COMMENT LETTER 103 - UNOCAL, DOUGLAS S. HACKLEY (JANUARY 11, 1996), RECEIVED OCTOBER 7, 1996

Response to Comment 103-1

Comment Summary: The component states the need to provide further information on the Geysers Recharge Alternative, including a range of river discharge from one to five percent. The evaluation and analysis should also include the effects of optimizing irrigation with existing storage capacity and providing a range of design flows to the Geysers that are viable project solutions. This work is essential to allow equitable comparisons of the project alternatives.

Refer to Response to Comment 11-4 which explains why a zero river discharge was selected for the Geysers Recharge Alternative and why the Draft EIR/EIS adequately evaluates the Project components for a combined Geysers/Discharge Project.

Regarding the need for "equitable" comparisons among alternatives, all alternatives have been treated equally throughout the evaluations. The same methods of impact analysis and criteria of significance have been applied to each alternative. After certification of the EIR, during the Project selection phase, it be appropriate for the City to evaluate cost reduction opportunities for the Geysers Recharge Alternative, if the City is interested in pursuing this Alternative. Further, the comment supports a modified Geysers Recharge Alternative for selection. Refer to Master Response 2, located in Section 6.2 of this document, concerning Project selection.

Response to Comment 103-2

Comment Summary: The comment asks if average discharges in Tables 1-1 and 1-15 should be comparable.

The averages are calculated on a different basis in the two tables and cannot be directly compared. Discharges in Table 1-1 on page 1-13 of the Draft EIR/EIS are monthly averages, expressed as percent of river flow. Table 1-15 on page 1-62 of the Draft EIR/EIS shows total volumes over the discharge period, and total river flow during the period. The comment is correct that, when calculated over the entire year, annual discharges are a very low percentage of Russian River flow. For example, the median discharge rate for the 1 percent discharge is 0; during most of the discharge season there will be no discharge at all.

Response to Comment 103-3

Comment Summary: The comment suggests that the Geysers Recharge Alternative should be evaluated for a Russian River discharge from 0.5 percent to 5 percent.

The impacts of a 1 percent and 5 percent discharge to the Russian River have been evaluated in the Draft EIR/EIS, so a project combining Geysers Recharge with higher

levels of discharge can be selected using the analysis that is already contained in the document. The Geysers Recharge alternative has relatively few significant impacts that could not be reduced to a less than significant impact with mitigation (as compared to alternatives that involve construction of reservoir sites). The significant unavoidable environmental impacts are: loss of farmland at a pump station site; unstable slope conditions along the pipeline route; pipeline failure due to ground rupture at the crossing of an active fault; construction period visual, air, noise and traffic impacts (primarily associated with pipeline construction); visual impacts associated with pump station siting; algal growth in the Russian River associated with reclaimed water discharge; and potential odors associated with the headworks expansion. The latter two impacts are associated with all alternatives and will not be avoided by increasing discharge. Each of the other significant environmental impacts is discussed below.

Increasing discharge will not eliminate the need for a pump station, so loss of farmland will still be significant. Increasing discharge will not reduce slope problems on the geysers pipeline route, and the pipeline will still have to cross an active fault. Significant air, noise, and traffic impacts are associated with all pipeline construction and will not be reduced by increasing discharge. Visual impacts are specific to the Geysers pipeline route, but again, will not be reduced by increasing discharge. Visual impacts of the pump stations are specific to the pump station site, and will not be avoided by building a slightly smaller pump station that might be possible with increased discharge.

The only significant impact that might be reduced to less than significant is not an environmental impact, it is a socioeconomic effect. Total Project cost will be reduced by increasing discharge. Both capital cost and operations and maintenance cost (primarily energy for pumping) will be reduced. Additional information on costs for various options will be developed at the time of Project selection, but detailed cost analysis of all the possible alternative configurations is not feasible at this point in time.

Response to Comment 103-4

Comment Summary: The comment suggests evaluation of additional storage for Alternative 4.

Analysis of alternatives under CEQA and NEPA is aimed at identifying alternatives that can avoid significant impacts. Construction of additional storage has been evaluated as part of the irrigation alternatives, and there are a great number of significant impacts associated with construction of storage reservoirs. The purpose of the EIR/EIS process is not to develop the most cost-competitive geysers Project, but to evaluate the environmental impacts of alternatives and alternative components. Additional information on costs for various options will be developed at the time of Project selection, but detailed cost analysis of all the possible alternative configurations is not feasible at this point in time.

Response to Comment 103-5

Comment Summary: The comment requests consideration of an alternative pipeline routing that is 2 miles shorter than the route evaluated in the Draft EIR/EIS.

The Pine Flat Road alignment was used because it is an existing public right-of-way. This is consistent with the objective of locating pipelines in public rights-of-way, as stated on page 3.3-5 of the Draft EIR/EIS. It may be possible to consider alternative pipeline routes if a Geysers Recharge Project is selected. An alternate pipeline route may require supplemental environmental evaluation. Until such a time as such an option is designed and mapped and can be evaluated it is not be appropriate to assume a shorter pipeline. Refer also to Response to Comment 26-6.

