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6

7  
8 **BEFORE THE**  
9 **STATE WATER RESOURCES CONTROL BOARD**  
10 **STATE OF CALIFORNIA**

11  
12 In re Petition of Southern California Water ) **CLOSING BRIEF OF SOUTHERN**  
Company to Revise the Declaration of Fully ) **CALIFORNIA WATER COMPANY**  
13 Appropriated Stream Systems Regarding the )  
American River, Sacramento County )  
14 )  
15 \_\_\_\_\_ )

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**I.**  
**INTRODUCTION**

1  
2  
3 Southern California Water Company (“Petitioner”) filed a petition to revise the fully appropriated  
4 status of the American River so that it may prosecute an application to appropriate the increasing  
5 quantities of groundwater that are being added to Buffalo Creek and the American River through  
6 Aerojet’s clean-up plans as ordered by the California Regional Water Quality Control Board. Petitioner  
7 does not seek a sweeping modification of the existing FAS status, nor does it seek to alter the delicate  
8 balances that may exist in regional compromises. Instead it asks the SWRCB to allow it the opportunity  
9 to simply recapture the percolating groundwater supplies that are being pumped and discharged from the  
10 same groundwater basin where Petitioner has been forced to close more than half its wells due to  
11 contamination.

12 Substantial, undisputed evidence demonstrates that large quantities of non-native groundwater  
13 are being pumped, treated and discharged by Aerojet into Buffalo Creek and the American River. The  
14 evidence is also undisputed that the discharges began in the summer of 1998, and that the combined  
15 discharges from each of the clean-up sites is collectively projected to increase to as much as 28,000  
16 acre-feet. At the same time, the spread of groundwater contamination is threatening all of Petitioner’s  
17 wells and the further loss of the perennial supply.

18 An extensive study by Petitioner’s experts, Stephen Ross and Anthony Brown, concluded that  
19 substantially all the water being extracted and discharged into Buffalo Creek by Aerojet is non-native  
20 percolating groundwater. The vast majority of the historical reports, the physical evidence and other  
21 expert opinion provided in the proceeding corroborated the report and testimony of Mr. Ross and Mr.  
22 Brown.

23 In fact, much of the opposition testimony did not challenge the physical evidence or the opinions  
24 of Petitioner’s experts. Despite the fact that the FAS Petition is primarily a procedural matter, the  
25 Bureau and the Department of Fish and Game and the Bureau of Reclamation attempted to use the  
26 matter to lay claim to the discharged groundwater on the basis that its continued release was necessary  
27 to satisfy vested rights to native water. Prior decisions of the SWRCB as well as the face of Water  
28 Code Section 1205 require a finding that non-tributary groundwater is "new water" and the reservation  
of questions of availability and priority to the application phase.

1 In addition, Petitioner has offered limitations to minimize the prospect of future conflict. The  
2 Petition is being processed for the express purpose of redressing the loss of water for those harmed by  
3 the groundwater contamination. The new water is also highly regulated and easily quantified such that  
4 any rights in it can be effectively limited to a period coterminous with the discharge. Accordingly, given  
5 the overwhelming substantial evidence and the significant equitable considerations demonstrated in the  
6 record, the SWRCB should grant the request and allow Petitioner to prosecute its application, reserving  
7 the right to further plan conditions on any application that it may approve in the public interest.

8  
9 **II.**

10 **OVERWHELMING SUBSTANTIAL EVIDENCE SUPPORTS A LIMITED REVISION OF**  
11 **THE FULLY APPROPRIATED STREAM STATUS OF THE LOWER AMERICAN RIVER**

12 **A. The SWRCB May Revise the FAS Declaration if it Believes That a Change in**  
13 **Circumstances Has Occurred OR if it Finds That There is Reasonable Cause to**  
14 **Revise the FAS Declaration**

15 The Lower American River was included in the original Declaration of Fully Appropriated  
16 Stream Systems (“FAS Declaration”) adopted by the State Water Resources Control Board  
17 (“SWRCB”) in 1989. (*See* Order WR 89-25.) The Lower American River has remained on this list  
18 and was included in the most recent revision to the FAS Declaration which was adopted by the  
19 SWRCB in 1998. (*See* Order WR 98-08.) Order WR 89-25 cited to two earlier decisions as the  
20 basis for including the Lower American River in the FAS Declaration. These were Decisions 1108 and  
21 1211, which were adopted by the SWRCB in 1963 and 1965, respectively. The finding of no  
22 unappropriated water available in Decision 1211 was based upon findings made in previous decisions  
23 (i.e., D893, D1045, D1082, D1098), the earliest of which was adopted in 1958 (i.e., D893).

24 The SWRCB has the authority to revise a declaration of a stream system as fully appropriated  
25 upon receipt of a petition for revision from any person. (Water Code § 1205(c); 23 C.C.R. § 871(c).)  
26 Title 23, section 871(b) of the California Code of Regulations describes the standard under which such a  
27 revision may occur. It provides that revocation or revision of a declaration of fully appropriated stream  
28 status:

1 “. . . may be based upon any relevant factor, including but not limited to a change in  
2 circumstances from those considered in a previous water right decision determining that  
3 no water remains available for appropriation, or upon reasonable cause derived from  
4 hydrologic data, water usage data, or other relevant information . . . ”

5 (C.C.R. § 871(b); emphasis added.)

6 In the instant case, Petitioner has provided substantial evidence of a change in circumstance as  
7 well as reasonable cause for granting the FAS Petition on equitable and public interest grounds.

8 **B. An Approval of the FAS Petition Removes a Procedural Barrier to Petitioner**  
9 **Securing a Replacement Water Supply for the People of Rancho Cordova: The**  
10 **SWRCB’s Power to Approve, Condition and Deny an Application is Expressly**  
11 **Reserved.**

12 As described above in the California Code of Regulations, the SWRCB’s standard for making a  
13 decision to revise the FAS Declaration is whether there is “reasonable cause” to believe that there is  
14 water present in the River that may be available for appropriation. This is a deliberately low set standard  
15 because a decision to revise the FAS Declaration does not reach the merits of any applications for the  
16 new water, the nature of any conditions, or whether “new water” must be made available for senior  
17 water right holders or for environmental purposes. (*In Re Fully Appropriated Stream Petition for the*  
18 *Santa Ana River* (2000) WR 2000-12, at 14.) Thus, in acknowledging the narrow focus of the FAS  
19 Petition, the SWRCB has stated:

20 “[e]nvironmental issues associated with the project proposed by the petitioners will be  
21 addressed by the SWRCB in the context of processing water right applications.... All  
22 questions regarding the specific amount of water available for appropriation under the  
23 applications, the season of water availability, approval or denial of the applications, and the  
24 conditions to be included in any permit(s) that may be issued on the applications will be  
25 resolved in further proceedings on each application pursuant to applicable provisions of the  
26 Water Code.” (*Id.* at 2.)

