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**July 17, 2009**

**County of Amador  
810 Court Street  
Jackson, CA 95642**

**City of Sutter Creek  
18 Main Street  
Sutter Creek, CA 95685**

**Amador Water Agency  
12800 Ridge Road  
Sutter Creek, CA 95685**

**Re: Water Supply Assessment  
CEQA Findings, Information Disclosure**

This letter is written to both the County of Amador (County) and City of Sutter Creek (City) because the issues are the same in each jurisdiction. This letter concerns the Wicklow Subdivision (WS) project (SCH #2005032009), for which an Environmental Impact Report (EIR) has been approved by the County, and the Gold Rush Ranch (GRR) project (SCH #2005042094) for which an EIR has been prepared by the City, but not yet approved.

Both projects share three fatal flaws. The first two concern the Water Supply Assessments (WSAs) (Public Resources Code (PRC) §21151.9 and Water Code (WC) §§10910-10915), which were prepared for both projects from data provided by the Amador Water Agency (AWA). Therefore this letter is written to the AWA as well. Both WSAs are inconsistent with the requirements of the WC. In addition, the two WSA contradict each other, which violates the information disclosure provisions of CEQA (California Environmental Quality Act, PRC §21000 and following).

The third flaw concerns the adequacy of the project EIRs. Prior to approving a project, a public agency must identify and mitigate all significant adverse impacts as much as feasible. If it is not feasible to fully mitigate those impacts, a public agency may make a finding that the benefits of the project outweigh the adverse impact (PRC §21002, *Goleta I*<sup>1</sup>).

This issue does not involve the AWA directly because the AWA is not a decision making body in the context of either project. However, the WSAs are invalid because the amount of water required for planned developments cannot be delivered with existing facilities. New facilities could be constructed that would enable the AWA to supply the necessary water. An alternative not considered in the EIRs is for the project(s) to provide the necessary facilities. To do so would require that the project(s) work with the AWA.

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<sup>1</sup> *Citizens of Goleta Valley v. Board of Supervisors* (2d Dist. 1988) 197 Cal.App.3d 1167 [243 Cal.Rptr. 339].

**PRC §21002.1(c)- Findings of Overriding Significance**

The problem that faces both the County and City is embodied in the word "feasible". *Goleta I* is clear that the record of proceedings must contain evidence that a proposed mitigation measure is not feasible. It is insufficient to merely state that one mitigation measure is more expensive than another, or that the project is incapable of performing the mitigation.

Both the WS and GRR projects involve impacts that can be mitigated by the expenditure of funds. In particular, Transportation impacts may be mitigated by the construction of new and/or additional facilities. Both the WS and GRR project EIRs are deficient because they do not quantify the amount of funds required to fully mitigate the direct and indirect (including cumulative) impacts of the projects on the regional transportation system. Even if that were done, the EIRs would remain deficient because there is no evidence in the record of proceedings to indicate that it is infeasible for the projects to pay sufficient fees to mitigate their impacts.

This issue relates to the Water Supply Assessment (WSA) discussed below. The WSA is not adequate because it does not conform to the requirements of the WC. However, it is not difficult to imagine additional projects that would make it possible to supply the necessary water, and thereby make the WSA adequate. For example, storage capacity of 215 to 375 acre feet (af) for each month in which the average daily flow exceeds 30 cubic feet per second (cfs) would enable the Amador Water System (AWS) to supply all of the water for which the AWS has a right to divert from the Mokelumne. Alternatively, installation of water recycling facilities would effectively increase the amount of water available for potable use.

There is no evidence in the record of proceedings for either project that it is infeasible for the projects to separately, or in collaboration with each other and other projects, construct the facilities that would enable the County and City to approve their respective projects. However, until there are approved plans for such facilities, the WSAs will not conform to the requirements of the Water Code.

**PRC §21005(a)- Information Disclosure**

There is a separate Water Supply Assessment (WSA) for each project. Both WSAs are based on the 2005 Urban Water Management Plan (UWMP<sup>2</sup>). In addition, each WSA has a detailed estimate of future development, from which the future demand is calculated.

The two estimates of demand do not agree with each other. The two WSAs were produced three months apart. The differences are significant and they involve existing conditions, which have not significantly changed between the time the two WSAs were prepared. The differences are discussed in detail below because they strongly affect the amount of water that must be delivered through the AWS.

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<sup>2</sup> A compact disc accompanies this comment letter and includes the complete text of the seven documents that are cited herein. Key pages are reproduced as Exhibits and attached. Exhibit A is a list of the documents on the CD.

Both WSAs differ from the report used to set participation fees. Because there is only one set of existing conditions, one or both of the WSA must fail to disclose the true existing conditions. There is no way for either public agency or the public to determine which conditions are real, and therefore both EIRs fail to disclose significant information.

**PRC §21151.9- Water Supply Assessment**

PRC §21151.9 places a responsibility on a city or county to comply with Part 2.10 of Division 6 of the WC for certain projects, as defined in WC §10912. In particular, WC §10912(a)(1) defines a "project" as a proposed residential development of more than 500 dwelling units. Because both the WS and GRR projects propose constructing more than 500 residential dwelling units, PRC §21151.9 and WC §§10910-10915 apply to both projects. Both the County and City attempted to comply with PRC §21151.9 by using a Water Supply Assessment (WSA) prepared from the UWMP prepared by the AWA. There are significant differences between the WSAs prepared for the WS and GRR projects, and between them and estimates made by the AWA General Manager (GM) in a letter to the City of Jackson, as discussed below.