Response to Comment 103-6

Comment Summary: The comment states that unnecessary inflation factors attributed to Pine Flat Road should be eliminated from all cost estimates.

Pipeline installation along Pine Flat Road will be more difficult than normal due to numerous bends, narrow roadways, and steep slopes on either side of the roadbed. For these reasons, costs for pipe construction were increased by 10 percent over normal unit construction costs. Refer to Table 4.6 in Appendix D-30 (Alternative Projects Construction Cost Estimate), of the Draft EIR/EIS.

Response to Comments 103-7 and 103-8

Comment Summary: The comment indicates that, with the lower-than-originally-proposed design criterion for flow delivery to the Geysers of 23 million gallons per day (mgd) rather than 28.8 mgd, the two storage/distribution tanks to be built on the ridge above the Geysers steamfield will be 500,000 gallons, rather than 1,000,000 gallon tanks identified in Section 1 (Page 1-25) and Section 3.3 of the Draft EIR/EIS (page 3.3-40). Likewise, the number of injection wells will be ten or fewer, not 10 to 15 wells as indicated in Section 1 and Section 3.3.

The comment is correct in stating that the smaller storage tanks and fewer wells will be required for the reduced flow.

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

> Page 1-25. The last sentence is revised as follows:
>
> This component includes two 500,000~~1,000,000~~ gallon storage tanks at the end of the transmission pipeline, distribution pipelines to convey water from the storage tanks to the Geysers injection wells and conversion of 10 existing geothermal wells to injection wells.
>
> Page 3.3-40. The last paragraph is revised as follows:

- Two 500,000 gallon storage tanks at the end of the transmission pipeline, to serve as a reservoir for gravity distribution to the injection wells. The tanks would be above grade, each about 60 feet in diameter and 24~~30~~ feet high. They would be constructed on a high point along the ridge, which would be graded down to create a flat area of sufficient size for the tanks, and the existing dirt road from Pine Flat Road to the tank site would be regraded and graveled.

Page 3.3-41. The second full paragraph is revised as follows:

- Ten ~~to fifteen~~ water injection wells distributed around the central and northwest portion of the Geysers geothermal fields. These are existing steam extraction wells which would be converted to water injection wells.

Response to Comment 103-9

Comment Summary: The comment states that the Service Charge estimated at $74.40 for Alternative 4 is overstated and that the design flow overstates the actual power required. The energy required should be calculated using the actual average water flow, not the peak design flow.

The pumping energy costs are based on the design capacity year for all the alternatives. Because the pumping costs are a more significant portion of the total cost for Alternative 4, this assumption is more significant (i.e., costly) for Alternative 4. However, pumping cost contribution based upon average water flow is not 50 percent of that used, but about 75 percent to 85 percent of that used, for all alternatives. So, the relative cost comparison of the alternatives will still be about the same, although the actual cost numbers will be somewhat lower.

Response to Comment 103-10

Comment Summary: The comment states that the Demand Fee of $3,900 is overstated since the design flow is inflated because some river discharge (1 percent) was not considered, thus increasing capital costs unnecessarily.

The comment's premise is correct in that a 1 percent design discharge to the river combined with the Geysers Recharge Alternative will tend to lower the demand fee. However, combination of components is not analyzed as one of the Project alternatives analyzed in the Draft EIR/EIS for impacts on demand fees. Refer to Response to Comment 11-4 for the reasons why it was not included.

Response to Comment 103-11

Comment Summary: The comment asserts that the Draft EIR/EIS ignores the opportunities of private and public funding for Alternative 4, and refers to an attached letter to Ed Brauner, City of Santa Rosa, dated January 30, 1995. The comment states that, therefore, mitigation is feasible and recognition of this should be included in the Socio-economic evaluation.

Private and public funding opportunities exist for implementation of the Geysers Recharge alternative as described in the comment. However, the City of Santa Rosa has not taken any steps to request, negotiate for, or obtain such financing, as it would appear to prejudice the City toward selection of a particular alternative. It is therefore premature and speculative to include specific amounts of funding from outside sources in the socio-economic analysis of the Draft EIR/EIS. It would be appropriate for the City to research and follow-up on these funding opportunities after certification of the EIR, during the Project selection phase.

Response to Comment 103-12

Comment Summary: The comment suggests that there is feasible mitigation for loss of farmland by trading or purchasing land to offset land required for pump stations.

Acquiring land currently in agricultural use will not truly replace land at pump stations permanently converted to a non-agricultural purpose, and will thus not mitigate the impact. Actual replacement of agricultural land would require that land currently in non-agricultural use be acquired and converted back to agriculture. This type of creation of new agricultural land was not deemed to be feasible.

Response to Comment 103-13

Comment Summary: The comment suggests avoiding a pipeline alignment in Pine Flat Road to mitigate potential unstable slope conditions.

Until such time as an option other than the Pine Flat Road alignment is designed and mapped and can be evaluated, it is not appropriate to assume that a different pipeline route will avoid impacts. It is not known whether an alternate route will avoid significant slope problems, and, because of the presence of conservation easements, it is speculative to assume that a cross country route is feasible. Refer to Response to Comment 26-6. Even if an alternate route could be designed to avoid unstable slope areas, there could be other impacts (such as habitat disruption) associated with using a route outside of public rights-of-way.

