



FOOTHILLS WATER NETWORK

April 10, 2017

Ms. Kara Hellige
U.S. Army Corps of Engineers
1325 J Street, Room 1350
Sacramento, CA 95814-2922

Sent via email to CESPKCentennialReser@usace.army.mil and via U.S. mail

Re: Comments on the Notice of Intent to Prepare a Draft Environmental Impact Statement for the Centennial Reservoir Project

Dear Ms. Hellige:

The Foothills Water Network (FWN or Network) and its member organizations respectfully respond to the Notice of Intent (NOI) to Prepare a Draft Environmental Impact Statement (DEIS) for the Centennial Reservoir Project (Proposed Action) prepared by the United States Army Corps of Engineers (Corps).¹ The Foothills Water Network represents a broad group of non-governmental organizations and water resource stakeholders in the Yuba River, Bear River, and American River watersheds. The overall goal of the Foothills Water Network is to provide a forum that increases the effectiveness of non-profit conservation organizations to achieve river and watershed restoration and protection benefits for the Yuba, Bear, and American rivers.

The Network is concerned that Nevada Irrigation District's (NID) Proposed Action will have significant environmental impacts on the Bear and Yuba River watersheds and surrounding communities. We recommend that the Corps consider the following issues in preparing the Draft Environmental Impact Statement (DEIS) to ensure compliance with the National Environmental Policy Act (NEPA).

I. **The DEIS must articulate a clear purpose and need statement that facilitates a robust alternatives analysis.**

NEPA requires federal agencies to articulate the “purpose and need” for a proposed action for which environmental review is required. 40 CFR 1502.13. The articulation of a purpose and need statement is critical for a properly framed and robust alternatives analysis – the “heart” of NEPA

¹ 82 Fed. Reg. 10347 (February 10, 2017).

– because only a sufficiently broad statement will allow full development of an adequate range of alternatives that enables the EIS to provide “a clear basis for choice among options by the decision-maker and the public.”² Given the importance of this statement, it bears emphasis that the Corps must not define the purpose and need statement in such a manner that it precludes a less environmentally damaging practicable alternative to achieve the Proposed Action’s purposes.³

The NOI notes that the Proposed Action is to “provide drought and climate change mitigation, meet projected future water supply needs, and improve water supply reliability for NID’s customers.” The Corps is preparing this DEIS to determine whether the Proposed Action complies with the U.S. Environmental Protection Agency’s (EPA) 404(b)(1) guidelines,⁴ whether to issue a 404 permit for the Action and what conditions to place in any permit the Corps may issue. Importantly, the EPA 404(b)(1) guidelines specify that the Corps may not issue a permit if there is a “least environmentally damaging practicable alternative” (LEDPA) that would achieve the Proposed Action’s purpose without issuance of such a permit.⁵ In other words, in order for the Corps to issue a permit for the Proposed Action, it must find that the Action as proposed is the LEDPA.

Accordingly, the purpose and need statement should direct the DEIS to meaningfully consider all reasonable alternatives that allow the public and decision-makers the opportunity to compare the costs and benefits of various actions toward meeting the Proposed Action’s overarching goals of mitigating the effects of climate change and drought mitigation on NID’s water supply reliability and future water supply with an eye toward actions that will be less environmentally damaging. The Corps should define the purpose and need such that it does not preclude a finding that NID can meet the Proposed Action purposes through actions that do not require the issuance of a Corps permit. Accordingly, the Network’s comments detail a number of actions and strategies which, when bundled together, may obviate the need for the Proposed Action as NID has defined it.

A statement of project objectives should accompany the purpose and need statement, as is custom in many NEPA documents. Measurable project objectives allow a ready mechanism for the Corps to assess whether and to what degree the stated alternatives meet the purpose and need. The Corps should verify the completeness and accuracy of information provided by NID as the Corps considers the details of its purpose and need and objectives statements. For instance, the Corps should not accept at face value the water demand projections proffered by NID in various documents as justification for the Proposed Action. Acceptance of NID’s representations of water demand and project need may create an artificially high barrier for accurate and meaningful evaluation of the “no action” or other alternatives to the Proposed Action. Rather,

² See, e.g., *Simmons v. U.S. Army Corps*, 120 F.3d 664 (7th Cir. 1997); *Davis v. Mineta*, 302 F.3d 1104, 1118 (10th Cir. 2002); see also 40 CFR 1502.14.

³ *City of Carmel-by-the-Sea v. United Dep’t of Transp.*, 123 F.3d 1142, 1155 (9th Cir. 1997).

⁴ 40 C.F.R. 230.

⁵ 40 C.F.R. 230.10(a) states that a 404 permit will not be issued “if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant environmental consequences.”

the Corps must verify the completeness and accuracy of NID's demand projections to evaluate the need for the Proposed Action.

The NOI suggests that the Corps will consider a number of water supply options, including alternative dam sites and types, as alternatives in the DEIS. The NOI also suggests that additional alternatives may include urban and agricultural water conservation and efficiency measures. The Network understands that the NEPA process guides participants toward consideration of conservation and efficiency actions as alternatives. However, it is the Network's view that the Corps should more properly consider conservation and efficiency as "conditions precedent" to processing the permit application. Indeed, recent technical guidance from EPA (*Best Practices for Water Conservation and Efficiency as an Alternative for Water Supply*) recommends that permitting agencies conduct "assessments of the potential for future water conservation and efficiency savings that could avoid or minimize the need for new water supplies."⁶ Accordingly, the Network suggests that the Corps analyze the degree to which NID has implemented or planned to implement the best practices outlined in EPA's Best Practices Document, to determine whether or not it is premature for the Corps to process NID's permit application. Alternatively, the Corps could analyze these best practices or non-structural approaches to meeting the purpose and need as a "modified no action" alternative in the DEIS.

II. Prior to processing NID's permit application, the Corps should require NID to evaluate water conservation and efficiency as an alternative to the proposed Centennial Reservoir.

NID has not meaningfully undertaken the integrated water management strategies described in EPA's Best Practices Document. NID has not undertaken a credible evaluation of the potential for these best practices to address the stated purpose of the Proposed Action to increase resiliency and security in the local water supply in the face of drought, climate change, and currently planned growth. This evaluation may eliminate the need for the Proposed Action or reveal that a significantly reduced action is sufficient to achieve the stated purposes.

Prior to analyzing the Proposed Action, the Corps should require this evaluation, including an analysis of a full suite of non-structural strategies such as those outlined in the Best Practices Document. These strategies include:

- Optimizing existing water supply through supply and demand side accounting;
- Optimizing existing infrastructure investments through water loss minimization;
- Universal metering, including sub-metering for all municipal and agricultural water users;
- Implementing water rates that reflect the cost of providing water, to the fullest extent allowable under California law;

⁶ USEPA has overlapping NPDES permitting authority with the Corps. See USEPA, [Best Practices for Water Conservation and Efficiency as an Alternative for Water Supply](https://www.epa.gov/sites/production/files/2016-12/documents/wc_best_practices_to_avoid_supply_expansion_2016_508.pdf), EPA-810-B-16-005, December 2016. ("EPA Best Practices Document"), available at https://www.epa.gov/sites/production/files/2016-12/documents/wc_best_practices_to_avoid_supply_expansion_2016_508.pdf

- Full deployment of municipal and agricultural water conservation and efficiency measures, at a level that exceeds the minimums set by California law and policy.

The Network identifies specific elements of each of these strategies in the Alternatives sections below.

III. The DEIS must include an adequate range of reasonable alternatives to the Proposed Action and identify the least environmentally damaging practicable alternative.

NEPA requires agencies to:

study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.” This requirement ... seeks to ensure that each agency decision maker has before him and takes into proper account all possible approaches to a particular project ... which would alter the environmental impact and the cost-benefit balance.

42 U.S.C. § 4332(2)(D).⁷ An EIS must include those reasonable alternatives that “are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant.”⁸ Further, “reasonable alternatives” are not limited to those that contain all elements of the proposed action.⁹ “A ‘viable but

⁷ Calvert Cliffs' Coordinating Committee, Inc. v. U. S. Atomic Energy Commission, 449 F.2d 1109, 1114 (D.C. Cir. 1971). Further, NEPA section 102(2)(E) requires that the federal lead agency “study, develop, and describe appropriate alternatives to recommended course of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources...” 42 U.S.C. § 4332(2)(E). The duty to consider alternatives under NEPA 102(2)(E) is “at least as broad” as the duty under NEPA section 102(2)(C)(iii). The purpose is “to insist that no major federal Action should be undertaken without intense consideration of other more ecologically sound courses of action, including shelving the entire Action or of accomplishing the same result by entirely different means.” Environmental Defense Fund v. U.S. Army Corps of Engineers, 492 F.2d 1123 (5th Cir. 1974); see Mandelker, *supra* § 9:22, p. 9-53.

⁸ CEQ, “Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations,” 46 Fed. Reg. 18026 (Mar. 23, 1981) (hereafter, “Forty Questions”), Question 2a.

