FOOTHILLS WATER NETWORK

July 27, 2009

Re: Response to Pre-Application Document Questionnaire
For YCWA New Bullards Bar Hydropower Relicensing FERC Order # 2246

Dear Curt Aikens and YCWA Board,

The Foothills Water Network is writing in response to the Pre-Application Questionnaire sent by DTA on behalf of YCWA regarding the FERC relicensing.

We respond to the questions in your form in the order that they appear.

1. Information about person completing the PAD Questionnaire
Contact: Julie Leimbach, Coordinator, Foothills Water Network
Organization: Foothills Water Network Yuba-Bear Working Group
Address: PO Box 713, Lotus, CA 95651

2. Existing Information

a. The existing information we are offering has relevance to all the resource areas listed.

b. and c. The Foothills Water Network submits the following existing materials:

Appendix A: Existing Information – on CD
Appendix B: Existing Information – not included on CD
Appendix C: Information to be finalized in 2009
Appendix C: Other Literature Submitted under Yuba-Bear Drum-Spaulding Relicensing

We are also aware of and support the existing information submission presented by South Yuba River Citizen's League.

d. Designated Representative:
Julie Leimbach, Foothills Water Network.
T: 530-622-8497
E: julie@foothillswaternetwork.org
PO Box 713, Lotus, CA 95651

The Foothills Water Network has already provided a list of other interested stakeholders.

e. Specific Resource Issues

1. FISHERIES

The lower Yuba River is the largest river in the Central Valley without a hatchery and supports populations of fall-run Chinook, late-fall-run Chinook, spring-run Chinook and steelhead. Elevated flows due to hydropower project operations can increase contribution of hatchery and non-natal salmon and steelhead to in-river spawning populations. For spring-run and steelhead this may increase risk of extinction (Lindley et al. 2007).

It is important to find ways to build the base of wild fish including spring-run and fall-run Chinook as well as Steelhead. The lower Yuba is one of two rivers in California with no hatcheries on it.

1.1. Steelhead

The current tailwater fishery in the lower Yuba lacks summer warming temperatures to trigger steelheads' return to the ocean. Under current operations the vast majority of juvenile steelhead apparently become resident as they oversummer in the cold tailwaters of the lower Yuba. This change in life history has contributed to the loss of anadromy in the system.

1.2. Critical Habitat and Passage for Anadromous Fish

Lower Yuba River

Englebright Dam is a total barrier to anadromous fish returning to the upper Yuba River. NMFS is currently undertaking an Engineering Study of passage options on Englebright Dam.

Englebright Dam blocks passage of wood and spawning material into the lower Yuba River. This depletion of woody debris diminishes spawning habitat availability in the reach below Englebright and reduces the complexity of habitat throughout the lower Yuba River.

Low levels of fisheries habitat complexity reduce life history diversity, production, and resiliency to environmental change. Habitat in the project area is affected by water demands downstream. For example, the Brophy Diversion at Daguerre causes mortality to juveniles due to entrainment.

Water entering the lower Yuba River from Englebright Reservoir appears high in turbidity due to suspended algae and may have other water quality problems involving nutrients, and mercury. Englebright reservoir and pulse flows from Colgate power house may contribute to methylization of mercury.

Middle and South Yuba Rivers
There is existing salmon habitat in both the Middle and South Yubas. A systematic evaluation of potential barriers to adult salmon and steelhead migration in the South and Middle Yuba by Vogel (2005) reported “low-flow" (which appear to impede migration only at flows less than ~100-200 cfs) or "high-flow" barriers. Results show no high-flow barriers below river mile 35.4 on the South Yuba, and only Our House Dam on the Middle Yuba below RM 34.4.

The PAD should include a discussion that during their most recent assessment, NMFS found the Middle and South Yuba Rivers may be “critical habitat” for endangered anadromous fish species, specifically Central Valley Spring-Run Chinook and Steelhead. NMFS deferred a final designation, pending outputs from a collaborative scientific process known as the Upper Yuba River Studies Program. In June 2007, the California Department of Water Resources issued a final report from the UYRSP entitled “Upper Yuba River Watershed Chinook Salmon and Steelhead Habitat Assessment”. This report concluded that “analyzed habitat and temperature conditions in the upper Yuba River watershed are capable of supporting anadromous salmonids”.