Response to Comment 103-14

Comment Summary: The comment suggests that Impact 7.8.2 could be avoided with appropriate pipeline routing.

This impact is not associated with the pipeline to the Geysers, but is associated with hazardous waste sites at the steamfield area itself. The Draft EIR/EIS concludes that the impact will be less than significant with mitigation.

Response to Comment 103-15

Comment Summary: The comment requests that a summary be prepared which highlights that the Geysers Alternative is the only alternative (when Russian River discharge is at 1 percent) which would not result in a loss of sensitive terrestrial wildlife habitat (Impact 8.4C in Table 1-13, Page 1-49 of the Draft EIR/EIS).

Pages 4.8-111 and 4.8-112 of the Draft EIR/EIS state that the Geysers Recharge alternative will result in a loss of sensitive wildlife habitat (mixed chaparral). As a result, it is not appropriate to add a statement that the Geysers Recharge alternative is the only alternative which does not result in any loss of sensitive terrestrial wildlife habitat. Alternative 5B is the only option with no loss of sensitive wildlife habitat.

Response to Comment 103-16

Comment Summary: Regarding the reference to Impact 14.4.5 in Table 1-13 of the Draft EIR/EIS, the comment states that it is unclear how the buried pipeline will create the problem described. The comment further states that the impact should be reconsidered for a finding of not significant impact and asserts that construction techniques used in the building of the Lake County pipeline have prevented problems on this issue.

The discussion of Impact 14.4.5 in Section 14.4 of the Draft EIR/EIS states that the construction of the pipeline along Pine Flat Road will require widening and reconstruction of the roadway involving extensive grading with cut and fill. This will result in permanent alteration of the visual environment resulting in strong visual contrast with the surrounding environment. The EIR/EIS authors reaffirm their conclusion, as stated in the discussion of Impact 14.4.5, that this is a significant impact. With respect to the Lake County pipeline, the comment does not identify any specific construction techniques that are relevant to the Long-Term Project, nor how the experience with the Lake County pipeline is applicable to the situation on Pine Flat Road. Therefore, no further response can be made to this comment.

Response to Comment 103-17

Comment Summary: The comment indicates that the analysis of impacts provided in the Draft EIR/EIS does not focus on the river environment and that the river environment is the driving force behind the EIR. In addition, if a value assessment were conducted, shouldn't the Geysers Recharge have the least environmental impact?

The Draft EIR/EIS does not focus predominantly on the river environment. The Draft EIR/EIS evaluates all aspects of the environment that may be impacted. Although the Geysers Recharge Alternative results in fewer water quality impacts to the Russian River than 20 percent design discharge, it does not avoid all impacts to the river. The Geysers Recharge Alternative was not chosen as the environmentally superior alternative because it results in a greater number and magnitude of physical changes to the existing environment than does the Laguna Discharge alternative. Refer to the discussion provided on pages 1-59 and 1-60 of the Draft EIR/EIS for more detail concerning this issue.

Response to Comment 103-18

Comment Summary: The comment states that the Lake County EIR found the South East Geysers Effluent Project to be the environmentally superior alternative as compared to a river discharge. The comment then asks if the same analogy could apply to the Santa Rosa Subregional Long-Term Wastewater Project.

The comment is not clear as to which analogy it refers. Based on the analyses in Chapter 4 of the Draft EIR/EIS, it was determined that the alternative which has no significant effect or has the least significant effect on the environment is Alternative 5B, the Laguna Discharge Alternative. This Alternative causes the least change in the environment when compared with the other alternatives and is therefore designated the environmentally superior alternative. Refer to pages 1-59 through 1-60 and 5-22 through 5-23 of the Draft EIR/EIS for further comparisons among all the studied alternatives. Upon review of the Lake County EIR it does not appear that a river discharge alternative was evaluated (Lake County Sanitation District 1994). The No Project Alternative assumed that emergency overflows to Burns Valley Creek would continue and could include untreated wastewater; this is not analagous to the discharge of reclaimed water to the Russian River.

Response to Comment 103-19

Comment Summary: The comment suggests that since mitigation for loss of land in open space easements is possible, mitigation for loss of agricultural land should also be feasible.

The referenced mitigation consists of a cash contribution to the open space fund. This was intended to enable acquisition of an open space easement to replace the loss of acreage in open space easement. Actual replacement of agricultural land would require that land currently in non-agricultural use be acquired and converted back to agriculture.

Acquisition of an open space easement was deemed to be feasible while creation of new agricultural land was not. Refer to Response to Comment 103-12. However, Sonoma County is not in agreement that this mitigation measure reduces open space impacts to less than significant. Refer to Response to Comment 15-25.

Response to Comment 103-20

Comment Summary: The comment suggests that slope monitoring may be unnecessary if the pipeline avoided Pine Flat Road.

Refer to Response to Comment 26-6 and 103-13. It is speculative to suppose that this mitigation would not be needed with an alternate route.

