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April 9, 2018

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Submitted electronically via the Commission's eFiling and eComment systems at http://www.ferc.gov/docs-filing/efiling.asp *;* http://www.ferc.gov/docs-filing/ecomment.asp ; and peter.yarrington@ferc.gov

Re: **FERC Project No. 2035-099**
SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT FOR AMENDMENT OF HYDROPOWER LICENSE
Gross Reservoir Hydroelectric Project—FERC Project No. 2035-099, Colorado

Dear Secretary Bose and Mr. Yarrington:

Save the Colorado and The Environment Group of Colorado appreciate the opportunity to submit these comments on the Supplemental Environmental Assessment (SEA) released by the Federal Energy Regulatory Commission (FERC or the Commission) on February 12, 2018 as part of FERC Docket 2035-099, the Gross Reservoir Hydroelectric Project ("Gross Dam and Reservoir") which is a component of the overall Moffat Collection System Project ("Moffat Project").

On March 26, 2018, Save The Colorado, filed a Motion to Intervene Out of Time in this matter. As of this submission, the Commission has not granted nor denied that motion. By filing these comments, Save The Colorado intends to take advantage of the public comment period for this matter but maintains its claims that its needs for effective participation in this matter can only be met through intervenor status.

These comments are dependent on the work of several qualified experts who have prepared technical reports in their respective fields. These reports are attached here and referenced throughout this document.

1. Introduction & Summary of Comment

A central question presented by the SEA is whether the facts, the science, the record, and the law support the conclusion that the Gross Dam and Reservoir project, as currently proposed, would not significantly affect the quality of the human environment. As explained below, and in comments attached to or incorporated into this letter by reference, the "Finding Of No Significant Impact" (FONSI) is unsupported.

On the existing record, the project is not entitled to federal approvals. Licensing and permits should be denied by the Commission and Cooperating Agencies including the U.S. Army Corps of Engineers (Corps). Should the agencies seek to conduct additional environmental analysis to address the deficiencies in existing NEPA, a Supplemental Environmental Impact Statement (SEIS) should be prepared with the Corps as lead agency.

The SEA (at pages iv and 5) affirms that the hydropower component is incidental to the project. The SEA acknowledges that existing NEPA prepared by the Corps is inadequate. "However, at the time the Final EIS was produced, not all aspects of the plans for enlarging Gross Reservoir had been completed, and not all aspects of the proposed license amendment had been finalized." SEA at 4. New components of the project and new information require supplemental NEPA analysis to comply with the statute before approvals or permits can issue. Important aspects of the project remain conjectural, frustrating NEPA's goals of informed decision-making and meaningful public participation.

The SEA ignored NEPA's alternatives requirement. This matters because reasonable and viable alternatives exist that satisfy the purpose and need, and better advance statutory goals including environmental protection. The project fails the public interest balancing test under the Federal Power Act.

The SEA exhibits a misunderstanding of this complex project, and consistently under-states or mis-states impacts. The conclusion that the project will not have significant impacts is unsupported by the record, and contradicted by the objective analysis in comments provided by experts without a vested interest in project approval.

Below, this comment further explains these points by reviewing specific legal requirements, facts in or missing from the record, new information, the best available science, and the content of the SEA.

2. NEPA's Supplement Requirement

EIS Supplements are governed by Council of Environmental Quality (CEQ) regulations.

> (c) Agencies:
>
> (1) Shall prepare supplements to either draft or final environmental impact statements if:
>
> (i) <u>The agency makes substantial changes in the proposed action that are relevant to environmental concerns</u>; or
>
> (ii) <u>There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts</u>.
>
> (2) May also prepare supplements when the agency determines that <u>the purposes of the Act will be furthered by doing so</u>.

(3) Shall adopt procedures for introducing a supplement into its formal administrative record, if such a record exists.

(4) Shall prepare, circulate, and file a supplement to a statement in the same fashion (exclusive of scoping) as a draft and final statement unless alternative procedures are approved by the Council.

40 C.F.R. §1502.9(c) (emphasis added).

Here, substantial changes were proposed since the FEIS published by the Corps in 2014, new circumstances and information exist, and NEPA will be furthered by preparing an SEIS under parts (1) and (2) above. Part (4) provides for preparing and the Supplement in the same manner as the original EIS. That requires an SEIS with the Corps as lead agency, rather than an SEA published by another agency.

Consistent with the CEQ regulations, the Corps' NEPA guidance provides for a supplemental EIS under the circumstances present here. See Appendix B to Part 325—NEPA Implementation Procedures for the Regulatory Program – cites to 33 CFR 230.13(b). See http://www.poa.usace.army.mil/Portals/34/docs/regulatory/33%20CFR%20Part%20325%20Appendix%20B%20.pdf at page 10. That regulation provides (emphasis added below):

(b)Supplements. A supplement to the draft or final EIS should be prepared whenever required as discussed in 40 CFR 1502.09(c). A supplement to a draft EIS should be prepared and filed in the same manner as a draft EIS and should be titled "Supplement I", "Supplement II", etc. The final EIS should address the changes noted in the supplement and substantive comments received as a result of circulation of the document. A supplement to a final EIS should be prepared and filed first as a draft supplement and then as a final supplement. Supplements will be filed and circulated in the same manner as a draft and final EIS[.]

Thus, Corps NEPA regulations require supplements when there are significant new circumstances or information, and where substantial changes relevant to environmental concerns are proposed. Regulations and guidance both provide for multiple supplements, filed and circulated in the same manner as a DEIS.

This position is supported by NEPA precedent. See Bundorf v. Jewell, 142 F. Supp. 3d 1138, 1150–51 (D. Nev.), clarified on denial of reconsideration, 142 F. Supp. 3d 1133 (D. Nev. 2015) (When "a major federal action remains to occur. Federal Defendants must prepare an SEIS that addresses the new information about golden eagles in and around the Project area."). Here, the Commission's pending decision is a major federal action that remains to occur, and project construction is not scheduled to start until 2020 under the most optimistic scenario.

The Corps has been the lead agency for the NEPA component of the project since 2003. Over that time, Corps staff has developed a knowledge base on this complex and multi-faceted project that is not generally shared by staff at the Commission.

The SEA (at page iv) recognizes the complexity of the Denver Water proposal, and outlines the overall project:

> In this supplemental environmental assessment (Supplemental EA), Federal Energy Regulatory Commission (Commission or FERC) staff reviews the environmental effects

> of the City and County of Denver, Colorado's (Denver Water) November 25, 2016 application to amend the license for its Gross Reservoir Hydroelectric Project No. 2035 to raise the elevation of the project's Gross Dam and increase storage in the project's Gross Reservoir.
>
> Gross Reservoir is a component of Denver Water's Moffat Collection System, which is a large, complex water collection and storage system which moves water from the west side of the Continental Divide to the east side, providing municipal water supply for Denver and the surrounding area. Denver Water proposes enlarging Gross Reservoir and amending the project license because the enlargement would be necessary in order to store the water in the enlarged system.

The summary establishes that a fundamental and necessary project component is moving water from the West Slope to the Front Range for use by Denver Water.

Given that the hydro-power component of the proposal is incidental to those aspects of the project subject to Corps jurisdiction, the Corps is the appropriate lead agency for NEPA. The Corps is equally or more knowledgeable than the Commission regarding the dam design and construction issues covered in the SEA. This choice of lead agency is reinforced by the special legal requirements and procedures applying to the Commission's docket on this matter, including aspects that could make it more difficult for concerned citizens and NGOs to participate fully in Commission proceedings, or to exercise their legal right to challenge NEPA documents.[1]

3. Substantial Changes, Significant Impacts, and New Information

As currently proposed, the Moffat Project differs significantly from the version originally proposed to the Corps in 2003, and subsequently analyzed in the 2007 DEIS and the 2014 FEIS. Among the most striking differences between 2003 and 2018 is that existing approvals and the tentative FONSI in the SEA are un-informed by current data going to the purpose and need. Specifically, Denver Water's application relies almost exclusively on 15 years of data from before 2002, and ignores 14 years of data, trends, and graphs for the post-2002 period that establish the project is not needed, nor is there any need on the planning horizon. The expert comments of Gordon McCurry and Lisa Buchanan address this issue as summarized below and in attached appendices.

In short, since 2002, water use and demand within Denver Water's service area are "decoupled" from recent population or job growth, meaning that although population has increased, water use and water demand have decreased. Despite comprehensive documentation of decoupling being the most significant and relevant development since the project was originally proposed, the SEA lacks a single reference to the concept. That omission alone renders the SEA inadequate.

The fact that the project is unneeded today matters because of the substantial socioeconomic and environmental impacts that makes it highly controversial. Denver Water seeks federal regulatory approvals for project components that would:

- Build the tallest dam in the history of the State of Colorado (at 470 feet);
- Approximately double the size and triple the capacity of the existing Gross Reservoir;

[1] Save the Colorado has filed a "Motion to Intervene" in the FERC docket for Gross, but is not currently a party to that proceeding.