1.3. Reasonable and Feasible Salmon Recovery

Currently, only four of 19 populations of Central Valley Spring-run Chinook remain and NMFS has identified the Yubas as a primary recovery opportunity. It is “reasonable and feasible” that salmon will be recovered in the upper Yuba during the term of the future Project’s license. There are a number of studies and efforts that point to the reasonable and feasible recovery of salmon to the upper South and Middle Yubas. These should be cited in the PAD:

The Upper Yuba River Studies Program (UYRSP) was a 9-year and $9M federal and state investment aimed at determining the feasibility of re-introducing salmon and steelhead into the Middle and South Yuba Rivers. The process has yielded two noteworthy results:

- The UYRSP habitat assessment, analysis, results suggest that the upper South and Middle Yubas could support Spring-run Chinook and steelhead habitat. With a reasonable increases in flow, the Middle and South Yubas could support substantial populations of Spring-run Chinook and steelhead.
- The USGS characterized the sediment behind Englebright Dam, which is the current barrier to anadromy for the North, Middle, and South Yuba Rivers. This preliminary work characterized the sediment in order to plan for remediation and sediment removal should the dam be modified. Among other results, the study found that the sediment has not reached the dam.

Several other important recent developments relating to Anadromy include:

- NMFS Biological Opinion released in June 2009 provides a clear indication that enforcement of the ESA in the Central Valley will involve required fish passage for several large dams blocking access to historic habitats
- The foremost scientific evaluation of the viability of Central Valley Spring-run Chinook Salmon and Steelhead (Lindley et al 2007) has concluded that in order to

reduce the risk of extinction for these threatened evolutionary significant unit we must provide access to historical habitats. The authors have cited the upper Yuba as a primary opportunity.

- The official NMFS Recovery Plan for ESA-listed Central Valley salmon and steelhead is several years overdue and is expected to reinforce the need for projects such as reintroduction of anadromous fisheries to the upper Yuba.
- In recent years, a series of judicial rulings from the Federal Courts has overturned Biological Opinions issued by NMFS, thereby forcing major actions to protect or recover threatened salmonids. An ESA lawsuit brought by SYRCL and Friends of the River against NMFS's Biological Opinion on the lower Yuba is currently pending. One of the goals of the suit is to expedite reintroduction of anadromous salmonids to the upper Yuba.
- NMFS' Fish Passage Engineering and Feasibility Study for Narrows 1 and 2 / Englebright Reservoir is currently being conducted by Montgomery Watson and Harza.

1.4. Tributaries

Tributaries such as Dry Creek and Deer Creek on the lower Yuba could be investigated as options to mange for nurseries for fry of wild fish.

Dry Creek provides habitat for salmon, steelhead and other fish, but the capacity and limitations of this habitat has not been assessed. Flows in the lower Yuba River may affect the quality and utilization of habitat in Dry Creek. This issue also pertains to the lowest reach of Deer Creek.

Diversion of water from and augmentation of smaller tributaries will also be an important issue in this relicensing. YCWA diverts water from Oregon Creek at the Log Cabin Dam site. It is also important to note that for a short distance, YCWA's project augments Oregon Creek's natural instream flow with Middle Yuba water before diverting it to New Bullards Bar Reservoir.

Tributaries are hotspots for fish and aquatic biota. YCWA's diversions impact the health of the aquatic biota in the tributary itself, at the tributary junction with the mainstem, and ultimately affect the cold water available for cold water refugia typically found at the tributary junction.

1.5. Trout

Instream flow requirements in the following reaches are insufficient for trout populations and other aquatic resources:

- North Yuba below New Bullards
- Middle Yuba below Our House Dam
- Oregon Creek below Log Cabin Dam
- Upper Main below North-Middle confluence

2. HYDROLOGY

2.1. Pulse Flows

Pulse flows as a result of peak power operations below Colgate in the area of Rice's Crossing negatively impact fish and other aquatic resources.

2.2. Ramping Rates

The PAD should specifically address existing information, public notice, public safety, historical operations, and effects of ramping rates below Colgate, Our House, and Narrows 2/Englebright, which affect the North, Middle, and lower Yubas. For example, the Licensees' operations between Colgate and Englebright have transformed what would otherwise be a gradually descending limb on North Yuba's hydrograph to a precipitous decline in flows. The resulting steep descending limb of the hydrograph diminishes ecosystem health

2.3. Probable Maximum Flood (PMF) Calculations

The PAD should contain the most recent PMF calculations for all structures.

