

BEFORE THE STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

In the Matter of
Water Quality Certification for the
DeSabla – Centerville Hydroelectric Project

FERC Project No. 803

**COMMENTS OF CONSERVATION GROUPS ON PACIFIC GAS & ELECTRIC
COMPANY’S 2011 ASSESSMENT OF FISH MIGRATION BARRIERS ON THE
WEST BRANCH FEATHER RIVER, SPECIFICALLY IN TERMS OF THEIR
RELEVANCE TO PG&E’S MAY 8, 2015 PETITION FOR RECONSIDERATION OF
THE WATER QUALITY CERTIFICATION FOR THE DESABLA – CENTERVILLE
HYDROELECTRIC PROJECT**

The California Sportfishing Protection Alliance, Friends of Butte Creek, Friends of the River and American Whitewater (collectively, Conservation Groups) respectfully comment on Pacific Gas & Electric Company’s (PG&E) 2011 *Assessment of Fish Migration Barriers on the West Branch Feather River*. PG&E submitted this assessment as an appendix in support of PG&E’s June 1, 2013 Comments on the draft Water Quality Certification for the DeSabla Centerville Hydroelectric Project (Project) .

In an e-mail dated July 13, 2015, Ms. Neva Geldard, a representative of PG&E, requested that staff from the State Water Resources Control Board (State Board), California Department of Fish and Wildlife, National Marine Fisheries Service, U.S. Fish and Wildlife Service, and U.S. Forest Service formally comment on this report. Ms. Geldard provides the following context for this request: “The Water Board has requested formal review and comments in order to take those comments into consideration as they evaluate PG&E’s Petition for Reconsideration of the Water Quality Certification for the DeSabla-Centerville Hydroelectric Project filed on May 8, 2015 in response to the Final 401 Water Quality Certification issued on April 9, 2015.” PG&E did not solicit review and comments from Conservation Groups. However, State Board staff subsequently requested that Conservation Groups provide such review and comments.

1. Statement of Position

The 2011 *Assessment of Fish Migration Barriers on the West Branch Feather River* (“Assessment”) is relevant to the Water Quality Certification for the DeSabla Centerville Hydroelectric Project and to PG&E’s Petition for Reconsideration of that Certification *only* insofar as it is considered in relation to that part of Condition 1(B) in the final Water Quality Certification (Certification) quoted here:

Within one year of license issuance, the Licensee shall submit a plan to the Deputy Director for approval, developed in consultation with the Agencies¹⁰ and BLM, to evaluate the migration corridor between the Hendricks Diversion Dam and Big Kimshew

Creek. The Deputy Director may require modifications as part of the approval. The plan may consider and recommend the installation of a stream habitat enhancement structure, increased stream flows, or other measures to provide resident fish of all life stages with a year-round migration corridor in all water year types.¹

The Board may determine that the Assessment is adequate to evaluate “a year-round migration corridor” in the West Branch Feather River, or may choose to require further evaluation, based on technical evaluation of the report by Board staff and in agency comments. The Board may choose to modify the above-cited portion of Condition 1(B), or the corresponding rationale on p. 9 of the Certification, accordingly. Conservation Groups do not offer an opinion on this limited and distinct issue.

However, the 2011 Assessment of Fish Migration Barriers on the West Branch Feather River is not relevant to Condition 12 of the Certification, which appropriately requires a fish screen and fish ladder at the Project’s Hendricks Diversion on the West Branch Feather River. The fish screen and fish ladder mitigate the design of the Hendricks Diversion and the well documented, large-scale entrainment of fish into the Project’s Hendricks Canal. The effort to leverage the Assessment to support PG&E’s position in its Petition for Reconsideration against the fish ladder at Hendricks Diversion² is misleading and not on point.

PG&E’s proposed fish screen design for the Hendricks Diversion would screen fish out of the Hendricks Canal *after they entered the Canal*, thus returning entrained fish to the West Branch Feather River *downstream* of the Hendricks Diversion Dam. The fish ladder that the Federal Energy Regulatory Commission proposes for inclusion in the new license would allow fish that were entrained into the Hendricks Diversion and subsequently discharged downstream of the diversion to return to the West Branch Feather River *upstream* of the Hendricks Diversion. In the summer and fall, habitat in the West Branch Feather River upstream of the Diversion has greater flow and better water temperature conditions for trout than the West Branch Feather River downstream of the Diversion.

