

**VIA ELECTRONIC MAIL**

September 5, 2018

U.S. Army Corps of Engineers Sacramento District  
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**RE: USACE Isabella Dam Modification Project Public Safety Concerns, Significant New Information, and Changes in Conditions**

Dear Mr. Krzys:

The Kern-Kaweah Chapter of the Sierra Club, Sequoia ForestKeeper®, the Center for Biological Diversity, and Western Watersheds Project (collectively “conservation groups”) submit this letter regarding public safety hazards associated with the Isabella Lake Dam Safety Modification Project that have not been fully addressed in the piecemeal environmental review and project approval process. Because there is significant new information and changed circumstances that must be addressed regarding rainfall patterns affecting the frequency of potential flood events and the risks of dam overtopping and flooding,<sup>123</sup> we urge the U.S. Army Corps of Engineers (USACE) to prepare a supplemental environmental review for this project. The conservation groups have participated in the public review process and attended meetings

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<sup>1</sup> See, e.g., NOAA Research News, [When noise becomes signal: Unusual California precipitation over last two winters could have been predicted](#), Friday, July 27, 2018, *discussing* Wang et al. (2017). Seasonal noise versus subseasonal signal: Forecasts of California precipitation during the unusual winters of 2015–2016 and 2016–2017. *Geophysical Research Letters*, 44, 9513–9520. <https://doi.org/10.1002/2017GL075052>

<sup>2</sup> See Institute for Basic Science, Science Daily, [The blueprint for El Nino diversity](#) *discussing* Timmermann et al. (2018) El Niño–Southern Oscillation complexity. *Nature*. volume 559, pages 535–545

<sup>3</sup> See Stanford News. Than, Ker. March 21, 2017. Heavy California rains par for the course for climate change: available at <https://news.stanford.edu/2017/03/21/heavy-california-rains-par-course-climate-change/>

with the U.S. Army Corps of Engineers (USACE) regarding this project.

Conservation groups continue to have concerns about the process and substance of the USACE decisions regarding the project design and implementation including the most recent decision of 14 February 2018, to approved a \$204 million Contract to modify the dam by increasing the height by 16 feet, with other modifications, including improvements to the Main and Auxiliary Dams and construction of a new 300-foot wide Emergency Spillway in order to protect the public safety of the residents of Bakersfield, California from a 10,000-year flood event.

The 2012 Final EIS for the Project indicates, “Under this alternative the PMF [probable maximal flood] pool is estimated to be 2,649 (NAVD 88), which correlates to an increased maximum pool elevation of 2 feet. The increased pool elevation would only occur under the PMF flood event, which is estimated as having a 1 in 10,000 probability of occurrence **in any given year.**”<sup>4</sup> Conservation groups suggested an alternative to raising the dam level in our 22 May 2012 comments, which would **instead remove accumulated silt from the reservoir behind the dam** to contain waters from the 1 in 10,000 probability flood event occurring in any given year, rather than raising the dam level in order to avoid impacts of additional flooding. The Corps rejected that alternative without any meaningful evaluation with only conclusory statements in responses to comments— “Borrow investigations have shown that materials in the lake bottom are not cost effective for filter and drain materials and would introduce other environmental concerns, such as water quality effects associated with lake lowering, and increased fugitive dust concerns.”<sup>5</sup> This response does not adequately address why this alternative was rejected. For example, new methods for sediment removal are being developed and reuse of dredged sediments can reduce other impacts.<sup>6</sup> The Corps failed to fully address this alternative in 2012 but could still do so now.

We understand that the project was designed to protect public safety of the residents of Bakersfield, however, as the Conservation groups explained in our 22 May 2012 comments, the project would put at great risk residents of the Kern River Valley and habitats behind the dam.