2.4. Water Temperature

Project facilities that could facilitate, constrain, or improve the enhancement of cold water habitat. Cold water pool management in the project reservoirs and effective distribution of cold water will affect the ability of the project to meet resource needs of fish and ecosystem health. The PAD should contain all available river and reservoir temperature data. In addition, the PAD should contain detailed information regarding outlet works at all project facilities, including configuration, capacity and control.

Cold water is critical to the existing spring-run Chinook and green sturgeon below Narrows 2/Englebright, recovery of these fish in the North and Middle Yubas, and the general health of fisheries and ecosystem health in the affected reaches of the North and Middle Yubas. Therefore, it is critical that we fully understand the cold fresh water in project and how can we increase the opportunities for its optimal use.

2.5. Water Conveyance

YCWA hydropower project is primarily driven by water demand from downstream irrigators, water purchasers, contracts, and agreements. Therefore, the sale and conveyance of water downstream of the YCWA project drives the operations of the YCWA hydropower project, impacting the river reaches below the FERC-regulated facilities. The PAD and subsequent studies should explain how water demand for Delta export or other Delta use (in-Delta and for Delta outflow) drives YCWA's hydropower operations and therefore, flows in the lower Yuba River.

The PAD should provide a discussion of how these downstream water demands affected the choice of hydrologic modeling for YCWA's relicensing.

The PAD should provide an overview and details of consumptive water deliveries and sales of YCWA via both constructed and natural waterways. Together, the PAD and

Study Plans should provide the needed information on how YCWA's hydropower system provides water for delivery to water purchasers.

This discussion should include canals and ditches within FERC jurisdiction as well as water conveyance dependent on the YCWA Hydropower project and those that affect the operations of the project. In particular the irrigation districts with contracts to purchase YCWA water depend on the project operations. These include:

- Browns Valley Irrigation District
- Cordura
- Dry Creek MWG
- Hallwood
- Brophy
- South Yuba
- Ramirez
- Naumes
- Gifford-Hall
- Wilbur

In addition, the ditches called Big Ravine, China Canal, Smartsville Canal, and Unity Ditch could serve as an alternative for fish passage from the lower Yuba to above Narrows 2/Englebright. The PAD should provide a map and schematic of these conveyance systems as well as a description of their current use.

Maintenance outages, minimum flow and timing on the project always affect ecosystem health. The project should consider timing and alternative flow management scenarios to neutralize any negative effects of these canal or operations outages.

2.6. Flood Control

The issue of flood control for Marysville is a significant issue in operating YCWA's hydropower project. The question of flood storage, flows, channel capacity, and pre-releases to manage spill are all central issues to be considered in this relicensing.

2.7. Exports from the Upper Yuba River Watershed

The PAD should address how the project must react to significant water exports by the Nevada Irrigation District Yuba-Bear and PG&E Drum-Spaulding Projects upstream on the Middle and South Yubas. Together, the Drum-Spaulding and Yuba-Bear Projects export a combined 400,000 afy from the Middle and South Yuba watersheds. NID's Yuba-Bear Project alone diverts an average of 60,000 afy from Middle Yuba into the Milton Bowman Tunnel, which conveys the water to Spaulding from where much of it is then exported to the Projects' hydropower facilities on the Bear River.

The management of flows in the lower Yuba River is based on actual, not unimpaired, inflow to Yuba County Water Agency's New Bullards Bar Reservoir. By reducing that inflow by an average of over 60,000 afy, the NID Yuba-Bear Project (at minimum) directly affects the amount of water that is available to YCWA to meet its' instream flow releases below Englebright Reservoir.

Releases into the lower Yuba are governed by releases at YCWA's New Bullard's Bar, which is, in turn affected by the operations at YCWA's Our House diversion, which is affected by how much water is diverted by NID's Milton-Bowman Tunnel. More specifically, the Yuba Accords – a management agreement, which governs flows in the lower Yuba – has a provision that flow standards in the lower Yuba will be based on actual inflow to Yuba County Water Agency's New Bullards Bar Project. In order to feed water into New Bullard's Bar, YCWA depends in part on the instream flow in the Middle Yuba, which is significantly decreased by the NID Milton-Bowman diversion upstream. In other words, the PG&E and NID Projects export water from the Middle Yuba, resulting in less water for YCWA to divert into New Bullards Bar, which then affects the amount of flow released into the lower Yuba for anadromous fisheries and ecosystem health.