Increasing the summer and fall flow in the West Branch Feather River downstream of the Hendricks Diversion is not an option, because water diverted through the Hendricks Canal is discharged into Butte Creek, where it augments the flow and improves water temperatures for federally listed spring-run Chinook salmon. Installation of the fish screen and fish ladder at the Hendricks Diversion was a carefully negotiated measure to improve the trout fishery in the West Branch Feather River in a way that would not diminish the benefit of water in the Hendricks Canal to spring-run Chinook salmon. This negotiation was substantially orchestrated by FERC staff in a series of meetings and calls in 2008 and 2009. The fish screen and fish ladder were subsequently required in the Forest Service’s revised mandatory conditions for the Project, pursuant to the Forest Service’s authority under Section 4(e) of the Federal Power Act.

We provide additional background and discussion below.

¹ Certification, p. 22.

² PG&E, *Petition For Reconsideration of the Water Quality Certification for the DeSabra – Centerville Hydroelectric Project*, May 8, 2015, pp. 8-9.

2. Background

A. Entrainment into the Hendricks Canal is well-documented and requires mitigation.

Conservation Groups provided, in our June 12, 2013 comments on the Draft Water Quality Certification for the Project, discussion of some of the background of entrainment of fish into the Hendricks Canal.³ The mean annual number of trout (including brown and rainbow trout) removed in fish rescues between 1989 and 2006 was 1565.⁴ It is telling that PG&E does not question the value of a fish screen at the Hendricks Diversion, and does not petition for reconsideration of the measure that requires it.

In its Final EA for the relicensing of the Project, FERC staff describes the need for a fish screen and ladder at the Hendricks Diversion:

In the draft EA, we did not recommend Cal Fish & Game's and FWS' recommendation for the installation of a fish screen and ladder at the Hendricks diversion dam. While resident fish populations within project-affected stream reaches are generally healthy and viable, we recognize that the project entrains fish into project works and therefore is likely affecting the overall density of fish populations within project-affected stream reaches. As such, in the draft EA, we recommended increasing the minimum instream flows downstream of each of the project's mainstem diversion dams to provide additional habitat for the enhancement of resident fish populations within the project-affected stream reaches, including the West Branch Feather River downstream of the Hendricks diversion.

Following review of the agencies response to our section 10(j) preliminary determination and comments on the draft EA, while we continue to conclude that the fish populations in the project-affected stream reaches are viable and generally healthy, we outlined a revised recommendation at the 10(j) meetings that provides protection for fish in the West Branch Feather River downstream of the Hendricks diversion at a reasonable cost consistent with the provisions of the purpose and requirements of the FPA or other applicable law. During the 10(j) meetings, it became evident to us that fish protection on the West Branch Feather River was a priority for Cal Fish & Game. Therefore, our revised recommendation includes provisions for a fish screen and ladder at the Hendricks diversion dam in lieu of increasing the minimum instream flows as we recommended in the draft EA.

... One of the purposes of operating a fish ladder at the Hendricks diversion would be to provide resident fish access to thermal refuge in the upper watershed, of particular importance during dry years. With this in mind, during the June 29, 2009, section 10(j)

³ http://www.swrcb.ca.gov/waterrights/water_issues/programs/water_quality_cert/docs/desabla/conservgroups.pdf, pp. 36-38, pdf pagination. See also Conservation Groups' comments on Ready for Environmental Analysis, cited as a reference in the Certification.

⁴ PG&E, *Final License Application for the relicensing of the DeSabra – Centerville Hydroelectric Project*, eLibrary no. 20071004-0210, p. E6.3-187.

meeting, we recommended, in lieu of providing dry year flows of 15 cfs below Hendricks diversion dam, that PG&E develop, after consultation with the agencies, a fish passage and screen plan that would address the design and operational criteria for a fish screen and ladder at the Hendricks diversion dam...⁵

B. The particular configuration of the Hendricks Canal diversion works are important to understand in evaluating the need for a fish screen and a fish ladder at the Hendricks Diversion.

