

FISH AND WILDLIFE COORDINATION ACT REPORT  
FOR THE MID-DAKOTA RURAL WATER SYSTEM PROJECT



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Fish and Wildlife Enhancement  
420 S. Garfield Avenue, Suite 400  
Pierre, South Dakota 57501-5408

November 16, 1993

### MEMORANDUM

To: Project Manager, U.S. Bureau of Reclamation  
Missouri-Souris Projects Office; Bismarck, North Dakota

From: Field Supervisor, Ecological Services  
South Dakota Field Office; Pierre, South Dakota

Subject: Fish and Wildlife Coordination Act Report for the Mid-Dakota Rural Water System Project

The U.S. Fish and Wildlife Service (Service) has completed an analysis of the Mid-Dakota Rural Water System Project. This report has been coordinated with the South Dakota Department of Game, Fish and Parks (SDDGFP). Their letter of concurrence, dated September 17, 1993, is appended. This report discusses environmental effects relative to the proposed development of the subject water system for east central South Dakota, but it also provides concurrence on the Bureau of Reclamation's (Bureau) determination of a "no-effect" on eight federally listed species that may occur within the project area. The Mid-Dakota Rural Water System, sponsored by the Mid-Dakota Water Development District and the Mid-Dakota Rural Water System Incorporated, is a municipal, rural, and industrial water system proposed for a ten-county area in east central South Dakota.

The purpose of the Mid-Dakota Rural Water System is to provide a reliable supply of good quality water to towns and rural residences in the ten-county project area. When completed, it will provide treated domestic water to approximately 29,000 people in 23 towns and at some 2,018 individual rural households in the area. Approximately 612 livestock water users and 75 seasonal users would use the water. Wells are the primary source of water for rural residences at present; however, groundwater in the area does not meet most of the established parameters for good water quality. High levels of iron, manganese, total dissolved solids, nitrates, sulfates, and sodium are a problem in many areas. The project will require approximately 4,500 acre-feet of water per year to operate and has a total capacity of 9 million gallons per day.

The Service has identified potential impacts to fish and wildlife resources as a result of the proposed project, primarily related to pipeline crossings, on approximately 6,000 individual wetlands or 410 acres, 5 acres of trees, 1,263 acres of grasslands, and 9,145 acres of croplands. The pipeline will cross one perennial stream (James River) at 5 or more locations and 250 intermittent streams and smaller drainages. Several of the intermittent streams provide semipermanent to permanent pools. However, the Service has identified measures that can avoid most of the tree impacts and minimize impacts due to pipeline crossings of other sensitive habitats (wetlands, streams, etc.). In addition, the authorized Wetland Development and Enhancement Component of the project, which consists of 600 to 800 acres of enhanced, restored, and created wetlands, including upland nesting habitat management, may provide significant fish and wildlife benefits. A secondary benefit to the water quality of the James River and its associated aquatic habitats may be realized when the City of Huron begins to utilize the MDRWS to meet its base water demands of up to 2 million gallons per day.

Based on the provisions of the Mid-Dakota Act and other related statutes, the Service recommends the following (substantiating references in parentheses):

#### Mitigation

1. The project sponsor, with oversight and technical assistance provided by the Bureau, shall design and implement measures at project cost to minimize aquatic organism entrainment and impingement at the intake structure. (Pages 10, 15, 16, and 18)
2. The project sponsor, with oversight and technical assistance provided by the Bureau, shall design and implement a two- to three-year study at project cost to monitor and assess the impacts on aquatic communities (fish fry and fingerling) resulting from the operation of the intake system. The Interagency Impact and Mitigation Assessment Team (IMA Team) will also consider the necessity of conducting follow-up monitoring programs on a three- to five-year basis. (Pages 16 and 18)
3. The project sponsor, with oversight and technical assistance provided by the Bureau, shall design and implement measures at project cost to minimize impacts to streams, rivers, and wetland crossings from pipeline crossings. (Pages 5, 6, 10, 11, and 15)
4. The project sponsor, with oversight and technical assistance provided by the Bureau, shall design and implement measures as a project cost to avoid adverse impacts to woody vegetation from pipeline routes. Unavoidable woody vegetation impacts will be replaced by plantings of native species at a ratio of at least two acres planted for every acre disturbed. (Pages 11, 15, 16, and 18)
5. The Bureau and project sponsors shall ensure that grasslands impacted by the pipeline routes are immediately reclaimed by reseeding of indigenous species. (Pages 11 and 15)

6. The Bureau and project sponsors shall ensure that pipeline routes do not impact American burying beetle habitat or shall do beetle surveys if the habitat cannot be avoided. (Pages 7 and 16)
7. There will be annual field reviews conducted by the IMA Team of which the Service and SDDGFP will be members. Annual reports will then follow the review to document the Team's findings and recommendations.

