



**DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, OMAHA DISTRICT**

RECORD OF DECISION

CORPS FILE NO. (ACTION ID): NWO-2002-80762-DEN

**APPLICANT: Board of Water Commissioners for the City and County
of Denver (Denver Water)**

PROJECT NAME: Moffat Collection System Project

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List of Acronyms

%	percent
ACHP	Advisory Council on Historic Preservation
AF	acre-feet
AF/yr	acre-feet per year
ARNF	Arapaho and Roosevelt National Forests
BLM	Bureau of Land Management
BMP	Best Management Practice
CDPHE	Colorado Department of Public Health and Environment
CFR	Code of Federal Regulations
CNHP	Colorado Natural Heritage Program
CO	carbon monoxide
Corps	U.S. Army Corps of Engineers
CPW	Colorado Parks and Wildlife
Denver Water	Board of Water Commissioners for the City and County of Denver
ECA	Environmental Conservation Area
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
FERC	Federal Energy Regulatory Commission
Fish and Wildlife Mitigation Plan	<i>Moffat Collection System Project, Fish and Wildlife Mitigation Plan</i>
FWCA	Fish and Wildlife Coordination Act of 1934
IPaC	Information for Planning and Conservation
IRP	Integrated Resources Plan
LEDPA	Least Environmentally Damaging Practicable Alternative
Miramonte	Miramonte Land Corporation
Mitigation Plan	Final Mitigation Plan for the Moffat Collection System Project, Corps File No. NWO-2002-80762-DEN (Denver Water 2017)
Moffat Project or Project	Moffat Collection System Project
NEPA	National Environmental Policy Act of 1969, as amended
NHPA	National Historic Preservation Act of 1966, as amended
NOA	Notice of Availability
NO _x	oxides of nitrogen

List of Acronyms (continued)

PA	Programmatic Agreement
PCA	Potential Conservation Area
ROD	Record of Decision
Section 404 Permit	Department of the Army Clean Water Act Section 404 Permit
SHPO	State Historic Preservation Officer
U.S.	United States
U.S.C.	United States Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compound
WQCD	Water Quality Control Division

1.0 INTRODUCTION

This document constitutes the United States (U.S.) Army Corps of Engineers (Corps), Omaha District's Record of Decision (ROD) and review and compliance determination under the National Environmental Policy Act of 1969, as amended (NEPA) and Section 404 of the Clean Water Act of 1972, including the 404(b)(1) Guidelines, for the Moffat Collection System Project (Project). The Project requires authorization in accordance with Section 404 of the Clean Water Act due to the discharge of dredged or fill material into Waters of the U.S. (33 United States Code [U.S.C.] 1344). In accordance with NEPA as defined in 40 Code of Federal Regulations (CFR) Section 1501.5, the Corps acted as the lead agency on the preparation of the Draft and Final Moffat Collection System Project Environmental Impact Statements (EISs). The Final EIS (Corps 2014), supporting information, data, and analyses, as well as information contained in the Applicant's Department of the Army Clean Water Act Section 404 Permit (Section 404 Permit) application (Attachment A), submitted on October 19, 2009, and additional submissions including the Applicant's Clean Water Act Section 401 Colorado Water Quality Certification No. 4369, were relied upon for the Corps requisite determinations and its ultimate Section 404 Permit decision. In doing so, the Corps considered the possible consequences of the Applicant's Preferred Alternative (identified in the Final EIS as the Proposed Action and Alternative 1a) in accordance with regulations published in 33 CFR Parts 320 through 332 and 40 CFR Part 230, as well as the stated views of interested agencies and the public regarding the Project.

1.1 Project Background

The Moffat Collection System Project is a water supply project proposed by the Board of Water Commissioners for the City and County of Denver (Denver Water) that spans Denver, Adams, Jefferson, Grand, Summit, Gilpin, and Park counties in Colorado. The existing water collection system for Denver Water is divided into two major geographically-distinct systems: the North System, or the Moffat Collection System, and the South System. The Moffat Collection System supplies only a small percentage of Denver Water's overall reservoir storage and available water supply, leaving the overall system highly dependent upon the operation of the South System and susceptible to future manmade and natural disasters. Because of future water needs and the issues created by the imbalance between the two systems, Denver Water evaluated existing and future water supplies and demands, as well as treated water infrastructure and conservation measures. Denver Water determined it would be facing water supply shortages as early as 2022, and that existing water supply and storage would not meet the projected shortfall.

As described in Section 2.3 of the Moffat Project Final EIS, the Applicant's Preferred Alternative is to enlarge Denver Water's existing 41,811-acre foot (AF) Gross Reservoir by 77,000 AF (i.e., 72,000 AF plus a 5,000 AF Environmental Pool, described in the paragraph below) to a total storage capacity of 118,811 AF. Gross Dam is located in Boulder County, Colorado, approximately 35 miles northwest of Denver and 6 miles southwest of the City of Boulder. The enlargement would be accomplished by raising the existing concrete gravity arch dam by 131 feet, from 340 to 471 feet high. The surface area of the reservoir would be expanded from approximately 418 acres to 842 acres. Using existing collection infrastructure, water from the Fraser River, Williams Fork River, and South Boulder Creek would be diverted and delivered during average to wet years via the Moffat Tunnel and South Boulder Creek to Gross Reservoir. There would be no additional diversions in dry years because Denver Water already diverts the maximum amount physically and legally available under its existing water rights without additional storage in its system. In order to firm this water supply and provide 18,000 acre-feet per year (AF/yr) of new firm yield, an additional 72,000 AF (not including the Environmental Pool) of storage capacity is necessary. To meet future demands, in most years, Denver Water would continue to rely on supplies from its entire integrated collection system. In a drought or emergency, Denver Water would

rely on the additional water it would have previously stored in the Moffat Collection System to provide the additional 18,000 AF/yr of yield.

The enlarged reservoir would also store an additional 5,000 AF of water as a dedicated Environmental Pool that would be used to improve aquatic habitat downstream in South Boulder Creek. This additional storage would be filled with water provided by the cities of Boulder and Lafayette. None of Denver Water's existing or future water supply would be stored in the Environmental Pool. To allow storage of additional water, Denver Water proposes to raise the dam an additional 6 feet beyond the proposed 125-foot raise necessary for increasing the storage of water, to a total height of 131 feet. The storage and release of water in the Environmental Pool would be managed under an Intergovernmental Agreement between Denver Water, Boulder, and Lafayette (Denver Water 2010). For additional information regarding the Environmental Pool, see Section 2.3.2.1 of the Moffat Final EIS. The Corps views the Environmental Pool and its operation as minimization of adverse effects of the Applicant's Preferred Alternative on South Boulder Creek under 40 CFR 230.77(b).

A Section 404 Permit application was submitted to the Denver Regulatory Office on October 19, 2009 (Application #200280762). The Applicant's Preferred Alternative involves the discharge of dredged or fill material into 5.78 acres of Waters of the U.S. (2.24 acres of permanent impacts to wetlands and 0.21 acre of temporary impacts to wetlands; 3.54 acres [9,447 linear feet] of permanent impacts to Waters of the U.S. and 0.50 acre [1,314 linear feet] of temporary impacts to Waters of the U.S.) under Section 404 of the Clean Water Act.

1.2 Cooperating Agencies

The Corps requested that three Federal agencies with statutory authority over the proposed Project participate in the NEPA process as Cooperating Agencies (40 CFR 1501.6 and 1508.5), including the U.S. Environmental Protection Agency (EPA), Federal Energy Regulatory Commission (FERC), and U.S. Forest Service (USFS). The USFS declined the Corps request to be a Cooperating Agency, but formal Cooperating Agency agreements were executed between the Corps and FERC and the Corps and EPA. To expand Gross Reservoir and raise the dam, Denver Water would need to receive an amendment to the March 16, 2001 license for the Gross Reservoir Hydroelectric Project (FERC Project No. 2035). FERC's Division of Dam Safety and Inspections would also need to grant approval of any proposed changes to the existing dam structure and features of the Project. Throughout the NEPA process, FERC has focused their input on the area around Gross Reservoir to coincide with the boundary that includes the hydropower relicensing amendment (refer to Section 2.3.2.1 of the Final EIS). Although the Corps denied a request by Grand County to be a Cooperating Agency, the Corps granted Grand County Consulting Agency status relative to effects on county resources. After the release of the Draft EIS by the Corps in 2009, the Colorado Department of Natural Resources and the Colorado Department of Public Health and Environment (CDPHE) also became Cooperating Agencies to facilitate Federal and state coordination under the Fish and Wildlife Coordination Act of 1934 (FWCA) and the Clean Water Act Section 401 Water Quality Certification, respectively.

1.3 Scoping Process

The public scoping process for the Moffat Project EIS was initiated when a Public Notice was posted on the Corps website on September 15, 2003. A copy of the notice was emailed to over 200 entities, mainly government agencies, Indian tribes, and special interest groups such as recreation and environmental organizations, water districts, and homeowners associations. A Notice of Intent to prepare an EIS was published in the Federal Register on September 17, 2003, which initiated a scoping period that concluded on November 7, 2003. Public notices announcing the Project and meeting were published on

September 17 or 18, 2003, in the *Denver Post/Rocky Mountain News*, *Boulder Daily Camera*, *Arvada Sentinel*, and *Winter Park Manifest*.

On October 7, 2003, an agency scoping meeting was held at the Corps Denver Regulatory Office in Littleton, Colorado, to address agency concerns and review the following key components of the Project: purpose and need, preliminary alternatives, important environmental issues, and data/field study needs. Representatives from the following agencies attended the meeting: Corps, EPA, FERC, USFS, CDPHE Water Quality Control Division (WQCD), and Grand County. Chapter 6 of the Final EIS describes coordination efforts and public involvement associated with the EIS.

Three public scoping meetings were held to present the Project to the public, and solicit comments from agencies and the public. The meetings were held in Boulder, Colorado, on October 7; in Denver, Colorado, on October 8; and in Silver Creek, Colorado, on October 9, 2003. Two documents were distributed at the meetings: (1) a *Scoping Document* describing the scoping process, agency involvement, EIS process, and guidelines for submitting comments; and (2) a *Moffat Project Information Document* describing the Moffat Project and problem statement, the purpose and need of the Project, and preliminary alternatives. Based upon attendance sheets, 26 people attended the meeting in Boulder, 13 people attended the meeting in Denver, and 21 people attended the meeting in Silver Creek.

The scoping comment period extended until November 16, 2003. During this time, the Corps received written and oral comments from the public and agencies, as well as the Historic Preservation Representative of the Cheyenne and Arapaho Tribes of Oklahoma, whom expressed interest in participating in the Project. All of the comments are included in the Project administrative record.

A *Scoping Summary, Moffat Collection System Project* was prepared by the Corps to document the scoping process (Corps 2003). The document describes the scoping process, summarizes the issues and concerns raised by the public and agencies, and includes copies of attendance sheets, comment letters received, and public notices such as the notice in the Federal Register.

From June 24, 2008, to January 24, 2009, the Corps solicited comments on the Preliminary Draft EIS from the EPA and FERC as Cooperating Agencies, and Grand County as a Consulting Agency. The seven-month comment period included an additional 45-day review requested by Grand County.

1.4 Consultation and Coordination

On October 30, 2009, Notices of Availability (NOAs) of the Draft EIS and four public open houses and hearings were published in the Federal Register, and the Corps issued a Public Notice for the pending Section 404 Permit, the availability of the Draft EIS, and the dates and locations of the public hearings. The four public hearings on the Draft EIS were held as follows: in Boulder, Colorado, on December 1, 2009; in Granby Colorado, on December 2, 2009; in Denver, Colorado, on December 3, 2009; and in Breckenridge, Colorado, on January 7, 2010. Postcards regarding the availability of the Draft EIS and the hearings were mailed to interested parties and agencies, including registered attendees at the prior public scoping meetings. Legal notices were published in the *Summit County Daily News*, *Denver Post*, *Coal Creek Canyon Mountain Messenger*, and *Highlander Monthly* newspapers regarding the availability of the Draft EIS.

The original 90-day comment period for the Draft EIS and Section 404 Permit application was set to end on January 27, 2010. Due to numerous requests received by the Corps to extend the comment period on the Draft EIS and Section 404 Permit application, and given the amount of information presented in the Draft EIS and supporting documents, the Corps made the decision to extend the comment deadline by 32 days, to March 1, 2010. Another Public Notice announcing the 32-day extension was issued on

December 11, 2009, and published in the Federal Register on December 18, 2009. Postcard notifications of the time extension were also mailed to interested parties, agencies, and attendees at the public scoping meetings. Based on input from the public, the comment period was extended another 16 days, from March 1, 2010, to March 17, 2010. A third Public Notice on the extension was issued on February 5, 2010, and published in the Federal Register on February 22, 2010. Postcards providing notice of the extension were again sent out to interested parties during this time.