As stated in the Yuba Accord EIR/EIS:

> "The upper basins of the Middle Yuba and South Yuba rivers have been extensively developed for hydroelectric power generation and consumptive uses by Nevada Irrigation District (NID) and PG&E. Total storage capacity of about 307 TAF on the Middle Yuba and South Yuba rivers and associated diversion facilities enable both NID and PG&E to export an average of approximately 410 TAF per year from the Yuba River Basin to the Bear River and American River basins. …While these upper basins lie outside of the project study area [for the Yuba Accord], the described operations can significantly reduce the water supply available to the lower Yuba River, particularly during dry and critical water years."

3. GEOMORPHOLOGY

3.1. Sediment

The PAD should provide a snapshot of the current status of cobble and sediment deposits behind New Bullards Bar Dam, Our House Dam and Englebright Dam. Past measures for managing these deposits, and any future plans for managing the deposits, should be described. Also, river reaches below New Bullards Bar, Our House, Log Cabin and Englebright Dam do not receive natural supplies of sediment and thus have undergone geomorphic change.

4. RIPARIAN

Impaired flow regimes in the lower Yuba River reduce recruitment and survival of cottonwoods and other riparian species.

5. OPERATIONS AND MAINTENANCE

5.1. Routine Operations

Operational procedures are to be described for all project works, and for the project as a whole, including Englebright Dam and Reservoir. Descriptions should include normal operations, normal planned and scheduled outages, and general procedures for the conduct of capital improvement projects within the project, such as the recent upgrade to Colgate Power House and the installation of the synchronous bypass at the Narrows power house.

3.2 Power Generation Operations

The PAD is to describe the various modes of operation of the individual power generators in the project. The over-all coordination of operations and responsibility for dispatch among YCWA, PG&E should be described.

3.3 Emergency Action Plans

The PAD should describe the current Emergency Action Plan. It should describe the emergency action planning process. It should describe how YWCA, PG&E and USACE work with the CA Division of Safety of Dams and the Federal Division of Dam Safety and Inspections (with jurisdiction over Englebright).

6. RECREATION

6.1. Whitewater Boating

Boating opportunities have been greatly diminished by impoundment and diversion of water by the project. Boating on premier reaches below New Bullards Bar and Our House Dam has been all but eliminated by project structures and project operations.

We would like to see preserved existing boating opportunities that are created by summer drafting flows from high reservoirs, and that may be created by other operational requirements. Additionally we seek to (at least partially) restore the snow-melt hydrograph by, for example, pre-releasing water, and making the recession limb beneath dams and diversions less abrupt. This sort of natural hydrograph emulation is generally thought to be beneficial to all species, and could provide additional boating opportunities. In keeping with this philosophy, we advocate “opportunistic boating flow studies” that are conducted during routinely occurring operational flows, or are conducted during weather driven flows.

This approach has worked well in the Yuba-Bear Drum Spaulding Relicensing. Additionally, the Licensees and American Whitewater took advantage of the recent Colgate Power House outage to conduct an opportunistic boating flow study during the winter of 2009. This approach is economical for the licensee, and has no adverse impacts on aquatic ecology or aquatic species.

In order for this approach to whitewater boating study flows to be successful, data from all gauges that measures flows that directly or indirectly affect boating reaches must be

publicly available. Additionally, the licensee must communicate outage and capital improvement plans that could affect boating flows.

6.2. Angling

Anglers primarily walk and wade but also use drift boats. Drift boaters, rafters, and tubers put-in at Hwy 20 and can take out at Hammon Grove, a county park or further downstream at Sycamore Ranch, a public takeout. Members of a fishing club can also use the private club takeout at Daguerre even further downstream. There is another public takeout at Hallwood Rd., which is a couple miles below Daguerre Dam.

Between Englebright and Hwy 20, the CDFG closes fishing from September 1 – December 1.

Late spring and summer flows from the YCWA project often make angling difficult.

