



December 5, 2014

*Via Overnight Federal Express*

Kimberly D. Bose, Secretary  
FEDERAL ENERGY REGULATORY COMMISSION  
888 – 1st Street, N.E.  
Washington, D.C. 20426-0001

**Subject: Yuba River Development Project  
FERC Project No. 2246-065  
Follow-up from October 28, 2014 Public Meeting  
Supplemental Information**

Dear Secretary Bose:

This original letter, and two complete copies of this letter, are filed with the Federal Energy Regulatory Commission (FERC or Commission) to provide additional information from the Yuba County Water Agency (YCWA) subsequent to an October 28, 2014 public meeting. Specifically, the additional information pertains to whether operations of YCWA's proposed new flood control outlet at New Bullards Bar Dam<sup>1</sup> would exacerbate erosion in the Yuba River near the Narrows 2 Powerhouse. In addition, this letter provides FERC with drafts of two plans that YCWA will finalize and file with the Commission by January 6, 2015. The draft plans are provided because they may contain information useful to FERC at this time. However, the information in and content of the final plans may be different than the information in and content of the draft plans.

## BACKGROUND

On December 2, 2013, YCWA filed with FERC an Updated Study Report in support of its relicensing of the Yuba River Development Project, FERC Project Number 2246 (Project). In response to the Updated Study Report, on January 30, 2014 the United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) filed a request for a new *Evaluation of the Effects of the Shot Rock*<sup>2</sup> in the

<sup>1</sup> YCWA proposed the new flood control outlet in its April 28, 2014 Application for New License – Major Project (Existing Dam) (Application for New License). The flood control outlet is described in the Application for New License in Section 5.1.2.1 of Exhibit A; in Exhibit B; in Section 2.2.1.2.1 in Exhibit E; and in Section 1.2.1 in Appendix E1 to Exhibit E.

<sup>2</sup> One of the purposes of FERC's October 28, 2014 public meeting was to develop a definition of shot rock.

*Englebright Dam*<sup>[3]</sup> *Reach and Associated Impacts to Anadromous Fish and Their Habitats Study*. In addition, in a letter dated January 30, 2014, the Foothills Water Network (FWN)<sup>4</sup> requested a modification to the FERC-approved Study 1.2, *Channel Morphology Downstream of Englebright Dam*, to address shot rock in the Yuba River downstream of Englebright Dam.<sup>5</sup> In a letter dated March 3, 2014, YCWA responded to NMFS' request and FWN's request, and recommended FERC not adopt the requests.

To gain additional information regarding NMFS' and FWN's requests, on October 28, 2014, FERC staff held a public meeting in Sacramento, California. The meeting was attended by stakeholders including YCWA, NMFS and FWN.

At the conclusion of the meeting, FERC staff encouraged interested stakeholders to file with FERC relevant information.

## SUPPLEMENTAL INFORMATION

### Operations of YCWA's Proposed New Flood Control Outlet at New Bullards Bar Dam

During the October 30, 2014 public meeting, there was discussion about whether operation of the existing New Bullards Bar Dam spill gates, or the proposed new flood control outlet would exacerbate erosion in the Yuba River downstream of Narrows 2 Powerhouse. At the meeting, YCWA explained that flood protection was a key reason that New Bullards Bar Dam was built and that New Bullards Bar Reservoir is the only reservoir on the Yuba River designed and operated for flood control. YCWA Project operations during major flood events are coordinated with the California's Department of Water Resources (DWR) Flood Operations Center, DWR Oroville Operations, the National Weather Service and the USACE. The USACE Flood Control Manual for New Bullards Bar Reservoir (USACE 1972)<sup>6</sup> specifies flood releases in a major flood event. The purpose of the proposed new flood control outlet is to better handle flood events of the magnitude of the 1986 and 1997 or larger events. The proposed new flood control outlet would allow additional water to be released in advance of the peak storm runoff in order to reduce peak flow past Englebright Dam and the downstream levees. In a major flood event, the unregulated storm flood flows on the Middle and South Yuba rivers can account for

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<sup>3</sup> Englebright Dam was constructed by the California Debris Commission in 1941. The dam is owned by the United States. When the California Debris Commission was decommissioned in 1986, administration of Englebright Dam and Reservoir passed to the United States Army Corps of Engineers (USACE). The primary purpose of the dam is to trap and contain sediment derived from extensive historic hydraulic mining operations in the Yuba River watershed, and to provide additional storage of sediment if hydraulic mining was reinitiated. The dam and reservoir are not part of YCWA's Yuba River Development Project.