Both WSAs fail to conform to the requirements of the WC because they identify a demand for water that exceeds the ability to deliver water using existing facilities. WC §19910(d)(2)(B) requires that a capital outlay program be approved for any facilities required to deliver the water necessary for the projects, but no such program has been approved.

The Amador Water System Financial Plan and Water Rate Study (Rate Study) updates the water rates included in the UWMP. The Rate Study is based on capital improvement projects identified in the UWMP. On page 20, attached as Exhibit B, the Rate Study discloses that the peaking factor for metered customers is 1.60 and for the entire AWS system is 1.61. The peaking factor for treated water is 1.62.

The WSAs prepared for the WS and GRR are erroneous on their faces because they did not properly account for the peaking factor. The next section of this comment uses the very conservative assumption that future uses will be in the same proportions as current ones, and that all users will continue to use water as they do now. Under this assumption, the existing facilities in the AWS are incapable of supplying enough water for all of the projects that are identified in determining the demand.

The second following section discusses the differences between the growth assumptions made in the two WSAs, and the differences between both of them and the documents from which participation fees and the water rate structure was determined.

The third following section repeats the analysis in the first section, but makes the more realistic assumption that future growth will be primarily residential. Even if the required amount of water could be delivered, both WSA underestimate the amount of water required by the identified projects that are expected to be built out over the planning period.

**Conservative Analysis**

The following explains the implication of the peaking factor for future growth. Using the value of 1.60 for the peaking factor for future growth assumes that future uses will be in exactly the same proportion as existing ones, and that all users will continue to use water as they do now. That is not likely to happen because there are no new industrial uses expected. The uses with the highest peaking factors are residential, and therefore assuming that future uses will retain the 1.60 peaking factor is too conservative. Even so, the AWS is not capable of delivering the water required by the WSAs without additional facilities

Exhibit C is a page from a booklet prepared by the State Water Resources Control Board (SWRCB) for preparing a request for the allocation of water rights (Booklet), which shows how various measures of water relate to each other (e.g., 1 acre-foot, or 1 af, is 43,560 cubic feet).

The following abbreviations are used herein:

TAU Total Annual Use  
PF Peaking Factor  
PMU Peak Month Use  
ADU Average Daily Use in Peak Month

af acre feet  
af/dy acre feet per day  
af/mn acre feet per month  
cf cubic feet  
cf/dy cubic feet per day  
cf/hr cubic feet per hour  
cfs cubic feet per second

For example, according to page 20 of the Rate Study, which is attached as Exhibit B, the peaking factor is 1.60 and therefore:

$$PF = 1.60$$

The Rate Study also informs us that "[The] system peaking factor is the monthly use relative to the average annual use during the system peak month." In other words,

$$PMU = PF * ( TAU / 12 )$$

That is, the amount of water used in the peak month is the peaking factor multiplied by the average monthly usage for a year. The average monthly usage for a year is the total amount used during a year divided by 12 months. Using 1.60 for the peaking factor, we see that:

$$PMU = 1.60 * TAU / 12 = 0.133 * TAU$$

That can also be expressed in the following way:

$$\text{TAU} = \text{PMU} / 0.133 = 7.5 * \text{PMU}$$

In other words, for a peaking factor of 1.60, the total amount of water used in a year is 7.5 times the amount of water used in the peak month. Notice that if there were no seasonal variation in water use, the total use would be 12 times the monthly use. The factor of 7.5 will therefore be lower when there is greater seasonal variation.

According to the Booklet prepared by the SWRCB, the "peak month" is really the 30 day period in which the greatest demand occurs. Therefore, the total annual demand may be related to the average day in the peak month as follows:

$$\text{TAU} = 7.5 * \text{PMU} = 7.5 * 30 * \text{ADU} = 225 * \text{ADU}$$

Page 18 of the Booklet contains the following formula (in terms of the abbreviations used here):

$$\text{TAU} = 210 * \text{ADU}$$

While not exactly the same, the reasonableness of the peaking factor is thereby confirmed by the SWRCB estimate. The factor (210 according to SWRCB and 225 based on the peaking factor of 1.60) will be lower for larger differences between peak and average water use. The difference between these factors presumably is the difference between our region and California as a whole.

The use on the average day during the peak month can be determined as follows:

$$\text{ADU} = \text{TAU} / 225$$

In the case of the AWA, the right to divert water from the Mokelumne River limits TAU to 15,000 af. Therefore, to use the entire water right, the use during the average day in the peak period is:

$$\text{ADU} = 15,000 / 225 = 66.67 \text{ af/dy}$$

This amount of water delivered over the whole day can be converted to a rate per second as follows:

$$66.67 \text{ af/dy} = 2,904,000 \text{ cf/dy} = 121,000 \text{ cf/hr} = 33.61 \text{ cfs}$$

This rate exceeds the maximum rate at which water may be withdrawn from Lake Tabeaud by 3.61 cfs. Because this excess occurs in the average day during the peak period, which is 30 days long, the total amount of water required in excess of that which can be supplied from Lake Tabeaud at a rate of 30 cfs, for the peak month, is:

$$3.61 \text{ cfs} * 30$$

$$1 \text{ cfs} = 1.9835 \text{ af/dy, so:}$$

$$3.61 \text{ cfs} * 30 = 7.16 \text{ af/dy} * 30 = 215 \text{ af/mn}$$

Therefore it is necessary to store at least 215 af prior to the peak month to augment the water that can be drawn from Lake Tabeaud. The actual amount of storage required depends on the total number of days in which demand exceeds the amount that can be supplied at 30 cfs for the day. Because July and August have similar patterns of water demand, over 400 af of storage will actually be needed. The exact amount of storage needed depends on the total number of days that more than 30 cfs will be needed.

