

# Chapter 1: *Introduction*

The Frenchman Unit (Unit) in south-central Nebraska lacks the water supply to meet all authorized purposes. The Unit, the uppermost project of the Bureau of Reclamation's (Reclamation) Frenchman-Cambridge Division of the Pick-Sloan Missouri Basin Program, includes Enders Dam and Reservoir, Culbertson Diversion Dam, Culbertson Canal, and Culbertson Extension Canal (see map at the front of this report). The Unit supplies water to the Frenchman Valley Irrigation District (FVID) and the Hitchcock and Red Willow Irrigation District (H&RWID). Project irrigators depend on storage in Enders Reservoir to supplement their natural flow water rights to meet crop requirements. Reclamation has a long-term water service contract with both districts. The reservoir and lands surrounding the reservoir also provide fishing, flat-water recreation, hunting, and camping benefits.

The water supply in Enders Reservoir has been declining for decades. Reclamation studies in 1977 and 1996 showed that surface water inflows into Enders dropped drastically due to intensive drilling of irrigation wells upstream and to soil and water conservation practices. Due to depletions of surface flows, the districts have not received a full water supply since the early 1970's. The last time the reservoir reached the top of conservation pool (TOC) at elevation 3112.3 feet was in 1968.

## **Purpose and Scope**

The purpose of the *Frenchman Unit Appraisal Report* is to determine whether alternative plans analyzed in this report have sufficient potential to justify further Federal involvement, including a detailed feasibility report on the Unit. The report is organized in seven chapters:

- Chapter 1—Purpose and scope; study authority; setting of the Unit; related studies and activities; and a summary of public involvement
- Chapter 2—Problems and needs of the Unit
- Chapter 3— Resources and management opportunities in the area
- Chapter 4—Alternatives to meet study objectives
- Chapter 5—Potential effects of alternative plans
- Chapter 6—Consultation and coordination
- Chapter 7—Conclusions and recommendations.

## **Study Authority**

This appraisal study is authorized under Federal Reclamation Laws (Act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof and supplementary thereto).

## **Setting**

### **Frenchman Unit**

The Unit is one of four in Reclamation's Frenchman-Cambridge Division. It is located on Frenchman Creek, a tributary to the Republican River in Nebraska near the Kansas border. The Republican River drains about 7,700 square miles in Colorado, 7,500 square miles in Kansas, and 9,700 square miles in Nebraska, for a total of 24,900 square miles. The drainage area above Enders Reservoir is about 950 square miles, of which 790 square miles contributes to surface runoff.

The study area is about 9,465 square miles in size: the entire Frenchman Creek drainage basin, including the FVID, H&RWID, and Riverside Irrigation District (RID). The Unit's surface water supply originates at Enders Reservoir and natural flows into Frenchman Creek below the dam (see map at the front of this report).

The project area is bounded on the south by the Republican River and on the east by Red Willow Creek. Frenchman and Red Willow Creeks drain into the Republican River to the west and east of McCook, Nebraska, respectively. The boundary also follows the Platte River to the north, and the High Plains Aquifer in the west. This corresponds with the Republican River Compact Administration (RRCA) groundwater model domain. The study area encompasses six Nebraska counties: Chase, Dundy, Hays, Hitchcock, Perkins, and Red Willow.

Nebraska's Upper and Middle Republican River Natural Resource Districts (NRD's) encompass the Frenchman Creek basin, including Enders Reservoir and FVID and H&RWID lands. The Upper Republican NRD includes 1,728,070 acres in Chase, Dundy, and Perkins counties. The NRD contains 12 towns, with a total population of about 8,900. The Middle Republican NRD contains most of Frontier County, all of Hayes, Hitchcock and Red Willow counties, and the southern third of Lincoln County. It covers 2,459,520 acres.