#### Fish and Wildlife Benefits

1. The Wetland Development and Enhancement Component package of the Mid-Dakota Rural Water System Project is a plan to establish dependable brood water for waterfowl by converting temporary and seasonal wetlands to semipermanent basins. This component remains a high priority with the Service. Further investigation by the Service and the IMA Team concerning the feasibility of using previously identified wetland sites is essential in the immediate future. (Pages 17 and 19)

This Fish and Wildlife Coordination Act Report provides the Service's views at this stage of planning. If the project changes or new engineering or biological information becomes available, the Service should be notified; and this report will be modified or supplemented as appropriate.

The opportunity to provide the Service's inputs on the Mid-Dakota Rural Water System Project is appreciated.

cc: ARD-ES; Denver, CO (60120)  
 Secretary, SDDGFP; Pierre, SD  
 (Attention: Dick Beringson)  
 Project Manager, BR; Bismarck, ND  
 (Attention: Greg Gere)  
 Regional Director, BR; Billings, MT  
 (Attention: Auzie Blevins)  
 Project Manager, BR; Pierre, SD  
 (Attention: Bud Stiles)  
 Manager, MDRWS; Miller, SD  
 (Attention: Kurt Pfeifle)  
 COE-Oahe Project Office; Pierre, SD  
 (Attention: Cliff Weber)

*M. J. Zschomler*

**SUBSTANTIATING REPORT**

**FISH AND WILDLIFE RESOURCES IN RELATION TO  
THE MID-DAKOTA RURAL WATER SUPPLY PROJECT**

**MID-DAKOTA PROJECT, SOUTH DAKOTA**

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## INTRODUCTION

This report evaluates the anticipated effects of the Mid-Dakota Rural Water System Project on fish and wildlife resources, identifies mitigation needs and opportunities, and proposes enhancement features to benefit fish and wildlife. The Mid-Dakota Rural Water System Project was authorized by Public Law 102-575 (House Resolution 429) in October of 1992. An authorized feature of the Project, under Section 1904, includes \$2,756,000 for the enhancement of existing wetlands through delivery of project water, development of constructed wetlands, and restoration of drained wetlands. One hundred thousand dollars (\$100,000) annually was also authorized in the form of grants for the operation and maintenance of wetland developments.

All project water will be taken from the Missouri River (Oahe Reservoir) and delivered to ten counties in east central South Dakota. Construction of project features is expected to take place over a ten-year period with some portions completed within the next two years. Discussion and evaluation of potential impacts and recommendations for mitigation and enhancement features will, in some cases, be general in nature since the identification, description, and layout of necessary conveyances, pumping, and distribution facilities are not yet available for analysis. As additional features and conveyance routes become defined, supplemental Fish and Wildlife Coordination Act Reports may be necessary to evaluate specific project features. Also, an Interagency Impact and Mitigation Assessment Team (IMA Team) will be established and will meet on an annual basis over the ten-year construction period. The purpose of the IMA Team is to identify actual specific impacts resulting from project construction, recommend compensatory measures to offset those impacts, and monitor their effectiveness and recommend further mitigation as appropriate.

