

University of Montana

ScholarWorks at University of Montana

Graduate Student Theses, Dissertations, &
Professional Papers

Graduate School

1991

Evolving western water policy

Mary Beth Bishop

The University of Montana

Follow this and additional works at: <https://scholarworks.umt.edu/etd>

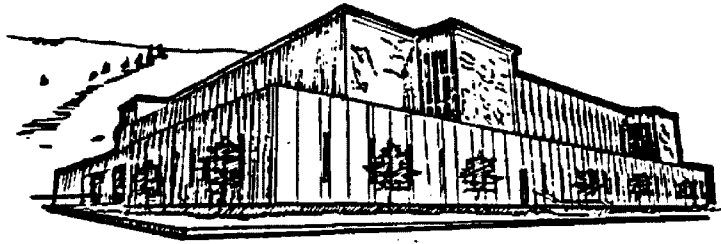
Let us know how access to this document benefits you.

Recommended Citation

Bishop, Mary Beth, "Evolving western water policy" (1991). *Graduate Student Theses, Dissertations, & Professional Papers*. 8526.

<https://scholarworks.umt.edu/etd/8526>

This Thesis is brought to you for free and open access by the Graduate School at ScholarWorks at University of Montana. It has been accepted for inclusion in Graduate Student Theses, Dissertations, & Professional Papers by an authorized administrator of ScholarWorks at University of Montana. For more information, please contact scholarworks@mso.umt.edu.



Maureen and Mike
MANSFIELD LIBRARY

Copying allowed as provided under provisions
of the Fair Use Section of the U.S.
COPYRIGHT LAW, 1976.

Any copying for commercial purposes
or financial gain may be undertaken only
with the author's written consent.

University of
Montana

Evolving Western Water Policy

by

Mary Beth Bishop

B.S., Northwest Missouri State University, 1985

Presented in partial fulfillment of the requirements

for the degree of

Masters of Science

University of Montana

1991

Approved by

Vickie Watson
Chairman, Board of Examiners

[Signature]
Dean, Graduate School

Dec. 18, 1991
Date

UMI Number: EP39327

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



UMI EP39327

Published by ProQuest LLC (2013). Copyright in the Dissertation held by the Author.

Microform Edition © ProQuest LLC.

All rights reserved. This work is protected against unauthorized copying under Title 17, United States Code



ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 - 1346

16-92

Table of Contents

Chapters

1- Introduction.....	pg. 1
Introduction to the Two Forks Project.....	pg. 5
Veto of Two Forks Dam, a turning point.....	pg. 9
Major players.....	pg. 10
2- History of Water Policy.....	pg. 12
The Beginnings of Western Water Policy.....	pg. 12
Role of the Federal Government.....	pg. 14
The Sixties And Seventies.....	pg. 19
The Reagan and Bush Years.....	pg. 23
The Role of the EPA.....	pg. 25
3- History of Two Forks Dam and Reservoir.....	pg. 30
Foothills Consent Decree.....	pg. 31
Systemwide Environmental Impact Statement.....	pg. 32
Draft Environmental Impact Statement.....	pg. 33
Final Environmental Impact Statement.....	pg. 35
404(c) Review of the Proposed Two Forks Dam Project.....	pg. 48
Proposed Determination.....	pg. 51
Memorandum of Agreement.....	pg. 55
Recommended Determination.....	pg. 59
4- Conclusion.....	pg. 62
Recommendation.....	pg. 68
Appendix 1- History of Two Forks Project.....	pg. 70
Bibliography.....	pg. 75
Figure 1. Map of North and South Platte Rivers, taken from Final EIS, Army Corps of Engineers, 1988.....	pg. 3
Figure 2. Existing and Proposed Water Systems of the Denver Metropolitan Area, taken from Final EIS, Army Corps of Engineers, 1988.....	pg. 8
Table 1. Section 404 Permit Veto Actions Completed by the EPA, taken from Audubon Report 1989/1990.....	pg 29

Table of Contents

Chapters

1- Introduction.....	pg. 1
Introduction to the Two Forks Project.....	pg. 5
Veto of Two Forks Dam, a turning point.....	pg. 9
Major players.....	pg. 10
2- History of Water Policy.....	pg. 12
The Beginnings of Western Water Policy.....	pg. 12
Role of the Federal Government.....	pg. 14
The Sixties And Seventies.....	pg. 19
The Reagan and Bush Years.....	pg. 23
The Role of the EPA.....	pg. 25
3- History of Two Forks Dam and Reservoir.....	pg. 30
Foothills Consent Decree.....	pg. 31
Systemwide Environmental Impact Statement.....	pg. 32
Draft Environmental Impact Statement.....	pg. 33
Final Environmental Impact Statement.....	pg. 35
404(c) Review of the Proposed Two Forks Dam Project.....	pg. 48
Proposed Determination.....	pg. 51
Memorandum of Agreement.....	pg. 55
Recommended Determination.....	pg. 59
4- Conclusion.....	pg. 62
Recommendation.....	pg. 68
Appendix 1- History of Two Forks Project.....	pg. 70
Bibliography.....	pg. 75
Figure 1. Map of North and South Platte Rivers, taken from Final EIS, Army Corps of Engineers, 1988.....	pg. 3
Figure 2. Existing and Proposed Water Systems of the Denver Metropolitan Area, taken from Final EIS, Army Corps of Engineers,1988.....	pg. 8
Table 1. Section 404 Permit Veto Actions Completed by the EPA, taken from Audubon Report 1989/1990.....	pg 29

Acknowledgements

I would like to thank Marge Brown, Tom Roy and Vicki Watson for agreeing to be on my committee. A special thanks to Vicki Watson for all the hours of editing she put in as my chair. I would also like to thank John Nugent and David VanderPloeg for reading those very first drafts that needed a lot of fine tuning and rewriting.

Thanks to the Army Corps of Engineers, the Environmental Protection Agency, The Colorado Environmental Defense Fund, Colorado Trout Unlimited and the Denver Water Board for sending me all the information, documents and correspondence that I requested.

But, most of all thanks to all the wonderful members of dinner club for continually being supportive even after hearing about this project for two years!

Chapter 1 Introduction

Why Two Forks:

Some of my fondest memories are of the summers I spent with my family along the Platte River in Nebraska. I remember trying to cross the river as a child and feeling as though the river would go on forever; I thought I would never make it to the other side. Once we reached the other side we spent hours fishing for bullheads. During the late summer the river ran so shallow that sometimes you could catch fish with your hands. At night by the campfire next to the Platte the stars sparkled brightly in the warm night air and lightning bugs and crickets filled the dark with light and sound. On special occasions, thunderstorms roared over the flatlands. Thunderstorms on the plains are magnificent, you can see them for miles and they fill the broad horizon. In the early morning I listened to the birds singing, and watched the wading birds search for water bugs and minnows. The morning sun glittered off the swiftly flowing water, giving the impression it was deeper than the foot or so that it was. I spent many wonderful days not understanding the river, but enjoying all it had to offer me. In my childhood, I was intrigued by how the river changed and why at some times it was deep while at other times you could walk half way across and not even get your knees wet. It was these broad, shallow, sandy expanses of the summer river that introduced me to the workings and connections of the natural world.

I soon realized that the Platte River wasn't natural at all; it's water was stored and used later for irrigation, recreation, municipal and industrial purposes. My interest in the Two Forks Dam and Reservoir Project stems from the time I spent along the Platte River. This summer (1991), the Platte, near Omaha, was shallow, no more than knee deep. The river is slowly dwindling to

nothing. More water projects will only hold more water and sediment, ultimately reducing it to an underground river. I don't want the Platte River, the river of my childhood, to become another Colorado or Missouri, a long controlled lake with spillways.

The headwaters of both forks of the Platte are located in Colorado (Figure 1). The North Platte flows north through Wyoming, while the South Platte flows south through Denver before it joins the North Platte in western Nebraska near the town of North Platte. Both branches of the Platte contain mainstem and tributary dams that reduce the Platte's historical flow by nearly 80% (Winckler, 1989). The manipulation of the river has caused many problems, not the least of which is that, by early August the river is nearly dry when it reaches Omaha. The flows are so small that in many locations the river is reduced to a wet, moving sandbar. In other areas the invading plants and trees have made the channel difficult to find.

In past springs, thick ice covered the Platte. As the ice began to melt, it churned up the bottom sediment. The ice and rushing water scoured the sandy river bottom and sandbars of willows, bushes and other debris. Increased snow melt caused the river to flood, and it would leave its shallow banks to deposit sand on the flood plain. The Platte is a braided river, and requires the annual spring floods to clear the channel and bars of stabilizing vegetation. This process does not occur very often anymore. Along many stretches of the Platte the sandbars have become wooded, and the channels have narrowed.

Millions of migrating birds use the Platte River as a feeding ground while travelling the Central Flyway. The birds come to the Platte for its shallow water, the abundant food they find in the churning sand, and wide open expanses for

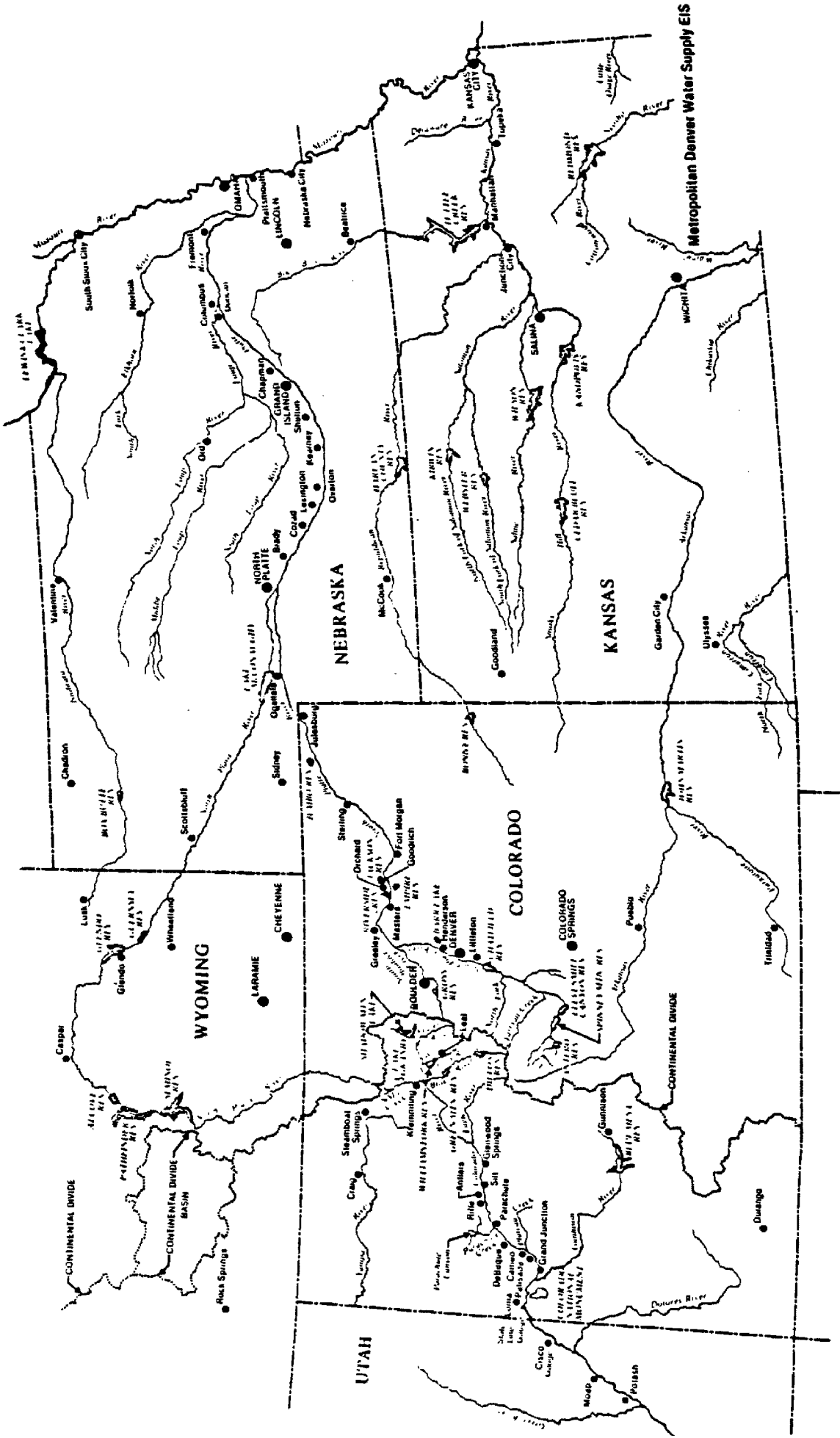


Figure 1. Map of the North and South Platte Rivers. Taken from the Final EIS, Army Corps of Engineers, 1988.

roosting. More than 300 bird species use the Platte River and adjacent wet meadows for feeding and roosting (Platte River Whooping Crane Habitat Maintenance Trust, Inc., 1989). Sandhill Cranes, Whooping Cranes, Bald Eagles, Eskimo Curlews and Peregrine Falcons, all listed as either threatened or endangered, use the river during their spring migration.

The Platte also offers nesting sites for over 130 species including the threatened interior least tern and the endangered piping plover. These species require open, sparsely vegetated sandbars for nesting. When flows on the river decrease, the sandbars fill with vegetation, allowing predators easy access to the sandbars. Predators such as raccoons and foxes can now cross the river and raid the nests (Platte River Whooping Crane Habitat Maintenance Trust, Inc., 1989).

The birds aren't the only species having difficulties due to the reduced flows. During the late summer fish are unable to move through many sections of the Platte because there just is not enough water. Large fish kills occur when the shallow waters warm up, depleting it of oxygen. Warm water holds less dissolved oxygen than cold water. In late summer in Eastern Nebraska the river, in many areas, is too shallow for fish.

In recent years Colorado, Wyoming and Nebraska have made several attempts to add more dams to the river. The Wyoming Department of Natural Resources has proposed the Deer Creek Dam and Reservoir on the North Platte near Casper. This project is currently in litigation before the Supreme Court. The State of Nebraska Water Resource Department filed suit in 1986 against Wyoming Dept. of Natural Resources, claiming Wyoming used a poor hydrologic model and the dams potential adverse effects downstream to threatened and endangered bird species. The Platte River just recently survived an attempt by Colorado to add another dam to its system. Officials for

the Denver metropolitan area proposed the Two Forks Dam and Reservoir that would have stored 1.1 million acre-feet of water for municipal purposes. The Environmental Protection Agency (EPA) vetoed the project in November, 1990. This decision may have a profound effect on water policy decisions in the future.

Introduction to the Two Forks Project

Denver, Colorado, is nestled on the eastern edge of the Rocky Mountains. During the silver boom of the 1880s, Denver's population expanded rapidly. The collapse of the silver market in 1893 caused the city to diversify, and eventually Denver became the commercial and industrial center of the Rocky Mountain region. Today, Denver is the largest center for energy research in the region (twelve hundred energy companies in 1980) and is home to several governmental offices, including the Regional offices of: the U.S. Geological Survey, U.S. Forest Service, the U.S. Park Service and the Environmental Protection Agency, and also home to Lowry Air Force Base, Bureau of Land Management and the Air Force Accounting Center. Denver supports a large tourism industry with the Rocky Mountains and plenty of winter recreation close by. Presently, Denver plans to build a new convention center and airport to meet the needs of a growing visitor economy.

The Denver metropolitan area continues to diversify and expand, causing land, air and water management problems. The rapid economic growth in the early 1970s caused an increase in population that was higher than the national average (Corps, 1988). The Denver Regional Council of Governments predicted a population increase, based on the 1980 census, of 30,000 persons each year until the year 2000, after which the growth would slow to zero by 2035. A booming economy and the rapid influx of people to this semi-arid region has increased the demand for a limited amount of water.

Currently, water is diverted from the west slope of the Rockies, via tunnels, to reservoirs in order to meet the needs of Denver. But the expected increase in population and industry may cause a yearly shortfall. The water demand is projected to increase 87% by 2035 while the population should increase by only 77% (Corps, 1988). Also, as the west slope region grows (mainly through winter tourism) its future water demand will rise and it will begin to use its allocated water rights, leaving less water available to the Denver metro area. However, some of this demand can be met through improved conservation and water metering systems.