There are no plans for such storage, and therefore the WSA may not assume that such storage exists [WC §19910(d)(2)(B)]. Therefore the limit at which water can be continuously withdrawn from Lake Tabeaud sets the limit on the total amount of water that can be delivered in the peak month.

The maximum rate at which water may be withdrawn is 30 cfs, according to the contract with Pacific Gas & Electric Company. At that rate, a maximum of 59.5 af may be withdrawn in a single day. That is:

$$30 \text{ cfs} = 2,592,000 \text{ cf/dy} = 59.5 \text{ af/dy}$$

Therefore, the maximum average daily use in the peak month is:

$$\text{ADU} = 59.5 \text{ af/dy}$$

As shown above, TAU = 225 \* ADU for the peaking factor of 1.60, so the maximum amount of water that can be used in a year is:

$$\text{TAU} = 225 * 59.5 \text{ af/dy} = 13,388 \text{ af/yr}$$

Both of the WSAs identify demands for more than 13,388 acre feet each year and therefore neither WSA conforms to the requirements of WC §10910. Therefore approval of either the Wicklow Subdivision or the Gold Rush Ranch projects would be unlawful because the approving agencies would be failing to proceed according to PRC §21151.9.

It is important to remember that WC §19910(d)(2)(B) requires that there be an approved capital expenditure program for the facilities necessary to deliver water. As explained above, if sufficient storage is added to the AWS, it will be possible to use the entire 15,000 af water right. But in order to consider such a facility in the WSA, there must be a capital outlay program, and there is none.

**Conflicting Data**

The compact disc that accompanies this letter contains Appendix L from the WS EIR and Appendix C from the GRR EIR. Those documents are the WSAs for the respective projects and both contain estimates of future growth in the AWS system, which were prepared by the AWA. Those estimates were used to predict future demand. They may be found in Appendix C of the WS WSA and Appendix C of the GRR WSA.

Exhibit D consists of two pages from a letter that the AWA General Manager (GM) wrote to the City of Jackson. Exhibit E is pages 7 and 8 from the AWS Participation Fee Study dated October 3, 2007 (Fee Study). The following table compares all four estimates of future growth.

	WS WSA	GRR WSA	GM	Fee Study
Tanner Residential	1,473	1,470		
Tanner Commercial	4,320	523		
Tanner Industrial	0	3,338		
Tanner Existing	5,793	5,331		
Tanner Will Serves	0	213		
Tanner Conditional WS	1,588	1,305		
Tanner Availability	1,041	1,529		
Tanner Future	3,675	4,004		
Tanner Growth	6,304	7,052		
Tanner Total	12,097	12,383		
Ione Residential	1,560	1,536		
Ione Commercial	2,036	229		
Ione Industrial	0	1,300		
Ione Existing	3,596	3,065		
Ione Will Serve	0	351		
Ione Conditional WS	1,252	965		
Ione Availability	410	405		
Ione Future	1,893	1,913		
Ione Growth	3,555	3,634		
Ione Total	7,151	6,699		

	WS WSA	GRR WSA	GM	Fee Study
Camanche Residential	722	646		
Camanche Commercial	86	0		
Camanche Industrial	0	0		
Camanche Existing <sup>3</sup>	808	646		
Camanche Will Serves	0	425		
Camanche Conditional WS	53	53		
Camanche Availability	891	888		
Camanche Future	200	231		
Camanche Growth	1,144	1,597		
Camanche Total	1,952	2,243		
Total Residential	3,033	3,006		4,640
Total Drytown				100
Total Jackson				2,400
Total Plymouth				600
Total Commercial	6,356	752		
Total Industrial	0	4,638		
Total Existing	9,389	8,396	7,740	7,140 <sup>4</sup>
Total Will Serves	0	989		
Total Conditional WS	2,893	2,323		
Total Availability	2,342	2,822		
Total Future	5,768	6,148		
Total Growth	11,811	12,929	16,000	
Total	21,200	21,325	23,740	

There are discrepancies throughout the table. Some are minor, but others cannot be reconciled with the tables being based on facts. Jackson and Drytown are wholesale customers and are

<sup>3</sup> Camanche is not currently on the AWS system and therefore the existing value is not included in the totals. The future projections are included, and they include the current uses.

<sup>4</sup> Plymouth was not being served by the AWS at the time these reports were made. Therefore it is not included in the Participation total. The GM included Plymouth in his letter.

considered Commercial in the WS WSA and Industrial in the GRR WSA, so the GRR WSA seems to provide a more detailed breakdown. However, the total existing connections for the two WSAs and the Fee Study are irreconcilable. The GM's letter cites the Fee Study, but that includes 600 connections in Plymouth, which were not being served at the time the WSA were prepared.