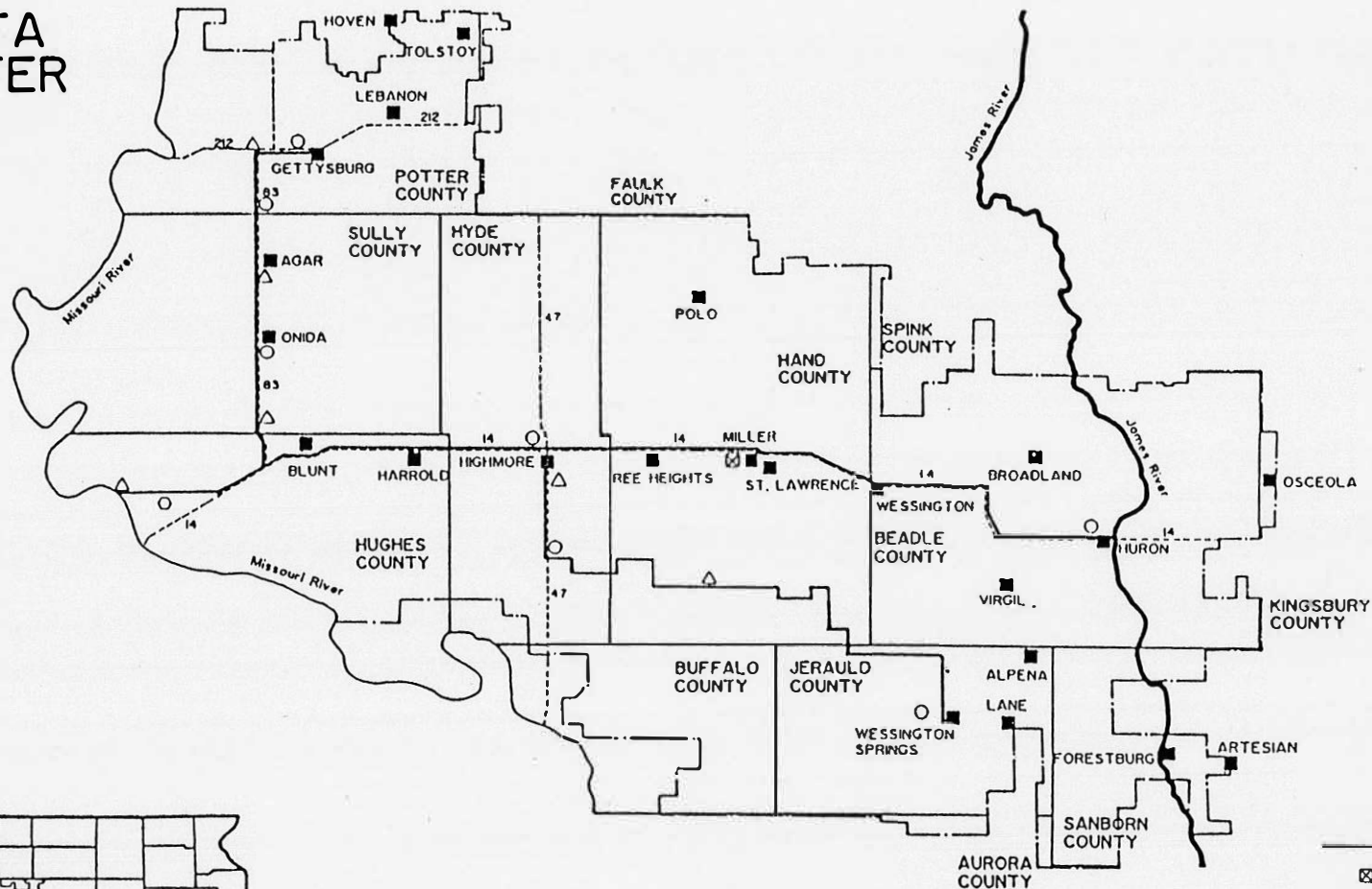
This report was prepared under the authority of the Fish and Wildlife Coordination Act of 1958 (16 U.S.C. 661 et seq.) and the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.). Submission of the report is in accordance with the Interagency Transfer of Funds Agreement for Fiscal Year 1993, No. 3-AA-60-02790, Modification No. 005.

## DESCRIPTION OF THE PROJECT

The Mid-Dakota Rural Water System Project covers about 7,000 square miles in the east central portion of South Dakota or roughly ten percent of the total land area of the state (see Figure 1). The project includes all or part of Beadle, Buffalo, Hand, Hughes, Hyde, Jerauld, Potter, Sanborn, Spink, and Sully Counties. The project area would extend about 125 miles from its western boundary on the Missouri River to its eastern boundary at the Beadle-Kingsbury county line and from its northern boundary of Potter County about 80 miles to the southern boundary of Sanborn County. The preferred alternative, Alternative A, consists of approximately 2,720 miles of buried pipeline which will provide treated water to approximately 29,000 persons in 2,200 households and 23 communities in the ten-county area. It is estimated that approximately 40 to 50 miles of pipeline will service households within the Crow Creek Indian Reservation in southeastern Hughes and southwestern Hyde Counties. A