Conservation measures that could save up to 12, 600 acre-feet per year by 2000 began in several communities in late 1988 (One acre-foot will provide enough water for a family of four for one year (EPA, 1990a)). The conservation measures included lawn size restrictions, water saving plumbing fixtures, lawn watering education, residential metering, increasing block rates, public open space irrigation management and reduction in system losses (e.g., leakage, meter calibration and monitoring).

The future water demand needs of the Denver area are dependent on the economy and population. Sixty-five percent of Denver's water need is used by single-family homes, half of that is used for lawn irrigation. Multi-family homes use 14%, public users 5%, and commercial and industrial users only 16% (Corps, 1988).

The Corps predicted that a water shortage, based on population projections, will occur in 2000. By 2035 the shortfall is predicted to reach 166,000 acre-feet. In making this prediction the Corps assumes that per capita use rate will rise from 187 gallons per capita per day (g.c.d.) in 1988 to a projected figure of 206 g.c.d. in 2010. Hence the Corps assumes that improved or new conservation measures will not be successful at lowering or even

maintaining per capita use. Using the Corps analysis, the Denver metropolitan area will require a new water storage facility or source of water (groundwater, agricultural water rights, pumpback systems and or reuse systems) in the very near future.

In order to meet the projected needs of the Denver metropolitan area, the Denver Water Board proposed the Two Forks Dam and Reservoir. The Two Forks Dam project, the new airport and convention center were supposed to revive the city's ailing economy. Denver felt that a plentiful water supply would unite the competing suburbs and the metropolitan area could work together to solve some of the air, transportation and water quality problems.

The proposed dam site is located on the South Platte River approximately one mile downstream from the confluence of the North Fork of the South Platte with the main stem of the South Platte, just upstream from the Strontia Springs dam and reservoir (See Figure 2 for approximate location). The dam would be a multicurvature thin arch concrete dam that is 615 feet high with a crest length of 1700 feet. The reservoir would hold 1,100,000 acre-feet at normal maximum pool with a safe-yield (actual water that can be used) of 98,000 acre-feet. This is enough water to meet the needs of approximately 392,000 new Denver metro area residents (EPA, 1990a).

The reservoir would provide long-term storage of South Platte basin flows and storage of transmountain diversions from the west slope of Colorado. The dam and reservoir would operate with other water storage reservoirs in Denver's water system and would allow other water providers to store water rights held independently of Denver.

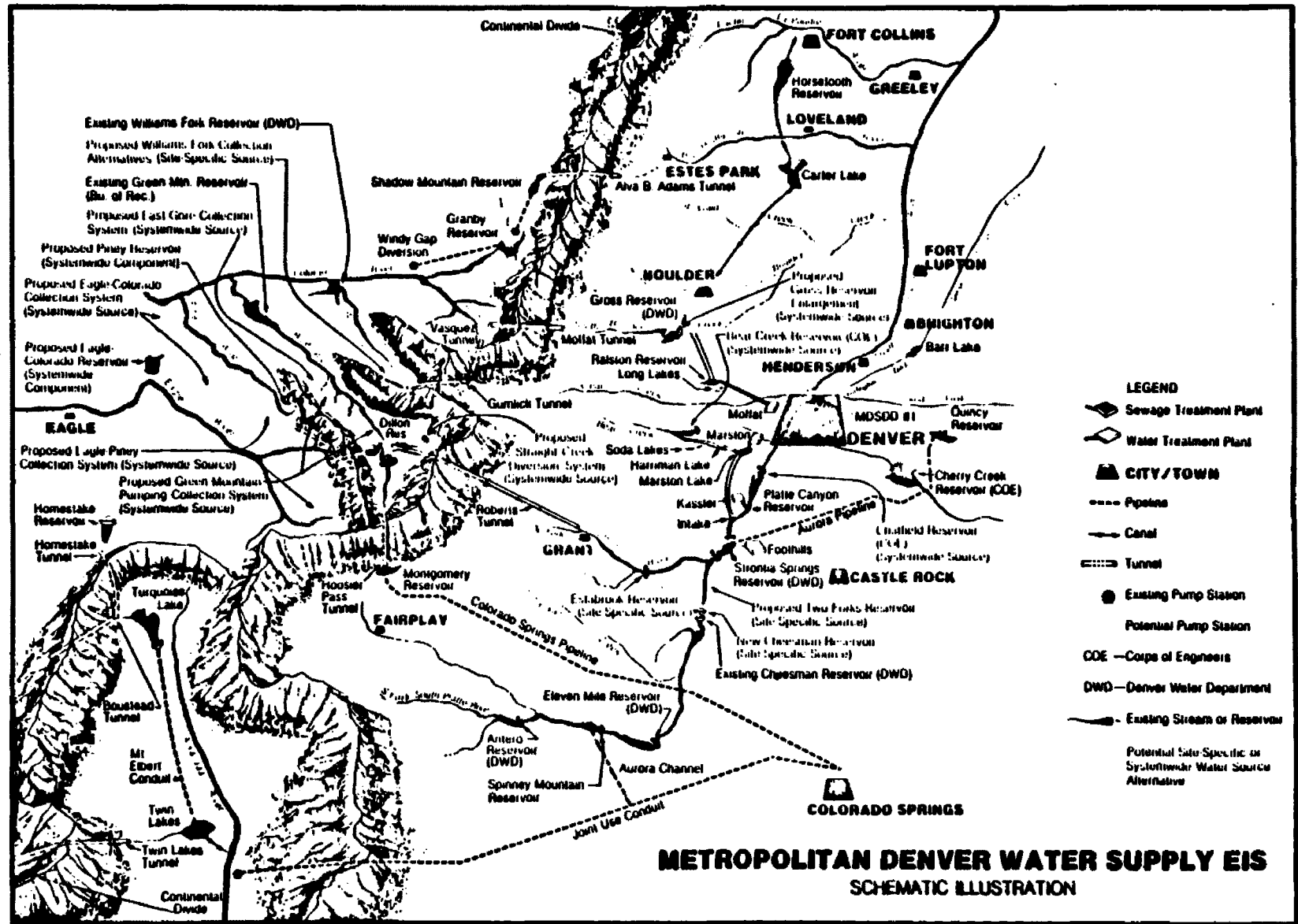


Figure 2. Map of Existing and Proposed Water Projects of the Denver Metropolitan Area. Taken from the Final EIS, Army Corps of Engineers, 1988.

Veto of Two Forks Dam, a turning point

The proposed Two Forks Dam and Reservoir involved an eight year, \$40 million study. The project would require no federal funds and would cost \$500 million to \$1 billion dollars. The project was vetoed in November of 1990 in an unprecedented action by the Environmental Protection Agency (EPA). The EPA's veto states: "there are less environmentally damaging practicable alternatives available and the proposed Two Forks project would cause unacceptable adverse environmental impacts" (EPA, 1990b).

Two Forks is the only large dam project vetoed by the EPA, and is precedent- setting because of a signed agreement (Memorandum of Agreement) between the EPA and the Corps of Engineers. The Memorandum of Agreement clarifies the procedures to be used to determine the type and level of mitigation necessary to demonstrate compliance with the Clean Water Act Section 404(b)(1) Guidelines.

The following chapters are brief overviews of the history of western water policy and the Two Forks Dam and Reservoir process. Chapter two will present changing federal water policies toward large dam projects and why the veto of a locally paid and planned project has caused political and water management problems. Chapter three will briefly review the history of the permitting process and subsequent veto for Two Forks dam and also includes the difference between EPA and the Corps in demonstrating compliance of the 404(b)(1) Guidelines. Chapter four will discuss the veto as a precedent setting change based on other projects and court cases, as well as the trend towards protecting the environment.

Major Players

To clarify the history of the project the major players are outlined below.

Denver Water Board (Denver Board of Water Commissioners) consists of five members appointed by the Mayor of Denver. The Board's responsibility is to formulate the water supply and water development policies for the City and County of Denver. In 1902 the Board began working toward a major water development project on the South Platte River. In 1982 the Board signed an agreement with other governmental units to provide a water storage facility in exchange for payment of 80% of the costs of the named projects. The Denver Water District is the public utility that implements the Denver Water Board's policies.

Metropolitan Water Providers are elected officials representing more than 40 governmental units whose responsibilities are to provide water to their customers. The Providers include water districts and counties in the Denver metropolitan area. The Water Providers, in signed agreements in 1982 and 1983, agreed to pay for 80% of the study and project costs and have a right to 80% of the yield of a major South Platte storage facility.

U. S. Army Corps of Engineers is a federal government agency responsible for 404 permitting under the Clean Water Act. This Act prohibits the discharge of pollutants, including dredged or fill material, into waters of the United States. The Corps evaluates all proposed projects that must comply with the 404(b)(1) Guidelines of the Clean Water Act to be permissible. The Corps was the lead agency for the Systemwide Environmental Impact Statement and the Site specific EIS for Two Forks Dam and Reservoir for the Denver metropolitan area.

Col. Steven West, the Omaha District Engineer, must approve all 404 permit applications in his district, which includes the greater metropolitan Denver area.

Environmental Protection Agency is a federal government agency that polices compliance with the 404(b)(1) Guidelines of the Clean Water Act. The EPA is responsible for reviewing all permit applications approved by the Corps. The EPA can, under 404(c), approve, restrict or prohibit the discharge of dredged or fill material at an identified site. The EPA must show that the discharge would have unacceptable adverse effects on the environment to restrict or prohibit the action. James Sherer is the Region VIII Administrator, which includes Denver, and is responsible for the review of the Corps' findings. Lee DeHihns is the Deputy Region IV Administrator (based in Atlanta) who conducted the 404(c) review of the Two Forks project after Sherer declined to conduct the review. William Reilly is the Administrator of the EPA in Washington D.C..

Colorado Environmental Caucus consists of nine major environmental organizations which banded together in opposition to the proposed Two Forks project (the group later added six local environmental groups). The Caucus used the EIS and its knowledge to build a strong scientific case against Two Forks and assemble an alternative to meet the future water needs of Denver. The group used its connection with Reilly, a past Director of the World Wildlife Fund, to request a review of the proposed project. The nine major organizations include: National Audubon, National Wildlife Federation, Environmental Defense Fund, Sierra Club, American Rivers, Trout Unlimited, Izaak Walton League, Wilderness Society and Sierra Club Legal Defense Council.

Chapter 2 Water Policy

Water is a necessity for all forms of life. We need water for drinking, for agriculture/ranching and for industry. As the earlier colonists settled the American West the demand for water was low and water was plentiful. Early miners and settlers diverted water for mining and crops, but the water was not diverted far from its original source. As the population increased and moved further into arid and semi-arid climates, the demand for water increased. Large settlements weren't always established near a large constant flow of water. As demands on water increased, the western states and territories devised their own water planning methods to reduce demand problems. This has caused water policy to be very complex. Quantity and quality of water and the effects of water projects on the environment are major issues at all levels of government and are the driving force behind present day policies. The following is a brief history of western water policy.

The Beginnings of Western Water Policy

The West was settled late in the 1800s, except for a few miners and trappers. In 1849 gold was discovered at Sutters Mill on the American River in California, beginning the California Gold Rush. Mining for silver and gold along the Sierra Nevadas and the Rocky Mountains could be profitable only if water was available. Early miners diverted water for their various mining operations. The riparian system of water allocation used in the eastern U.S. did not allow for water export. The miners demanded export for practically all forms of mining.

The miners invented a system for claiming water that was similar to staking a claim: whoever got to it first was entitled to use it, provided he/she did

it for economic gain. Perfecting a water right meant putting the water to beneficial use, and that nearly always meant diverting it from its natural course (Snow, 1988).

At first, disputes over water rights were settled by guns, but soon a frontier law emerged: first in time, first in right, later known as the Prior Appropriation Doctrine. Those who staked a claim first for the beneficial use of the water for mining (and later agriculture), and then used it, had senior priority rights (priority to use water even to a later upstream water right holder). Water right holders could lose their rights only if the water was not put to a beneficial use and challenged by a junior water right holder--a use it or lose it philosophy. The Prior Appropriation Doctrine became the water doctrine of California, and soon other western states followed this lead.

In 1858 the Downeyville Mining District in Colorado patterned its laws after those of California. In its codified rights the district included the following: "In all gulches or ravines where water may be scarce the oldest claimants shall have preference and priority of right to water" (Dunbar, 1983). In 1861 the Colorado Territory legislature adopted the miners doctrine of "first in time, first in right" (Prior Appropriation) for water; this doctrine began the arid/semi-arid West's water policy.

The federal government wanted the West settled. In 1862 the Homestead Act was passed offering immigrants the opportunity to purchase one hundred and sixty acres by paying a registration fee of \$10. As people moved west, scarcity of water increased and wars over the priority of water occurred. In 1877 Congress approved the evolving doctrine of prior appropriation in the Desert Land Act. Like the Homestead Act, the Desert Land act offered cheap land (\$1.25 an acre up to 640 acres) but it also delegated to

the states and territories the authority to determine water rights within their jurisdictions.

Mormons were one of the first groups to settle the west in large colonies and one of them, Horace Greeley, founded Union Colony at the convergence of the South Platte and Cache LaPoudre Rivers in 1879, a settlement that later became Greeley, Colorado. Union Colony wanted the right to divert the Cache LaPoudre river for agricultural purposes, which led to the most important dispute over water rights in the west (Snow, 1988). The dispute led the state to incorporate fully the Doctrine of Prior Appropriation into its Constitution and it became the Colorado Doctrine. Many other western states adopted the Colorado Doctrine, in its entirety, into their Constitutions (Dunbar, 1983).

As the West's population expanded and the need for water increased, the settlers began to devise water diversion and canal systems. Water districts sprouted up to build these for the growing farming communities. But the overrun costs of building these canal and diversion systems soon put many water districts out of business. Individuals and small communities could not pay for the diversion systems needed to move water from the stream or river to the field. Communities, wealthy businesspeople and politicians turned to the federal government for help. This was a turning point for federal involvement in water policy issues in the west.

Role of the Federal Government

The role of the U.S. federal government in altering waterways dates from 1819 when the secretary of war, John Calhoun, requested Congress to direct the Corps of Engineers to improve waterways navigation. He felt that improving waterways navigation would speed the movements of the army and enhance economic development (Corps, 1986a). This request began a long history of

altering waterways for the Corps of Engineers. In fact, the Corps is known primarily for its river and harbor dredging and the construction and operation of levees, locks, and dams.

The General Survey Act was passed by Congress in 1824. The act authorized the President to use the Corps to survey road and canal routes along the Mississippi and Ohio rivers. The Corps removed snags and debris, and dredged channels to improve the already growing commercial barge and steamboat traffic on these rivers. The General Survey Act set the precedent of combining military or national interests with economic development interests to justify a federal role in civilian activities (Audubon, 1989/90). The Corps continues to play a major role in civilian construction projects such as dams, levees, canals and irrigation projects.

As the 19th century ended, a severe problem of dumping wastes (debris, garbage and animal carcasses from slaughterhouses) into rivers, harbors and lakes became a national concern. To help solve this problem Congress directed the Corps to regulate dumping and filling into the nations' waters. The Corps regulatory authority greatly expanded with the passage of the 1899 Rivers and Harbors Act (33 U.S.C.A. 403). The Rivers and Harbors Act prohibited the discharge of "any refuse matter of any kind from either ship or shore, other than that flowing from streets or sewers and passing there from in a liquid state, except by permits" (Corps, 1986a). Permits for refuse discharge were to be issued by the Corps only when judged by the Chief of Engineers not to be injurious to anchorage and navigation (Corps, 1986a). In 1960 the law was expanded to include liquids. This law established the Army Corps of Engineers as a regulatory agency in water policy.

In 1902, Congress realized that lack of motivation or encouragement was not the cause of the slow settlement in the west. The cause was simply that the west was a semi-arid desert with little water available for farming. To combat this, Congress passed the Newlands Reclamation Act. The Reclamation Act established the Bureau of Reclamation for “the construction and maintenance of irrigation works for the storage, diversion and development of waters for the reclamation of arid and semi-arid lands” (Hunt, 1988). The Newlands Reclamation Act authorized construction of irrigation projects in sixteen western states and territories, to be financed by the sale of public lands in areas that benefit from these projects (Snow, no date). Each irrigator was limited to water needs for a 160 acre family farm. The act set the stage for increased government involvement in water policy, supply and management.

