

## 15.0 Coloma-Camp Lotus Fish Tissue Mercury Analysis Study Plan

This Coloma-Camp Lotus Fish Tissue Mercury Analysis Study Plan (plan) is designed to evaluate whether target species of fish in the South Fork American River in the vicinity of Camp Lotus contain mercury. The study would be conducted in three phases. First, a consultation meeting would be held among the Sacramento Municipal Utility District (Licensee for the Upper American River Project, or UARP), Pacific Gas and Electric Company (Licensee for the Chili Bar Project), the State Water Resources Control Board (SWRCB) and Central Valley Regional Water Quality Control Board (RWQCB). The purpose of the meeting would be to agree on the detailed methods to be employed in this plan. As requested by the SWRCB, Licensees have also consulted (see Section 1.5) with the Office of Environmental Health Hazard Assessment (OEHHA). In the second phase, the Licensees would fund performance of sampling and tissue analysis for mercury through contract with an approved third-party to collect the necessary fish for the analysis, perform the laboratory analysis, and report the results. In the third phase, the Licensees would provide a report of the results to the SWRCB.

**Note: There has been no data developed at this time to link the transport of mercury in the Chili Bar Reach of the SFAR with operations of either the UARP or Chili Bar Projects. By agreeing to fund the performance of this plan, SMUD and Pacific Gas and Electric Company do not admit or imply in any way, and no person or party should interpret or infer, that the operation of the UARP or Chili Bar Project causes, or in any way contribute to, the possible occurrence of mercury in fish in the South Fork American River. SMUD and Pacific Gas and Electric Company deny any relationship or responsibility of their projects to any occurrence of mercury in fish tissue samples, should such be discovered.**

### 15.1 Pertinent Issue Question

Is mercury uptake occurring in fish species which reside in the South Fork American River reach downstream of the Chili Bar impoundment?

### 15.2 Background

As described in the September 5, 2003 letter from the SWRCB, the SWRCB staff has recently confirmed the presence of elemental mercury in substrate of the South Fork American River channel in the vicinity of Coloma and Camp Lotus. The Coloma-Camp Lotus section of the river is used for recreation, including fishing. To evaluate the potential for bioaccumulation of mercury within the aquatic food chain and the associated risks to human health, the SWRCB staff requested that a fish tissue sampling station be added to the existing Water Quality Study program associated with relicensing the UARP and Chili Bar Project. The Licensee's have developed this Coloma-Camp Lotus Fish Tissue Mercury Analysis Study Plan to address SWRCB's one-time request for background data.

As part of other studies, the Licensees snorkeled six habitat types in the Coloma-Camp Lotus area in 2003, and electrofished in the stream margin. Electrofishing captured 67 fish: riffle and prickly sculpin (62%), Sacramento sucker (23%), Sacramento pikeminnow (12%), and green sunfish, rainbow trout and brown trout (1% each). Seventy-three fish were observed during snorkeling including Sacramento pikeminnow (58%), rainbow trout (33%), and brown trout, Sacramento sucker and speckled dace (3% each).

### 15.3 Study Objective

The study objective is to obtain fish tissue samples and perform mercury analysis for the target species in accordance with methods in this plan.

### 15.4 Study Area and Sampling Locations

The study area would include the South Fork American River in the Camp Lotus area, which extends through Section 13 of T11N, R9E, of the Coloma, CA USGS 7.5 minute Topographic Quad map. This area is a well-known center for historic mining operations in California. Fishes would be collected throughout the study area to ensure a broad sampling of the target population.

#### 15.5 Information Needed From Other Studies

Information needed from other studies include: 1) water quality information in the Reach Downstream of Chili Bar Project; and 2) fish tissue analyses information from Chili Bar and UARP reservoirs.

#### 15.6 Study Methods, Analyses, And Schedule

As described above, the plan would be performed in three sequential phases, each of which is described below.

##### **Agency Consultation to Finalize Sampling Methods and Analysis**

The Licensees consulted with the OEHHA and the CDFG Lab to determine preferences for sample size and methodology. The methods described here are consistent with input from OEHHA and CDFG Lab.

The sampling effort will focus specifically on body burden (filet tissue) of methyl mercury (measured as total mercury) in resident trout and Sacramento pikeminnow, assuming that the appropriate number and sizes of these fishes can be reasonable captured in the study area.

On March 15, 2004, the Licensees' consultant (Jim Lynch, DTA) spoke with Bob Brodberg, Senior Toxicologist with OEHHA (916 358-2900) regarding this study plan. Mr. Brodberg suggested that, if possible, from 9 to 12 individuals of rainbow trout and Sacramento pikeminnow each be collected. He said that the fish should be of a size that would be caught and eaten, and that if 9 to 12 rainbow trout of catchable-size could not be caught, brown trout of that size could make up the remainder of the catch. He said he would prefer resident trout, but if none could be found, stocked trout would be acceptable. To provide an estimate of variation, he suggested that the total mercury content of each fish be analyzed using the Cold Vapor Atomic Absorption Spectrometry method, or a similar method. Mr. Brodberg said that he has used the California Department of Fish and Game Water Pollution Control Laboratory in Rancho Cordova to perform these types of analyses in the past and this lab would be acceptable to him. On March 16, Mr. Lynch spoke with Dave Crane (Laboratory Director, CDFG Lab) regarding these methods. Mr. Crane concurred with the methods, but suggested that sampling for total mercury (rather than methyl mercury) would be adequate.

The Licensees assume that coordination with the RWQCB will be performed by the SWRCB.

##### **Collection and Analysis**

Upon agreement of the methods by the above parties, the Licensees would contract with an approved third-party to collect the necessary fish for the analysis, perform the laboratory analysis, and report the results to the Licensees. At the present time, the CDFG Lab is the Licensees' first choice to perform the analysis. The CDFG Lab has performed similar analyses for the UARP and Chili Bar relicensings.

##### **Provide Results to SWRCB and RWQCB**

The Licensees would provide the results of the analyses to the SWRCB. This agency will then coordinate the results with any other agencies at its discretion.

The Licensees would initiate this plan upon approval by the UARP Relicensing Plenary Group. Contingent on the CDFG Water Pollution Lab being available to collect the fish and perform the analyses in a timely manner, the Licensees would target having data results provided to the SWRCB by September 1, 2004 or sooner.

#### 15.7 Aquatic TWG And Plenary Group Endorsement

The Aquatics TWG approved this plan on March 25, 2004. The participants at the meetings who said they could "live with" this study plan were CDFG, USFS, BLM, SWRCB, Camp Lotus, PG&E and SMUD. None of the participants at the meeting said they could not "live with" this study plan. This study plan will be presented to the April 7, 2004 Plenary Group meeting for consideration for approval.

The study plan was approved by the Plenary Group on April 7, 2004 without modification. There was no one present at the meeting who objected to the study plan going forward for implementation.

15.8            Literature Cited

None.