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<sup>4</sup> October 2012 *Isabella Lake Dam Safety Modification Project, Final EIS page ix* LAKE LEVELS AND CONVERSIONS (emphasis added); and Isabella Lake Vertical Datum and Capacity References (found at: [http://www.spk.usace.army.mil/Missions/Civil-Works/Isabella-Dam/isabella\\_archive/ Final EIS & Record of Decision Draft EIS Volume 1 Volume 2](http://www.spk.usace.army.mil/Missions/Civil-Works/Isabella-Dam/isabella_archive/Final_EIS_&_Record_of_Decision_Draft_EIS_Volume_1_Volume_2)). The Emergency Spillway would function independently from the Existing Spillway, and would begin to function around elevation 2,637.26 feet (NAVD 88); current elevation of the top of dam, 28.0 feet higher than Existing Spillway. The FEIS also says, “Under this alternative the PMF pool is estimated at 2649.26 (NAVD 88), or an increased maximum pool elevation of 1.96 feet. This would only occur under the PMF flood event, which is estimated as having a 1 in 10,000 probability of occurrence in any given year. Figure 2-22 displays the projected reservoir levels under Alternative Plan 4 as well as reservoir levels for the very low probability PMF storm event under the No Acton Alternative and Alternative Plan 4.” (Volume 1, page 2-33)

<sup>5</sup> 2012 FEIS at 6-9.

<sup>6</sup> See Jannes Kamphuis, Kristian Meerse. Integrated Sediment Management in Rivers and Reservoirs. American Journal of Civil Engineering. Vol. 5, No. 6, 2017, pp. 315-319. doi: 10.11648/j.ajce.20170506.11 available at <http://article.sciencepublishinggroup.com/pdf/10.11648.j.ajce.20170506.11.pdf>

The Corps' response to comments regarding impacts of flooding were also conclusory: "The crest raise will not have any impact on properties or airport.";<sup>7</sup> and "Raising the dam crest to the planned height does not affect flooding in Kernville. Flood events required to raise the pool to the height of the crest raise would independently cause flooding in Kernville due to the high flows on the North Fork of the Kern River. The flooding would be caused by river flows."<sup>8</sup> These critical issues were not adequately addressed by the Corps in the FEIS or in any of the subsequent EAs.

On May 10, 2018, Rick Brown, Public Affairs Specialist, USACE - Sacramento District, confirmed that the Phase II contract will include the dams and spillway construction as specified by the numbers cited below:

- Current main and auxiliary dam crests = 2,637.3 (2,653.3 after the 16' raise)
- service spillway crest 2,609.3<sup>9</sup>
- new emergency spillway crest = 2,637.3
- current PMF elevation = 2647.3 (2,649.3 after dam raise)

If the dam design modifications and the emergency spillway were to be put into effect with the probable maximal flood event in any year, not only would the habitat of the Southwestern Willow Flycatcher and Western Yellow-billed Cuckoo and other riparian species be flooded, but residences, businesses, county roads, and state highways for visitors and residents in the Kern River Valley behind the dam would also be flooded. The roads that would be underwater would essentially trap people in a flooded valley with no way to escape, and possibly cause many preventable deaths. These facts were not disclosed in the 2012 FEIS or later EAs. Raising the crest of the dam could result in flooding a greater area, even if the EIS states otherwise. Additional height is not needed unless additional storage in the future is intended. Repairing the dam at its current height should have been fully addressed as it would be sufficient to protect downstream residents without increasing flood risk upstream.

The Center for Biological Diversity, created a GIS vector file and map of the Isabella reservoir shoreline showing the inundation zone at pool elevations between 2640 and 2649 feet. These maps are provided as Exhibit B. The maps indicate that many residences, businesses, and roads in the towns around the reservoir would be flooded at these pool elevations.

Even though the USACE states that it "does not intend to increase the rated normal pool", if the emergency spillway is utilized, due to heavy rains and accompanying snowmelt, floodwater

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<sup>7</sup> 2012 FEIS, Appx. A at A-27; *id.* at A-36 (same),

<sup>8</sup> 2012 FEIS, Appx. A at A-13.