Response to Comment 103-21

Comment Summary: The comment asserts that if consideration were given to a 1 percent river discharge option with the Geysers Alternative, the size requirements for the pump stations and associated tanks under this alternative could be reduced, and with some screening, move toward a finding of not significant.

Refer to Response to Comment 103-7. While the size requirements for pumps and associated tank capacity would be reduced with a 1 percent river discharge option, the building housing the pumps would not be reduced in size as compared to the size of facilities evaluated for the smaller discharge, nor would the size of the tanks be reduced to a point where they would be less than significant in their visual impact. The impacts would remain as stated in the discussion in Section 4.14 of the Draft EIR/EIS, that because of proximity to the roadway, screening cannot mitigate the visual prominence of the pump station building and tanks to a level less than significant. In addition, as stated in Section 4.14 (page 4.14-92) of the Draft EIR/EIS, the visual impact for the pump station is deemed significant because the new electrical service required for Pump Stations G3 and G4 cannot be screened from view. The reduction in size of the pumps and tank capacity would not affect the need for the new electrical service, and therefore the impact would remain significant.

Response to Comment 103-22

Comment Summary: The comment states that practically all seismic events induced by injection of water into the ground are "not felt", therefore the number of induced seismic events is not the correct indicator for evaluating redistribution of injection water as is currently discussed in the Draft EIR/EIS. The emphasis should be on events induced by injection that correlate to felt events as monitored by the improved accelerograph stations.

The Draft EIR/EIS authors agree with the observation that the number of earthquakes induced at a well is not as important a measure of impacts as the number of earthquakes

felt in surrounding communities as corroborated by instruments to be placed in Cobb and Anderson Springs.

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

> Page 2-134. The second sentence of the second paragraph is revised as follows:
>
> Injection shall be decreased at wells that produced higher levels of felt induced seismicity...

Response to Comment 103-23

Comment Summary: The comment suggests that separation of the relatively short-term construction and long-term operation mitigation measures in Table 2.6-1 on pages 2-138 through 2-142 of the Draft EIR/EIS may aid in the decision-making process and delineate the permanent operational mitigation measures required.

Table 2.6-1 on pages 2-138 through 2-142 of the Draft EIR/EIS divides the impacts and associated mitigation measures into four groups: 2.2, Measures Included in the Project; 2.3, Planning Measures; 2.4, Construction Measures; and 2.5, Operation and Maintenance Measures. All operational mitigation measures, including those that are permanent, are presented in Table 2.6-1 on page 2-142 of the Draft EIR/EIS.

Response to Comments 103-24, 103-25 and 103-26

Comment Summary: The comment requests evaluation of optimization of irrigation and other river discharge rates in the range of 0.5% to 5% for the Geysers Recharge Alternative to make the Geysers Recharge Alternative more cost effective.

Refer to Responses to Comments 11-4 and 103-3. The purpose of the EIR/EIS process is not to develop the most cost-competitive Geysers Project, but to evaluate the environmental impacts of alternatives and alternative components.

Response to Comment 103-25

Comment Summary: The comment requests evaluation of other river discharge rates for the Geysers Recharge Alternative.

Refer to Responses to Comments 11-4 and 103-3. The purpose of the EIR/EIS process is not to develop the most cost-competitive Geysers Project, but to evaluate the environmental impacts of alternatives and alternative components.

Response to Comment 103-26

Comment Summary: The comment requests evaluation of other river discharge and irrigation rates for the Geysers Recharge Alternative.

Refer to Responses to Comments 11-4 and 103-3. The purpose of the EIR/EIS process is not to develop the most cost-competitive Geysers Project, but to evaluate the environmental impacts of alternatives and alternative components..

Response to Comment 103-27

Comment Summary: The comment reiterates previous comments concerning consideration of other river discharge rates for the Geysers Recharge Alternative and suggests that a reduction in the size of the storage tank will diminish visual impacts.

Refer to Responses to Comments 11-4 and 103-3. The purpose of the EIR/EIS process is not to develop the most cost-competitive Geysers Project, but to evaluate the environmental impacts of alternatives and alternative components. A smaller tank will not eliminate significant visual impacts. Impacts are associated not only with the tank, but also the required electrical line.

Response to Comment 103-28

Comment Summary: The comment reiterates portions of previous comments concerning consideration of other river discharge rates for the Geysers Recharge Alternative.

Refer to Responses to Comments 11-4 and 103-3. The purpose of the EIR/EIS process is not to develop the most cost-competitive Geysers Project, but to evaluate the environmental impacts of alternatives and alternative components.

Response to Comment 103-29

Comment Summary: The comment requests consideration of a more direct geysers pipeline route.

Refer to Responses to Comments 26-6 and 103-13.

Response to Comment 103-30

Comment Summary: The comment states that Table 3.3-1 previously showed that the Geysers Recharge Alternative could include 1 percent or 5 percent Russian River discharge, and requests evaluation of the Geysers Alternative with 1/2 percent to 5 percent discharge.