⁹ Daniel R. Mandelker, NEPA Law and Litigation (Thompson West 2003), § 9:18, p. 9-43. Indeed, under administrative practice and case law,

[a]lternatives can be divided into primary and secondary categories:....

A primary alternative is a substitute for agency action that accomplishes the action in a different manner. Increased coal production is a primary alternative to the construction of a nuclear power plant....Agency opponents presenting a secondary alternative concerned that the agency action is necessary but suggest that it be carried out in a different manner. They may offer a secondary alternative that requires a different location for a project, or project changes that mitigate harmful environmental impacts.

Id.

unexamined alternative renders [the] environmental impact statement inadequate.”¹⁰ Additionally, the EPA 404(b)(1) guidelines specify that the Corps must find that the Proposed Action is the least environmentally damaging practicable alternative (LEDPA) to achieve the Action’s purpose.¹¹

In order for the Corps to make a reasoned choice among alternatives and properly ascertain which is the least environmentally damaging, the DEIS should select a range of alternatives that will allow the Corps to understand the potential contribution of specific types of actions, viewed in isolation, toward advancing the Proposed Action’s goals as well as the specific costs of each action. For example, one of the goals of the Proposed Action is meeting NID’s future water supply needs. The DEIS must therefore evaluate alternatives such as urban water conservation actions that would allow NID to meet its projected future water demand, because this may be less environmentally damaging than constructing a new reservoir. The DEIS should provide similar analysis for each alternative against each of the needs, purposes, and objectives of the Proposed Action.

The DEIS should also include a “Modified No Action Alternative” that evaluates practicable combinations of strategies necessary to meet the needs, purposes, and objectives of the Proposed Action while reducing the scale or need for the Proposed Action. The Modified No Action Alternative and analysis should allow the Corps to assess whether NID can meet the needs, purposes, and objectives of the Proposed Action through upgrades and improved management of the existing system, conservation program investments, implementation of watershed and forest management actions, and pricing programs. The Corps should analyze whether the Modified No Action Alternative is the least environmentally damaging practicable alternative when compared to the construction of Centennial Reservoir.

A. No Action Alternative

The No Action Alternative should describe the state of the environment if no changes to existing actions are taken pursuant to this NEPA document. Under the No Action Alternative, NID will not pursue the Project, and will continue to achieve the stated goals of the Proposed Action with its existing water infrastructure and management practices.

B. Modified No Action Alternative

Under this alternative, the Corps should consider a full suite of non-reservoir options for NID to achieve the Project objectives in a manner which eliminates, or substantially reduces, the need for the Proposed Action. The Network identified many of the strategies and analyses suggested below as “conditions precedent” to the demonstration of need for the Proposed Action in sections

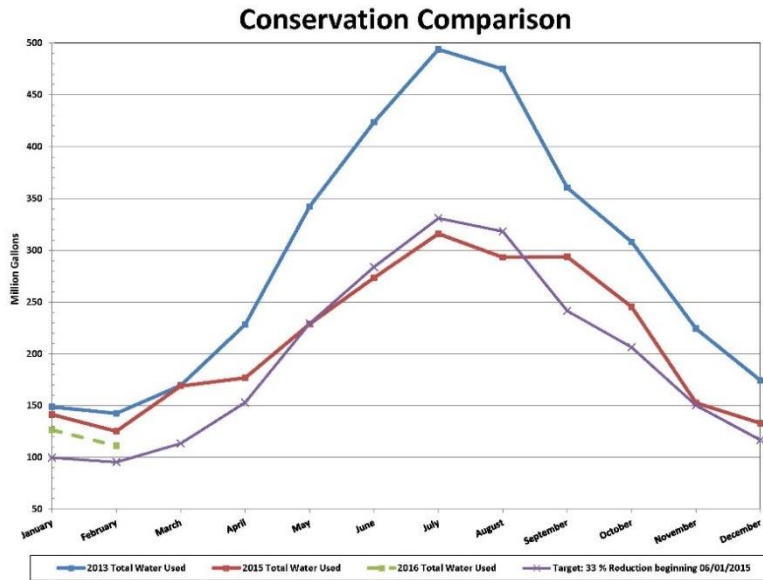
¹⁰ *Muckleshoot Indian Tribe, supra*, 177 F.3d at 814 (quoting *Citizens for a Better Henderson v. Hodel*, 768 F.2d 1051, 1057 (9th Cir. 1985)) (emphasis added).

¹¹ 40 C.F.R. section 230.10(a) states that a 404 permit will not be issued “if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant environmental consequences.”

above *supra* p. 3.¹² Strategies within the Modified No Action Alternative must be considered jointly (in total together) and severably (if one or more strategy is determined to be impracticable or otherwise without merit its exclusion would not affect the joint consideration of the remaining strategies). The Network recommends that the strategies identified below be considered as components of a Modified No Action Alternative.

1. Urban Water Conservation Strategy

The Corps should evaluate the ability of urban water conservation actions to meet the Proposed Action goal of assisting NID to meet its current and future water demand. The 2010 NID Urban Water Management Plan (UWMP) states: “NID’s 2008 through 2010 average GPCD was 236 GPCD.” The graphic below illustrates the extent of domestic water savings by NID customers during drought conditions in 2015. Compared to 2013, NID urban customers conserved about one billion gallons, or about 3,000 acre feet.

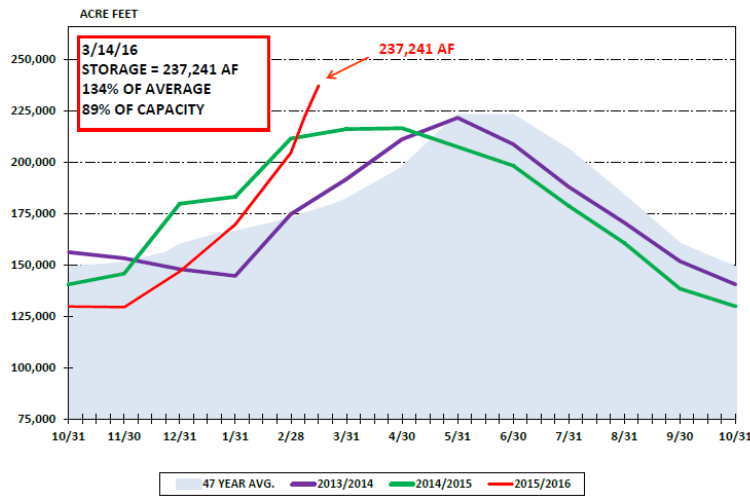


Judging from the PowerPoint presentation “Water Supply Update (March 23, 2016 Board Meeting)”, NID’s current water storage situation is far better than in 2015.¹³

¹² See actions identified on p.3.

¹³ http://nidwater.com/wp-content/uploads/2014/01/2013_2015_Conservation_Comparison-e1434746563215.jpg

NID RESERVOIR STORAGE



These graphics do not minimize the impact of the drought. They do however illustrate that NID and its customers have the ability to respond effectively to a significant drought with the infrastructure and practices in place today. Saving 3,000 acre feet in the midst of the drought indicates that urban water conservation can be a significant contribution to meeting the stated purpose of the Proposed Action.

2. Water Demand Management Strategy

The Corps must evaluate the water supply and security gains of a suite of actions that optimize existing operations and reduce demand thereby contributing toward the Proposed Action goal. Illustrative examples of such strategies include, but are not limited to:

- a. **Establish goals to reduce water consumption.** NID should implement a plan to reduce water consumption through long-term, iterative water conservation programs. NID does not currently have such a program, and its residential and agricultural water usage is significantly higher than peer utilities as a result.
- b. **Increase public understanding.** Equip water consumers with information about the cost of their water, rate structure, own water use patterns, and smart, simple water efficiency solutions. Information should include the full cost of operating, maintaining and upgrading the system, so when rates are restructured, there is a basic understanding of how NID derives rates.
- c. **Involve water users in decisions.** Identify opportunities for significant water savings by involving water consumers and encouraging higher rates of efficiency in the user base.
- d. **Improve the integration of resource management.** Better integrate water, wastewater, stormwater, and energy.

3. Efficient Water Use Strategy

The Corps should evaluate the water supply and resiliency gains of actions that conserve water as an alternative to “new” Centennial water. The alternative should consider appropriate market incentives that will encourage more efficient use of water and protect sources of water.