The Hendricks Diversion Dam is a 15 foot tall concrete structure across the West Branch Feather River, with a notched spillway 98 feet wide. The diversion headworks are located on the dam near river right. At high water, water spills over the diversion dam. (See Figure 1, right side of the photo). At lower flows typical of summer operation, the West Branch ceases spilling over the dam, and the entire flow of the West Branch is diverted into the Hendricks Canal at the headworks (Figure 2). Under non-spill conditions, some of the water that was previously diverted into the Canal is released as the bypass flow from a side-gate several hundred feet down the Canal from the headworks (Figure 3 top view and Figure 4 bottom and side view). This operation completely separates the West Branch Feather River upstream and downstream of Hendricks Diversion Dam.

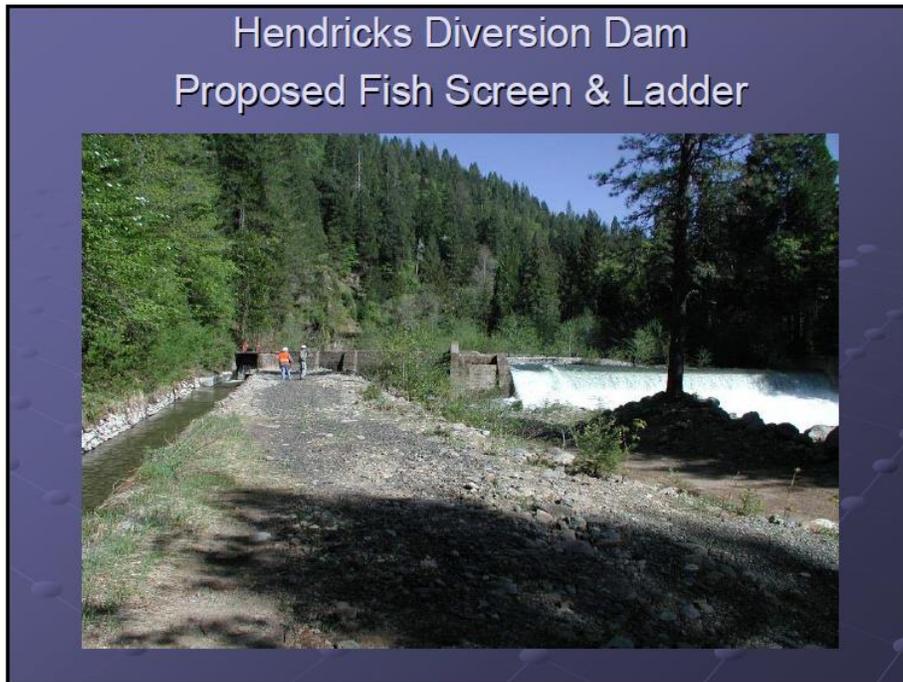


Figure 1: Hendricks Diversion Dam during high spring flow⁶

⁵ FERC, *Final Environmental Assessment for the relicensing of the DeSabra – Centerville Hydroelectric Project*, eLibrary no. 20090724-4002, pp. 5-65 to 5-66.

⁶ Source: Final License Application, Appendix E6.3.2.4-C.

