COMMENT LETTER 86 - UNITED WINEGROWERS FOR SONOMA COUNTY, BOB ANDERSON (OCTOBER 7, 1996), RECEIVED OCTOBER 7, 1996

Response to Comments 86-1, 86-2, 86-3 and 86-4

Comment Summary: The comment states that early in the project a decision was made to expand the pumps at the headworks to serve projected population buildout of the adopted General Plans. The comment references Section 3.5 of the Draft EIR/EIS, which indicates that if a proposed update of the Santa Rosa General Plan results in a population above 174,000 a new proposal for sewage treatment and disposal would be required. The comment then asks "how controlling factors in terms of expanding treatment capacity relate to General Plan buildout; specifically, how much is determined by General Plan projections, how much by the capacity of the headworks pumps, and how much by other factors such as sizing of pipelines and other facilities within the treatment plant itself."

The capacity of the headworks pumps and therefore the treatment plant were determined by the 21 million gallons per day (mgd) average dry weather flow (ADWF) requirement to serve the expected flow at buildout of the General Plans. It is the buildout of the General Plans of the Subregional System member entities that is the ultimate factor controlling the sizing of the Laguna Plant. The Draft EIR/EIS, in Section 1.1 (page 1-3), indicates that the Project is intended to provide for disposal of wastewater flows expected at buildout of the adopted General Plans (in effect as of April, 1994) of the member entities of the Subregional System. The design of the Project is based upon the disposal of 21 mgd ADWF. As stated in Section 3.3 of the Draft EIR/EIS (page 3.3-4), the proposed capacity of the headworks pumps is intended to meet the required hydraulic capacity associated with the design capacity for the Project of 21 mgd ADWF. All alternatives, except the No Action (No Project) alternative include this increase in headworks capacity. Other existing processes within the treatment plant are sized adequately to treat the 21 mgd ADWF that can be accommodated by the headworks expansion.

Response to Comment 86-5

Comment Summary: The comment indicates that a side-by-side comparison of the wastewater flow projections contained in the Draft EIR/EIS with those in "the original work done by West Yost" would be helpful particularly after a significant correction was made reducing the General Plan correction for Rohnert Park.

The wastewater flow projections summarized in Section 3.3 of the Draft EIR/EIS are taken from Appendix D-4 (Wastewater Flow Projections) which is the final version of the Technical Report on Wastewater Flow Projections for the Project. Comparison to the earlier version cited in the comment is inappropriate because earlier versions were subsequently revised as part of the preparation of the Draft EIR/EIS to correct various technical items, including the General Plan projection for the City of Rohnert Park.

Response to Comment 86-6

Comment Summary: The comment asks what is the annual plant production attributable to ADWF under the various weather conditions.

The comment appears to be based upon a misunderstanding of the definition of average dry weather flow (ADWF). ADWF is a measurement of the flow during dry weather only; and is used to reflect the true amount of sewage production. Flows increase above ADWF during wet weather because of inflow and infiltration (I/I) to sewers of surface and groundwater, respectively. Thus, ADWF does not vary as a result of weather, but I/I does vary according to rainfall and groundwater conditions. The Monthly Water Balance Model, described in Appendix D-8 (Water Balance Model - Summary and Results) of Draft EIR/EIS, estimated total annual I/I in each year of the 70-year simulation period based on total annual River flow. Total annual River flow correlated well with I/I from 1986 through 1993, and the relationship from that period was used to estimate future I/I. I/I was also estimated on a daily basis to support a daily water quality impacts simulation, as described in Appendix I-8 (Russian River Water Quality Model). In extremely wet years I/I can be up to 50 percent of plant flow. Refer also to Response to Comment 118-16.

Response to Comment 86-7

Comment Summary: The comment suggests that a side-by-side comparison of design parameters would be helpful, noting that numbers such as Russian River flows and treatment plant flows would be expected to be the same under all alternatives.

Due to the complexity of the Project, it is not possible to show all design parameters in a side-by-side comparison. The principal design parameters are contained within Section 3.3 of the Draft EIR/EIS and summarized by alternative in Table 3.1-6 on page 3.1-16. The treatment plant flows and Russian River flows used in the Draft EIR/EIS are identical for all alternatives.