Table 3.3-1 on page 3.3-3 of the Draft EIR/EIS shows the components used in the Alternatives Analysis presented in the Draft EIR/EIS. As defined in Section 3.3, the Geysers Alternative does not include a range of discharge, and therefore it was not evaluated in Appendix A (Range of Discharge Evaluation). However, as stated in Appendix A (page A-1), a range of potential flows to the Laguna has been evaluated, so it will be possible to select the Geysers Alternative with a different discharge rate. Refer to Response to Comment 103-3 for a discussion of impacts of other discharge rates. The

comment does not identify the prior publications that showed a different version of Table 3.3-1, so further explanation of the reason for the difference is not possible.

Response to Comment 103-31

Comment Summary: The comment suggests evaluation of a 1 percent river discharge rates for the Geysers Recharge Alternative.

Refer to Responses to Comments 11-4 and 103-3. The purpose of the EIR/EIS process is not to develop the most cost-competitive Geysers Project, but to evaluate the environmental impacts of alternatives and alternative components.

Response to Comment 103-32

Comment Summary: The comment requests recalculation of water release from geysers pipeline rupture with a 1 percent river discharge.

The 1.7 million gallons for a geysers pipeline rupture scenario was described in the Draft EIR/EIS as a maximum volume. The comment is correct that a smaller pipe will spill a smaller amount of water.

Response to Comment 103-33

Comment Summary: The comment requests a calculation of water that would leak should a dam rupture due to a seismic event.

Measures incorporated in dam design will prevent dam break during a seismic event. It is possible to engineer dams to withstand seismic events and no dams are located on active faults, whereas pipeline rupture is unavoidable when a pipeline must cross an active fault. Despite the fact that dam failure is not expected, Section 4.19 describes the results of a catastrophic dam failure. The worst-case scenario will result in release of up to 4,500 million gallons of reclaimed water if the dam should break when the reservoir is full. This type of incident is definitely not expected to happen. A pipeline break is highly likely in the event of a major earthquake, but can be repaired relatively quickly and will not be expected to cause major damage.

Response to Comment 103-34

Comment Summary: The comment suggests that an improved pipeline route would reduce pipeline costs.

Refer to Response to Comment 103-5. It is not appropriate to assume lower costs unless an alternate route is selected and evaluated. Isolation valves will still be required, and if the route is not along a public right-of-way, shorter intervals may be appropriate.

Response to Comment 103-35

Comment Summary: The comment requests evaluation of a 1 percent discharge rate for the Geysers Recharge Alternative.

Refer to Responses to Comments 11-4 and 103-3. The purpose of the EIR/EIS process is not to develop the most cost-competitive Geysers Project, but to evaluate the environmental impacts of alternatives and alternative components. Environmental impacts would not be substantially different.

Response to Comment 103-36

Comment Summary: The comment states that with consideration of a 1 percent discharge rate and optimizing irrigation for the Geysers Recharge Alternative the reduction in the size of storage tanks would result in lower cost and decreased visual impact.

Refer to Responses to Comments 11-4 and 103-3. The purpose of the EIR/EIS process is not to develop the most cost-competitive Geysers Project, but to evaluate the environmental impacts of alternatives and alternative components. Environmental impacts would not be substantially different. The Draft EIR/EIS concluded that the proposed tanks at the end of the transmission line (which were evaluated as part of the Geysers Steamfield Component) will have no significant visual impacts at the 30 foot height (refer to page 4.14-98).

Response to Comment 103-37

Comment Summary: The comment states that with consideration of a 1 percent discharge rate and optimizing irrigation for the Geysers Recharge Alternative, a reduction in the size of the distribution pipeline would result in lower cost and decreased visual impact.

Refer to Responses to Comments 11-4 and 103-3. The purpose of the EIR/EIS process is not to develop the most cost-competitive Geysers Project, but to evaluate the environmental impacts of alternatives and alternative components. Environmental impacts would not be substantially different. Smaller pipes will still have significant visual impacts during construction. It is the construction process that affects the visual environment, not the size of the pipe.

Response to Comment 103-38

Comment Summary: The comment states that with consideration of a 1 percent discharge rate for the Geysers Recharge Alternative fewer injection wells would be needed resulting in lower construction and operating costs.

Refer to Responses to Comments 11-4 and 103-3. The purpose of the EIR/EIS process is not to develop the most cost-competitive Geysers Project, but to evaluate the environmental impacts of alternatives and alternative components.

Response to Comment 103-39

Comment Summary: The comment states that costs for the Geysers Recharge alternative are too high and requests consideration of potential cost savings associated with a number of items, including an alternate pipeline route.

There are any number of ways that each of the Project alternatives could be redesigned to cut costs. The purpose of the Draft EIR/EIS is not to develop the most cost-competitive Geysers Project (or to fine-tune the costs for any of the Project alternatives), but to evaluate the environmental impacts of alternatives and alternative components. Additional cost information for various options will be developed at the time of Project selection, but detailed cost analysis of all the possible alternative configurations is not feasible at this point in time.

Response to Comment 103-40

Comment Summary: The comment requests consideration of potential cost savings with a 1 percent river discharge for the Geysers Recharge Alternative.

Refer to Response to Comment 103-39.

Response to Comment 103-41

Comment Summary: The comment requests consideration of potential cost savings with lower costs for new electrical service for the Geysers Recharge Alternative.