- Undertake the largest and most expensive construction project in the 157-year history of Boulder County at a cost estimated to range from $380-450 million according to a 2015 Denver Water Fact Sheet;[2]
- Significant components of the design and construction of the dam are newly proposed, including but not limited to the "Roller Compacted Concrete" design and whether to replace the proposed auxiliary spillway with a saddle dam;
- Implement a Forest Service settlement reached during the pendency of the FERC proceeding, aspiring to address certain impacts including but not limited to impacts and mitigation related to sensitive and protected wetlands habitat and the forest ecosystem but omitting much substantial information;
- Require the clearcutting and removal of more than 200,000 trees including patches of old growth forests;
- Establish the "Osprey Point" quarry on-site with the capacity to produce as much as 1.6 million tons (approximately 1 million cubic yards) of finished aggregate material for the dam;
- Build a concrete plant on site in close proximity to residences;
- Require 24/7 construction activities for more than four years under the current construction schedule, compromising the quality of life of thousands of residents in the Gross Reservoir area who are drawn to the area for the quiet, stillness, isolation, and scenic beauty;
- Result in high levels of truck traffic on narrow, winding mountain roads used by residents and visitors to access homes and recreational amenities (a total estimate of truck trips is not provided by the SEA but moving off-site construction materials to the site is currently estimated at 6,552 trips);
- Transportation impacts for heavy materials would include moving significant (but unspecified) tonnage of highly toxic fly ash from a Wyoming location 350 miles away; significant quantities of cement from a South-Central Colorado location approximately 148 miles away; and a currently estimated 50,000 tons of vegetative material down the canyon roads from the project site;
- Workers would be transported to and from the site daily;
- Cause elevated levels of mercury in Gross Reservoir that are expected to necessitate a fish consumption advisory for humans but no mitigation to prevent impacts to the food chain or natural ecosystem;
- Inundate Forsythe Falls under the expanded Gross Reservoir, one of the leading National Forest features and mid-elevation hikes in Boulder County and rated among the top ten waterfalls in Colorado's Front Range within an hour of metro Denver;
- Further contribute to existing conditions on South Boulder Creek below the dam whereby winter stream temperatures prevail year-round to the detriment of the fishery and other aquatic life forms;
- Log or otherwise impact hundreds of acres of elk winter concentration areas;
- Further alter flows, temperatures and the community of aquatic life in both the South Boulder Creek and Upper Colorado River watersheds on both sides of the Continental Divide;
- Divert 15,000 to 18,000 acre-feet per year (AFY) of additional water (in average or high runoff years) from headwaters streams in the Upper Colorado River watershed on the West Slope, notwithstanding existing data that in approximately 1/3 to 1/2 of impacted

[2] "Boulder County was one of the original 17 counties organized by an enabling act of the first Colorado Territorial Legislature on Nov. 1, 1861." See https://www.bouldercounty.org/government/about-boulder-county/history/

Upper Colorado streams the fisheries are already classified as “collapsed” or near collapse; and the fish populations as past, near, or on the brink of the “ecosystem tipping point”;

- Detrimentally impact and result in “take” (mortality) to the greenback lineage cutthroat trout in a substantial proportion (5 of 60) of the remaining streams on the West Slope providing habitat for this at risk and newly identified native lineage currently under review by USFWS ;
- Likely result in water quality violations in the Upper Colorado for limits including e coli, copper, and possibly other heavy metals;
- At the same time, a wealth of new information regarding potential alternatives and the project purpose and need, among other components, has become available since release of the FEIS.

Although some of these impacts were addressed in the Corps’ 2014 FEIS, many of the project components or impacts were not adequately disclosed or analyzed in the EIS, and/or that analysis requires updated based on new information and scientific findings. This includes entirely new information since the FEIS going to major impacts such as the proposed quarry; the concrete plant; the transport of fly ash; tree removal and vegetation disposal; specifics going to the dam design, operation, and safety; aquatic and terrestrial ecological impacts; and socio-economic impacts to residents and the greater project area, including recreational visitors and users.

These observations are consistent with Boulder County’s comment (at page 2) noting the “staleness of the data in the FEIS and the failure to consider the impacts of climate change upon the Moffat Collection System project and streams that will be dewatered as a result of the project.” As Boulder County states: “Whether Denver Water can meet the purpose and need it set for itself is a threshold issue under NEPA (42 U.S.C. § 4332(2)(c); 40 C.F.R. § 1502.13; *Protect Our Communities Foundation v. Jewell,* 825 F.3d 571, 579 (9th Cir. 2016)) and it is still a very relevant issue for the FERC to decide.” Id.

Notwithstanding the impacts outlined above, the concerns of the local government most affected by the construction project, and despite omitting analysis of many of the project comments summarized above, the SEA contains a “FINDING OF NO SIGNIFICANT IMPACT”:

> If the proposed amendment to the Gross Reservoir Hydroelectric Project is approved with Denver Water’s proposed measures, the project would continue to operate while providing protection and enhancements to water quality, aquatic resources, terrestrial resources, recreation, and cultural resources.
>
> Based on our independent analysis, Denver Water’s proposed modifications that were not assessed in the 2014 Final EIS, as mitigated by the environmental measures discussed in this Supplemental EA, would not constitute a major federal action significantly affecting the quality of the human environment.

SEA at 94.

Standing alone, the impacts of several of the individual project components meet and surpass the significance threshold. Considered collectively, the direct, indirect and cumulative impacts of newly proposed or evolving aspects of the project, considered in addition to new information, surpass NEPA’s significance threshold requiring preparation of a Supplemental EIS. In short, the SEA’s proposed “FONSI” finding is unsupported by the record or the facts on the ground.

Denver Water's April 3, 2018 comment on the SEA asserts that "the EIS stands alone as a comprehensive environmental document, thoroughly reviewing all impacts associated with the Moffat Project[.]" However, all impacts were not – and could not be - thoroughly reviewed by the EIS, because significant components of the project have significantly changed since the analysis relied on by the EIS was conducted, and new information and science requires re-opening the EIS and reconsidering whether the project complies with NEPA, the Clean Water Act, the Federal Power Act, and other applicable federal law.

4. **Impacts to the ecological environment and recreation must be balanced against the asserted benefits of the dam, and significant ecological or recreational impacts are grounds for denying the permit.**

The SEA recognizes the applicability of Section 10(a) of the Federal Power Act to the proposed Gross Dam and Reservoir project, but fails to consider parts of the Act requiring the Commission to give equal consideration to protection and enhancement of fish and wildlife, the protection of recreational opportunities, and the preservation of other aspects of environmental quality.

Although these legal requirements appear to have been omitted from the EA, the Conservation Groups identified them in a 1987 FERC decision that denied a proposed license under the Act.

> On October 16, 1986, the President signed the Electric Consumers Protection Act of 1986 (ECPA), Pub.L. No. 99–495, which amended Section 4(e) of the FPA, pertaining to the Commission's licensing authority, by adding the following sentence:
> In deciding whether to issue any license under this Part for any project, the Commission, in addition to the power and development purposes for which licenses are issued, shall give equal consideration to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of, fish and wildlife (including related spawning grounds and habitat), the protection of recreational opportunities, and the preservation of other aspects of environmental quality.
>
> ECPA also amended Section 10(a) to become Section 10(a)(1) and added the following underscored words:
>
> That the project adopted, including the maps, plans, and specifications, shall be such as in the judgment of the Commission will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce, for the improvement and utilization of water power development, for the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat), and for other beneficial uses, including irrigation, flood control, water supply, and recreational and other purposes referred to in section 4(e).

Northern Lights, Inc., 39 FERC P 61352 (1987), Slip Op at 4-5 (copy available on request).

FERC decisions recognize that ecological and recreational impacts are relevant to its permitting decisions under the Act.

> It is clear that the proposed development would change the ecological environment downstream from Libby Dam and adversely affect the wild riverine fishery. The proposed dam at the crest of Kootenai Falls would impound 3.5 miles of the river, inundating

various rapids including China Rapids, and thereby diminish the re-aeration capability of the river.

The impoundment would also reduce the velocity of the flows and thereby affect the fish-carrying capacity of the river by carrying fewer insects and macroinvertebrates past the mouths of rainbow trout, which are drift feeders (Tr. 7329).

The reduction in the velocities of the flows would also deposit suspended materials on the bottom and thereby change the environment for the benthic macroinvertebrates, which would also affect the number of drifting macroinvertebrates (Ex. 114 at 8). The interacting implications of these and other changes divide the experts and the parties with respect to what would happen to the rainbow trout population between Libby Dam and Kootenai Falls.