The total size of the AWS at the end of the planning period is similar in both WSAs, but they differ by 993 EDU concerning how many hookups exist now. The WS WSA indicates that there are 2,249 more existing EDUs than the Fee Study. The GRR WSA indicates that there are 1,256 more existing EDUs. At least one of the WSAs and/or the Fee Study is not based on reality.

These discrepancies indicate that the WSAs do not properly characterize existing conditions. They also indicate that the associated EIRs do not truthfully disclose the circumstances of the respective projects.

### **Realistic Analysis**

The following analysis parallels the "Conservative Analysis" above, but makes the following assumptions:

- 1) The Fee Study is correct because it is the basis of recovering costs while the other two make estimates that apparently were not carefully or consistently thought out.
- 2) The peaking factor of 1.60 applies to existing units. Again, that figure comes from the Rate Study, which sets the rates that customers pay. Presumably greater care was given to that analysis than the growth projections in the WSAs.
- 3) New development will total 12,370 EDUs (the average of the WS and GRR WSAs) and the peaking factor for that primarily residential development will be 1.80<sup>5</sup>.

Those assumptions mean that the existing AWS system has 7,140 EDUs be served with an average peaking factor of 1.60. 12,370 additional EDUs are planned, with an average peaking factor of 1.80. Therefore a total of 19,510 units are anticipated and the average peaking factor will be 1.73.

The same abbreviations are used here as were used above.

We begin by calculating the Peak Monthly Use from the Peaking Factor and the Total Annual Use as follows:

$$PMU = 1.73 * TAU / 12 = 0.144 * TAU$$

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<sup>5</sup> The Rate Study indicates that residential uses have a peaking factor of 1.87. The "Realistic Analysis" uses 1.80 to account for some non-residential uses, which have a lower peaking factor.

That can also be expressed in the following way:

$$\text{TAU} = \text{PMU} / 0.144 = 6.95 * \text{PMU}$$

In other words, for a peaking factor of 1.73, the total amount of water used in a year is 6.95 times the amount of water used in the peak month.

The total annual demand may be related to the average day in the peak month as follows:

$$\text{TAU} = 6.95 * \text{PMU} = 6.95 * 30 * \text{ADU} = 208 * \text{ADU}$$

The SWRCB Booklet gives an estimate of 210, confirming that the peaking factor of 1.73 is typical for California.

The use on the average day during the peak month can be determined as follows:

$$\text{ADU} = \text{TAU} / 208$$

In the case of the AWA, the right to divert water from the Mokelumne River limits TAU to 15,000 af. Therefore, to use the entire water right, the use during the average day in the peak period is:

$$\text{ADU} = 15,000 / 208 = 71.95 \text{ af/dy}$$

This amount of water delivered over the whole day can be converted to a rate per second as follows:

$$71.95 \text{ af/dy} = 3,134,154 \text{ cf/dy} = 121,000 \text{ cf/hr} = 36.27 \text{ cfs}$$

This rate exceeds the maximum rate at which water may be withdrawn from Lake Tabeaud by 6.27 cfs. Because this excess occurs in the average day during the peak period, which is 30 days long, the total amount of water required in excess of that which can be supplied from Lake Tabeaud at a rate of 30 cfs, for the peak month, is:

$$6.27 \text{ cfs} * 30$$

$$1 \text{ cfs} = 1.9835 \text{ af/dy, so:}$$

$$6.27 \text{ cfs} * 30 = 12.45 \text{ af/dy} * 30 = 373 \text{ af/mn}$$

Therefore it is necessary to store at least 373 af prior to the peak month to augment the water that can be drawn from Lake Tabeaud. Because July and August are similar, storage for about 750 af will be needed. For comparison, Lake Tabeaud has a capacity of about 1,000 af.

The maximum rate at which water may be withdrawn is still 30 cfs, and therefore the maximum amount of water that can be delivered with existing facilities does not change:

$$30 \text{ cfs} = 2,592,000 \text{ cf/dy} = 59.5 \text{ af/dy} = \text{ADU}$$

Because of the higher peaking factor, less total water can be delivered over the year:

$$\text{TAU} = 208 * 59.5 \text{ af/dy} = 12,404 \text{ af/yr}$$

Both WSA indicate that much more than this amount will be required. Unless the AWA obtains additional diversionary water rights or groundwater sources in the amount of 2,600 af each year, or prepares capital improvement programs for new facilities, there is not enough capacity in the AWS to serve all of the projects identified.

### **Inaccurate and/or Erroneous Information**

WC §10910(d)(1) requires that a WSA identify sufficient water for a proposed project, including the facilities necessary to deliver the water. If this is not done, the Lead Agency (LA) will not have complied with PRC §21151.9 and therefore the LA will not have proceeded according to law, which means that the environmental document associated with the project at issue cannot be approved, and therefore the project itself cannot be approved. Therefore it is a matter of profound importance that a LA prepare or obtain a valid WSA for incorporation into the environmental document for the project.

PRC §21080(e) defines "substantial evidence" for the purpose of CEQA. In particular part: "Substantial evidence is not ... evidence that is clearly inaccurate or erroneous." PRC §21168 and §21168.5 set the standard for judicial review of decisions made pursuant to CEQA, and both statutes restrict the court to determining whether there is substantial evidence supporting the decision made by the LA.