*Fig. 1.1: Enders Dam*

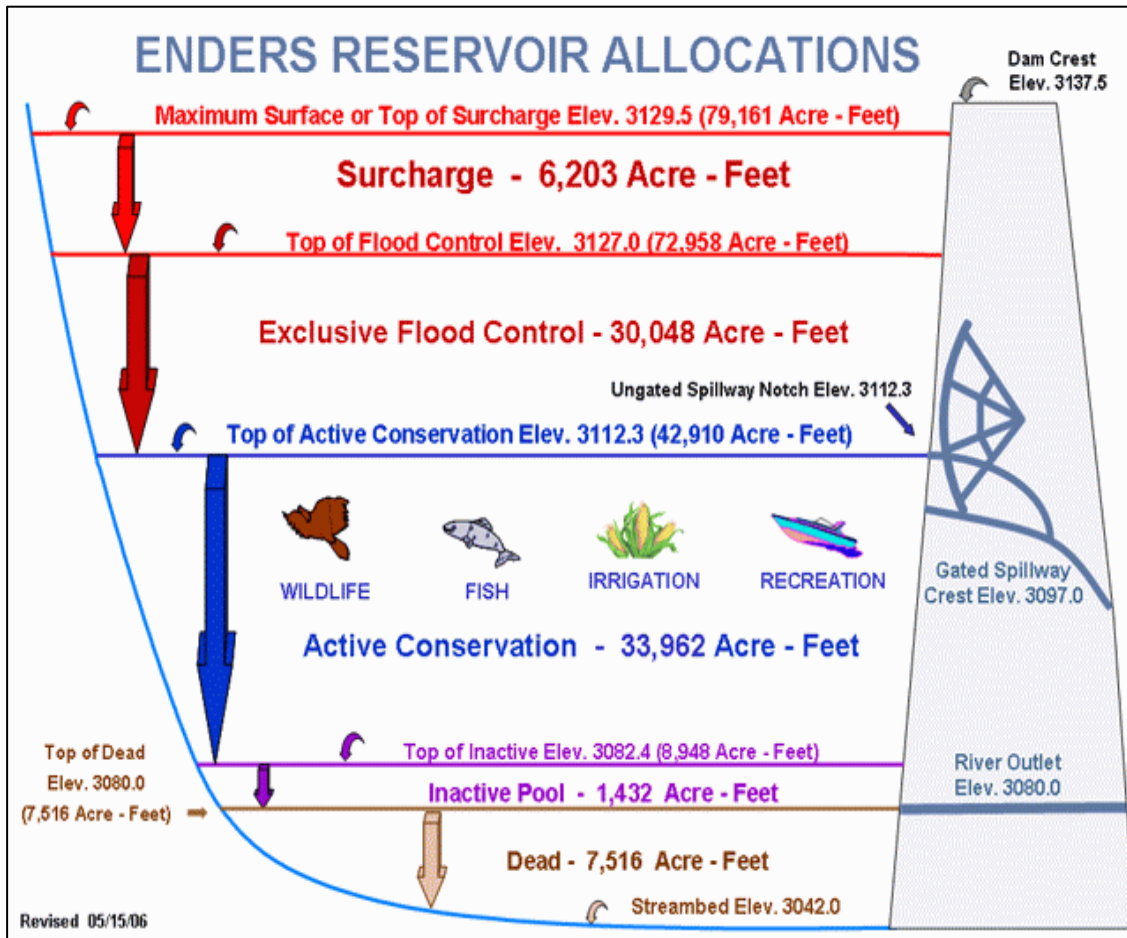
Water stored in Enders Reservoir—along with flows from the Frenchman and Stinking Water Creeks—supplies the Culbertson Canal and the Culbertson Extension Canal Systems (see map at front). Reservoir allocations are shown in Fig. 1.2. Cropping patterns and yield data obtained from a 1998 Reclamation repayment study showed that the primary irrigated crops in the District were corn, alfalfa, and soybeans. On a percentage basis, corn accounted for 86 percent of the irrigated acres, alfalfa was 8 percent, and soybeans were 6 percent. Primary dryland crops include a wheat-eco fallow corn-fallow rotation.

During normal Unit operations, FVID receives natural flow water out of Enders. The water supply (both natural flows and storage water) is divided equally by all project lands for the irrigation season. Once irrigation releases begin from Enders, the intent is to make the same water deliveries to lands in both districts. FVID historically received a greater supply due to their deliveries from natural flows.

### **Republican River Compact**

The Republican River's water supply is allocated to Colorado, Nebraska, and Kansas through the Republican River Compact (Compact) ratified by Congress in 1943. The Compact specifies allocation of the *virgin water supply*, defined as the un-depleted water supply in the basin. Each of the three states is allocated a percentage of the virgin water supply: Colorado 11 percent, Nebraska 49 percent, and Kansas 40 percent.

Fig. 1.2: Enders Allocations



In 1998, Kansas filed suit in the U.S. Supreme Court alleging that Colorado and Nebraska violated the Compact by using more than their respective shares of the Republican River water supply. The states negotiated a settlement, which was approved by the Supreme Court in May 2003. This *Final Settlement Stipulation* (FSS) provided for Compact accounting that included stream depletions attributable to groundwater use.

