



**MEMORANDUM**  
APRIL 6, 2017

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**TO:** BOARD OF DIRECTORS  
ERIC KUHN, GENERAL MANAGER  
PETER FLEMING, ESQ.

**FROM:** DON MEYER, P.E., RAY TENNEY, P.E.

**SUBJECT:** WOLFORD AND ELKHEAD RESERVOIR OPERATIONS

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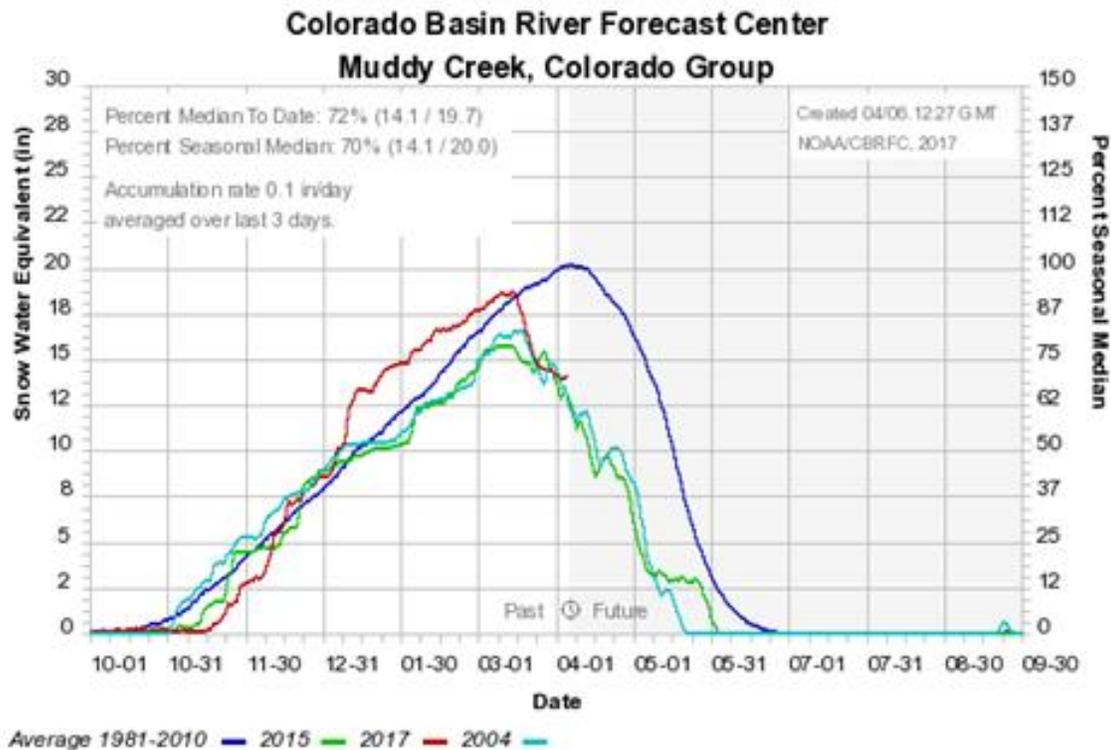
This memo summarizes Wolford and Elkhead Reservoir operations and maintenance activities.

**Board Actions Requested**

**Crest Restoration Construction Contract Approval Delegated to the Water Supply Projects Committee** – The crest restoration construction contract will become ripe for Board approval prior to the July quarterly meeting. Staff requests the Board delegate the approval of the construction contract to the Water Supply Projects Committee. Project cost estimated to be in the \$300,000 range.

**Wolford Reservoir Operations**

Snowpack above Wolford is shown in the graph below.