Therefore it is not lawful for a LA to approve a project for which an WSA based on inaccurate or erroneous information was prepared. Both of the WSAs discussed herein are based on erroneous and/or inaccurate information, as may be seen from the GM's letter in Exhibit D.

The GM cites page 17 of the Rate Study to determine that there are 7,740 existing EDUs in the AWS. As noted above, that is not true because 600 EDUs are included from Plymouth, which is not yet online. However, there is more significant misinformation in the GM's letter.

The third paragraph on page 2 of the GM's letter (see page 1 of Exhibit D) indicates that 0.65 af of water is required per EDU per year. This calculation is incorrect in two respects. First, the GM uses the value of 5050 af for the total delivered treated water. The figure from the Rate Study is 5,055 af. Second, as noted above, the value 7,740 includes 600 EDUs from Plymouth that are not online. Therefore the correct calculation is  $5,055 / 7,140 = 0.710$  af per EDU per year. 0.71 af per year is 230,697 gallons, for an average rate of 632 gallons per day (gpd). This

is over 50% greater than the value of 400 gpd per EDU that is used in each WSA<sup>6</sup>.

In the bottom paragraph on page 2 of the GM's letter, the GM restates the value of 400 gpd. The GM says that is the appropriate value to use for "planning purposes".

Exhibit F is pages 7 and 8 from the AWS Participation Fee Study dated October 3, 2007. The second assumption on page 8 clearly states that "new customers will use, on average, the same amount of water as existing customers." Apparently the GM is not familiar with the basis of the participation fee.

When the figure 632 gpd is used in the GRR WSA, which projects a total of 21,325 EDUs, we see that 13,478,400 gpd will be needed, which is 41.37 af per day, or 15,097,742 af per year. That exceeds the diversionary water right for the AWS, but the truth is worse. The WSA fail to consider the water required for golf courses, which amounts to about 700 af per year<sup>7</sup>.

### **Conclusion**

The County and City are solely responsible for the environmental documents for the Wicklow Subdivision and Gold Rush Ranch and Gold Resort projects, respectively. Although the County and City did not produce the contradictory reports relied on by the LA, they are required to include substantially accurate Water Supply Assessments in their respective EIRs, and that has not been done.

Please correct the EIRs for the respective projects and recirculate them with complete information concerning the mitigation of significant adverse impacts (or evidence that full mitigation is not feasible) and a WSA that conforms to the requirements of WC §10910 and following prior to considering the approval of either project.

Yours Truly,

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Ken Berry,  
California Citizens for Environmental Justice

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<sup>6</sup> See page 11 in WS WSA and page 14 in GRR WSA.

<sup>7</sup> Page 2-14 of GRR DEIR.

**Exhibit A- Documents Included On Compact Disc**

The compact disc that accompanies this letter contains the following seven files. The files are complete. Exhibits B, C, D, and E reproduce the pages that are cited herein.

**1\_UMWP\_2005.pdf**

Amador Water Agency: Urban Water Management Plan, October 2005.

**2\_Rate Study\_2007.pdf**

Amador Water Agency: Amador water System Financial Plan and Water Rate Study, May 18, 2007.

**3\_SWRCB\_Booklet.pdf**

State Water Resources Control Board: "This booklet contains detailed instructions for completing forms to file an application to appropriate water."

**4\_WSA\_WS\_DEIR\_App\_L.pdf**

Wicklow Subdivision Draft EIR Appendix L: Wicklow Subdivision SB 610 Water Supply Assessment. Prepared for Lemke Construction on behalf of the Amador Water Agency, October 2007.

**5\_WSA\_GRR\_DEIR\_App\_C.pdf**

Gold Rush Ranch Draft EIR Appendix C: Gold Rush Ranch and Golf Resort SB 221 and SB 610 Verification of Water Supply and Water Supply Assessment. Prepared for Gold Rush Ranch, LLC, on behalf of the Amador Water Agency, January 2008.

**6\_GM\_Letter\_2008-05-08.pdf**

Letter from Jim Abercrombie, General Manager, Amador Water Agency to Mike Daly, City Manager, City of Jackson regarding Bill Condrashoff Information Request, copied to the AWA Board of Directors.

**7\_Fee\_Study\_2007.pdf**

Amador Water Agency: AWS Participation Fee Study, Final Report, October 3, 2007.

**Exhibit III-3**  
**Amador Water Agency -- Amador Water System**  
**Summary of Units of Service and Demand Characteristics**