The PAD should catalogue the fishing guides on the lower Yuba, the number of angler days associated with fishing guides, and the amount annual revenue generated by fish guiding.

There are a number of flyfishing clubs who fish the following river reaches:

- Above New Bullards Bar – Access point Shanghai Flat
- Oregon Creek
- Middle Yuba below Our House Diversion
- Confluence of Oregon Creek and Middle Yuba
- Above Hwy 20 on the lower Yuba
- Highway 20 to Daguerre on lower Yuba

The Oregon Creek section below the Log Cabin Diversion that is regularly fished is brushy with lots of canopy and good temperatures for fish.

Local Fishing Clubs include: Granite Bay Flycasters, Gold Country Flyfishers, Auburn Flycasters.

6.3. Water Play

Inner tubers and swimmers recreate in river reaches impacted by the YCWA Hydropower Project. A partial list includes:

- Lower Yuba – Englebright to Daguerre – inner tubing, swimming; especially the Parks Bar to Hammon Grove reach
- Confluence of Oregon Creek and Middle Yuba – swimming hole

6.4. Public Safety and Information

The lack of adequate publicly available and consistent flow information is an issue for public recreation on the lower Yuba. Primarily, walk and wade anglers and inner tubers need to be able to check current flows and schedules online and at put-in in order to avoid stranding. Under current operations, 1 or 2 anglers drown each year with possible links to lack of information about flows.

Current coordination between PG&E and CDEC to manage existing gauges on the Yuba often produces data gaps due to long and frequent periods of gauge malfunction and lacks clear guidelines for responsibility. The number of publicly available gauge sites is also inadequate to provide information for enhancing recreation opportunities in a safe manner.

Additional publicly available flow information is needed on the lower Yuba below the confluence with Deer Creek and Narrows Rapids. This flow information is needed because Deer Creek contributes significant input of flows to the lower Yuba, which are not captured by the current gauge upstream of Deer Creek at the bottom of Englebright Reservoir.

7. CULTURAL RESOURCES

The project negatively impacts salmon, which are a traditional cultural property with spiritual, health, and cultural significance to Native American Tribes from this region.

The project negatively impacts riparian and aquatic plants that are culturally significant to Native American tribes in this region.

Nisenan cultural properties can be found around Narrows II at Englebright.

f. Studies or Information Needs

We recommend that study plans developed within the Yuba Bear/Drum Spaulding and PCWA relicensing be used as templates for the YCWA relicensing. The PAD should contain a preliminary assessment of the licensee's view of using these Study Plans as a starting point.

The Yuba Accord River Management Team (RMT) has developed a monitoring and evaluation plan (M&E Plan) which, as implemented, will provide a variety of useful information to study plans concerning hydrology and fisheries. The budget for the RMT is substantial and secure through 2016, but the RMT will not provide all flow and habitat information needs for the relicensing process because it is underfunded for implementing its own Monitoring and Evaluation Plan, especially on the timeframe required for relicensing which stresses the completion of field studies in 2012. We encourage early exploration of coordination between RMT studies and relicensing studies.

1. FISHERIES

- Study of Fish Passage Options over Englebright Dam
- Study of Fish Passage Options over Our House Dam
- Study of optimum and minimum attraction and passage flows on the North, Middle, and South Yuba Rivers.
- More detailed analysis of barriers and passage options building off the UYRSP with specific attention to the reach below the North-Middle Yuba confluence.

Although there is useful information from the UYRSP, the level of detail is not adequate to determine frequency of passage for each species.

- What are the consequence of various flow fluctuations at different points in season on juvenile salmonids, including the possibility of survival and growth in off-channel rearing habitats?
- What are the current spatial and temporal patterns of salmonid rearing habitat utilization and how does capacity for different rearing strategies change with flow?
- How does percent contribution of hatchery and non-natal spawners change with flow?
- Draft Implementation Plan for lower Yuba River Anadromous Fish Restoration concludes with a list of necessary studies that should be considered in coordination with the studies needed for relicensing.

2. HYDROLOGY

2.1. Ramping Rates

- Determine if the amount of water discharged from Narrows 1 Powerhouse is ramped at a rate sufficient to allow fish to move to protected areas of deeper pools. YCWA should also include in their ramping rate study an analysis of how the stranding of fish in the Yuba River would be affected by the coordinated operation of the 2 Narrows Powerhouses.
- Maintain and operate stream gages to monitor ramping rates during project operations.