The Project Final EIS was filed with the EPA on April 18, 2014. The NOA for the Final EIS appeared in the Federal Register on April 25, 2014, and announced written comments on the Final EIS would be accepted on or before June 9, 2014, reflecting a 45-day formal comment period (see Section 5.0 and Attachment B of the ROD).

1.5 Jurisdiction

The Corps has regulatory authority under Section 404 of the Clean Water Act for actions that require the discharge of dredged or fill material into jurisdictional Waters of the U.S., including wetlands. In 2005-2006, all aquatic resources in the Moffat Project Area were assessed and delineated to determine whether the resources met the definition of Waters of the U.S. (40 CFR 230.3(o)). The Corps regulatory framework with regard to jurisdictional Waters of the U.S. is contained in 33 CFR 328.

Alpine Ecological Resources, LLC, on behalf of Denver Water, prepared a wetland delineation report on April 24, 2015 that was verified by the Corps on February 8, 2016. The Corps prepared a Preliminary Jurisdictional Determination to document wetlands and waterways within the Project Area that will be treated as jurisdictional Waters of the U.S. for purposes of computation of impacts and compensatory mitigation requirements.

1.6 Scope of Analysis

The Corps scope of analysis or permit area is made up of the Project Area which is comprised of the following five study areas located on the East and West slopes of the Continental Divide in Colorado: reservoirs, conveyance systems, South Platte River facilities, Denver Basin aquifer facilities, and river segments, as described in Section 3.0 of the Final EIS. The Corps considered direct and indirect impacts during the Clean Water Act Section 404 review, as well as other potential environmental, social, or economic effects from the Applicant's Preferred Alternative. The direct impacts to Waters of the U.S. only occur on the East Slope, and are identified as the discharge of fill material into and inundation of jurisdictional wetlands and other Waters of the U.S. associated with the enlargement of Gross Reservoir. No placement of fill material is proposed on the West Slope. Indirect impacts were thoroughly evaluated on both the East Slope and West Slope due to changes in stream flows associated with the increased diversions from the Moffat Project.

The downstream extent of the Project Area on the Colorado River and South Platte River was initially determined based on an evaluation of average monthly hydrologic changes under the action alternatives. The average monthly changes in flow under the action alternatives would be less than 10 percent (%) in the Colorado River at the U.S. Geological Survey (USGS) Kremmling gage, and in the South Platte River near the USGS Henderson gage. Results of the resource evaluations indicated effects would be negligible to minor at these locations; therefore, extension of the Project Area further downstream of these locations on the Colorado and South Platte rivers was not warranted. In addition, changes in flows were not significant as a percentage of the total stream downstream of these points because flows increase from contributing drainage basins and tributaries. The exception to the downstream extent of the Project Area included evaluation of recreation and special status species. The evaluation of special status species also

considered depletions that would affect four Federally-listed endangered fish species that occur downstream of the Project Area in the Colorado River.

2.0 ADDITIONAL ANALYSES CONDUCTED AFTER PUBLICATION OF THE FINAL EIS

Following publication of the Final EIS, the Corps reviewed and considered some additional information based on Project design modifications related to the Gross Dam quarry location, comments received on the Final EIS pertaining to riffle and pool complexes, dynamic temperature modeling results, revised land acquisition data, and updates to U.S. Fish and Wildlife Service (USFWS) and USFS sensitive species lists. An overview of those considerations is provided in the sections that follow. Reports cited here are available on the Corps website.

2.1 Changes in Quarry Location and Production

Section 2.3.2.1 of the Final EIS describes that approximately 60% of the material required to make the concrete for the proposed dam raise would be produced onsite and 40% of the remaining material needed (sand aggregate, flyash, and cement) would be transported from an off-site commercial source. For purposes of analyzing and disclosing impacts in the Final EIS, it was assumed that an on-site hard rock quarry would supply the needed gravel aggregate for the dam raise, shown as the benched/unbenched quarry site on Figure 2-3 of the Final EIS. Additionally, it was assumed that all of the sand aggregate would be imported to the site from an off-site supplier near Longmont, Colorado (Figure 2-5 of the Final EIS).

Denver Water conducted preliminary engineering and geotechnical evaluations at Gross Reservoir between 2014 and 2016 to assess if the native granite underlying Gross Reservoir could be used to produce aggregate for concrete and if other on-site quarry locations exist that would minimize impacts. The findings of the preliminary investigations concluded that all aggregate (sand and gravel) could be produced on-site from a quarry located entirely on Denver Water property and within the new reservoir inundation pool. The relocated quarry site would occur along the existing access road (shown as Haul Road Recreation Area on Figure 3.15-1 of the Final EIS) to Osprey Point. Pursuant to the Corps mitigation policy at 33 CFR 320 and in response to comments received by the Corps on the Final EIS, Denver Water proposed to modify the Project to minimize adverse impacts identified in the Final EIS. The proposed modifications to the Applicant's Preferred Alternative are related to changes in location and production for quarrying activities as described in the *Final Quarry Location Report: Impact Minimization and Avoidance Measures, Moffat Collection System Project* (Denver Water 2016). In general, the Corps agrees that for all resources analyzed, the changes in quarry location and production would result in no impacts, have the same or similar impacts to those described in the Final EIS, or have less impacts due to a reduction in land disturbance and off-site haul trips (URS 2017). An air quality conformity determination was conducted following publication of the Final EIS to evaluate the changes in quarry location and operations (see Section 6.6 of the ROD). For purposes of the Corps Section 404 Permit determination, the Applicant's Preferred Alternative is considered to include the Osprey Point quarry.

2.2 Documentation of Riffle and Pool Complexes near Gross Reservoir

The Applicant's Preferred Alternative would nearly double the surface area of the existing Gross Reservoir from 418 to 842 acres. Segments of streams that currently flow into Gross Reservoir would thus be inundated with water as part of the enlargement. Questions were raised during the Final EIS comment period on what impacts this action would have on riffle and pool complexes. Riffle and pool complexes are defined in the Clean Water Act Section 404(b)(1) guidelines at 40 CFR 230.45(a): "Steep

gradient sections of streams are sometimes characterized by riffle and pool complexes. Such stream Sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. Pools are characterized by a slower stream velocity, a steaming flow, a smooth surface, and a finer substrate. Riffle and pool complexes are particularly valuable habitat for fish and wildlife.” In response to comments received on the Final EIS, the Corps evaluated impacts to riffle and pool complexes that could be expected to occur as a result of an expansion at Gross Reservoir as described in the document titled *Moffat Project – Gross Reservoir Riffle Pool Complex Assessment* (ERC 2016).

Riffle and pool complexes were identified immediately upstream of Gross Reservoir and along South Boulder Creek as overall channel slopes decrease to 2% or less. Nearly nine miles of South Boulder Creek, from Eldorado Springs downstream to the confluence with Boulder Creek has slopes that are less than 2% and riffle and pool complexes were observed to exist in this area. While riffle and pool complexes exist in this lower stretch of South Boulder Creek, existing low flows impact the quality of the aquatic environment through this section. The riffle and pool complexes documented by the Corps on South Boulder Creek will be inundated from the expansion of Gross Reservoir.

2.3 Dynamic Temperature Modeling

In a letter dated May 23, 2012, EPA recommended that the Corps consider the dynamic temperature modeling completed for the Windy Gap Final EIS and noted it was possible that model could be expanded to characterize impacts from the Moffat Project. At a November 1, 2012 Cooperating Agency meeting, CDPHE also recommended a dynamic temperature model evaluation of the Moffat Project. The Corps, EPA, and CDPHE agreed that the Final EIS would not include development and evaluation of a dynamic temperature model. The *Fraser River Dynamic Water Temperature Model Final Report* was prepared by Miller Ecological Consultants, Inc. for Denver Water’s Section 401 Colorado Water Quality Certification application (GEI 2016; Miller Ecological Consultants, Inc. 2015). As committed, the Corps independently reviewed and compared stream temperature impact findings for the Fraser River Basin and the upper Colorado River that were described in the Final EIS and the subsequent *Fraser River Dynamic Water Temperature Model Final Report*. The purpose of that comparison was to identify any inconsistencies in impact predictions between the Final EIS and the dynamic temperature modeling that was subsequently completed by Miller Ecological Consultants, Inc. In summary, the range of potential impacts to stream temperatures stated in the Moffat Final EIS (i.e., negligible to moderate) was interpreted to generally agree with the quantitative findings in the *Fraser River Dynamic Water Temperature Model Final Report*.

2.4 Acquisition of Land

As stated in the Moffat Final EIS, land use within the Gross Reservoir area is generally stable with only minor development or changes planned, such as individual residential building/improvement permits. There would be no impacts to planned land uses as a result of the Applicant’s Preferred Alternative, with the exception of planned, but not yet built, recreational facilities identified in the Recreation Management Plan (Article 416 of the FERC License; Denver Water 1998). Recreation impacts are discussed in Section 5.15 of the Moffat Final EIS. The Moffat Final EIS indicated the Applicant’s Preferred Alternative would require the acquisition of approximately 15 acres of private lands within the southern Project Area boundary. Following completion of the Moffat Final EIS, Denver Water determined it would need to acquire approximately 12 acres of undeveloped, privately-owned property that is currently owned by the Miramonte Land Corporation (Miramonte). Denver Water has been working in cooperation with Miramonte to acquire this property through a land transfer and anticipates having a settlement agreement prior to construction. Inclusion of these lands is necessary for reservoir enlargement because

of temporary impacts from tree removal and other construction-related activities, as well as permanent impacts from inundation from the expansion of Gross Reservoir.

2.5 Update to Appendix G-1 of the Final EIS, Special Status Species List

Lists of endangered, threatened, and other sensitive species presented in Appendix G-1 titled *Federal and State Listed Endangered or Threatened Species and Occurrence in the Project Area*, were checked to evaluate whether there were species that had been listed and/or removed since the publication of the Final EIS. The sources of updated species lists information reviewed included the following:

- Federally listed endangered, threatened, proposed, and candidate species from the USFWS Information for Planning and Conservation (IPaC) database (USFWS 2017)
- State endangered, threatened, and special concern species from the Colorado Parks and Wildlife (CPW) website (CPW 2017)
- USFS Region 2 sensitive species by the USFS, Boulder Ranger District, including the 2016 update to the Region 2 Forest Service Manual for Threatened, Endangered and Sensitive Plants and Animals (USFS 2016)
- The Bureau of Land Management (BLM) Colorado sensitive species list (BLM 2015)
- Arapaho and Roosevelt National Forests (ARNF) Plant Species of Local Concern (ARNF 2017)
- Colorado Natural Heritage Program (CNHP) tracked species (CNHP 2015)

The Corps concluded that there are no new listed Federal or state endangered or threatened species for any of the alternatives since publication of the Final EIS. A number of new USFS special status species, however, have been listed since the publication of the Final EIS that are known or likely to occur at Gross Reservoir (see the revised Final EIS Appendix G-1, Table G-3, included as Attachment C).

3.0 PROJECT PURPOSE AND NEED

For the purposes of NEPA, the Final EIS contains the following purpose and need statement:

The purpose of the Moffat Collection System Project is to develop 18,000 acre-feet per year of new, firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant pursuant to the Board of Water Commissioners' commitment to its customers.

The Corps independently evaluated Denver Water's demand projections in 2004. In 2010, the Corps reevaluated Denver Water's demand to assess the validity of the need and found that 18,000 AF of firm annual yield was still valid for the Moffat Project. The need for the Project and the Corps independent review of Denver Water's demand projections are discussed in Section 1.1 of the Moffat Project Final EIS.

3.1 Basic Project Purpose

Basic project purpose is defined in 40 CFR 230 as the fundamental, essential, or irreducible purpose of a proposed project and it is used to determine if a project is water dependent. The Corps determined that the basic project purpose for the Moffat Project is to provide supplemental water supply. Supplying water, whether for municipal, industrial, or agricultural uses, does not fundamentally require access or

proximity to, or siting within, a special aquatic site to meet this basic project purpose. For these reasons, it was determined that the Applicant's Preferred Alternative is not water dependent.

3.2 Overall Project Purpose

Determination of the overall project purpose is the Corps responsibility. The Corps defines the overall project purpose in light of an applicant's stated objectives as well as the public's perspective (33 CFR 325 Appendix B, Section 9(b)(4)). The overall project purpose of the Moffat Project is to develop 18,000 AF/yr of new, firm yield to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant pursuant to Denver Water's commitment to its customers.