Response to Comment 86-8

Comment Summary: The comment asks what is the relationship between river and plant flows as used in the Draft EIR/EIS.

As described in Response to Comment 86-6, River flow was used to estimate that portion of plant flow that is due to weather-related inflow and infiltration (I/I). Plant flow resulting from sewage production in the service area was estimated to be 21 mgd in Appendix D-4 (Wastewater Flow Projections). The purpose of Appendix D-4 was to estimate average dry weather flow (ADWF), and the methods used to estimate ADWF relate to population and water use in the service area, not weather and River flow.

The relationship of River flow to I/I is estimated in Appendix D-8 (Water Balance Model - Summary and Results). The regression equation used to estimate flow is:

$$ADF = \text{River Volume} \times 3.5 \times 10^{-6} + ADWF$$

where:

ADF=average daily flow in MG
River Volume = Total Annual Russian River Volume in MG
ADWF = average dry weather flow = 21 mgd.

The regression coefficient (r-squared value) for this equation is 0.85.

This equation has been added to Appendix D-8 (refer to Response to Comment 118-46.)

Daily I/I was estimated as described on page 32 of Appendix I-8 (Russian River Water Quality Model) of the Draft EIR/EIS (page 29 on CD-ROM) as follows:

For $Q_I > 100$ cfs:

$$Q_{ww} = 21 + 0.2973 (Q_I - 100)^{1/2}$$

For $Q_I < 100$ cfs:

$$Q_{ww} = 21$$

Where:

Q_{ww} = Reclaimed water production in MGD

Q_I = Russian River Incremental watershed inflow in cfs (this is the daily average flow entering the River between the Healdsburg and Hacienda gages. It reflects weather conditions in the vicinity of Santa Rosa.

The regression coefficient (r-squared value) for this equation is 0.775.

Discharge to the River is expressed as a percentage of River flow. The discharge is not equal to plant flows.

Response to Comment 86-9

Comment Summary: The comment suggests that it would be helpful to have a side-by-side comparison of river and plant flows and how they were used in the Draft EIR/EIS.

Because river flows and plant flows vary daily, there are 25,550 data points in the 70-year period of record, requiring several hundred pages to print. The EIR/EIS authors do not believe a side-by-side flow comparison is needed to evaluate the Draft EIR/EIS. Data on river flow and plant flow were used in the Draft EIR/EIS for the water quality analysis, and the water quality model is described in Appendix I-8 (Russian River Water Quality Model) of the Draft EIR/EIS.

Response to Comment 86-10

Comment Summary: The comment indicates that, according to a footnote for one alternative, ADWF was calculated by averaging the flow from June through September, and in a footnote for the Geysers alternative by using just September's flows.

The comment does not cite a specific location in the Draft EIR/EIS for these footnotes, and therefore only a general response can be made. ADWF is used in the Draft EIR/EIS to describe the design capacity of the Project based upon amount of reclaimed water produced by the treatment plant, and for which disposal is required. ADWF is dry weather flow and therefore is consistent with averaging for the months of June through September, which are the dry season. The design capacity of 21 million gallons per day ADWF was used consistently for all alternatives, and as stated in Section 1.1 equates to an average annual flow (including both dry and wet seasons) of 8,220 million gallons (MG). This number is the basis for allocation of the total volume to the various Project components as summarized in Table 3.1-6 on page 3.1-16. For the Geysers alternative, a portion of this flow is allocated to recharge of the Geysers Steamfield. As stated in Appendix D-13 (Operations Plan - Alternative 4) the flow will vary during the year. The flow to the Geysers Steamfield will reach its low between July and September, corresponding to the dry season flow.

Response to Comment 86-11

Comment Summary: The comment asks how the ADWF was determined for the Draft EIR/EIS.

Appendix D-4 (Wastewater Flow Projections) comprehensively describes how the ADWF of 21 million gallons per day was determined for the Project.

Response to Comment 86-12

Comment Summary: The comment indicates that a separate technical memorandum was prepared for the Direct Discharge alternative which described the basis for storage requirements and pipeline sizing decisions, and asks if similar memoranda exist for each of the other alternatives.