<sup>4</sup> Representatives of multiple non-governmental organizations that signed FWN's January 30, 2014 letter, included FWN, California Sportfishing Protection Alliance, Trout Unlimited, American Whitewater, American Rivers, South Yuba River Citizens League, Sierra Club (Mother Lode Chapter), Northern California Federation of Fly Fishers, and Save Auburn Ravine Salmon and Steelhead.

<sup>5</sup> YCWA notes that the FWN filed additional information regarding its request on December 2, 2014. YCWA has not commented on FWN's letter in this filing, but reserves its right to comment, as appropriate, at a later date.

<sup>6</sup> United States Army Corps of Engineers (USACE). 1972. New Bullards Bar Reservoir Regulation for Flood Control. June 1972.

approximately 50 percent of the flow past Englebright Dam because there are no dedicated flood storage facilities on the Middle and South Yuba rivers.

While YCWA normally operates to avoid spilling Englebright Dam, this is not possible during a flood event because there is too much combined runoff from the North, Middle and South Yuba rivers. Since the proposed new flood control outlet would reduce the peak flood flow past Englebright Dam, YCWA's Proposed Project would not be more erosive.

The remaining discussion of flood protection in this supplemental information package concentrates on the modeled effects of the proposed new flood control outlet, and whether construction of that facility would have the potential to increase erosion in the channel below Englebright Dam.

At the October 28, 2014 meeting, YCWA explained that the YCWA's Proposed Project (Existing) Alternative scenario<sup>7</sup> in its Application for New License showed a general representation of the proposed new flood control outlet's operation, but was too coarse for a detailed evaluation of flow effects. It was modeled such that the proposed new flood control outlet was fully opened almost every time there were spills at New Bullards Bar Dam. YCWA explained that the proposed new flood control outlet's intended use is to mitigate the effects of uniquely high flood events, not every spill.

To better represent YCWA's intended use of the proposed new flood control outlet on a finer scale, YCWA modified the relicensing Water Balance/Operations Model (Ops Model) it used to develop YCWA's Proposed Project (Existing) Alternative in its April 2014 Application for New License, and in a letter dated November 25, 2014, filed with FERC an amendment to its April 2014 Application for New License that included, among other things, the amended Ops Model and resulting YCWA's Proposed Project (Existing) Alternative scenario.

Specifically, the amendment to the Ops Model that related to the proposed new flood control outlet provided the Ops Model the ability to make pre-releases from New Bullards Bar Dam ahead of a large flood event using a 7-day forecast of New Bullards Bar Reservoir inflow volume, if that inflow volume would result in a 125 percent encroachment of the New Bullards Bar Reservoir flood reservation pool, assuming maximum release through New Colgate Powerhouse and no spill releases over those 7 days.<sup>8</sup> The amendment means that, as now