The overall project purpose serves as the basis for the Corps 404(b)(1) alternatives analysis and is determined by further defining the basic project purpose in a manner that more specifically describes the applicant's goals for the Project, and which allows for a reasonable range of alternatives to be analyzed. The Corps uses the overall project purpose to evaluate whether less environmentally damaging practicable alternatives are available and to help make a decision whether to issue or deny a Section 404 Permit. Alternatives considered for the Moffat Project are described below in Section 4.0.

3.3 Need

Denver Water developed an Integrated Resources Plan (IRP) in 1997, with an update in 2002, to analyze existing and future water supplies and customer demands (Denver Water 1997, 2002). The Corps considered Denver Water's IRP in its evaluation of need for the Project (see Sections 1.1 and 1.4, and Appendix A-1 of the Final EIS). In 2010, the Corps reviewed Denver Water's updated water demand projections based on more recent population and demographic projections available from the Denver Regional Council of Governments, Colorado State Demographer's Office, and other relevant sources of demographic data. The 2002 IRP projected that Moffat Collection System supplies could meet projected demands until 2016; the 2010 updated demands are expected to start exceeding Denver Water's available supplies in the year 2022 as presented in Section 1.4.1 of the Final EIS. The Corps independently evaluated the updated projections in 2010 and found them reasonable for use in the Final EIS (Appendices A-4 and A-5 of the Final EIS).

Based on the IRP and events such as the 2002 drought and forest fires in publicly-owned watersheds that provide the majority of Denver Water's supply, Denver Water identified four needs in the Moffat Collection System that required resolution: reliability, vulnerability, flexibility, and firm yield needs.

4.0 ALTERNATIVES CONSIDERED

The Corps is responsible for determining if an adequate assessment of alternatives has occurred for the purposes of NEPA and the Clean Water Act Section 404(b)(1) Guidelines. This section of the review focuses solely on Clean Water Act Section 404 issues and those criteria which are directly related to practicability determinations under the Clean Water Act Section 404(b)(1) Guidelines. Conducting an alternatives analysis early in the EIS development process that meets both NEPA and Clean Water Act Section 404(b)(1) Guidelines is important in ensuring that alternatives evaluated in detail are reasonable and practicable, and meet the Corps independently verified purpose and need, overall Project purpose, and the Applicant's stated purpose and need.

The Corps conducted extensive screening of more than 300 water supply sources and infrastructure components that were developed into 34 alternatives. Further screening using NEPA criteria and the Clean Water Act Section 404(b)(1) Guidelines, led to the development of five action alternatives and a

No Action Alternative that were carried forward for analysis in Chapter 2 of the Final EIS. The six alternatives analyzed in detail in the Final EIS are presented below.

4.1 No Action Alternative

NEPA requires the analysis of a No Action Alternative (40 CFR 1502.14). The No Action Alternative does not necessarily require the continuation of current conditions or the status quo, but rather a reasonable projection of future conditions or actions if the Corps does not issue a Section 404 Permit for the Applicant's Preferred Alternative (33 CFR 325 Appendix B). Under the No Action Alternative for the Moffat Project, Denver Water would not receive a Section 404 Permit for the Moffat Project. Denver Water would therefore need to consider components that would not require a Corps Section 404 Permit and primarily consisted of further developing and implementing conservation, non-potable recycling, and cooperative action programs, as well as making further refinements to the water supply and treatment system. Even with these measures, demand would exceed supply in the near future (currently estimated to be around 2022).

To meet increasing demands under the No Action Alternative, Denver Water would be required to use a combination of strategies including using part of its Strategic Water Reserve and implementing more frequent and severe mandatory watering restrictions during droughts to reduce demand. These strategies, however, would not meet the overall Project purpose, and would not resolve the vulnerability, flexibility, and reliability needs as described in Section 3.3 of the ROD. The No Action Alternative is more fully described in Section 2.10 of the Final EIS.

The No Action Alternative would have no direct and clearly discernible costs to Denver Water since facility construction or purchases are not contemplated. In attempting to meet future demands with existing facilities, it is possible that additional operational costs for pumping or treatment might occur, but such costs would be episodic and cannot be predicted.

Proposed impacts to Waters of the U.S.: The No Action Alternative would not result in discharge of dredged or fill material into Waters of the U.S. and therefore would not require a Section 404 Permit from the Corps. As presented in Section 5.8.6 of the Final EIS, indirect impacts to Waters of the U.S. would occur under the No Action Alternative.

4.2 Applicant's Preferred Alternative (Alternative 1a) -- Gross Reservoir Expansion (72,000 AF) and Environmental Pool (5,000 AF)

Under the Applicant's Preferred Alternative, Denver Water would expand Gross Reservoir to a total storage capacity of 118,811 AF, of which 113,811 AF would be available for municipal and industrial use, and 5,000 AF would be used for an Environmental Pool. The Environmental Pool was incorporated as a minimization measure into the Applicant's Preferred Alternative between the Draft EIS and the Final EIS and did not increase impacts to jurisdictional Waters of the U.S. This additional storage would satisfy the Project need of 18,000 AF of new firm yield. Features of Gross Dam and Reservoir for the Applicant's Preferred Alternative are described in Table 1. Details of the components, construction, and operation of the Applicant's Preferred Alternative are provided in Section 2.3 of the Final EIS and are shown on Figures 1 through 6.

Table 1
Applicant's Preferred Alternative (Alternative 1a) – Primary Components

Facility	Component Description
Gross Reservoir Expansion and Dam Raise	Additional 77,000 AF of storage capacity, including the 5,000 AF Environmental Pool for minimization
	131 foot dam raise, including the 6 foot raise for the Environmental Pool
	New concrete spillway over dam raise
	New auxiliary spillway south of dam
	Four construction staging areas
	Relocation of existing recreation and visitation facilities
	Relocation of existing dam and spillway access roads
	Two stockpile and two spoil areas and associated haul roads
	No modification to existing outlet works
Costs*	Total Capital Construction Costs = \$187.9M Annual O&M Costs = \$0.4M
Proposed Permanent Impacts to Waters of the U.S.**	Wetlands = 2.24 acres Waters of the U.S. = 3.54 acres
Proposed Temporary Impacts to Waters of the U.S.**	Wetlands = 0.12 acre Waters of the U.S. = 0.49 acre

Notes:

* The total capital construction costs were increased by 34.4% over the 11-year period between 2006 (the date of the last cost update for Alternative 1a) and 2017; annual O&M costs were inflated from 2006 to 2017 using an inflation rate of 3%.

**The surveys for the Moffat Project EIS were conducted in 2005/2006. The delineation for the preliminary jurisdictional determination was conducted in 2013. The number reported here is based on the preliminary jurisdictional determination.

AF = acre-feet

M = million

O&M = operation and maintenance

4.3 Alternative 1c -- Gross Reservoir Expansion (40,700 AF)/New Leyden Gulch Reservoir (31,300 AF)

Alternative 1c consists of a smaller expansion of Gross Reservoir and construction of a new off-channel reservoir called Leyden Gulch. Gross Reservoir was assumed to be expanded to a total storage capacity of 82,511 AF, and Leyden Gulch Reservoir was assumed to provide 31,300 AF of storage. Features of Alternative 1c are described in Table 2. Details of components, construction, and operation of Alternative 1c are provided in Section 2.4 of the Final EIS.

Table 2
Alternative 1c – Primary Components

Facility	Component Description
Gross Reservoir Expansion and Dam Raise	Additional 40,700 AF of storage capacity
	85 foot dam raise
	New concrete spillway over dam raise
	New auxiliary spillway south of dam
	Four construction staging areas
	Relocation of existing recreation and visitation facilities
	Relocation of existing dam and spillway access roads
	Two stockpile and two spoil areas and associated haul roads
New Leyden Gulch Reservoir	No modification to existing outlet works
	31,300 AF of new storage volume
	177 foot high new earthfill dam
	Relocation of approximately 4,000 feet of State Highway 93
	South Boulder Diversion Canal relocation (1 mile segment)
	All borrow material from reservoir pool area
Costs*	8 foot diameter outlet tunnel and buried pipelines connecting to Conduits 16 and 22
	Total Capital Construction Costs = \$394.4M Annual O&M Costs = \$0.8M
Proposed Permanent Impacts to Waters of the U.S.**	Wetlands = 6.15 acres Waters of the U.S. = 3.12 acres
Proposed Temporary Impacts to Waters of the U.S.**	Wetlands = 13.43 acres Waters of the U.S. = 2.04 acres

Notes:

* The total capital construction costs were increased by 34.4% over the 11-year period between 2006 (the date of the last cost update for Alternative 1c) and 2017; annual O&M costs were inflated from 2006 to 2017 using an inflation rate of 3%.

**The surveys for the Moffat Project EIS were conducted in 2005/2006. The delineation for the preliminary jurisdictional determination was conducted in 2013. The number reported here is based on the preliminary jurisdictional determination.

AF = acre-feet

M = million

O&M = operation and maintenance

4.4 Alternative 8a -- Gross Reservoir Expansion (52,000 AF)/Reusable Return Flows/Gravel Pit Storage (5,000 AF)

Alternative 8a consisted of an expanded Gross Reservoir (total storage capacity of 93,811 AF) that would provide 13,000 AF/yr of new firm yield, as well as new diversion structures and gravel pit storage facilities along the South Platte River that would provide the remaining 5,000 AF/yr of new firm yield required. Features of Alternative 8a are described in Table 3. Details of components, construction, and operation of Alternative 8a are provided in Section 2.5 of the Final EIS.

**Table 3
Alternative 8a – Primary Components**

Facility	Component Description
Gross Reservoir Expansion and Dam Raise	Additional 52,000 AF of storage capacity
	101 foot dam raise
	New concrete spillway over dam raise
	New auxiliary spillway south of dam
	Four construction staging areas
	Relocation of existing recreation and visitation facilities
	Relocation of existing dam and spillway access roads
	Two stockpile and two spoil areas and associated haul roads
South Platte River Diversion	No modification to existing outlet works
	150 foot long concrete diversion in the South Platte River – representative design 750 foot, 54 inch pipeline from diversion to gravel pit storage
Gravel Pit Storage	Worthing, North Tower, and South Tower pits – representative sites
	Practical storage volume of approximately 5,000 AF (total of all pits)
	Perimeter slurry wall to prevent groundwater seepage
	1.4 miles of 36 inch pipeline and pump stations connecting three gravel pits
Advanced Water Treatment Plant	Located near Worthing Pit – representative site
	Process train: sedimentation, low-pressure membrane pre-treatment, reverse osmosis, advanced oxidation, disinfection, and zero-liquid discharge
	13.6 mgd capacity
	4 acre plant site and 70 acre evaporating pond/drying beds
Dechlorination Facility	0.1 acre site – representative site
Pipeline (Conduit O)	25 mile long, 36 inch diameter pipeline connecting the new Advanced Water Treatment Plant and the Moffat Collection System – representative alignment
	Three 2,000 horsepower pump stations
Costs*	Total Capital Construction Costs = \$486.1M Annual O&M Costs = \$6.8M
Proposed Permanent Impacts to Waters of the U.S.**	Wetlands = 1.77 acres Waters of the U.S. = 3.20 acres
Proposed Temporary Impacts to Waters of the U.S.**	Wetlands = 0.4 acre Waters of the U.S. = 1.18 acres

Notes:

* The total capital construction costs were increased by 34.4% over the 11-year period between 2006 (the date of the last cost update for Alternative 8a) and 2017; annual O&M costs were inflated from 2006 to 2017 using an inflation rate of 3%.

**The surveys for the Moffat Project EIS were conducted in 2005/2006. The delineation for the preliminary jurisdictional determination was conducted in 2013. The number reported here is based on the preliminary jurisdictional determination.

AF = acre-feet

M = million

mgd = million gallons per day

O&M = operation and maintenance

4.5 Alternative 10a -- Gross Reservoir Expansion (52,000 AF)/Reusable Return Flows/Denver Basin Aquifer Storage (20,000 AF)

Alternative 10a consisted of an expanded Gross Reservoir (total storage capacity of 93,811 AF) that would provide 13,000 AF/yr of new firm yield, as well as reusable return flows and deep aquifer storage and recovery to meet the required 18,000 AF of new firm yield. Features of Alternative 10a are described

in Table 4. Details of components, construction, and operation of Alternative 10a are provided in Section 2.6 of the Final EIS.