From 2003-2006, Nebraska has exceeded its allocation. In an effort to achieve compliance with the FSS, the state enacted LB 962 in 2004. This legislation requires that the Nebraska Department of Natural Resources (DNR) and the natural resource districts (NRD's) develop an integrated surface water/groundwater management plan for fully appropriated basins. The Republican River Basin is currently designated as fully appropriated.

The DNR and NRD's have developed and formally adopted *Integrated Water Management Plans* (IMP's) to bring Nebraska into compliance with the Compact. The plans include limiting shares of the state's groundwater depletions to the Upper Republican NRD at 44 percent, the Middle Republican NRD at 30 percent, and the

Lower Republican NRD at 26 percent. Total available groundwater depletions (following depletions from surface water diversions) would be set to the percentages listed. The DNR predicts that these target depletion limits could be met with a 20 percent reduction in groundwater pumping volumes from the baseline value established during the period 1998-2002.

### **Other Plans to Comply with the Compact**

Beginning in 2006, the DNR and/or NRD's have annually purchased or leased surface water from irrigation districts to improve streamflows which would help the state achieve Compact compliance. In 2007, Nebraska enacted LB 701 granting the Republican River NRD's taxing authority in the Republican River Basin to fund surface water purchases. A local group challenged LB 701 as unconstitutional, and a hearing was held in Lancaster County District Court on January 24, 2008. The District Court judge ruled on May 19, 2008, that LB 701 taxing authority is unconstitutional. The Nebraska Attorney General's Office has filed an appeal with the Nebraska Supreme Court.

It should be noted by existing water right law, all inflows to Enders Reservoir, and natural flows to Frenchman Creek below the dam, belong to the Unit. These water rights are needed to meet irrigation obligations to the FVID and H&RWID. For a detailed description of the Unit's water rights, see Appendix A.

Surface water interests in Nebraska formed the Republican River Irrigation District Council (Council) in an effort to preserve and protect surface water rights and to give surface water interests a voice in water management and water policy development. FVID, H&RWID, and RID are members of this council.

Like Nebraska, Colorado has exceeded its Compact allocations from 2003-2006 by about 11,000 AF/year. The Republican River Water Conservation District (RRWCD) was created by Colorado to help the state come into compliance with the FSS. To reduce consumptive use, the RRWCD offered incentives for voluntary retirement of water rights. A proposal considered but later dropped was to drain Bonny Reservoir in order to reduce evaporative losses. The RRWCD's most recent proposal included purchasing groundwater rights to pump an estimated 15,000 AF/year through a 12.5-mile pipeline to the North Fork of the Republican River near the Colorado-Nebraska state line.

### **Recreation**

Enders Reservoir provides both water based and land based recreational activity. At TOC, the reservoir provides about 1,707 acres of surface area. The last time Enders reached this level was 1968. Recreation facilities at Enders Reservoir include 2 boat ramps, 2 campgrounds with more than 150 tent sites and 32 recreational vehicle sites, 8 picnic areas, and a designated swimming beach.

The Nebraska Game and Parks Commission (NGPC), FVID, and H&RWID are discussing a minimum pool for recreational use at Enders. NGPC would pay the districts to forego irrigation releases from the reservoir in order to increase water for recreation, fish, and wildlife benefits. Funding and agreement terms remain to be negotiated.

## **Administration of Water in Nebraska**

Groundwater and surface water are administered separately in Nebraska. The DNR regulates surface water rights state-wide, while groundwater is regulated locally by the NRD's.

Nebraska's *Groundwater Management Act* restricts the use of groundwater under certain prescribed conditions but does not control depletion of surface streamflows by groundwater development.

## **Related Studies**

Several studies have been done on the Unit and the Republican River Basin. Reclamation studies include:

- *Definite Plan Report: Frenchman-Cambridge Division, Pick-Sloan Missouri Basin Program* (1951)
- *Appraisal Report, Frenchman Unit* (1977)
- *Republican River Basin Water Management Study* (1985)
- *Resource Management Assessment, Republican River Basin, Water Service Contract Renewal* (1996)
- *Frenchman Valley Irrigation District, Hitchcock County, Payment Capacity Analysis* (1998)
- *Final Environmental Impact Statement: Republican River Basin Nebraska and Kansas Repayment and Long-Term Water Service Contract Renewals* (2000).

A complete list of studies can be found in "References Cited".

## **Public Involvement**

Reclamation has several partners in this study: the NDNR, FVID, H&RWID, RID, Upper and Middle Republican NRD's, and the NGPC. Several meetings have been conducted with partners and various stakeholders. A summary of public involvement activities can be found in Chapter 6.