Technical Memoranda contained in Appendices D-8 (Water Balance Model Summary and Results), D-9 (Analysis of Results from Daily and Monthly Water Balance Models) and D-12 (Revised System Storage Curves) of the Draft EIR/EIS describe the basis for determining storage requirements for Alternatives 2 and 3. Appendices D-23 (KYPIPE Model Optimization for Agricultural Irrigation Systems), D-24 (Pipeline Alignments, D-25 (Transmission Pipeline Routes to all Reservoir Sites and D-26 (Transmission Pipelines to Storage, Tunnel Length Optimization Analysis) describe the pipeline sizing for these Alternatives. Appendices D-13 (Operations Plan - Alternative 4) and D-18 (Geyser Recharge Water Balance and Operations Considerations) describe the basis for storage and pipeline requirements for Alternative 4. Because Alternative 1 is the No

Action (No Project) Alternative, and does not involve Project design, no such Technical Memoranda were prepared for that alternative.

Response to Comment 86-13

Comment Summary: The comment states an opinion that decision makers need a readily available month by month comparison for the major alternatives showing operations under different weather conditions and different years.

The comment does not offer any justification why such a comparison is needed. Appendices D-8 through D-13 of the Draft EIR/EIS provide a month by month operational analysis of the major alternatives, and the Draft EIR/EIS authors believe that this is a sufficient basis for comparison of the alternatives.

Response to Comments 86-14, 86-15 and 86-16

Comment Summary: The comment indicates that it would be useful to have a more complete explanation as to which of these numbers determined the design parameters for each of the alternatives, asking as an instance, what is the minimum amount of storage required for Alternatives 5A and 5B, and whether this is necessary to satisfy irrigation requirements or to avoid additional contingency discharge.

Appendices D-8 through D-30 of the Draft EIR/EIS provide a comprehensive description of the basis for the design of Project alternatives.

The purpose of the EIR/EIS is to identify the range of impacts that may result from Project implementation. Storage requirements and other components for each alternative were designed conservatively so that the EIR/EIS describes the fullest possible range of potential Project impacts. During Project selection, the Board of Public Utilities has the option of considering Project configurations (such as reduced storage) that are based on a less conservative design basis. Thus, The EIR/EIS authors consider the requested information relevant to Project selection, but unnecessary for EIR/EIS review.

Specifically, with respect to the storage requirements for Alternatives 5A and 5B, Page 2 in Appendix D-11 (Direct Discharge Water Balance) indicates that irrigation demands (which are the basis for storage requirements) are based upon the existing demands, plus the estimated additional demand to serve the interim improvements to the system. These improvements are described in Section 3.2 of the Draft EIR/EIS. Alternative 5 was specifically designed to allow operation with existing storage facilities. Existing storage is adequate to satisfy existing irrigation demand, but does not completely avoid contingency discharge.

Response to Comments 86-17 and 18

Comment Summary: The comment, in reference to the Draft EIR/EIS which indicates that there is a total of about 1,500 MG of existing storage, asks if there are any changes which would cause a reduction in the amount of existing storage capacity.

No reduction in the existing storage capacity is anticipated as a result of the Project.

Response to Comment 86-19

Comment Summary: The comment asks for data on monthly and annual treatment plant flows for 1988-1995.

As described in Response to Comment 86-6, future projections of inflow and infiltration were based on a correlation between plant flow and River flow within the period identified in the comment. Data on plant flows are available at the Laguna Wastewater Treatment Plant, in the City's Self-Monitoring Reports.

Response to Comment 86-20

Comment Summary: The comment asks for the classification of each year's flows according to Dry, Average and Wet Years.

The designations Dry, Average and Wet were used in the context of the Russian River Water Quality Model to describe the three years selected as benchmarks for water quality modeling. Refer to Appendix I-8 (Russian River Water Quality Model) of the Draft EIR/EIS for a more detailed discussion. The model used a 70-year period of record from 1923 to 1992. The dry year selected for modeling purposes was the third driest year on record, 1976. The average year was 1961, the median point in the 70-year period (half of the years were wetter and half were drier). The wet year was 1982, the fifth wettest year in the 70-year period. No attempt was made to classify every year in the 70-year period as either wet, dry or average. The ranks of the years 1988-1992 (with 1 being driest and 70 being wettest) are: 1990, 5th driest; 1991, 9th driest; 1989, 16th driest; 1992, 17th driest; and 1988 29th driest. The years 1993-1995 were not included in the 70-year period of record, so they have not been ranked.