27 Without regard to whether Petitioner or the Bureau have a better claim to the discharged  
28 groundwater, Petitioner has demonstrated reasonable cause to grant the FAS Petition. The relatively



1 straightforward *prima facie* case rests upon the initial legal presumption that all groundwater is  
2 percolating (*See In the Matter of Application 29664 of Garrapata Water Company* (1999) D-1639;  
3 City of Los Angeles v. Pomeroy (1899) 124 Cal.597, 628, 633) and, therefore, that it does not form a  
4 portion of the underflow of the American River when considered in the context of two salient facts.  
5 Namely, that it is undisputed by any party to the proceeding that (1) the discharge of groundwater by  
6 Aerojet into Buffalo Creek began in the Summer of 1998 more than 30 years *after* the decisions  
7 referenced for providing the baseline and, (2) that the planned discharges will by all accounts exceed  
8 25,000 acre-feet per year. Without more, the SWRCB would be on solid ground in granting the  
9 Petition. However, as set forth below, there is considerably more to rest its decision upon.

10 **C. Substantial Evidence Presented by Petitioner Supports a Limited Revision of the**  
11 **FAS Declaration for the Lower American River.**

12 **1. The New Water Was Not Considered at the Time of the Original FAS**  
13 **Declaration.**

14 **a. The Percolating Groundwater Pumped and Discharged by Aerojet is Now**  
15 **Discharging Into Buffalo Creek and it is Materially Contributing to the**  
16 **Flow of the American River and Therefore Contributing to a Change in**  
17 **Circumstances.**

18 In the instant case, there is substantial and undisputed evidence that a change in circumstances  
19 exists. The decision to include the Lower American River in the FAS Declaration was based upon  
20 SWRCB decisions adopted between 1958 and 1965. This time frame provides the baseline from which  
21 to decide whether there has been a change in circumstances resulting in additional water entering the  
22 Lower American River.

23 Today Aerojet is discharging significant quantities of treated groundwater into Buffalo Creek  
24 which then enter the Lower American River. Aerojet did not begin its groundwater treatment operations  
25 until August of 1998 - *more than thirty years after* any of the possible baselines suggested by any  
26 party. (RT, at 51:5-9; RT, at 111:21-24.) It is not physically possible that the groundwater treatment  
27 operations at issue in this hearing were considered by the SWRCB when it included the Lower  
28 American River in the FAS Declaration.

1 Under existing orders of the Central Valley California Regional Water Quality Control Board  
2 (RWQCB), these discharges are expected to increase and continue for the foreseeable future. The  
3 nature of the limited opposition to the Petition is based on the determination of which user should obtain  
4 the highest right to the supply. Indeed, on cross-examination, the Bureau's witness, Mr. Renning,  
5 admitted that his claim that the discharged water is not “new” water is a semantic, rather than a technical,  
6 issue. In response to the question of whether the groundwater treatment operations discharge “new”  
7 water to Buffalo Creek, Mr. Renning responded:

- 8 • Mr. Renning: Well, I think this is a semantic question here or semantic issues

9  
10 here. Certainly this is water that was not being discharged before, but the point of

11  
12 my testimony is that there are times at which this water is being discharged into

13  
14 the American River, at which times unappropriated water has ceased to exist and

15  
16 existing right holders must make – must either take shortages in their diversions

17  
18 or rely upon storage releases to meet their demands.

19  
20 (RT, at 114:18-25.)

21  
22 Similarly, the County of Sacramento concurred with Petitioner’s assessment that the discharged  
23 water was not considered at the time of the original FAS Declaration.

24 “The treated groundwater . . . discharged by Aerojet into Buffalo Creek, and  
25 subsequently discharged into the American River, is water not considered in any of  
26 the FAS Declarations previously certified. Moreover, to the knowledge of the  
27 authors of this testimony, this water has not been included in any hydrologic  
28 modeling conducted by the resource agencies for CEQA, NEPA and ESA

1 compliance documents . . . In addition, the subject water has not been incorporated  
2 in any hydrologic modeling conducted in recent environmental documents prepared  
3 by SWRI [Surface Water Resources, Inc.] on behalf of various resource agencies.”  
4 (County Exh. 2, at 12.)

5 Mr. Keith DeVore, the Director of the Department of Water Resources for the County and  
6 Sacramento County Water Agency further testified that the “discharge constitutes new water that was  
7 not considered in [the] FAS Declaration.” (County Exh. 1 at 1.) In other words, the County agrees that  
8 subject water is “new water.” The existence of the discharges were physically observed by Petitioner’s  
9 expert Anthony Brown and Alex McDonald of the RWQCB. The planned discharges were also  
10 consistently quantified by witnesses and in relevant exhibits in amounts up to 28,000 acre-feet per year.  
11 Collectively, these uncontested facts compel the conclusion that discharged groundwater is “new water”  
12 that was not considered at the time of the initial decisions finding the American River to be fully  
13 appropriated.

14 Petitioner further substantiated its case that the groundwater discharged by Aerojet was “new  
15 water” in two ways that relied heavily upon an extensive investigation by its experts. Mr. Stephen Ross  
16 and Anthony Brown of Komex Inc. were asked to determine the answers to two key questions:

- 17 (1) whether the groundwater basin materially contributed to the flow of the American River?  
18 (2) whether the groundwater extractions by Aerojet were actually serving to induce further  
19 recharge from the River?

20 If the answer to either question was yes, some parties could be expected to argue that the  
21 groundwater being discharged was not “new water.” However, after extensive study and examination,  
22 the testimony of Mr. Ross and Mr. Brown was unequivocally “no.” For good measure, they testified  
23 that their conclusions would not change if a different snap-shot in time were used to make the analysis,  
24 whether the baseline be 1958, 1963, 1970 or 1989. (RT, at 63, 1-11.) Accordingly, the plain meaning  
25 of Sections 1205(a) strongly suggests that Petitioner is entitled to a finding that the non-tributary  
26 groundwater is "new water."

27 **b. The Komex Study Was Comprehensive**

28 To determine whether the adjacent groundwater basin was contributing to the flow of the Lower

1 American River, Mr. Ross and Mr. Brown followed a six prong methodology (RT, at 54:7-23) and  
2 ultimately reached the conclusion that substantially all the groundwater discharged by Aerojet was  
3 nontributary groundwater. (RT, at 61:13-18.) Their methodology as well as the results from their  
4 efforts were reduced to the Komex report which provided the basis for their testimony. (See SCWC  
5 Exhibit 9(a).)

