

Exhibit N-2

Chapter 1

agricultural, and recreational water providers, collectively expressed its desire to acquire approximately twice the maximum storage space potentially available. During early deliberations, the group established a ground rule that any allocation among the water providers must receive unanimous agreement. Therefore, concessions were required by nearly all water providers before the required consensus could be reached. Part of the eventual compromise included the equal splitting of storage space between upstream water providers and downstream water providers, further reinforcing the equitable aspect of the allocation. Downstream water providers included water providers located within the Chatfield Reservoir storage reallocation study area. At a decisive meeting in November 2004, the group unanimously agreed on the allocation. The decision was formalized by CWCB approval on January 27, 2005. Agreements between the CWCB and the 16 participating water providers were signed in March 2005, completing the allocation process. Although three of the water providers are listed as needing storage for agricultural uses, the municipal and industrial cost sharing contained in the Water Supply Act of 1958 will be used for the full reallocation, as the overall context for the reallocation to the CDNR is the enhancement of municipal and industrial water supply for the Denver region in a manner equitable to all water providers. This context is described further in Section 1.9 of this Report and is recognized by the authorizing statute, Section 808 of the WRDA of 1986, which lists a variety of potential purposes for storage use, including agriculture, but references the Water Supply Act of 1958 as governing the repayment of the storage costs.

The agreements included a mechanism to transfer allocation ownership. In 2007, one of the upstream water providers (Hock Hocking) chose not to pursue its allocated maximum 100 acre-feet of storage. This maximum storage allocation was partitioned among the remaining upstream water providers who wished to acquire additional storage at Chatfield Reservoir, according to the mechanism set forth in these agreements. The resulting allocation among the 15 water providers was approved by the CWCB on July 11, 2007. In 2008 one of these water providers, Parker WSD, opted not to participate in the Chatfield storage reallocation. Mount Carbon Metropolitan District assumed the place of Parker WSD, as presented in Table 1-1. Several of the water providers (Table 1-1), including Centennial WSD, Castle Pines North, Castle Pines Metro, Center of Colorado WCD and Mount Carbon Metropolitan District, received portions of the Parker WSD allocation. In 2011, Perry Park withdrew from the project and its 100 acre-feet of storage were acquired by CWCB (approved November 15, 2011). In 2012, the city of Brighton withdrew from the project and its 1,425 acre-feet of storage were acquired by Centennial WSD (1,181 acre-feet), Castle Pines Metro (125 acre-feet), and Castle Pines North (119 acre-feet) (approved April 23, 2012).

The City of Aurora and Roxborough WSD are in the process of withdrawing from the Project. Aurora's share of the reallocated storage of 3,561 acre-feet (downstream) and Roxborough's share of 564 acre-feet (upstream), are designated as unassigned, as shown in Table 1-1, and will be reassigned to one or more of the water providers or others at a future date.

The goal of this Chatfield Reservoir storage reallocation study is to provide decision-makers and the public with an assessment of the positive and negative impacts that could result from the selection of each of the various alternatives, including the Selected Plan. Any decision, then, can be made with the best available information after objectively weighing the positive and negative effects of each alternative. As described in Section 1.4, this study also has been prepared under the Section 808

project authorization to develop the plan and conduct the analyses required for the Chief of Engineers to determine whether the reallocation is feasible and economically justified.

1.6 Purpose and Need Statement

With the main problem being defined as increasing water demand in the Denver Metro area, the next task is to define the project planning objectives, which go hand in hand with a specifically defined purpose and need statement. The statement of purpose and need is important in determining the range of alternatives to be evaluated in this combined FR/EIS as required by NEPA. The purpose and need statement is as follows:

The purpose and need is to increase availability of water, providing an additional average year yield of up to approximately 8,539 acre-feet of municipal and industrial (M&I) water, sustainable over the 50-year period of analysis, in the greater Denver Metro area so that a larger proportion of existing and future water needs can be met. The average year yield is the average amount of water per year that the water providers (not including Hock Hocking or Parker WSD) would have been able to store in Chatfield during the 1942-2000 period of record (POR) if Chatfield Dam had existed during the entire POR. Calculations for each water provider were based on inflows during each year of the POR, the effective date of each water provider's water rights, a maximum total storage for all water providers of 20,600 acre-feet, and whether water providers had effluents (non-natural flows) from water rights upstream that could be recaptured in Chatfield for later re-use. Due to a combination of relatively low inflows in most years and the relatively low seniority of water rights held by the water providers, 20,600 acre-feet would have been able to be stored in Chatfield Reservoir in only 16 of the 59 years in the POR.