Customer Class	No. of Accts.	No of Eq. Mtrs.	Annual Water Use (CCF)	System Peak (1) Peaking Factor	Max. Month Use (CCF)
<b>METERED CUSTOMERS</b>					
<i>Treated Water</i>					
Single Family	2,715	2,775	490,594	1.87	76,406
Multi-Family	32	244	76,801	1.42	9,063
Commercial	185	341	91,726	1.36	10,362
Public Agency	60	309	72,548	1.85	11,178
Mule Creek State Prison	1	145	361,946	1.14	34,485
Drytown CWD	1	8	17,640	2.67	3,919
City of Plymouth (2)	-	-	-	-	-
City of Jackson	1	50	548,504	1.67	76,525
Sub-Total	2,995	3,872	1,659,759	1.60	221,938
<i>Untreated Water</i>					
Ditch & Public Agency	142	309	71,542	2.19	13,036
Industrial	5	133	363,385	1.45	43,909
Sub-Total	147	442	434,927	1.57	56,945
<b>Total Metered Customers</b>	<b>3,142</b>	<b>4,314</b>	<b>2,094,686</b>	<b>1.60</b>	<b>278,883</b>
<b>FLAT RATE CUSTOMERS</b>					
<i>Treated Water</i>					
Residential (Sch. B)	93	167	48,240	1.87	7,513
Residential (Sch. MB)	73	134	38,952	1.87	6,066
Commercial (Sch. B)	2	3	552	1.36	62
Sub-Total	168	303	87,744	1.87	13,642
<i>Untreated Water</i>					
Ditch System (Sch. E)	21	53	12,600	2.19	2,296
Ditch System (Sch. ME)	12	29	6,876	2.19	1,253
Sub-Total	33	82	19,476	2.19	3,549
<b>Total Flat Rate Customers</b>	<b>201</b>	<b>385</b>	<b>107,220</b>	<b>1.92</b>	<b>17,191</b>
<b>GRAND TOTALS</b>	<b>3,343</b>	<b>4,698</b>	<b>2,201,906</b>	<b>1.61</b>	<b>296,074</b>
			5,055	AF	
Total Untreated Water	180	524	454,403	1.60	60,494
Total Treated Water	3,163	4,175	1,747,503	1.62	235,580
Total Distributed Water	3,161	4,117	1,181,359	1.58	155,136

**Notes:**

- (1) System peaking factor is the monthly use relative to the average annual use during the system peak month.
- (2) Based on City of Plymouth Water System Financial Plan and Water Rate Study, May, 2006, the City is expected to have a 6" water meter and use 144,000 CCF annually when they begin taking water deliveries in FY 08-09. Usage data is omitted FY 07-08 rate calculations.

# IV APPENDIX

## TABLE OF EQUIVALENTS

ONE CUBIC FOOT PER SECOND (csfs) is a rate of flow passing any point equal to a volume of one cubic foot of water every second (sometimes referred to as second-foot) and is equivalent to:

- = 7.48 U.S. gallons per second (gps)
- = 448.8 U.S. gallons per minute (gpm)
- = 646,317 U.S. gallons per day (gpd)
- = 1.9835 acre-feet per day
- = 40 standard (statute) miners' inches
- = 28.32 liters per second

ONE ACRE-FOOT (af) is the amount (volume) of water which will cover one acre to a depth of one foot, and is equivalent to:

- = 43,560 cubic feet
- = 325,851 U.S. gallons
- = 1,233.45 cubic meters

1,000,000 U.S. GALLONS PER DAY is equivalent to:

- = 1.55 cubic feet per second
- = 43.81 liters per second
- = 3.07 acre-feet per day
- = 3,786 cubic meters per day

ONE THEORETICAL HORSEPOWER is calculated by multiplying the vertical fall of water in feet by the rate of waterflow in cubic feet per second and dividing the product by 8.8. It is equivalent to:

- = 550 foot-pounds per second
- = 746 watts

**Responses to Questions:**

1. The first paragraph comingles the infrastructure capacity of the Amador Transmission Pipeline with available future water supplies. These two issues should be kept separate and distinct.

The first statement is correct that the Amador Transmission Pipeline can serve 24,000 customers. This is illustrated on page 11 of the Participation Fee Study. The number of equivalent dwelling units (EDUs) that can be served by the new Amador Transmission Pipeline was determined by dividing the nominal capacity at design residual pressures by average peak use of a typical EDU. The transmission pipeline has a nominal capacity of 30 CFS which equals 13,464 GPM or 19,388,160 gallons per day. A typical EDU (or single family home) uses approximately 800 gallons per day on the peak day of the year. Dividing 19,388,160 GPD by 800 GPD/ EDU results in 24,235 EDUs that can be served by the new transmission pipeline. Agency staff rounded this off to 24,000 EDUs. The second comment refers to the Agency's ability to meet future water requirements. The Agency will use a water supply portfolio to meet existing and future customer needs. This portfolio has some flexibility. Components of a water supply portfolio include, of course, water conservation, water supply, water rights, demand-side management for peak day management, and water recycling. Over time, the Agency will be implementing demand-side management policies, water conservation and water recycling to manage both the annual and peak day water supply needs for Amador County.

Mr. Condrashoff is correct that the Agency is currently using about 7000 acre ft per year. However, he incorrectly concludes that the current use per EDU is .9 acre ft per year. The amount of water sold to our customers was 5050 acre ft in the 05/06 fiscal year. This is shown on page 17 of the Amador Water System Financial Plan and Water Rate Study report. The appropriate water use per EDU is 5050 acre ft. divided by 7740 EDUs equaling .65 acre ft/ EDU.

The difference between the approximate use of 7000 acre ft. of water per year and the water sold is due to losses in the Amador and lone canals, lone Reservoir, backwash water, the undetermined use by flat rate customers, and other system losses. The Agency intends to reduce these losses by piping the Amador Canal, abandoning the Amador and lone canals, recycling the backwash water, and continuing to convert flat rate customers to metered customers.