While the opponents contend on the basis of evidence that the proposed development would adversely affect the rainbow trout population, Northern Lights *62106 contends otherwise on the basis of other evidence and, in any event, that any adverse impact can be mitigated through restocking. We find in the Circumstances of this case, wherein large amounts have been spent and special efforts have been made by the United States to enhance the rainbow trout fishery downstream from Libby Dam, that the substitution of mitigation measures for the Corps' trout fishery would, on balance, not be in the public interest.

In Namekagon (note 8, supra), the Seventh Circuit said, 216 F.2d at 512, that the Commission has “the right to consider” that there is nothing unusual or unique about a body of water that is impounded by a proposed hydroelectric development, and that such an impoundment would provide recreational opportunities (boating and fishing, in that case) that are comparable to the opportunities found at other nearby lakes. We find that that would be true of the proposed impoundment herein, which would provide flatwater recreational opportunities that are comparable to those of Lake Koocanusa. Particularly because the formation of that lake destroyed 48 miles of wild riverine fishery in Montana (90 miles including Canada), we also find that the existing wild riverine fishing opportunities in the 3.5 miles upstream from the proposed dam are sufficiently unusual or unique to be worth preserving in the public interest.

Downstream from the proposed dam, the flow through the falls would be reduced to a near constant 750 cfs, which Northern Lights contends on the basis of cited evidence (Northern Lights' Opposition at 130) “will likely sustain the aquatic community at a size comparable to what it is under existing conditions.” We have reservations with respect to the credibility of Northern Lights' proof in view of the fact that the proposed near-constant flow of 750 cfs is lower than any recorded flow before the construction of Libby Dam, and is only three-eighths of the minimum discharge authorized at Libby Dam for short periods during emergencies. Furthermore, we cannot ignore the substantial body of evidence to the contrary, including the testimony of Montana's witness May, who has been studying fish populations in the Kootenai River since 1969 as part of his job with the Department of Fish, Wildlife and Parks (Ex. 118 at 2), and who said that the 750 cfs “would result in a markedly lower trout population” in that part of the river (Ex. 118 at 11–12). (See Ex. 116A at 3 to the same effect.) Because of the sharp conflict of expert opinion, our foregoing reservations, and the fact that the impact of the 750 cfs cannot be ascertained (regardless of anyone's opinion) until after the proposed development would be placed into operation, we find that the minimum level of mitigation

needed to sustain the fish population (if a license were to be issued) would be to reserve authority to require by-pass flows that are identical to the minimum discharges authorized at Libby Dam.

Northern Lights, Inc., 39 FERC P 61352 (1987), Slip Op at 4-5.

Northern Lights (Slip Op. at 8) concluded and held:

> We conclude, pursuant to Section 10(a)(1) of the FPA, that, even with proposed mitigation measures, the project is not best adapted for beneficial public uses of the Kootenai River. We conclude this based on the proposed project's adverse affect on the *62109 rainbow trout fishery, on the aesthetics of the falls themselves and on related recreation values, as well as on the religious and cultural practices and sites of the Kootenai people. Our conclusion also takes into account the need for the project power and our finding that the minimum acceptable mitigation to sustain the trout population would adversely affect project economics.

In balancing project impacts against environmental impacts, the Commission's SEA acknowledges that the primary purpose of the Gross Reservoir project is water supply, and hydroelectric power production is incidental the primary purpose.

> The need for power is not a determining factor for the proposed project. Power production at the Gross Reservoir hydroelectric facility is incidental to the operation of the project for its primary purpose of water supply. Hydroelectric energy is only generated at the project when flows are released from Gross Reservoir downstream into South Boulder Creek. These releases are based on water supply needs, maintenance of water elevation limits in response to inflows, and other operational variables. Moffat System Water supply operations are not within the Commission's jurisdiction. The operation of the expanded Moffat Collection System would cause the Gross reservoir Project to produce an estimated additional 4.4 GWh of energy per year, an increase of 16.5 percent over the existing facility. Denver Water currently uses the power generated at the project to supply the project powerhouse, the project valve house, and the caretakers' residences and facilities. The remaining power generated is sold to Xcel Energy.
>
> By producing hydroelectricity, the project displaces the need for other power sources such as fossil-fueled facilities, thereby avoiding some power plant emissions and creating an environmental benefit.

SEA at 5-6.

The SEA (at pages 6-7) further provides that the proposed action is raising Gross Dam to increase the capacity of Gross Reservoir:

> The proposed action addressed in this Supplemental EA is Denver Water's proposal to raise Gross Dam by 131 feet to increase the maximum storage capacity of Gross Reservoir. The enlargement would allow Denver Water to store an additional 77,000 acre-feet of water in the reservoir. The new maximum capacity would include an additional 72,000 acre-feet of water for which Denver Water has existing water rights, and a 5,000 acre-foot Environmental Pool that Denver Water would store for the Cities of Boulder and Lafayette.

The 72,000 AF would be diverted from the headwaters of the Upper Colorado across the Continental Divide

Accordingly, the balancing must be conducted based on the water supply component of the project, and the impacts of additional diversions on the West Slope are a direct result of the proposed action. The SEA is largely silent on both the water supply issue and impacts to the Upper Colorado. To the extent the record and the facts establish that the water supply benefits are less than stated in the Corps' EIS, the public interest balancing test is not met and the approvals sought by applicant Denver Water are unwarranted. This conclusion is reinforced to the extent the SEA (and/or the EIS) understate or omit discussion of project impacts, or the likely effectiveness of potential mitigation at reducing impacts.

The purpose and need analysis continues to relay on stale water supply data collected before the overall NEPA process commenced in 2002. But definitive new information that has become available during the course of the permit review process conclusively establishes that Denver Water's projected need for the additional water supply has not materialized. At the same time, Denver Water and its customers have taken important steps to reduce water demand and secure supplies between 2002 and 2018.

Both additional conservation savings and concrete progress on the demand and supply front are projected and/or approved for implementation in the near-term future. These trends and new information are reviewed in the SEA comment letters of Gordon McCurry and Lisa Buchanan. Buchanan's analysis and graphs (Figures 1 and 2) concludes that "total per capita use has trended downward between 2004 and 2016." Buchanan at 6. Contrary to the analysis and projections for the purpose and need in the FEIS, Buchanan's review and figures establishes the "negative slope of the actual water use trend line indicating that actual water use in the 2000s has decreased over time, likely due to successful water conservation efforts by Denver Water." Id. at 5.

The expert comments of John Woodling, PhD, Woodling Aquatics, and Geoff Elliot/Grand Environmental Services establish that substantial environmental impacts will result from the project, and that the SEA analysis of such impacts was inadequate, inaccurate, or misleading.

According to Woodling's review:

> The Final EIS was written in such a manner as to guide the reader to the conclusion that diversion of flows from the Study area may improve fisheries. The message was conveyed that high stream flows are harmful and low flows beneficial. Actually aquatic communities respond to the total flow regime which includes elevated spring flows during the snowmelt period to maintain stream channel integrity. The value of both low flows and high flows was distorted. In addition, the inevitable increases in stream temperature were minimized while potential decreases in water quality due to increased metal concentrations were not described in adequate detail.

Woodling Assessment at 2.

Woodling's historical perspective notes that:

> The stream channels of the Fraser River basin and South Boulder Creek basin were formed and maintained over eons. These channels are now responding to changes in

flows that have existed only for decades. The proposed additional diversions of water and the manner in which the water is moved and then used will further alter not only South Boulder Creek but the Fraser River system.

Id. at 5.

Elliot's Review presents three conclusions summarizing concerns about the environmental analysis and findings.

Our conclusions are:

1. Environmental analysis in the EA/FEIS and Final Mitigation Plan is impossible to follow due to complex technical arguments based upon an incomplete environmental baseline. Indeed, the Corps fails to recognize the past, present, and reasonably foreseeable impacts upon special aquatic sites from profound dewatering of the Fraser River headwaters (60-100% depletions depending upon where measured (Buchanan 2015)), focusing instead upon "incremental effects" of the DW proposed action. Likewise in the Boulder Creek drainage where flows have increased for decades, we see complex technical arguments that de-emphasize existing degradation of special aquatic sites.
2. The Corps fails to take a watershed approach to the environmental analysis contrary to their own guidelines and those of sister agencies. Several widely accepted rapid-assessment protocols are available that could have offered a more holistic evaluation of environmental baseline and likely impacts, promoting more interagency, interdisciplinary project review with results in plain language. Instead, the Corps opts for convoluted, data-choked discussions that gloss over ecological concerns.
3. Proposed mitigations ignore CEQ guidelines calling for systematic accountability and mechanisms to accomplish goals of NEPA and the Clean Water Act. Rather than taking a comprehensive, watershed approach, the Corps presents mitigations tied to limited actions rather than a clear path toward results.

Elliot at 1.

Substantial ecological impacts to sensitive environmental resources are inadequately analyzed or go unrecognized by the SEA.