Response to Comments 86-21 and 86-22

Comment Summary: The comment asks what is the variation in irrigation over the past 10 years and also asks how this compares with the irrigation distribution developed by CH2M Hill in a 1993 technical memorandum.

The requested data on irrigation for the Subregional System in previous years was not evaluated as part of the Draft EIR/EIS, but can be found in the library at the Laguna Treatment Plant, in the City's Reclamation System Annual Reports. CH2M Hill's Technical Memorandum RA-1 does not provide a distribution, but such a distribution is found in CH2M Hill's, Technical Memorandum R-1, and it is repeated below for clarity.

This distribution was used as a basis of the monthly water balance model, as described on page 3 of Appendix D-8 (Water Balance Model - Summary and Results) of the Draft EIR/EIS. The distribution is based on theoretical irrigation requirements (i.e., evapotranspiration) and local irrigation practices that were confirmed, as described on page 19 of Appendix E-2 (Irrigation Suitability Land Classification).

Distribution of Hydraulic Loads to Irrigation Sites

Month	Fraction of Annual Irrigation Volume
May	0.125
June	0.271
July	0.291
August	0.188
September	0.083
October	0.042
Total	1.000

Source: CH2M Hill Technical Memorandum R-1. (9 January 1989), Table R1-11.

Response to Comment 86-23

Comment Summary: The comment asks if irrigation water quality analyses indicate that further conservation is possible without harming crops.

As noted by the comment, up to a 22 percent increase in salt content is possible without any problem meeting leaching requirements. However, higher salt contents could present some problems for some salt-sensitive crops that are affected by direct foliar application (spraying on leaves) of chlorides. The proposed conservation program is not expected to present problems for crops, but water quality will have to be monitored at higher levels of conservation.

Response to Comment 86-24

Comment Summary: The comment asks whether summer irrigation rates vary, with more water being applied in dry years.

It is not clear whether the comment is referring to the irrigation rates that will actually be achieved when irrigation is implemented or to the irrigation rates assumed in the monthly water balance model. As described in Measure 2.2.3: Restrict Surface and Subsurface Irrigation Water Runoff, on page 2-23 of the Draft EIR/EIS, irrigation will be managed using real-time weather data, soil moisture monitoring, and computer assisted scheduling

systems. This will ensure that water application meets crop requirements; thus additional water will be applied during dry summers. However, as stated on page 3 of Appendix D-8 (Water Balance Model - Summary and Results), the irrigation rate was held constant and not varied to account for weather.

Response to Comment 86-25 and 86-26

Comment Summary: The comment restates information that is provided in Appendix L-7 (Aquatic Biological Resources Impact Analysis Report). The comment then asks "what are the respective flow in the Russian River and plant flow distributions by month which would lead to a lower peak concentration" for Alternative 5B (89 percent in Santa Rosa Creek) than would result from the existing discharge (92 percent in Santa Rosa).

Appendix L-7 (Aquatic Biological Resources Impact Analysis Report) of the Draft EIR/EIS states that the highest observed reclaimed water concentration in Santa Rosa Creek was 92 percent. The estimate of 92 percent was derived using field measurements during the period from 1991 through 1995, as described in Appendices L-1 (Anadromous Fish Migration Study Program, 1991-1994) and L-2 (Anadromous Fish Migration Study Program, 1991-1995) of the Draft EIR/EIS. The estimate of 88 percent (not 89 percent as stated in the comment) was derived using the daily water balance model simulation of 1977 for Alternative 5B, as described in Appendix I-8 (Russian River Water Quality Model). Thus, the values differ because:

1. Different methods used to estimate concentration. The 88 percent value was simulated for 1977 using the water quality model, and the 92 percent value was based on field measurements.