# MID-DAKOTA RURAL WATER SYSTEM



## KEY

- ☒ O & M CENTER (MILLER)
- TOWER
- △ PUMP STATION
- TREATMENT PLANT
- COUNTY LINE
- - - PROJECT BOUNDARY
- PROPOSED MAINLINE ROUTE
- TOWNS SIGNED UP FOR RURAL WATER
- - - HIGHWAY
- RIVER

0 13 26  
SCALE IN MILES



BARTLETT & WEST ENGINEERS, INC.  
BOX 1077  
BISMARCK, ND

MID - DAKOTA  
RURAL WATER SYSTEM

FIGURE 1



water intake facility, originally designed to use existing Corps of Engineers' dam facilities, is now proposed to be located north of the Oahe Dam on the Oahe Reservoir. Total capacity of the water delivery system would be 9 million gallons per day or 4,500 acre-feet per year. The project will also include a total of seven pump stations, six elevated reservoirs (towers), and one 25-acre water treatment plant. Additional pump stations and storage facilities are anticipated in the future.

#### DESCRIPTION OF THE PROJECT AREA

The proposed pipeline system would cross the eastern portion of the Coteau des Prairies of the Missouri Plateau and extend into the James River lowland where the topography changes rather abruptly in central portions of Hand and Jerauld Counties (Westin and Malo 1978). Five of the ten counties to be serviced by the project lie within the Coteau des Prairies. Topography in the Coteau, especially near the Missouri River and along the deeply entrenched drainages, is generally regarded as being well drained with strongly sloping to very steep loamy soils overlying shale.

In the upland portions of those counties lying within the Coteau and in the majority of the remaining project area (in the James River lowlands), the topography is generally nearly level to gently undulating with well drained loamy soils. The only exceptions to this pattern are the very rough hills (Ree Hills, Wessington Hills, and Orient Hills) formed by glacial deposits in Hand County and along the James River and some of the larger tributaries to the James River in Beadle County where the topography is gently rolling to fairly steep.

Westin and Malo (1978) indicate that the majority of the project area is located within the major soil subgroup (Typic Ustolls) region referred to as the warm, dry, plain region of South Dakota. Soils and vegetation have developed under a warm, dry, sub-humid climate where the annual precipitation is 17 to 24 inches. The climate is continental, i.e., where very warm, dry summers and cold to very cold winters can be expected. Temperatures throughout the year range from  $-30^{\circ}\text{F}$  to  $112^{\circ}\text{F}$  and, during the fall as cold fronts move through the area, extreme temperature fluctuations have been known to occur, as much as 40 degrees in an hour. The frost-free period fluctuates between 130 and 160 days, depending upon the county. Agriculture is the primary industry in the project area.

Soil associations throughout most of the project area are well drained to excessively drained with loamy to silty soils being formed from glacial till deposits. Some of those soils are underlain by a clay pan or mixed with a clay loam. Poorly drained soils are common in the alluvial bottomland of the James River and along larger drainages, swales, and depressions within the ten-county area.

Vegetation communities are a product of the soils and climatic factors, especially the amount and distribution of rainfall on a seasonal basis and the average humidity. Approximately 75 to 80 percent of the rainfall in the project area occurs during the early part of the growing season.

Precipitation during the mid to late summer period is normally sparse and unpredictable. The remainder of the yearly precipitation occurs in the early fall with winters being primarily dry and cold. Accordingly, the dominant, climax plant community in the project area is the mid to shortgrass prairie environment which includes a mixture of both warm-season and cool-season grasses. Typical grass species include western wheatgrass; little bluestem, green needlegrass, needle-and-thread, side-oats grama, blue grama, plains muhly, and threadleaf sedge. However, the native vegetation in most parts of the project area has been altered and greatly depleted by continued excessive use and/or conversion to crops and tame pastures. Native range now occurs primarily in those areas having steeper relief and poorer soils, e.g., along the Missouri River breaks. Most of the native woodland occurs on bottomlands and islands of the Missouri River, larger drainages like Medicine Knoll Creek in Hughes County, the James River system, or protected draws receiving adequate moisture from adjacent sloping soils (U.S. Department of Agriculture, Soil Survey Reports for Hughes and other counties). The principal species of native trees and shrubs are American elm, boxelder, buffaloberry, bur oak, chokecherry, eastern cottonwood, eastern red cedar, gooseberry, green ash, hawthorne, juneberry, skunkbush, snowberry, wild plum, and wild rose.