The SEA must take a hard look at potential impacts to the threatened Preble Meadow Jumping Mouse. It lives in riparian habitat, and the impacted area of South Boulder Creek, below the dam, is in the "Current Range" for this species.[3] According to the SEA at 39, "the FWS

[3] See https://www.fws.gov/mountain-prairie/es/species/mammals/preble/CRITICAL%20HABITAT/2010_Critical_Habitat_Maps/PMJM_CriticalHabitat_Units5_6_7.pdf (map showing stretches of South Boulder Creek as Critical Habitat); https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=A0C2; and https://www.fws.gov/mountain-prairie/es/preblesMeadowJumpingMouse.php https://www.fws.gov/mountain-prairie/es/species/mammals/preble/CRITICAL%20HABITAT/CRITICALHABITATindex.htm#habitat https://www.fws.gov/mountain-

concurred with the Corp's determination that enlarging Gross Reservoir is not likely to adversely affect the Preble's meadow jumping mouse because, although it has the potential to occur in the project area, it is not known or expected to be present." It is uncertain how FWS is defining the project area and whether the agency has considered impacts to South Boulder Creek riparian areas below Gross Dam, including critical habitat.

5. FERC's Agency Responsibilities

The Commission must establish that it has complied with its agency responsibilities under NEPA, including 40 CFR § 1506.5 "Agency responsibility":

> (a)Information. If an agency requires an applicant to submit environmental information for possible use by the agency in preparing an environmental impact statement, then the agency should assist the applicant by outlining the types of information required. The agency shall independently evaluate the information submitted and shall be responsible for its accuracy. If the agency chooses to use the information submitted by the applicant in the environmental impact statement, either directly or by reference, then the names of the persons responsible for the independent evaluation shall be included in the list of preparers (§ 1502.17). It is the intent of this paragraph that acceptable work not be redone, but that it be verified by the agency.
>
> (b)Environmental assessments. If an agency permits an applicant to prepare an environmental assessment, the agency, besides fulfilling the requirements of paragraph (a) of this section, shall make its own evaluation of the environmental issues and take responsibility for the scope and content of the environmental assessment.
>
> (c)Environmental impact statements. Except as provided in §§ 1506.2 and 1506.3 any environmental impact statement prepared pursuant to the requirements of NEPA shall be prepared directly by or by a contractor selected by the lead agency or where appropriate under § 1501.6(b), a cooperating agency. It is the intent of these regulations that the contractor be chosen solely by the lead agency, or by the lead agency in cooperation with cooperating agencies, or where appropriate by a cooperating agency to avoid any conflict of interest. Contractors shall execute a disclosure statement prepared by the lead agency, or where appropriate the cooperating agency, specifying that they have no financial or other interest in the outcome of the project. If the document is prepared by contract, the responsible Federal official shall furnish guidance and participate in the preparation and shall independently evaluate the statement prior to its approval and take responsibility for its scope and contents. Nothing in this section is intended to prohibit any agency from requesting any person to submit information to it or to prohibit any person from submitting information to any agency.

As currently written, the SEA appears to rely on many assertions provided by the applicant (Denver Water), without being independently evaluated by the Commission, which is ultimately responsible for the accuracy of the information and analysis in the SEA under 1506.

To cite one example, the SEA refers to "predicted cooler summer outflow temperatures, resulting in a maximum outflow temperature of 9°Celsius (C), in comparison to 14.6°C under

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prairie/es/species/mammals/preble/CRITICAL%20HABITAT/2010_Critical_Habitat_Maps/PMJM_Critical Habitat_Units5_6_7.pdf .

existing conditions" without any meaningful analysis of how these winter temperatures impact the aquatic ecosystem.

The SEA conflicts with and is ignorant of the scientific analysis of impacts to South Boulder Creek below the dam from the State of Colorado's Conditional 401 permit. That analysis found that South Boulder Creek below the dam will be impacted by releases of far colder water. Releases come from the bottom of the reservoir, which will be far deeper and colder than for the current dam. Absent any dam (natural regime), water temperatures in the creek would peak in late July at close to 20 degrees centigrade. State 401 Rationale at 10-11, A-2 and A-5. With the existing dam, temperature peaks in late September at 13-15 degrees. Id. at A-4. With the new dam, summer water temperatures would "remain relatively constant at 7 or 8 degrees." Id. at A-5. This number is lower than that from the SEA, which omits reference to the following statement from state agency scientists:

> In other words, the alteration of the pattern is sufficiently extreme that South Boulder Creek below the reservoir is likely to be in attainment the winter numeric standard throughout the year. That offers little opportunity for fish growth and would suppress productivity of the benthic invertebrates, which are an important food resource for the fish.

Id. at A-5.

The SEA recites several conditions from the State's 401 review, but failed to analyze the findings as required by NEPA.

The State's review is supported by longstanding concerns of Boulder County Open Space and Mountain Parks regarding impacts to Walker Ranch, one of the crown gems of the County's world class open space system. Walker Ranch includes a 3.5 mile stretch of South Boulder Creek just below Gross Dam that will be impacted by the colder flows and freezing year-round temperatures. The County's 1985 Walker Ranch Management Plan cited a 1964 study which found that, after the existing dam was built: "Fish are using their energy for sustenance, not growth," and that "[c]old water also slows growth of plant and insect food." See http://www.colorado.edu/geography/class_homepages/geog_4430_s08/walkerrnachmplan.pdf at 11-12.

6. Individual SEA Sections on Effects

The official scope of the SEA is stated at page iv and repeated at page 6.

> Specifically, this Supplemental EA analyzes the effects of: (1) revisions in certain details of dam raise construction activities, such as relocation of the on-site quarry; (2) potential replacement of the proposed auxiliary spillway with a saddle dam; (3) certain aspects of tree clearing and inundation to a new maximum reservoir elevation of 7,406 feet mean sea level not addressed in the Final EIS; (4) effects of changes in project operation such as revisions to the ramping rates required under the license; (5) modifications to project recreation facilities required under the license; (6) modification to the project boundary; (7) effects of environmental mitigation plans and other mitigation measures Denver Water proposes; and (8) effects of Denver Water's compliance with statutory requirements.

This section reviews these areas below.

a. Dam Raise Construction Activities

Information related to dam raise construction activities alone establish that this component of the project will have significant environmental impacts. The new on-site quarry location was first raised in the ROD for the FEIS, after the close of public comment on that document.

The new quarry location is purportedly analyzed by several reports prepared after issuance of the 2014 FEIS and never subject to public review or comment.

On September 13, 2016, Denver Water published a Final Quarry Location Report: Impact Minimization and Avoidance Measures. This Quarry Location Report provides:

> Denver Water proposes to modify the Project to minimize impacts by: 1) producing all of the aggregate material (both sand and gravel) from an on-site quarry, and 2) relocating the quarry site to a location on Denver Water property within the new reservoir inundation area such that all or nearly all of the quarry would be submerged during normal high-water operations.

Quarry Location Report at 2-3, available online at http://cdm16021.contentdm.oclc.org/utils/getfile/collection/p16021coll7/id/4145/filename/4146.pdf

The 2016 Quarry Location Report in turn relies on four additional previously published studies, all of which were conducted and released in 2015 and 2016, *after* the FEIS was published. Id. at 2.

Denver Water also commissioned a noise study in February 2017. The study was completed in May 2017 and submitted to the Corps without ever being subject to public input or comment. The study is titled the *Gross Dam Noise Impact Report* (Behrens and Associates, Inc. 2017). It was attached to the ROD as a reference to Attachment B, available online at http://cdm16021.contentdm.oclc.org/utils/getfile/collection/p16021coll7/id/4100/filename/4101.pdf. The Behrens Noise Report is also attached Denver Water's FERC Response to Comments as Attachment 1 (before the Federal Energy Regulatory Commission).

The new quarry location and the studies prepared by Denver Water constitute new circumstances and information that could in result in significant impacts not analyzed in the FEIS. The County and citizens never had a chance to review or comment on the proposal or the multiple "expert" reports administered exclusively by Denver Water without local participation. Further, the proposed Osprey Point site has never been subject to public, other agency, or governmental comments by residents, the State of Colorado, or Boulder County.

Questions raised by the new quarry location include:

- The proposed change is apparently intended to address traffic and transportation issues at the expense of residents near Gross, trading severe impacts in one location for another. What is the full cost/benefit analysis of the mitigation value and the potential new or increased impacts of the proposed quarry location?
- How does the on-site quarry that would be inundated by the expanded reservoir affect reservoir permeability, leakage and/or evaporation of stored water; seismicity; and long-term potential for erosion to undermine the dam and reservoir location?