Severe flooding occurred along the Missouri and Mississippi Rivers in the spring of 1917, causing loss of life and property. People in the affected areas turned to Congress for help. In late 1917 the first of many flood control acts was passed. Congress appropriated \$45 million for work in the lower Mississippi basin and \$5.6 million for the Sacramento river (Corps, 1986a). All the flood control acts appropriate huge amounts of federal money to improve flood control by building dams, levees, canals and dredging river and harbors.

The increased construction of civil works projects along major waterways resulted in an expansion of the Corps authority in 1927. Upon Congressional request, the Corps conducted comprehensive surveys of river basins throughout the U.S. and developed plans for hydropower, flood control, and irrigation projects in combination with navigation (Corps, 1986a). The Corps' main responsibilities were flood control, hydropower and navigation; the Bureau of Reclamation emphasized irrigation projects.

The increase in the number of civil works projects had a notable negative effect on fish and other wildlife. The response from Congress was the Fish and Wildlife Coordination Act of 1934 (16 U.S.C.A. 611 et seq.). The act required the Corps, the Bureau of Reclamation and any other federal agency developing water projects to consult with the Fish and Wildlife Service regarding impacts (Audubon, 1989/90). The Fish and Wildlife Service would then propose protection and mitigation plans (where feasible) for the proposed project. These plans were only requests and were therefore rarely used by any agency. The Fish and Wildlife Coordination Act was the first of many acts that requested that water development agencies consider protection and mitigation for fish and wildlife in the proposed projects.

Regulation of water projects increased with the Flood Control Act of 1936 (33 U.S.C.A. 701a) which required that a cost/benefit ratio analysis be completed for each project. Congress wrote; "the benefits to whomsoever they may accrue, [must be] in excess of the estimated costs" (Corps, 1986a). This statement was intended to limit federal involvement to only those projects that had a net benefit. However, a variety of accounting methods that diluted costs were employed by the Corps. Secondary project benefits such as local employment benefits, land improvements, and value of damage prevented, were combined with direct benefits, and low discount rates were computed for the present value of future benefits. Adding the direct and secondary benefits together allowed many questionable projects to pass the net benefit test. Also, none of the projects were evaluated for potential adverse environmental effects, only economic factors were considered (Audubon, 1989/90). The 1936 Flood Control Act recognized that flood control was "a proper activity of the Federal Government in cooperation with states, their political subdivisions, and localities thereof" (Corps, 1986a).

Following the Missouri flood of 1943 another Flood Control Act was passed. This act (1944 Flood Control Act) included 316 projects, 112 that were dams, most on the main stem of the Missouri. The act, better known as the Pick-Sloan Plan, included flood control, hydropower, irrigation and recreation projects. The plan was a cooperative agreement between the Army Corps of Engineers and the Bureau of Reclamation. The Narrows dam and reservoir, northeast of Denver on the South Platte River, was one of many projects named in the plan. The Narrows unit has not been built because the dam site has been likened to the Teton Dam in Idaho, which collapsed during filling (Reisner, 1986); hence no federal agency will build it (as yet). In the years that followed, the Corps built over 300 reservoirs in the name of flood control. All of these water projects authorized by Congress through the various Flood Control Acts required an ever-increasing portion of the federal budget.

In 1959, President Eisenhower attempted to control the expanding budget for federal water projects by vetoing a public works appropriations bill. This was the first attempt by a President to reduce spending on federal water projects. President Kennedy also realized that federal water projects consumed millions of dollars in tax money and that regulation was needed. Kennedy submitted the Water Resources Planning Act (42 U.S.C. 1961 et seq.) to Congress that called for the creation of a Water Resource Council. The Council would establish principles, standards and procedures for federal water projects and would consist of the secretaries of Agriculture, Interior, and Health, Education and Welfare. The Act became law in 1965 under President Johnson (Audubon, 1989/90). Following the passage of the act, the Council established uniform standards for the evaluation of projects and recommended changes in the entire federal water resources program (Hunt, 1988).

The Sixties and Seventies

Laws and acts of the sixties and seventies represented a more rapid evolution of national policy toward greater protection of the environment and our national resources. A move from economic development of basins to development for municipal and recreational purposes occurred during this time. The Wild and Scenic Rivers Act of 1968 (16 U.S.C.A. 1271) was the first piece of major legislation to significantly affect water resource planning. The Wild and Scenic Rivers Act states:

It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dams and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes (P.L. 95-625).

The law designated portions of eight rivers and identified another twenty-seven for study and possible inclusion (Palmer, 1986). However, before the bill was passed the federal water development agencies made sure no rivers with proposed dams projects that they wanted were included. For example, Aubrey Wagner, chairperson of the Tennessee Valley Authority, objected to including the Tellico Dam site because "planning and construction of water control and development projects have progressed to a point which would make it inappropriate to include" (Palmer, 1986). Limiting the ability of federal agencies to plan and construct water projects on certain rivers, albeit a small number,

was a big victory for the conservation movement. Yet, this was only one of several acts that would regulate water development agencies.

Another law that significantly affected federal water resource development (and all other development) was the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C.A. 4321 et seq.). NEPA required federal agencies to analyze environmental impacts that may be caused by any proposed project, and created the Environmental Protection Agency to write federal standards and procedures for NEPA evaluations (this authority was later given to the Council on Environmental Quality). NEPA required all agencies to study all proposed projects, and if environmental impacts appeared to be significant, a detailed environmental impact statement (EIS) was to be completed and circulated for comments. This act opened up the planning process of the Corps and other agencies to public review and comment. The review process resulted in intense criticism concerning many projects and the planning process altogether. NEPA remains the key to public review of proposed development projects and a method for the public to stop, change or improve these projects.

The most substantial change in regulating the development of water projects occurred in 1972 with the passage of the Clean Water Act (33 U.S.C.A. 1251- 1376, P.L. 95 - 217). Authority to regulate point source (from the end of a pipe) pollutant discharges, including dredged or fill material into the waters of the U.S. moved from the Corps to the Environmental Protection Agency (EPA). The Corps still conducted the preliminary studies and either did or did not approve the permit. Once the Corps approved the permit application, the EPA reviewed the Corps findings and either approved the permit or began a veto process to prohibit or alter the proposed project. Historically, the Corps interpreted its authority narrowly and included only navigable waters. A large

number of lawsuits and court decisions have enlarged the review process to include streams, lakes and wetlands in the Section 404 (part of Clean Water Act) permit application process. The EPA's role in the Clean Water Act will be discussed later.

The Endangered Species Act (1973) protects species of plants and animals that are listed as threatened or endangered as determined by the Department of the Interior. Section 7 of the act required federal agencies to consult with the Fish and Wildlife Service before permitting, funding or constructing a project. The Fish and Wildlife Service conducts a biological study to determine if the proposed project will jeopardize a listed species. If they determine the project will jeopardize the continued existence of a species, the project cannot move forward. The Fish and Wildlife Service can suggest mitigation measures and alternative scenarios that are within an acceptable range of loss of habitat or listed species. The Corps works very closely with the Fish and Wildlife Service during an EIS for a water project. This allows the Corps to alter the project and add mitigation measures that may allow the project to pass the 404(b)(1) permitting test.

The Endangered Species Act has complicated the permitting of many water projects, especially dams. The Tellico Dam in Tennessee was already under construction when a biologist discovered a rare species of fish, the snail-darter. In 1975 the snail-darter was added to the endangered species list, thus requiring federal protection. Environmental organizations took the case to court. On appeal, the Supreme Court held that, according to the Endangered Species Act, the fish must be saved. Yet, Congress passed a water and energy bill with a Tellico dam pork barrel amendment attached, written by Howard Baker (R-TN): The Tennessee Valley Authority would complete and fill Tellico

dam notwithstanding the Endangered Species Act and “all other laws” (Palmer, 1986). The dam was filled in December 1979.

In the Northwest a controversy is just beginning concerning salmon and the dams on the Columbia River. Salmon were once plentiful, but overfishing and dams which severely hinder the ability of salmon to swim upriver to spawn have caused the populations to decrease dramatically. Currently, the Fish and Wildlife Service is considering listing five salmon species as threatened or endangered. Listing these species will alter the existence of some dams and the functioning of others.

Water policy has been changing since President Eisenhower first tried to limit federal spending on water projects. Since then a requirement of cost-sharing between the federal government and the state to benefit from the project has decreased the number of water projects being proposed. Also, laws such as the Clean Water Act and the Endangered Species Act regulate the federal agencies, as do reserved water rights for Native American tribes and wilderness areas. But, it was the Carter Administration that brought water projects to the forefront of politics. While Jimmy Carter was Governor of Georgia, the Corps of Engineers had a proposal for the Spewrell Bluffs Dam on the Flint River in Georgia. The project was opposed by many environmental groups, some with connections to Governor Carter. These groups asked Carter to veto the project. Carter requested a copy of the proposed project and analyzed it himself (Carter graduated as an Engineer from the U.S. Naval Academy in Annapolis, MD). His conclusions were that the Corps used “computational manipulation” and he vetoed the project (Reisner, 1986).

When Carter became President, the federal water bureaucracies were spending over \$5 billion each year (Reisner, 1986). With the increasing deficit, Carter wanted to cut federal expenditure for dams. Carter desperately tried, but

failed to stop federal funding of dams. He had a hit list of what he felt were the ten worst dam projects proposed. His lack of success could be attributed to the strength of the western states and the federal water bureaucracy. Still, President Carter did manage to increase the non-federal portion of cost-sharing and converted the Water Resource Council's Principles and Standards into enforceable rules. Also, federal funding for water projects did decline and would continue to do so through the Reagan years.

The Reagan and Bush Years

President Reagan was not as vocal as Carter concerning federal spending on water projects, but he too wanted to stop the large flow of money to these projects to reduce the deficit. Reagan simply told the Bureau and the Corps that projects would need partial funding upfront before an appropriation could be approved by the federal government. This small addition has caused few proposals to be submitted to either agency. But, Reagan directed the Water Resources Council to revise the Principles and Standards back into nonbinding guidelines and obtained Congressional approval to terminate the Water Resources Council (Audubon, 1989/90).

The threat of a Presidential veto caused Congress to authorize very few water projects throughout 1976 - 1986. But, in 1986 the Water Resources Development Act (P.L. 99-662) authorized several new projects and project studies. The bill was supported by Reagan only because it included policy changes and cost-sharing provisions that had long been sought to control "pork-barrel" projects. However, the bill did not include federal appropriation dollars. Administrative support for appropriations to begin construction has been extremely important since 1978 when President Carter vetoed a public works appropriations bill (1979). According to a Council on Environmental

Quality publication, Carter vetoed the bill because it included funding for more than two dozen projects that did not meet his minimum economic or environmental standards (Audubon, 1989/90).

The Bush Administration has also regulated water policy with its “No Net Loss of Wetlands” campaign. In *Field and Stream’s* October 1990 issue, President Bush stated that he stands behind his pledge “to protect these critical areas of biological and ecological diversity by working toward a no net loss of wetlands. We must strive to end the needless filling and draining of wetlands, and work toward the creation of new wetlands”. Wetlands provide fish and wildlife habitat, flood storage, pollutant filtering, and erosion buffering.

In recent years wetland acreage has declined from 215 million to 95 million acres. This has resulted in local weather changes, declines in duck and fish populations and reduced capacity of wetland systems to moderate effects of droughts, floods and pollution. The no net loss of wetlands campaign has resulted in fewer authorizations for development projects that may have adverse effects on wetlands. During his Presidency, Bush has also authorized expenditures to dechannelize rivers, restoring them to their historical river beds. For example, the federal government authorized the Corps to return the Kissimmee River to its original meandering water course.

Under President Bush’s direction the EPA is currently revising the definition of wetlands. The new definition, if approved, would allow the destruction of millions of acres of wetlands by allowing filling and dredging in areas that were previously protected by section 404 of the Clean Water Act. The Corps, the EPA, and other agencies currently use a guide, called the 1989 Wetlands Delineation Manual, to identify and determine the boundaries of wetlands. The proposed new manual would exclude from protection under the Clean Water Act, 10 to 30 percent of all lands currently delineated as wetlands.

Bush's policy has been to delegate domestic issues to state and local governments to deal with. In many instances state and local control is good, but many environmental issues cross state and national boundaries. Moreover, environmental quality and natural resources need some federal protection so states and localities do not compete for business by weakening environmental protection. Hence federal agencies and acts serve to protect each state's interests. Following the EPA veto of the Two Forks project, spokesmen for the city of Denver stated that the Bush Administration was frustrating Denver's efforts to build its own long-term water supply completely with local moneys in contradiction of the "local responsibility" themes of the Bush campaign (DWB, 1989). But the EPA should not rubber stamp a project because the federal government/taxpayers aren't footing the bill. If permits were based solely on who pays, then regulation of air and water quality would not occur.

Role of the EPA

The Environmental Protection Agency (EPA) has direct authority for several aspects of the 404 - Clean Water Program. In Section 404(b)(1) the EPA issues guidelines that set the standards for the Corps' review for 404 permit applications. These guidelines (45 Fed. Reg. 85337(1980))¹ set the stage for Corps and EPA analysis of the proposed projects. EPA polices

¹ The 404(b)(1) Guidelines identify a series of restrictions on the discharge of dredged or fill material including: 1) only the least damaging practicable alternative may be permitted(231.10(a); 2) a prohibition against any discharge that causes or contributes to violations of State water quality standards or jeopardizes the existence of threatened or endangered species 230.10(b); 3) a prohibition against permitting any discharge that causes or contributes to significant degradation of waters of the U.S., as demonstrated by evaluations conducted pursuant to Subparts C through G of the Guidelines; and 4) a requirement that appropriate and practicable steps be taken to minimize potential adverse impacts before a discharge may be permitted 230.10(d).

compliance with the guidelines by providing the Corps and applicants with comments, and, if necessary, by invoking its veto authority under section 404(c). Also included in this section is EPA's authority to define areas in which dredge and fill material discharges are restricted or prohibited. The Administrator of EPA delegates this authority to the Assistant Administrator for Water, who allows Regional Administrators to make the preliminary decisions.

Section 404(c) provides the EPA with the authority to withdraw, or veto any discharge permit granted by the Corps if the EPA determines that the discharge "would have unacceptable adverse effects on fish and shellfish (including spawning and breeding grounds), municipal water supplies, wildlife, or recreation areas" (33 U.S.C. 1344(c)). If the Regional Administrator believes that the discharge of dredged or fill materials will have an unacceptable adverse effect, he/she notifies the Corps and the applicant that he/she intends to issue a proposed determination. This action initiates the veto process. The applicant and Corps are given 15 days to demonstrate that no unacceptable adverse effects will occur, or that corrective action will be taken to prevent such effects. A notice of the proposed determination is filed to solicit comments from the public on EPA's actions. Following the comment period, a final determination is made by the Regional Administrator who then sends all documents to the Assistant Administrator for Water to review and ultimately to issue a final decision to affirm, modify or rescind the Region's recommendation. The Applicants and Corps have an opportunity to meet with the Administrator concerning the determination. The final determination by the Assistant Administrator for Water is the final agency action on the matter.

The EPA has been criticized by environmental organizations and officials in other agencies for rarely invoking its 404(c) veto authority. As of January 1, 1989, the EPA had initiated its 404(c) authority only eighteen times since its

inception in 1972 (Audubon, 1989/90). Of the eighteen initiations, only eight have led to vetoes (of the remaining ten, seven are still in review, and 3 reviews have been terminated). Five of the eight were initiated in Region IV, based in Atlanta. Coincidentally, Lee DeHihns is the Deputy Region IV Administrator appointed to review the Two Forks Project by the EPA.

Table 1 is a list of permitted projects by the Corps and the veto findings of the EPA (Audubon, 1989/90). None of the vetos dealt with large dam projects and only three were water dependent. Of the thousands of permits the Corps reviews each year it is difficult to believe that only eighteen of these projects would trigger a 404(c) review by the EPA. This is especially alarming considering the Corps has been reading and enforcing the 404(b)(1) Guidelines differently than the EPA. According to a 1988 report from the General Accounting Office (GAO), the Corps differs with the EPA and other federal agencies over the determination of practicable alternatives and the proposed actions water dependency (Audubon, 1989/90). The GAO stated that the Corps gives too much weight to the applicant when determining practicable alternatives in economic terms, rather than determining its own list of what are environmentally practicable alternatives. The Corps' reliance on its "public interest review" process to evaluate and balance factors relevant to the permit application is the source of many problems the Corps has with other agencies. Potential adverse environmental impacts are compared to economic gains, or are simply downplayed by mitigating the proposed project before applying the 404(b)(1) Guidelines tests. It was not until November 15, 1989 that the Corps and EPA signed a Memorandum of Agreement stating that the two agencies will, from now on, first avoid impacts, then minimize, and finally compensate. For years the Corps would mitigate the projects first and then determine the least damaging alternative. The EPA Guidelines state that the least damaging

alternative should be chosen and then mitigated. This difference of opinion between the two agencies should have triggered a review by the EPA before the Two Forks project in 1988.