**Table 4
Alternative 10a – Primary Components**

Facility	Component Description
Gross Reservoir Expansion and Dam Raise (same as Alternative 8a)	Additional 52,000 AF of storage capacity
	101 foot dam raise
	New concrete spillway over dam raise
	New auxiliary spillway south of dam
	Four construction staging areas
	Relocation of existing recreation and visitation facilities
	Relocation of existing dam and spillway access roads
	Two stockpile and two spoil areas and associated haul roads
Advanced Water Treatment Plant	No modification to existing outlet works
	Located near the Denver Water Recycling Plant – representative site
	Process train; sedimentation, low-pressure membrane pre-treatment, reverse osmosis, advanced oxidation, disinfection, and zero-liquid discharge
	13.6 mgd capacity
Denver Basin Aquifer Storage and Recovery System	4 acre plant site and 70 acre evaporating pond/drying beds
	Approximately 27 injection/recovery well sites (three-well cluster at each site) – representative sites
	Storage volume of approximately 5,000 AF
Pipeline (Conduit M)	36 miles of 12 to 48 inch diameter distribution pipelines – representative alignment
	18 mile long, 36 inch diameter pipeline connecting the new Advanced Water Treatment Plant and the Moffat Collection System – representative alignment
Costs*	Three 2,000 horsepower pump stations
Proposed Permanent Impacts to Waters of the U.S.**	Total Capital Construction Costs = \$528.1M
	Annual O&M Costs = \$8.3M
Proposed Temporary Impacts to Waters of the U.S.**	Wetlands = 1.75 acres
	Waters of the U.S. = 3.16 acres
Proposed Temporary Impacts to Waters of the U.S.**	Wetlands = 0.19 acre
	Waters of the U.S. = 2.19 acres

Notes:

* The total capital construction costs were increased by 34.4% over the 11-year period between 2006 (the date of the last cost update for Alternative 10a) and 2017; annual O&M costs were inflated from 2006 to 2017 using an inflation rate of 3%.

**The surveys for the Moffat Project EIS were conducted in 2005/2006. The delineation for the preliminary jurisdictional determination was conducted in 2013. The number reported here is based on the preliminary jurisdictional determination.

AF = acre-feet

M = million

mgd = million gallons per day

O&M= operation and maintenance

4.6 Alternative 13a -- Gross Reservoir Expansion (60,000 AF)/Transfer of Agricultural Water Rights/Gravel Pit Storage (3,625 AF)

Alternative 13a consisted of an expansion of Gross Reservoir to a total storage capacity of 101,811 AF, which would provide 15,000 AF/yr of new firm yield, and gravel pit storage and transfer of agricultural rights to make up the remaining 3,000 AF/yr of necessary firm yield. Features of Alternative 13a are

described in Table 5. Details of components, construction, and operation of Alternative 13a are provided in Section 2.7 of the Final EIS.

Table 5
Alternative 13a – Primary Components

Facility	Component Description
Gross Reservoir Expansion and Dam Raise	Additional 60,000 AF of storage capacity
	110 foot dam raise
	New concrete spillway over dam raise
	New auxiliary spillway south of dam
	Four construction staging areas
	Relocation of existing recreation and visitation facilities
	Relocation of existing dam and spillway access roads
	Two stockpile and spoil areas and associated haul roads
South Platte River Diversion	No modification to existing outlet works
	150 foot long concrete diversion in the South Platte River – representative design
	750 foot, 54 inch pipeline from diversion to gravel pit storage
Gravel Pit Storage	Diversion via the existing Brighton Ditch to the Challenger Pit
	Worthing, South Tower, and Challenger pits – representative sites
	Practical storage volume of approximately 3,625 AF (total of all pits)
	Perimeter slurry wall to prevent groundwater seepage
	5 miles of 30 inch diameter pipeline and pump stations connecting the three gravel pits
Advanced Water Treatment Plant	Controlled outlet on at least one pit to meet winter return flow obligation
	Located near Worthing Pit – representative site
	Process train; sedimentation, low-pressure membrane pre-treatment, reverse osmosis, advanced oxidation, disinfection, and zero-liquid discharge
	10.8 mgd capacity
Dechlorination Facility	4 acre plant site and 60 acre evaporating pond/drying beds
Pipeline (Conduit O)	0.1 acre site – representative site
	25 miles of 30 inch diameter pipeline connecting the new Advanced Water Treatment Plant and the Moffat Collection System – representative alignment
Costs*	Three 1,500 horsepower pump stations
	Total Capital Construction Costs = \$573.0M Annual O&M Costs = \$5.4M
Proposed Permanent Impacts to Waters of the U.S.**	Wetlands = 83.87 acres Waters of the U.S. = 11.40 acres
	Proposed Temporary Impacts to Waters of the U.S.**

Notes:

* The total capital construction costs were increased by 34.4% over the 11-year period between 2006 (the date of the last cost update for Alternative 13a) and 2017; annual O&M costs were inflated from 2006 to 2017 using an inflation rate of 3%.

**The surveys for the Moffat Project EIS were conducted in 2005/2006. The delineation for the preliminary jurisdictional determination was conducted in 2013. The number reported here is based on the preliminary jurisdictional determination.

AF = acre-feet

M = million

mgd = million gallons per day

O&M = operation and maintenance

4.7 Determination of Practicable Alternatives

It was determined that all of the action alternatives are practicable when considering cost, logistics, and existing technology, as required by 40 CFR 230.10(a)(2).

4.8 Environmentally Preferable Alternative

The environmentally preferable alternative is the alternative that most closely fulfills the national environmental policy found in Section 101 of NEPA, 42 U.S.C. 4331. Essentially, the environmentally preferable alternative is the alternative that causes the least damage to the biological and physical environment. This alternative also best protects, preserves, and enhances historic, cultural, and natural resources. The environmentally preferable alternative is the Applicant's Preferred Alternative.

The Section 404(b)(1) Guidelines require the Corps to identify the Least Environmentally Damaging Practicable Alternative (LEDPA). The Corps has identified the Applicant's Preferred Alternative, including the Environmental Pool, as the LEDPA. The Corps LEDPA determination would not change if the Environmental Pool was not included in the construction and operation of the Applicant's Preferred Alternative.

5.0 RESPONSE TO PUBLIC COMMENTS

As described in Section 1.4 of the ROD, the Moffat Project Final EIS was filed with the EPA on April 18, 2014. The NOA for the Final EIS appeared in the Federal Register on April 25, 2014, and announced written comments on the Final EIS would be accepted on or before June 9, 2014 (reflecting a 45-day formal comment period). Prevalent and new comment themes and comments received from agency or government entities are responded to in Attachment B. Comments that were received on the Final EIS that were the same or similar to those submitted on the Draft EIS were not responded to in the ROD. The Corps acknowledges independent evaluations of the Moffat Project were conducted by various entities that used different data and/or methods and thus produced different results than those presented in the Moffat Final EIS. Although the Corps does not refute those studies, responses were not provided to those comments since they do not change the results that were presented in the Final EIS nor change the outcome of the Corps permit decision.

An index of commenters providing comment submissions on the Moffat Final EIS is included in the Moffat Project Administrative Record and presented in Attachment B. To date, over 2,500 comment submissions have been received by the Corps on the Final EIS.

6.0 CONSIDERATION OF APPLICABLE LAWS, REGULATIONS, EXECUTIVE ORDERS, AND POLICIES

The Corps considered the following laws, regulations, Executive Orders, and policies in analyzing the Project.

6.1 National Environmental Policy Act of 1969, as Amended

NEPA is a basic national charter for protection of the environment. "The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment" (40 CFR 1500.1).

The Moffat Project EIS was prepared in accordance with NEPA, and the Corps regulations for implementing NEPA (33 CFR 325, Appendix B). The Moffat Project EIS was formulated to address the information requirements of the Section 404(b)(1) Guidelines (40 CFR 230). The Corps, Omaha District,

Regulatory Branch was the lead Federal agency responsible for preparing the EIS. The Corps was assisted by a team of third-party contractors led by URS Corporation (now AECOM Technical Services, Inc.), working under the direction of, and in cooperation with, the Corps in accordance with December 17, 1997 guidance from the Chief of Engineers regarding preparation of an EIS.

6.2 Section 401 of the Clean Water Act of 1972

Section 401 of the Clean Water Act requires an applicant for any Federal permit who proposes an activity that may result in a discharge to Waters of the U.S. to obtain, from the appropriate agency, certification that the discharge will not result in a violation of surface water quality standards. No Federal permit or action may be approved if the requisite agency denies certification. Denver Water submitted more detailed water quality data and effects studies to the CDPHE in its Clean Water Act Section 401 application submittal, dated April 6, 2015. CDPHE considered this supplemental information for their antidegradation review and significant degradation review. A Colorado Water Quality Certification No. 4369 was issued on June 23, 2016, by the CDPHE, WQCD and is included as Attachment D. Pursuant to 33 U.S.C. 1341(d) conditions of the Section 401 Water Quality Certification No. 4369 are incorporated as a special condition of the Section 404 Permit and are included in Section 11.0 of the ROD. The Section 401 Water Quality Certification informed the Corps mitigation requirements and overall permit decision.

6.3 Endangered Species Act of 1973

The Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended, requires Federal agencies to use their authority to conserve endangered and threatened species. Section 7(a)(2) of the Endangered Species Act requires Federal agencies to consult with the USFWS and/or the National Oceanic and Atmospheric Administration's National Marine Fisheries Service to ensure that the actions they authorize, fund, or conduct are not likely to jeopardize the continued existence of any listed species or adversely modify designated critical habitat of such species.

A detailed analysis of the effects to Federally listed species is disclosed in Sections 4.6.10 and 5.10 of the Final EIS. On December 6, 2013, the USFWS issued a Biological Opinion for the Colorado River and Platte River depletions, and impacts to Preble's meadow jumping mouse (*Zapus hudsonius preblei*). On June 17, 2016, the USFWS issued a Biological Opinion for green lineage cutthroat trout and the Project, including the continuation of Denver Water's existing operations and future operations of the Moffat Project. The Corps requested consultation for Platte River depletions for the Gross Reservoir Environmental Pool and a Biological Opinion was issued by the USFWS in 2016 (USFWS 2016).

In order to ensure continued compliance under the Endangered Species Act, in January 2017 the lists of endangered, threatened, and other sensitive species presented in Appendix G-1, *Federal and State Listed Endangered or Threatened Species and Occurrence in the Project Area*, of the Final EIS were checked to evaluate whether there were species that had been listed and/or removed since the publication of the Final EIS. Appendix G-1 was subsequently updated (see Attachment C). The Corps concluded that there are no new listed Federal or state endangered or threatened species for any of the alternatives. A number of the new USFS special status species are known or likely to occur at Gross Reservoir (see the revised Final EIS Appendix G-1, Table G-3, included as Attachment C).

6.4 Fish and Wildlife Coordination Act of 1934

The FWCA requires consultation with the USFWS and state fish and wildlife agencies where the "waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted ... or otherwise controlled or modified" by any agency under a Federal permit or license.

Consultation is to be undertaken for the purpose of “preventing loss of and damage to wildlife resources.” Denver Water prepared the *Moffat Collection System Project, Fish and Wildlife Mitigation Plan* (Fish and Wildlife Mitigation Plan) for the Colorado Wildlife Commission, dated June 9, 2011, and in compliance with the Colorado Revised Statute Section 37-60-122.2. The Fish and Wildlife Mitigation Plan was included in Appendix M of the Final EIS. It was endorsed by the Colorado Parks and Wildlife Commission and Colorado Water Conservation Board. Refer to Sections 4.6.10 and 5.10 of the Final EIS for a detailed description of species analyzed under the FWCA.

A FWCA Report for the Moffat Project was prepared under the authority of and in accordance with the FWCA (16 U.S.C. 661-667e), the Endangered Species Act (16 U.S.C. 1531 et seq.), NEPA (42 U.S.C. 4321 et seq.), and the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703 et seq.). That report constitutes the report of the Secretary of the Interior as required by Section 2(b) of the FWCA. On September 27, 2016, the USFWS approved the FWCA Report prepared for the Moffat Project, and acknowledged that the Corps responsibilities under the FWCA have been met.

6.5 Section 106 of the National Historic Preservation Act of 1966, as Amended

Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C. 306108), as amended (NHPA) requires that Federal agencies prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register. Additionally, the NHPA requires Federal agencies to consult with tribes to determine whether there are traditional religious and cultural properties that may be adversely affected by a proposed undertaking.

In October 2003 and December 2007, 46 Federally-recognized tribes with an established interest in the area, and the commissions on Indian affairs for the states of Colorado, Oklahoma, South Dakota, Utah, and Wyoming, were notified of the Moffat Project and invited to participate in consultation, at their discretion. In addition, efforts were made by the Corps in December 2007 and January 2008 to contact each of the tribes by telephone, and comments on the Draft EIS (available on October 30, 2009), were requested from each of the tribes.

Of the tribes from whom the Corps directly requested comments about the Project, the Northern Arapaho Tribe, Northern Cheyenne Tribal Council, Cheyenne-Arapaho Tribes of Oklahoma, Southern Ute Indian Tribe, Ute Mountain Tribe, and their associated Tribal Historic Preservation Officers responded. Each of these tribes or parties was invited to concur with the Programmatic Agreement (PA) (Attachment F).