2.2. Temperature

- Study of temperature profiling of reservoirs and cold water pool management.
- Study of ability to pre-release to create gradual increase and decrease of flows before and after spill.

2.3. Water Conveyance

- Study of the water rights, water sales, purchases, seasonality of deliveries as well as a description of the distribution and ownership of water.
- Study of demands on system including export water to agriculture, human consumption, and environmental water account.

2.4. Flood Control

- Study of flood control requirements, efforts, and plans in YCWA's Hydropower Project including Englebright Dam and Reservoir. Study should also include relation between existing lake elevations and drawdown required to meet flood control needs.
- Study of various elevation scenarios for Englebright's dam face and lake surface elevation and effects on Englebright's function as a Forebay for Narrows 2 and

Afterbay for Colgate peaking power operations. This study should include effects on power generation and revenues.

2.5. Exports from the Upper Yuba River Watershed

- Study of impacts of PG&E and NID water exports from the Upper Yuba River watershed on YCWA's Hydropower Project and the lower Yuba ecosystem.

3. RECREATION

3.1. Whitewater Boating

Following is a preliminary list of whitewater boating reaches that should be studied, following the methodology described and used in the Yuba Bear/Drum Spaulding relicensing.

River Reach	Class	Miles
Bullard's Bar Dam to Middle Fork Yuba	Class V	1 mile
North and Middle Fork confluence to Englebright Reservoir	Class IV-V	7.5 miles
Oregon Creek	Class IV-V	8 miles
Middle Yuba from Our House Dam to Oregon Creek	Class IV	8 miles
Middle Yuba from Oregon Creek to North Yuba confluence	Class IV	4.5 miles
Yuba from Englebright to Hwy 20	Class III-IV	5 miles
Yuba from Hwy 20 to Daguerre	Class I-II	6 miles

4. CULTURAL RESOURCES

Salmon recovery options and reintroduction should be addressed in the Native American Cultural Properties study for the impact the project has had on Native American cultural resources, health, and spirituality.

Cultural Studies field elements and methodologies should be integrated into the Aquatics, Riparian and Land Studies. For example, the Botany field study should have a list of listed threatened and endangered plant species as well as a list of culturally significant plant species. The field methodology should be written so that botanists collect information on both these lists while in the field. Specific questions regarding the cultural plants should include: Where is it found? What is the cultural significance and use of the plant? What is the effect of the hydropower project's operations and maintenance on these culturally significant plants, their habitat, tribal access for harvesting, and use for cultural purposes?

Preliminary list of studies that should include cultural aspects:

- Social Economics/Natural Resources
- Anadromous Fisheries Population and Passage
- Noxious Weeds
- Terrestrial
- Special-status Plants
- CESA-listed Plants
- Riparian Habitat
- Roads and Trails
- Historic Properties
- Native American Traditional Cultural Properties

The list of culturally significant species, plants, and issues should be developed in the cultural working group and then issued to the other working groups for inclusion.

3. Planned Participation
   The Foothills Water Network Yuba-Bear Working Group and its members plan on participating in the YCWA Hydroelectric Project Relicensing.

4. Comments
   As we have commented before in writing and in person, we encourage YCWA to include detailed methodologies in their draft studies for review in their first Study Plan release. We also encourage the licensees to release a draft of both the PAD and the Study Plans in order to engage in early collaborative study development.

Sincerely,

Julie S. Leimbach
Coordinator, Foothills Water Network

Foothills Water Network Yuba-Bear Working Group

Allan Eberhart, Sierra Club - Mother Lode Chapter
Bob Center, American Whitewater
Frank Rinella, Northern Cal Council Federation of Fly Fishers and Gold Country Flycatchers
Gary Reedy, South Yuba River Citizen's League
Jason Rainey, South Yuba River Citizen's League
Brian Johnson, Trout Unlimited
Chris Shutes, California Sportfishing Protection Alliance
Steve Rothert, American Rivers
Ty Gorre, Save Sierra Salmon
Bill Jacobson, Social Alliance Network and Save Sierra Salmon
Jack Sanchez, Save Auburn Ravine Salmon and Steelhead