Federal land holdings within the project area include the Bureau of Reclamation's 1,400 acres for the Pierre Canal; 18,870 acres for the Blunt Reservoir; Corps of Engineers' project lands along the Missouri River; and the Crow Creek Indian Reservation lands located in southeastern Hughes County, southwestern Hyde County, and western Buffalo County adjacent to Lake Sharpe. Also, U.S. Fish and Wildlife Service (Service) fee title lands as Waterfowl Production Areas and large blocks of Waterfowl Production Area wetland/upland easement areas account for several thousand acres. The largest concentrations of U.S. Fish and Wildlife Service Waterfowl Production Area and easement lands occur in the following project areas: eastern Potter County; northern Hyde County; northwestern, northeastern, southwestern (south of Miller Dale Colony), and southeastern (Rose Hill State Recreation Area) Hand County; western and southeastern portions of Beadle County; south and southwest of Wessington Springs in Jerauld County; and in the west central and east central portion of Sanborn County.

#### EVALUATION METHODOLOGY

Based on the Service's field reconnaissance work and the type of project being investigated, we believe that a detailed habitat evaluation study is not warranted. Initial impact analysis was based on our coordination with other federal and state agencies and on our best professional judgment through map interpretation and field trips. Additional information was provided in a June 17, 1993, memorandum (Attachment A).

## FISH AND WILDLIFE RESOURCES WITHOUT THE PROJECT

### Aquatic Resources

Aquatic resources within the project area or influenced by the Mid-Dakota Rural Water System Project consist of the Missouri River, the James River, numerous intermittent creeks, palustrine wetlands, and man-made lakes and ponds. The 1978 Stream Evaluation Map for the State of South Dakota classifies the riverine habitats as follows:

Missouri River - Class I - Highest Valued Fisheries Resource. Class I resources contain habitat capable of maintaining outstanding populations of species of high interest, including documented occurrence of state or federally listed endangered species.

James River - Class III - Contains habitat that is occasionally used by a highly valued population of species having high interest or an essential habitat for maintaining a relatively low valued population of a species of high interest. There is a possible but undocumented occurrence of a threatened species.

Other Class III streams within the project area that are regarded as being primarily intermittent but having seasonally high valued fishery contributions include Medicine Knoll Creek in Hughes County near Blunt, South Dakota; West Fork Creek located in southwestern Hyde and Buffalo Counties; Crow Creek in Buffalo County; and Sand Creek in southwestern Beadle County, northeastern Jerauld County, and northwestern Sanborn County. Sand Creek enters the James River just upstream of Forestburg, South Dakota. Many of the project area streams can be expected to provide good waterfowl breeding habitat. For example, during the Service's 1985 CENDAK Area Waterfowl Breeding Pair Survey, Medicine Creek (northeast Hand County) was found to have the highest breeding pair densities with an average of 15.9 pairs per mile. The average pair density for 876 miles of streams surveyed during the study was 6.1 pairs per mile (Ruwaldt 1985).

There are also hundreds of man-made dams within the project area constructed for stock watering facilities. Various researchers have noted that many of these stock dams are excellent producers of waterfowl under certain conditions relating to size, location, water depth, and intensity of use by livestock (Flake 1978; Lokemoen 1973). Many of these dams also support various fisheries that receive significant recreational use.

Fish populations in the Missouri River have changed considerably since closure of the dams. Native fish species like the shovelnose sturgeon, pallid sturgeon, paddlefish, blue sucker, northern redhorse sucker, and the bigmouth and smallmouth buffalo have either been eliminated or have declined over the years. Surveys by Bailey and Allum (1962) within the Missouri River reach of the project area also accounted for other species now considered to be rare, such as the flathead chub, sicklefin chub, plains minnow, stonecat, and white sucker. Current species (some introduced) more adaptable to the cold-water

reservoir situation are the walleye, channel catfish, sauger, northern pike, white bass, smallmouth bass, yellow perch, black crappie, white crappie, spottail shiner, emerald shiner, goldeye, rainbow smelt, and various salmonid species.