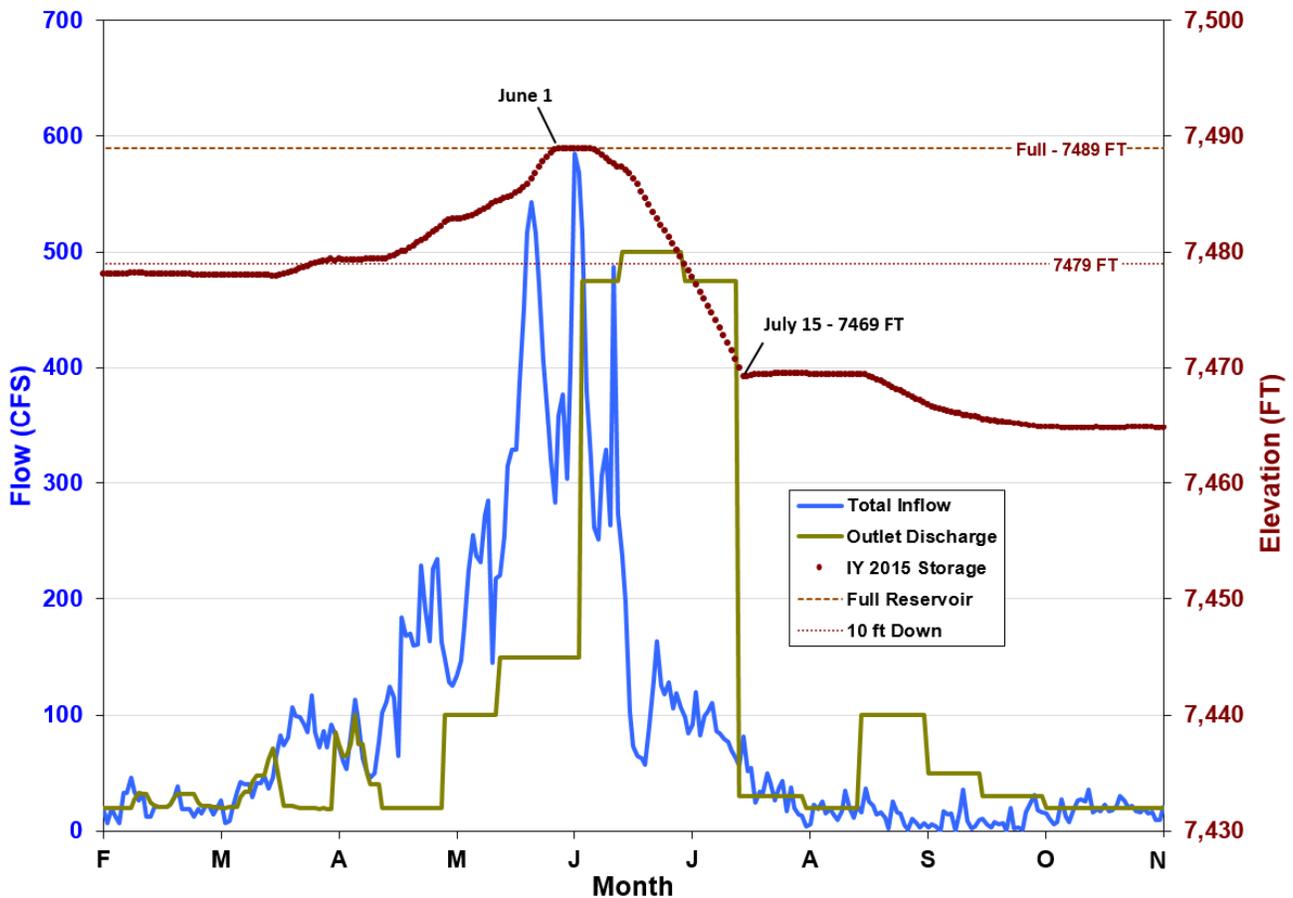
### WOLFORD MOUNTAIN AND ELKHEAD RESERVOIR OPERATIONS

Warm and dry conditions have decreased snowpack above Wolford to levels similar to 2004 and 2015 (2015 snowpack recovered in April and May). The Colorado Basin River Forecast Center (CBRFC) April 1<sup>st</sup> Most Probable runoff volume forecast into Wolford is 40,000 acre feet, or 74 percent of average, similar to conditions realized in 2005. The volume needed to fill the reservoir is 13,700 acre feet.