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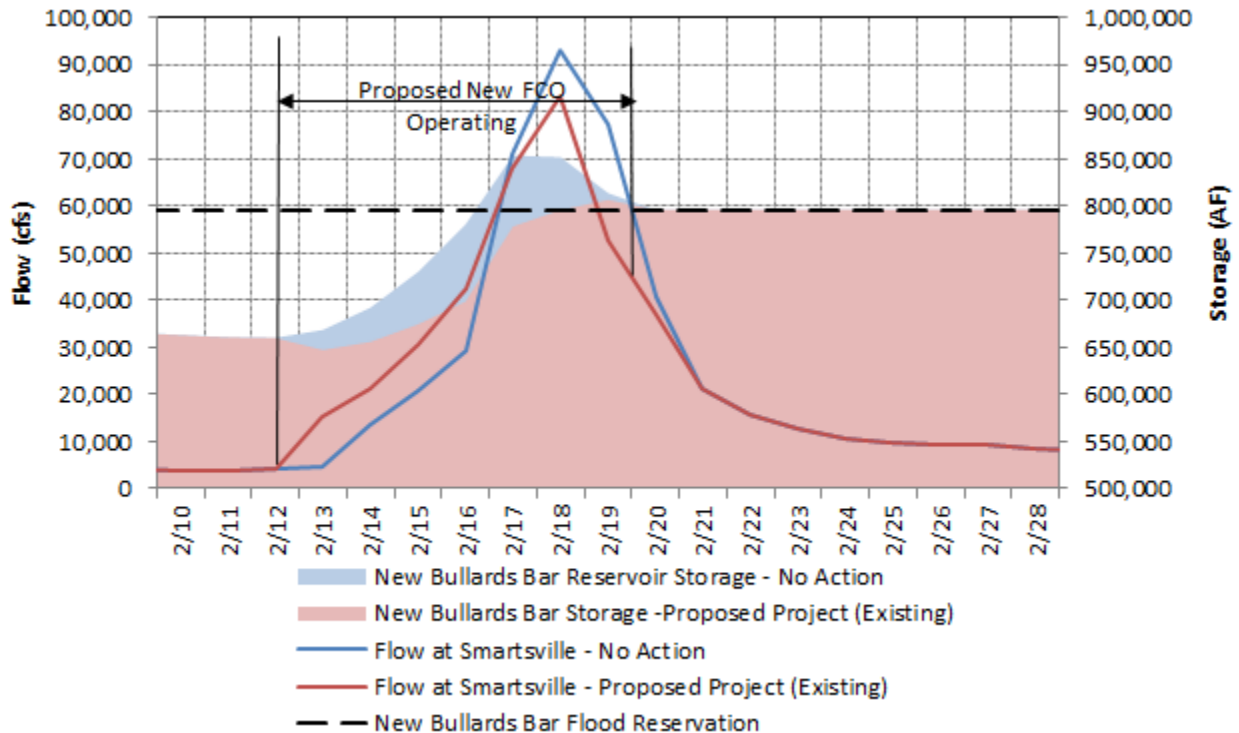
<sup>7</sup> The November 25, 2014 amended Ops Model scenario depicts reservoir elevations and flows under YCWA's Proposed Project if the only changes to the No Action Alternative, the environmental baseline, were the changes proposed by YCWA to the Project in its Application for New License. YCWA's November 25, 2014 letter also amended the No Action Alternative, also sometimes called the Base Case, which is a model run depicting existing conditions, including those for the Project (e.g., existing license conditions and facilities).

<sup>8</sup> As reference, the volume of the New Bullards Bar Reservoir flood reservation pool increases from 0 ac-ft on September 15 to the maximum of 170,000 ac-ft on October 31; later, between March 31 and May 31, the required flood reservation is reduced back to 0 ac-ft, as described in Exhibit B - Table 5.1-1 of YCWA's Application for New License. To make pre-releases in the amended Ops Model during the period of the greatest volume of flood reservation, the 7-day forecast during this period must be for an additional storage in the reservoir of 212,500 ac-ft (i.e., 125% of 170,000 ac-ft), assuming maximum release through New Colgate Powerhouse (i.e., 3,400 cfs) and no spill releases over those 7 days. Prior to October 31, and after March 31, the required flood reservation and 7-day forecast trigger for pre-release would be less.

modeled, the release capacity of the proposed new flood control outlet would only be used under the pre-release scenario, as opposed to the previous Ops Model configuration, that simulated use of the proposed new flood control outlet whenever the New Bullards Bar Dam spillway was used. The revised Ops model configuration for the amendment better represents YCWA's intention when it proposed the new flood control outlet.