- What permitting would be required at local, state, and federal level?
- What reclamation requirements will be placed on the planned quarry and which agency has or agencies have jurisdiction over such?
- Is the proposal consistent with the Boulder County Comprehensive Plan (BCCP), the current version of which was approved in 2017, and did Denver Water or the Corps make any efforts to determine what BCCP provisions apply to the quarry?
- The Noise Report focused on noise levels and impacts to residents; what are the potential impacts, including potential disturbance and displacement, to wildlife populations such as the elk herd?
- The Quarry Location Report states: "***Temporary impacts*** consist of displacement of wildlife by noise and disturbance resulting from on-site construction, blasting, quarrying, and transport of materials and people." Location Report at 16 (emphasis original). What species and habitat would be impacted, including indirect and cumulative impacts?
- ***"Temporary impacts*** to wildlife due to quarry activities, in particular, ***would be the same regardless of quarry location."*** Id. This unsupported statement establishes that the authors of the Location Report are unqualified to make conclusions on wildlife biology or habitat impacts, underlining the need for public review and comment under NEPA. Wildlife impacts depend on what species and habitat is found at a specific location. What wildlife populations and habitat will be temporarily impacted by the quarry?
- Will quarry activities conducted during or after a harsh winter or other extreme weather or climate-related events stress and cause harm to wildlife?
- Does the new quarry proposal affect the total project cost? By how much or within what range (taking all cost factors into account)?
- Do changes in project cost impact the Corps' alternative screening process and analysis, both under NEPA and the Clean Water Act (with the "Least Environmentally Damaging Practicable Alternative" requirement)?
- Has the applicant obtained requisite quarry-related permits, required for construction and linked to significant environmental and social impacts; and should federal permits issue before such state or local processes going to impacts and mitigation are final?
- The newly proposed Osprey Point quarry would be 14-16 acres, but the ROD and SEA claim that wetlands impacts and post-construction mitigation and reclamation would be minimal, because the site would be inundated. This assumes that the expanded Gross Reservoir would fill enough to inundate the area. This may not be a safe assumption in light of climate change, increasing competition for Colorado River water, and the potential for future compact calls in the event of sustained drought or supply pinches. What level of fill is required to fully obviate mitigation and reclamation requirements or concerns, if that is possible at all?
- What are the potential downstream impacts from the quarry to water quality, the fishery, and other aquatic resources in South Boulder Creek?
- What about potential impacts to the Gross Reservoir aquatic environment from either a reclaimed or an un-reclaimed quarry?
- Denver Water, citing their consultant's private report, asserts in their FERC proceeding that, "noise levels at the EIS quarry and at the Osprey Point quarry will be below local

noise ordinances." However, this assertion is contradicted by the statement in the Quarry Location Report that, "[o]n-site construction noise may periodically exceed the EPA noise threshold of 70 dBA for public exposure" which further asserts, without apparent explanation, that "the public would not be exposed to these levels on a continuous basis." Location Report at 20. Hundreds of residents who live near the reservoir and the proposed quarry site are reasonably concerned about the new proposal as sound carries for great distances in the Gross Reservoir area which is among the quietest soundscapes of any residential area in Boulder County. What is the actual projected level of construction noise and will it be in compliance with County ordinances?

b. Potential Replacement of the Auxiliary Spillway with a Saddle Dam

Amazingly, fifteen years after initial NEPA "scoping" of this project, neither the Commission, the Corps, nor Denver Water can answer a fundamental question going to the proposed design and construction of the proposed new dam.

According to the SEA:

> The auxiliary spillway included in the Final EIS for the Moffat Collection System Project may be unnecessary. In the Final EIS, the auxiliary spillway is located within a topographic saddle about 1 mile south of Gross Dam and is described as a concrete weir structure. Denver Water would determine the need for an auxiliary spillway during final design and in coordination with the FERC Division of Dam Safety and Inspections and the Independent Board of Consultants. Regardless, there is a topographic saddle along the reservoir rim that requires a small water impounding structure (either the auxiliary spillway or a saddle dam). If the inflow design flood can be accommodated within the primary spillway at the dam and an auxiliary spillway is not required, then Denver Water would construct a small saddle dam in the topographic saddle in lieu of the spillway. The footprints of the auxiliary spillway and the saddle dam are similar in scope, size, and site disturbance limits.

In other words, the design is currently speculative and a fundamental component has not yet been decided

The SEA infers that some impacts will be similar because the footprints of the two options are similar. By omitting any discussion of alternatives, the EA fails to acknowledge that the footprint of the Protective Alternatives proposed by the Conservation Groups would be zero, compared to the only alternative analyzed in the SEA.

The SEA asserts that "[t]here would be no major change to the existing outlet works. Preliminary analyses show that the system is capable of withstanding the increased reservoir head. As part of the final design, Denver Water would evaluate the existing piping and discharge valves for the new hydrostatic conditions.

Another significant issue omitted from the SEA is dam safety and the risk of failure, especially in the light of concerns being raised by geologists or seismologists regarding whether the site is appropriate for the scale and design of the project including design features first announced in the SEA and proceedings before the Commission. Climate science tells us to expect more

frequent and severe extreme weather events. Is this cause for concern regarding dam safety? How might the on-site quarry and years of blasting bedrock for aggregate increase the risk of dam failure?
According to a newly released DRAFT Hazard Mitigation Plan commissioned by the City of Boulder, "[t]he failure of Gross dam would impact 3,020 structures, with a total structural and contents value of $4.82 billion." Draft Plan at 1.142, available online at https://www-static.bouldercolorado.gov/docs/COB_Hazard_Mitigation_Plan_Draft1-25-18-1-201801250850.pdf?_ga=2.38249763.1626439252.1523130270-1511331044.1480021696 . This information must be analyzed in an SEIS with updated review for the risk associated with the larger proposed dam storing up to triple the water, including review of geology, seismology, and the potential for climate change to increase risks for catastrophic or previously unforeseen events.

c. Effects of changes in project operation such as revisions to the ramping rates required under the license

Project operations would change significantly if the project were built, and the resulting effects would also be significant. Denver Water is proposing to build the tallest dam in the history of the State of Colorado.[4] Standing alone, that fact is significant.

In addition to the height of the dam, the capacity of an already large high-altitude reservoir would be approximately tripled to 118,811 AF.

d. Clearcutting of Hundreds of Thousands of Trees and Inundation

The logging component of the project will significantly impact the environment. The impacts of clearcutting some 200,000 trees for the expanded reservoir are analyzed in Comments on Vegetation Removal and Associated Activities for the Moffat Collection System Project Gross Reservoir Enlargement, incorporated by reference into the Groups comment. Rocky Smith, the author of those comments, has more than 30 years of experience reviewing the environmental impacts of forest management projects in Colorado.

According the Smith's comments, steep topography on the forests to be logged raised concerns about access, erosion, and removal of vegetation. Smith Review at 3-4. Air quality impacts could be significant and require additional analysis. Id. At 4-5. Mitigation plans for erosion and soils are speculative or incomplete. Id. At 5-6. The potentially significant impacts of helicopter methods are undisclosed. Id. At 7. The SEA fails to address the cumulative impacts of logging in conjunction with Gross and the Forsythe II project on adjacent lands and wildlife habitat, including ridges that border the project area. Id.

Transportation of forest debris, including removal of stumps and logs, raises safety concerns and conflicts which require additional analysis. Id. at 8. Smith notes that proposed

[4] At the close of "Water Year 2011-12," Colorado had 1,965 "jurisdictional dams", according to the State Engineer and the Colorado Division of Water Resources. Colorado defines "jurisdictional dams as "[d]ams that are greater than ten feet high as measured at the spillway, that impound a reservoir with twenty acres or more in surface area, or one hundred acre-feet or more in reservoir capacity at the high water line qualify as Jurisdictional." C.R.S. 37-87-105.1. See https://www.colorado.gov/pacific/sites/default/files/13WaterResources0927AnnualReportonDamSafety.pdf at page 9.

compensatory mitigation would not compensate for impacts to the project area; and notes that the proposed mitigation property is 160 acres, not the 539 acres asserted by the agencies. Id. at 9. Regarding the Toll Property proposed for mitigation, "it is not clear if it provides interior forest habitat, effective habitat, or old growth, which are some other habitat types that would be lost with expanded reservoir clearing and inundation." Id. at 11.

Of special concern are the loss of patches of both old growth forests and developing old growth in ponderosa pine and Douglas fir forest types. Id. "Old-growth in ponderosa pine and Douglas-fir stands is uncommon on the Arapaho-Roosevelt National Forest[5], as most of the stands in this timber type have been logged or otherwise subjected to human manipulation that has degraded or eliminated the stands' ecological and other values as old growth." Id. Because this resource is irreplaceable over the short- to medium term horizon, these impacts to special and rare forest ecosystem types are significant.

The project would violate Forest Plan guidelines providing: "Retain all existing Douglas-fir and ponderosa pine old growth and increase amounts in the future." Id. at 9. Desired future conditions "[e]mphasize old-growth recruitment and retention" and the clearcutting is inconsistent with the Forest Plan goal to "[r]etain the integrity of effective habitat areas". Id. at 10. The loss of hundreds of acres of elk winter concentration areas, severe winter range, and migration corridors would violate the Forest Plan Goal to "[m]aintain the function of key or unique habitats such as…winter ranges,…, migration corridors, animal concentration areas….". Id. Based on impacts to these sensitive forest ecosystems, the clearcutting is also inconsistent with the Boulder County Comprehensive Plan and Environmental Elements designed to protect wildlife and sensitive habitat.