Forty-six tribes and councils were contacted as required by 36 CFR 800.2(c)(3):

- Assiniboine and Sioux Tribes of Fort Peck
- Blackfeet Tribe
- Cheyenne River Sioux Tribe
- Chippewa Cree Tribe of the Rocky Boys' Reservation
- Confederated Salish and Kootenai Tribes
- Crow Creek Sioux Tribe
- Crow Nation
- Eastern Shoshone Tribe
- Flandreau Santee Sioux Tribe
- Gros Ventre and Assiniboine Tribe of Fort Belknap
- Sisseton-Wahpeton Sioux Tribe
- Spirit Lake Sioux Tribe
- Standing Rock Sioux Tribe
- Three Affiliated Tribes
- Turtle Mountain Band of Chippewa
- Winnebago Tribe of Nebraska
- Yankton Sioux Tribe
- Apache Tribe of Oklahoma
- Cheyenne-Arapaho Tribes of Oklahoma
- Comanche Nation
- Comanche Tribe of Oklahoma
- Fort Sill Apache Business Committee

- Iowa Tribe of Kansas and Nebraska
- Kickapoo Tribe in Kansas
- Lower Brule Sioux Tribe
- Northern Arapaho Tribe
- Northern Cheyenne Tribal Council
- Oglala Sioux Tribe
- Omaha Tribe of Nebraska
- Ponca Tribe of Nebraska
- Prairie Band of Potawatomi Nation
- Rosebud Sioux Tribe
- Sac and Fox Nation of Missouri in Kansas and Nebraska
- Santee Sioux Nation
- Iowa Tribe of Oklahoma
- Jicarilla Apache Tribe
- Kiowa Indian Tribe of Oklahoma
- Northern Ute Tribe, Uintah and Ouray Tribal Business Committee
- Otoe-Missouria Tribal Council
- Pawnee Nation of Oklahoma
- Ponca Tribe of Oklahoma
- Sac and Fox Nation
- Sac and Fox Tribe of the Mississippi in Iowa
- Southern Ute Indian Tribe
- Ute Mountain Tribe
- Trenton Indian Service Area

A detailed analysis of the effects to cultural resources is disclosed in Sections 4.6.18 and 5.18 of the Moffat Project Final EIS. On January 14, 2015, the Advisory Council on Historic Preservation (ACHP) issued a letter to Martha S. Chieply, Regulatory Chief, Corps Omaha District, confirming receipt of the Corps notification and supporting documentation regarding the adverse effects of the Moffat Project on a property or properties listed or eligible for listing in the National Register of Historic Places. The ACHP further indicated it did not believe that its participation in the consultation to resolve adverse effects for the Project was needed. The ACHP stated the Corps would need to file the final PA, and any related documentation with the ACHP at the conclusion of the consultation process, and was required to complete the requirements of Section 106 of the NHPA.

The Moffat Project PA was subsequently finalized and released to all signatories and concurring parties for review on September 28, 2015. The PA was included in the Moffat Project administrative record and is considered final by the Corps as signed by the consulting parties. Concurring parties' signatures are not required for the PA to become valid. Compliance with the requirements of the PA will ensure conformity with the NHPA. The Section 404 Permit will be conditioned requiring compliance with the PA (see Section 11.0 of the ROD).

6.6 Section 176(c) of the Clean Air Act General Conformity Rule Review

A conformity determination is required for each criteria pollutant or precursor where the total of direct and indirect emissions of the criteria pollutant or precursor in a nonattainment or maintenance area caused by a Federal action would equal or exceed any of the rates in paragraphs (b)(1) or (2) of 40 CFR Section 93.153. Enlargement of Gross Reservoir would impact local air quality from vehicle and equipment emissions and dust generated from earthwork during the approximate 4-year construction period. Denver Water will prepare a fugitive particulate emissions control plan and Best Management Practices (BMPs) in order to meet requirements for Colorado Air Quality Control Standards. A copy of the fugitive particulate emissions control plan will be provided to the Denver Regulatory Office prior to construction. Denver Water will ensure construction equipment (especially diesel equipment) meets opacity standards for operating emissions. Other than the construction period, no continuing impacts are anticipated. A detailed analysis of the effects to air quality is disclosed in Sections 4.6.13 and 5.13 of the Final EIS.

No emissions sources or activities planned as part of the Applicant's Preferred Alternative meet regulatory exceptions to General Conformity requirements; therefore, the emissions inventory was reviewed and compared with applicable thresholds. As part of the conformity review, the maximum

Project year emissions were calculated by source. The Project emissions are below the *de-minimis* levels for all pollutants required to be analyzed for the conformity review.

The Preferred Alternative maximum annual emissions are less than 10% of the 2011 and 2017 nonattainment area emissions for carbon monoxide (CO), oxides of nitrogen (NO_x), particulate matter of 10 microns in diameter (PM₁₀), and volatile organic compounds (VOCs). Since the Project emissions with the use of the Osprey Point quarry site (Section 2.1 of the ROD) are both below the *de-minimis* levels and below 10% of the area's emissions inventory for the conformity review, a conformity determination is not required and the Project has been found to conform (URS 2017).

6.7 Executive Order 11998: Floodplain Management

Executive Order 11988 requires Federal agencies to prepare floodplain assessments for proposed actions located in or affecting floodplains. If an agency proposes to conduct an action in a floodplain, it must consider alternatives to avoid adverse effects and incompatible development in the floodplain. If the only practicable alternative involves siting in a floodplain, the agency must minimize potential harm to or in the floodplain and explain why the action is proposed there.

A detailed analysis of the effects to floodplains is disclosed in Sections 4.6.1 and 5.1 of the Final EIS. With the exception of the Blue River between Dillon Reservoir and Green Mountain Reservoir, floodplain extents would generally be the same as or reduced for the Applicant's Preferred Alternative. Except for the Boulder Creek floodplain below Gross Reservoir, the Applicant's Preferred Alternative would generally reduce flows associated with specified return intervals. On the Blue River, annual peak flows with return intervals of five or more years would increase slightly relative to Full Use of the Existing System conditions. Full Use of the Existing System reflects the operation of Denver Water's existing system and water rights at an average annual demand of 345,000 AF/yr, since this is the point when a Moffat Project is anticipated to come on-line. "Full Use" of the existing system means Denver Water would maximize yield of their existing water supplies using their existing facilities and infrastructure, independent of a future Moffat Project. Based on Denver Water's demand forecast, this condition would occur in 2022 (see Chapter 1, Figure 1-5, of the Final EIS). Annual peak flows in the Fraser River and Williams Fork River basins with recurrence intervals between 2 and 10 years would be reduced in years with average precipitation and low frequency flows. Therefore, flood flows and floodplain areas in these West Slope streams are anticipated to decrease in the affected river basins. In the North Fork South Platte River and South Boulder Creek above Gross Reservoir, floodplains would be unaffected by the Applicant's Preferred Alternative, as flows through the Roberts Tunnel and Moffat Tunnel are managed to remain within the existing channel.

6.8 Executive Order 13175: Consultation with Indian Tribes, Alaska Natives, and Native Hawaiians

Executive Order 13175 reaffirms the Federal government's commitment to tribal sovereignty, self-determination, and self-government. Its purpose is to ensure that all executive departments and agencies consult with Indian tribes and respect tribal sovereignty as they develop policy on issues that impact Indian communities. The Corps complied with this Executive Order and Corps implementation guidance for Tribal Consultation for the Project. In addition to notifying the public at large, the Corps reached out to Tribal Nations notifying them of the Project and its impacts but did not receive a request for Government-to-Government consultation on any possible tribal trust concerns.

6.9 Environmental Justice Title VI of the Civil Rights Act and Executive Order 12898

Title VI of the Civil Rights Act prohibits discrimination on the basis of race, color, and national origin in programs and activities receiving Federal financial assistance. Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations,” was signed by President Clinton in 1994. The Executive Order requires agencies to advance environmental justice by pursuing fair treatment and meaningful involvement of minority and low-income populations. Fair treatment means that such groups should not bear a disproportionately high share of negative environmental consequences from Federal programs, policies, decisions, or operations. Meaningful involvement means that Federal officials actively promote opportunities for public participation and that Federal decisions can be materially affected by participating groups and individuals.

Environmental justice was evaluated for the Project in Section 5.19.1.3 of the Final EIS. Impacts to environmental justice populations were considered as part of the Moffat Project environmental analyses to ensure that these populations do not receive a disproportionately high number of adverse environmental or human health impacts from the Project. No specific ethnic or otherwise classified groups of Primary Impact Area or Denver Metropolitan area residents would be disproportionately impacted by construction or operational activities from the Applicant’s Preferred Alternative, and environmental justice issues would not arise as a result of the Applicant’s Preferred Alternative.

6.10 Migratory Bird Treaty Act of 1918

The Migratory Bird Treaty Act (16 U.S.C. 703 et seq.) provides Federal protection to all migratory birds, including nests and eggs. Under the Migratory Bird Treaty Act, it is unlawful to take, kill, or possess migratory birds. There are no specific provisions or permit requirements for non-purposeful take; the intent of the Migratory Bird Treaty Act is to protect migratory birds from purposeful take and regulate take where warranted. The Applicant’s Preferred Alternative would affect nesting and foraging habitat for several migratory birds and raptors. To ensure compliance with the Migratory Bird Treaty Act, a special condition is included in Section 11.0 of the ROD. Before a nest may be moved or destroyed the USFWS must be notified. The Corps addressed impacts to migratory birds under the Migratory Bird Treaty Act in Sections 5.9 and 5.10 of the Final EIS.

6.11 Bald and Golden Eagle Protection Act of 1940

The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c), enacted in 1940, and amended several times since then, prohibits anyone, without a permit issued by the Secretary of the Interior, from “taking” bald eagles, including their parts, nests, or eggs. The Bald and Golden Eagle Protection Act provides criminal penalties for persons who “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle... [or any golden eagle], alive or dead, or any part, nest, or egg thereof.” The Bald and Golden Eagle Protection Act defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” To ensure compliance with the Bald and Golden Eagle Protection Act, a special condition is included in Section 11.0 of the ROD. The Corps addressed impacts to bald eagles and golden eagles in Sections 5.9 and 5.10 of the Final EIS.

7.0 CONSIDERATION OF COMPENSATORY MITIGATION MEASURES

The objective of compensatory mitigation is to offset environmental losses resulting from unavoidable impacts to jurisdictional wetlands and other Waters of the U.S. (40 CFR 230.93(a)(1)). Compensatory mitigation is determined by identifying the aquatic resource functions that would be lost as a result of a permitted activity, and then identifying appropriate environmentally preferable measures that would

compensate for those lost functions. As stated in 33 CFR 320.4(r), “All compensatory mitigation will be for significant resource losses which are specifically identifiable, reasonably likely to occur, and of importance to the human or aquatic environment. Also, all mitigation will be directly related to the impacts of the proposal, appropriate to the scope and degree of those impacts, and reasonably enforceable.”

Compensatory mitigation may be performed using the methods of restoration, enhancement, establishment, and in certain circumstances, preservation, and may be on public or private lands. The 2008 Final Compensatory Mitigation Rule identifies a preference for utilizing mitigation bank credits; however, under certain circumstances, a combination of mitigation types or locations may be appropriate (40 CFR 230.93(b)(2)). The identified compensatory mitigation ideally would be located within the same watershed as the impact site, should be located where it is most likely to successfully replace lost functions and services, and be compatible with adjacent land uses.

The Applicant has avoided and minimized impacts to the maximum extent practicable. Unavoidable permanent impacts related to the enlargement of Gross Reservoir will occur to 2.24 acres of jurisdictional wetlands and 3.54 acres (9,447 linear feet) of other Waters of the U.S. Temporary impacts related to the enlargement of Gross Reservoir will occur to 0.21 acre of jurisdictional wetlands and 0.50 acre (1,314 linear feet) of other Waters of the U.S. during Project construction. Indirect effects would occur in the Fraser and Williams Fork River basins due to reduced stream flows associated with the increased diversions from the Moffat Project. Proposed mitigation to compensate for impacts resulting from the Project will be accomplished by using a combination of purchasing mitigation bank credits and Permittee-responsible mitigation, as detailed in Chapter 1 of the *Final Mitigation Plan for the Moffat Collection System Project*, Corps File No. NWO-2002-80762-DEN (Denver Water 2017) (Mitigation Plan) (Attachment E), dated June 8, 2017.