- a. **Eliminate water loss to the full extent technically and economically feasible.** NID’s loss control efforts have yet to achieve industry best-practice levels of revenue/non-revenue water.
- b. **Meter all water users.** Installing meters on unmetered customers is one of the single most effective water conservation measures.
- c. **Build smart for the future.** NID should work with local agencies to adopt building codes and ordinances to support or require the use of the most water efficient technologies in both new construction and existing buildings. NID should consider water efficient fixtures, gray water use, and water efficient landscape requirements.
- d. **Harvest rainwater for non-potable needs.** NID should incentivize capture and reuse of stormwater for non-potable purposes in all new construction (homes, commercial, industrial and institutional development, neighborhood development, etc.). On-site collection and use of rainwater can significantly offset the use of developed, potable water and raw water for landscape, gardening, and other outdoor purposes. With proper incentives and guidance, private property owners within the NID service area can collect and store winter and spring precipitation for late spring and summer use.
- e. **Retrofit existing buildings.** NID should work with the local jurisdictions and fund programs to ensure that buildings are retrofitted with water efficient fixtures. NID should provide effective incentives to spur installation of water efficient fixtures and appliances by residential and commercial water users.
- f. **Landscape to minimize water waste.** The DEIS should evaluate the potential for NID to work with local agencies to separately meter large users of irrigation water and implement a pricing structure that encourages efficiency, including rain and moisture sensors for irrigation systems and the use of native and drought-tolerant plants. The DEIS should evaluate the cost-effectiveness of incentives for turf-removal and irrigation efficiency to reduce total outdoor water use compared to the cost of water provided by the Proposed Action, as a portion of overall capital and O&M costs.
- g. **Eliminate ditch-end spill.** The DEIS should examine the potential water savings that can be realized by controlling ditch end spills. Preliminary evidence suggests that approximately 10% of agricultural water, in this case 11,100 af/year, is spilled in this manner. The DEIS should evaluate spillage from NID’s major distribution conveyances to determine which could most benefit from control measures such as

Total Channel Control (Rubicon Technologies with Oakdale Irrigation District) or other comparable technologies.¹⁴

- h. **Reuse treated wastewater.** NID inaccurately maintains that it makes full use of its recycled water. In fact, water discharged from local POTWs is simply mingled with existing in-stream flows for diversion lower in the watershed. The DEIS should analyze whether intentional reuse, either indirect or direct, can partially allow NID to meet the stated Proposed Action purposes.
- i. **Reuse graywater.** The DEIS should examine the potential for greywater systems, as they are permitted under local and state law, to satisfy portions of the raw and municipal water demand for landscaping and residential gardens.
- j. **Integrate multiple use into stormwater permits.** The DEIS should evaluate the potential for water gains achievable through modified stormwater permits that incorporate measures to restore urban watershed stream hydrographs to (or near) the natural hydrograph that existed before urbanization. Notably, existing California MS4 permits already include on-site retention standards for new construction, wetland restoration and groundwater recharge goals to mitigate for impervious surfaces, and rainwater capture and reuse goals or performance standards. The DEIS should evaluate the potential contributions stormwater can make to local streams and groundwater sources.

4. Watershed Approach Strategy

The DEIS should evaluate strategies such as increasing groundwater recharge and restoring meadows, wetlands, and floodplains to meet several Proposed Action goals, including assisting NID in responding to the effects of climate change and drought, as described below.

- a. **Seek opportunities for groundwater recharge storage and banking.** The DEIS should evaluate groundwater recharge, storage and banking opportunities both locally and at a state level. The Mehrten formation in the eastern portion of the Sacramento Valley and low foothills, including portions of NID's service area, is well known and suited to groundwater recharge to the American River Subbasin. A collaborative conjunctive use approach to groundwater management is possible for all surface and groundwater users overlying the American River Subbasin.
- b. **Seek opportunities for meadow and wetland restoration.** The DEIS should evaluate restoring and preserving floodplain and former floodplain wetland acres for water storage. The release of this banked water during dry periods can increase late season baseflows that greatly benefit species and will also be a resource for water supply projects. Within the NID watershed, Sierra meadow restoration offers an opportunity for increasing yield and duration of headwater water supplies.

¹⁴ See http://www.roaringfork.org/media/1192/rubicon_overview_november_2014-carbondale.pdf

A recent study found that restoring all meadows on National Forest Land in the Sierra Nevada could provide 35,000 acre-feet of high elevation, late season groundwater storage, plus temporary surface water storage when meadows are flooded.¹⁵ Assuming similar conditions for the ~2,800 acres of meadow in the upper Bear, South Yuba, Middle Yuba, and Deer Creek watersheds, meadow restoration could result in ~443 AF of annual high elevation groundwater storage that would be released in the summer months, not including added surface water storage during overbank flooding. Studies are currently underway to better understand how meadows in the Yuba and Bear watersheds will respond to restoration treatments. Numerous meadow restoration projects were completed in the Feather River watershed at an average cost of \$1,790/acre restored,¹⁶ which corresponds to a cost of \$1,630 - \$6,840/AF of groundwater storage increase.¹⁷

- c. **Seek opportunities for forest and watershed restoration.** Additional watershed restoration actions that benefit watershed health should be considered as well. Forest management practices that encourage a diversity of habitats for species that rely on these ecosystems, such as a mix of thinning and under burning, can protect existing water resources from fire and climate change vulnerability while potentially increasing the amount of water available downstream.¹⁸ While initial estimates of water yield increases from thinning projects hypothesize >10,000 AF, empirical studies to quantify this hypothesis are inconclusive on how much water yield can be expected.¹⁹ The benefit of forest health projects in the Yuba and Bear watersheds should be evaluated for their impact on protecting existing water and habitat resources and for understanding the potential for water yield increases.

5. Pricing for Efficiency Strategy

The DEIS should evaluate rate modifications as a mechanism to help NID meet its current and projected water demand. NID should price water to cover the full costs of water delivery and to encourage efficiency. NID should estimate the demand reductions from pricing water for

¹⁵ USDA Forest Service, Pacific Southwest Region 2015. Effects of Meadow Erosion and Restoration on Groundwater Storage and Baseflow in National Forests in the Sierra Nevada, California.

http://www.waterplan.water.ca.gov/docs/cwpu2013/Final/vol4/environment/10Meadow_Restoration_GW_Final.pdf

¹⁶ Ecosystem Economics and Stillwater Sciences 2012. An Economic Analysis of Meadow Restoration.

http://www.fs.fed.us/r5/hfglg/monitoring/resource_reports/socioeconomics/Economic%20Analysis%20of%20Meadow%20Restoration%202012.pdf

¹⁷ American Rivers 2012. Evaluating and Prioritizing Meadow Restoration in the Sierra.

<http://www.americanrivers.org/assets/pdfs/meadow-restoration/evaluating-and-prioritizing-meadow-restoration-in-the-sierra.pdf?dad3dd>

¹⁸ North, Malcolm; Stine, Peter; O'Hara, Kevin; Zielinski, William; Stephens, Scott. 2009. An ecosystem management strategy for Sierran mixed-conifer forests. Gen. Tech. Rep. PSW-GTR-220. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. 49 p.

¹⁹ The Nature Conservancy 2015. Estimating Water Supply Benefits from Forest Restoration in the Northern Sierra Nevada. <http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/california/forest-restoration-northern-sierras.pdf>; see also Gabrielle Boisrame, Sally Thompson, Brandon Collins, and Scott Stephens. 2016. Managed Wildfire Effects on Forest Resilience and Water in the Sierra Nevada. Ecosystems. DOI: 10.1007/s10021-016-0048-1.

efficiency. Despite complications posed by Propositions 26 and 218, water utilities in California have successfully built rate tiers that reflect full cost pricing of providing incremental volumes of additional water, and that impose penalties for wasteful use.

- a. **Evaluate full cost pricing.** Water rates that reflect the full cost of service can help utilities capture the actual costs of operating water systems, raise revenues, and also help to conserve water.
- b. **Evaluate conservation pricing.** While discouraged by Proposition 218, water utilities in California retain authority to set rates and water waste penalties that achieve conservation goals. The DEIS should evaluate the extent to which NID's water rate structure makes full use of existing legal authority to set rate and penalty structures that provide incentives for efficient water use and conservation.
- c. **Evaluate rural estate pricing.** The DEIS should evaluate an alternative in which NID reconfigures its rate structure to differentiate varying uses of what it currently categorizes as "agricultural water." The alternative should evaluate creation of a separate use category and price structure for rural estate use.

NID's 2012 Agricultural Water Management Plan (AWMP) showed that NID delivers over 130,000 acre-feet of "agricultural water" annually, compared to deliveries of approximately 12,000 acre-feet for municipal, industrial, and domestic treated water.²⁰ The current system is a legacy of intense commercial agriculture before World War I, the historic peak in the foothills. Today, the rural landscape has transitioned to rural estate subdivision (2.5 to 20 acre parcels) with high land and home values. All houses are required to have a domestic well.

At present, there is no system of conservation water pricing in place for this category of use that accounts for the vast majority of NID's water deliveries. There is no feasibility assessment or plan to convert the ditch system to an efficient piped and pressurized delivery system over the next century. Rural estate pricing would allow NID to meet its future service area needs without investing in more expensive supply-side projects, while honoring the need of actual commercial agriculture for competitively priced water. The present system of raw water delivery, instead, encourages a "use it or lose it" ethic of water waste.

C. Least Environmentally Damaging Practicable Alternative (LEDPA)

In order for the Corps to issue a 404 permit for the Proposed Action, it must find that the Proposed Action is the least environmentally damaging practicable alternative (LEDPA) to

²⁰ NID Agricultural Water Management Plan, 2012, Table 4.5.