The action is a component in the overall effort to meet the water supply needs of the greater Denver Metro area, and it would contribute to meeting a portion of those needs. One alternative considered the reallocated storage space in Chatfield Reservoir would be filled using existing or new water rights, including wastewater return flows and other decreed water rights, belonging to a consortium of water providers. The primary objective of the reallocation is to help enable water providers to supply water to local constituents, mainly for municipal, industrial, and agricultural needs, in response to rapidly increasing demand. Chatfield Reservoir is well placed to help meet this objective, because the reservoir provides a relatively immediate opportunity to increase water supply storage without the development of significant amounts of new infrastructure, it lies directly on the South Platte River (efficient capture of runoff), and it provides an opportunity to gain additional use of an existing federal resource.

As Colorado's population is projected to approximately double by 2050 (CWCB, 2011), there is a significant impact on water planning and management strategies in the Denver Metro area. Some of the water providers in the Denver Metro area (mainly downstream of Chatfield Reservoir) rely mainly on junior surface water rights, surface water exchanges and agricultural transfers, and existing/new gravel lake storage, while others (South Metro providers mainly upstream of Chatfield Reservoir) rely most heavily on nonrenewable, nontributary groundwater (NTGW). Increased reliance on nonrenewable NTGW for permanent water supply brings serious reliability and sustainability concerns. As the NTGW source becomes less reliable, it will become more expensive to obtain. Because its availability is not reliant on weather patterns, NTGW provides a very important supply of water during drought. Because the Chatfield Reservoir storage reallocation

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SUBJECT: Request Policy Exception for Reallocation of Storage at Chatfield Reservoir for Water Supply

c. Low reliability or yield of the new storage space. Due to water rights in the existing conservation pool and generally low rainfall and run-off, the reliability of water as measured by dependable yield is very low. Most Corps reservoirs that have storage allocated to water supply provide for an estimated dependable yield which generally determines how much storage a water user would desire to purchase. Common measurements of dependable yield include: drought of record; 50-yr low flow; 2% chance; 98% reliability; 7 day-10-year low flow. At Chatfield, all of these measures of dependable yield are 0. At Chatfield, yield is not simply a factor of precipitation and runoff, of which Denver receives 14 inches annually on average. It is also a factor of water rights. As the groups seeking storage space in Chatfield have relatively minor water rights, they will often not be able to capture inflows, as senior rights holders have priority for available water and capture most of the run-off. Some of the potential users seeking additional storage have reusable water that can be captured on a yearly basis amounting to about 2,379 AF, which can be described as “non-natural flows”. In this case, non-natural flows include reuseable effluents that have been treated and released from upstream sources. See attached table at enclosure 2 for information on how much storage could be captured and made useable for the 16 entities seeking storage space at Chatfield. This table presents a period of record analysis and the basis of yield determinations and an indicator of reliability of water supply.

6. Updated Cost of Storage Policy Considerations. UCS policy is the only factor of cost that can be adjusted as the other costs are unavoidable. The UCS at Chatfield is \$1650/AF (\$34M/20,600AF). At other reservoirs where reallocation contracts exist, the updated cost of storage ranged from about \$100 to \$5,100 per acre-ft of storage in current dollars (average of \$530 by contract). When reliability is factored in to the equation, as measured by yield of storage space, the cost per AF/yr of yield ranges from about \$50 to \$3,300, with an average of \$270 at other Corps reservoirs where reallocations have been made. At Chatfield, because of the relatively high cost of storage and the very low yield to storage ratio, UCS would be about \$14,300 per AF/yr of dependable yield. More than 4 times the highest of any other Corps reallocation. A summary of other Corps reservoir reallocations can be found at enclosure 3.

a. Alternatives Considered. Many alternative approaches were considered for adjusting UCS, based on reliability considerations to reflect low yield/reliability of storage space. The arrays of alternatives also provide a wide range of cost savings that could be experienced by the sponsor on UCS. Each alternative is represented as percent of the UCS of \$34M. The array of alternatives considered included:

(1) Percent time in years over the 59-year period of record in which natural inflows are captured in the 20,600/AF storage space allocated to new Water Supply (WS) = 83% (5 out of 6 years); adjusted cost of storage = \$28M or \$1360/AF of storage.