<sup>9</sup> The 2012 FEIS stated the service spillway crest would be 2,605.5 feet. The ACOE 2010 Draft EA for the Auxiliary\_Dam\_Left\_Abutment (attached as Exh. A) also stated the spillway crest elevation would be 2,605.5 feet. Mr. Brown stated that was inaccurate and the spillway crest is actually elevation 2,609.3 but did not provide any explanation of when that change/correction was made.

could rise to the level of the new 16-foot higher dam height, exceed the pool, and flood lands in the Kern River Valley beyond the pool—lands that have not previously been inundated by rising waters behind Isabella reservoir, including complete inundation of some businesses and residences in Tillie Creek and Wofford Heights on the north west side, Kernville on the north side, the Kernville Airport on the north east side along with intermittent and partial flooding of parts of Sierra Way on the north, east, and south east sides of the reservoir, in addition to large portions of private land from the north east through the south, as well as residences and businesses and large portions of Highway 178 in Weldon, Bella Vista, South Lake, and Mountain Mesa on the south side of the reservoir, which could close emergency escape routes for exiting visitors and residents in the event of wildfires and other emergencies all around the Isabella reservoir. Although the agency managing the dam is different, over-topping of the Oroville Dam in 2017 created exigent circumstance that highlights as a real probability the potential of a dam over-topping disaster in any year due to changing weather patterns which clearly constitute changed circumstances relevant to the Lake Isabella Dam Modification project.

The National Environmental Policy Act (NEPA) requires that all federal government agencies take a “hard look” at the environmental impacts of any federal agency action and consider all alternatives that minimize such impacts. 42 U.S.C. § 4332(2)(C); 40 C.F.R. §§ 1500.1, 1502.14; *see, e.g., Native Ecosystems Council v. U.S. Forest Serv.*, 428 F.3d 1233, 1239 (9th Cir. 2005). Courts have found that “[a]n agency’s NEPA responsibilities do not end with the initial assessment,” as NEPA “imposes a continuing duty to supplement previous environmental documents.” *Price Road Neighborhood Ass’n v. U.S. Dept. of Transportation*, 113 F.3d 1505, 1509 (9th Cir. 1997); *see also Friends of the Clearwater v. Dombeck*, 222 F.3d 552, 557 (9th Cir. 2000) (“an agency that has prepared an EIS [Environmental Impact Statement] cannot simply rest on the original document,” but rather “must be alert to new information that may alter the results of its original environmental analysis”).

In particular, NEPA requires an SEIS to be prepared if “[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.” 40 C.F.R. § 1502.9(c)(1). *See Ctr. for Biological Diversity v. BLM*, 937 F. Supp. 2d.1140, 1157 (N.D. Cal. 2013) (holding that where earlier environmental review did not address “concerns that are specific to these ‘new and significant environmental impacts,’ further environmental analysis was necessary.”). Here, the increased potential for more frequent high-volume flood flows create a greater risk of dam overtopping and for flood waters to be trapped behind the dam, trigger the preparation of an SEIS.

The Oroville Dam overtopping by the 2017 heavy rain event and accompanying snowmelt created an exigent circumstance that was not described or understood at the time of the original Isabella Dam Modification environmental review and has not been addressed in later environmental documents. The Oroville Dam incident provides new information and is evidence of changed circumstances regarding flooding and risks that the Corps must address in a supplemental environmental review document which includes full disclosure of the risk to residents behind the Isabella Dam from the raising of the dam, including approximately 330

structures including business, residences, and outbuildings, most of which had never before been subject to inundation flooding. Because the Isabella Dam would be raised 16 feet, these structures along with roads and other critical infrastructure could now be inundated, when the dam is overtopped by heavy rain events. Approximately 20% of the population of the Kern River Valley (permanent residents not including seasonal residents or visitors) of the 12,436 permanent residents (according to the 2010 US Census) would be completely cut off from any escape route in the event of a catastrophic rain event. All others would have only one escape route due to 20.6 miles of impassible roads due to reservoir flooding. (Inundated road lengths were measured by tracing across those segments on the attached maps.) The impassible roads would include the three major arteries behind the dam.

Sequoia ForestKeeper® prepared maps showing various contour levels from 2,584 foot to the 2,653.5 foot contour line (dam crest after 16' raise) of the Isabella reservoir, at the current and up to the maximal flood level if the new crest of the dam were overtopped. This is a pool level to which floodwaters could rise, if the project were to be completed as proposed, Exhibit C. Other maps are attached as Exhibit D and show inundation all around the reservoir with detailed close-ups in some communities where emergency escape routes, businesses, and residents will be inundated. Blue shading = Inundation Zone < 2640'; Red shading = Inundation Zone 2640'-2649'.