6 In considering what weight to give the Komex report and their opinion, the SWRCB should  
7 consider the comprehensive character of their study. Mr. Brown and Mr. Ross began by examining the  
8 historical record, including numerous Department of Water Resources reports which covered the time  
9 period at and immediately preceding the decisions which found the Lower American River to be fully  
10 appropriated. (RT, at 55:5 to 56:13.) They then examined the actual elevations of both the groundwater  
11 and the River as they exist today. (RT, at 56:17 to 57:14.) Subsequently, they analyzed the direction of  
12 groundwater flow, (RT, at 57:17-24) followed by an examination of numerous aquifer tests that were  
13 conducted as part of the feasibility analysis for the Aerojet groundwater treatment operations. (RT, at  
14 58:2-7.) They examined the distribution and movement of the Aerojet contaminant plume (RT, at  
15 58:10-23) and finally, they considered the chemical composition of the groundwater and the River and  
16 compared it to the groundwater in the adjacent basin in order to determine whether any mixing is  
17 occurring. (RT, at 59:1-4.)

18 Each of these specific areas of the investigation yielded data that described the nature of the  
19 relationship between the Lower American River and the adjacent groundwater basin from which the  
20 groundwater treatment operations pump and ultimately discharge groundwater. From this data, Mr.  
21 Ross and Mr. Brown then reached conclusions about the nature of the surface and groundwater  
22 relationship for each of the groundwater extraction and discharge plans associated with Alternative 4(c)  
23 area (RT, at 59:8 to 60:5), the GET E/F facilities area (RT, at 60:8-9), and the ARGET area (RT, at  
24 60:13 to 61:7) (Collectively “Aerojet facilities”).

25 In summary, having completed the extensive investigation, Mr. Brown and Mr. Ross concluded  
26 and subsequently opined that substantially all the groundwater pumped and discharged by Aerojet is not  
27 tributary to the Lower American River. (RT, at 61:13-18.) Accordingly, it is therefore by all definitions  
28 “new water” when it is discharged to the American River today. Moreover, they found that it was not

1 likely to have substantially contributed to the natural flow of the American River for more than 40 years  
2 and well before any reasonable baseline. (RT, at 55:14 to 56:1.) Several salient points in the Komex  
3 Report warrant amplification.

4 **c. Groundwater Level Elevations Have Been Substantially Lower Than the Relevant**  
5 **River Elevations: The Lower American River is a Losing Stream.**

6 If the American River is discharging flow over the past 40 years, there should be little question  
7 that groundwater did not materially contribute to the base flow of the River. It is axiomatic that if the  
8 River was substantially contributing flows into the groundwater basin, it was a losing stream that also did  
9 not rely upon material groundwater inflow.

10 The historical reports of the Department of Water Resources consistently reference the recharge  
11 benefits provided by the Lower American River. It has been consistently acknowledged that the Lower  
12 American River has been a losing river since at least the 1950s, and perhaps earlier. (SCWC Exh. 9(a)  
13 at 25 to 28; RT, at 55:14.) Some estimates suggested that the River was contributing as much as  
14 64,000 acre-feet to groundwater recharge. (DWR Bulletin 133 at 22) There does not appear to be  
15 much of a debate about the recharge character of the River. Virtually all the witnesses offered a  
16 consistent characterization of the American River as providing recharge to the adjacent groundwater  
17 basins.(RT, at 55:14-17; RT, at 205:14-16; DFG Exh. 32 at 7:3 to 8:18.)

18 One important way to corroborate the historical record regarding river discharges is to examine  
19 the relative water levels of the river and groundwater. To begin with, it is important to remember that  
20 the relevant elevation for measurement is the surface of the river - *not the thalweg*. This is because the  
21 hydraulic head condition of the thalweg is the same as the head condition at the surface of the river. (RT,  
22 at 76:25 to 77:11.) It is the hydraulic head that controls recharge and it is the height of the river and not  
23 the river bottom that controls whether the river is discharging into the groundwater basin. (Id.; RT, at  
24 291:17 to 292:5.)

25 In the areas where the Aerojet extraction wells exist, the elevation of the groundwater basin is  
26 now and has been substantially lower than the elevation of the Lower American River for decades. In  
27 fact, there are some places where the groundwater elevation is as much as 30 feet below *the bottom* of  
28 the River. (RT, at 56:23.)

1                   **d. The Extraction Wells Operated by Aerojet Are Not Inducing Additional**  
2                   **Recharge From the River.**

3                   A final inquiry still remained. If Aerojet’s extraction of groundwater causes substantially  
4 induced recharge, some would argue that the water discharged by Aerojet may not be considered “new  
5 water” but essentially recirculated American River water. Assuming for purposes of argument that the  
6 legal theory is correct, the point is moot in the instant case because groundwater production in the  
7 relevant area does not induce recharge from the River.

8                   Mr. Brown and Mr. Ross found that there is an unsaturated zone separating the bottom of the  
9 River from the top of the underlying groundwater basin - meaning that the rate of loss of water from the  
10 River is governed primarily by the permeability of the sediments under the River - not by the water levels  
11 in the adjacent groundwater basin. (RT, at 89:1-15.) In other words, if the zone beneath the River is  
12 unsaturated, increased groundwater extractions by Aerojet would not increase the rate of discharge to  
13 the groundwater basin. Therefore, they were able to conclude that the groundwater treatment  
14 operations do not induce any greater amount of recharge from the Lower American River to the  
15 groundwater basin than would have occurred without the Aerojet extraction wells. (RT, at 56:6-10.)

16                  Their opinion that there is an unsaturated zone beneath the River and the adjacent groundwater  
17 basin was reached after analyzing aquifer tests and the distribution of the contaminant plume. The  
18 Komex report prepared by Mr. Ross and Mr. Brown analyzed aquifer test results performed as part of  
19 the feasibility analysis for the groundwater treatment operations and found that when water was pumped  
20 from wells on one side of the River, drawdown occurred in test wells on the opposite side of the River.  
21 (SCWC Exh. 9(a) at 34; Aerojet Exh. 1 at 18-20; RT, at 58:2-7.) Such an effect would not be  
22 observed if the sediments between the River and the groundwater basin were in a saturated condition.

23                  The distribution of contaminants in the groundwater also demonstrates that a plume of  
24 contaminants has actually migrated underneath the River. (SCWC Exh. 18, Figures 3-29 through 3-36;  
25 SCWC Exh. 9(a) at 36; Aerojet Exh. 1 at 13-15; RT, at 58:8-23.) Such migration would not occur if  
26 the sediments between the River and the groundwater basin were in a saturated condition with the  
27 Lower American River acting as a barrier to flow.

28                  No party provided any evidence disputing the existence or the results of the aquifer tests or the

1 migration of the contaminant plume. Accordingly, there is substantial uncontroverted evidence that the  
2 zone beneath the River is unsaturated.