Refer to Response to Comment 11-5.

Response to Comment 103-42

Comment Summary: The comment requests consideration of total potential cost savings of $50,000 for the Geysers Recharge Alternative.

Refer to Response to Comment 103-39.

Response to Comment 103-43

Comment Summary: The comment states that potential cost reductions must be evaluated so that the Socio-economics section is based on reasonable costs, and that without evaluation of Geysers Recharge with 1% discharge it is not comparable to other alternatives.

The potential reductions mentioned in Comments 103-39 through 103-42 would indeed affect the calculations in the socio-economic analysis. The changes requested are, however, not a part of the Project description for Alternative 4; refer to Responses to Comments 103-3, 103-39, and 11-4. The purpose of the EIR/EIS process is not to develop the most cost-competitive geysers Project, but to evaluate the environmental impacts of alternatives and alternative components.

The Project selection phase may include further studies of the economics of component mixing, but only if the City specifically authorizes them. Such studies are not a part of the Draft EIR/EIS.

The socio-economic analysis is not based on a worst case scenario, but uses standard methods and costing assumptions. The socio-economic analysis did not evaluate all possible component mixes for Alternative 4, nor for any of the alternatives. Refer to Response to Comment 11-4 for a discussion of why the Geysers Recharge Alternative was designed with a zero discharge rate to the Russian River. Also, regarding equitable comparison of alternatives, refer to Response to Comment 103-1.

Response to Comment 103-44

Comment Summary: The comment states that "escalation factors" are too high.

Each of these three cost factors is standard and necessary for engineering cost estimates. The construction contingency of 25 percent is in the higher part of the standard range, but is appropriate considering the very preliminary stage of design and the fact that this contingency is also intended to cover costs which can be expected to occur but are too small to cost out individually at this preliminary stage.

It is true that the cost estimate for the high pressure pipe installation for the Geysers is 10% greater; however, this increment is considered appropriate because of design difficulties, is not significant at this preliminary stage, and does not apply to the rest of the components. Refer to Responses to Comments 103-6, 26-4 and 26-5.

Again, it is standard practice and logical to apply the engineering design mark-up to the total construction cost, not just the cost estimate without contingency and overhead. Also, due to the preliminary nature of the design at this stage, and the complexities of this Project, a higher design mark-up is appropriate.

The comment does not provide any evidence or expert opinion to support its recommendations for change. The EIR/EIS authors, therefore reaffirm the Draft EIR/EIS cost estimates.

It should be noted that the mark-ups, that is, the additional contingency amounts, total 61 percent, not 161 percent, as stated in the comment.

Response to Comment 103-45

Comment Summary: The comment states that lower electrical rates should be used in the analysis of costs.

As acknowledged in Mr. Kennedy's letter, the electric service rates he has provided are estimates subject to change. Since Mr. Kennedy's March 1996 letter, the state of California's decision to deregulate the electric power industry has gone into effect, further changing the electric rate structure. Because electric rates are subject to change, and will vary based on type of service needed as well as negotiations with the powerprovider, the EIR/EIS authors have chosen to use an average electric rate for alternatives, namely 5.5 cents per kilowatt hour (kwh). It is likely that the Geysers operation and maintenance costs will be lower than identified in the Draft EIR/EIS by 10 percent to 20 percent annually due to lower power rates now available. It is however, too speculative to predict a rate that will be agreed upon several years from now in this post-deregulation environment. Therefore, no specific recalculations are appropriate. Refer also Response to Comment 11-5.

Response to Comment 103-46

Comment Summary: The comment states that power use is overestimated because it is calculated based on design flow.

Refer to Responses to Comments 103-9 and 11-5 for a discussion why power costs were based on design flow. Refer to Responses to Comments 11-2 and 11-4 for a discussion of why a 1 percent river discharge and agricultural irrigation components were not combined with the Geysers Recharge Alternative. The Draft EIR/EIS does not need to calculate Project costs for these scenarios which have not been included as Project alternatives.

Response to Comment 103-47

Comment Summary: The comment states that the Total Present Worth calculation in the Draft EIR/EIS is incorrect for the first 20 years of actual average water flow since the design flow was used, thus inflating the Geysers Recharge Total Present Worth. The comment states that additional reductions would occur by considering a 1 percent river discharge.

Refer to Response to Comment 103-9 for an explanation of why design flow was used for calculating pumping costs. Notwithstanding these reasons, the comment correctly states that the first year flow will be about 80 percent of buildout flow. Therefore, average flows over the life of the Project will be about 90 percent, which is 10 percent less than reported in the Draft EIR/EIS. A 10 percent decrease in flows will reduce annual operation and maintenance costs by about 10 percent for the Geysers Recharge Alternative, but the Total Present Worth would decrease by only about 2 percent. Alternative 4 has a Total Present Worth of $282 million; this request for a different method of calculation, if warranted, would reduce the total by only $5-7 million.

Response to Comment 103-48

Comment Summary: The comment states that the Geysers Alternative is overpriced, based on comparison with a similar project being built by Lake County.