In recent years the number of proposed water development projects has declined, mainly because of the non-federal cost-sharing requirement and a lack of good building sites. Still, there are several proposed projects that could be built, including the Narrows project in northeastern, Colorado, if money were available. Dams and large water projects cost millions of dollars, and few taxpayers are willing to vote for a tax increase to pay for these projects. The Two Forks project was atypical because no federal funds were requested for construction; the city of Denver and the Water Providers (ie local taxpayers) were paying for construction. However, not all federal agencies were paid by the DWB for the EIS study, and some mitigation would have been completed by the Fish and Wildlife Service once land was purchased. Despite the lack of major federal financial obligation, a hinderance to most projects, Two Forks was still vetoed by the EPA. This was the first dam project vetoed by the EPA since its inception in 1972.

According to the EPA the basis for the veto was that Two Forks was not the least damaging alternative, a requirement in the 404(b)(1) Guidelines and now in the Memorandum of Agreement (MOA) between the EPA and the Corps. The MOA as written will severely regulate the number and size of water dependent projects that can be permitted in the future. The stipulation that the least environmentally damaging alternative must be chosen first, has changed the course of water policy and water development for the future. Environmental impacts caused by projects now rank equally with economic, municipal, industrial and irrigation needs.

Table 1. Section 404 Permit Veto Actions Completed by the EPA (Jan. 1, 1989). Taken from Audubon Report 1989/1990, pg 44.

Projects Permitted by Corps	EPA Findings of unacceptable adverse effects on:	Applicable Provision of Section 404(b)(1) Guidelines
North Miami Landfill Site; Municipal landfill in N. Miami, Fla.; Reg. 4	Shellfish beds, fishery areas, wildlife due to landfill leachate	-
M.A. Norden Site; fill for recycling plant in Mobile, Ala.; Reg. 4	Fishery areas and shellfish bed due to loss of detrital export; wildlife due to habitat loss; cumulative impacts	230.10(a) alternatives available
Jack Maybank Site; impoundment for duck hunting and aquaculture on Jehossee Island, S.C.; Reg. 4	Fishery areas due to loss of habitat and detrital export; recreational areas; cumulative impacts	230.10(c) significant degradation
Bayou aux Carpes; flood control via levees and pumping in Jefferson Parish, La.; Reg. 6	Shellfish beds due to loss of detrital export; fishery areas and wildlife due to habitat loss; recreation; cumulative impacts	-
Sweeden's Swamp Site; fill for shopping mall in Attleboro, Mass.; Reg. 1	Wildlife due to avoidable habitat loss; mitigation questionable and inappropriate; cumulative impacts	230.10(a) alternative site available when applicant entered market; mitigation not appropriate in lieu of alternative
Russo Dev. Corp. Site; existing/proposed fill for existing/proposed warehouses in Hackensack Meadowlands, N.J.; Reg. 2	Wildlife due to avoidable habitat loss; mitigation inadequate; cumulative impacts	230.10(c) significant degradation; 230.10(a) minimum adverse effects; 230.11(g) deter. cumulative impacts
Rem, Becker, Senior Corp. Sites; rockplowing for agricultural conversion in East Everglades, Fla.; Reg. 4	Wildlife due to habitat loss; cumulative impacts	230.10(c) significant degradation; 230.11(g) deter. cumulative impacts
Lake Alma site; proposed recreational impoundment in Hurricane Creek, Bacon, Co., GA.; Reg. 4	Wildlife due to habitat loss and habitat fragmentation; cumulative impacts	230.10(c) significant degradation; 230.10(d) inadequate mitigation

Chapter 3

History of the Proposed Two Forks Dam and Reservoir

Denver's need for water has resulted in an elaborate water system of transmountain transfers, diversions, canals, and water storage facilities (see Figure 2, pg. 8). Yet, this intricate delivery system cannot quench Denver's thirst. Denver and the surrounding suburbs continue to look for new water sources and ways to hold large quantities for future needs. In recent years the Denver Board of Water Commissioners (DWB) focused its energy on the South Platte River.

The planning of a new water project on the South Platte river began in 1931 when the city of Denver filed for a right-of-way with the Forest Service. In 1942 Denver's Water Board began to buy land along the South Platte river corridor. The South Platte river already contains seven water storage facilities with several others proposed, including Estabrook (North Fork of the South Platte River), a larger New Cheesman (built on top of existing dam structure) and Two Forks (see Figure 2, pg 8). Two Forks Reservoir would be built at the junction of the North Fork and the main stem of the South Platte.

The DWB has previously tried to build two other dams in New Cheesman Canyon (roughly in the same location as Two Forks). The Bureau of Reclamation studied the Upper South Platte Storage Unit as a possible federal project. The report from the Bureau identified major concerns including the need for more east slope storage, the role of conservation, availability of alternatives and the value placed on recreation and wildlife (EPA, 1990a). Many of these same concerns surfaced in the proposed Two Forks project. The United States Fish and Wildlife Service (USFWS) stated the Upper South Platte Storage Unit project "was the least desirable choice" (EPA 1990a). Based on the Bureau's steering committee's determination and the comment by the

USFWS, the Bureau decided not to pursue the project further. In 1950 the Colorado Water Conservation Board vetoed the Blue River - South Platte project. In 1974, Governor Vanderhoof vetoed the proposed Upper South Platte Storage Unit. Both projects were vetoed based on being unacceptable and unnecessary (Co. Env. Caucus, 1989).

Foothills Consent Decree

In the early 1970's planning efforts increased with the proposed Bureau of Reclamation's Upper South Platte Storage Unit (vetoed by Governor Vanderhoof) and the DWB's proposed Foothills Project. The Foothills project included the Strontia Springs diversion dam (see Figure 2, pg. 8) and the Foothills Tunnel and Treatment Plant (Corps, 1988). The Foothills project raised several concerns including compliance with National Environmental Policy Act (changing lead agencies from the Bureau of Reclamation to the Corps for the project), permitting requirements under Section 404 of the Clean Water Act (CWA) and cumulative environmental impacts caused by this and future projects proposed. Litigation concerning the Foothills project was initiated by opponents of the project. The result was an out-of-court settlement called the Foothills Consent Decree (77-W-306) signed in 1979 by all parties involved.

The Foothills Consent Decree involved the cumulative affects of the proposed Strontia Dam (on the South Platte River) and the Foothills Water Treatment Plant. The emphasis of the litigation concerned the effects caused by these and future water projects on the west slope of the continental divide in Colorado. The Decree required that a Systemwide Environmental Impact Statement (SEIS) be conducted before any other water permits could be issued

to the DWB. The Decree included a water conservation program that would reduce the need for future water projects if implemented and enforced.

Systemwide Environmental Impact Statement

In 1981, Colorado Governor Lamm convened the Metropolitan Water Roundtable to address water supply issues. The Roundtable consisted of 30 representatives and included members of the DWB, Metropolitan Water Providers, the environmental community (2 seats) and the West Slope interests (representatives from governmental, political, industrial and commercial interests who live on the West Slope of the Divide). The purpose of the Roundtable was to negotiate, by consensus, a plan for future water supplies for the Denver Metropolitan area and suburbs. The DWB came into the Roundtable with a proposal for Two Forks Dam and Reservoir on the South Platte River. Many individuals on the committee felt that the environmentalists would not endorse the Two Forks project and tried to remove them from the Roundtable in 1982 and again in 1983 (Luecke, 1990). The Roundtable met periodically, discussing possible water system models for the Denver metropolitan area.

In December 1981, the DWB requested the preparation of the Systemwide EIS, required by the Foothills Consent Decree to document the environmental effects of the proposed future development of the Denver Water Departments' water supply system (Winckler, 1989). The DWB requested that the Army Corps of Engineers (Corps) be the lead agency for the project. The purpose of the Systemwide EIS was to plan for future water projects and study cumulative effects for the various possible projects on the Platte and West Slope Rivers. In 1984, before completion of the Systemwide EIS, the DWB requested a site specific EIS for Two Forks Dam.

Draft Environmental Impact Statement

The Corps combined the Systemwide EIS and the site specific EIS on the condition that a permit for Two Forks would not be submitted until the studies were completed. Two years later (1986), before completion of the combined EIS, the DWB submitted permit applications for Two Forks Dam and Reservoir. The DWB submitted a 10 point project purpose with their application³. However, the Corps reduced the purpose of the proposed project for the Draft and Final EIS to; "provide a dependable water source for the Metropolitan area" (Corps Draft EIS, 1986b, Corps Final EIS, 1988). The Corps, in conjunction with the EPA, eliminated most of the DWB's ten points, stating the points narrowed the alternatives available or were not an element of the overall project purpose (EPA, Appendix A, 1990a). The Corps provided public notice of availability of the Draft EIS and Section 404 permit application for the Two Forks dam and reservoir project in December of 1986. The Draft EIS indicated that Two Forks was the most environmentally damaging alternative (Corps, Appendix 4C, 1986b).

EPA submitted comments to the Corps concerning the Draft EIS in April of 1987. The EPA rated the draft EU-3, environmentally unsatisfactory - inadequate information. According to EPA staff, the basis for the rating was "that adverse environmental impacts of the project would be significant and an appropriate mitigation plan had not been developed" (EPA, 1987). EPA also commented that the Draft EIS inadequately addressed "potentially significant

³Project Purpose; Provide needed long-term water supplies; Provide the greatest amount of water at the least unit cost; Alleviate planning uncertainties; Maximize the utility of Denver's existing waterworks system and water rights; Minimize institutional and legal barriers to the development of the needed water supply; Avoid precluding postproject alternatives or requiring early development of additional projects; Develop the best available reservoir site; Provide sufficient "reserve" water supply and security against system interruptions; Build on metropolitan cooperation; and Protect the State's agricultural economy

water quality standards violations and failed to fully address reasonably available alternatives which had the potential to reduce or eliminate the significant adverse environmental impacts" (EPA, 1987). The EPA recommended that the Corps prepare a supplement to the EIS addressing those issues.

Environmental Caucus and Citizens

In a letter to Jim Sherer, Regional EPA Administrator, the Colorado Environmental Caucus (Caucus) submitted several concerns they had about the Two Forks project as described in the DEIS (April, 1987). Their concerns included its effects on endangered species in Colorado and Nebraska, the elimination of a Gold Medal trout stream, water quality degradation, the hydrologic model used, project costs, reduced recreation possibilities for Denver citizens, and finally, that the DWB had not followed the Foothills Consent Decree that required conservation and a Systemwide EIS (Co. Env. Caucus, 1987). The Caucus also submitted a list of major flaws in the Draft EIS during the public hearings. The Caucus stated that; "the EIS gives one the impression that Two Forks is the most cost-effective and least expensive means of obtaining water for the Denver metropolitan area, and if one looks carefully through the data in the appendices this is obviously not true" (Co. Env. Caucus, 1987). The Caucus also stated that the demand projections used in the Draft EIS are arbitrary and that the Denver Regional Council of Governments (DRCOG) has disowned these estimates for planning projects (Co. Env. Caucus, 1987). The Caucus listed several other major flaws that included: underestimates existing water supplies, distorts project costs, shows false impression of the need for the project and inconsistencies among projects, lacks conservation programs, inadequately discusses water quality and

antidegradation of streams especially for West Slope streams, has serious flaws in the No Federal Action Alternative, fails to comply with the Endangered Species Act, fails to examine a complete range of mitigation options, and fails to include proponents' mitigation plan and total costs of these plans. In fact, the Caucus feels that the flaws are "so serious that they distort, almost beyond recognition, the message of the EIS..." and that the Corps should prepare a supplement (Co. Env. Caucus, 1987).

Comments from concerned citizens and groups also indicated that the Two Forks project was environmentally damaging and not needed. Over 3,000 people made comments at the public hearings, 95% opposed the project as written in the Draft EIS (Co. Env. Caucus, 1987). Concerns of citizens included protecting the environment, economic feasibility, and alternative water supplies (EPA, Appendix A, 1990a). Many individuals questioned the need for the dam and suggested that there were less damaging alternatives available that would be less costly to build and maintain. Some of these individuals were members of the Region VIII (Colorado) EPA, Fish and Wildlife employees, citizens of Denver, Colorado Governor Roy Romer and others (EPA, 1988b, Gov. Romer, 1988, EPA, 1990a). The Corps released the Final EIS in March of 1988. Again the EPA, the Environmental Caucus and many citizens of Denver opposed the project as described in the Final EIS (Corps, 1988).

Final Environmental Impact Statement (March 1988)

Concerns of Environmental Groups

In June of 1988 the Colorado Environmental Caucus submitted its comments to the EPA and Corps concerning the FEIS. The Caucus was concerned with the rationale for a requested 25 year shelf life of a project that the DWB stated it "needed" to develop now. According to the Final EIS, future

water demands will increase over time despite the metering system that the DWB said it would install and other conservation measures that should have begun with the Foothills Decree. Also included was the questionable cost of Two Forks, the limited number of practicable⁴ alternatives and the questions of by whom and how the project will be paid for. The Caucus also questioned the scientific studies on hydrology, impacts on threatened and endangered species, wetland habitat destruction and water quality issues. Furthermore the FEIS states an increase in recreational visitor days will occur because of the reservoir. Yet, the water level will drop below the minimum pool level (altitude 6, 180) set by the Corps eight to 13 out of 28 years (Corps 1986b). These values do not lead one to believe visitor days will increase when for several years the reservoir will be unusable because of poor access to the water (boat ramps, etc. will be far from water and walking/swimming access will be limited due to silt deposits).

A major source of controversy was the questioned need for a large water storage project in the South Platte Canyon. Information concerning the dam's "need" was vigorously questioned by environmental groups, local citizens and the EPA. The DWB stated that 65% of the water stored will be consumed by single family homes, half of that water will be used for lawns (Winckler, 1989). The economic and environmental impacts of this project would occur mainly because many citizens of Denver want to grow lush midwestern lawns. The EPA, the Caucus and a private engineering firm submitted alternative water supplies that would meet the needs of Colorado for at least 40 years (Co. Env. Caucus, 1989d, Wright Water Engineers, Inc., 1988, EPA, 1988b). The need for

⁴Def. of Practicable from EPA 404(b)(1) Guidelines: An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology and logistics in light of overall project purposes (Sec. 230.10(a)(2).

the Two Forks project is questionable when less damaging alternatives exist. Also, implementation of the conservation measures set forth in the Foothills Decree should reduce total water consumption, reducing the need for a large water storage project.

Governor Romer

On June 10, 1988, Governor Romer questioned the need for Two Forks in a statement to the people of Colorado. Governor Romer opened his statement by saying:

“Colorado should build Two Forks only as a last resort. I challenge the residents of this state to find an alternative solution. Opponents of Two Forks are absolutely correct that significant supplies of water currently exist for the Denver metropolitan area and that sensible plans for water conservation and the development of known interim supplies of water could add years to the region’s water supplies. However, to make these mathematically calculable supplies work for the entire metropolitan area, various entities, including the Denver Water Board, must agree to share water, must conserve and must act jointly to develop other interim supplies. Every water authority in the Denver area has concluded that it will not do these things unless they also hold an “insurance policy” guaranteeing additional South Platte storage. ... In fact, if Two Forks is permitted, it will be pushed back many years as other water supplies are developed. ... Therefore, it would be irresponsible for me to destroy the Denver area’s insurance policy. I urge the Corps of Engineers to grant a permit for Two Forks with a 25 year shelf life (Gov. Romer, 1988).”

Governor Romer admits the project is unnecessary and alternatives exist that can meet the needs of the Denver metro area. The fact that the DWB and Water Providers said that they would not share water unless Two Forks was permitted should not weigh in the final determination of need. Refusal to pursue other practicable alternatives unless guaranteed the right to pursue their (the DWB and Water Providers) preferred alternative does not constitute a ‘need’ for the project. However, it seems that no other project no matter how feasible will

satisfy the DWB and the Corps. But, why would the Water Providers work together and begin conservation practices if they hold the permits to build Two Forks? It would be unreasonable to assume that after spending over \$40 million for the EIS's (Systemwide, Draft and Final) that these agencies would hold off and look for other more reasonable and less damaging alternatives (spending more money) when they already hold the required permits for a storage facility. Also, the water utility companies would have difficulty in explaining the increase in water rates caused by further studies when they already hold the permit for Two Forks.