(2) Percent of the new WS storage space utilized over the period of record making use of total inflows which include both natural and “man-made” inflows. This is the same as average use of storage = 41% (503,788/AF / 1,215,400/AF over 59 years or 8,539/AF / 20,600/AF annual average); adjusted cost of storage = \$14M or \$680/AF of storage.

(3) Percent of the new WS storage space utilized over the period of record based on only natural inflows. This is the same as average natural yield of the storage space = 33% (403,517/AF / 1,215,400 over 59-year period or 6,839/AF / 20,600/AF annually); adjusted cost of storage = \$11M or \$533/AF of storage.

(4) Dependable yield of the new storage space based on total inflows including natural and man-made = 11% (2,379/AF minimum yield / 20,600/AF of storage); adjusted cost of storage = \$4M or \$194/AF of storage.

voir has been managed to maintain water levels within a 9-ft range (elevation 5425’ to 5434’) (USACE 2000). From 1976 to 1996, the change in water level was within this 9-ft range approximately 80 percent of the time. The average range of mean monthly elevations is small, less than 3-ft from low to high lake periods.

An important element of the Chatfield Reservoir Storage Reallocation Project studies was the modeling of various potential operation scenarios (Chatfield Reallocation Study Storage Use Patterns, Brown and Caldwell, 2003). A key conclusion of this study states: “. . . there is additional storage space available in Chatfield Reservoir, and . . . there are sufficient water rights and demand to utilize this additional storage.” Although several scenarios were modeled in the Brown and Caldwell study, the recreation relocation study described in this report is based on the highest water elevation scenario, which would result in raising the reservoir to an elevation of 5444’, or approximately 12-ft above the existing normal maximum operating level of 5432’. Updated model results are described later in this section.

Map 2.2 is an aerial photo of the reservoir with a colored line that depicts a water elevation of 5444’. A general sense of what recreation use areas would be affected by this elevation can be derived from this map.

Key areas that would be affected include the following:

- North Boat Ramp
- Massey Draw
- Swim Beach Area
- Catfish Flats/Fox Run Group Use Areas
- Kingfisher/Gravel Ponds/Platte River Trailhead Areas
- Marina Area
- Plum Creek Area

The operating regime associated with a reservoir elevation at 5444’ results in an increased frequency of larger, seasonal water surface fluctuations. Table 2.1 summarizes the increase in magnitude of seasonal water surface elevation fluctuation over the 59-year period of record that was modeled. The average recreational season (June through September) water surface elevation fluctuation with historic operations and the existing normal high water elevation of 5432’ is 6.7-ft. The raised water surface alternative (5444’) increases the average recreational season fluctuation to 11.9-ft – an increase of 5.2-ft.

Table 2.1. June through September Water Surface Fluctuation

Reservoir Water Surface	Average Water Surface Fluctuation (ft)	Years with more than 15-Ft Fluctuation (out of 59-year record)
5432’ (historic operations)	6.7	5
5444’ (modeled results for Chatfield Reallocation Projects)	11.9	20

Source: USACE Model Results

A more significant operations challenge may be presented by larger fluctuations that occur infrequently but regularly. Over the 59-year historic period of record (1942 to 2000) that was modeled, historic operations (5432’) had 5 years with more than 15-ft of fluctuation. In contrast, the 5444’ alternative has 20 years when the water surface elevation fluctuation is greater than 15-ft.

Figures 2.1 and 2.2 (page 2-5) show the yearly difference between the seasonal maximum (red dash) and seasonal minimum (blue dash) water surface elevations.

Some key conclusions are noted below:

- Raising the reservoir elevation from 5432’ to 5444’ results in higher water surface elevations throughout the recreational season. With the new operating regime modeled for a reservoir at 5444’, the surface area of the reservoir would increase and the amount of area available for boating, fishing and other activities would be larger at all times of the year as well as under all hydrological conditions that were modeled over the 59-year period of record.
- By modifying the reservoir storage and management practices, operations of park facilities and use areas will need to deal with potential water surface elevations regularly ranging from 5444’ to 5426’. This creates a need to relocate major facilities above the 5444’ water level. Facilities such as the parking lots, restrooms, and other buildings would need to be relocated above the normal high water line.