2. Different Laguna flow conditions. Daily discharge volume during the period from 1991 through 1995 and in the simulation of discharge are both based on River flow, but the ratio of Santa Rosa Creek flow to River flow will not necessarily be the same on the peak concentration day during the period from 1991 through 1995 and as simulated in 1977.

3. Different basis for operation. Operations were simulated for 1977 and other years using the set of operating rules that are described Appendix I-8 of the Draft EIR/EIS. Furthermore, actual operations on the day of the maximum concentration during the period from 1991 through 1995 may have been different from the operating rules described in Appendix I-8.

Since the explanation of the difference between 89 and 92 percent is not related to the requested "flow in the Russian River" and "plant flow distributions by month," this information is not provided.

Response to Comment 86-27, 86-28 and 86-29

Comment Summary: The comment restates information that is provided in Appendix L-7 (Aquatic Biological Resources Impact Analysis Report) and Section 4.4 of the Draft EIR/EIS. The comment then states that Chapter 4.4 describes the Subregional System's discharge capacity as 95 cfs, and asks if 95 cfs applies to all Laguna flow conditions. The comment concludes by asking for the maximum reclaimed water discharge flow at each discharge location under Alternative 5A.

The 95 cfs Laguna discharge capacity is described on page 4.4-32 in the Draft EIR/EIS as representative of flood conditions. Refer also to Response to Comment 85-83. Appendix I-8 (Russian River Water Quality Model) describes the total Subregional System discharge capacity as 310 cfs under non-flood conditions.

The maximum reclaimed water discharge capacity under flood or near flood condition for Alternative 5A is described in Impact 4.9.4 on page 4.4-32 as follows: "The Russian River outfall will have a capacity of 775 MG/month or 40 cfs in addition to the existing discharge capacity of 95 cfs".

Response to Comment 86-30

Comment Summary: The comment states that the pipeline unit cost of $5/linear foot/inch of diameter was cited as a "rule of thumb" for checking a design estimate. It is questioned if this cost factor includes the full "constructed cost" or just the "cost of pipe without the various add-ons."

A "rule of thumb" unit cost of $5/linear foot/inch of diameter for pipeline costs was not used in the Draft EIR/EIS cost estimate. The comment does not provide a specific source for this "rule of thumb", and therefore no further response can be provided.

An individual unit cost, of each pipeline diameter, was used in the cost estimate as shown in Table 4.8 in Appendix D-30 (Alternative Projects Construction Cost Estimate) of the Draft EIR/EIS. These unit material costs vary from about $4/linear foot/inch of diameter (for smaller diameters) to about $5/linear foot/inch of diameter (for larger diameters). Table 4.8 shows both materials and construction unit costs. These unit costs do not include the allowance for contractor overhead and profit, or other "add-ons", as applied to the cost estimate subtotals.

Response to Comment 86-31

Comment Summary: The comment asks how the cost factor referenced in Comment 86-30 compares with the cost of the 16" pipeline recently installed as part of the City's interim Project.

The City of Santa Rosa recently completed construction of a 16,000 foot long pipeline as part of the West Cotati Reclamation Pipeline Project. This pipeline project was relatively

simple with low hydraulic head, no pump stations, only one-third of the pipeline in paved right-of-ways, and only minor traffic control considerations. The unit cost for this project was about $52 per foot.

The Long-Term Project will be more complex in many ways than the West Cotati Project. The unit cost for 16" pipelines used in the Subregional Long-Term Project cost estimate is $63. This does not include valves and paving restoration along the pipeline. The pipelines in the Long-Term Project will be mostly along paved roads, with important traffic control considerations, several bore and jack road and creek crossings, and pump station and distribution turn-out connections, all of which require more contractor effort, which is reflected in the final unit cost for the piping.

In light of the above different conditions of the recently completed pipeline project and the Long-Term Project, and the assumed period of at least three years between the installation of these projects, the Draft EIR/EIS authors believe that the unit cost of $63/LF for 16" diameter pipeline is satisfactorily accurate at this level of planning.

Response to Comment 86-32 and 33

Comment Summary: The comment asks if the project cost estimate included in the Draft EIR/EIS includes an add-on to cover profit and overhead.