Cost Concerns

From 1982 to 1987, as the EIS process progressed and mitigation requirements increased, the total cost of the dam and reservoir also increased. The final cost estimate of the dam and reservoir was \$500 million to \$1 billion plus a mitigation plan of \$90 million. 80% of these costs are to be borne by 40 suburban cities and water districts. The *Denver Post* (June 26, 1989) reported that the utility districts and cities will attempt to finance their portions using bonds. The city of Aurora, for example, would pay at least \$72.5 million for Two Forks (1989 estimate). According to the *Arkansas Valley Journal*, several Colorado water brokers have told their clients that the Two Forks water will cost Denver area users about \$12,500 per acre-foot if the project is built (Ark. Valley Journal, 1/26/89). Based on EPA's estimate that one acre-foot will satisfy a family of four for one year, a family of four would pay approximately \$12,500 each year for water! Many cities can not issue a bond to cover their costs and will need to hold a local referendum to raise property taxes to back their repayment plan. Two Forks had not even begun to be built and the costs were

mounting; the EIS reached over \$40 million, the mitigation plan cost had doubled, the cost of water has sky-rocketed.

Suprisingly, the increasing costs of the project were rarely mentioned as a reason for opposing the project. *The Rocky Mountain News* (4/25/89) conducted a poll of Denver voters in April, 47% opposed, 32% supported the dam and 21% were undecided. The reasons most often given for opposition were: loss of recreation benefits, impacts to wildlife in both Colorado and Nebraska, and the conviction that the project was not needed.

EPA Concerns

The more detailed Final EIS did address some concerns raised during the public hearings and by the EPA; still, the EPA concluded that several issues were not adequately resolved. The EPA's comments on the Final EIS identified several outstanding concerns such as: 1) lack of a definite mitigation plan, 2) length of the proposed permit, 3) adequacy of the implementation program for "interim" water supplies and effective conservation, and 4) the lack of a "re-opener" of the permit process in the future to reassess project need (EPA 1988a). EPA indicated that, even with the improved mitigation measures, the Two Forks dam and reservoir remained the most environmentally damaging alternative. The above conclusions were included in a memo sent to Col. Steven West (Corps, Omaha District Engineer) on May 26, 1988 from James Sherer, Region VIII Administrator. Sherer also stated he would probably allow the permit if the above four problems were solved adequately. However, Sherer's memo to the Corps only mentioned three of the four reasons that his staff gave him for the necessity of denying the Two Forks permit. In an internal memo dated May 20th, Dennis Sohocki, Two Forks EPA Project Manager, listed

several reasons why the Two Forks project could not be permitted under the Clean Water Act.

Based on the project's importance and impacts, the staff members (Sohocki, Reetz and Richard-Haggard) felt it necessary to complete a detailed 404(b)(1) analysis⁵. The EPA's role in the 404 process is to review applications for compliance and submit any comments and recommendations to the permitting authority; in this case the Corps. In their memos to Sherer the Regional EPA staff members concluded that:

1) Neither a large Two Forks nor a staged Two Forks would comply with the Section 404(b)(1) Guidelines.

2) Several less environmentally damaging practicable alternatives to Two Forks exist, including New Cheesman, large and small Estabrook, small Two Forks, the No Federal Action alternative, and alternative sources from the Systemwide EIS scenarios. Therefore, under the 404(b)(1) Guidelines, a permit for Two Forks cannot be issued.

3) Two Forks would result in "significant degradation to waters of the United States" (even after taking into consideration the proposed mitigation plan); thus, under the 404(b)(1) Guidelines, a permit for Two Forks cannot be issued.

4) All appropriate and practicable mitigation measures have not been included. Therefore, under the 404(b)(1) Guidelines, a permit for Two Forks cannot be issued. (EPA, 1988b)

EPA also felt that the Final EIS did not address "all reasonable alternatives", though the Corps felt that it had. The EPA stated that the Corps' No Federal Action (NFA) alternative was a "strawman" alternative with biased assumptions such as no sharing and each Provider independently building satellite well

⁵The Clean Water Act (404) prohibits the discharge of dredged or fill material into the waters of the United States unless the proposed activity is in compliance with the Section 404(b)(1) Guidelines (40 CFR Part 230). The Guidelines are written by the EPA. The Corps is responsible for completing and publishing the analysis.

fields, pumping, transmission, and treatment facilities. The EPA staff requested that the Corps assemble a more reasonable and cost effective NFA alternative. The Corps assured the EPA that it did not matter that there were other better NFA alternatives, all they needed was a reasonable NFA alternative (EPA, 1988c). In the Final EIS the Corps rejected its own NFA alternative as not practicable based on cost effectiveness. If the Corps' NFA alternative was not practicable and practicable NFA's do exist, the Corps should consider one of those.

One of EPA's criticisms centered on the way the Corps determined cost of each alternative and cost per acre-foot. For example, as the yield increased with the NFA⁶, the cost per acre foot decreased. The reasons for the cost decrease are unclear considering the projects are independent of each other. One assumes that cheaper water would be developed first, so as yield is added, the cost per acre-foot should increase. Also, EPA continued to state that "on a per acre-foot basis, Two Forks cost estimates have risen from \$281 in 1984 to \$594 in 1988. However, these estimates do not include salinity costs of over \$1 million, nor the costs of a backwater dam of \$141 million (the water brokers estimated \$12,400 per acre-foot). Nor do estimates include additional mitigation costs that might be required for impacts such as water quality. Thus while the Corps suggests that Two Forks is the most cost effective, the differences are likely to narrow over time" (EPA, 1988b). Yet, this is not the largest difference between the EPA's and the Corps' evaluations of the Two Forks project.

The largest difference between the two agencies centers on including mitigation to determine the least damaging practicable alternative. EPA staff

⁶The NFA alternative consists of several projects and includes nontributary groundwater, treated wastewater and exchanges at Williams Fork, Green Mtn. and Dillon

argues that it is inappropriate to include mitigation when determining the least environmentally damaging practicable alternative. (This issue is not only the major contention between these two agencies, but it is possibly the only reason Two Forks was vetoed.) The EPA considers minimization and compensatory-type mitigation when it is clear that the impacts are unavoidable, but if a less damaging alternative is available, the impacts should be avoided. On the otherhand, the Corps includes mitigation when determining adverse impacts on the aquatic ecosystem for each alternative. The Corps feels a project can be mitigated so that no impacts remain and thus, no alternative exists that could be less damaging. These two opposing views of the use of mitigation in determining the least damaging alternative (230.10) caused many problems throughout the review of the Final EIS.

The EPA regional staff also stated other concerns. EPA noted that the EIS process did not address fundamental differences between the Corps and the EPA on NEPA determinations and that the Corps took too narrow a view of the project goal and purpose as stated by the applicant. EPA also felt that the Corps' draft 404(b)(1) evaluation was lacking in depth and did not consider all mitigation or alternatives.

The Region VIII EPA staff determined that Two Forks dam and reservoir were not permissible under the Clean Water Act. This determination is clarified under their review of Section 230.10(c) Significant Degradation:

It appears that if the Corps permits Two Forks and allows the destruction of the South Platte Canyon, an irreplaceable resource with one of the most productive and highly used trout streams in Colorado, it will not be because of a lack of cost effective, viable and environmentally less damaging alternatives. It will not be because there is a pressing need for the project, nor because of strong public support or even clear support from public officials. Instead, it seems it will be because of largely institutional reasons. These reasons

include: the project proponent's institutional momentum behind Two Forks, the DWD's decision not to share interim sources unless Two Forks is built, the legal and political entanglements associated with transferring agricultural water rights to municipal and industrial purposes, the apparent prejudice against sources such as groundwater and water conservation, the use of institutional hurdles to tie up other alternatives such as Green Mt. Pumpback and Union Park, and the vested political and financial interests in seeing that water is provided only by Two Forks (EPA, 1988c).

These internal EPA memos (EPA 1988b and c) from Sohocki, Two Forks Project Manager and staff, to James Sherer were not released to the public, the Corps or the DWB at the time they were written (FOIA Exempt, May 20, and Oct. 11, 1988). However, James Sherer did send the Corps additional NEPA comments on the Final EIS. On June 9, 1988 the EPA provided the Corps with comments that addressed the following: 1) alternative water supply sources, 2) mitigation, 3) water quality, 4) aquatics, 5) wetlands, and 6) water conservation (EPA 1988a). At this time EPA also announced that it was considering invoking its 404(c) authorities under the Clean Water Act. This includes referral to a higher authority under Section 404(q)⁷ and elevation to the Council on Environmental Quality (CEQ). In a letter to the Corps and the applicants Sherer stated:

"EPA would again like to clarify the necessity to implement alternatives which would avoid the need for compensatory mitigation. Unless it is clearly demonstrated that an alternative project site or method of providing additional water supplies does not exist, or that alternative sites or methods will have fewer adverse environmental effects, avoidance of impacts is the required course of action (EPA, 1988a).

⁷ Under authority of 404(q) of the CWA, 33 U.S.C. 1344(q), the EPA and the Corps signed a Memorandum of Agreement on Nov. 14, 1989, which describes a process for attempting to resolve Agency differences over issuance of a 404 permit. This process is generally referred to as the 404(q) "elevation process". The procedure calls for referring disagreements over issuance of a 404 permit to a higher authority in the EPA and Corps chain of command (EPA, b-4, 1990)

Sherer states in his letter that the approach taken by the Corps is contrary to the thrust of the 404 Guidelines and fails to follow the policies of both agencies on appropriate handling of mitigation. During the previous six years, these concerns had been raised repeatedly in the EPA's comments to the Corps (EPA, 1990).

In November, 1988 James Sherer notified the Corps that the EPA was invoking 404(q) procedures. The Corp's handling of mitigation was the outstanding issue. Sherer wrote "... as you know, our agency does not agree with your statement that 'if Two Forks can be mitigated in such a way that there are few or no new impacts remaining, a future alternative would not preclude Two Forks from being the least damaging practicable alternative'. EPA does not believe it is appropriate to include mitigation when making the determination regarding least-damaging practicable alternatives" (EPA, 1988d). The Corps' evaluation procedure did not follow the sequence - avoidance, minimization and compensation- required by the Guidelines⁸.

Periodically throughout the entire EIS process Sherer met with Col. Steven West, Omaha District Engineer for Two Forks to discuss outstanding areas of concern. The issues included water conservation; interim supplies; public review of need and alternatives prior to construction; and mitigation of impacts to aquatics, wetlands, and water quality. Finally, the EPA reiterated that according to Section 230.10(a) of the 404 Guidelines, if a practicable alternative is available that would have a less adverse effect on the aquatic ecosystem, a

⁸Corps uses mitigation in 40 CFR 230.10(a) as defined by the Council on Environmental Quality at 40 CFR 1508.20 (NEPA) this includes, in order; 1) avoiding the impact altogether by not taking a certain action or parts of an action; 2) minimizing impacts by limiting the degree or magnitude of the action and its implementation; 3) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; 4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action and; 5) compensating for the impact by replacing or roviding substitue resources or environments.

permit cannot be issued for the more damaging alternative. Following the release of the Final EIS in March 1988, meetings were also held among the Corps, the applicants and the EPA to discuss these issues and develop permit conditions.

The EPA Regional Administrator had several concerns that had not been addressed in the Corps' draft permit conditions. These concerns include: 1) the need to develop and share at least 60,000 acre-feet of interim sources; 2) a requirement to review, prior to construction, the need for the project as well as any reasonable alternatives not already considered in site-specific detail unless the Corps issues a short-term (less than 10 years) permit (EPA, 1989a). The EPA also detailed, in depth, other water source alternatives and cooperation among the various water providers.

The EPA proposed that the Corps evaluate additional alternatives and not limit themselves to those evaluated in the EIS. Sherer's letter stated; "Moreover, the fact that one particular source of water is not equally available to all municipalities does not mean it should be discounted as a potential source of water supply for the metropolitan area" (EPA, 1990a). Two Forks will only meet 60% of the total water need and thus the water providers will be required to pursue other sources and work cooperatively for the remaining 40%.

Cooperation among the various providers can and should occur without the Two Forks project. Water planning is needed in a highly populated area such as the Denver Metropolitan area. The DWB recognizes this need and has entered into several agreements such as the Metropolitan Water Development Agreement and the South Platte Agreement¹⁰ to encourage water planning and

⁹The Metropolitan Development Agreement was signed in 1982. The agreement was made between the Denver Water Board and local water providers (elected officials representing more than 40 governmental units with constitutional and statutory responsibility to provide water to their customers). The suburban water providers

cooperation among the water providers. However, the conditions set forth in these agreements are not elements of the overall Two Forks project purpose. Since, historically the water providers have worked cooperatively; it is difficult to believe that this will suddenly stop because Two Forks will not be permitted. In fact, the need to work more cooperatively on water planning for the area may increase so all providers can offer water at competitive prices.

The EPA also noted the deference given to the applicants concerning contractual obligations and the need for water planning cooperation. Colonel Steven West wrote :

I [District Engineer] recognize the importance of the South Platte agreement to metropolitan cooperation. I recognize the importance of long-term solutions and I have also included reliability as a component of logistics. These are important benefits of the project; however, for reasons stated previously, alternatives that do not meet the Participation Agreement... may still be technically practicable (Corps 1989b).

Yet, the Corps discounted groundwater because it is not available to all Providers and discounted other alternatives for unknown reasons. Several meetings were held among the applicants, the Corps and the EPA to redraft the permit conditions. At this point it appeared to the Corps and the applicants that the EPA would approve the project.

During the redraft period (January to March 15) the Colorado Environmental Caucus decided to rethink their strategy and went straight to William Reilly, Administrator of the EPA. Mr. Reilly received a letter from the Caucus on January 30, 1989. The letter briefly stated the history of the Two

agreed to pay 80% of the costs of the Systemwide EIS and the DWB agreed to allow these entities to participate in, and receive yield from several projects. The South Platte Agreement was signed in 1983 by essentially the same governmental units. This agreement allows participation in a South Platte storage project.

Forks project and their concerns. The Caucus also explained the disagreement concerning the 404 permit between the EPA and the Corps. The Caucus listed several outstanding problems and requested to meet with Mr. Reilly in Washington D.C.. The letter was signed by the Presidents or Executive Directors of all nine environmental organizations. The strategy was effective because Reilly, a past Director of the World Wildlife Fund, knew many of the Directors personally. The Caucus met with Reilly in Washington D.C. on March 2nd. The Caucus discussed in detail their concerns including the 404(c) process, the draft permit conditions, available practicable alternatives and the DWB violating the agreement made in the Foothills Decree. The Caucus requested that Reilly initiate 404(c) proceedings to veto the permit. On March 9th the Caucus reiterated their concerns and again requested that Reilly initiate 404(c) proceedings to veto the proposed Two Forks project.

The Corps continued to work with the applicants (DWB and MWP) on the permit conditions from January to March 1989. On March 15th, the Corps issued a "Notice of Intent" to issue the permit for Two Forks dam and reservoir and released the permit conditions (Corps, 1989a). The Permit Conditions document explained in detail all the conditions required by the applicant before, during and after building the dam and reservoir. The Corps changed the length of the permit to 18 years (from 25 years) and limited the reservoir pool level to an elevation of 6480 feet (max. pool ht. is 6547 feet) until mitigation to aquatic habitats, the endangered pawnee montane skipper butterfly, and wetlands permit conditions had been met (Corps, 1989a).

Col. Steven West, (Omaha District Engineer) sent a letter to Mr. Reilly on March 22nd explaining the roles of the various agencies concerning regulations according to the Clean Water Act. Col. West also sent an indepth review of the arguments used by the Caucus to persuade EPA to initiate 404(c) proceedings.

Approximately 30 instances where information was misstated or innaccurate was noted. Col. West requested that Mr. Reilly review the March 10 decision documents. Col. West also stated that all issues have been seriously evaluated in the decision making process, alternatives analysis has been massive and the subject of their own public hearings. He felt that, in light of all the information, additional studies would serve no purpose, particularly since no new significant information had been brought forward (1989b).