In order to compare costs of the Santa Rosa Project to the Lake County project, the cost of headworks and utility improvements must be removed from the Geysers Recharge Alternative costs. This reduces Alternative 4 capital costs to approximately $183 million, or five times the cost of the Lake County project. Refer to Appendix D-30 (Alternative Projects Cost Estimate) for the detailed explanation for costs of Alternative 4.

Response to Comment 103-49

Comment Summary: The comment requests evaluation of other river discharge rates for the Geysers Recharge Alternative.

Refer to Response to Comment 103-3.

Response to Comment 103-50

Comment Summary: The comment states that impact 11.4.4, damage to roads, could be avoided if the geysers pipeline were relocated to a cross-country alignment.

If a feasible cross-country alignment were identified, it would serve to mitigate the impact on the Pine Flat Road roadbed, but could have other impacts. Refer to Responses to Comments 103-5 and 26-6.

Response to Comment 103-51

Comment Summary: The comment inquires if the Geysers steamfield component will cause congestion along access roads. The comment disagrees with the significant impact for traffic congestion found for the Geysers Recharge Alternative, questioning that delays would be caused by the additional 195 projected trips per day in existing sparse traffic patterns.

The operation and maintenance of the Geysers steamfield alternative will have a less than significant impact. The construction of the Geysers steamfield alternative will have a significant impact before and after mitigation along one-lane Pine Flat Road. The EIR/EIS authors disagree with the conclusions of this comment concerning the 195 construction related daily trips causing no traffic delays based on the analysis found on page 4.11-49 of the Draft EIR/EIS.

Response to Comment 103-52

Comment Summary: With respect to Figures 4.14-19 and 4.14-20, the comment asserts that under a Geysers Alternative with a 1 percent river discharge the reduction in the size of the surge tanks would be half the height and that this variability should be presented in the Draft EIR/EIS.

Refer to Responses to Comments 103-7 and 103-21. Because the EIR/EIS authors have concluded that a 1 percent discharge option will not lead to a reduction in the size of the pump station structure nor eliminate the need for new electrical service to the pump station, the pump station will still have a significant visual impact. Therefore, additional figures showing different sizes of surge tanks are irrelevant.

Response to Comment 103-53

Comment Summary: With respect to Impact 14.4.5 as shown in Table 4.14-10 on page 4.14-105 of the Draft EIR/EIS, the comment suggests that the level of impact may not be found to be significant under the decreased design flow with a 1% river discharge.

While a decreased design flow may reduce the size of pipeline, the reduction is not sufficient to avoid the need to widen and reconstruct Pine Flat Road, and therefore the impact would remain significant. The basis for the conclusion that the pipeline in Pine Flat Road will have significant visual impacts is found in Section 4.14 of the Draft EIR/EIS (page 4.14-32).

Response to Comment 103-54

Comment Summary: With respect to Impacts 14.6.2, 14.6.3, 14.6.4, 14.6.5, and 14.6.6, as shown in Table 4.14-10 of the Draft EIR/EIS, the comment suggests that the level of significance may not be found to be significant under the decreased design flow with a 1 percent river discharge.

Refer to Responses to Comment 103-21 and 103-52. A decrease in the design flow will not result in a reduction in size of the building housing the pump station nor in elimination of the need for new electrical service. Therefore, the level of significance would not change under a reduced design flow. The basis for the conclusion that pump stations will have significant visual impacts is discussed in Section 4.14 of the Draft EIR/EIS (pages 4.14-87 through 4.14-93).

Response to Comment 103-55

Comment Summary: The comment states that the project costs data for the Geysers Recharge Alternative is overstated, suggesting lower values for Disposal and O&M costs as presented in previous comments. The comment states that these lower values may drastically change the results of the Socio-economics section and also the conclusions in the Draft EIR/EIS.

Refer to Response to Comment 103-39.

Response to Comment 103-56

Comment Summary: The comment states that the Draft EIR/EIS fails to recognize the potential for contributions from public and private industry to offset costs, which if considered might reduce the impact after mitigation to less than significant. The comment states that this issue needs further study for inclusion in the document.

Refer to Response to Comment 11-3.

Response to Comment 103-57

Comment Summary: The comment states that new values should be shown for Geysers Recharge with 1 percent river discharge and a higher maintenance of irrigation optimized for existing storage and that the estimated additional average monthly service charge should be adjusted per the comments in Comment Letter 103. The comment also states that if new calculations are not made for a modified Geysers Recharge, then valid comparisons with other alternatives cannot be made, and impacts from the Geysers Recharge Alternative will be overstated.

Refer to Responses to Comments 103-1 and 11-4.

Response to Comment 103-58

Comment Summary: The comment states that Appendix A of the Draft EIR/EIS discusses the variability of design flows for all Alternatives except Alternative 4, and that the lack of considering river discharge flow and variation for handling water storage has unfairly handicapped the Geysers Alternative. The comment also refers to the various Geysers flow scenarios shown in Appendix D-18, and suggests that these flows could have been included for analysis in Appendix A.