The amended Ops Model shows that under the amended YCWA's Proposed Project (April 2014) Alternative scenario, the proposed new flood control outlet is used only twice over the 41-year long hydrology period of record — in 1986 and 1997. These are the very high flood events in which YCWA expects the proposed new flood control outlet would be used. In other years with small to moderate flood events, simulated reservoir levels occasionally enter the flood pool for short periods of time, but this minimal encroachment is consistent with historical YCWA operations during relatively minor spill events, and flood events at these levels are manageable through the existing New Bullards Bar Dam spill gates. YCWA expects historical operations for relatively small flood events to remain consistent in future operations, even with the proposed new flood control outlet in place.

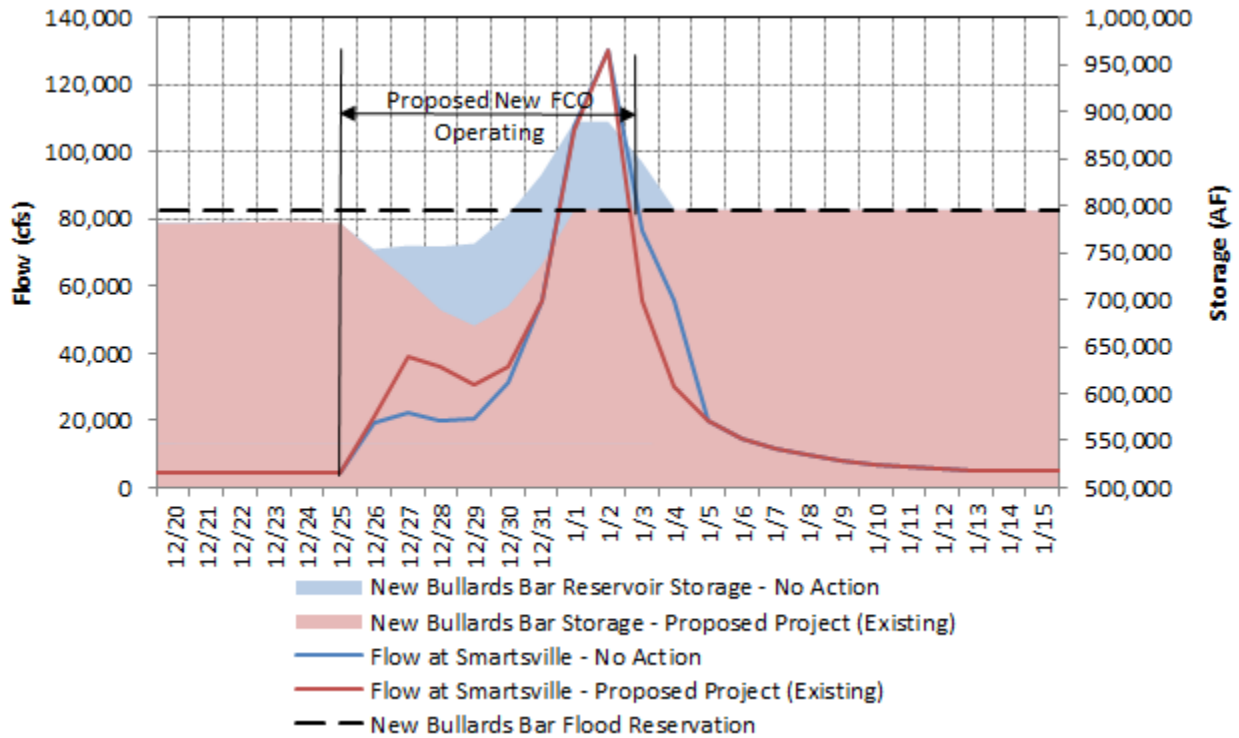
To examine how the proposed new flood control outlet would affect flows at the United States Geological Survey's (USGS) streamflow gage 11418000, *Yuba River Below Englebright Dam, Near Smartsville* (Smartsville gage), which is located about 2,000 feet downstream of the Narrows 2 Powerhouse, YCWA developed Figures 1 and 2. Figure 1 shows for the 1986 flood event (i.e., from February 10 through February 28, 1986) mean daily flows at the Smartsville gage and storage in New Bullards Bar Reservoir under YCWA's Proposed Project (Existing) Alternative scenario and the No Action Alternative scenario. In addition, the figure shows the USACE's New Bullards Bar Reservoir storage flood reservation.