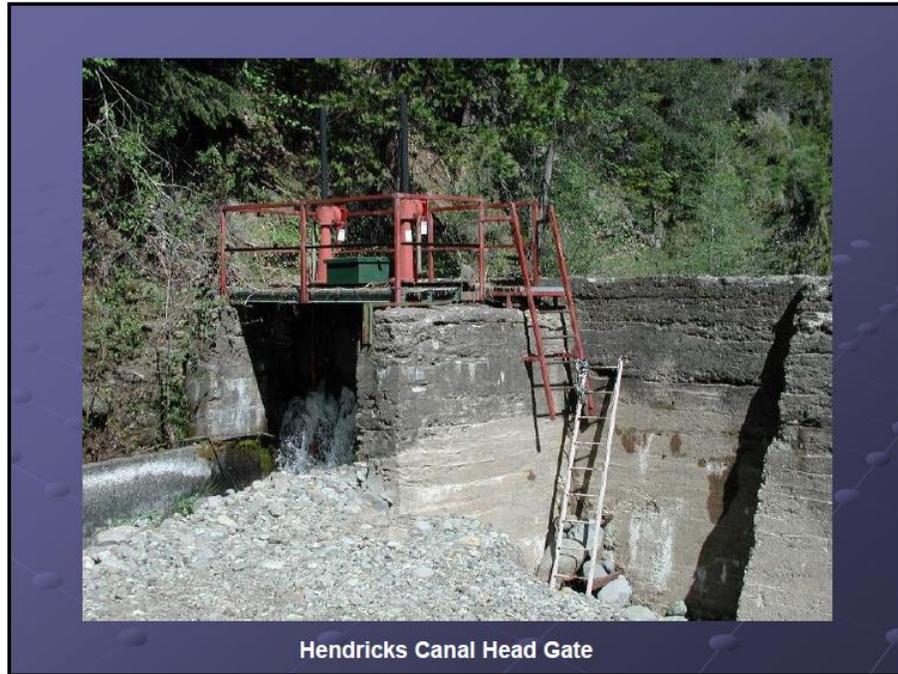


Figure 2: Hendricks Canal Head Gate⁷



Figure 3: Hendricks Canal just downstream of Hendricks Diversion Dam: top view of works where bypass flow is released back into the West Branch Feather River. Photo by Chris Shutes.

⁷ *Id.*



Figure 4: Hendricks Canal just downstream of Hendricks Diversion Dam: side and bottom view of works where bypass flow is released back into the West Branch Feather River. Photo by Chris Shutes.

Under all circumstances, the combined works constitute a complete barrier to upstream fish passage. In addition, once fish enter the Hendricks Canal, the velocity of the water at the headworks as it enters the canal is too great to allow fish to escape from the Canal back into the river. Finally, fish that are discharged into the West Branch from the side gate in the instream flow release are unable to re-enter the Canal.

C. There are four potential sources of resident trout in West Branch Feather River immediately downstream of Hendricks Diversion under current conditions.

There are four potential sources of resident trout in the West Branch Feather River immediately downstream of Hendricks Diversion under current conditions. The sources are: 1) Trout that live and reproduce in the reach. 2) Trout that are swept over the diversion dam during high water. 3) Trout that are entrained into the Hendricks Canal and then depart the Canal through the works for the bypass flow that is released out of the canal. 4) Trout that migrate up the West Branch Feather River from some point downstream. Fish in any of these groups may have originated in either the mainstem or tributaries.

PG&E's Petition for Reconsideration addresses only fish that migrate from a point downstream. PG&E suggests that upstream passage past natural barriers between Big Kimshew Creek to the Hendricks Diversion is likely limited or impossible in multiple locations. PG&E thus concludes: "Therefore, a fish ladder to enable fish to migrate upstream of Hendricks Diversion Dam serves no purpose whatsoever. Since fish cannot reach Hendricks Diversion Dam

due to natural barriers, the requirement to construct and operate a fish ladder should be deleted.”⁸ PG&E does not address the need for upstream passage for fish swept over the Hendricks Diversion Dam or entrained into the Hendricks Canal and then discharged into the West Branch along with the bypass flow. PG&E also does not address the need for upstream passage for fish that live for somewhat extended periods in the reach more or less immediately downstream of Hendricks Diversion.

D. The fish screen that PG&E will install at Hendricks Diversion as a condition of the new license will increase the number of fish that are moved into the West Branch downstream through the headworks and the upper end of the canal.

In two separate appendices to the Final License Application for the DeSabra – Centerville Project, PG&E provided drawings of a fish screen for the intake of the Hendricks Canal. In each case, the drawings show that the screen will be configured such that fish are not prevented from entering the canal. Rather, those fish that do enter the canal will be screened into the bypass flow and then discharged into the West Branch Feather River downstream of Hendricks Dam. See Figures 5, 6 and 7 below.