<http://www.water.ca.gov/wateruseefficiency/sb7/docs/2014/plans/Nevada%20ID%20Ag-Water-Management-Plan-Final.pdf>

achieve the Proposed Action's purpose.²¹ The LEDPA analysis must be fair, balanced and objective "and not used to provide a rationalization for the applicant's preferred result."²² The LEDPA should identify alternative actions or changes to the Proposed Action necessary to enable the Corps to make this finding. At a minimum, the Corps should consider whether the Modified No Action Alternative constitutes the LEDPA as the components of the alternative are practicable, less environmentally damaging means to achieve Project goals. An alternative is "practicable" where "it is available and capable of being done after taking into consideration cost, existing technology and logistics in light of overall Project purposes."²³ The Corps should clearly articulate its findings and the criteria used to support any determination it may make that an alternative is not "practicable."

IV. The DEIS must articulate a clear and thorough description of the Proposed Action.

As noted above, the Corps is charged with determining whether or not the Proposed Action complies the U.S. Environmental Protection Agency's (EPA) 404(b)(1) guidelines, including determining whether it is the least environmentally damaging practicable alternative (LEDPA) to achieve the Action's purpose. Doing so requires that the Corps fully describe and understand the Proposed Action, including its complete footprint, anticipated operations and current and foreseeable purposes. This information is necessary to properly determine both the benefits and the impacts of the Proposed Action. To facilitate this understanding, the Network recommends that the DEIS include the following information.

The DEIS must disclose all the purposes of the Proposed Action and its currently planned and reasonably foreseeable future facilities. The DEIS must also disclose and analyze the operation of these facilities (including rule curves) and how this operation will be integrated with NID's overall operation. The NOI indicates that the Proposed Action involves the construction of a new 110,000 acre-foot reservoir on the Bear River between Rollins and Combie reservoirs. Additionally, the NOI notes that NID's purposes for the Proposed Action include drought and climate change mitigation, water supply reliability, and ability to meet NID's projected future water supply needs.

The DEIS must define the rule curves under which NID proposes to operate the Proposed Action. This definition must be complete and precise, because it will be the basis for describing the impacts of Project operations on other uses of water and on instream and downstream beneficial uses. The DEIS must define rule curves for operation under current regulatory requirements and under reasonably foreseeable changes to those requirements, such as requirements for individual watersheds to contribute to February-June inflow and outflow to and from the San Francisco Bay-Delta estuary, pursuant to the State Water Resources Control Board's update of the Bay-Delta Water Quality Control Plan.

²¹ 40 C.F.R. section 230.10(a) states that a 404 permit will not be issued "if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant environmental consequences."

²² U.S. Army Corps of Engineers, Permit Elevation, Hartz Mountain Development Corporation at 6. (1989).

²³ 40 CFR section 230.10(a)(2).

The DEIS must explain the operation of the Proposed Action such that it will actually mitigate drought conditions, both for existing and future customers, and not simply become non-drought water supply for expanded growth whose extent leaves the alleged drought benefit unfulfilled or reduced because of conversion of agricultural uses to urban commitments. The DEIS must describe in detail the overall management of NID's combined water supply operations and how the proposed new facilities will be situated within that operation. The DEIS must describe the assurances that NID will establish so that reliability for existing customers is not reduced in order to serve new customer commitments.

The DEIS must include hydrologic analysis that is integrated with and based on credible and substantiated climate change modeling. The DEIS must use a technically credible and substantiated hydrologic baseline that is developed for changed climate conditions and that is not simply based on past hydrology. Analysis and application of the results of modeling must describe and incorporate model limitations, biases, uncertainties, and extremes in order to accurately describe the confidence of conclusions and the potential for extreme events.²⁴ For instance, a scientific study in 2015 notes “[s]ignificant changes in seasonality of extreme events not only challenge infrastructure and asset management, potentially the increased complexity of events and impacts also require distinct responses.”²⁵

Additionally, the DEIS must address the newly delineated impact of temperature-induced reduction in watershed yield in its projections evaluating the viability of Centennial Dam and Reservoir for water yield and storage, hydroelectric production potential, and operational releases and rule curves. A recent scientific climate change study noted that “[t]emperature induced reduction of watershed yield,” also called “temperature drought” or simply “hot drought,” is changing the calculus of climate change projections for watershed yield and runoff in the Southwest, including California.²⁶ The basic finding is that temperature alone will reduce river flow by an average of 6.5% (plus or minus 3.5%) per degree Celsius.²⁷

The DEIS must analyze operations of Centennial Dam in the context of decadal and multi-decadal drought scenarios. Tree ring analysis has enabled the reconstruction of Sacramento River precipitation cycles from the year 950 AD to the present.²⁸ This history provides previously unavailable insight into the hydrologic patterns of Sacramento Valley rivers and

²⁴ See *The Extremes of the Extremes: Extraordinary Floods* (Proceedings of a symposium held at Reykjavik, Iceland.) July 2000. IAHS Publ. no. 271. 2002.

²⁵ Nonstationarity in seasonality of extreme precipitation: A nonparametric circular statistical approach and its application. Nirajan Dhakal 1,2,3, Shaleen Jain1,2,4, Alexander Gray1,5, Michael Dandy 2, and Esperanza Stancioff 1,5. May 2015. Available at: <http://onlinelibrary.wiley.com/doi/10.1002/2014WR016399/full>

²⁶ See Udall, B. and J. Overpeck (2017), The twenty-first century Colorado River hot drought and implications for the future, *Water Resour. Res.*, 53, doi:10.1002/2016WR019638. Available at: <http://onlinelibrary.wiley.com/doi/10.1002/2016WR019638/full>

²⁷ The findings from the Colorado Basin of 6.5% runoff reduction per degree Celsius have been validated in the Sierra by Roger Bales of UC Merced in a study on the Kings River. “Longer growing season with temperature increase equals more evapotranspiration. The average is 14% drop in runoff per 2 degrees Centigrade.” (or 7% drop in runoff per one degree C.). See <https://eng.ucmerced.edu/people/rbales/CV/Talks/1510.1>

²⁸ Meko, David M., et al, Sacramento Hydroclimatic Reconstruction from Tree Rings, Report to CDWR, 2014, http://www.water.ca.gov/waterconditions/docs/tree_ring_report_for_web.pdf

streams. The DEIS must evaluate the operation of Centennial Dam in the context of these hydrologic patterns in the analysis and projections. One identified pattern is a roughly 90-plus year wet/dry cycle, with variation between wet periods and dry periods of as much as 30%. The 35-50 years before the year 2000 was a wet period. Additionally, more than a dozen decadal droughts and one multi-decadal drought of approximately 35 years are evident in the tree ring history. The DEIS must use a hydrologic baseline derived from a realistic portrayal of the past millennia, and not just the most recent, generally wet, 50-75 year cycle.

NID claims that the mid-elevation location of the proposed Centennial Reservoir will allow capture water from rain runoff events that would otherwise not be available to NID. The DEIS must quantify the amount of water the Proposed Action will capture under changed climate conditions, and explain the methodology for this quantification. The analysis must specifically quantify predicted future runoff conditions in locations that will allow capture in the new reservoir. The analysis must also describe predicted capture within the context of credibly described flood rule curves for the new facility. The analysis must describe the probable maximum flood event the facilities will be designed to withstand, and the proposed design and operation of the facilities such that they will be able to withstand that event.

The DEIS must disclose how the Proposed Action will be used to facilitate the generation of hydropower and describe all facilities and infrastructure (both anticipated new construction and modifications to existing works) that are related to or necessary for power generation. The DEIS must describe any current hydroelectric operations that the Proposed Action will affect or change and must describe the proposed operation of any new hydropower facilities that attach to the Proposed Action or whose operation will be facilitated by it. The DEIS must also situate the proposed operation of the new facilities within the overall hydropower operation of NID's Yuba-Bear Project (FERC no. 2266), PG&E's Deer Creek Project (FERC no. 14530), PG&E's Drum-Spaulding Project (FERC no. 2310), and PG&E's Lower Drum Project (FERC no. 14531). Several NID spokespersons are on record suggesting that the Proposed Action will include new hydropower facilities and/or will be used as an afterbay to promote flexible hydropower generation at a new Rollins #2 powerhouse.²⁹ The DEIS should include an accurate and

²⁹ (1) NID General Manager Remleh Scherzinger interview Grass Valley Union, August 30, 2014: "NID officials say the advantage of building a new reservoir in the middle of two existing reservoirs is flexibility, both with water releases and with the hydroelectric power grid. For example, if the district needs more power to balance the grid at the hottest times of the summer day — from 1 to 4 p.m. — NID could release water from Rollins downstream to Parker. "We can dump from one to another and still not lose the water to Combie," Scherzinger said. "It's fantastic." <http://www.theunion.com/news/12801466-113/nid-parker-reservoir-scherzinger>

(2) Remleh Scherzinger, NID General Manager, during Q& A with the Nevada County Board of Supervisors on 11/10/15 Item #18. Rem explained he has been talking to the CA Water Commission about sediment removal being part of the regulations, and then stated he thinks inclusion of hydroelectric should also help "...Is the installation of hydroelectric power on the facility. While chapter 8 does not specifically address hydroelectric energy as one of the boxes to be checked on whether a project should go or not go, or get funded or not get funded, given that the Governor just signed his 50% renewable goal by 2020, it should at least get a bell ring, you know we should get a gold star or something because projects like ours and honestly like Sites will generate additional hydroelectric energy. Now our project we anticipate generation under 30 megawatts so we'll fall into the renewable power supply, so we are renewable which is again fantastic. The project brings so many benefits to the community and the district's sphere which is Placer, Nevada and Yuba counties. This is a really good thing." http://nevco.granicus.com/MediaPlayer.php?view_id=3&clip_id=6448

comprehensive description of the Proposed Action, including accounting for reasonably foreseeable future phases or other reasonably foreseeable consequences of the Proposed Action. Accordingly, the DEIS should describe all facilities that are necessary to the Proposed Action or necessary to serve future uses.