3 Based upon these two important findings, Mr. Brown and Mr. Ross reached the conclusion that  
4 additional pumping from the groundwater basin will not induce any greater loss from the River than is  
5 already occurring and that has been occurring since the earliest of the determinations that the River was  
6 fully appropriated. (RT, at 56:6-10; Aerojet Exh. 1 at 30.) Accordingly, in response to cross-  
7 examination by Mr. Somach, Mr. Brown succinctly explained that increased pumping would not induce  
8 further recharge:

9 Mr. Somach: In simple terms, is the concept of this being a losing stream being something  
10 along the lines of if you pump a lot of groundwater out of the groundwater basin  
11 and you make a big hole, the American River rushes in to fill the hole. Is that  
12 what you mean by losing river?

13 Mr. Brown: Actually, no, that is not the case. The American River is a losing stream because  
14 the elevation of [the] river is higher than the elevation of the adjacent  
15 groundwater, and due to the availability, the bed allows seepage of the water  
16 from the river into the subsurface sediments.

17 With regard to the pumping activity you mentioned because throughout much of the  
18 reach of the American River there are unsaturated sediments directly beneath the River  
19 and the groundwater elevations are substantially lower than the River, increased  
20 pumping will *not* increase the amount of seepage from the bed of the river.

21  
22 **e. The Testimony of Mr. Ross and Mr. Brown as Well as the Komex Report**  
23 **Were Corroborated by Aerojet's Expert Witness, Mr. Johnson.**

24 The conclusions of Mr. Ross and Mr. Brown were substantiated almost entirely by Aerojet's  
25 expert Mr. Johnson. For example, Mr. Johnson focused on four principal lines of data. (RT, at 162:9.)  
26 Like Mr. Ross and Mr. Brown, he looked at the water levels in the various aquifer levels of the  
27 groundwater basin. His examination was also extensive. For the purpose of his investigation, he  
28 analyzed data from more than 1,000 borings and monitoring wells, as well as hydraulic and pumping

1 data, groundwater level measurements, and various groundwater models. (Id; RT, at 160:3 to 161:9).  
2 He too found a significant separation between the water levels in the groundwater basin and the River,  
3 with a difference of as much as 25 to 30 feet in some places. (RT, at 162:12 to 163:11.)

4 Consistent with the work of Mr. Ross and Mr. Brown, Mr. Johnson analyzed the flow direction  
5 of the groundwater relative to the American River and found that the groundwater flow runs  
6 perpendicular to the River. (RT, at 163:12 to 164:20.) This flow direction indicates that the  
7 groundwater flow direction is not being influenced by the flow direction of the River. This point is then  
8 confirmed by the third line of evidence relating to the flow of contaminants across the River. Like Mr.  
9 Ross and Mr. Brown conclude in their Komex Report, Mr. Johnson notes that contaminant plumes,  
10 even in the shallowest aquifer levels, have migrated across the River in a way that clearly indicates that  
11 the River is not a barrier to flow. (RT, at 165:23 to 166:22.) Accordingly, this further substantiates that  
12 there is likely an unsaturated zone beneath the River and little, if any, interaction between the  
13 groundwater and the River.

14 Again, like Mr. Ross and Mr. Brown, Mr. Johnson emphasized the pump tests that were  
15 conducted in the immediate vicinity of the River which showed drawdown effects simultaneously on both  
16 sides of the River. (RT, at 166:23 to 167:14.) He was also able to conclude that there is a general  
17 disconnection between the groundwater and the Lower American River.

18 With regard to the water from the GET E/F facilities, Mr. Johnson concluded that: “There is  
19 absolutely no connection between these GET facilities and the River . . .” (RT, at 169:11-12.) With  
20 regard to the Alternative 4(c) facilities, Aerojet also concludes that there is no connection between the  
21 groundwater to be pumped and the River. (RT, at 170:10-21.) With regard to the ARGET facilities,  
22 Aerojet agrees with SCWC that there may be some interaction between the groundwater and the River  
23 in the area near Nimbus Dam, but in general the two systems are still separate, even immediately  
24 adjacent to the River itself. (RT, at 162:2-5; RT, at 169:16-18.).

25 **f. The Evidence Offered by the Department of Fish and Game’s Expert, Mr.**  
26 **Reynolds, Was Not Credible.**

27 The Department of Fish and Game (“DFG”) presented testimony from one expert who  
28 purported to have conducted a review of the published technical data as well as independent verification



1 of his findings through analysis of well logs. The heart of the DFG position is that there is a strong  
2 connection between the groundwater basin and the Lower American River. Based upon this strong  
3 connection, DFG asserts that additional withdrawals of water from the groundwater basin induce greater  
4 losses from the River. In other words, the water that Aerojet is discharging is merely replacing water  
5 that was pulled out of the River by the Aerojet production and treatment facilities. However, this  
6 position is inconsistent with the evidence in this case including the evidence in DFG's own testimony and  
7 exhibits.

8 **(1) The Heart of DFG's Testimony Is That the Lower American River is a**  
9 **Recharge Boundary, but DFG's Own Evidence Shows that the River is**  
10 **Not a Recharge Boundary**

11 DFG apparently accepts that the Lower American River is a losing river at least for some  
12 periods of time, (DFG Exh. 32, at 7 to 8; RT, at 205, 14-16.) The heart of the difference between the  
13 analyses by DFG and Petitioner is that DFG's expert Mr. Reynolds apparently believes that the  
14 sediments underneath the River are saturated and therefore act as a recharge boundary. (DFG Exh. 32,  
15 at 12:17-18.) Because of this, Mr. Reynolds reached the conclusion that Aerojet's groundwater  
16 treatment operations induce additional inflow from the River. (DFG Exh. 32, at 8:20-21; DFG Exh. 32  
17 at 9:14-16.) The water being discharged into the River is thus not so much added to the River as it is  
18 recirculated from the River into the ground and back again into the River.

19 Much of Mr. Reynold's testimony concerns an analysis of the sediment and aquifer  
20 characteristics of the area adjacent to the River in order to demonstrate that river water moves freely  
21 from the River through these sediments and into the groundwater basin. (DFG Exh. 32 at 6:21-24.) The  
22 testimony ignores entirely, however, certain key pieces of evidence that are flatly inconsistent with its  
23 position. Most significantly, Mr. Reynolds was not able to reconcile his view that the soils beneath the  
24 Lower American River were saturated and constituted a recharge barrier with the results of the pump  
25 tests conducted as part of the groundwater treatment operations or the contaminant migration across the  
26 River.