**Figure 1. Simulated New Bullards Bar Reservoir storage and mean daily flow at the Smartsville gage during the 1986 storm event under the amended YCWA Proposed Project (Existing) Alternative scenario and amended No Action Alternative scenario. The blue area shown for the New Bullards Bar Reservoir Storage – No Action represents the storage in the reservoir in addition to the volume shown in red.**

As shown in Figure 1, during the 1986 flood event the peak flow at the Smartsville gage without the proposed new flood control outlet (i.e., No Action Alternative) is 93,168 cubic feet per second (cfs). With the proposed new flood control outlet (i.e., the YCWA’s Proposed Project [Existing] Alternative), the peak of the flow is about 10,000 cfs lower (i.e., 83,382 cfs). Further, Figure 1 shows that with the proposed new flood control outlet, flows are lower than without the proposed new flood control outlet for 4 days. The proposed new flood control outlet, if it had been operating during the 1986 event, would not have exacerbated erosion impacts in the vicinity of the Narrows 2 Powerhouse, and would likely have mitigated some of the impacts.

Figure 2 includes the same information as Figure 1, but for the 1997 flood event (i.e., from December 20, 1996 through January 15, 1997).



**Figure 2. Simulated New Bullards Bar Reservoir storage and mean daily flows at the Smartsville gage during the 1997 storm event under the amended YCWA’s Proposed Project (Existing) Alternative scenario and amended No Action Alternative scenario. The blue area shown for the New Bullards Bar Reservoir Storage – No Action represents the storage in the reservoir in addition to the volume shown in red.**

Figure 2 shows that during the 1997 event, the peak flow at the Smartsville gage without the proposed new flood control outlet is 130,044 cfs. With the proposed new flood control outlet, the peak flow is 130,038 cfs. There is no substantial difference in peak flow or duration of peak flows between the two scenarios because inflow to New Bullards Bar Reservoir was greater than 50,000 cfs. In this situation, the amended Ops Model simulates New Bullards Bar Reservoir as inflow is equal to outflow, as is directed by the USACE’s Flood Control Manual for New Bullards Bar Dam (USACE 1972).<sup>9</sup> In the future, releases could be curtailed to make more efficient use of the flood reservation pool (e.g., YCWA and the USACE could elect to allow reservoir storage to further encroach into flood reservation to reduce the peak release rate); but this is beyond the scope of the amended Ops Model. In the 1997 flood event scenario, the proposed new flood control outlet would not have exacerbated erosion in the Yuba River near the Narrows 2 Powerhouse area.

The timing, recurrence, and duration of use of the proposed new flood control outlet in the simulation results represents YCWA’s intended usage of the outlet. For detailed representation

<sup>8</sup> *Id.*

of reservoir releases and downstream flows, several factors limit the amended Ops Model's representation of historical flood events. Specifically:

- The amended Ops Model is not intended to be a flood operations model. It does not include detailed flood operations of New Bullards Bar Reservoir as described in the USACE's Flood Control Manual.
- Flood operations modeling normally uses an hourly or shorter time step. The amended Ops Model operates on a daily timestep and, therefore, does not capture the intensity or timing of historical flood events.
- The inflow hydrology dataset used for both the No Action and YCWA's Proposed Project (Existing) Alternative modeling is consistent with historical inflows on a long-term scale, and uses historically gaged data when it is available, but the inflow hydrology data set was not developed to perfectly recreate historical flood events. The modeled representation of 1986 and 1997 inflow is substantially lower than corresponding rates during historical events based on estimates of total inflow to New Bullards Bar Reservoir.
- The amended Ops Model logic indicates release of flood events at the maximum allowable rate from New Bullards Bar Reservoir to evacuate storage from the flood reservation pool as fast as possible. Historical and real-time operations consider Middle and South Yuba rivers flows when determining New Bullards Bar Reservoir releases, and reduce the peak flow both below Englebright Dam and at the mouth of the Yuba River by extending the volume or duration of encroachment into New Bullards Bar Reservoir's flood reservation pool.