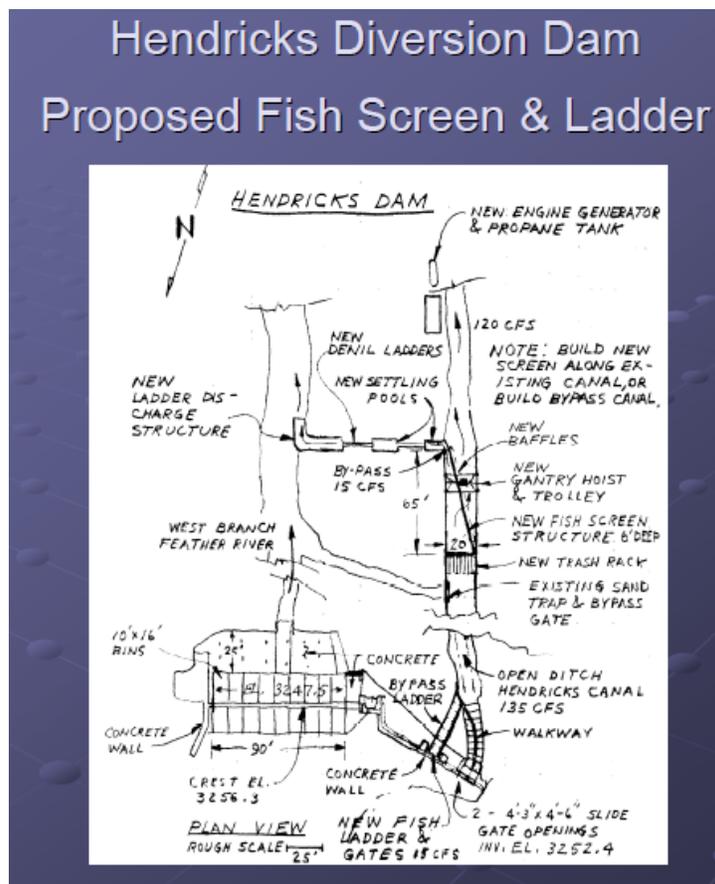


Figure 5: Plan view of Hendricks fish screen and ladder⁹

⁸ PG&E Petition for Reconsideration, p. 9.

⁹ Source: Final License Application, Appendix E6.3.2.4-C.

