STATE OF COLORADO

Colorado Water Conservation Board
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TO: Chatfield Cooperators

FROM: Tom Browning

SUBJECT: Meeting Minutes
Chatfield Reservoir Reallocation Project

What: Chatfield Reallocation FR/EIS Progress Meeting Minutes
Where: 143 Union Blvd, 10th Floor, Lakewood (Tetra Tech Conference Room)
When: Wednesday, October 3, 2012 (2:00 pm to 3:30 pm)

1. Introductions and Announcements (Tom Browning, Colorado Water Conservation Board [CWCB])
   - Tom Browning welcomed the group and thanked everyone attending the status meeting. He acknowledged the significant milestones recently achieved by the project, including the release of the draft FR/EIS for public review and comment and successful meetings held to encourage public participation. He noted that the U.S. Army Corps of Engineers (Corps) was asked to extend the review period by 30 days and had complied with this request to give the public more time to submit their comments.
   - The Corps received approximately 750 comments on the draft FR/EIS. These comments included emails, letters, resolutions, input generated during public meetings, and public petitions. The comments identified some common areas of concern including the Comprehensive Mitigation Plan (CMP), adaptive management, water quality, downstream flows, oversight, impacts to recreation, and recreational facility modifications. None of the comments are considered "show stoppers" by the Corps.
   - Technical experts from the Corps were in Denver October 1-3 to discuss the disposition of the comments with State and federal agency stakeholders. Gwyn Jarrett (Corps) invited the technical experts from the Corps to the Chatfield Cooperators meeting to discuss the agency comments and be available for questions. Today's meeting provides an opportunity for the Corps to present an overview of the comments, describe the status of the project, and respond to questions from the group.
2. Study Updates (Gwyn Jarrett, Corps)
   - U.S. Fish and Wildlife Service (USFWS) and U.S. Environmental Protection Agency (EPA) Comments – Steve Dougherty (ERO) and Eric Laux (Corps) summarized the

main concerns raised by the USFWS and EPA on the draft FR/EIS. USFWS's comments focused on the CMP, ecological models, use of weighting factors applied to the ecological functional units (EFUs), adaptive management, oversight and monitoring requirements, impacts to critical Preble's Mouse habitat, and off-site habitat mitigation. EPA's comments focused primarily on water quality. The USFWS accepts the model used to define the number of EFUs needed to determine impacts to the environment. However, questions centered on how to apply the model to determine impact credits and weighting factors to ensure that concerns over proximity, riparian buffers, and connectively are addressed to mitigate for lost critical habitat, especially in the Plum Creek/West Plum Creek watershed. Pete Plage (USFWS) has suggested modifying some of the weighting factors used in the model, and possible changes are still under discussion.

- Biological Assessment (BA)/Biological Opinion (BO) – Previously, Gwyn, Gary Drendel (Tetra Tech), Steve Dougherty, and Eric Laux met with Pete Plage (USFWS) to discuss planned mitigations for critical habitat to ensure the project is compliant with the Endangered Species Act. At the October meeting, Steve announced that Pete will be leaving the project at the end of the month, and so the team is focusing on finalizing the Biological Assessment (BA) while Pete is still available. The main revisions to the BA will be focused on the mitigation and oversight issues identified in the CMP. Formal consultation with the USFWS to develop the Biological Opinion (BO) will begin sometime after submittal of the revised BA.

- Downstream Flows – Several comments addressed possible flood risks and other impacts on downstream flows from operation of the project. Although model and study results used to prepare the draft FR/EIS indicate only minor impacts would occur, it is possible that lower flows could adversely affect downstream water users, such as Englewood and the fishery and hatchery run by the Colorado Division of Wildlife (CDOW), and complicate permitting activities. The Corps will review the comments, evaluate the issues, and decide how they should address the comments.