7.1 Wetlands

Compensatory mitigation for the permanent loss of 2.24 acres of jurisdictional wetlands at the proposed Gross Reservoir site will be provided through the purchase of Corps-approved mitigation bank credits at Denver Water’s Four Mile Creek Fen Mitigation Bank. Denver Water will purchase 3.36 wetland credits from the Four Mile Creek Fen Mitigation Bank, which is based on a 1.5:1 (mitigation:impacts) ratio. This ratio was used because the impact area is outside the geographic service area, which is allowed under the mitigation banking instrument at the Corps discretion. The mitigation however, is in-kind and the bank credits represent a higher ecological value than the wetland acres impacted by the Project. The bank credits and the impacts at Gross Reservoir occur within the South Platte Watershed (HUC 101900) as well as the EPA-designated Level III Ecoregion 21-Southern Rockies.

7.2 Other Waters of the U.S.

In order to compensate for the impacts to South Boulder Creek due to the expansion of Gross Reservoir and the indirect impacts associated with the Project, mitigation will be accomplished with Permittee-responsible mitigation at off-site locations within the watershed.

7.2.1 Mitigation for the Enlargement of Gross Reservoir

In order to compensate for the permanent loss of 3.54 acres (9,447 linear feet) of other Waters of the U.S. from the enlargement of Gross Reservoir, including two riffle and pool complexes, the Applicant is proposing Permittee-responsible mitigation. The South Boulder Creek Restoration Project as described in Section 1.2 of the Mitigation Plan (Attachment E) was evaluated under the 2008 Mitigation Rule for

compensatory mitigation because of its proximity to the impacts at Gross Reservoir and because it occurs within the South Boulder Creek Watershed (HUC 1019000505).

The Corps determined the South Boulder Creek Restoration Project will provide sufficient in-kind mitigation for the permanent impacts associated with the Applicant's Preferred Alternative through rehabilitation activities including improving low-flow conditions; repairing natural instream diversity and channel stability; and establishing a minimum of two riffle and pool complexes. The specific components of the South Boulder Creek Restoration Project are provided in Section 1.2 of the Mitigation Plan (Attachment E). The functional lift of the mitigation site is intended to create comparable stream habitat and function to the streams being inundated by the enlargement of Gross Reservoir. Measurement of the functional lift will be accomplished through ecological-based performance standards as defined in the Mitigation Plan.

7.2.2 Mitigation for Flow Changes Resulting from Increased Diversions on the Fraser and Williams Fork River Basins

The additional diversions on the West Slope would decrease the flows on Fraser River and Williams Fork River tributaries (as described in Chapter 5 of the Final EIS). Additionally, tributaries in the Colorado Headwater Watershed Basin, including West Elk Creek, Vasquez Creek, Little Vasquez Creek, and King Creek, may be pushed past an ecological tipping point. The reduced flows would also result in channel morphology changes including decreased sediment transport capacity within the Fraser and Williams Fork River basins. The Applicant is proposing Permittee-responsible mitigation for these impacts. The Colorado Headwaters Mitigation Project, as described in Section 1.3 of the Mitigation Plan (Attachment E), was evaluated under the 2008 Mitigation Rule for compensatory mitigation because of its proximity to the impacts to the Fraser and William Fork River basins and because it occurs within the Fraser River and Williams Fork River. The geographic scope of both the effects to and mitigation for aquatic resources includes streams located in the upper Fraser River (HUC 1401000102) and upper Williams Fork River (HUC 1401000104) watersheds, within the Colorado Headwater Watershed Basin (14010001) of the Applicant's Preferred Alternative.

The Colorado Headwaters Mitigation Project was selected for compensatory mitigation to offset impacts to channel morphology and ecological tipping points due to reduced flows. The Corps determined the Colorado Headwaters Mitigation Project will provide 1.8 miles of stream rehabilitation activities, and 0.27 mile of stream preservation along the Williams Fork River. Additionally, the Applicant is proposing flushing flow releases from Denver Water diversion structures on the Fraser River, Vasquez Creek, Ranch Creek, Cabin Creek, and St. Louis Creek to increase the frequency and duration of flushing flows to mobilize sediment transport and increase aquatic habitat availability. The specific components of the Colorado Headwaters Mitigation Project are provided in Section 1.3 of the Mitigation Plan (Attachment E). The functional lift of the mitigation site is intended to create comparable stream habitat and function for the streams with reduced flows associated with the Applicant's Preferred Alternative. This will "provide, where practicable, the suite of functions typically provided by the affected aquatic resources" (33 CFR Section 332.2(c)(2)(i)). Measurement of the functional lift will be accomplished through ecological-based performance standards as defined in the Mitigation Plan.

The Corps is requiring the above mitigation measures to reduce or offset impacts to Waters of the U.S. as special conditions of the Section 404 Permit issued for the Applicant's Preferred Alternative, as required by the Clean Water Act. These special conditions are identified in Section 11.0 of the ROD.

8.0 COMPLIANCE WITH 404(b)(1) GUIDELINES

Based on the discussion in Chapters 2, 4, and 5 of the Final EIS, and the report titled, *Preliminary Section 404(b)(1) Guidelines Analysis* (Appendix K of the Final EIS), are there available, practicable alternatives having less adverse impacts on the aquatic ecosystem and without other significant adverse environmental consequences that do not involve discharges into Waters of the U.S. or at other locations within these waters?

Yes _____ No X

If the Project is in a special aquatic site and is not water dependent, has the Applicant clearly demonstrated that there are no practicable alternative sites available?

Yes X No _____

Will the discharge:

Violate state water quality standards?

Yes _____ No X

Violate toxic effluent standards under Section 307 of the Clean Water Act?

Yes _____ No X

Jeopardize endangered or threatened species or their critical habitat?

Yes _____ No X

Violate standards set by the Department of Commerce to protect marine sanctuaries?

Yes _____ No X

Evaluation of the information above indicates that the proposed discharge material meets testing exclusion criteria for the following reason(s):

- (X) based on the above information, the material is not a carrier of contaminants.
- () the levels of contaminants are substantially similar at the extraction and disposal sites and the discharge is not likely to result in degradation of the disposal site and pollutants will not be transported to less contaminated areas.
- () acceptable constraints are available and will be implemented to reduce contamination to acceptable levels within the disposal site and prevent contaminants from being transported beyond the boundaries of the disposal site.

Will the discharge contribute to significant degradation of Waters of the U.S. through adverse impacts to:

Human health or welfare, through pollution of municipal water supplies, fish, shellfish, wildlife, and/or special aquatic sites?

Yes _____ No X

Life stages of aquatic life and/or wildlife?

Yes _____ No X

Diversity, productivity, and stability of the aquatic life and other wildlife? Or wildlife habitat, or loss of the capacity of wetlands to assimilate nutrients, purify water, or reduce wave energy?

Yes _____ No X

Recreational, aesthetic, and economic values?

Yes _____ No X

Will all appropriate and practicable steps be taken to minimize adverse impacts of the discharge on the aquatic ecosystem? Does the proposal include satisfactory compensatory mitigation for losses of aquatic resources?

Yes X No _____

9.0 PUBLIC INTEREST REVIEW

9.1 The Relative Extent of the Public and Private Need for the Proposed Work Has Been Considered

The Applicant's Preferred Alternative is intended to meet local and regional demand for water supply. The relative extent for the public and private need for the proposed work has been determined to be necessary. The following public interest factors were taken into account, including direct, indirect, and cumulative impacts were considered (Table 6).

**Table 6
Public Interest Factors Assessed**

				+ Beneficial effect
				0 Negligible effect
				- Adverse effect
				M Neutral as result of mitigative action
+	0	-	M	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	General environmental concerns (33 CFR § 320.4(a))
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Conservation (33 CFR § 320.4(a))
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Economics (33 CFR § 320.4(q))
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Aesthetics (33 CFR § 320.4(a) and 40 CFR § 230.53) - please see explanation below in Section 9.1.1
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Historic, cultural, scenic, and recreational values (33 CFR § 320.4(e)) - please see explanation below in Section 9.1.2
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Threatened and Endangered Species (40 CFR § 230.30) - please see explanation below in Section 9.1.3
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Fish and wildlife values (33 CFR § 320.4(c) and 40 CFR § 230.31 & 32) - please see explanation below in Section 9.1.4
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Flood hazards (33 CFR § 320.4(k)(1))
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Floodplain values (33 CFR § 320.4(k)(1))
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Water supply and conservation (33 CFR § 320.4(m) and 40 CFR § 230.50)

**Table 6
Public Interest Factors Assessed**

				+ Beneficial effect
				0 Negligible effect
				- Adverse effect
				M Neutral as result of mitigative action
+	0	-	M	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Current patterns and water circulation (40 CFR § 230.23) and normal water fluctuations (40 CFR § 230.24) - please see explanation below in Section 9.1.5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Riffle and pool complexes (40 CFR § 230.45) - please see explanation below in Section 9.1.6
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Navigation (33 CFR § 320.4(o))
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Shore erosion and accretion (33 CFR § 320.4(f))
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Water quality (33 CFR § 320.4(d)) and Water (40 CFR § 230.22) - please see explanation below in Section 9.1.7
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Salinity gradients (40 CFR § 230.25)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Suspended particulates and turbidity (40 CFR § 230.21) - please see explanation below in Section 9.1.8
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Coral reefs (40 CFR § 230.44)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Wetlands (33 CFR § 320.4(b) and 40 CFR § 230.41) and Substrate (40 CFR § 230.20) - please see explanation below in Section 9.1.9
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mudflats (40 CFR § 230.42)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Vegetative shallows (40 CFR § 230.43)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Considerations of property ownership (33 CFR § 320.4(g))
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Recreation (33 CFR § 320.4(e) and 40 CFR § 230.51 & 52) - please see explanation below in Section 9.1.10
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Land use (33 CFR § 320.4(a))
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Needs and welfare of the people (33 CFR § 320.4(a))
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Energy needs (33 CFR § 320.4(n))
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety (33 CFR § 320.4(a))
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Food and fiber production (33 CFR § 320.4(a))
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mineral needs (33 CFR § 320.4(a))
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Sanctuaries and refuges (40 CFR § 230.40) - please see explanation below in Section 9.1.11
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves (40 CFR § 230.54)

9.1.1 Aesthetics

Please refer to Section 2.1 above. Visual resource impacts are described in Sections 4.6.17 and 5.17 of the Final EIS. In response to comments received by the Corps on the Final EIS, Denver Water proposes to modify the Proposed Action to minimize adverse impacts identified in the Final EIS. The proposed modifications to the Proposed Action are related to changes to the Final EIS Quarry site as described in the *Final Quarry Location Report: Impact Minimization and Avoidance Measures, Moffat Collection System Project* (Denver Water 2016). Fewer permanent, temporary, or cumulative impacts would occur to visual resources from the construction and operation of the Osprey Point Quarry site and associated spoil area than the Final EIS Quarry site (URS 2017). The Osprey Point Quarry would be almost or entirely submerged below the new high water line once the reservoir is enlarged. For purposes of the Corps permit determination, the Applicant's Preferred Alternative is considered to include the Osprey Point Quarry

9.1.2 Historic Cultural, Scenic, and Recreational Values

The Applicant's Preferred Alternative would affect the historic Gross Dam and Reservoir and a portion of the historic Resumption Flume (see Section 5.18 of the Final EIS). These impacts are considered to be an adverse effect, and treatment of this effect would be required before construction begins. A PA between the Corps, Denver Water, the State Historic Preservation Officer (SHPO), and USFS has been prepared that stipulates protection measures. Sections 4.6.18 and 5.18 of the Final EIS provide additional detail regarding impacts to cultural and historical resources. For more information on mitigative actions, please refer to Section 6.5 above.

9.1.3 Threatened and Endangered Species

See Section 6.3 above for descriptions of impacts and mitigative actions for threatened and endangered species.

9.1.4 Fish and Wildlife Values, and Fish, Crustaceans, Mollusks, and Other Aquatic Organisms in the Food Web

Please refer to Sections 6.3 and 6.4 above, as well as Sections 5.9 and 5.11 of the Final EIS for a detailed account of species analyzed for fish and wildlife values. The Corps prepared a FWCA Report to document its analysis of the potential consequences to fish and wildlife resources from the Project (URS 2016). On September 27, 2016, the USFWS issued a letter of approval for the FWCA Report and acknowledgement that the Corps responsibilities under the FWCA had been met.

The South Boulder Creek Restoration Project and Colorado Headwaters Mitigation Project, as described in Sections 1.2 and 1.3, respectively, of the Mitigation Plan (Attachment E), are incorporated conditions of this authorization and will compensate for impacts to fish and wildlife values, and fish, crustaceans, mollusks, and other aquatic organisms in the food web.

The Fish and Wildlife Mitigation Plan is a Special Condition of the permit and includes included multiple actions that Denver Water will implement within one year of receiving the FERC license amendment that would further mitigate for impacts to fish and wildlife values. The Corps understands that the commitment to fund stream habitat restoration on the Fraser and upper Williams Fork rivers is replaced by the Williams Fork River Basin Stream Rehabilitation project; the commitment for stream temperature monitoring in the Fraser River Basin and upper Colorado River is modified by the 401 Certification, and the commitment for riparian habitat plantings is replaced by the conveyance and protection of 253 acres of riparian habitat within the 539-acre Toll Property by Denver Water to the USFS.