It appears that NID ultimately plans to use the Proposed Action to upgrade and/or increase its generation of hydropower. The DEIS must explain how the Proposed Action will affect decision-making about the construction of Rollins #2 powerhouse. The DEIS must describe operation of Rollins #2 powerhouse with and without the Proposed Action, and how that operation will change the proposed baseload operation of hydropower facilities as described in the FEIS for the relicensing of the Yuba-Bear, Deer Creek, Drum-Spaulding, and Lower Drum hydroelectric projects.³⁰ It must describe both daily and long-term operational changes to its power generation and its stream releases past the intake to the Bear River Canal into the Bear River. If NID is reasonably likely to bypass the existing Bear River Canal with a tunnel from the proposed Centennial Reservoir to the Lower Drum hydropower facilities, the DEIS must also describe such new facilities and their operation.

Since it is reasonably likely that NID will install hydropower facilities at the new Centennial Dam or on tunnels or other conduits that lead to or from this dam, the DEIS must describe these facilities. Even if the exact engineering is unknown at this time, the DEIS must describe reasonable alternative configurations and reasonable alternative operations of such new hydropower facilities and their hydrologic affects.³¹

V. The DEIS must evaluate the Proposed Action’s direct, indirect and cumulative effects and identify reasonable mitigation measures.

Under NEPA, the analysis in an EIS must consider direct, indirect, and cumulative effects of the proposed alternatives. “Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative.” 40 C.F.R. §

(3) Remleh Scherzinger, in NID Board Minutes for 12/10/14, p. 310. “With regard to the environmental document, he anticipates that the District will complete a National Environmental Policy Act (NEPA) document because the project “will have access to Federal funding and will involve hydroelectric power.” <http://nidwater.com/wp-content/uploads/2015/01/Wk-Copy-of-Minutes-12-10-2014.pdf>

(4) NID engineer Doug Roderick on KNCO on 2/9/15 saying the Action has 2 hydro plants and that hydro would be the main funding source. <http://knco.com/nid-launches-centennial-reservoir-website/>

³⁰ See Final EIS for the relicensings of the Upper Drum-Spaulding, Lower Drum, Yuba-Bear and Deer Creek Actions, FERC 2014, p. 660.

³¹ The Centennial Dam website states:

The Centennial Reservoir Project creates the future potential to generate green, clean, hydroelectric energy for the community. A future hydroelectric development at Centennial Dam would be eligible for renewable energy certification status under the State of California’s current policy, which considers small hydropower’s “green attributes” as equivalent to wind and solar. . NID intends to adhere to the standards established by the Low Impact Hydropower Institute in the design of a future hydroelectric facility at Centennial Reservoir. When completed, the Centennial Reservoir Project hydroelectric facility operation would not contribute to global warming, air pollution, acid rain, or ozone depletion and would provide enough power for approximately 20,000 homes in the region. <http://www.centennialreservoir.org/clean-energy/> (last checked April 15, 2016).

1508.8. The direct effects of an action are those “caused by the action and occur at the same time and place.” 40 C.F.R. § 1508.8(a). The indirect effects of an action are those “caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.” 40 C.F.R. § 1508.8(b). For example, “[i]ndirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.” Id. Cumulative effects are the impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. 40 C.F.R. § 1508.7.

A. Water Resources and Hydrology

The Proposed Action will, if constructed and operated, have impacts associated with the diversion or conveyance of water to fill the reservoir and the capture of water that is not passed downstream for beneficial uses. The DEIS must analyze both sets of impacts to water resources: water sources diverted, and water prevented from passing for downstream delivery.

The DEIS must analyze the extent to which the Proposed Action will rely on water from the Yuba River watershed and the reasonably foreseeable impacts the Proposed Action will have on river flows in the Middle Yuba River, South Yuba River and Canyon Creek. The DEIS must disclose any increases in the amount or timing of water diverted from the Yuba River watershed to the Bear River that will occur if the Proposed Action is constructed. It must also disclose the effect of any additional water transfers to the Bear River on water temperatures, flows and habitat in the South and Middle Yuba Rivers, Canyon Creek and other tributaries.

The DEIS must analyze the impacts of the Proposed Action on downstream hydrology, including groundwater recharge and water quality. Water captured by Centennial dam will either not be available to downstream reaches or will flow downstream with altered timing and magnitude. The DEIS must describe the impacts of the Proposed Action to the hydrology of the lower Bear River, the Feather River, the Sacramento River and the Sacramento-San Joaquin Bay-Delta estuary. Freshwater inflow to the Delta is a critical resource for maintaining ecosystem function in California’s largest estuary. The DEIS must describe how the Proposed Action will lessen freshwater inflows to the Delta and change the timing of inflows.

The DEIS must also describe how the Proposed Action will affect downstream water users. The DEIS must analyze the potential impacts to the South Sutter Water District and Camp Far West Reservoir. The DEIS must quantify the extent to which the Proposed Action will decrease rates of recharge to groundwater aquifers in the Central Valley by decreasing flood stage or extents of floodplain inundation.

The DEIS must describe how its operations will affect the operation of the State Water Project (SWP) and the Central Valley Project (CVP), both under current operating requirements and under reasonably foreseeable future operating requirements. In particular, the DEIS must quantify the direct effect of the reduction of inflow to Folsom Reservoir from the lower Drum system (release from Newcastle Powerhouse). As a corollary, the DEIS must describe the impact of Proposed Action operations on water deliveries within the CVP’s American River

Division and on flows in the lower American River. The DEIS must also describe indirect and cumulative effects of the Proposed Action on the integrated operations of the SWP/CVP system, including its water deliveries, storage, releases for salinity control, and releases to meet environmental requirements.

The DEIS must analyze how the Proposed Action will reduce Delta inflow and outflow, both under current requirements and under reasonably foreseeable requirements enacted pursuant to the update of the Bay-Delta Water Quality Control Plan. The analysis must evaluate a variety of water year types. It must also evaluate different storage scenarios both for the Proposed Action and for other Central Valley reservoirs. The analysis should pay particular attention to the effects to Delta inflow and outflow during and after multiple dry year sequences. For instance, in 2014-2015, reservoirs and diversions captured about 70% of the unimpaired flow peaks; in 2016, reservoirs and diversions also captured about 70% of the unimpaired flow peaks before March, when flood releases from Oroville, Shasta and New Bullards Bar reservoirs began.³²

The DEIS must evaluate the impacts of the Proposed Action to other users of water in the context of the update of the Bay-Delta Water Quality Control Plan. During flood flows, the Bear River contributes some of the small percentage that remains of unregulated inflow to the Bay-Delta system. The Proposed Action, in combination with a requirement of the Bay-Delta Plan to augment Delta inflow, will transfer the burden of flow increases to other water users in other watersheds.

B. Water Quality

The DEIS must analyze the water quality impacts of the Proposed Action, and disclose whether the Proposed Action will violate water quality standards or otherwise substantially degrade water quality.

C. Waters of the United States and 401(b)(1) analysis

The DEIS must analyze whether the Proposed Action complies with the U.S. EPA's 404(b)(1) Guidelines, set out in CFR section 230. The purpose of the Guidelines is "to restore and maintain the chemical, physical and biological integrity of waters of the United States through the control of discharges of dredged or fill material."³³

D. Mercury

Reservoirs in the Sierra Nevada region are plagued by mercury-laden sediment that washes down during storm events from lands contaminated by abandoned mines. This sediment reduces storage capacity within existing reservoirs and creates a source of mercury in its elemental and methylated forms to both the aquatic and terrestrial environments. NID is currently working on projects to remediate mercury contamination and remove sediments in both Combie and Rollins

³² The Bay Institute, unpublished data.

³³ 40 CFR section 230.1(a) (2005).

reservoirs³⁴ on the Bear River, both of which are listed for mercury contamination under §303(d) of the Clean Water Act.³⁵ One of the objectives of these remediation projects is to restore the water storage capacity of Combie and Rollins reservoirs that has been lost due to the accumulation of the sediment.