- Water Quality – Eric explained that the water quality analysis presented in the draft FR/EIS will be revised because new data are available that indicate anoxic conditions may be more pervasive during the summer months than originally thought. Dave Jensen (Corps) addressed the issue in more detail. A water quality workgroup initially identified the need to evaluate water quality in Chatfield Reservoir under baseline conditions and run models to show potential changes in water quality that could result from higher water levels in the reservoir. The workgroup identified changes in nutrient levels, metals concentrations, and bacteria counts as parameters of concern and developed models based on available physical, chemical, and biological data for the reservoir. These models assumed static conditions and could not represent the dynamic nature of the reservoir system. To mitigate this limitation the model results were calibrated by comparison to contemporaneous water quality data collected from the reservoir, such as temperature-dissolved oxygen (DO) depth profiles available in the Chatfield Water Authority (CWA) database. The model results suggested that at baseline there is a hypoxic/anoxic zone approximately 1 meter thick at the bottom of the water column. During the summer months, water quality is typically impacted by DO values at or near anoxic conditions (2 mg/L),

which creates a reducing environment that leads to the release of phosphorus from the bottom sediments and loading to the water column. Raising the elevation of the reservoir to increase storage could expand the area of hypoxic/anoxic conditions and trigger detrimental nutrient loading in the reservoir.

- The EPA agreed that the evaluation approach used to support the FR/EIS was reasonable, but the agency was concerned because under the worst-case baseline scenario, the model predicted maximum phosphorus concentrations at 71 mg/L, or twice the standard for Chatfield Reservoir. However, predictions of phosphorus concentrations exceeding standards were based on a limited number of DO-temperature depth profiles and water quality chemical results from samples collected to a maximum depth of approximately 10 meters. The model will be revised based on sediment flux, temperature, DO, and nutrient level data collected for depths exceeding 10 meters during periodic monitoring events from 2009 through 2012. The Corps will use these data to refine characterization of the water column in Chatfield Reservoir, and recalibrate the model to provide a better estimate of the potential conditions in the reservoir at different elevations. The recent data indicate that anoxic conditions are more pervasive than originally thought, beginning in the spring, reaching their maximum impact in July, and decreasing in August/September, and may impact lesser or greater areas of the reservoir than originally anticipated. The more recent data will provide information on baseline conditions, and allow evaluation of sediment flux, water depth and area impacted and estimated nutrient loading. Based on the additional data the Corps anticipates that the model results could indicate impacts less than the previous worst-case scenario predictions.

- The final FR/EIS will better reflect water quality conditions in the reservoir under various elevations. Chatfield Reservoir does become stratified during the summer months and experiences hypoxia in a zone at the bottom of the water column that can lead to nutrient release from the reservoir bottom. Ongoing monitoring at Chatfield Reservoir will be reviewed and continued to support operations of the project.

- Adaptive Management – Eric noted that several comments focused on the adaptive management component of the CMP. The Corps intends to tighten the presentation of proposed adaptive management activities and methods to show how mitigation and monitoring/oversight will protect the environment and address adverse conditions that may arise from operation of the project. Special areas of concern include downstream flow, water quality, critical habitat, and monitoring and oversight. The State and Water Providers will work together to clarify and strengthen the sections on adaptive management as they pertain to the Chatfield project. Mike Mueller (Sierra Club) noted that revisions to the adaptive management text should improve clarity and help the public better understand how mitigation, monitoring, and oversight will be implemented.

- Recreation and Facility Modification – Gwyn indicated that the State provided many comments relating to potential impacts to recreation and modification of recreational facilities. She noted that the Corps is required to, and will, replace facilities in kind. Over and above the recreation modification plan, however, the State is working with providers to establish some agreements for features that are over and above those

specified in the federally recommended alternative. For this reason, Corps Headquarters (HQ) streamlined the text reflecting changes to clearly separate the federally recommended plan from those proposals over and above the recreational modification plan presented in the draft FR/EIS.

3. Comment Incorporation for Final FR/EIS
   - Gwyn informed the group that comment responses should be completed around the end of November. The scope of activities necessary to respond to the comments and revise the FR/EIS is being discussed.
   - The Corps is responsible for developing responses to all comments and will incorporate revisions to the final FR/EIS with help from Tetra Tech. The Corps will request input from the group as needed, such as consulting with a subject matter expert to respond to a comment that has not previously been addressed by the group. The comments and responses will be released with the final FR/EIS.