Denver Water prefers that an informed decision on the environmental impacts of this important component of the project be deferred until a few months before the logging project. Denver Water's SEA Comment (at page 20 asserts that the Tree Removal Plan "should be submitted to the Commission at the same time as required in the 4(e) conditions, or '90 days prior to tree removal within the inundation area of the enlarged reservoir.'"

The timing proposed by Denver Water would frustrate NEPA's statutory intent of informed decision-making. As explained in Smith's comments and those of numerous other commentators, including Boulder County, all of the forestry-related components of the project are of intense interest to local residents and others.

In sum, the clear-cutting and removal of 200,000 or more trees in rugged terrain that would generally be considered too steep to log, including old growth forest and sensitive habitats, will result in significant impacts to forest resources and wildlife.

e. **Modifications to Recreation Facilities and Recreation Impacts**

Recreation impacts are of enormous concern for residents near the Gross Dam and Reservoir site, as well as tens of thousands of recreationists on both sides of the Continental Divide.

[5] A 1992 survey found that only one percent of all the old growth on the Arapaho-Roosevelt National Forest was in ponderosa pine/Douglas-fir. The survey results further stated that …"the least old growth exists at the lowest elevations with the most roads". See Lowry, 1992. Ponderosa pine/Doulas-fir is at the lowest elevations of the Arapaho-Roosevelt National Forest in areas that are mostly well-roaded.

Gross Reservoir is the premier destination for boaters, kayakers, canoers, stand-up paddlers, and other visitors in Boulder County, and one of the premier mid- to high elevation reservoirs on the Front Range. Under the project as currently configured, the recreational experience will be severely disrupted during the construction period, and that important natural resources relied on for recreation will be either entirely lost or significantly compromised by the project.

The SEA is largely or entirely silent on adverse impacts to fisheries and recreational fishing from mercury, unnaturally high flows of freezing temperatures below the dam, or unnaturally low flows of warm water on the West Slope. It fails to consider the loss of Forsythe Falls, an irreplaceable recreational resource, to inundation. Any supposed recreational enhancements from a larger reservoir must be balanced against the substantial adverse effects to angling and quiet enjoyment of nature in secluded, undeveloped locations, in addition to the massive construction and transportation impacts to a wide range of recreational users of protected landscapes including the Indian Peaks and James Peak Wilderness Areas, National Forest lands, Walker Ranch, and Eldora Canyon State Park in the South Boulder Creek watershed.

f. Effects and Effectiveness of Mitigation Measures Proposed by Denver Water

The core components of healthy aquatic ecosystems include flows and temperatures within natural ranges, and healthy populations of species from the bottom to the top of the food chain. The SEA ignores these criteria for the three primary aquatic ecosystems that would be impacted by the project: Gross Reservoir, South Boulder Creek below the dam, and the Upper Colorado. Instead, the SEA advances assertions that the project would generally have insignificant or beneficial impacts on aquatic ecosystems.

The SEA summarizes some mitigation associated with the proposal at page 21:

> In its application, Denver Water identifies certain measures contained in a Fish and Wildlife Mitigation Plan, dated June 9, 2011, that it developed with Colorado Parks and Wildlife for expansion of the Moffat Collection System Project. Several measures in the plan would provide mitigation for effects of enlargement of Gross Reservoir, and would be enforced through Colorado DPHE WQC conditions, Forest Service 4(e) conditions, and conditions of a Corps 404 permit.
>
> - Monitor mercury in fish tissue in Gross Reservoir with assistance from Colorado DPHE and Colorado Parks and Wildlife. If the fish tissue analysis indicates that a Fish Consumption Advisory is required, Denver Water would work with Colorado DPHE and Colorado Parks and Wildlife to provide public education, including the posting of fish consumption advisory signs at Gross Reservoir.
>
> - Monitor general water quality parameters (nutrients, organic carbon, metals, major ions, temperature, and chlorophyll a) in Gross Reservoir and submit monitoring results annually to Colorado DPHE.
>
> - Mitigate the permanent loss of jurisdictional wetlands through the use of credits from an approved wetland bank.
>
> - Use pre-construction surveys to identify active nests of migratory birds within the project footprint and time activities to avoid breeding seasons.

- Contact the U.S. Fish and Wildlife Service (FWS), Office of Migratory Birds for permitting requirements prior to the removal or destruction of any migratory bird nests.

Overall, the EA suggests that mitigation would compensate for any adverse impacts. These inferences and the FONSI are unsupported by the record, and inconsistent with the comments on the EA from independent experts and scientists.

On mercury levels, the EA fails to recognize that the so-called "mitigation" consists of monitoring that could result of a fish advisory informing recreational visitors to Gross Reservoir that fish may be unfit for consumption. However, an advisory on signs will do nothing to avoid, minimize or mitigate the impacts to the aquatic ecosystem or the food chain of higher mercury levels.

The SEA fails to consider whether these effects could be significant.

- Condition 13: Work with Colorado DPHE to support a biennial program to monitor mercury in fish tissue in Gross Reservoir. The sampling effort for Gross Reservoir would begin in the first field season after the enlarged reservoir has filled and continue for 5 more years. If mercury levels fall below the level of concern for the last 3 years of sampling, Denver Water's monitoring obligation would end. If there is bioaccumulation of mercury in fish tissue at the end of the 5-year period, the obligation for monitoring would be extended for an additional 5 years. If fish tissue analyses show that a fish consumption advisory is required, Denver Water would work with the Technical Advisory Team 34 of the Colorado Fish Consumption Advisory Committee to provide public education including the posting of signs with associated consumption advisories.

SEA at 37.

Woodling and Elliot provide objective analysis of impacts to aquatic and special aquatic resources that is missing from the SEA or other project NEPA, and point out numerous flaws and inadequacies in the agency analysis.

For example, Elliot's review (at page 6) finds:

> The Gross-Moffat EA/FEIS and Final Mitigation Plan thus stand on at least three weaknesses:
>
> 1. Ignorance or perhaps a misunderstanding of Federal guidance including the watershed approach and widely accepted rapid-assessment protocols that could clarify existing watershed conditions to set the stage for transparent interagency collaboration.
> 2. A significant underestimate of direct, indirect, and cumulative impacts to special aquatic sites in the Fraser River headwaters and Boulder Creek drainage, including riffle-pool complexes and adjacent jurisdictional riparian wetlands.
> 3. No real sense of how stream-riparian systems have been impacted in the analysis area; therefore, no credible baseline upon which to drive mitigation measures likely to be successful.

Elliot's specific findings include:

- **"Profound changes in hydrologic regime in many streams –** from perennial flows to seasonal/intermittent and, in some cases, changes to subterranean flow only. These changes include a profound loss of overall stream discharge, peak and low flows, and timing of flows critical to aquatic species along these stream corridors[.]" Elliot at 6.
- **"Stream evolution trajectory –** loss of high, and in many cases medium and lower flows forces headwater streams into a quasi-entrenchment where most, if not all flows are contained in the same channel. Without natural flows and sediment load and robust HGM processes, it would be impossible to predict how long it will take for these streams to recover naturally into equilibrium systems". Id. at 7.
- "Mitigation for impacts to Fraser River headwater streams and adjacent riparian zone are difficult to address since the Corps does not recognize the profound indirect and cumulative impacts to these ecosystems including dewatered reaches, 303(d) impairments, and reaches of ecological collapse." Id. at 8.
- "We do not understand how the proposed MECP "flushing flows," which are less than present flows, would actually meet promised goals in these 5 stream reaches. Furthermore, the Corps assumes flushing silt from gravels would be effective, when actual observed conditions in the field as gravel and cobble choked with an algae + silt mix, locally known as "rock snot." Our own experience shows that much higher flows are necessary, actually moving stream bed materials to dislodge the rock snot in order to make the bed more suitable to larger macroinvertebrates such as stonefly." Id. at 9.
- "Apparently, the Corps accepts almost complete loss of cutthroat trout in the Fraser River headwaters, without disclosing it in the EA/FEIS and Final Mitigation Plan, and offers compensatory mitigation elsewhere in Grand County, with an only limited cash commitment and no guarantee of success." Id.

On mitigation, Elliot concludes:

> Without disclosure in plain language of past, present, and reasonably foreseeable impacts from diverting 50-100% of native flows from the Fraser River headwaters, it's difficult to understand how the above measures would mitigate for:
>
> - Profound changes to 80 miles of dewatered streams and their riparian corridors including jurisdictional waters of the US.
> - Significant impacts to some 200 to 600 acres of riparian wetlands.
> - 303(d) listed streams including elevated concentrations of Copper and Arsenic, as well as aquatic life
> - Collapse or near-collapse of aquatic habitats in approximately half of the stream reaches listed in the Final Mitigation Plan
> - Loss of aquatic resources on National Forest System Lands mitigated on lands owned by the City and County of Denver.