The DEIS must analyze how much mercury-laden sediment the Proposed Action is expected to accumulate over time and what percentage of that mercury will methylate. The DEIS should analyze reservoir operations specifically to evaluate fluctuating water surface elevations and the resulting likelihood of methylation of mercury. The DEIS must also disclose proposed actions to maintain storage capacity in the proposed reservoir and to remove contaminated sediments, as well as the costs of these actions.

E. Greenhouse Gas Emissions

In 2016, CEQ provided guidance on how greenhouse gas emission effects should be considered by federal agencies in their NEPA analyses:

“Identifying important interactions between a changing climate and the environmental impacts from a proposed action can help Federal agencies and other decision makers identify practicable opportunities to reduce GHG emissions, improve environmental outcomes, and contribute to safeguarding communities and their infrastructure against the effects of extreme weather events and other climate-related impacts.” *Final NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*, CEQ, at 3 (August 3, 2016) (“Final Guidance”).

“...recommends that agencies quantify a proposed agency action’s projected direct and indirect GHG emissions, taking into account available data and GHG quantification tools that are suitable for the proposed agency action.” Final Guidance at 4.

Data collected worldwide on new reservoir building and existing reservoir operation indicates that both methane and carbon dioxide are emitted during the initial reservoir filling and throughout the lifespan of a reservoir.³⁶

The DEIS must analyze how the Proposed Action will affect carbon dioxide emissions. Carbon dioxide is released when organic matter within the flooded river canyon is broken down during the initial flooding process, when organic matter runs off from river canyon slopes during storm events, seasonally when the reservoir is filled with winter runoff, and as part of the natural lifecycles of the plankton and plants that live within a reservoir.

This analysis must also address how the Proposed Action will affect methane emissions. It is estimated that reservoirs produce over 20 percent³⁷ of man-made methane emissions, which is 34

³⁴ http://nidwater.com/wp-content/uploads/2012/04/Action_Description.pdf

³⁵ http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/r5_06_303d_reqtdls.pdf

³⁶ <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0143381>;
<http://bioscience.oxfordjournals.org/content/50/9/766.full>

times more potent than carbon dioxide.³⁸ Methane is produced in aquatic ecosystems through microbial interactions within the sediment, which is predicted to increase significantly when a riparian and wooded area is inundated with water during reservoir creation.

F. Aquatic Resources

The DEIS must analyze the impacts of the Proposed Action on aquatic biological resources. The DEIS should use the analysis of water resource impacts, upstream and downstream, to define potential impacts to aquatic resources. The Proposed Action will affect aquatic resources in the Bear River between Rollins and Combie reservoirs. It will inundate the majority of this river reach; the DEIS must describe the seasonal extent of this inundation. The portion of the Bear River immediately downstream of Rollins Reservoir will likely be subject to fluctuating flows due to hydropower peaking. The DEIS must describe the impacts of this operation on aquatic resources.

The DEIS must also describe the impacts to aquatic resources in the Yuba River watershed as a result of any changes in diversions, instream flows or other operations in the Yuba-Bear/Drum-Spaulding water and power system.

The DEIS must analyze the cumulative impacts of the Proposed Action on aquatic resources in the Bear River downstream of Camp Far West Reservoir, in the Feather River downstream of Lake Oroville, in the Sacramento River downstream of Feather River confluence, and in the Bay-Delta estuary. See further discussion of cumulative effects, *infra*.

The DEIS must disclose and analyze expected levels of mercury contamination in fish and wildlife that may result from the Proposed Action, both within the Action footprint and downstream. Such contamination is likely because reservoirs upstream and downstream of the Proposed Action are listed as impaired for mercury under §303(d) of the Clean Water Act.

G. Terrestrial Resources

The DEIS must analyze the effects of the Proposed Action on terrestrial resources. The proposed dam will flood hundreds of acres of prime oak woodland habitat and inundate critical habitat and homes for western pond turtles and foothill yellow-legged frogs. It will substantially constrict animal migration corridors, especially for deer. The DEIS must quantify the loss of oak woodlands, riparian ecosystem, and habitat loss for special status species.

H. Cultural Resources

The DEIS must analyze the potentially significant impact of the Proposed Action on Native American cultural and spiritual resources. The Bear River is the ancestral home of the Nisenan (or Nishenam) people. The Bear River serves as a territorial divide for three different Nisenan Tribal entities. The group south of the Bear is currently known as the United Auburn Indian

³⁷ <http://bioscience.oxfordjournals.org/content/50/9/766.full>

³⁸ <http://pubs.acs.org/doi/pdf/10.1021/es501871g>

Community, the group east of the Bear is modernly known as the Todd Valley/Colfax Consolidated Tribe and the Nisenan the group north of the Bear is known as the Nevada City Rancheria. These lands, and these Nisenan people, are part of Nisenan tribal heritage whose heritage can be proved back before the Gold Rush and points of non-native contact.

An example of this continuous cultural use of the river is the Bear River Campground: the Colfax Nisenan Indians still use this site for cultural practices as they have for countless generations. This area also contains cultural resources such as ceremonial plants, culturally used plants, cobbles, and cooking stones. Not only are there many sites in the area of potential inundation, including rumor of burial sites, but the Nisenan still use the resources and locations for ceremonial and other purposes. There will be impacts to these sites, including inundation, as a result of the construction, maintenance and/or operation of the Proposed Action. The DEIS must analyze the known and potential Action impacts to these sites and evaluate mitigations for these impacts.

The DEIS must survey and investigate the existing sites and use an interview process to catalogue the traditional cultural properties in ongoing use by the tribes, which in this specific area include the Todd Valley/Colfax Consolidated Tribe, Nevada City Rancheria and the United Auburn Indian Community. Collaborative investigation with the one Federally Recognized Nisenan group, the United Auburn Indian Community, is essential in order to inventory cultural resources and sites. As Nevada City Rancheria, as well as Todd Valley/Colfax Consolidated Tribes are both currently without Federal Recognition, both groups fall within United Auburn's "service area." Therefore, it is important to have the collaboration of all three groups. The most appropriate method of investigation would include collaboration with a cultural heritage consultant from within the Nisenan communities mentioned above. Said consultant should liaise with the other Nisenan communities, and those communities should be in agreement as to the choice of consultant.

When time comes for formal consultation with indigenous people of the Bear River, the Nevada City Rancheria asks to be included in the consulting process and wishes to engage in the mandated "meaningful dialogue."

I. Historical Resources

The DEIS needs to disclose, inventory and describe the impacts to important historical sites located along the Bear River. For example, the DEIS should describe the impacts to the Holmes lime kiln. Built in the early 1900s, the double kiln structure is completely intact and stands approximately 40 feet high. Also within close proximity to the river is the Emigrant Trail.

J. Recreation

The DEIS should disclose and analyze impacts of the Proposed Action to the current recreational uses of the Bear River. Many area residents now enjoy easy access to the Bear River in the Proposed Action area for recreational pursuits such as fly fishing, rafting, gold panning, swimming and hiking. The DEIS must address how the Proposed Action will affect river access at each of these points: Ben Taylor Road, Milk Ranch Road, Plum Tree Road, Dog Bar Road,

and Peaceful Valley Road. The DEIS should also describe in detail how the Proposed Action would affect recreation access along the Bear River Canal, including the trail on the lower side of the canal that has become a popular hiking and biking feature.

In addition to the Proposed Action's physical impact of flooding areas currently used for recreation, the Proposed Action areas will have social consequences, such as loss of public recreational opportunities. The Proposed Action will inundate the Bear River Campground, resulting in a loss of 250 acres of public land that currently provides public hiking trails, river access, and camping. The DEIS must identify these impacts and describe how they will be mitigated. This analysis must consider impacts and mitigations for geographically diverse users and must specifically address recreational users from Placer County as well as Nevada County.

K. Aesthetics

The DEIS must analyze how the Proposed Action will degrade the visual character and quality of the existing site. Presently, the canyon where the dam will be located is steep and forested, and presents scenic canyon views. However, fluctuating reservoirs often result in an aesthetically unpleasing "bathtub ring" devoid of vegetation. The DEIS must disclose how the Proposed Action will degrade the current scenic character of the site, including an analysis of the predicted extent of a bathtub ring effect throughout the year during high, low, and average water years. The DEIS should also identify the aesthetic impact of this ring on multiple user types, including local residents, passing motorists, and recreational users.

L. Property Rights

The DEIS must disclose how the Proposed Action will impact private lands in the Action area. The Proposed Action will directly impact 25 homes and 120 parcels. The Proposed Action has already placed a cloud on parcels within the proposed "take line" of the reservoir. Property owners are blocked from the open market, and are deferring repairs, maintenance and/or improvements due to the uncertainty of property disposition. Damage and losses to these landowners will continue in perpetuity even if the No Action alternative is chosen, because the specter of Centennial will remain. The DEIS must disclose the direct and indirect impacts of the Proposed Action on privately owned homes and lands, and on land values.