As explained in Appendix D-30 (Alternative Projects Construction Cost Estimate), the cost estimate included in the Draft EIR/EIS includes values for expected Project cost elements, including: construction (cost to contractor), construction contingency, contractor overhead and profit, land purchases, engineering/administrative/legal services, and operation/maintenance costs.

Response to Comment 86-34

Comment Summary: The comment asks how much of the reservoir costs shown in Appendix F-1 (Geotechnical Assessment of Alternative Reservoir Sites and Pipeline Routes Vol. 1) are due to add-ons.

As shown in the footnote to Figure 8-2 on page 8-34 of Appendix F-1, the depicted costs are "limited to embankment earthwork construction costs." The cost does not include spillway, inlet/outlet works, and other ancillary facilities or engineering, administration, land acquisition, and contingency costs.

Response to Comment 86-35

Comment Summary: The comment provides an analysis of the amount of material (i.e., filter and rock material) that can be transported in a typical truck trip and asks why the Draft EIR/EIS underestimated truck capacities.

Although the analysis provided in the comment is accurate, it should be noted that the analysis provided in the Draft EIR/EIS is a conservative analysis which assumes that each truck trip is not completely full.

Response to Comment 86-36

Comment Summary: The comment asks what is the volume of water over reservoir spillway expected to justify need for riprap rocks to increase oxygen in the released water, indicating that such riprap rocks are not provided at the Meadowlane pond and Delta pond outlets.

The addition of riprap rocks downstream of the reservoir spillway chutes are recommended to dissipate hydraulic energy to minimize scouring and erosion of the natural streambed, not to entrain oxygen. (Coincidentally, the turbulence induced by the riprap will entrain oxygen in the water). Riprap is recommended for these spillways because of the high kinetic energy developed by the water spilling several tens of feet down the spillway chutes.

The existing outlets from the Meadowlane and Delta ponds do not acquire high kinetic energy because of the much lower fall from the ponds into the creeks, so energy dissipation riprap has not been found necessary.

Response to Comment 86-37

Comment Summary: The comment asks what was the size of the 1985 discharge.

The information was not included in the Draft EIR/EIS because it is not related to existing conditions or the evaluation of Project impacts. The information is available in the library at the Laguna Treatment Plant, in the City's Self Monitoring Reports.

Response to Comment 86-38 and 86-39

Comment Summary: The comment restates information concerning average dry weather flow (ADWF) that is provided in the Draft EIR/EIS and related documents, and asks how the water quality model calculates future average dry weather flow.

The water quality model does not calculate average dry weather flow. As described in the first equation on page 32 of Appendix I-8 (Russian River Water Quality Model), average dry weather flow of 21 million gallons per day (mgd) is a constant, and the model calculates the daily quantity of incremental flow due to system inflow and infiltration. The average dry weather flow of 21 mgd is derived in Appendix D-4 (Wastewater Flow Projections). The model predicts water quality parameters at buildout of the system, not for interim flows prior to buildout.

Response to Comment 86-40

Comment Summary: The comment questions the assumption in the daily water balance model that inflow and infiltration will remain constant during the project.

The long-term average inflow and infiltration (I/I) volume is assumed in the daily water balance model to be a constant fraction of average dry weather flow (ADWF) during the Project. This means that as the sewage collection system is expanded and ADWF increases, I/I volume will increase proportionally. Estimated I/I will change each day based on rainfall, and this is also factored into the method used to estimate daily flow, as described in the Response to Comment 86-8. The basis for the I/I:ADWF assumption is described in Response to Comment 118-16.

Response to Comment 86-41

Comment Summary: The comment states that it would be nice to have a master list of all the reports that constitute the Draft EIR/EIS and indicates that this list should provide the title, subject, and date of each report.

Reports completed as part of the Draft EIR/EIS are contained in the appendices, which are listed in the Table of Contents of the Draft EIR/EIS. The appendices are organized by topic, and their titles are given in the Table of Contents. While the Table of Contents does not include date, this information is indicated on the cover page of each appendix to the Draft EIR/EIS. References used in support of the environmental setting and impacts analyses in Chapters 4 and 5 of the Draft EIR/EIS are identified at the end of each section. Appendices also identify references and supporting information.