Another consideration is the frequency that lower water conditions would occur during the primary recreation season. As shown in Figure 2.2, a level of approximately 5428’ or less would be reached 15 times over the 59 year period of record, which equates to a frequency of approximately once every 4 years. The 5426’ elevation was used as a low level

Pre-decisional Information - FOUO

Chatfield Reallocation Project Applicability of Section 404(b)(1) Guidelines

1. PURPOSE: To provide the Planning Branch (PM-AE) with the Regulatory Branch's (OD-R) opinion regarding the applicability of the Section 404(b)(1) guidelines (Guidelines) to the Chatfield Reallocation Project (Reallocation Project). Primary question: Do the Guidelines apply to the Corps' proposed authorization of the reallocation of water storage or only to the relocation of recreation facilities and roads within Chatfield State Park?

2. BACKGROUND (HISTORY): Region 8 of the EPA, in a 13 May 2009 letter to Col. Press, stated their belief that the scope of analysis for Section 404, to include application of the Guidelines, should cover the reallocation of water storage and not just the relocation of recreation facilities/roads. Historically, it had been the Regulatory Branch's position that the correct scope of analysis for Section 404, to include application of the Guidelines, is the proposed relocation of recreation facilities/roads and not the reallocation of water storage. The Regulatory Branch had taken this position based on the following:

- The project is 100% locally funded.
- The proposed action requiring authorization by Civil Works is the reallocation of water storage, which does not require a Section 404 authorization.
- The project sponsor (Colorado Water Conservation Board - CWCB) desires that the recreation facilities in Chatfield State Park remain "as whole" as possible. Therefore, the CWCB's preferred alternative for the relocation of recreation facilities/roads will require a Section 404 authorization.
- Since CWCB and the participants are funding 100% of the cost of this project (other than preparation of the FR/EIS), the Regulatory Branch believed that the sponsor would apply for a 404 authorization to relocate the recreation facilities/roads after Civil Works had authorized the reallocation of storage.

3. DISCUSSION: Since receipt of the EPA's letter to Col. Press, Martha Chieply, Tim Carey, Chandler Peter, Eric Laux and Mike Reilly worked the issue through e-mails and conference calls. Eric provided significant new information regarding Congressional authorizations received to-date, Civil Works Planning regulations and draft Civil Works authorization language for the project.

4. RECOMMENDATION: The Omaha District Regulatory Branch is now of the opinion that a Section 404(b)(1) analysis should be done for the entire Reallocation Project, not just for the relocation of recreation facilities/roads. This opinion is based on the fact that the reallocation of water storage and relocation of recreation facilities/roads are inextricably linked, administratively, due to how Civil Works must authorize the Reallocation Project. Specifically, the authorization provided by Civil Works must include authorization of the relocation of recreation facilities/roads. In addition, the Civil

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Works' authorization will provide approval to CWCB to modify the recreation facilities/roads using the sponsor's preferred alternative.

5. POLITICAL INTEREST OR POTENTIAL FALLOUT: Political interest in this project is at the highest levels within Colorado, to include interest by the entire Colorado Congressional Delegation and the Governor. In addition, the 15 water providers who are participating in the project have considerable political clout. Potential fallout:

- Performing a Section 404(b)(1) analysis, with a conclusion that the Reallocation Project IS NOT the least environmentally damaging practicable alternative (LEDPA), could result in the Corps not approving the project. If the project is authorized, even though the Section 404(b)(1) analysis concludes that the Reallocation Project is not the LEDPA, the EPA could elevate the decision, through Section 404(q), to the OASA(CW).
- Performing a Section 404(b)(1) analysis, with a conclusion that the Reallocation Project IS the LEDPA, could result in the EPA (if they disagree with the conclusion) either elevating the decision, through Section 404(q), to the OASA(CW) and/or the EPA giving the Draft EIS a poor rating and elevating the EIS to CEQ.
- Not performing a Section 404(b)(1) analysis on the entire Reallocation Project could result in the EPA either elevating the decision, through Section 404(q), to the OASA(CW) and/or the EPA giving the Draft EIS a poor rating and elevating the EIS to CEQ.

Regardless of which of the above tracks is followed, delays in preparation of the Final EIS will likely occur.

6. ACTION OFFICER / OFFICE SYMBOL / PHONE NO. / DATE: Tim Carey, CENWO-OD-RCO, (303) 979-4120 or Martha Chieply, CENWO-OD-R, (402) 995-2451, 7 July 2009.

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