The graph below shows projected Wolford operations which are tailored to mesh with our planned maintenance activities. Inclinator bores 7 and 8 in the upstream shell installed in 2012 will be removed as the fills on the upstream face of the dam for installation of these instruments were constructed as “temporary” features and the instruments are no longer needed to evaluate and monitor dam performance. Removal of the instruments and fills will require the reservoir be drawn down to 20 feet below full pool and will be performed in conjunction with the crest restoration project.

Seal replacement in the main outlet 96” butterfly valve will require spillway operation for several days the first week of June.

**Wolford IY 2017 Operations Model with 2005 Inflow**



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Muddy Creek Stream Maintenance 2017 Work

The third phase of the maintenance program in the wetlands mitigation area on Muddy Creek downstream of the reservoir includes work at two sites this year. Dredging of sediment at the Schwab headgate will improve diversions. A more permanent solution to the sediment problem is being explored. Work will include repair of a siphon that has become exposed and another siphon at risk.

Reservoir Fishery

Efforts to remove Northern Pike from the reservoir include a River District sponsored CPW Spring gill netting program, run mostly by volunteers, targeting Pike in the upper inlet areas and on the Red Dirt arm of the reservoir. Recent efforts on the Red Dirt arm turned up 40 pike over 36" in pre-spawning condition. You may recall the River District donated a boat to CPW in 2016 to assist the volunteer supported effort. Our \$20 per pike "bounty" program for the general public will continue, although we have not had any redeemed in recent years.

Ritschard Dam Deformation Investigation

The embankment continues to deform at established rates, with monthly monitoring and reporting to the State under conditional full storage status. A detailed monitoring plan is being finalized.

Staff has assembled the drawings for the crest restoration and by the Board meeting will have submitted them to the SEO. Bidding of this work is scheduled to occur this spring with construction in the late summer into fall.