M. Transportation/Traffic

The DEIS must analyze how the Proposed Action will impact traffic, public safety, and fire protection during Project construction and after its completion. The Proposed Action would flood the only road that crosses the Bear River between Highway 174 and Highway 49. Four potential routes have been proposed to replace the Dog Bar Bridge crossing: one route below the Centennial Dam and three potential bridge locations that would cross the new reservoir. The DEIS should describe each of these potential crossings and how traffic and emergency access and egress will occur during construction. The DEIS should also describe how each potential new crossing would affect traffic in local neighborhoods and communities. The DEIS should also analyze how new traffic patterns will impact air pollution and greenhouse gas emissions in the region. The four potential crossing projects are of significant scale in and of themselves, and

the DEIS must analyze each potential crossing site and project with the full suite of impact analyses required under NEPA.

N. Growth Inducing Impacts

The DEIS must disclose and analyze growth-inducing impacts of the Proposed Action, including a discussion of the environmental quality of life impacts on existing communities. Nevada Irrigation District officials and publications have made it clear that a primary purpose of the Proposed Action is to serve projected growth.

“We need to be able to execute the project [Centennial] so that we can continue to make the deliveries to the community to meet the growth needs of the District....In particular, bedroom communities for commuters to Sacramento are expected to grow exponentially in Lincoln, parts of which are within NID service area.”³⁹

NID Waterways, an NID newsletter, stated in its Fall, 2015 issue: “Additional water storage capacity will allow the District to improve and expand water service within NID’s Nevada and Placer County Service Area.”⁴⁰

The Proposed Action will have growth-inducing impacts in, at minimum, the areas noted below. NID has acknowledged impacts or the potential for impacts in other documents, also noted below.

1. **Lincoln Service Area.** The DEIR for the NID Regional Water Supply Project (RWSP) estimates the total demand for new treated water supplies for the Village developments in Lincoln to be 22,255 acre feet.⁴¹ (Table 3.18-6). The DEIR for the RWSP notes: “The proposed Project does, however, remove an obstacle to additional growth and development by making additional water supplies available with NID’s western service area boundaries.”⁴² NID’s own 2016 Notice of Preparation: Environmental Impact Report for the Centennial Reservoir Project (NOP) acknowledges the direct connection between the proposed Lincoln development and Centennial. “The Proposed Project would directly benefit the southern portions of NID’s service territory, including the Placer County service area.”⁴³
2. **Dog Bar Road area to be served by a new Centennial Pipeline.** “A new raw water pipeline would be installed within Dog Bar Road in NID’s service area. A pump station, tank, and extraction wells/pump intake area would also be constructed in the northern

³⁹ NID General Manager Remleh Scherzinger, interview, Grass Valley Union, August 30, 2014, *op cit*.

⁴⁰ *NID Waterways*, Fall 2015, Vol 36 #3, p 1. <http://nidwater.com/2015/10/waterways-newsletter-fall-2015/>

⁴¹ EIR for the NID Regional Water Supply Action (RWSP), Table 3.18-6.

http://nidregionalwatersupply.org/docs/rpt_nid_rwsp_print_version_compiled_pdeir_20151201_double_sided.pdf

⁴² *Id.*, pp. 3.14-15.

⁴³ NID, Notice of Preparation: Environmental Impact Report for the Centennial Reservoir Project, February 16, 2016, (hereinafter, NOP). Section 1.3, Purpose and Need, p 5.

portion of the reservoir.”⁴⁴ The DEIS must describe and analyze both the growth-inducing and the environmental impacts of the construction of this pipeline.

3. **Nevada City and Grass Valley.** The NOP states: “Upstream areas in Nevada County would also benefit from NID’s future ability to route more water from the mountains down the Yuba River/Deer Creek watershed and less down the Bear River side.”⁴⁵ By making more water available, the Proposed Action will remove an obstacle to growth in the Nevada City and Grass Valley areas. In addition to the consequences of growth, the DEIS must examine the impacts of additional water deliveries to the Deer Creek and Wolf Creek ecosystems.
4. **Meadow Vista.** The Proposed Action will inundate the Dog Bar Bridge crossing of the Bear River. The relocation of this traffic crossing will have major impacts on both Meadow Vista and the Lake of the Pines areas. By shortening travel time in crossing the Bear River, the relocation will affect traffic patterns and commuting choices and thus be likely to stimulate growth.

O. Socioeconomic Impacts

The DEIS must analyze the socioeconomic impacts and benefits of its Alternatives. *See* 40 CFR 1508.8.

P. Land use commitments of the Stewardship Council

In 2016, the Pacific Forest and Watershed Lands Stewardship Council (Stewardship Council) approved a conservation easement transaction that will conserve in perpetuity land adjacent to the Bear River “for beneficial public values (BVP)”. NID’s proposed Centennial Dam would flood the entire fifty acres of Parcels 871 and 879 that this conservation easement covers.

The goal of the Stewardship Council is to “preserve and/or enhance the existing environmental and economic benefits of the watershed lands...” (Stewardship Council Land Conservation Plan Vol. 1, 1.2.4). At its September 21, 2016 meeting, the Pacific Forest and Watershed Lands Stewardship Council Board of Directors adopted the following resolution:

1. That the board approve the proposed Land Conservation and Conveyance Plan (LCCP) for lands to be retained by PG&E at the Lower Drum (Upper Pincroft) planning unit, which LCCP describes how the proposed conservation easement transaction conforms to and fulfills the requirements of the 2003 Settlement Agreement and Stipulation.

⁴⁴ NOP, 1.4.2, Project Site and Description, p 6.

⁴⁵ NOP, 1.3, Purpose and Need, p 5.

2. That the board approve the proposed conservation easement funding agreement between the Stewardship Council and Placer Land Trust.⁴⁶

As noted above, NID's proposed Centennial Dam would flood the entire fifty acres of Parcels 871 and 879 that this conservation easement covers. In addition, the Proposed Action will impact remaining acres within the planning unit that have been recommended for donation to the Auburn Area Recreation District and to Placer County. Rather than preserve and enhance the existing Bear River watershed lands and its designated Beneficial Public Values, the Proposed Action would destroy existing fish, wildlife and plants; the mixed woodland forests; the viewshed; the outdoor recreation, including a heavily used public campground and trails; and numerous historical and tribal sites all native to this riverine reach and subject to the conservation easement. The public recreation values of this river reach provide significant economic benefits to Nevada and Placer counties and, especially, to Colfax, an economically disadvantaged community.

The PG&E Modified Proposed Settlement Agreement was adopted on December 18, 2003 (PUC Decision 03-12-035). The provisions of the Modified Settlement were a consequence of lengthy hearings before the PUC and trial in Bankruptcy Court. Environmental provisions were required as part of the Settlement. PG&E committed to protect its watershed lands through conservation easements with guidelines established by the Pacific Forest and Watershed Stewardship Council. As mentioned above, those guidelines require that the easements be managed for their existing environmental and economic values. The Proposed Action would forfeit the agreed-upon, PUC-mandated conservation easements.

Q. Impacts to the Three River Bear River Levee Setback Project

The DEIS must examine and analyze potential impacts to the Three River Bear River Levee Setback Project. As an element of the Yuba-Feather Supplemental Flood Control Project, the Three Rivers Levee Improvement Authority designed and constructed a levee setback along the north bank of the Bear River at its confluence with the Feather River. The setback creates approximately 322 acres of primarily riparian habitat, providing benefits to the anadromous fishery. The DEIS must include a description of any negative impacts to the levee setback riparian areas that would result from changes in timing or magnitude of flows consequent to the Proposed Action.

VI. The DEIS must analyze the cumulative effects of the Proposed Action.

NEPA regulations specify that an EIS should consider any cumulative impacts of agency action. 40 C.F.R. § 1508.25(c). "Cumulative impact" is defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency... undertakes such other actions." *Id.* § 1508.7.⁴⁷ A "likely" or "reasonably foreseeable"

⁴⁶ Stewardship Council September 21, 2016 Board Meeting Presentation available at http://www.stewardshipcouncil.org/public_information/board_meetings.htm#minutes.

⁴⁷ *Sierra Club v. Marsh*, 976 F.2d 763, 767 (1st Cir. 1992).

effect is interpreted to mean, “that the impact is sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision...”⁴⁸

Additionally, more than a cataloguing of related past, present, and future actions is needed; the DEIS must provide detailed analysis.⁴⁹ “[V]ery broad and general statements devoid of specific, reasoned conclusions,” will not suffice.⁵⁰

Cumulative impacts analysis requires a geographic and temporal scope of analysis sufficient to determine the significance and incremental impacts of the Proposed Action on resources of concern when considered in combination with other past, present and reasonably foreseeable future actions. Hydrology, water quality and aquatic resources in the Bear River watershed are likely significantly impacted by many past and present actions, both individually and cumulatively. It is worth noting that many closely related actions are under the direct (though not sole), closely related control of the Action proponent.

