and criterion) applies to a single resource.

In the Draft EIR/EIS, the lowest threshold does apply in the impact analysis and the development of mitigation. For example, a less than 25 percent loss of sensitive wildlife habitat is not considered a significant impact to wildlife but may be considered a significant impact to the plant life if the wildlife habitat is also identified as a sensitive plant community.

Response to Comment 12-77

Comment Summary: The comment expresses concern that identification of a cumulative loss of 40% of annual grassland in Sonoma County as significant might suggest that less than 40% loss is less than significant. The comment states that CDFG believes that the loss annual grassland in excess of 20% should be considered significant.

The point of significance for the loss of annual grassland as sensitive wildlife habitat is 25 percent, not 40 percent. The point of significance presented in the Draft EIR/EIS is that “Losses exceeding 25 percent of existing habitat in the region (Sonoma and Marin counties) are considered significant for this type of impact” (see page 4.8-117). CDFG provides an opinion that a cumulative loss of greater than 20% may more accurately reflect the point at which local populations may be significantly affected. However CDFG also states that a precise determination of a point of significance is impractical in the absence of detailed population studies of several grassland species. The comment therefore does not provide any substantive information that indicates that revaluation of the analysis or alteration of the point of significance is warranted.

In addition, the comment does not take into account that the analysis of available acreage of annual grassland in Sonoma and Marin counties in the Draft EIR/EIS is extremely conservative and real losses of greater than 20 percent are not expected. The available data on annual grassland distribution in Sonoma and Marin counties (Cal Veg) was limited in accuracy. The data collected during the project studies concerning the distribution of this community within the Project area during the Project studies, while more accurate, did not encompass all habitats within the County's boundaries. Large amounts of annual grassland extend outside the Project area, but within the counties' boundaries. Therefore the percentage of the expected loss of annual grassland due to this Project and cumulative projects is extremely conservative and is not likely to exceed 20 percent.

Response to Comment 12-78

Comment Summary: The comment suggests that the significance thresholds for criteria 3, 5, and 9 of the Aquatic Section of the Draft EIR/EIS might be too high, but states that the Department does not have any good suggestions for alternative criteria.

Because no substantive information is presented to contradict the validity of the criteria or point of significance, the EIR/EIS authors deem the existing criteria to be reasonable.

Response to Comment 12-79

Comment Summary: The comment suggests that evaluation criteria 3 and 5 and their respective points of significance are appropriate for smaller watersheds involved with the long-range Project but should not be utilized in analyses of impacts to larger watersheds.

The criteria were developed specifically for this project and are not intended to be used to evaluate larger watersheds. The EIR/EIS authors did not attempt to apply the evaluation criteria and points of significance outside of the environmental setting and analysis for this Project.

Response to Comment 12-80

Comment Summary: The comment suggests that the EIR/EIS provide a clearer definition of "wet season flow." The comment also states that though a 50% reduction in high peak flow might be an appropriate standard of significance, a 25 % reduction of low wet season flow may be significant.

The EIR/EIS authors concur that "wet season flow" can be more clearly defined. Therefore the following changes are made to the Draft EIR/EIS.

Page 4.9-38. The following note is added to Table 4.9-3:

6. Wet season streamflow, for purposes of this EIR/EIS, is defined as average daily stream flow present within a stream during the months of December through March during a dry year, an average year, and/or a wet year. Dry season is defined as June through September.

With respect to the reduction of low wet season flow, the comment does not present any information or additional detail to justify this position. Considering the degraded environmental conditions of these watersheds, winter flow reduced by less than 50% over portions of these sites will not significantly affect the aquatic habitat present.

Response to Comment 12-81

Comment Summary: The comment suggests that a 15-year monitoring program may be more appropriate for restoration of woodlands.

The EIR/EIS authors concur. Therefore, the following changes are made to the Draft EIR/EIS:

Page 2-82. The Timing section of Mitigation Measure 2.3.11 is revised as follows:

Timing:

Start: Immediately following construction.

Complete: After five years or when performance criteria have been met. Note that woodland habitat restoration may require up to 15 years of monitoring to ensure compliance with performance criteria.

Response to Comment 12-82

Comment Summary: The comment is a duplicate of Comment Letter #12 from the California Department of Fish and Game.

These comments have been addressed in Responses to Comments12-1 through 12-81.