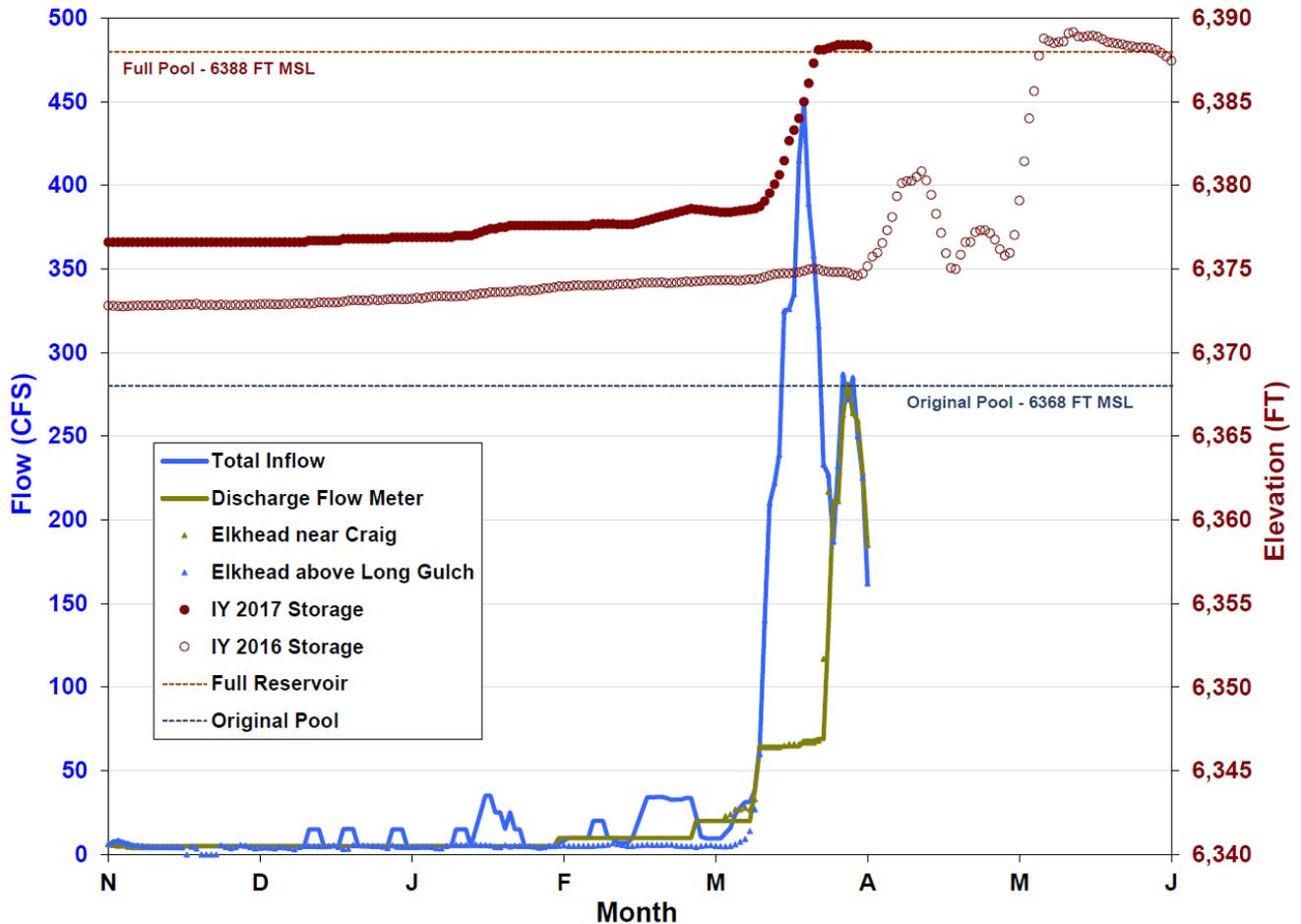
As the need to approve a construction contract for the crest restoration will arise before the July quarterly Board meeting staff has requested above delegation of the approval of a construction contract to the Water Supply Projects Committee.

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**Elkhead Reservoir Operations**

Below is a graph of recent Elkhead Reservoir Operations. The reservoir spilled on March 27<sup>th</sup> while releasing 69 cfs through the outlet works. The peak inflow during spill was 300 cfs, meaning that the spillway discharge through the fish net was 230 cfs. The CBRFC April 1<sup>st</sup> Most Probable runoff volume forecast into Elkhead is 59,000 acre feet, or 81 percent of average. Only about 8,000 acre feet has runoff in the first week of April, with peak inflow expected to be in the 750-1000 cfs range.

**Elkhead Reservoir IY 2017 Flows and Elevation**



**Maintenance Activities at Elkhead Reservoir**

**Elkhead Outlet Works Repairs**

Inland Potable Services continues to work on the stem guide anchor bolt repair and by the Board meeting should have the outlet works gates and movable fish screen restored to full function. As of this writing all gates have been restored to full operations.

The 42” fixed cone valve was removed and evaluated. Corrosion pitting was more severe and widespread than anticipated and more extensive work has been required to restore the valve to

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operations with proper coating. This work should be completed by the first week in May and the outlet works restored to full operation.

The spillway fish barrier net and debris boom have experienced a full reservoir for the first time and appear to have been deployed well. As flow ramps up with snow melt we will monitor the boom and net under flow conditions.

**Recreation Area Improvements**

CPW has completed its shop at Elkhead and will begin using Elkhead as a base of operations this spring. Plans for the construction of a 27 space campground in 2017 are in full swing and construction should begin soon. CPW has constructed 11 miles of hiking and mountain biking trails at Elkhead.