Id. at 10.

Woodling's review includes the following observations and findings for Gross Reservoir and South Boulder Creek:

- "The author of the EA did no analysis to demonstrate that fish populations would increase simply due to a short-term seasonal increase in habitat." Woodling at 6.
- "The EA failed to analyze the interaction of vegetation removal and claims of increased reservoir productivity." Id. at 7.
- "The implementation of Condition 13 in no way will "reduce the likelihood" of an increase in mercury levels in fish in Gross Reservoir if he Moffat Project is completed. No actual mitigation for increased mercury levels is included in the FEIS, the 401 or this EA." Id. at 8.
- "The impact of increased June and July flows on fry survival was not specifically included in the FEIS or EA." Id. at 9.
- "The success of bank stabilization is highly questionable"; and the SEA analysis of impacts to trout "is incomplete, contains factual errors and is misleading to some degree." Id. 9 and 10.
- "The description of fish in this section of South Boulder Creek is superficial and incomplete. Some of the observations are in error. The description and analysis would have to be done again in detail, using on-site field studies to actual impacts to trout in South Boulder Creek upstream of Gross Reservoir." Id. at 10.
- "The EA and the FEIS both fail to describe the habitat of the South Boulder Creek upstream of Gross reservoir. Only superficial level of analysis and comparison was performed. Additional work would be needed to accurately assess both the aquatic habitat and fisheries of this stream reach. This is the same conclusion that could be applied to each section of the EA and FEIS that address aquatic resources." Id. at 11.
- Below the dam, "an analysis of any environment based on a single variable is not adequate when attempting to describe the impacts of a project where factors other than the amount of usable habitat are also being altered." Id. at 12.
- "The FEIS needed a detailed analysis of how the extremely low water temperatures in South Boulder Creek post-project would impact fishery populations, and not just trout. The FEIS did not include a detailed analysis of the impacts of temperature on fish[.]" Id. at 13.
- "Decreased temperature and reduced growth rate of fish are two factors that are of paramount importance when analyzing the impact of the Moffat Project on South Boulder Creek. Neither was addressed in the EA or the FEIS." Id. at 14.
- "Neither the FEIS nor the EA have described the benthic community of South Boulder Creek adequately. No determination can be made concerning the relationship of aquatic macroinvertebrates and lower stream temperature regimes that would be present if the Moffat Project is completed. More detail is needed to determine if mitigation programs are needed." Id. at 15.
- "Monitoring is not mitigation. Mitigation actions are supposed to lead to an environmentally preferred outcome (Sutley 2011)." Id. at 16.

On mitigation, Woodling concludes:

> The EA did not include any mitigation action in South Boulder Creek that would actually mitigate for the environmental impacts associated with the Moffat Project. A series of monitoring programs was included in the EA and listed as mitigation even though no environmental improvement results from monitoring. One possible project exists. A multi-stage release from Gross Reservoir would eliminate all environmental impacts in South Boulder Creek downstream of Gross Reservoir. Denver Water refuses to consider this option. Thus mitigation like the FEIS and EA is actually an ineffective and empty process.

Id. at 17.

The Commission's February 7, 2018 ESA consultation letter to the U.S. Fish & Wildlife Service establishes that increased diversions from the West Slope are a fundamental and necessary component of the project, and that the proposed enlargement of the Reservoir is needed to store increased diversions transported to Gross Reservoir through Moffat Tunnel.

> The Moffat System diverts flows from tributaries of the Colorado River on the west slope of the Rocky Mountains and stores them, along with flows in South Boulder Creek, in Gross Reservoir. Denver Water proposes to increase diversions through the Moffat Tunnel into South Boulder Creek, and then into Gross Reservoir, requiring the reservoir to be enlarged.
>
> The Gross Reservoir Hydroelectric Project includes Gross Dam, Gross Reservoir, and facilities used for power generation. Because enlarging the reservoir requires Commission approval, Denver Water has filed an application to amend its license**1** to raise Gross Dam by 131 feet and to increase the maximum storage in Gross Reservoir from 41,811 to 118,811 acre-feet. Following the proposed enlargement, operation of the hydropower project would continue to be incidental to operation of the Moffat System for municipal water supply.

Thus, the project's impacts to headwaters streams of the Upper Colorado on the West Slope are a direct result of that part of the project under the Commission's jurisdiction. Arguing in the alternative, those impacts are indirect or cumulative impacts under NEPA.

Elliot finds that impacts were significantly under-stated.

> The Corps does not take comprehensive, holistic look at past, present, and reasonably foreseeable impacts to the Fraser River headwaters and Boulder Creek watershed. Instead, they downplay or substantially ignore existing watershed conditions, natural functions, and significant cumulative impacts to special aquatic sites including riffle-pool complexes and adjacent jurisdictional riparian wetlands. Focusing on proposed incremental increases in trans-mountain diversions and deliveries to Gross Reservoir leads to significant underestimates of impacts to Waters of the US.

Elliot Review at 3.

To the extent the existing NEPA analysis in the Corps' EIS is incomplete, inaccurate, or uninformed, these deficiencies must be addressed and remedied by a Supplemental EIS that fully complies with NEPA, including the alternatives and new information provisions.

7. **Compliance with Statutory Requirements**

Permits cannot issue and construction cannot proceed if the project as currently proposed does not comply with statutory requirements. The SEA appears intended to attempt to remedy NEPA analysis originally conducted by the Corps which is now recognized to have been incomplete or inadequate.

The FONSI can only stand if the current project configuration and environmental review complies with statutory requirements, based on information now available. However, neither the FONSI nor the 2017 ROD and permit issuance by the Corps is supported by the record at this time.

The SEA establishes that the hydropower component of the project: 1) is not the primary purpose of the project, 2) depends on the diversion of natural flows from the Upper Colorado, and 3) further depends on sufficient diversions from the Upper Colorado to ensure a minimum pool in the reservoir at all times.

> As reviewed above in section 2.2 *Need for Power,* hydroelectric energy is only generated at the Gross Reservoir Project when flows are released for water supply needs, maintenance of water elevation limits in response to inflows, and other operational variables, and these operations are not within the Commission's jurisdiction. As part of the Moffat Collection System, Gross Reservoir is used to store and release native flows from upper South Boulder Creek, as well as water diverted from the West Slope of the Rocky Mountains through the Moffat Collection System's Moffat Tunnel. When Gross Reservoir storage is less than 12,000 acre-feet, there is a potential dam safety issue related to rocks and sediment possibly being transported to the outlet works and causing damage.

SEA at 13.

The Commission's determination regarding statutory compliance must take all comments on this SEA into account. Collectively, before final federal approvals are granted, responsible agencies must ensure compliance with NEPA requirements including the duty to consider new information, take the best available science into account, assess direct, indirect and cumulative impacts, and objectively analyze reasonable alternatives; to satisfy the public interest balancing test under the Federal Power Act; and to ensure that the project is the "Least Environmentally Damaging Environmental Alternative under the Clean Water Act.

8. Costs and Alternative Analysis

Despite the fact that the SEA appears to be intended to cure NEPA deficiencies in the existing FEIS and ROD issued by the Corps in 2017, the EA avoids any discussion of alternatives to the proposed action.

Alternatives are the heart of the NEPA process.

> When a federal agency prepares an Environmental Impact Statement (EIS), it must consider "all reasonable alternatives" in depth. 40 C.F.R. § 1502.14. No decision is more important than delimiting what these "reasonable alternatives" are. That choice, and the ensuing analysis, forms "the heart of the environmental impact statement." 40 C.F.R. § 1502.14.

Simmons v U.S. Army Corps of Engineers, 120 F.3d 664 (7th Cir. 1997) (emphasis added).

In Simmons, the 7th Circuit remanded the Corps' approval of the proposed dam because the Corps failed to establish that it considered reasonable alternatives and deferred too heavily to the project proponent's assertions considering the need to develop the proposed water project.

New information and expert comments establish the need to revisit the biased, uninformed, or incomplete alternatives analysis from the FEIS. The project cost issue alone is reason for revisiting the alternatives analysis, which also goes to the heart of determinations as to the LEDPA under the Clean Water Act and the public interest balancing test under the Clean Water Act.

Fundamental components of the project have changed since the FEIS, and the proposed changes will have substantially different environmental impacts. By itself, the absence of any mention of the only proven mitigation for freezing stream temperatures below the dam, a Multi-Level Outlet Works (MLOW) is a fatal flaw in the SEA. Alternative methods of dam design, construction methods, tree harvest, and removal of forest products are all appropriate for alternatives analysis.