For planning purposes, a typical EDU uses an average of 400 GPD (average over a year) which is 146,000 gallons per year or 0.45 acre ft per year (AF/Y). The Amador Water System has a water supply of 15,000 AF/Y. Assuming the current use of about 7,000 AF/Y (note this is based on the peak use from previous years and includes both raw and treated water along with Amador and lone Canal losses) a remaining water supply of 8,000 AF/Y that is available for

future customers. To determine the number of customers that could be served by the remaining water supply, Agency staff divided the remaining unused water supply by the typical annual EDU water use (rounded to 0.5 AF/Y for forecasting purposes). 8000 AF/Y divided by 0.5 AF/Y /EDU results in the ability to serve approximately 16,000 EDU's with the remaining unused water supply.

Water systems, including treatment plants, storage facilities and transmission pipelines, are designed to meet the highest use day of the year (peak day use); and so the peak day use is usually a controlling factor for facility capacity. The Amador Water System supply consists of a firm diversion of 15,000 AF/Y and a flow rate of 30 CFS. The peak day demand of record is approximately 16 CFS for the Amador Water System. The Agency intends to meet its projected peak day demands through several measures. For example, the Agency is embarking on using reclaimed water. Reclaimed water is typically used more extensively during the summer periods for such purposes as irrigation. As reclaimed water is more widely used, the peak day to average day ratio will be reduced and flows will begin to approach a more averaged use. Additionally, as part of the water supply portfolio, demand-side management techniques can be used to address peak day demands. The Agency also is pursuing flexibility in the use of its various supplies.

2. The new Regional Water Treatment Plant at Tanner will replace both plants over time. The Lone Water Treatment Plant will be replaced/abandoned once the new Regional Water Treatment Plant is operational. The existing Tanner Water Treatment Plant will continue to be used until its useful life expires.
3. The Plymouth and Amador Water Agency contract states that the Agency will serve 536 EDUs initially.

The participation fee was a negotiated fee based on the number of existing connections (536) and the existing participation fee of \$2500 in effect at the time of a critical juncture in the negotiations between the parties as to whether they were going to proceed with the project. The participation fee for the existing City of Plymouth customers is  $536 \times \$2500$  (then current fee) = \$1,340,000.

### **New Tanner Treatment Plant:**

The Agency has studied the potential expansion of both the Lone and Tanner Water Treatment Plants for the past four years. About twelve public meetings were held involving detailed discussions of how to cost-effectively expand and/or replace these plants. A chronological summary of those meetings is attached to this letter, along with the staff reports and minutes of those meetings.

**Escalation and Depreciation**

The valuation of water system assets has been adjusted to current value by (1) escalating historical costs to replacement cost in current dollars using the *Engineering News Record* 20-cities construction cost index (20-cities CCI), and (2) depreciating from the date of construction to 2007 based on the service life of each asset. Both of these adjustments are typical (though not required) in buy-in fee calculations. The 20-cities CCI was utilized because this is believed to be the most representative of construction cost trends affecting the Amador Water System.

Service lives for fixed asset depreciation are the same as those used for accounting depreciation. Most water system assets have 40-year service lives and straight-line depreciation was used.

**Capital Reserves**

At the end of FY 06-07 the Amador Water System had approximately \$3.9 million in capital replacement and capital improvement reserves. While these funds are not capital facilities, they are intended to be used for capital projects that will rehabilitate, upgrade, or expand the water system. Capital reserves are therefore appropriately included in the buy-in fee calculation.

**Existing Customers (Equivalent Meters)**

The system buy-in method for calculating participation fees for new development bases the fee on the average value of the water system for existing customers. Hence, once the value of the water system has been determined it is necessary to divide this amount by the number of customers, or more appropriately, the number of 5/8" equivalent meters. The standard meter size for residential customers is 5/8". Using hydraulic capacity factors it is possible to express connections of various sizes in terms of equivalent 5/8" meters.

The table below summarizes the number of customers served by the Amador Water System expressed in 5/8" meter equivalents. AWS's retail service area is equivalent to 4,640 5/8" equivalent meters, excluding the capacity provided through wholesale connections to the City of Jackson, Drytown and Plymouth.

In addition to its own retail customers, the Amador Water System provides wholesale treated water service to the City of Jackson, Drytown, and soon the City of Plymouth. New development occurring in any of these cities will also be subject to participation fees because new development within the cities will benefit from AWS's water system similar to other customers. The City of Jackson services about 2,400, Drytown about 100, and the City of Plymouth serves more than 600 5/8" equivalent meters for a total of about 3,100 wholesale 5/8" equivalent meters.

**Amador Water System  
Summary of Customers and 5/8" Equivalent Meters**

	<u>Customer Accounts</u>	<u>5/8" Equivalent Meters</u>
AWS Retail Service Area	3,140	4,640
Jackson/Drytown/Plymouth Retail Cust.	<u>2,475</u>	<u>3,100</u>
AWS & Jackson/Drytown/Plymouth Totals	5,675	7,740

Not all of the water system serves (or benefits) the cities of Jackson, Drytown, and Plymouth and their customers. The treated water distribution system primarily serves the AWS's retail customers. Therefore, treated water distribution facility costs should not be reflected in the participation fee applicable to new development within the cities of Jackson, Drytown and Plymouth.

**Participation Fee System Buy-In Summary**

The table below summarizes the system buy-in participation fee calculation for the Amador Water System. Separate fees are calculated for AWS retail service area customers, wholesale treated water service customers, and untreated water service customers. Participation fees for meters larger than 5/8" are scaled based on the hydraulic capacity, which is listed on page 4, of each meter size relative to a 5/8" meter.