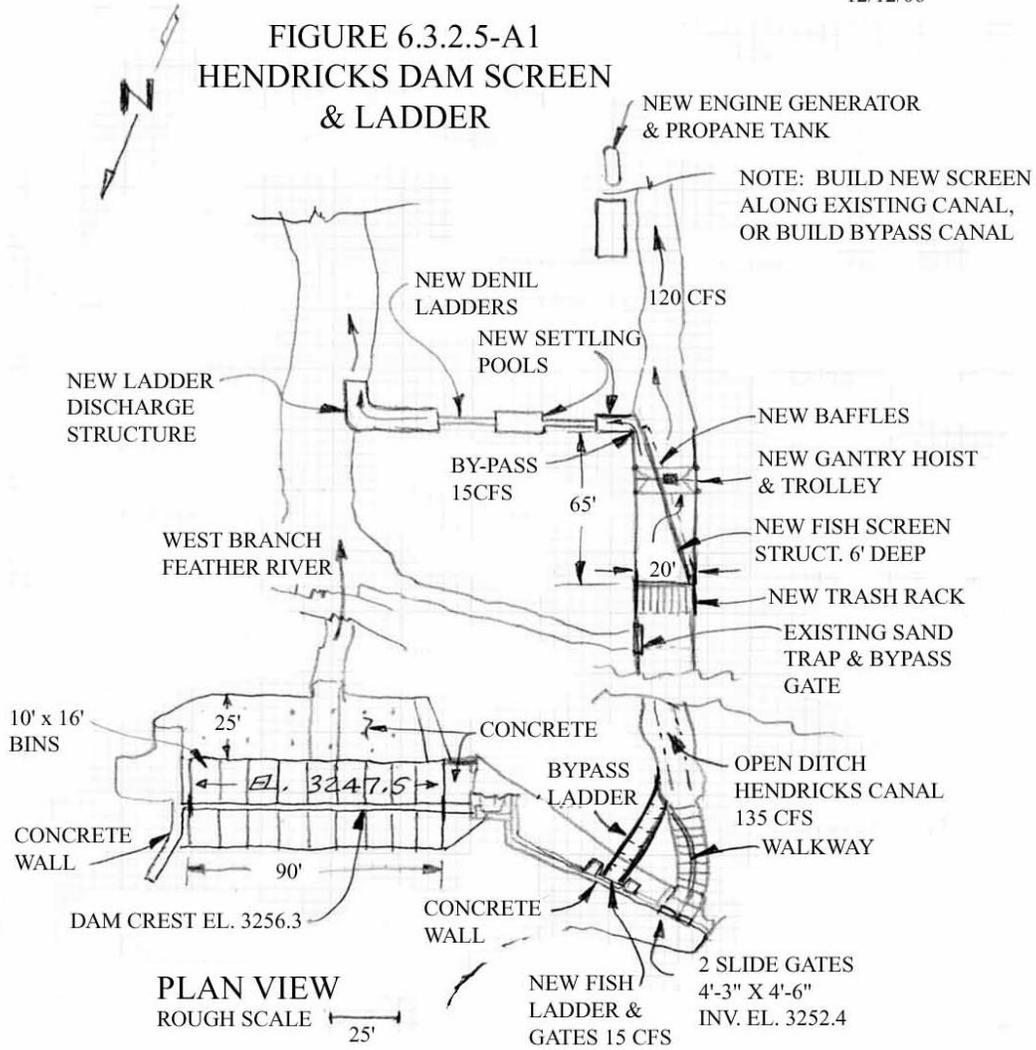
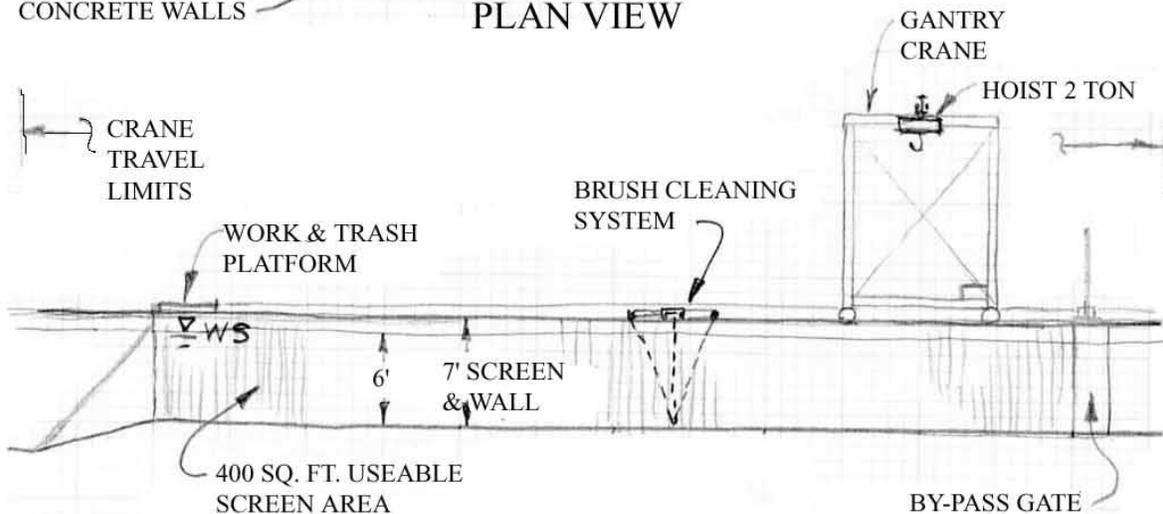
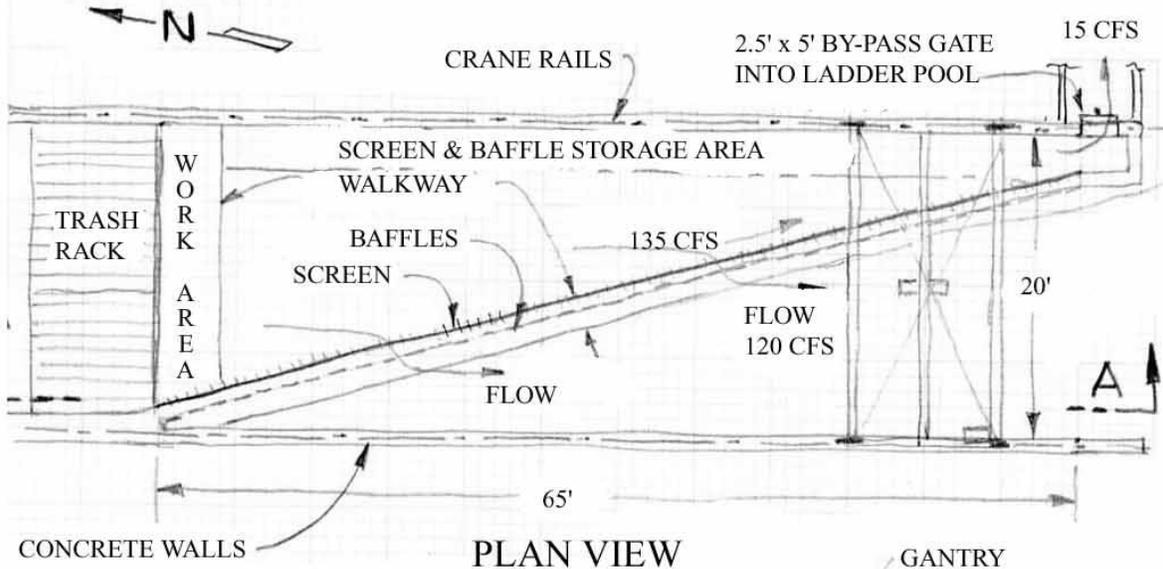