Hydrology, water quality and aquatic resources in the Bear River watershed are affected by the import of water from the South Yuba River and Middle Yuba River watersheds. This activity also affects hydrology, water quality and aquatic resources within the South Yuba River and Middle Yuba River watersheds. Both the geographic and temporal scopes of the DEIS must be sufficiently broad to capture and evaluate the cumulative impacts of the interaction of these watersheds.

The DEIS must analyze the cumulative impact on public services in the greater Colfax area if existing recreational opportunities are eliminated or modified. The DEIS must evaluate changes in revenue to local businesses and to the tax base that supports public services within the economically disadvantaged greater Colfax area.

Past closely related actions within the geographic scope of the DEIS have significantly affected tribal cultural resources. The DEIS must analyze the Proposed Action’s additional cumulative impact on these irreplaceable resources as even more tribal cultural sites, currently in use, are drowned.

The DEIS should examine the cumulative effects of the Proposed Action on cultural, recreational, biological and water resources from the standpoint of a Bear River that has already

⁴⁸ Id. A Project need not have received final approval to be “reasonably foreseeable.” *Surfrider Foundation v. Dalton*, 989 F. Supp. 1309, 1324 (S.D. California 1998).

⁴⁹ *Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800, 810 (1999). The court explained:

[The EIS] must analyze the combined effects of the actions in sufficient detail to be “useful to the decisionmaker in deciding whether, or how, to alter the program to lessen cumulative impacts” [*quoting City of Carmel-By-The Sea v. U.S. Dept. of Transp.*, 123 F.3d 1142, 1160 (9th Cir. 1997)]. Detail is therefore required in describing the cumulative effects of a proposed action with other proposed actions. *Neighbors of Cuddy Mountain*, 137 F.3d at 1379; *see also Blue Mountains Biodiversity Action v. Blackwood*, 161 F.3d 1208, 1214-15 (9th Cir. 1998).

⁵⁰ Id. at 811.

been mostly converted to reservoirs. The extent of reservoirs on the Bear River places unique value on the six-mile stretch of river that will be converted a new reservoir by Centennial Dam.

Centennial Dam would be sandwiched by existing reservoirs upstream and downstream. The six mile reach of the Bear River that would be transformed into a new reservoir is a natural ecosystem and provides significant habitat as well as migration corridors: north/south river crossing of terrestrial species, and upstream/downstream migration of aquatic species. If this last reach of river is converted to reservoir, the impact will be magnified because it will establish an almost unbroken 20-mile reservoir system from Combie Dam to Chicago Park Powerhouse above Rollins Reservoir. The DEIS must provide a landscape-scale analysis of this already cumulatively impacted 20-mile reach. The DEIS must also analyze the cumulative impact of this 20-mile reservoir reach within the watershed as a whole.

Impacts to various resources are not the same as they would be absent the other reservoirs. Alternative sections of the Bear River are largely not available to river recreationists due to the loss of river reaches by existing Bear River dams. The DEIS must evaluate the cumulative impacts on recreation of the elimination of free public access at the Bear River near Dog Bar Road. There is currently free swimming and rafting at the river, and public access at the Bear River campground is free. The Bear River is the best option for water-related recreation for the economically disadvantaged population of the greater Colfax area. It is the main local place to go on hot summer days.

Fall-run Chinook salmon spawn and rear in Dry Creek (Spenceville), a tributary to the Bear River downstream of Camp Far West Reservoir. These salmon, as well as fall-run and spring-run salmon and Central Valley steelhead and sturgeon natal to the Feather River and Yuba River, are likely to use the Bear River downstream of Camp Far West Reservoir for rearing in the winter-spring period. The DEIS should evaluate how the Proposed Action will alter hydrology of the lower Bear River downstream of Camp Far West Reservoir, and analyze how this will affect the suitability of the lower Bear River as winter-spring rearing habitat and as a fall migration corridor for fall-run Chinook seeking to enter Dry Creek (Spenceville).

Water releases from Oroville Reservoir into the lower Feather River are highly regulated. Winter-spring pulses flow releases from Oroville are not currently required and are rare in dry years and dry year sequences. The same is true to a lesser degree in the Yuba River, although partially unregulated flows from the South Yuba River and Deer Creek create winter-spring pulses into and out of the lower Yuba River with more frequency than occur in the lower Feather River above Yuba River confluence. Flood flows from the Bear River may provide unusual opportunities to juvenile salmonids and sturgeon in the lower Feather River system to successfully migrate out of the lower Feather River system. They may also provide several days or weeks of rearing opportunities in the lower Bear River, even for fish born in the Feather or Yuba. The DEIS must analyze the Proposed Action's impacts to the lower Bear River in the context of this relative scarcity of rearing habitat in the lower Feather River.

The DEIS should situate the effects of the Proposed Action in the context of the aquatic resources of the Bay-Delta estuary under today's conditions. These aquatic resources are seriously degraded, and some native species are at high risk of extinction. The impact of

incremental reductions in inflow and outflow under these degraded conditions is greater than it would be under conditions in the aquatic ecosystem were not already so damaged.

As noted above, the geographic scope of the DEIS should include watersheds from which water is drawn to the Bear River, in particular the South Yuba River and Middle Yuba River watersheds; areas to which Bear River water is exported through NID's water deliveries, such as Auburn Ravine, Coon Creek, Doty Ravine, and Folsom Reservoir; downstream areas of influence of the Bear River, including the Feather River, Dry Creek (Spenceville), the Sacramento River and the Bay-Delta estuary; and areas of the San Joaquin watershed to the degree that deprivation of Delta inflow and outflow may affect water resources and uses there.

The temporal scope of the DEIS should include the period immediately prior to the construction of the first impediments to spawning, rearing, and outmigration of salmonids in the Bear River through reasonably foreseeable future actions potentially affecting water and aquatic resources, in particular flow volume and temperature, that will affect both anadromous and resident aquatic species in the Sacramento Bay-Delta system.

Future closely related actions should include any contemplated modification, construction, or re-operation of hydroelectric power facilities and modification or construction of water storage and conveyance within the geographic scope of the DEIS; otherwise, the DEIS should state explicitly that these are not contemplated within the lifespan of the Proposed Action. Closely related actions or actions cumulatively analyzed should include all past, present, and future mining, debris management, hydroelectric development, water supply development, flood control development, and recreational development within the geographic and temporal scope.

The DEIS must not limit its geographic and temporal scopes to the localized action and its immediate future impacts, because this would deny the public and decision makers sufficient information to comprehend the Bear River watershed's effects and contributions to the watersheds and the critical habitat in the Sacramento River and Bay-Delta system.

VII. The DEIS must identify reasonable mitigation measures.

NEPA requires that "all relevant, reasonable mitigation measures that could improve the Proposed Action ...be identified," including those outside the Corps' jurisdiction.⁵¹ This includes feasible measures for any adverse environmental impact, even those that are not considered significant.⁵² Therefore, the DEIS must include an analysis of relevant, reasonable mitigation measures. For example, the DEIS should consider purchase of alternative lands as a feasible mitigation measure for impacts to river corridors and oak woodlands; such resources cannot be easily replaced and include attributes difficult to match. The description of any such mitigation measure should include key components such as timing of acquisitions, cost to acquire and/or restore alternative habitats, possible location of acquisitions, and net impacts/benefits to specific wildlife habitats and recreation/cultural uses.

⁵¹ See NEPA's 40 Most Asked Questions, 19b, available at <http://ceq.hss.doe.gov/nepa/regs/40/40p3.htm>.

⁵² 40 CFR section 1502.16(h).

VIII. Conclusion

Thank you for consideration of the Network's comments on the NOI for the Proposed Centennial Project. Please contact Traci Van Thull, Coordinator, Foothills Water Network, if you have any questions.

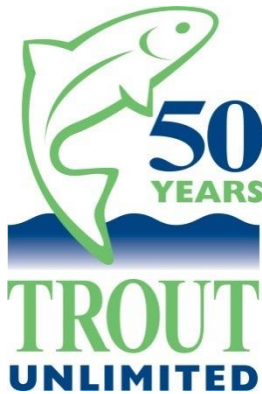
Respectfully submitted,



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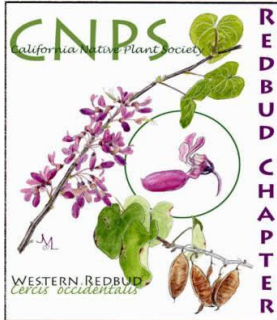
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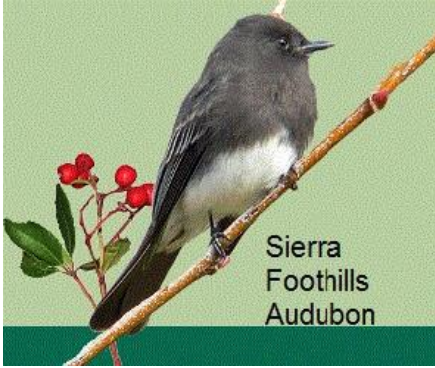
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WOLF CREEK COMMUNITY ALLIANCE

"Grass Valley - A creek runs through it."

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