4. Updated Schedule
   - The project schedule will be updated once the disposition of the comments on the draft FR/EIS is resolved by the Corps.

5. Study Budget
   - Gwyn currently has $20,000 on hand to move the project forward. The State has committed $127,000 and funds totaling $67,000 have been included in the President's FY13 budget for the project's use. Therefore, $215,000 in cash reserves are available to support project activities in FY 2013, including comment resolution, revising the draft into a final version, and preparing the Record of Decision (ROD):
     - Cash on hand: $20,000
     - State of Colorado: $127,000 cash
     - President's Budget: $67,000
     - Total: $215,000
   - A new contract modification ($50,000) has been awarded to Tetra Tech for project management for FY2013, comment response, and preparation of the final FR/EIS.

6. Other Items/New Business
   - The City of Aurora has relinquished its allocated storage space in Chatfield Reservoir. These shares may be redistributed among the Water Providers or revert back to the State. The State has authorized $13 million to handle such "orphan" allotments of storage space within the reservoir that revert back to the State after being relinquished by a Water Provider.
   - Water Quality – Since 2012 data will be used to refine the water quality model and help revise the text of the FR/EIS, Mike Mueller asked about the impacts the warm temperatures could have had on the depth and extent of the hypoxic/anoxic zone. Dave Jensen observed that the Corps has reviewed data collected since 1976. The depth to the anoxic zone has ranged between 7 and 18 meters, with the median depth

around 9 meters. As of August 2012, the depth to the zone where DO was reported at 2 mg/L or less occurred at approximately 9 meters, and so fell within the historical range. He noted that stratification and depth to the thermocline are impacted by summer wind conditions as well as temperature, and a depth of 9 to 10 meters is typical. The data used to characterize water quality as presented in the draft FR/EIS were collected to a maximum depth of 10 meters. The 2012 depth profiles will characterize the water column to greater depths (about 18 meters) and provide consistent information to track the 2-mg/L dissolved oxygen "elevation" during the spring and summer months. These data will be used to calculate the sediment flux and scope data needs for future monitoring.

- Downstream Flows – South Suburban – South Platte Park representatives said that they are concerned about the health of the river. The current drought conditions have adversely impacted downstream flows through the park. It is important that the South Platte remain accessible to members of the public for recreational activities, such as kayaking and hiking. Restoration of the South Platte River channel in South Platte Park is ongoing to improve habitat, stabilize the river banks, and enhance wetlands.
- Eric agreed that low flows related to project operations could impact recreational opportunities but noted that the hydrology of the river is also affected by water rights issues. The key is to improve the river for recreational purposes while not restricting holders of water rights.
- Costs – Gwyn was asked about projected costs to resolve the comments and produce the final FR/EIS. She responded that this information would be provided after the Corps determines what additional studies/evaluations are required to respond to the comments.
- Adaptive Management Plan – Gene Reetz (Audubon Society of Greater Denver) asked about the process to revise and finalize the CMP and prepare the State Mitigation Plan. Scott Roush (Colorado Parks and Wildlife) responded that in addition to the CMP presented in the final FR/EIS, the Water Providers and State will prepare the State Mitigation Plan in accordance with C.R.S. 37-60-122.2. The State Mitigation Plan will establish the requirements for mitigation of impacts on fish and wildlife resources and must be approved by the Parks and Wildlife Commission, and then the Colorado Water Conservation Board. A schedule for plan completion is still being developed.
- Polly Reetz (Audubon Society of Greater Denver) asked how the provisions specified in the reservoir operations plan will be integrated with the measures presented in the final CMP, Adaptive Management Plan, and State Mitigation Plan. Tom responded that the State and Water Providers will work together to ensure that outstanding issues are discussed and resolved so that impacts will be avoided, minimized, or mitigated. He also noted that conflicting priorities may exist between the request to maintain beneficial downstream flows and the request to operationally maintain or adjust reservoir water levels for recreation purposes at the State Park. The final language for a reservoir operations plan, CMP, Adaptive Management Plan, Recreational Use Plan, and State Mitigation Plan is under development.

7. Wrap-up
    - Gwyn and Tom thanked everyone for attending the meeting. The next meeting will be announced at a later date.