27 If the sediments beneath the River were saturated, the River would act as a recharge boundary.  
28 According to DFG's own evidence, the key feature of a recharge boundary is that withdrawals from the

1 aquifer do not produce drawdowns across the boundary. (See USGS, *Basic Ground-Water*  
2 *Hydrology*, DFG Exh. 6 at 47.) The evidence submitted by DFG included records of several pump  
3 tests, the validity of which were in no way challenged by DFG. (DFG Exhibits 17-19.) However, Mr.  
4 Reynolds failed entirely to note the most salient point about these pump tests, a point which was only  
5 admitted with some reluctance on cross examination:

- 6 • Mr. Slater: Isn't it true that in every aquifer test that you submitted along with  
7 your testimony where you examined impacts of pumping on the one side of the  
8 river, on the other side or the opposite side that there was drawdown identified?  
9
- 10 • Mr. Reynolds: Yes.  
11

12 (RT, at 218:16-21.)

13 If the key feature of a recharge boundary is that withdrawals from the aquifer do not produce  
14 drawdowns across the boundary, and every aquifer test conducted on this aquifer show drawdown  
15 effects on the opposite side of the River, then it is manifest that the River does not function as a recharge  
16 boundary.

17 The second primary omission from the DFG testimony concerns the movement of the  
18 contamination plume underneath the River. SCWC and Aerojet presented evidence that one of the  
19 Aerojet contamination plumes has migrated underneath the River. No party, including DFG,  
20 controverted the claim that this plume has, in fact, migrated underneath the River. In order for this to  
21 happen, however, the River must not act as a recharge boundary. DFG completely ignored the issue of  
22 this contaminant plume and made no attempt to explain how such a migration could occur if the River  
23 acts as a recharge boundary.

24 Mr. Reynolds also relies upon its characterization of the composition of the sediments  
25 underneath the River to assert the point that water flows readily from the River into the groundwater  
26 basin. (DFG Exh. 32 at 12:14-16.) In order to provide this characterization, he relied upon the results  
27 of its analysis of well logs, results of which DFG refused to provide to any of the parties. In its written  
28 testimony it did provide examples of three of these analyses, and from these examples alone, it is

1 possible to see the manifest flaws in his analysis. Mr. Reynolds described the sediment characteristics of  
2 the aquifers into which Wells 4325, 4330, and 4335 are drilled. (DFG Exh. 32 at 11:15 to 12:7.) These  
3 wells are drilled to depths of 98 feet, 147 feet and 195 feet, respectively. (Id.) At each of these depths,  
4 Mr. Reynolds finds the presence of sediments of high permeability. (Id. at 12:14-16.) Based upon this  
5 high permeability, DFG asserts that water flows easily out of the River and into the groundwater basin.

6 Again, it was only under cross-examination that Mr. Reynolds was willing to admit that the  
7 sediments in the area have been deposited over millennia and that they show heterogeneity from one  
8 level to the next. (RT, at 225:8 to 226:2.) Mr. Johnson's testimony on behalf of Aerojet was that the  
9 layering of soils precluded the free downward migration of River Water (RT, at 172: 2 to 172:13.) But  
10 if the sediments are heterogeneous from one elevation to the next, a characterization of the sediments at  
11 a depth of 98, 147 and 195 feet reveals very little about the sediments directly underneath the River,  
12 even though it is those shallow sediments which would be the most relevant for determining the  
13 relationship between the River and the groundwater basin. The DFG testimony does not show anything  
14 about the relationship between the River and the groundwater basin, and instead has merely informed the  
15 SWRCB that there are water bearing formations at a depth of 98, 147 and 195 feet.

16 **(2) DFG's Testimony Says Nothing About GET E/F or the Alternative 4(c)**

17 **Facilities**

18 DFG's testimony focuses on the aquifer characteristics in the area directly adjacent to the Lower  
19 American River. No attempt is made to explain how its analysis applies to the GET E and GET F  
20 facilities or to the future facilities contemplated as part of Alternative 4(c). It is from these facilities,  
21 however, that the great majority of the water that is the subject of the Petition will originate.

22 **(3) The SWRCB Should Not Provide Substantial Weight to DFG's Confidential**  
23 **Evidence.**

24 Prior to the hearing, Petitioner objected to the introduction of much of DFG's testimony on the  
25 basis that it relied on well log data that, under the Water Code, is required to remain confidential. While  
26 the SWRCB overruled this objection and allowed the testimony, it should consider the fact that there  
27 was no basis to subject the evidence to cross-examination when contemplating what weight to give to  
28 the evidence.

1           **2. Virtually None of the Water That is the Subject of the Petition Could Have Been**  
2           **Considered at the Time the American River System Was Included in the FAS**  
3           **Declaration**

4           The discharged groundwater that is the subject of the Petition derives from three general  
5 locations identified in the Petition and described with more particularity at the May 31, 2002 Hearing.  
6 These are: (1) the ARGET facilities which pump water from the immediate vicinity of the Lower  
7 American River; (2) increased pumping from facilities known as GET E and GET F; and (3) additional  
8 facilities planned for the future and described by Alternative 4(c) of the EPA ROD for the cleanup  
9 operations by Aerojet. (RT, at 44:18 to 49:13.)

10           The great majority of the water that is the subject of the Petition will come from the GET E and  
11 GET F facilities and from the Alternative 4(c) facilities. (*See* SCWC Exh. 9 at 3.) Of the approximately  
12 28,000 acre-feet per year that could possibly be discharged by the groundwater treatment operations,  
13 over 22,000 acre-feet would come from the combined GET E/F and Alternative 4(c) facilities. (*Id.*)  
14 The primary source of water for this portion of the groundwater basin is infiltration from surface  
15 precipitation from the Sierra Foothills. (RT, at 82:3-6.) Based upon its analysis of the six factors  
16 described above, particularly the elevation of the groundwater basin and the direction of flow of the  
17 groundwater, the Komex report found that none of the water from either the GET E/F facilities or the  
18 Alt. 4(c) facilities is or could be tributary to the Lower American River and that this condition predates  
19 the FAS Declaration. (SCWC Exh. 9(a) at 45; RT, at 61:13-15.) As described more fully below, most  
20 parties concur in this conclusion.

21           Regarding the water from the ARGET facilities, Petitioner's technical analysis showed that the  
22 disconnection between the River and the groundwater basin, both currently and historically, implies that  
23 virtually all of this water was not considered at the time of the FAS Declaration. Only two of the fifteen  
24 ARGET wells (wells numbered 4325 and 4330), may, under certain circumstances, pump water that is  
25 in direct communication with the American River. (SCWC Exh. 9(a) at 43.) This is because those two  
26 wells pump from the upper aquifer units and are located in the extreme Eastern portion of the ARGET  
27 well fields near Nimbus Dam where groundwater levels are higher. (RT, at 60:17-20.) The  
28 circumstances under which they could be regarded as being in direct hydraulic communication with the

1 River involve extremely wet years such as 1983 when the groundwater level rises sufficiently to bring the  
2 groundwater level near to the bottom of the River. However, the capacity of these two wells represents  
3 a total of 2% of the total water that is the subject of the Petition. (RT, at 62:7-8.) Considering that  
4 pumping from these wells can only be said to affect the River under extreme circumstances, the amount  
5 of water discharged that could be said to have been considered at the time of the original FAS  
6 Declaration must be considerably less than this 2% of the total.