Each of the factors listed above affects the representation of the resulting magnitude and duration of flood releases in the amended Ops Model as compared to an hourly or shorter time step flood operations model. However the amended Ops Model accurately simulates the number of times the proposed new flood outlet would be expected to be used with a recurrence of the historical hydrology, and the duration of each use. In spite of potential differences between the representation of New Bullards Bar Reservoir flood operations between the amended Ops Model and a flood operations model, the relative effect of the proposed new flood control outlet between the No Action and YCWA's Proposed Project (Existing) alternatives is representative of YCWA's intended use of the valve. By design, the proposed new flood control outlet would not exacerbate peak flows below Englebright Dam; peak flows, and therefore erosion, would be the same or less with the proposed new flood control outlet than without it.

### **Plans in Development**

At the October 28, 2014 public meeting, YCWA mentioned that an October 8, 2014 letter from FERC's Chief (Chief) of the Aquatic Resource Branch of the Division of Hydropower Administration and Compliance directed YCWA to develop two plans, each of which was focused on fish stranding in the Narrows 2 Powerhouse area, and file the plans with FERC by January 6, 2015. The plans were for: 1) *Streambed Monitoring Below Englebright Dam*; and 2)

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*Narrows 2 Facilities Prioritized Operations and Monitoring.* The Chief noted that information from the plans may be useful in the relicensing.

YCWA has developed a draft of each of the plans and provided them to agencies and applicable stakeholders for 30-day review. Written comments on the draft *Streambed Monitoring Below Englebright Dam Plan* are due to YCWA by close of business on December 15, 2014, and written comments on the draft *Narrows 2 Facilities Prioritized Operations and Monitoring Plan* are due to YCWA by close of business on December 23, 2015. YCWA will revise each plan based on written comments received by the due date, and file the plans with FERC by January 6, 2015. If YCWA does not adopt a written proposed change to a plan, it will include in the plan the reason YCWA did not adopt the written proposed change.

The draft plans developed by YCWA includes a characterization of substrate in the Yuba River from Englebright Dam to the Smartsville gage, and a summary of flow magnitudes that inundate portions of that segment of the river channel and that move sediment. The summary is based on detailed information in YCWA's Application for New License.

Since some of the information in the draft plans may be useful to FERC in making its determination regarding NMFS' and FWN's requests, YCWA has attached the draft *Streambed Monitoring Below Englebright Dam Plan* and the draft *Narrows 2 Facilities Prioritized Operations and Monitoring Plan* to this letter (Attachment 1). However, YCWA notes that the final plans that YCWA will file with the Commission on January 6, 2015 may be different than the attached draft plans.

If you have any questions regarding this matter, please contact me.

Sincerely,



Curt Aikens  
General Manager

Attachment (1): November 13, 2014 Draft Streambed Monitoring Below Englebright Dam Plan; and November 22, 2014, Draft Narrows 2 Facilities Prioritized Operations and Monitoring Plan (on CD)

cc: Alan Mitchnick - FERC, D.C.  
Ken Hogan, FERC, DC  
Certificate of Service for Parties on FERC's Official Service List for the Yuba River Development Project (FERC Project No. 2246-065)



**Yuba River Development Project  
FERC Project No. 2246-065  
Follow-up from October 30, 2014 Public Meeting  
Supplemental Information**

**ATTACHMENT 1**

**November 13, 2014 Draft *Streambed Monitoring Below Englebright Dam Plan*;  
and November 22, 2014, Draft *Narrows 2 Facilities Prioritized Operations and  
Monitoring Plan*  
On CD**



**CERTIFICATE OF SERVICE**

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary of the Federal Energy Regulatory Commission in this proceeding (Yuba River Development Project, FERC Project No. 2246-065).

Dated in Sacramento, CA this 5<sup>th</sup> day of December, 2014.



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