The resultant maximal pool, calculated to be approximately 2.1 million acre feet of water, would also increase the sediment loading and water weight against the dam and bring a greater potential for a dam failure disaster to the City of Bakersfield. This increased loading against the fault line on which the dam has been constructed, could also exacerbate earthquake risk while the dam is full. Additionally, the 2.5-million cubic yards of fill, placed on top of the dam structure and the Kern Canyon Fault at Engineer Point, could shift during a seismic event creating a lake tsunami that could overtop the crest of the dam.

In addition, the conservation groups are concerned that the ongoing mitigation work for this project is not being properly carried out and, rather than mitigating impacts of the project, will cause additional significant impacts including the spread of invasive non-native vegetation. Field studies by Sequoia ForestKeeper and Western Watersheds Project scientists of portions of the mitigation sites of the Isabella Dam Modification Project, identified as the Mitigation Planting, led to the discovery of *Marrubium vulgare*, a plant listed as invasive by the California Invasive Plant Council (Cal-IPC) among the species being planted. The restoration project was listed in the EIS, which never defined where it would be implemented. "Restoration would include planting at least a portion of forests on upper terrace sites that do not regularly flood." (DEIS Page 3-219)

Our ecologists found not only an invasive plant being planted, but also determined that marshland, riparian, chaparral, oak-woodland, and Mojave Desert plants were planted side by side in an upland area next to and in some cases in the South Fork Wildlife Area's inundation zone for the reservoir and on land purchased to mitigate flooding of endangered bird nests. The

plants on the list are not all native to the Kern River Valley. In an area that has unique genetic diversity, seed stock or nursery stock from outside of Kern County is absolutely unacceptable. This new information yields serious questions as to the professional quality of contractors hired by the Corps and why local professionals were not consulted during the planting of this multi-million-dollar segment of the project. See Exhibit E, Contractor plant list.



Figure 1. one of many White Horehound planted by Landology.



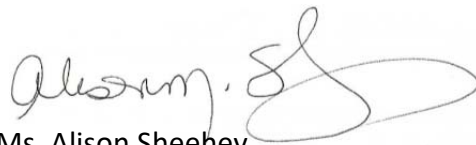
Figure 2. Sign at mitigation sites.

We urge the Corps to address the issues raised in this letter and our earlier comments and reconsider an alternative that would reinforce the unconsolidated material below the existing auxiliary dam and dredge the accumulated sediment from the reservoir rather than raise the dam and risk inundating emergency escape routes, businesses, and residents well above historic flood elevations. Under this alternate scenario, excess water could potentially be delivered downstream and stored in the historic flood zones of Kern, Buena Vista, and Tulare Lakes, under agreements with landowners in the San Joaquin Valley flood zones. Studies by NASA, UCLA, and the University of Houston confirm the need to reinvigorate groundwater storage<sup>10</sup> and this alternate scenario would reinvigorate groundwater storage in the central valley and provide a substantial hedge against drought and climate change.

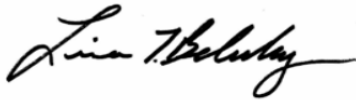
Sincerely,



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<sup>10</sup> See Sacramento Bee. July 13, 2018. Dale Kasler and Phillip Reese. The Valley floor is sinking, and it's crippling California's ability to deliver water <https://www.sacbee.com/news/state/california/water-and-drought/article214631455.html>

**Exhibits (attached):**

Exhibit A- Email chain with Rick Brown

Exhibit B. 1-5- Maps from Center for Biological Diversity

Exhibit C & D.1-5 - Maps from Sequoia ForestKeeper®

Exhibit E.1-2 – Contractor Plant List and abbreviation of instructions for Mitigation Planting and Establishment Project at South Fork and Sprague Ranch

**References (attached):**

ACOE. September 2010. Draft Environmental Assessment. Auxiliary Dam Left Abutment Project. Isabella Lake, Kern Co. California

Institute for Basic Science. "The blueprint for El Niño diversity." ScienceDaily. 26 July 2018. [www.sciencedaily.com/releases/2018/07/180726085803.htm](http://www.sciencedaily.com/releases/2018/07/180726085803.htm) .

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