Additionally, Denver Water has entered into multiple third-party agreements to monitor or enhance Colorado River, Fraser River, South Boulder Creek, North Fork of the South Platte River, and/or South Platte River environmental conditions as described in Section 10.0 of the ROD. These agreements are discussed in detail in Sections 2.2 and 2.4 of the Mitigation Plan (Attachment E). Additionally, Section 2.3 of the Mitigation Plan describes other authorizations and legal requirements. The Corps understands that these enhancements are intended to provide an overall benefit to the aquatic ecosystem.

9.1.5 Current Patterns and Water Circulation and Normal Water Fluctuations

Sections 4.6.1 and 5.1 of the Final EIS contain detailed information about surface water and flows. The South Boulder Creek Restoration Project and Colorado Headwaters Mitigation Project, as described in Sections 1.2 and 1.3, respectively, of the Mitigation Plan (Attachment E), are incorporated conditions of this authorization and will compensate for impacts to current patterns and water circulation and normal water fluctuations.

The Fish and Wildlife Mitigation Plan is a Special Condition of the permit and includes included multiple actions that Denver Water will implement within one year of receiving the FERC license amendment that would further mitigate for impacts to fish and wildlife values. The Corps understands that the commitment to fund stream habitat restoration on the Fraser and upper Williams Fork rivers is replaced by the Williams Fork River Basin Stream Rehabilitation project; the commitment for stream temperature monitoring in the Fraser River Basin and upper Colorado River is modified by the 401 Certification, and the commitment for riparian habitat plantings is replaced by the conveyance and protection of 253 acres of riparian habitat within the 539-acre Toll Property by Denver Water to the USFS.

Additionally, Denver Water has entered into multiple third-party agreements to monitor or enhance Colorado River, Fraser River, South Boulder Creek, North Fork of the South Platte River, and/or South Platte River environmental conditions as described in Section 10.0 of the ROD. These agreements are discussed in detail in Sections 2.2 and 2.4 of the Mitigation Plan (Attachment E). Additionally, Section 2.3 of the Mitigation Plan describes other authorizations and legal requirements. The Corps understands that these enhancements are intended to provide an overall benefit to the current patterns and water circulation and normal water fluctuations.

9.1.6 Riffle and Pool Complexes

The Moffat Project Final EIS discusses the effects that the Moffat Project could have on fish and other aquatic species, and on stream morphology. Inundation of riffle and pool complexes would be limited to the increased footprint of Gross Reservoir on the incoming streams (see Sections 3.3, 4.6.3, and 5.3 of the Final EIS). In response to comments received on the Final EIS, the Corps evaluated impacts to riffle and pool complexes that could be expected to occur as a result of an expansion at Gross Reservoir as described in the document titled, *Moffat Project – Gross Reservoir Riffle Pool Complex Assessment* (ERC 2016). Impacts to riffle and pool complexes would be mitigated through Denver Water’s South Boulder Creek Restoration Project as described in Section 1.2 of the Mitigation Plan (Attachment E).

9.1.7 Water Quality and Water

Water quality is evaluated in Sections 4.6.2 and 5.2 of the Final EIS, as well as the Section 401 Colorado Water Quality Certification No. 4369 (Attachment D). The Section 401 Colorado Water Quality Certification for the Moffat Project is incorporated as a permit condition to the Corps Section 404 Permit to the extent it is required by law.

9.1.8 Suspended Particulates and Turbidity

Sections 4.6.1 and 5.1 of the Final EIS contain detailed information about effects to water flows from the Moffat Project. Denver Water has entered into multiple third-party agreements to monitor or enhance Colorado River, Fraser River, South Boulder Creek, North Fork of the South Platte River, and/or South Platte River suspended particulates and turbidity. These agreements are discussed in detail in Sections 2.2 and 2.4 of the Mitigation Plan (Attachment E). Condition 16 of the Section 401 Colorado Water Quality Certification No. 4369 requires monthly monitoring at Gross Reservoir for various general field parameters, including turbidity.

The South Boulder Creek Restoration Project and Colorado Headwaters Mitigation Project, as described in Sections 1.2 and 1.3, respectively, of the Mitigation Plan (Attachment E), are incorporated as conditions of this authorization and will compensate for impacts to suspended particulates and turbidity.

The Fish and Wildlife Mitigation Plan is a Special Condition of the permit and includes included multiple actions that Denver Water will implement within one year of receiving the FERC license amendment that would further mitigate for impacts to fish and wildlife values. The Corps understands that the commitment to fund stream habitat restoration on the Fraser and upper Williams Fork rivers is replaced by the Williams Fork River Basin Stream Rehabilitation project; the commitment for stream temperature monitoring in the Fraser River Basin and upper Colorado River is modified by the 401 Certification, and the commitment for riparian habitat plantings is replaced by the conveyance and protection of 253 acres of riparian habitat within the 539-acre Toll Property by Denver Water to the USFS.

Additionally, Denver Water has entered into multiple third-party agreements to monitor or enhance Colorado River, Fraser River, South Boulder Creek, North Fork of the South Platte River, and/or South Platte River environmental conditions as described in Section 10.0 of the ROD. These agreements are discussed in detail in Sections 2.2 and 2.4 of the Mitigation Plan (Attachment E). Additionally, Section 2.3 of the Mitigation Plan describes other authorizations and legal requirements. The Corps understands that these enhancements are intended to provide an overall benefit to suspended particulates and turbidity.

9.1.9 Wetlands and Substrate

The Applicant's Preferred Alternative would result in 2.24 acres of permanent impacts to wetlands and 0.21 acre of temporary impacts to wetlands. Sections 4.6.8 and 5.8 of the Final EIS provide additional detail regarding the impacts to jurisdictional wetlands. The Corps has approved Chapter 1 of the Mitigation Plan as compensatory mitigation for permanent wetland impacts. For more information on mitigative actions, please refer to Section 7.1 above and Attachment E.

9.1.10 Recreation, Recreational and Commercial Fisheries, and Water-Related Recreation

Effects to recreation are identified as recreational facility relocations and decreases in the number of days with optimal stream flow for recreational activities. Stream flow changes in the Fraser River during average flow years would result in major adverse impacts to the number of days with optimal stream flow for recreational boating use. This is somewhat moderated by the fact that the Fraser Canyon has limited commercial rafting, and boating use is considered low compared to other rivers in Colorado that experience a substantial amount of boating use, such as the Colorado and Arkansas rivers. A major adverse effect to recreational boating use would also occur on the Blue River. The overall cumulative effects on boating on the Colorado River would be minor. Denver Water's compensatory mitigation for

recreation impacts on the West Slope would be to provide access to the Williams Fork mitigation site associated with the Colorado Headwaters Mitigation Project.

Later season flow reductions would have a minor to moderate adverse cumulative effect on boating use and a minor beneficial impact to the fishing experience on the South Platte River. Beneficial impacts to boating use would occur on South Boulder Creek (above Gross Reservoir) and on the North Fork South Platte; therefore, no mitigation is required. For a detailed account of effects due to decreased water levels as a result of the Project, see Sections 4.6.15 and 5.15 of the Final EIS.

Additionally, Denver Water has entered into multiple third-party agreements to monitor or enhance Colorado River, Fraser River, South Boulder Creek, North Fork of the South Platte River, and/or South Platte River environmental conditions as described in Section 10.0 of the ROD. These agreements are discussed in detail in Sections 2.2 and 2.4 of the Mitigation Plan (Attachment E). Additionally, Section 2.3 of the Mitigation Plan describes other authorizations and legal requirements. The Corps understands that these enhancements are intended to provide an overall benefit to recreation.

9.1.11 Sanctuaries and Refuges

Sections 4.6.9 and 5.9 of the Moffat Final EIS contain detailed information about effects to Potential Conservation Areas (PCAs) identified by the CNHP, and Environmental Conservation Areas (ECAs) identified by Boulder County that would be directly impacted by vegetation removal and inundation around the perimeter of Gross Reservoir. These sites are those considered important for protection by CNHP and Boulder County. Permanent impacts to sensitive habitats would be addressed between Denver Water and the USFS through the USFS Settlement Agreement (see Section 2.4 of the Mitigation Plan included as Attachment E).

9.2 The Practicability of Using Reasonable Alternative Locations and/or Methods to Accomplish the Objective of the Proposed Structure or Work Has Been Evaluated

The Corps has determined that there are no practicable alternative locations that would accomplish the objective of the proposed work and meet the Project purpose and need. The Corps has also determined that there are no practicable alternative methods to accomplish purpose and needs of the proposed work that would have fewer direct or indirect effects than the Applicant’s Preferred Alternative, as described in the Final EIS. Table 7 summarizes permanent direct impacts to wetland and other Waters of the U.S. by alternative. Indirect and cumulative impacts to wetlands and other Waters of the U.S. are described in Sections 4.6.8 and 5.8 of the Final EIS.

**Table 7
Permanent Direct Impacts to Wetland and Other Waters of the U.S. by Alternative**

Permanent Direct Impacts (acres)	Applicant’s Preferred Alternative (Alternative 1a)	Alternative 1c	Alternative 8a	Alternative 10a	Alternative 13a
Wetlands	2.24	6.15	1.77	1.75	83.87
Other Waters of the U.S.	3.54	3.12	3.20	3.16	11.40

Direct impacts between Alternatives 1a, 1c, 8a, and 10a are similar. The direct impacts for the Applicant’s Preferred Alternative, however, would occur at one location, involve expansion of an existing reservoir, and utilization of Denver Water’s existing facilities, thus minimizing disturbance to the natural and built environments. Alternative 1c also includes an enlarged Gross Reservoir but would also require the construction of a new reservoir at the Leyden Gulch site, thus dispersing impacts to multiple locations.

Alternative 8a would require the installation of over 25 miles of new pipeline and new diversion facilities to support gravel pits on the South Platte River. Similarly, Alternative 10a would require the installation of 18 miles of new pipeline to connect to the advanced water treatment system, and 36 miles of new distribution pipeline associated with the injection/recovery well sites. Alternatives 8a and 10a would also both require development of a 70-acre evaporation pond to support advanced water treatment operations. The new infrastructure and construction associated with Alternatives 8a and 10a would be more impactful and would affect a larger and more geographically dispersed area than the Applicant's Preferred Alternative, which limits impacts to Gross Reservoir.

The incorporation of the Environmental Pool as minimization into the Applicant's Preferred Alternative, between the Draft EIS and the Final EIS, did not discernibly increase impacts to jurisdictional Waters of the U.S. as this would be dedicated storage space within Gross Reservoir. The addition of the Environmental Pool would also not result in measureable direct impacts to other resources. The Corps views the Environmental Pool and its operation as minimization of adverse effects of the Applicant's Preferred Alternative on South Boulder Creek under 40 CFR 230.77(b).

The Applicant's Preferred Alternative (Alternative 1a) comprised of a Gross Reservoir expansion (72,000 AF) and Environmental Pool (5,000 AF) as described in Section 4.2 of the ROD is the LEDPA.

9.3 The Extent and Permanence of the Beneficial and/or Detrimental Effects that the Proposed Structures or Work May Have on the Public and Private Uses Which the Area is Suited Has Been Reviewed

The Applicant's Preferred Alternative would permanently impact 2.24 acres of jurisdictional wetlands and 3.54 acres (9,447 linear feet) of other Waters of the U.S. The loss of these jurisdictional wetlands and other Waters of the U.S. would cause permanent detrimental effects but will be offset by the required mitigation. The mitigation areas are expected to provide a permanent beneficial effect to the aquatic ecosystem and wildlife. Temporary impacts related to the enlargement of Gross Reservoir will occur to 0.21 acre of jurisdictional wetlands and 0.50 acre (1,314 linear feet) of other Waters of the U.S. during Project construction. Indirect effects, as described in Chapter 5 of the Final EIS, would occur in the Fraser and Williams Fork River basins due to reduced stream flows associated with the increased diversions from the Moffat Project. The Final EIS identifies the extent and permanence of the beneficial and/or detrimental effects the Applicant's Preferred Alternative would have on the public and private uses which the area is suited.

10.0 OTHER CONSIDERATIONS

Denver Water believes the following commitments represent opportunities for enhancements to aquatic habitat and for gains in the aquatic and ecosystem knowledge-base of the Colorado River, Fraser River, South Boulder Creek, North Fork of the South Platte River, and/or South Platte River. These agreements should be recognized as a reflection of the community involvement in the Applicant's Preferred Alternative and a mechanism to address community concerns beyond Special Conditions required by the Corps of the Applicant to address Project impacts. The Corps agrees with Denver Water that these enhancements may provide some benefits to the aquatic ecosystem specifically as it pertains to fish and wildlife and water quality considerations. These commitments are discussed in detail in Sections 2.2 and 2.4 of the Mitigation Plan (Attachment E). Additionally, Section 2.3 of the Mitigation Plan (Attachment E) describes other authorizations and legal requirements.