Figure 6: Plan View of Hendricks fish screen and ladder.¹⁰

¹⁰ Source: Final License Application, Appendix 6.3.2.5-A.

FIGURE 6.3.2.5-A2
HENDRICKS DAM-PROPOSED FISH SCREEN PLAN & SECTION



NOTE: SCREEN & BAFFLES ARE CONSTRUCTED IN 4' WID REMOVABLE PANELS.

SECTION A-A

SCALE: 0' 5' 10'

DeSabra-Centerville Project, FERC No. 803, 2007, Pacific Gas and Electric Company

Figure 7: Plan view of Hendricks fish screen¹¹

¹¹ *Id.*

To our knowledge, PG&E has not modified its proposed designs for a fish screen and fish ladder at Hendricks Diversion and Hendricks Canal. PG&E has not provided additional drawings in either the FERC docket for the relicensing or to the State Board. As explained during relicensing, the absence at relatively lower flows of water flowing past the intake makes a more conventional screen design, which would keep fish out of the Hendricks Canal altogether, ineffective.

A consequence of this fish screen design is that in the future, there will be hundreds if not thousands of fish that are discharged each year into the West Branch Feather River. In the past, these fish would simply have been entrained further down into the Hendricks Canal.

3. Discussion

A. A fish ladder is needed at Hendricks Diversion to mitigate for the combined project effects of entrainment and blockage of upstream fish passage by Hendricks Diversion Dam and associated works.

Hundreds of fish are annually rescued from the Hendricks Canal during the annual canal outage. There is no doubt that many of these fish are entrained by project facilities at Hendricks Diversion Dam. PG&E has not opposed screening this diversion.

Upstream fish passage is blocked by Hendricks Diversion Dam. Fish downstream of the diversion dam, whether they are resident to the area downstream of the diversion dam, have migrated upstream to the area downstream of the diversion dam,¹² are swept over the diversion dam at high flows, or are entrained into Hendricks Canal headworks and then discharged into the West Branch Feather River downstream of the diversion dam, are unable to return upstream past the diversion dam. These are project effects that need to be mitigated and which are unaffected by the ability of trout to migrate in an upstream direction from points downstream of the Hendricks Diversion Dam.