The comment confuses discharge and design flow. Discharge in the context of the Project means discharge to either the Russian River or the Laguna de Santa Rosa. Design flow in the context of the Project normally means flow through a pipeline. Appendix A (Range of Discharge Evaluation) of the Draft EIR/EIS, as stated in its title, considers a range of discharge options, and does not address variations in design flows for any alternative. Therefore use of the various design flows in Appendix D-18 (Geysers Recharge Water Balance and Operation Considerations) of the Draft EIR/EIS are not appropriate for analysis in Appendix A. It should also be noted that, contrary to the comment's assertion that Appendix A discusses all alternatives except Alternative 4, Appendix A addresses a range of discharge for only Alternatives 2, 3 and 5B. A range of discharge for Alternatives 1 and 5A, as well as Alternative 4, is not addressed in Appendix A. With respect to the assertion that the Geysers Alternative is unfairly handicapped by not considering river discharge or variation for handling water storage, refer to Response to Comment 103-3.

Response to Comment 103-59

Comment Summary: The comment requests evaluation of Option 2 of Appendix D-18 (Geysers Recharge Water Balance and Operation Considerations), and a 1 percent discharge rate for the Geysers Recharge Alternative.

Refer to Responses to Comments 11-4 and 103-3. Option 2 was not considered because it requires additional storage be constructed, and the Geysers Recharge Alternative was specifically developed to avoid the need for additional storage. The purpose of the Draft EIR/EIS is not to develop the most cost-effective Geysers Project (or to fine-tune the costs for any of the Project alternatives), but to evaluate the environmental impacts of alternatives and alternative components. Subsequent engineering efforts for the selected Project will include improving cost-effectiveness.

Response to Comment 103-60

Comment Summary: The comment requests evaluation of a 1 percent discharge rate for the Geysers Recharge Alternative.

Refer to Responses to Comments 11-4 and 103-3. The purpose of the EIR/EIS process is not to develop the most cost-competitive Geysers Project, but to evaluate the environmental impacts of alternatives and alternative components.

Response to Comment 103-61

Comment Summary: The comment suggests that an improved pipeline route would reduce pipeline costs.

Refer to Responses to Comments 103-5 and 26-6.

Response to Comment 103-62

Comment Summary: The comment refers to a letter previously submitted to the City requesting reevaluation of cost estimates.

Refer to Response to Comment 103-39.

Response to Comment 103-63

Comment Summary: The comment states that an attached letter to Rich Maurer, Parsons ES, from Craig Kennedy, PG&E (March 11, 1996) indicates a potential cost advantage on electrical rates for the Geysers Recharge Alternative, providing rates that were not incorporated in the Draft EIR/EIS or the Alternative Projects Construction Cost Estimate. Inclusion of the newer electrical rate structure might diminish the disparity between Geyser Recharge and their alternatives. The comment suggests a revisit to the power pricing to reflect the lower rates.

Refer to Responses to Comments 103-45 and 11-5.

Response to Comment 103-64

Comment Summary: The comment notes that the verbal comments presented at the Public Hearing on September 24, 1996, by Mr. Anthony J. Chasteen are submitted with Comment Letter 103 and response to the comments are requested.

The referenced comments are addressed in Responses to Comment 103-67 through 103-72.

Response to Comment 103-65

Comment Summary: The comment consists of a letter from Douglas Hackley, UNOCAL, dated January 30, 1996, that is attached to Comment Letter 103 and is referred to in Comment 103-11.

Refer to the Responses to Comments 103-1, 103-3, 103-6, 103-11, 103-39, and 11-5.

Response to Comment 103-66

Comment Summary: The comment consists of a letter from Craig Kennedy, Pacific Gas and Electric Company, dated March 11, 1996, that is attached to Comment Letter 103 and is referred to in Comment 103-45 and 103-63.

Refer to the Response to Comment 103-45 and 11-5.

Response to Comment 103-67

Comment Summary: The comment requests evaluation of a 1 percent discharge rate for the Geysers Recharge Alternative.

Refer to Responses to Comments 11-4 and 103-3. The purpose of the EIR/EIS process is not to develop the most cost-competitive Geysers Project, but to evaluate the environmental impacts of alternatives and alternative components.

Response to Comment 103-68

Comment Summary: The comment suggests that an improved pipeline route would reduce pipeline costs.

Refer to Responses to Comments 103-5 and 26-6.

Response to Comment 103-69

Comment Summary: The comment requests consideration of potential cost savings with lower energy costs for the Geysers Recharge Alternative.

Refer to Responses to Comments 103-45 and 11-5.

Response to Comment 103-70

Comment Summary: The comment requests recalculation of the present value for the Geysers Recharge Alternative.

Refer to Responses to Comments 103-47 and 11-5.

Response to Comment 103-71

Comment Summary: The comment states that opportunities for federal and state funding have not been investigated or included in the Draft EIR/EIS.

Refer to Response to Comment 11-3.

Response to Comment 103-72

Comment Summary: The comment recommends a Geysers Recharge Alternative that includes 1 percent river discharge rate, maintaining agricultural irrigation, and maximizing reuse through geothermal recharge.

The necessary environmental analysis for such a project is contained in the Draft EIR/EIS. Refer to Master Response 2, located in Section 6.2 of this document, concerning Project selection.