Inland rivers and creeks, such as the James River, its larger tributaries, Medicine Knoll Creek, and other intermittent creeks within the project area, may be the last stronghold for various minnow, shiner, and darter species identified by Bailey and Allum (1962). There are few current surveys of many of these inland waters but, in addition to the species noted above, the James River, Sand Creek, and other creeks are believed to also support populations of creek chub, orange-spotted sunfish, green sunfish, fathead minnow, white sucker, sand shiner, red shiner, brassy minnow, Johnny darter, Iowa darter, stoneroller, tadpole madtom, black bullhead, and brown bullhead. Many of the creeks are able to provide suitable spawning and/or nursery habitat only on a seasonal basis when adequate water conditions are available and dependent upon the availability of instream physical habitat requirements.

### Terrestrial Resources

The distribution and density of wildlife within the project area are related to the presence or absence of various habitat elements that provide sources of food and cover. In general, the greater the diversity of plant communities present in a given area, the greater the diversity of wildlife species that can be supported. In the counties bordering the Missouri River, about 20 to 30 percent of the acreage in the Coteau is still in native grasses (County Soil Survey estimates) but is used primarily for range. Most of this native range has continued to be depleted by excessive use resulting in reduced plant species diversity and lower wildlife potentials. Other habitat elements which help to provide diversity are the scattered woody and shrubby draws, wetlands and numerous stock dams, croplands, and various grass and forb communities. Wildlife species common to this area include the mule deer, white-tailed deer, sharp-tailed grouse, wild turkey, pheasant, coyote, fox, bobcat, raccoon, and badger. Small bands of antelope are again reappearing in some of these counties. Bald eagles commonly winter at various locations along the Oahe Reservoir as food and conditions warrant. On the upland portions of these counties, abundant small grain and cornfields in the winter attract migrating geese, ducks, golden eagles, and an assortment of other predators.

In the remainder of the project area, it is estimated that 85 to 90 percent of the acreage is cropland and tame pasture; and, in most of the counties, trees and woody areas (including shelterbelts and riparian zones) make up less than one percent of the total acreage. Native pastures, for the most part, occur only in small scattered blocks. Wildlife species observed in the cropland and rangeland type habitats include pheasant, bobwhite quail, meadowlark, mourning dove, robin, fox squirrel, cottontail, jackrabbit, red fox, raccoon, white-tailed deer, magpie, horned lark, and lark bunting. Relatively small acreages of prairie dog communities also occur in isolated pockets in several of the counties. Occasional shelterbelts; small corners of isolated, heavy herbaceous cover around farmsteads; and numerous wetlands throughout the project area are an important factor adding greatly needed habitat diversity to the large expanse of cropland. In addition to the species noted above,

gray partridge and a host of other wildlife species associated with good habitat diversity and wetlands include amphibians, reptiles, small mammals, muskrat, beaver, mink, skunk, heron, ferruginous hawks, bluewing teal, shovelers, pintails, mallards, and American widgeon.

Riparian areas (streamside habitat) in the project area represent a small proportion of the landscape but provide significant habitat benefits to large numbers of game and nongame animals alike. For example, Girard et al. (1987) found that isolated forests and hardwood draws in the Northern Great Plains comprise less than one percent of the landscape yet received disproportionately large usage by wildlife.

### Endangered Species

The American burying beetle (Nicrophorus americanus) is listed as endangered in South Dakota with specimens historically collected from three counties in the state. There have been no collections of this beetle from any of the counties within the project area. However, a comprehensive status survey has never been completed for the American burying beetle in South Dakota. Until status surveys have been completed, the American burying beetle could and may occur in any county with suitable habitat. It requires soils that allow it to bury carrion, such as fine sandy loams and silt loams containing a clay component. Recent capture sites have had relatively level topography, well-drained soils, and a well-formed detritus layer at the ground surface. The American burying beetle appears to have a broad vegetational landscape tolerance.