7 **3. Flows in the Lower American River Have Been Augmented by the Groundwater**  
8 **Treatment Operations, Including Both Pumping and Discharging**

9 As described above, the pumping by the groundwater treatment operations does not affect flows  
10 of the Lower American River. The planned pumping will all be located well away from the River in an  
11 area whose primary source of recharge is the Sierra Foothills and not the Lower American River. This  
12 pumping will constitute the great majority of the water that is the subject of the Petition. SCWC's  
13 technical analysis shows that only under certain extreme circumstances might pumping from two of the  
14 fifteen ARGET wells affect flows of the Lower American River.

15 Moreover, SCWC presented testimony based upon actual field investigations that show that the  
16 water discharged as part of the groundwater treatment operations does in fact find its way to the Lower  
17 American River. (SCWC Exh. 9(a) at 15 to 20; RT, at 51:18 to 53:16.) Measurements were taken at  
18 various places along Buffalo Creek in order to quantify the carriage losses between the exact point of  
19 discharge of the water and its actual entry into the Lower American River. These measurements showed  
20 that a significant portion of the discharged water does flow into the River.

21 In addition, Mr. MacDonald, the senior engineer for the RWQCB, Central Valley Region,  
22 testified that if the discharge plans are likely to generate more than 25,000 acre-feet of water per year.  
23 (RT, at 298: 6-8.). As the person with the greatest familiarity with the Aerojet discharge facilities he was  
24 confident that it would be possible to quantify the discharges from the groundwater treatment facility into  
25 Buffalo Creek. (RT, at 298:20-24.)

26 **4. Petitioner Has Provided Sufficient Hydrologic Data, Water Usage Data, and Other**  
27 **Relevant Information to Support a Determination That There is Unappropriated**  
28 **Water in the American River System During the Season Applied for to Justify**

1                    **Revising the FAS Declaration**

2                    The evidence provided by Petitioner shows that there is a quantity of foreign water currently  
3 being added to the Lower American River that was not present prior to 1998. For many years prior to  
4 that time, groundwater from the same basin was pumped by municipal water suppliers in Rancho  
5 Cordova without material interference from contamination. (RT, at 87:7 to 88:8.) Through a relatively  
6 new and elaborate system of extraction, treatment and discharge as surface water, it is now being added  
7 to Buffalo Creek and the Lower American River. The flow has been visibly observed in Buffalo Creek  
8 and seen entering into the American River. (RT, at 51:18 to 53:10.)

9                    Furthermore, the amount of these discharges will increase significantly in the near future and  
10 ultimately could contribute as much as 28,000 acre-feet annually of new water to the River. (SCWC  
11 Exh. 9 at 3:16-19.) The discharge can be easily observed, monitored and metered. (RT, at 298 12-23.)

12  
13  
14 **D.        Petitioner Requests Only a Limited Revision of the FAS Status to Allow Processing of**  
15 **a Specific Application for Specific Parties Injured by the Contamination.**

16                    Some parties appearing before the SWRCB in this matter have raised a variety of policy related  
17 concerns that a revision of the FAS status of the American River might serve to disrupt the delicate  
18 balance on the River. Others have suggested that the new water should be earmarked for other surface  
19 water users or that the SWRCB should somehow authorize the diversion of the groundwater under an  
20 alternative process. Given the procedural posture of the FAS Petition, it seems somewhat premature to  
21 address such policy questions that rise or fall on specifics of an application or to discuss relative priority  
22 between competing uses. However, to emphasize both the context of this Petition and to clarify the  
23 nature of Petitioner's claim to the water being discharged, we offer the following points.

24                    **1. The SWRCB May Limit the FAS Revision in the Public Interest and for the Benefit**  
25 **of Specific Parties.**

26                    **(a) The Petition Requests a Revision For the Benefit of Parties' Injury by**  
27 **Contamination: Not Any New User.**

28                    Petitioner filed the Petition requesting that the FAS Petition be amended for the benefit of

1 parties, such as itself, that have been injured by Aerojet's contamination. For the time being, Petitioner  
2 is the only party injured by the contamination that has expressed an interest in appropriating this  
3 groundwater. In the event the County of Sacramento or the American Water Works Company sought  
4 to prosecute similar applications, they should be allowed to proceed on similar grounds. No good  
5 reason appears as to why they should be made to file independent or new petitions.

6 There is ample precedent and legal authority to limit the number of parties that may process an  
7 application when it grants a FAS Petition. For example, the SWRCB did so with regard to the Santa  
8 Ana River, initially for the benefit of the Orange County Water District and San Bernardino Municipal  
9 Water District while all questions as to availability, approval, denial and conditions were deferred for the  
10 hearing on the applications themselves. (*In the Matter of the Declaration of Fully Appropriated*  
11 *Streams for the Santa Ana River* (2000) WR 2000-12, at 9.) Recently it further amended the FAS  
12 status again, for the benefit of specific applicants in July of this year. (*In the Matter of the Declaration*  
13 *to Allow Processing of Specified Applications to Appropriate Water From the Santa Ana River*  
14 (2002) WR 2002-0006, at 6.)

15 **(b) Aerojet Should Not be Authorized to Process an Application to Appropriate**  
16 **Under Petitioner's FAS Petition.**

17 Aerojet did not join in Petitioner's request regarding the FAS status. It has not filed a  
18 proposed application for processing. It has no existing permit from the SWRCB to appropriate this  
19 foreign water from Buffalo Creek or the American River. It has not requested permission to offer a  
20 change in the point of diversion pursuant to Water Code Section 1700 et seq. It offered no testimony or  
21 evidence to demonstrate that the groundwater was destined for beneficial use by Aerojet after it is  
22 discharged into Buffalo Creek or the American River.

23 More importantly, the non-native groundwater that constitutes the perennial groundwater supply  
24 for Petitioner has been contaminated by Aerojet. As Petitioner loses wells, groundwater storage and  
25 supply, Aerojet should not be allowed to process an application to capture the very groundwater supply  
26 it has taken from Petitioner.

27 **2. The Discharged Groundwater is New Water But it Has Not Been Abandoned by**  
28 **Petitioner.**

1 The Bureau argues that the “new water” is abandoned and therefore, it should be made available  
2 to satisfy prior vested rights to native water on the American River. (RT, at 114:18-25.) There are two  
3 answers to this assertion: one procedural and the other substantive. However, each is dispositive of the  
4 Bureau’s contention.