- Riparian and Wetland Habitat Preservation in the South Boulder Creek Watershed,

- Intergovernmental Agreement for the Learning by Doing Cooperative Effort in the Fraser and Williams Fork River basins,
- Upper Colorado River Wild and Scenic Stakeholder Group Mitigation,
- Fraser Sediment Pond IGA,
- USFS Settlement Agreement,
- Fish and Wildlife Enhancement Plan,
- Colorado River Cooperative Agreement, and
- Grand County Mitigation and Enhancement Coordination Plan.

11.0 SPECIAL CONDITIONS

The following special conditions will be included in the Section 404 Permit to ensure the Project is not contrary to the public interest and complies with the Section 404(b)(1) Guidelines:

1. Based on information provided by the Permittee, the Corps has determined the overall Project purpose is to develop a firm annual yield of approximately 18,000 AF of water to the Moffat Treatment Plant and raw water customers upstream of the Moffat Treatment Plant. This Project purpose was the basis upon which the Corps conducted its review of the Section 404 Application, as well as the basis for the Corps determination that permit issuance is in the best interest of the public. The Corps authorization incorporates the Environmental Pool and Osprey Point Quarry site as minimization measures. This authorization does not allow Denver Water to use the Environmental Pool for storage of municipal supply. No change in the Project purpose may occur without prior review and approval by the Corps.
2. The Permittee agrees to follow the Clean Water Act Section 401 Colorado Water Quality Certification No. 4369, dated June 23, 2016. Pursuant to 33 U.S.C. 1341(d), special conditions of the Section 401 Water Quality Certification are made part of this permit.
3. The Permittee will to adhere to the NHPA Section 106 PA dated October 26, 2015, and all of its stipulations. Furthermore, the Denver Regulatory Office must be immediately notified should the scope of the proposed undertaking change. In that instance, Section 106 consultation shall be re-initiated and mitigation may be required.
4. The Permittee will to adhere to the conservation measures included in the following Biological Opinions and all stipulations in those. Furthermore, the Denver Regulatory Office must be immediately notified should the scope of the action area change. In that instance, Section 7 consultation shall be re-initiated and mitigation may be required.
 - a. **December 6, 2013** – Colorado River and Platte River depletions, and impacts to Preble’s meadow jumping mouse.
 - b. **June 17, 2016** – Green lineage cutthroat trout and the Moffat Collection System Project, including the continuation of Denver Water’s existing operations and future operations of the Moffat Project.
5. The Permittee agrees to provide documentation of compliance with the January 29, 2016 Biological Opinion for the Gross Reservoir Environmental Pool to the Denver Regulatory Office.

6. The Permittee agrees to contact the USFWS, Office of Migratory Birds, at 303.236.8171, for permitting requirements for the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act prior to removal or destruction of any bird nest.
7. The Permittee is responsible for all work accomplished in accordance with the terms and conditions of this authorization. If a contractor or other authorized representative will be accomplishing the work hereby authorized on behalf of the Permittee, such parties shall be provided a copy of this authorization so they are aware of the terms and conditions. An activity that fails to comply with the terms and conditions of this authorization shall be considered unauthorized and all responsible parties may be subject to legal action.
8. Chapter 1 of the Mitigation Plan, dated June 8, 2017, is incorporated into the permit by reference according to 33 CFR 332.4(c)(1). Prior to any impacts authorized by this permit occurring to Waters of the U.S.:
 - a. The Permittee shall provide compensatory mitigation for the loss of jurisdictional wetlands through the debit of credits at the Four Mile Creek Fen Mitigation Bank. The Permittee shall debit 3.36 mitigation credits (3.36 credits for wetland impacts at a ratio of 1.5:1). Written proof of the debit shall be provided to the Denver Regulatory Office prior to impacts occurring to Waters of the U.S. authorized by this permit. Upon receipt of such proof, all liabilities for the success, monitoring, and long-term management of the mitigation bank jurisdictional wetlands covered by this authorization shall become the responsibility of the mitigation bank sponsor.
 - b. The Permittee shall provide compensatory mitigation for the direct loss of jurisdictional non-wetland Waters of the U.S., including loss of riffle and pool complexes, through the South Boulder Creek Restoration Project as described in Section 1.2 of the Mitigation Plan. Construction of the mitigation site shall occur prior to impacts occurring to Waters of the U.S. authorized by this permit. The Permittee shall hire a professional ecologist to be on site to oversee that the mitigation is accomplished in accordance with the Mitigation Plan and with these Special Conditions.
 - c. The Permittee shall provide compensatory mitigation for indirect effects that would occur in the Fraser and Williams Fork River basins due to reduced stream flows associated with the increased diversions from the Project, through the Colorado Headwaters Mitigation Project as described in Section 1.3 of the Mitigation Plan. Construction of the mitigation site shall occur prior to impacts occurring to Waters of the U.S. authorized by this permit. The Permittee shall hire a professional ecologist to be on site to oversee that the mitigation is accomplished in accordance with the Mitigation Plan and with these Special Conditions.
9. The Permittee shall record the site protection instruments related to the Williams Fork River Basin Stream Rehabilitation sites, such that anyone searching for the affected parcels shall be able to identify the restrictions on the properties. Proof of these recordings shall be provided to the Denver Regulatory Office prior to the impacts occurring to Waters of the U.S.
10. If, at any time during the first two years after initial construction of mitigation, site conditions indicate that the success criteria are not likely to be achieved, the Permittee agrees that remedial efforts shall be undertaken after consultation with the Corps. If the Corps determines that additional on-site efforts are ineffective, remedial efforts may include new mitigation plans and sites, the purchase of credits from a Corps-approved mitigation bank, or participation in an in-lieu fee program.

11. The Permittee shall submit annual mitigation monitoring reports to the Denver Regulatory Office prior to December 31 of each monitoring year for 5 years or until Performance Standards have been met and monitoring requirements are fulfilled. The format of those reports shall follow the requirements shown in Attachment H.
12. The Permittee shall comply with the mitigation measures contained in the June 9, 2011 Fish and Wildlife Mitigation Plan as endorsed by the Colorado Parks and Wildlife Commission and Colorado Water Conservation Board. The Corps understands that the commitment to fund stream habitat restoration on the Fraser and upper Williams Fork rivers is replaced by the Williams Fork River Basin Stream Rehabilitation project; the commitment for stream temperature monitoring in the Fraser River Basin and upper Colorado River is modified by the 401 Certification, and the commitment for riparian habitat plantings is replaced by the conveyance and protection of 253 acres of riparian habitat within the 539-acre Toll Property by the Permittee to the USFS.
13. The Permittee shall ensure heavy equipment used for the Project was not previously used in another stream, river, lake, pond, or wetland, unless one of the following procedures is implemented to prevent the spread of invasive aquatic species. These practices are also necessary after Project completion, prior to this equipment being used in another stream, river, lake, reservoir, pond, or wetland.
 - a. All mud and debris shall be removed from equipment (tracks, turrets, buckets, drags, teeth, etc.) and equipment shall be sprayed/soaked with an industrial cleaner and water. Treated equipment must be kept moist for at least 10 minutes; or
 - b. All mud, plants, and debris shall be removed from equipment (tracks, turrets, buckets, drags, teeth, etc.) and equipment shall be sprayed/soaked with water greater than 140 degrees Fahrenheit for at least 10 minutes. All hand tools, boots, and any other equipment that will be used in the water shall be cleaned using one of the above options. Water shall not be moved from one water body to another. Equipment must be dry before use.
14. The Permittee shall submit a fugitive particulate emissions control plan and BMPs that meet requirements for Colorado Air Quality Control Standards to the Denver Regulatory Office prior to construction.
15. The Permittee shall dispose of construction debris, and handle and convey materials in a manner such that they cannot enter a waterway or wetland except as approved herein.
16. The Permittee shall operate equipment for handling and conveying materials during construction in such a manner to prevent dumping or spilling the materials into the water except as approved herein.
17. The Permittee shall take care to prevent any petroleum products, chemicals, or other deleterious materials from entering the water.
18. The Permittee shall take steps to prevent materials spilled or stored on shore from washing into the water as a result of cleanup activities, natural runoff, and flooding, and ensure that during construction, any materials which are accidentally spilled into the water are retrieved.
19. The Permittee shall perform all work in the waterway in such a manner so as to minimize increases in suspended solids and turbidity, which may degrade water quality and damage aquatic life outside the immediate area of operation.
20. The Permittee shall ensure that any banks disturbed or created by the construction activity will be seeded with native vegetation for protection against subsequent erosion.

21. The Permittee shall ensure that the clearing of vegetation is limited to that which is absolutely necessary for construction of the Project.
22. The Permittee shall coordinate with downstream water users, advising them of any water quality changes to be caused by the construction.
23. The Permittee shall place all dredged or excavated materials, with the exception of that authorized herein, in an upland site above the existing ordinary high water line in a confined area, not classified as a wetland, to prevent the return of such materials to the waterway.
24. The Permittee shall carry out the deposition of excavated materials on shore and all earthwork operations in such a way that sediment runoff and soil erosion to the water are controlled.
25. The Permittee shall install culverts in any temporary crossing to carry normal flows and prevent the restriction of expected high flows during construction.
26. The Permittee shall wash concrete trucks at a site and in such a manner that wash water cannot enter the waterway.
27. The Permittee shall keep the use of machinery in the waterway to a minimum.
28. The Permittee agrees that if the Corps is notified that a filling activity is adversely affecting fish or wildlife resources or the harvest thereof, and the Corps subsequently directs remedial measures, the Permittee shall comply with such directions to suspend or modify the activity to the extent necessary to mitigate or eliminate the adverse effect as required.
29. The Permittee shall dike, curb, or use other suitable means of containing above-ground fuel storage tanks to prevent the spread of liquids in case of leakage in the tanks or piping.
30. After a detailed and careful review of all of the conditions contained in this permit, the Permittee acknowledges that, although said conditions are required by the Corps, the Permittee agrees to those conditions voluntarily to facilitate issuance of the permit. The Permittee shall comply fully with all the terms of the permit conditions.

12.0 FINDINGS

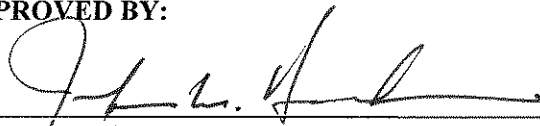
The Corps reviewed and evaluated, in light of the overall public interest, the documents and factors concerning the permit for the Applicant's Preferred Alternative (identified in the EIS as the Proposed Action), as well as the stated views of interested agencies and the public. In doing so, the Corps considered the possible consequences of the Applicant's Preferred Alternative in accordance with regulations published in 33 CFR Parts 320 through 332 and 40 CFR Part 230.

- a. The evaluation of the Applicant's Preferred Alternative and alternatives was done in accordance with all applicable laws, Executive Orders, regulations, and agency regulations. The EIS and supporting documents are adequate and contain sufficient information to make a reasoned permit decision. The Corps finds that the purposes of NEPA, as defined in 40 CFR 1500.1, would not be furthered through supplementation. The Corps had the benefit of being able to consider and review the Clean Water Act Section 401 Water Quality Certification No. 4369 in making its mitigation requirements and overall permit decision.
- b. The Applicant's Preferred Alternative (Alternative 1a) with appropriate and practicable mitigation measures to minimize environmental harm and potential adverse impacts of the discharges on the aquatic ecosystem and the human environment, is compliant with NEPA Section 101. Further, the discharge associated with the Applicant's Preferred Alternative complies with the Section 404(b)(1) Guidelines. The Applicant's Preferred Alternative is

considered the LEDPA, with the inclusion of appropriate and practicable general and special conditions in the permit to minimize pollution or adverse effects to the affected ecosystem.

- c. Issuance of a Section 404 Permit, with the inclusion of special conditions of the permit, as prescribed by regulations published in 33 CFR Parts 320 to 332, and 40 CFR Part 320 is not contrary to the public interest.
- d. The compensatory mitigation identified in Section 7.0 above, and described in further detail in Attachment E, is sufficient to ensure no net loss of aquatic resources functions and services for effects to Waters of the U.S. and associated jurisdictional wetlands. The required compensatory mitigation follows and complies with the 2008 Mitigation Rule.

APPROVED BY:



John W. Henderson, P.E.
Colonel, EN
Commanding

06 July 2017

Date

13.0 REFERENCES

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