B. The Assessment is inconclusive about the connectivity of several miles of West Branch Feather River for upstream trout migration, because the identified complete barrier at River Mile 27.5 was not surveyed at high flows.

PG&E, in citing to the Assessment, appears to argue that there is no value in passage at higher flows if upstream migration past various partial barriers is not possible at lower flows.¹³ While trout in some locations downstream of Hendricks Diversion may not be able to find thermal refugia upstream of Hendricks by moving upstream during the summer, the opportunity to redistribute for whatever reason during high flow periods may improve the overall condition of the fishery in the West Branch Feather River. The migration period that is associated with brown trout spawning is in the fall. The migration period that is associated with rainbow trout

¹² The first barrier downstream of Hendricks Diversion Dam (RM 29.2) that the Assessment identifies as a potential complete barrier for upstream passage is at RM 27.5. Assessment, p. 9. Thus, there is at least 1.7 miles of trout habitat from which trout could at least sometimes migrate upstream to Hendricks Dam.

¹³ This would presumably be one of those conditions for which passage “serves no purpose whatsoever,” as quoted above from the Petition for Reconsideration, p. 9.

spawning is in the spring, generally the period of highest flow in the West Branch Feather River. Trout that were able to migrate upstream to and past Hendricks Diversion Dam during periods of high flow would have the opportunity to be in improved flow and water temperature conditions in the habitat upstream of the dam.

The Assessment did not perform a first-hand evaluation of the hypothesized complete fish passage barriers at RM 27.5 and RM 24.4 during high flows. PG&E has not performed such an evaluation or announced an intention to do so. However, the Assessment is equivocal on whether the barrier at RM 27.5 is a high flow barrier, regarding which it says: “It is expected that passage ability would not improve with lower flows; however, as flows increase, the vertical drop (i.e., fish jumping height) has the potential for reduction, which may allow passage.”¹⁴ A general protocol for a fish barrier evaluation is to return to suspected barriers at high flows if there is any uncertainty about upstream passage following an evaluation at low flows. This approach was recently adopted, for instance, by consultants to the Turlock Irrigation District and Modesto Irrigation District in an evaluation of fish passage barriers in the Tuolumne River and tributaries upstream of Don Pedro Reservoir being conducted in the licensing of the La Grange Project.¹⁵

4. Conclusion: the Certification should continue to require a fish ladder as well as a fish screen at Hendricks Diversion

PG&E’s request that the Board eliminate the requirement for a fish ladder at Hendricks Diversion Dam is not warranted by the facts. Condition 12 of the Certification should stand. Many of the relevant facts are not addressed in the Assessment at all, and in their absence PG&E’s reliance on the Assessment as adequate to support removal of the requirement for a fish ladder at Hendricks Diversion is misleading.

Conservation Groups believe that the need for any further evaluation of the migration corridor on the West Branch Feather River between Big Kimsheew Creek and Hendricks Diversion Dam should be worked out between State Board staff, other resource agencies, and the licensee. The Board may choose to modify the portion of Condition 1(B) cited in the first section of these comments above, or the corresponding rationale on p. 9 of the Certification, accordingly. Conservation Groups do not offer an opinion on this limited and distinct issue.

Thank you for the opportunity to comment on the 2011 *Assessment of Fish Migration Barriers on the West Branch Feather River*.

Dated August 10, 2015.

¹⁴ Assessment, p. 32.

¹⁵ See *Upper Tuolumne Basin Barrier and Habitat Study Plan*, eLibrary 20150731-5186, esp. p. 10: “It is recognized that river hydraulics are a significant influence on upstream fish passage and the ability for a fish to pass a barrier is variable and can change seasonally. Higher seasonal flow events may increase plunge pool depths and reduce barrier heights when a certain species or a select portion of a fish population are present and actively migrate upstream.”

Respectfully submitted,



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