The Corps' ROD was based on a "Total Capital Construction Costs" estimate of $139.9 million for FEIS alternatives comparisons. However, the total cost presented to FERC is approximately $380 million; and a 2015 Denver Water Fact Sheet presents a cost estimate ranging from $380 to $450 million. Using a cost estimate that appears to be 1/3 or less of the actual project cost unacceptably skewed alternatives analysis where numerous alternatives were screened out on cost grounds.

The Environment Group has calculated that over 25,000 truck trips will be necessary for transporting construction materials. The rail spur alternative much be revisited on this issue.

Denver Water's April 3, 2018 comment letter on the SEA addresses alternatives in the context of relative costs. "Page 7 of Denver Water's letter provides explanation about the increase in estimated costs, which would be reflected in all alternatives in the EIS, due primarily to construction cost trends indexes and inflation. Even after providing this answer, the cost will continue to increase with projected inflation and construction cost trends indexes."

Denver Water's assertion leaves out salient and material facts regarding alternatives and costs. The SEA, and Denver Water, fail to recognize that the relatively low cost Accelerated Conservation Program" has achieved and exceeded expectations at essentially the original level of projected funding. At approximately $10 million per year, the Accelerated Conservation Program budget is less than 3% of the *lower* end $380 million and only 2.2% of the higher $450 estimate. Major components of the environmentally sound alternatives are far less affected by construction cost trends indexes than the Gross Dam alternative.

Alternatives rejected by the FEIS, such as re-use and underground storage in gravel pits, are actually being pursued because Denver Water has determined they are cost-effective approaches. According to McCurry's Review at page 8, gravel pit storage alternatives need to be assessed including new information about Denver Water's gravel pit storage reservoir in the Easter Plains.

> Denver Water's Downstream Reservoir Program that includes nine reservoirs with an estimated storage volume of 32,200 AF (see https://www.denverwater.org/ your-water/water-supply-and-planning/downstream-reservoir-program). With such a significant amount of gravel pit storage planned by Denver Water, it is not clear why

> these downstream reservoirs and their storage were not included fully in any of the alternatives.

This new information requires revisiting alternatives screening and the compliance of the proposed dam with federal law, but the SEA lacks any discussion of alternatives. According to Denver Water's release on the Eastern Plains initiative, the reservoirs can be used for exchanges, they allow more efficient use or re-use of existing diversions from the West Slope, and will help the agency "adapt to future demands to ensure a reliable water supply." See https://denverwatertap.org/2018/03/12/downstream-reservoirs/. The 10.5 billion gallons of storage in the nine reservoirs currently planned amounts to 32,000 AF (assuming our calculations are correct), or approximately double the additional diversions sought under the proposed Moffat Project in wet or average runoff years; and close to half the increased capacity of the proposed Gross Reservoir expansion. The ability of this initiative to obviate the asserted "need" for Moffat must be analyzed.

Dr. McCurry's Review assesses alternatives to the proposed action at pages 3-9.

> As stated in Section 2.0 of the FEIS, CEQ regulations include the requirement to rigorously explore and objectively evaluate all reasonable alternatives (40 CFR 1502.14[a]). However, the selection process appears to have been biased so as to only retain items that were desirable from the standpoint of the applicant.
>
> The EIS identified 303 potential water supply sources and infrastructure components that could potentially become part of alternatives to meet the project's Purpose and Need. A multiphase process was used to screen and assemble these components into five alternatives. Although a phased approach to evaluating system components is appropriate, there were many decisions made to retain or reject certain components that appear to be in violation of the applicable regulations.

McCurry Review at 4.

Dr. McCurry's review of the screening criteria and step-by-step process used to rule out any approaches but Denver Water's proposed expansion of Gross Dam and Reservoir establishes that the analysis was marred by inherent bias.

> As stated in Section 2.0 of the FEIS, CEQ regulations include the requirement to rigorously explore and objectively evaluate all reasonable alternatives (40 CFR 1502.14[a]). However, the selection process appears to have been biased so as to only retain items that were desirable from the standpoint of the applicant. His review cites to bias at pages 1, 2, 6, 8 and 10.

Id. at 1.

McCurry's comments establish that alternatives including underground water storage appear to be feasible, cost-effective, and less environmentally damaging that the preferred alternative.

McCurry specifically cites 11 environmental impacts enumerated in the EIS that indicate the proposed alternative is more impactful that qualifying reasonable alternatives unanalyzed or rejected to date, and concludes:

> It is inconceivable that the preferred alternative, with this range and magnitude of permanent environmental impacts, could be considered the least environmentally damaging practicable alternative as is required by the Corps. Based on the above analyses presented in the FEIS, the preferred alternative appears to be inconsistent with the legal requirements under the Clean Water Act and NEPA as discussed above.

McCurry Review at 9.

McCurry concludes that supplemental environmental analysis is needed before approvals should issue, and that such analysis:

> will identify the numerous errors, omissions and biases present in the FEIS, including those presented in this memorandum, that cause the preferred alternative and the process by which it was selected to be viewed as not being in compliance with the applicable statutory requirements. Most of the deficiencies in the FEIS are due to the outdated nature of many of the technical elements upon which it is based. These include the basis for the project's Purpose and Need, the process of evaluating alternatives, and the assessment of the least environmentally damaging practicable alternative.

Id. at 10.

Also relevant to alternatives is Denver Water's commitment to approximately $500 million in improvements in its North System Renewal program. See https://www.denverwater.org/sites/default/files/north-system-renewal-tunnel-fact-sheet.pdf. Pipelines and treatment plant improvements might do significantly more than the relatively small quantities of additional water to be stored under the proposed project to address Denver Water concerns about system balance and resiliency which are a component of the purpose and need. Save the Colorado's analysis of the balance issue is that the project would only result in a relatively minor, incremental shift of 81 to 79% for the South System and 19 to 21% for the North System.

The EIS alternatives analysis was biased. It must be revisited in light of new information going to costs, environmental impacts, and the feasibility of less environmentally impactful alternatives

9. **Conclusion**

The constants from the FEIS to the SEA regarding the construction and design of the dam are the location and duration of the project. The construction method, the source of materials, and the design have either changed or remain subject to future change. Substantial components relevant to environmental impacts, mitigation, the effectiveness of proposed mitigation, and net environmental impacts have changed or warrant new analysis based on current information and objective expert reviews.

Informed decision-making depends on reviewing "concrete" pre-construction plans, not tentative plans subject to change absent a future opportunity for public and expert review and comment. The changed or uncertain components of the dam construction go to substantial components of the project that will significantly impact thousands of residents.

New information and objective expert reviews establish that the fundamental components of healthy aquatic and terrestrial ecosystems will be compromised by the project as currently proposed, in ways omitted, under-stated or unmentioned by the SEA.

Alternatives analysis is absent from the SEA even as new information establishes that more environmentally sound alternatives are available. NEPA further requires new analysis of direct and indirect impacts to the Upper Colorado on the West Slope.

The project is unneeded. The NEPA analysis fails to support the approvals sought by the applicant. The assertion of Commission staff that impacts would be insignificant do not hold water. The project involves the highest dam in Colorado history, the biggest construction project in Boulder County history, and substantial impacts to aquatic and terrestrial ecosystems and sensitive resources on both sides of the Continental Divide, including in one of the most environmentally conscious counties in the nation, and to the main river system in the entire Southwest U.S.

The SEA fails to adequately address the many deficiencies of the Corps' FEIS, including both those identified by the Commission and those that were not acknowledged in the SEA but are described above. Consequently, the Commission has erred the staff's recommendation of accepting the SEA and FONSI for this license application. The Commission must suspend its licensing procedure until the requirements for environmental review under NEPA and other federal laws are met. Due to the complexities of the project and the legal requirements established above, the Commission must request that the Corps' complete a SEIS to address the deficiencies and must review and accept that SEIS before completing the licensing process.

Respectfully,

Mike Chiropolos
Attorney for Save the Colorado and The Environment Group of Colorado

cc: Tim Carey & Kiel Downing
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Deb Thomas, Acting Administrator, EPA Region 8

Philip S. Strobel, Director, U.S. E.P.A. Region 8 Compliance and Review Program

LIST OF EXHIBITS AND ATTACHMENTS TO COMMENT:

- Gordon McCurry, PhD, McCurry Hydrology LLC: Comments on "Supplemental Environmental Assessment for Amendment of Hydropower License - Gross Reservoir Hydroelectric Project, FERC Project No. 2035-099"
- Geoff Elliot, Grand Environmental Services: Gross-Moffat Supplemental EA, Considerations for Special Aquatic Resources
- John Woodling, PhD, Woodling Aquatics: Aquatic Resources Assessment Of Supplemental Environmental Assessment For Denver Water's Proposed Moffat Collection System Project
- Rocky Smith: Comments on Vegetation Removal and Associated Activities for the Moffat Collection System Project, Gross Reservoir Enlargement
- Lisa Buchanan, LRB Hydrology & Analytics, Actual Versus Projected Water Demand For Denver Water Customers (19 Attachments support Buchanan's Comment, attached as LRB ATT 1-19)