The process used to update the financial plan involved estimating future revenues and expenditures based on growth projections, inflation and interest rates, anticipated capital improvement needs, and other information. The data and assumptions used in developing the financial plan were reviewed by staff. It is important to recognize that the Agency does not have formal estimates of future operating and maintenance costs, and capital improvement needs are defined at a planning level. The financial plan is based on the best available information; however, no assurance can be provided as to the accuracy and completeness of the estimates.

### Basic Assumptions

**Exhibit II-2** summarizes the basic assumptions reflected in the financial plan model, as described below.

- *Inflation Rates* – Operating costs are inflated largely based on a factor for general inflation. An annual inflation rate of 3.0 percent was used for operational costs. Salary and benefit costs were inflated at 5.0 percent per year. Capital project costs were estimated by Agency staff in the year of construction, so no adjustment for inflation has been made. However, a 5.0 percent per year construction inflation factor has been applied to participation fees.
- *Interest Rates* – The Agency earns interest on its fund and reserve balances. Most of the Agency's available cash is invested in the State Treasurer's investment pool. An annual return on fund and reserve balances is assumed to be 4.5 percent per year estimated on the beginning-of-year balances. The Agency also pays interest on debt obligations. Interest rates and payments on existing obligations are those contained in existing contracts and repayment schedules. Interest rate assumptions on future debt issues vary depending on the timing and type of obligation, as further described later in this section.

**Exhibit II-2  
Amador Water System  
Financial Plan Assumptions**

<b><i>Annual Inflation and Interest</i></b>	
General Inflation	3.0%
Labor Cost Inflation	5.0%
Construction Inflation	5.0%
Interest Rate (Earnings)	4.5%
<b><i>Growth Projections</i></b>	
No. of Retail Accounts	1.0%
Water Use Per Account	0.0%
<b><i>Fund/Reserve Target Levels and Coverage Requirements</i></b>	
Operating Reserve	16.7% of Operating Expenses
Capital Fund	Maintain positive balance
Replac. Contrib. from Opers.	LT Goal --> Annual Depreciation
Debt Service Coverage	
w/ Participation fees	1.20
w/o Participation fees	1.00

- *Growth Projections* – For purposes of the AWS financial plan update, an annual customer growth rate of 1.0 percent is assumed during the planning period. This is a relatively conservative estimate, as actual growth rates have been slightly higher in recent years. Customer growth affects participation fee and water rate revenues, as well as total water production and sales volumes.
- *Water Use Estimates* – Average water user per account is assumed to remain constant during the planning period. That is, new customers will use, on average, the same amount of water as existing customers. Furthermore, no reduction in average water use, as a result of water conservation efforts, is included in the analyses. These are reasonable assumptions that are also conservative from a financial perspective. Total water usage is estimated to increase in proportion to customer growth.
- *Customer Account and Water Use Data* – In updating the AWS financial plan we obtained recent (FY 05-06) customer account and water use data. Additional information on the current number and type of customers is provided in Section III of this report.
- *Participation Fees* – Participation fee revenues reflected in the financial plan are based on the current fee schedules, as well as new customer growth and annual inflationary fee increases. In the absence of comprehensive fee updates, it is recommended that the Agency annually increase participation fees by the amount indicated in the *Engineering New Record 20-cities construction cost index (20-cities CCI)*. Inflationary increases of 5.0 percent per year for participation fee schedules are included in this study.
- *Transfers to the Capital Fund* – Annual transfers from the Operating Fund to the Capital Fund support pay-as-you-go capital replacement and upgrade projects. The current (FY 06-07) annual transfer is \$120,000. It is recommended that the Agency gradually increase the annual transfer to the amount of annual depreciation. For the year ending June 30, 2006, the Amador Water System annual depreciation was about \$668,000. As described later in this section the annual transfer is suspended for FY 07-08 and FY 08-09 (to help minimize the needed rate increases). However, the transfer is re-established and grows over the remainder of the planning period.

### **Capital Improvement Program**

The AWS financial plan update reflects the 10-year capital improvement program prepared by Agency staff. **Exhibit II-3**, on the following page, summarizes the capital improvement program costs and schedule. The capital improvement program is divided into pay-as-you-go and debt financed categories. It is assumed that the larger, more costly projects will be financed. In addition to completing the Amador Transmission Pipeline project, remaining debt proceeds from the 2006 COPs will be used for short-term treatment upgrades and purchase of land adjacent to the Tanner WTP to provide room for future expansion.

The Agency plans to construct a new treated water pipeline to the City of Plymouth and begin providing resale water service to the City in FY 08-09. While the City will be paying for a significant portion of the pipeline, grants and loans will be used to help finance the project (as described in greater detail below). **Exhibit II-4** summarizes the estimated cost, cost sharing, and financing assumptions associated with the Plymouth Pipeline project.

The Agency also plans a major expansion of the Tanner WTP. That project will likely require some form of debt financing. While the specific mechanism for financing that project has yet to be determined, the financial plan presented herein assumes debt financing supported largely by water rates, as well as current and future participation fee revenue. The project is anticipated to cost about \$16 million with construction beginning in FY 10-11. In addition, a new administration building is also planned in the same time frame with an estimated cost of \$3 million.