5 First, as stated above, the granting of a FAS Petition is a purely procedural measure. An  
6 approval does not authorize the appropriation of water by Petitioner. (*In re Fully Appropriated*  
7 *Stream System for Santa Ana River* (2000) WR 2000-12.) The Bureau and Petitioner can both have  
8 their day on the merits of "priority."

9 Second, the Bureau’s assertion that contaminated groundwater that is pumped, treated and  
10 discharged is “abandoned” is not correct. Where a stream channel such as Buffalo Creek or the  
11 American River is used to convey the foreign water to its ultimate place of use, the non-native water  
12 should not be considered “abandoned.” Generally, applications to re-divert previously appropriated  
13 water or change the place of use are suitable for processing without regard to the FAS status of a given  
14 stream system. (*In the Matter of the Declaration of Fully Appropriated Stream Systems in*  
15 *California* (1998) WR 98-08, at 14.) In many cases, these matters can be addressed through the  
16 various change procedures set forth in the Water Code. (*In the Matter of the Declaration of Fully*  
17 *Appropriated Stream Systems in California* (1998) WR 98-08, at 14 n. 14; Water Code section  
18 1206, subd. (c).) However, as noted by the SWRCB, “Compliance with the statutory process  
19 governing applications to appropriate water will help assure protection of other lawful users of water and  
20 instream uses. (*In the Matter of the Declaration of Fully Appropriated Stream Systems in*  
21 *California* (1998) WR 98-08, at 14; *see further* SWRCB Order WR 91-07, section 5.1.)

22 In the instant case, Petitioner holds no existing permits to the discharged water because its origin  
23 is percolating groundwater. Nevertheless, the testimony reflects that Petitioner has pumped groundwater  
24 for decades and dedicated its groundwater supply to a public use in accordance with Article X, Section  
25 5 of the California Constitution and all applicable law. Consequently, its perennial right to the supply is  
26 protected against loss by prescription and by estoppel. (*See City of Los Angeles v. City of San*  
27 *Fernando* (1975) 14 Cal.3d 199 ; *Wright v. Goleta Water District* (1985) 174 Cal.App.3d 74, 90.)

28 In addition, Water Code Section 7075 authorizes the use of a natural stream channel to convey



1 foreign water and to appropriate the water so long as vested rights are not injured in the process. Water  
2 placed in a natural water course for delivery is not abandoned water. (*In the Matter of Application*  
3 26876 (1984) D-1602, at 3.) Petitioner’s prosecution of this Petition and the proposed application to  
4 appropriate are evidence that Petitioner intends to use Water Code Section 7075, to exercise dominion  
5 and control over the discharged groundwater and apply it to beneficial use as may be lawfully authorized  
6 by the California Public Utilities Commission.

7         The close physical connection between the groundwater pumped by Petitioner and that  
8 discharged by Aerojet is also recognized in the law. Specifically, the groundwater discharged by  
9 Aerojet is subject to Petitioner’s equitable claim to the discharged water. California and many Western  
10 States have authorized the imposition of constructive trusts to protect parties injured by trespass and  
11 other wrongful conduct. (Santa Clarita Water Company v. Lyons (1984) 161 Cal.App.3d 450 462;  
12 Civil Code Section 2224; *See Pilibos v. Gramas* (1951) 104 Cal.App.2d 353, 357; *See e.g. Oregon*  
13 Alexander et al. v. Central Oregon Irrigation Dist. (1974 Oregon) 528 P.2d 582; Utah Tolman v.  
14 Winchester Hills Water Company, Inc., (1996 Utah) 912 P.2d 457; Tanner v. Carter (2001 Utah) 20  
15 P.3d 332; Nemaha Natural Resources Dist. v. Neeman (1982) 210 Neb. 442; 315 N.W.2d 619.)  
16 Thus, while the SWRCB may conclude, based upon substantial, uncontroverted evidence in the record  
17 that the actions of Aerojet have added new groundwater water to Buffalo Creek and the American  
18 River, the groundwater discharged is nonetheless impressed with Petitioner’s equitable interest in the  
19 supply. The “new water” has not been “abandoned” by Petitioner.

20         The existence of a “strong connection” of groundwater and surface water urged by DFG is  
21 hardly a basis to find that percolating groundwater is not foreign water that has been added to the native  
22 supply and available for appropriation. Petitioner SCWC has presented substantial hydrologic data and  
23 water usage data showing that prior to 1958 and continuing up to the present, significant groundwater  
24 production was occurring in Rancho Cordova and surrounding vicinities. (SCWC Exh. 7; RT, at 37:13-  
25 18.) Due to the Aerojet contamination, Petitioner’s groundwater extractions are now being discontinued,  
26 and it is anticipated that the water supply generated through well production, at least by Petitioner, will  
27 need to need to be replaced in the near future. (RT, at 86:4-7; SCWC Exh. 6.)

28         The opening statement of the Regional Water Quality Control Board argues for a result sought

1 by Petitioner:

2 Ms. George: If the water Aerojet extracts, treats and discharges to surface water  
3 can be made available to replace lost drinking water supplies, it would minimize  
4 the need to construct new wells, thereby resulting in no net loss of water out of the  
5 groundwater basin and the replacement of critical lost water supplies to meet the  
6 needs of the local community.

7 (RT, at 144:22 to 145:3.) Thus, even if the SWRCB finds that there is a “strong connection” between  
8 the River and the groundwater basin, it still has reasonable cause to believe that there is additional water  
9 in the River since Petitioner’s groundwater production will be progressively reduced as the  
10 contamination spreads and the discharges of groundwater to the Lower American River increase.

11 The County’s objection to a revision of the FAS Declaration is apparently grounded in its  
12 position that this new water retains its character as non-jurisdictional groundwater even after it has been  
13 discharged into the Lower American River. (RT, at 263:6-17.) Petitioners agree with the legal  
14 characterization of the water, but not the proper forum on process to resolve this matter.

15 Water Code Section 1253 extends to the SWRCB permitting authority over unappropriated  
16 water and Water Code Section 1201 defines unappropriated water as [a]ll water flowing in any natural  
17 channel” except water that is needed for use upon riparian land or that is otherwise appropriated. It is  
18 true that Petitioner has an equitable interest in the water - but the action of Aerojet is more confiscation  
19 than it is an appropriation. Moreover, the provisions of Water Code Section 7075 notwithstanding, the  
20 authorization to divert water from a natural channel is authorized by the SWRCB. Petitioner’s standing  
21 and equity in appropriating the foreign groundwater in which it has strong equitable interest should be  
22 entitled to great weight in a SWRCB proceeding on the Application.