404(c) Review of the Proposed Two Forks Dam and Reservoir

On March 23, 1989, William Reilly, announced EPA's intention to initiate review of the proposed Two Forks dam and reservoir as provided in Section 404(c) of the Clean Water Act. Reilly requested that the EPA Region VIII staff review potentially unacceptable adverse environmental effects for the Two Forks project. The 404(c) review could result in a modification of the permit issued by the Corps or a complete rejection of the proposed project. The initiation of proceedings under Section 404(c) requires a public notice in accordance with C.F.R. Part 231 (EPA, 1989b). Mr. Reilly identified four outstanding concerns that were the basis for the commencement of 404 proceedings: "1) potential adverse impacts to aquatic and fishery resources, 2) determination of project purpose and need under an appropriate timeframe, 3) determination of practicable alternatives to the proposed project under an appropriate timeframe, and 4) pursuit of conservation measures and alternative water supply sources which could prevent adverse environmental impacts associated with the proposed project" (EPA 1989b). At this time the Region VIII Administrator, James Sherer, declined to conduct the Section 404(c) review based on his previous, lengthy involvement. On April 3, 1989, the Deputy

Regional Administrator for EPA Region IV, Lee DeHihns, was delegated the review authority (EPA, 1989c).

The 404(c) regulations allow the applicant and Corps an initial 15-day period in which to demonstrate to the EPA Regional Administrator that the proposed project will not result in unacceptable adverse effects. The Two Forks dam and reservoir project was so complex that this period was extended until July 14th (54 Fed. Reg. 21470(1989)).

During the review period EPA held meetings with the Governor of Colorado, the Mayor of Denver, several U.S. Congressmen, State officials of Colorado and Nebraska, local officials, and representatives of the environmental community. These meetings were held to brief Lee DeHihns, acting Administrator for the Proposed Determination, on the proposed Two Forks project. During this time the Environmental Caucus again turned to Reilly, restating their concerns about the project. The group questioned the “unacceptability” of the project in terms of avoidable impacts and magnitude. The Caucus reemphasized that the Corps has stated, in both the Draft EIS and the Final EIS, that without mitigation the Two Forks project is the most damaging alternative. The group also submitted a list of fundamental issues concerning the 404(c) process. These issues include demand, conservation and available alternatives. (Co. Env. Caucus, 1989c). Reilly also received a letter from several U.S. Senators concerning the initiation of the 404(c) process.

The Senators¹⁰ requested that Reilly drop the veto process because his intervention “occurred in the final moments of an eight year, \$40 million Environmental Impact Study of the project” (U.S. Senators, 1989). The Senators' letter continued to say “The Two Forks project is similar to most other

¹⁰Bill Armstrong, Jake Garn, Malcolm Wallop, Alan Simpson, Steven Symms, James McClure

western water development projects. We are concerned that you don't understand how critical and necessary water development is to western towns and cities. ... Western municipalities have a critical need for water. Indeed, water is the lifeblood of the West" (U. S. Senators, 1989). The Senators suggested that Reilly was vetoing the project based on the meetings with the environmental organizations and not on the Corps determination to permit the project.

During this review process, information concerning the EPA staff's conclusions that Two Forks was not permissible under 404(b)(1) was leaked to the Caucus. The Caucus requested Senator Exon (NE) obtain a copy of the memo (memo was FOIA exempt). Senator Exon applied political pressure to obtain a copy, the memo was also released to the news media at that time. The Arkansas Valley Journal reported that Sherer's memo to the Corps, dated May 26, 1988 did not mention three of the four conclusions (pg 11) his staff had made concerning Two Forks (Arkansas Valley Journal, 1/5/89 and Denver Post, 3/26/89).

The local papers carried many one sided articles written by Senators, environmentalists and officials. But, on April 24, 1989, a story appeared that questioned the credibility of the Corps and the entire EIS process. The *Daily Camera*, an independent newspaper, released allegations that Corps staff scientists were told to take deliberate actions to minimize concerns about the impact of the dam. John Andersen, a fresh water specialist for the Corps for 12 years, charged that "attorneys for the water providers actually wrote portions of the Draft EIS" (Daily Camera, 1989). Senator Jim Exon (NE) forwarded Andersen's statement to the EPA, which he believes provides "hard evidence" of the truth of the allegations. Staffers at the U.S. Fish and Wildlife Service and

the Forest Service said they were pressured "to approve Two Forks no matter what" (Daily Camera, 1989 and Audubon Special Issue, May 1989).

Proposed Determination

On August 29, 1989, the EPA announced its intentions to continue with the 404(c) proceedings by issuing the Proposed Determination to Prohibit, Restrict, or Deny the Specification, or the use for Specification, of an area as a Disposal Site: South Platte River (54 Fed. Reg. 36812(1989)). EPA's basis to continue to use their 404(c) authority included: significant loss of recreational values and aquatic and terrestrial wildlife; water quality impacts; inadequate mitigation; and the availability of less damaging practicable alternatives. These same concerns had been repeated throughout the EIS process and continued to remain the key aspects for not issuing the 404 permit.

The EPA requested written comments from the public on the Proposed Determination and seven additional areas of concern. These were:

- 1) Potential for the Two Forks dam and reservoir project to violate State water quality standards, especially as related to potential channel alterations;
- 2) Whether, based on information collected since preparation of the biological opinions, the threatened and endangered species consultation should be reinitiated for any of the species potentially affected by the Two Forks dam and reservoir project;
- 3) Information on the wildlife species that would be affected;
- 4) Information on the recreational uses that would be affected;
- 5) Information on the availability of less environmentally damaging practicable alternatives to satisfy the overall project purpose of municipal and industrial water supply, taking into account cost, technology, and logistics, and including other alternatives which would not require the

discharge of dredged material into the waters of the United States;

6) Whether the discharge should be prohibited forever, allowed as proposed by the Corps, or restricted in time, size or other manner: and

7) Information on recent population projections by DRCOG, information on what criteria Denver should utilize to supply water under its charter obligations, and the effect of planning uncertainties on water supply planning.

In October of 1989, public hearings were held in conjunction with this request for comments, in Denver, Colorado, and in Grand Island, Nebraska. Three hundred fifty seven individuals presented testimony. Approximately 4,000 comments were received during the formal comment period (Aug. 29 - Nov. 7, 1989), but 11,000 comments were received between March 24, when the 404(c) proceedings were announced, and March 26, 1990. The review period for the determination was changed several times and finally extended to March 31, 1990 to allow thorough review of the comments received (54 Fed. Reg. 51470 (1989)), (55 Fed. Reg. 4009 (1990)) and (55 Fed. Reg. 7938 (1990)).

On the same day (August 29) that Lee DeHihns, acting Regional Administrator for the 404 process, announced the continuation of the 404(c) process by requesting comments, the Denver Water Board released a statement concerning the tentative veto of Two Forks dam. The DWB's statement began:

"We are gravely disappointed with Mr. DeHihn's decision to proceed with EPA's formal procedure for vetoing the Two Forks project. ... Today is the first time that EPA has revealed to us their specific concerns... From the onset of the highly unusual review procedure initiated after the project had received all necessary approvals, including that of the Regional EPA Director (Sherer¹¹), the process has shown

¹¹From several documents and phone conversations it appears that Sherer had assured the Corps the project would be approved if minor changes occurred in the permit

appearances of merely legitimizing a decision that served the politics of the Bush Administration” (DWB, 1989).

The DWB's statement included several inaccuracies. For example, the documentation of EPA's concerns about Two Forks is immense. And while it is true that Sherer assured the Corps that he would approve the permit, it is also true that Sherer did not listen to his staff's recommendations. He then dismissed himself from further involvement when Reilly questioned the ability of the EPA to permit Two Forks under the existing conditions and facts. In closing their statement, the DWB and Denver Mayor Pena challenged the EPA to “come up with a specific project to meet these future needs - one that EPA will approve” (DWB, 1989). Such a statement misleads the public since EPA and the Colorado Environmental Caucus have written detailed alternatives that the DWB would not accept for various undisclosed reasons.

The technical staff of the DWB and the Metropolitan Water Providers reviewed EPA's Proposed Determination (released August 29, 1989) and alleged that it contained many false statements and conclusions. On Oct. 17, they released a document, *Material Errors of Fact Contained in EPA's August 29, 1989 Proposed Determination to Veto the Two Forks Project*. The technical staff documented areas they concluded were either misleading, misinterpreted and in some areas wrong: for example, they stated that the “DWB's 'request' for rescoping (combing Systemwide EIS with site-specific EIS) was developed by consensus with all participating state and federal agencies, the environmental community, and West Slope interests” (pg 7). However, Dan Leucke, a representative of the environmental community on the Metropolitan Water Roundtable committee and member of the Colorado Environmental Caucus,

conditions and mitigation plans. This assurance was included in letters from the DWB to Reilly, western Senators to Reilly and news articles. There was no reference to such assurances from any EPA documents.

contested this, stating that “after Denver officials threatened to preempt the Systemwide EIS by filing a permit application for Two Forks, the Corps agreed to a combined systemwide and site-specific EIS on the condition that the permit application not be submitted then. However, the permit application for Two Forks was submitted in April 1986, two years before the final EIS was complete” (Leucke, 1990).

The Material Errors of Fact document points out that many comments in the Proposed Determination have been resolved by the Corps, Sherer and the DWB. The document also stated that the U.S. Supreme Court decided that a detailed mitigation plan is not required in an EIS (USFS v. Methow Valley, 29 E.R.C. 1497 (1989)). However, during the Proposed Determination review, the U.S. Fish and Wildlife Service requested that before a Two Forks permit is issued that Section 7 (Endangered Species Act) consultations be re-initiated due to substantial new information on species now listed or proposed for listing (EPA, 1990a). This makes relevant the court case of Foundation for N. American Wild Sheep v. U.S. Dept. of Agric. (681 F.2d 1172 (9th Circuit, 1982)). In this case the Ninth Circuit Court decided that the proposed mitigation measures were not adequate to protect the endangered species or, questioned if the mitigation would work at all. Nebraska officials, environmental organizations and the USFWS voiced concern that as Platte River flow continues to be depleted by projects like Two Forks, proposed mitigation measures for habitat maintenance along and in the river become less viable and may cease to work altogether (EPA, 1990a). Again, the DWB and Providers’ document contested this view.

The Material Errors of Facts document listed in detail the problems the DWB and Water Providers had with EPA’s Proposed Determination document.

The EPA responded to each of these concerns and others of the Water Providers later in their Recommended Determination document.

At the EPA hearings on the Proposed Determination, Denver Mayor Pena testified on behalf of the Denver Water Board and Water Providers. Mayor Pena stated:

I object to the new administration's last minute, uninformed intervention. The eleventh hour reversal of an affirmative decision (refers to both the Corps and Regional EPA Administrator determining to issue the permit) to permit this critical municipal water supply must be challenged as arbitrary and capricious, and without fairness in terms of process and substantive fact Your (Mr. DeHihns) 'Proposed Determination' with respect to this project contains such significant error, misrepresentation and misunderstanding of the record, facts and local conditions that your proposal to continue the 404(c) veto process lacks merit. Further, I believe that the public can be so easily misled by these errors and misconceptions that the 'Proposed Determination' must be withdrawn, revised and re-written to be accurate in all instances" (Pena Statement, 1989).

These closing statements are nearly the same used by the EPA and the Environmental Caucus in their reviews of the Draft and Final EIS. It is clear that the uncertainties, complexities and value judgements in such a major project mean that there is room for much honest disagreement and manipulation of the facts. The extended 404 process for the Proposed Determination ended November 17, 1989. On December 14, the EPA and Corps jointly released a 404(q) - Memorandum of Agreement (54 Fed. Reg. 51319).

Memorandum of Agreement

The Memorandum of Agreement (MOA) provides the staff of the EPA and Corps guidance for implementing the Clean Water 404 (b)(1) Guidelines that these agencies must follow when considering mitigation. The MOA represents

the policy and procedures to be used in the determination of the level and type of mitigation that demonstrates compliance with the 404(b)(1) Guidelines¹². The MOA was the result of the EPA's initiation of 404(q) proceedings because of a discrepancy between the two agencies use of mitigation when determining the least environmentally damaging practicable alternative. The 404(q) request is sent up the hierarchy where the differences are discussed and the two agencies come to an agreement on the procedures to be used. This MOA was written by Robert Page, the Assistant Secretary of the Army and, LaJuana Wilcher, Assistant Administrator for Water (the higher EPA authority). The purpose of the document is to alleviate permitting differences between the EPA and the Corps. The MOA changes how the Corps will determine mitigation and practicable projects.

The Corps will first determine "that potential impacts have been avoided to the maximum extent practicable; remaining unavoidable impacts will then be mitigated to the extent appropriate and practicable" (Corps, 1989d). The types and sequence of mitigation that can be used in determining compliance with 404(b)(1) are: avoidance, minimization and compensatory mitigation (Corps, 1989d).

Permits can be issued only for the least environmentally damaging practicable alternative according to Section 230.10(a) (40 CFR), or for avoidance of impacts. Section 230.10(a) requires that no discharge shall be permitted if there is a practicable alternative to the proposed discharge that would have less adverse impact to the aquatic ecosystem so long as the alternative does not have other significant adverse environmental

¹² The MOA will be used for standard permit applications only. Standard permits are those permits which have been processed through application of the Corps public interest review procedures (33 CFR 325) and EPA's Section 404 (b)(1) Guidelines, including public notice and receipt of comments.

consequences. Section 230.10(d) states that practicable and appropriate steps should be taken to minimize any adverse impacts. Minimization of impacts, the second step, will be required in the permit conditions and through project modifications. Finally, compensatory mitigation will be used for any remaining unavoidable adverse impacts. These mitigation requirements are now conditions of all standard Section 404 permits.

The requirements and sequence of mitigation levels are very different policies than the Corps previously used - mitigate all impacts of the project then determine which alternative is practicable. This new policy may mean that no new large water projects (except in extreme emergencies) will be built in the future. The Corps must pick the *least environmentally damaging alternative* and then mitigate that project. Large projects will rarely be the least damaging alternative before mitigation. Many projects that could have been built under the Corps' methods will not pass the new 404(b)(1) Guidelines according to the new MOA between the agencies. One such project is the Deer Creek project on the North Platte River in Wyoming. The Deer Creek project is highly controversial because of the effects downriver in Nebraska. The State of Nebraska has questioned the validity of the hydrologic model used by the State of Wyoming in support of its request for the project, through a filed suit now before the Supreme Court. Even if Wyoming wins this battle they will still need to prove that the Deer Creek project is the least damaging alternative *before* mitigation. Many water professionals do not think it will pass the MOA test.

The MOA has caused water resource officers and water providers concern. Water projects that were once feasible are not under the new Guideline. The DWB wrote a letter to Mr. Page and Ms. Wilcher, Assistant Administrator for Water, on January 12, 1990 stating their objections to the MOA. The DWB's comments included an objection to the procedures and

authority used to implement the MOA. The MOA was exempt from notice-and-comment, and the DWB states that the MOA is a substantive rule that alters the meaning of the present 404(b) Guidelines and thus does not qualify for exemption. The DWB feels that, because it is a substantive change, the MOA is invalid. Also, the decision to implement the MOA was arbitrary and capricious and an abuse of agency discretion. The DWB feels the MOA should be redrafted after comments have been made and then be implemented only if necessary. These statements are from a group that will be significantly affected by the changes made in the MOA (With the MOA in effect Two Forks cannot be permitted). The concerns of the group are valid considering their investment of \$40 million.

The Denver Water Board has more than just the Two Forks project at risk with the new agreement. The DWB stated they had an “emphatic objection to the provision of Section II(C)(1) of the MOA which purports to require permit denial if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem” (DWB, 1990a). For over eighty years the DWB has been planning water supply projects. These projects have not been based on least environmentally damaging alternatives, but on the ability to mitigate the project to an acceptable level. The new MOA will not allow alternatives to be mitigated first and then compared. The DWB further states that: “ we find the callous disregard of ‘need and societal value’ particularly offensive. The MOA, in effect, eliminates project purposes as determined by local government and superimposes the judgement of federal agencies that (1) the aquatic resource has a higher value than the needs of the people and (2) other less damaging ‘practicable alternatives’ do, indeed, exist” (DWB, 1990a).

The DWB and Water Providers are considering court action concerning the MOA. These two, and many other water resource interest groups consider the MOA to be a decision the EPA and Corps made without concern or comment by those it would affect. These groups feel that the MOA is arbitrary and capricious and should not be in effect until comments can be made. As of this writing no group or agency has taken the issue to court.

Recommended Determination

A final determination for the Two Forks project had not been made when former President Ford wrote a letter to President Bush stating that the project should be vetoed and that Bush should stand behind Reilly and his decision. On February 5, 1990 former President Ford wrote: "I am sure that Mr. Reilly's decision to intervene in the Two Forks permitting process has led to efforts to involve the White House more directly in the decision. When feelings run high, balance is not easily maintained. From my perspective, Mr. Reilly made the right decision when he initiated the veto process. The citizens of Colorado on both sides of the Divide are well served by his actions, as are all the citizens who care about protecting the natural habitat of the Colorado and Platte rivers" (HCN, 1990).

The Recommended Determination to Prohibit Construction of Two Forks Dam and Reservoir Pursuant to Section 404(c) of the Clean Water Act was released on March 26, 1990. After evaluating the comments received on the Proposed Determination the EPA stated that Two Forks would inundate a diverse riverine/wetland/upland complex that had high fishery, recreational and

wildlife values. Construction and operation of any Two Forks Project¹³ would have unacceptable adverse effects and that there are practicable, environmentally less damaging alternatives available (EPA, 1990a). The Recommended Determination was the final review of the proposed Two Forks project. The Recommended Determination and Administrative record was then sent to the Assistant Administrator for Water, LaJuana Wilcher. Ms. Wilcher is required to review all documents, provide the Corps and Applicants the opportunity to discuss the record and issue a final determination. Ms. Wilcher can affirm, modify, or rescind the Region VIII's Recommended Determination after her review.

The Denver Water Board and Water Providers responded to the Recommended Determination with proposed corrective actions, a compromise that they believed would resolve all the environmental concerns of the Region VIII EPA. The applicants proposed a series of smaller steps that included mitigation before any anticipated impacts could occur. The DWB called the corrective action plan the "No Net Loss" compromise. The plan calls for a 450,000 acre-foot reservoir at the Two Forks site. The applicants claim that none of the three miles of Gold Medal stream would be inundated and mitigation before the filling would improve the fishery along the entire South Platte reach. The applicants also pledge to continue to develop and improve non-structural programs such as conservation and reclamation of sewage effluent. The Corrective Action plan calls for filling the reservoir in four stages: stage 1) mitigation only, stage 2) 50,000 acre-foot, stage 3) 150,000 acre-foot, stage 4) 450,000 acre-foot (DWB, 1990b). At each stage mitigation would be

¹³ Proposed Two Forks projects consisted of the 1.1 million acre-foot, a 400 acre-foot and a staged (1.1 million filled in two stages) project, plus a three-staged No Net Loss proposal by the DWB in 1990.

completed before the dam is filled to the next stage's height. The Corrective Action Plan is a response from the applicants to "the need of the municipal entities involved to achieve a positive result from our nine-year, \$40 million permitting investment" (DWB, 1990c). The applicants met with Ms. Wilcher several times to discuss the Recommended Determination and the Corrective Action Plan (No Net Loss Plan).

On November 23, 1990, Wilcher upheld Region VIII's determination to deny a permit for Two Forks Dam. Ms. Wilcher noted that the applicants made a good faith effort to downscale the project with their No Net Loss plan, but she noted "the smaller project would still flood 24 miles of free flowing, scenic stream and almost 11 miles of gold medal trout fishery. ... It would inundate an area of unquestionable natural beauty that provides a diversity of fishing and recreational opportunities and a rich aquatic habitat close to the Denver metropolitan area" (New York Times, 1990). This however, is not the end of the battle of Two Forks. The DWB and Water Providers are intending to go to Court over the ruling on the veto and the MOA. The DWB's last comment concerning the veto was: "This decision affects not just Denver, but it may be the end of all big water projects. If EPA can veto this, there really isn't any project that anybody can develop that can pass the EPA" (New York Times, 1990). The veto of Two Forks may be only the first in a long line of vetoed projects. Water policy and the ability of water providing agencies to build any project they want may be over. Gone are the days when an agency just needed to call the Corps or the Bureau of Reclamation to build a "needed" water project.

Chapter 4 Conclusion

The veto of Two Forks dam by the EPA and the Memorandum of Agreement between the Corps and the EPA mark a major change in water policy. Economic needs may no longer be the most important factor in the decision making process. Two Forks was vetoed based on its potential unacceptable environmental damage to recreation and threatened and endangered species habitat in the South Platte Canyon, as well as its effects downstream in Nebraska to the Big Bend area, which is part of the Central Flyway. Threatened or endangered species that could be effected in Colorado include: the pawnee montane skipper butterfly, low elevation big horn sheep, and peregrine falcons. Species in Nebraska include: whooping cranes, sandhill cranes, eskimo curlews, peregrine falcons, bald eagles, interior least tern and piping plovers. The reasons given for the veto of this dam may mean that proposed projects such as the Narrows dam, on the South Platte in Colorado, and Deer Creek, on a tributary of the North Platte in Wyoming, will also be vetoed.

Does the Two Forks veto point to a new EPA willingness to enforce its 404 guidelines, or was it strictly Reilly's willingness to endure the political foll out of this one decision? In light of other decisions that have been made recently in the West this could be the current trend in water policy decision making. A current court case concerning a proposed dam project in Wyoming may determine if the decision was a fluke or if the EPA will continue to weigh environmental concerns over economic gains.

In 1986 Mike Jess, Director of Nebraska's Water Resource Department since 1981, sued the State of Wyoming over the proposed Deer Creek project. Jess's case centers around an earlier Supreme Court case decision, the 1945

North Platte Decree. The Decree stated when and how the several reservoirs on the North Platte will be filled and how natural flows on the river will be allocated between Nebraska and Wyoming. Nebraska contends that the Deer Creek project will upset the flows in Nebraska and thus defy the Decree. Wyoming states that the Deer Creek project is on a tributary of the North Platte and therefore does not fall under the Decree. Nebraska will argue that without tributaries there will be no water in the river.

Nebraska is also suing the Corps of Engineers and the U.S. Fish and Wildlife Service over the issuance of a permit and the mitigation plan for the Deer Creek project. The Fish and Wildlife Service states that the project would have harmful effects on the whooping cranes, interior least terns and the piping plovers on the Big Bend of the Platte. Yet, they say the damage can be undone if the project proponents buy land along the Big Bend and keep the brush cleared off (this is similar to the mitigation plan proposed for the Two Forks project). Nebraska will argue that the federal government has designated this area as critical habitat for endangered species, and mitigation is not permitted under the Endangered Species Act. Jess feels that if Two Forks was vetoed, then Deer Creek should follow suit. He states; "Two Forks and Deer Creek are highly related. They are so closely related that I think most people recognize that as one goes, so goes the other. The issues we are objecting to are much the same as with Two Forks" (Midlands Magazine, 1989).

The veto of Two Forks, the Memorandum of Agreement and the increase in nonfederal monies requirement before authorization may significantly influence the ability of any local or state entity to build new water storage facilities. This will require water developing agencies and water utility corporations to seek alternative sources of water, to improve conservation measures and to increase the efficiency of their present water systems. These

will be the key issues in maintaining water supplies in the west and especially in Colorado, California and Arizona. In 1986, the Western Governors Association adopted a report formulated by their task force that establishes economic efficiency as a primary objective in water development (Audubon, 1987).

The west has experienced a dramatic increase in growth and change in economic structure in the last two decades. Currently, the west's water systems must meet the demands of urban sprawl, expanding economic development and recreational needs, and a growing belief that the environment should be protected. In the past, economic development has taken priority over conservation and the efficient use of water. The reason for this is the Prior Appropriation Doctrine.

Under the Doctrine, a person is granted a water right for using the water first; first in time, first in right. The water right is retained only if the right holder continues to use the full allocation of water. A right holder who withdraws less than the allocated amount can lose the rights to the unused water, a use it or lose it philosophy. Therefore, the right holder has no incentive to conserve water. In many states water right holders are not permitted to sell any water they could conserve. California, Oregon, Idaho and just recently Montana (1991) allow water right holders to lease or sell salvaged water, thus encouraging conservation. According to an Audubon Report, *Water Projects and Wildlife*, an estimated "seven to ten percent reduction in agricultural water use in the West could eliminate the need to supply any "new" water even if all other uses increase by 100 percent" (Audubon, 1987).

. All of the western states will need to change the Prior Appropriation Doctrine to allow water right holders to sell or lease conserved water. Water marketing will reduce the need for new water storage facilities and at the same

time improve the efficiency of agricultural users. The improved efficiency may also reduce the concentration of salts, fertilizers and toxins in the groundwater and rivers, improving water quality in an entire basin.

The Two Forks project has increased cooperation among the various water utility entities, but it also increased public awareness of the environmental effects caused by large water projects. Citizens in the various suburbs and outlying towns have become very vocal about what water is used for and how. The American Water Development Inc. (AWDI) sought to pump 200,000 acre-feet of water a year from the San Luis Valley to sell to the Denver Metropolitan area. The citizens of San Luis Valley and the Rio Grande River Water Conservation District sued AWDI, claiming the removal of that amount of water would dry private wells and destroy their irrigation source. The water court trial began October 15, 1991; a decision is not expected until late in November.

The San Luis Valley is not the only opponent of the project. The National Park Service, the Bureau of Land Management, the U.S. Fish and Wildlife and the Bureau of Reclamation have all stated that the proposed project would have unacceptable adverse effects. Robbins, the Attorney for the Rio Grande River Water Conservation District, in his opening remarks said: "AWDI's impacts will be extensive, profound and in many cases, irreversible" (High Country News, 1991). This case will determine the future ability of water utilities to pump large amounts of aquifer water out to sell to the highest bidder. This was some of the water that Denver was counting on to fill the Two Forks reservoir.

Other changes in water policy have occurred in California. The Metropolitan Water District's Directors (Southern California) agreed to make changes in their water policy decisions based on a changing attitude towards conservation and protection of the environment (High Country News, 1991). The Directors agreed to break their long-standing alliance with the agricultural

industry and try a free-market approach to obtain water rights. The water district will buy or lease water rights from farmers instead of building new water projects. According to Robert Gottlieb, the former Metropolitan Water Districts' Director, this approach is based on the theory that "new water projects cannot be easily built. There are new concerns over growth and the environment" (High Country News, 1991).

Another example of changing water policy is the altering of operation plans for Glen Canyon Dam and Reservoir. The effects due to the severe water fluctuations have caused many environmental and recreational problems. In fact, the Bureau of Reclamation has recommended changes to Glen Canyon dam operations to protect natural resources, fish and wildlife and recreation. The findings by the Bureau's Environmental Studies Task force were upheld by Interior Secretary Manuel Lujan who reduced by three-fourths the Colorado river's fluctuations caused by the dam's operations.

The Central Utah Project is another case where attitudes concerning water and dam projects are changing. The Central Utah Project has been under construction since the 1960s, and the original proposal was considerably scaled down to reduce environmental damages. Representative Wayne Owen, other reform minded representatives and senators and grassroot organizers in Utah blocked the appropriations of federal funds for the project until the opponents and proponents came together and redesigned a more environmentally acceptable project.

The Public Trust Doctrine has also made inroads in protecting fragile environments from water projects. Historically, the public trust doctrine limited the ability of states' to permit their lands and waters to be used in such a way that it would impair navigation, commerce or fishing (13 ELR 10109). However, the Supreme Court of California interpreted the doctrine to also include the

changing public needs of ecological preservation, open space maintenance and scenic and wildlife preservation (13 ELR 10109). In a recent case, National Audubon Society v. Superior Court of Alpine County, the California Supreme Court held that the Los Angeles Department of Water and Power and the California Division of Natural Resources should not have licensed water diversions from streams feeding Mono Lake. These diversions lowered the lake's level exposing alkali flats, decreased the brine shrimp population, a food source for many birds, and ultimately lowered the water level to a point where predators could invade islands of nesting birds. The court held that "the state as trustee had an ongoing obligation to protect the people's common heritage of streams and lakes, in the fulfillment of which it even could revoke previously granted 'rights' without compensation" (13 ELR 10109). Most significantly, this decision expands the public trust doctrine to include nonnavigable waters when actions taken on them affect navigable waters.

However, in a November 1991 Montana Supreme court decision, the court stated that it is illegal to alter or revoke a water right for instream flow. The altering or revoking of a water right would be an illegal taking of a property right. The decision means that streams, rivers, or lakes can be pumped dry by water right holders. Montana did not accept the California public trust decision and has maintained the traditional water policy of water rights are in perpetuity and cannot be taken by state or federal governments. Each individual western state appears to be making water rights decisions independent of other states.

These changes lead one to believe that environmental and social concerns are beginning to be recognized as important parts of permitting new water projects and the operation of existing projects. Assuming that the Two Forks decision represents a real change in policy and that EPA will act consistently in the future, other projects that cause large environmental impacts

will be vetoed. Sustaining the Memorandum of Agreement between the Corps and the EPA will make permitting large projects more difficult in the future, and projects like Two Forks and Deer Creek will not meet the requirement of selecting the least damaging practicable alternative.

Recommendations

1). Changing the prior appropriation doctrine to allow for sell or lease of all salvaged waters would increase water availability for instream flow, municipal and industrial purposes and irrigation. The sell or lease of salvaged water would include water associated with water projects developed by the Bureau of Reclamation, Corps of Engineers and the Tennessee Valley Authority. To change this doctrine each state would need to pass a law that allows for sell or lease of salvaged water with appropriate restrictions to protect instream flows, present water right holders and those with legitimate future interests in the water.

2). Mandatory conservation measures and improved efficiency standards should be required by each state before any new water project is permitted. The agency that currently regulates water use in each state should write and enforce standards based on best available technology identified by EPA.

3). Finally, all new and existing water rights and diversions should be investigated to determine if impacts are acceptable to wildlife, water quality, irrigated land and, downstream users. State water use regulatory agencies and the EPA should conduct basin wide studies to determine if impacts at individual locations and within the entire basin are acceptable. Water rights may need to be altered, or partially or wholly denied or revoked to reach an acceptable impact level for a location or for the entire basin. Water rights should not be

considered forever intact if exercising those rights causes unacceptable impacts.

The western Senators were correct, water is the lifeblood of the west, and its scarcity has profoundly shaped western water policy. However, the scarcity of water does not justify present policies that bleed dry streams, rivers and lakes to cater to a water wasteful lifestyle that demands large amounts of water to green the arid west. Western water policy must change if it is to meet the conflicting needs of fish and wildlife, municipal, industrial and agricultural uses. To correct stream dewatering and groundwater depletion, less water must be taken from surface and groundwater sources, more must be conserved and used more efficiently. Even if water use efficiency increases, continued population growth in the west will increase demand for water. Decreased water conservation and efficiency are necessary but not sufficient to achieve a sustainable society in the western U.S. - the west's population must be maintained or reduced. Now, while the iron grip on water projects has been loosened, is the time to reform western water policy and our view of what is progress in the west.