23 In at least one recent, albeit non-precedential decision, the SWRCB held that non-tributary  
24 groundwater that is pumped and then released into a surface stream is to be regarded as foreign water.  
25 The SWRCB stated in 1995 that:

26 “Return flow of ground water should be treated as foreign water if the ground water  
27 does not naturally flow into the watercourse and is only present because it has been  
28 extracted from the ground.”

1 *(In the Matter of Treated Waste Water Change Petition WW-20 of El Dorado Irrigation District*  
2 *(1995) Order WR 95-9, at 12.)*

3 This statement by the SWRCB is also consistent with California statute. California  
4 Water Code Section 1205(a) states that for the purposes of a declaration of a fully appropriated stream  
5 system, the term “stream system” does not include any underground water supply other than that  
6 originating from a subterranean stream flowing through known and definite channels. In other words,  
7 non-tributary groundwater is to be regarded as originating from outside the “stream system” and  
8 therefore is to be treated as foreign water for the purposes of an FAS Declaration.

9 The SWRCB can issue permits for the appropriation of foreign water. California Courts have  
10 held that, “[i]n view of the later definition of state policy in relation to the conservation and use of water .  
11 . there should remain no present doubt that the so-called foreign waters are now subject to  
12 appropriation under the laws of this state” (*Crane v. Stevinson* (1936) 5 Cal.2d 387, 394); and that “it  
13 is settled in this jurisdiction that so-called foreign waters are subject to appropriation.” (*Bloss v. Rahilly*  
14 (1940) 16 Cal.2d 70, 74; *Hawn v. DeVours* (1950) 97 Cal.App.2d 841, 843-844 [218 P.2d 996].)

15 The SWRCB has faithfully followed these precedents in the past (*In the Matter of Application*  
16 *26876, Haemmig* (1984) Dec. 1602, at 2; *In the Matter of Treated Waste Water Change Petition*  
17 *WW-20 of El Dorado Irrigation District* (1995) Order WR 95-9, at 11) and stated that foreign waters  
18 are subject to appropriation from the stream in which they are found to be running (*In the Matter of*  
19 *Application 22210, Reynolds, and 22211, Smith and Sawyer* (1967) Dec. 1274, at 2).

## 20 CONCLUSION

21 The people of Rancho Cordova need a water supply. Petitioner has met this demand primarily  
22 through groundwater for decades. Now, as it is suffering the loss of groundwater supplies at the same  
23 time the RWQCB, has planned for and approved a massive groundwater extraction, treatment and  
24 discharge program that will add more than 25,000 acre-feet of water to Buffalo Creek and the Lower  
25 American River, Petitioner is met with sympathy and a range of non-technical opposition. The  
26 opposition suggests an outright denial of the Petition so that they may share in the spoils rather than ease  
27 Petitioner’s pain.

**HATCH AND PARENT**  
21 East Carrillo Street  
Santa Barbara, CA 93101

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If there is another process that can fairly allocate Petitioner the water that has been taken from it through contamination in a timely manner, none has presented itself or been discovered that appears reasonably likely to succeed. We urge you to grant the Petition.

DATED: August 5, 2002

HATCH AND PARENT

By [Signature on Original]  
SCOTT S. SLATER  
MICHAEL T. FIFE  
Attorneys for Petitioner,  
SOUTHERN CALIFORNIA WATER  
COMPANY

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**ATTACHMENT A**  
**PROPOSED FINDINGS OF FACT**

1. Water supply entities have lost groundwater supplies due to the Aerojet contamination. [RT, at 146:5-7.] Petitioner anticipates losing all of its groundwater supplies due to the Aerojet contamination. [RT, at 86:4-7.]
2. The groundwater treatment operations pump groundwater and discharge it to Buffalo Creek from whence it flows into the Lower American River. [RT, at 49:21 to 50:6; RT, at 262:13-15; SCWC Exh. 9(a) at 4-6; County Exh. 2 at 4; City Exh. C at 3.]
3. The Lower American River does not act as a recharge boundary relative to the flow of groundwater adjacent to and underneath the River. [SCWC Exh. 9(a) at 44; RT, at 58:21-23.]
4. With the periodic exception of a small area immediately downstream of Nimbus Dam, there is no direct hydraulic communication between the Lower American River and the groundwater basin. [RT, at 74:16-18; SCWC Exh. 9(a) at 43-44; Aerojet Exh. 1 at 15.]
5. At the time of the original determinations that the Lower American River was fully appropriated, the River and the groundwater basin were not in direct hydraulic communication. [RT, at 55:24 to 56:1.]
6. The groundwater treatment operations do not induce any greater recharge from the Lower American River into the groundwater basin than would have occurred in the absence of the groundwater treatment operations. [RT, at 56:6-10; RT, at 161:15 to 162:5; Aerojet Exh. 1 at 30.]
7. The groundwater pumped by the groundwater treatment operations is non-tributary to the Lower American River. [SCWC Exh. 9 at 51-23; Aerojet Exh. 1 at 29-31; RT, at 61:13-18.]
8. Expansions of the groundwater treatment operations are anticipated to discharge additional water to Buffalo Creek. [RT, at 45:24 to 49:13.]
9. Groundwater treatment operations are anticipated to discharge as much as 28,000 acre-feet per year. [SCWC Exh. 9 at 3:16-19; City Exh. C at 2; RT, at 45:24 to 49:13; RT, at 112:10-12; RT, at 262;19 to 263:2.]
10. Carriage losses between the point of discharge into Buffalo Creek and the confluence of Buffalo Creek with the Lower American River can be calculated. [SCWC exhibit 9(a) at 15 to 20; RT, at 51:17 to 53:16; RT, at 298:20-24.]
11. Groundwater treatment operations began discharging water to Buffalo Creek in 1998. [RT, at 51:8-9; SCWC Exh. 9(a) at 4; Aerojet Exh. 1 at 17.]

**PROPOSED CONCLUSIONS**

1. The addition of water to the Lower American River by the groundwater treatment operations was not considered at the time the River was declared fully appropriated.
2. The groundwater treatment operations contribute flow to the Lower American River that was not considered in the FAS Declaration.

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3. The groundwater treatment operations, both current and proposed, constitute a change of circumstances that warrants a limited revision of the FAS Declaration for the Lower American River.
4. The cessation of pumping due to groundwater contamination in Rancho Cordova and surrounding vicinities constitutes other reasonable cause warranting a limited revision of the FAS Declaration for the Lower American River.
5. A definitive amount of discharged water available for appropriation can be measured. The amount available for appropriation could be as much as 28,000 acre-feet per year.
6. The water available for appropriation was previously utilized by other entities and thus should be available only to those entities who have lost sources of supply due to contamination: initially these entities will include Petitioner, the County of Sacramento, and California-American Water Company.