Appendix 1 History of Two Forks

- 1905 - Denver Water Board begins to buy water rights along the South Platte River**
- 1931 - Denver Water Board files for a right of way with the Forest Service in South Platte Canyon**
- 1942 - Denver Water Board begins buying land in vicinity of proposed Two Forks dam on the South Platte River north of Denver**
- 1950 - Veto of Blue Ribbon - South Platte Project by the Colorado Water Conservation Board based on unacceptability and not needed. Project was proposed in the same vicinity as the now proposed Two Forks project**
- 1974 - Veto of Upper South Platte Storage Unit by Governor Vanderhoof, a project proposed by the Bureau of Reclamation. The Bureau drops the project based on their steering committee's recommendation which identified major concerns including the need for more east slope storage, role of conservation, availability of alternatives and the value placed on recreation and wildlife.**
- 1970's - Denver Water proposes building Strontia Dam and Reservoir and Foothills Water Treatment plant on the South Platte River south of Denver.**
- 1979 - The Denver Water Board, West Slope and environmental organizations sign the Foothills Consent Decree, the result of an out-of-court settlement over the Strontia and Foothills projects. The Decree required a Systemwide EIS before another water project in the area was proposed and initiation of EPA supervised conservation measures in the metro. area.**
- 1981 - The Metropolitan Water Roundtable convenes to address water supply issues. The Roundtable consists of 30 individuals representing the Denver Water Board, the Metropolitan Water Providers, West Slope interests, environmentalists and other governmental units in the Denver metropolitan area.**
- 1981 - Denver Water Board requests Systemwide EIS be conducted, with the Army Corps of Engineers as the lead agency as required by the Foothills Consent Decree.**
- 1984 - Denver Water Board requests that the Systemwide EIS be changed to a site specific EIS for Two Forks Dam and Reservoir. The Corps agrees to combine the two under the condition that a discharge permit will not be submitted until the EIS's are completed.**

- 1986 - The Denver Water Board submits discharge (404) permit application for Two Forks before the Corps had finished the combined Systemwide Site specific EIS.
- 1986 - The Corps releases the Draft EIS for the Systemwide-Two Forks Dam proposal in December.
- 1987 - April - In their comments on the Draft EIS, the EPA rates the draft "environmentally unsatisfactory, inadequate information", and that Two Forks was the most damaging alternative and requests the Corps to prepare a supplement to the EIS.
- 1987 - In April the Colorado Environmental Caucus submits comments on the Draft EIS noting the effects on endangered species in Colorado and Nebraska, the elimination of a Gold Medal trout stream, water quality degradation, hydrologic impacts, project costs, reduced recreation possibilities and the need for conservation measures as required in the Foothills Consent Decree.
- 1988 - In March the Corps releases the Final EIS on the Two Forks Dam and Reservoir, recommending Two Forks as the best alternative.
- 1988 - On May 20, Dennis Sohocki, EPA Two Forks Project Manager, and staff send internal memo to James Sherer, EPA Region VIII Administrator. The memo lists the problems the staff sees with the Two Forks project and suggests that it does not meet 404(b)(1) Guidelines and therefore cannot be approved.
- 1988 - On May 26 Sherer sends comments on Final EIS to Col. Steven West, Omaha District Engineer for the Corps on the Two Forks project. Sherer identifies several outstanding concerns including permit length, mitigation requirements and effective conservation measures. He does not mention his staff's comments that the project did not meet 404(b)(1) Guidelines, but did mention that the concerns need to be cleared up before a permit could be issued.
- 1988 - On June 9 EPA submits additional comments on the Final EIS and informs the Corps they are considering invoking their authorities under Section 404(q) and elevating to CEQ concerning levels of mitigation required when determining least damaging practicable alternative.
- 1988 - In June the Colorado Environmental Caucus submits their comments on Final EIS. Their concerns include the 25 year shelf life, lack of conservation measures, effects downstream in Colorado and Nebraska, the cost of the project and the 'need'.

- 1988 - On June 10 Colorado Governor Roy Romer issues a statement which questions the need but supports permitting the proposed project based on statements by the Denver Water Board and the Water Providers that they will not work cooperatively without the permits for Two Forks dam. The Governor calls the permits for the dams an 'insurance policy' for the water agencies.
- 1988 - On Nov. 17 Sherer notifies the Corps that the EPA is invoking its 404(q) authority concerning mitigation when determining least environmentally damaging alternative. Their concern will be decided among the higher authorities of each agency.
- 1988 - December EPA elevates its disagreements with Corps pursuant to 404 . The decision will be made by the Assistant Administrator for Water (EPA) and Assistant Secretary of the Army (Corps) in a Memorandum of Agreement that is binding.
- 1989 - Jan.6 EPA comments on Draft Permit Conditions and suggests revisions and mandatory permit requirements that must be met before the dam is filled .
- 1989 - On Jan 30 the Colorado Environmental Caucus sends a letter to William Reilly, EPA Administrator, suggesting he investigate the Two Forks project proposal and consider invoking the EPA's 404(c) authority to deny the permit. This letter may be the only reason that the Two Forks project was ultimately vetoed by the EPA. James Sherer had already suggested to the Corps he intended to permit the project if several of his concerns were resolved.
- 1989 - March 2, The Environmental Caucus meets with Reilly in Washington D.C., repeating their concerns about the project.
- 1989 - March 9, The Environmental Caucus follows up meeting with letter to Reilly with information on Two Forks and why the project should be vetoed.
- 1989 - On March 15 the Corps issues a "Notice of Intent" to issue the 404 permit for Two Forks Dam. They also release the draft permit conditions at that time.
- 1989 - On March 22 Col. West (Corps) sends Reilly a letter outlining the problems with the Environmental Caucus's information given Reilly in Washington D.C.. He suggests that Reilly review the Corps information and the draft permit conditions to better understand the project and why the Corps went ahead to issue a permit for a project that many feel is the most environmentally damaging alternative.

- 1989 - On March 23, Reilly responds to the "Notice of Intent", stating that the EPA will invoke their 404(c) authority to prohibit, restrict or deny the permit for Two Forks (Proposed Determination).
- 1989 - On March 24 the EPA informs the Corps that it will commence section 404(c) proceedings.
- 1989 - In April, the 404 (c) process is delegated to Lee DeHihns, Deputy Regional Administrator for EPA Region IV (Atlanta) after Sherer declines. The 404(c) proceedings include reviewing all the information, conducting hearings and allowing the Corps and applicants to try to persuade DeHihns that their project is acceptable. The result of the 404(c) action is a document called a Proposed Determination to Prohibit, Restrict or Deny the Specification, or the use for Specification, of an area as a Disposal Site: South Platte River.
- 1989 - April 19, the Environmental Caucus keeps the pressure on Reilly by writing another letter detailing the problems with the Final EIS and suggesting the project be vetoed.
- 1989 - On April 19 Reilly receives a letter from several western Senators suggesting that the 404(c) process was invoked because of pressure from environmental groups and that the 404(c) process came in the last minutes of a \$40 million, eight year study. The Senators suggest that the EPA drop the process and allow local and state agencies to decide what is best for their area.
- 1989 - During April 28- July 14 (404 Period) the Corps and applicants (Denver Water Board and Water Providers) have the opportunity to demonstrate that the project will not result in unacceptable adverse effects.(54 Fed. Reg.21470(1989))
- 1989 - On Aug. 29 the EPA announces its intention to continue the 404(c) process by issuing the Proposed Determination printed Sept. 5 (54 Fed. Reg. 36812(1989)). EPA seeks comments on their proposed action plus 7 other specific areas that they feel were not addressed adequately in the Final EIS.
- 1989 - Oct., Public hearings on EPA's Proposed Determination held in Denver (283 testify) and Grand Island (74).
- 1989 - The Denver Water Board's technical staff requests documentation on
- 1989 - On Oct. 17 the Denver Water Board and Water Providers' technical staff submit the Material Errors of Facts document to the EPA concerning the Proposed Determination.

- 1989 - On Oct. 24, Mayor Pena testified on behalf of the Denver Water Board and Water Providers at a hearing in Denver. The Mayor tells the EPA that "President Bush promised more and owes more to localities than to slam the door in the face of our self-help initiative".
- 1989 - (Aug.- Nov.) 4,000 comments were received during formal public comment period concerning EPA's actions (11,000 comments were received from the time of the initiation of 404 proceedings in March of 1988).
- 1989-90 - Nov. - March 1990- The 404 process was extended over this time to give EPA time to review adequately the comments they had received and to enter them into the record.
- 1989 - Dec., the Memorandum of Agreement between the EPA and the Corps is signed. (54 Fed. Reg. 51320(1989)) The Memorandum dictates how mitigation can be used by these agencies when determining the least damaging practicable alternative.
- 1990 - In Jan. Wilcher (Assistant Admin. for Water, EPA) receives a letter concerning the MOA from the Denver Water Board asserting that the MOA was not binding because it was a substantive change from present rules and that the MOA should not have been exempted from the notice and comments requirement of the Administrative Procedures Act.
- 1990 - On Feb. 5 former President Ford writes to President Bush stating that Reilly's intent to veto the Two Forks project was correct and that, Bush, should stand behind this decision.
- 1990 - The March 26 - EPA releases Recommended Determination to Prohibit Construction of Two Forks Dam and Reservoir Pursuant to Section 404(c) of the Clean Water Act. This document and all of the records concerning Two Forks are sent to Assistant Admin. for Water to make final decision to affirm, modify or rescind the Region VIII's Recommended Determination.
- 1990 - July 20, the Denver Water Board submits a Conservation Corrective Action for Recommended Determination Plan. The plan calls for several steps (4) in which mitigation is accomplished before anticipated impacts occur and before the next step is begun.
- 1990 - On Nov. 23 Wilcher, the Assistant Administrator for Water upholds Region VIII's Determination to deny a permit for Two Forks Dam and Reservoir. Administrative Decision to veto

Presently the Denver Water Board and each Water Provider are considering taking the EPA to court over the veto and the MOA. As of this writing none of the agencies have filed a formal complaint.

Bibliography

- Army Corps of Engineers. 1986a. *The History of the U.S. Army Corps of Engineers*. EP360-1-21. Office of the Chief Engineers. Washington, D.C.
- Army Corps of Engineers, 1986b. *Metropolitan Denver Water Supply Draft EIS* (December 1986)
- Army Corps of Engineers, 1988. *Metropolitan Denver Water Supply Final EIS* (March 1988)
- Army Corps of Engineers, 1989a. *Section 404(b)(1) Evaluation, Two Forks Dam and Reservoir Section 404 Permit Application* (March 1989)
- Army Corps of Engineers, 1989b. Col. Steven West, Corps District Engineer, letter to William Reilly, EPA Administrator, concerning comments made by the Co. Env. Caucus. (March 22, 1989)
- Army Corps of Engineers, 1989c. *Section 404 Mitigation Memorandum of Agreement*. Army Corps of Engineers and EPA. CECW-OR. Feb. 2, 1990.
- Audubon. 1987, "Water Projects and Wildlife". *Audubon Wildlife Report 1987*. New York, Academic Press.
- Audubon 1989/90, "Western Water and Wildlife". *Audubon Wildlife Report 1989/1990*. New York, Academic Press.
- Audubon, 1989/90, "The U.S. Army Corps of Engineers". *Audubon Wildlife Report 1989/90*. New York, Academic Press.
- Board of Water Commissioners, 1989. "Two Forks Statement", August 29, 1989.
- Board of Water Commissioners, 1990a. "Comments on Memorandum of Agreement Concerning the Determination of Mitigation Under the Clean Water Action Section 404(b)(1) Guidelines". January 1990.
- Board of Water Commissioners, 1990b. "Comments and Proposed Corrective Actions; Two Forks Project 404(c) Process". July 1990.
- Board of Water Commissioners, 1990c. "Responses to EPA Questions and Requests for Information; Two Forks 404(c) Consultation". Aug., 1990.
- Colorado Environmental Caucus, 1987. "Comments of the Colorado Environmental Caucus on the Draft EIS for Denver Metropolitan Water Supply". April 1987.

- Colorado Environmental Caucus, 1988. "Comments of the Colorado Environmental Caucus on the Final EIS for Denver Metropolitan Water Supply". June 1988.
- Colorado Environmental Caucus, 1989a. "Letter to William Reilly, EPA Administrator concerning FEIS and requesting to meet with him". January 30, 1989.
- Colorado Environmental Caucus, 1989b. "Letter to William Reilly, EPA Administrator requesting initiation of 404(c) proceedings". March 9, 1989.
- Colorado Environmental Caucus, 1989c. "Letter to William Reilly, EPA Administrator concerning the FEIS for Two Forks". April 19, 1989.
- Colorado Environmental Caucus, 1989d. "Metropolitan Denver's Future Water Plan; The Environmental Caucus Water Supply Plan".
- Dunbar, Robert G., 1983. *Forging New Rights In Western Waters*. Lincoln, NE., Uni. NE Press.
- Environmental Protection Agency, 1987. "A. Smith, EPA Region VIII Acting Regional Administrator, letter to Colonel Steven West, Corps, Omaha District Engineer concerning draft EIS". April 23, 1987.
- Environmental Protection Agency, 1988a. "James Sherer, EPA Region VIII Regional Administrator letter to Colonel Steven West, Corps, Omaha District Engineer concerning final EIS". May 26, 1988.
- Environmental Protection Agency, 1988b. "Dennis Sohocki, Two Forks Project Manager internal memo to James Sherer, EPA Region VIII Regional Administrator concerning issuance of a 404 permit". Ref: 8WM-SP/8PM-EP. May 20, 1988.
- Environmental Protection Agency, 1988c. "Dennis Sohocki, Two Forks Project Manager internal memo to James Sherer, EPA Region VIII Regional Administrator concerning issuance of a 404 permit". Ref: 8WM-SP. Oct. 14, 1988.
- Environmental Protection Agency, 1988d. "James Sherer, EPA Region VIII Regional Administrator letter to Colonel Steven West, Corps, Omaha District Engineer concerning draft permit conditions and invoking 404(q)". Nov. 17, 1988.
- Environmental Protection Agency, 1989a. "James Sherer, EPA Region VIII Regional Administrator letter to Colonel Steven West, Corps, Omaha District Engineer concerning draft permit conditions". January 6, 1989.

- Environmental Protection Agency, 1989b. "Statement of EPA Administrator William K. Reilly on the Two Forks Dam and Reservoir". March 23, 1989.
- Environmental Protection Agency, 1989c. *Proposed Determination to Prohibit, Restrict, or Deny the Specification, or the Use for Specification, of an area as a Disposal Site: South Platte River*. 54 Fed. Reg. 36812 (Sept. 5, 1989).
- Environmental Protection Agency, 1990a. *Recommended Determination to Prohibit Construction of Two Forks Dam and Reservoir Pursuant to Section 404(c) of the Clean Water Act*. (March 1990)
- Environmental Protection Agency, 1990b. "Statement by LaJuana Wilcher, Assistant Administrator for Water to Veto Construction of the Two Forks Dam and Reservoir". Nov. 23, 1990
- Getches, David H., 1990. *Water Law in a Nutshell*. Second Edition. St. Paul, MN, West Publishing Co.
- Governor Roy Romer, 1988. "Statement by Governor Roy Romer to the People of Colorado concerning Two Forks and Water Development in Metropolitan Denver". June 10, 1988.
- High Country News, 1987. *Western Water Made Simple*. Washington D.C., Island Press.
- High Country News, 1990. "Ford Supports Reilly's Decision". Feb. 5 1990.
- High Country News, 1991. "Colorado Enters a New Water Era". Vol 23, No. 3 (Feb. 25, 1991).
- High Country News, 1991. "Two visions clash in a southern Colorado water court". Vol. 23, No. 20 (Nov. 4, 1991)
- Hunt, Constance E., 1988. *Down By The River: The Impact of Federal Water Projects and Policies on Biological Diversity*. Washington D.C., Island Press.
- Limerick, Patricia N., 1987. *The Legacy of Conquest: The Unbroken Past of the American West*. New York, W.W. Norton and Co.
- Luecke, Daniel E., 1990. "Water Resources: Controversy over Two Forks Dam". *Environment*. 32(4)42-45. May 1990
- Mayor Pena, 1989. "Testimony of Mayor Federico Pena at EPA Hearings on Two Forks Dam". October 24, 1989.

- Midlands Magazine, 1989. "The Water Man". *Omaha World Herald*, Oct. 22, 1989.
- New York Times, 1990. "Two Forks Dam blocked by EPA: Denver's High and Dry". November 23, 1990.
- Palmer, Tim, 1986. *Endangered Rivers and the Conservation Movement*. Berkeley, Uni. of Cal. Press
- Platte River Whooping Crane Maintenance Trust, 1985. *Migratory Bird Habitat on the Platte and North Platte Rivers in Nebraska*. Grand Island, NE.
- Platte River Whooping Crane Maintenance Trust, 1989. "The First Ten Years 1979-1989". Grand Island, NE.
- Reisner, Marc, 1986. *Cadillac Desert: The American West and Its Disappearing Water*. New York, Penguin Books.
- Reisner, M and Bates, S., 1990. *Overtapped Oasis: Reform or Revolution for Western Waters*. Washington, D.C., Island Press.
- Snow, Donald (ed.). *Boundaries Carved in Water*. Northern Light Research and Education Institute, Inc.
- Snow, Donald. 1988. *Equity*. Northern Lights Institute, Missoula, MT. Vol.4, No.3, July 1988.
- Thomas, Fred, 1989. "State Resources Chief Says Platte Flow "Going to Pot"". *Omaha World Herald* . August, 1989.
- U.S. Senate, 1989. "Letter to William Reilly, EPA Administrator concerning the Proposed Determination from Bill Armstrong, Alan Simpson, Jake Garn, Steven Symms, Malcolm Wallop and James McClure". April, 1989.
- Winckler, S. 1989. "The Platte Pretzel". *Audubon: Special Issue*, May 1989.