The bald eagle (Haliaeetus leucocephalus) is listed as endangered in South Dakota with sightings listed for every county in the state. Bald eagles migrate throughout the state with a significant population also wintering here. Essential winter roosts for bald eagles have been located along the Missouri River. One of these roosts is located in a mature stand of cottonwood trees approximately five miles downstream of the Oahe Dam (U.S. Fish and Wildlife Service 1991). Bald eagles typically use mature riparian timber areas near rivers, streams, and lakes. Bald eagles are usually found in South Dakota from October through April, but juveniles have been sighted in the state during the summer months. Also, in 1992 and 1993, there have been reported nesting attempts by bald eagles (one has been successful) along the Missouri and James Rivers in South Dakota.

The pallid sturgeon (Scaphirhynchus albus) is listed as endangered in South Dakota and is found in the Missouri River. The pallid sturgeon is a large river fish requiring turbid, free-flowing, riverine habitat with rocky or sandy substrate. Based on our knowledge of the pallid sturgeon, it could occur anywhere on the Missouri River in South Dakota. Within the project area, Hughes and Buffalo Counties are considered to provide potential pallid sturgeon habitat. In South Dakota, only a small number of these fish are presently known to exist. They are in Lake Sharpe and are presently being studied by fishery biologists. The pallid sturgeon is endangered due to habitat modification, hybridization with shovelnose sturgeon in part of its range, lack of natural reproduction, and commercial and recreational harvest.



The peregrine falcon (Falco peregrinus) is listed as endangered in South Dakota and is an uncommon statewide migrant in early spring and fall with occasional sightings during the winter. It is possible to sight them any month of the year in South Dakota.

The whooping crane (Grus americana) is listed as endangered in South Dakota with many confirmed sightings in the project area. Confirmed sightings have been made in all of the counties within the project area with the exception of Sanborn and Spink Counties. In South Dakota, the Missouri River is approximately in the center of the north-south migration corridor for the whooping crane. They are a spring and fall migrant that will use cropland; pastures; wet meadows; shallow marshes; shallow portions of rivers, lakes, reservoirs, and stock ponds; and alkaline basins for both feeding and loafing.

The least tern (Sterna antillarum) is listed as endangered in South Dakota; and confirmed sightings have been made in Potter, Sully, and Hughes Counties. There are approximately 200 breeding pairs in South Dakota. The birds utilize sparsely vegetated sandbars and beaches of the Missouri and Cheyenne Rivers. Reasons for population decline include loss of habitat from dam construction and river channelization on major rivers throughout the Mississippi, Missouri, and Rio Grande River systems. Least terns utilizing the remaining sandbars on the Missouri River are susceptible to human activities, predation, and water fluctuations as a result of dam operations.

The piping plover (Charadrius melodus) is listed as a threatened species in South Dakota and is also known to occur in Potter, Sully, Hyde, and Hughes Counties along the Missouri River. Piping plovers utilize the barren sand and gravel shores of rivers and lakes. They have also been known to utilize saline wetlands or alkaline lakes where the vegetation is sparse. Habitat destruction is the major reason for the population decline; and their nests are also susceptible to human activities, predation, and water fluctuations as the result of dam operations. Piping plovers nesting in wetlands are susceptible to cattle trampling, wetland drainage, and contaminants.

Historically, the western prairie fringed orchid (Platanthera praecleara) has been found to occur in wet sedge meadows in the Big Sioux River Valley which is within the tallgrass prairie region of North America. Although there are presently no known occurrences of the western prairie fringed orchid in South Dakota, potential habitat does exist; and, therefore, the western prairie fringed orchid may occur in South Dakota. Suitable habitat in South Dakota includes tallgrass calcareous silt loam prairie and sub-irrigated sand prairie. The main reason for the decline is that historic prairie habitat has been converted to cropland and tame pasture.

In addition, there are many federally listed candidate species that may be found in the project area. These are species of special concern that should be considered in project planning in order to avoid further impacts to a species that may be close to becoming a threatened or endangered species. These include the following:

- Plains spotted skunk (Spilogale putorius interrupta) - Occurs in brushy or sparsely wooded areas along streams, among boulders, and on prairies. Range in South Dakota includes the area south of a line drawn from the very northeastern part of the state diagonally to the most southwestern part of the state.
- Ferruginous hawk (Buteo regalis) - Occupies prairies and grasslands statewide but mostly in the western two-thirds of the state. The ferruginous hawk is often found in or near prairie dog colonies.
- Black tern (Chlidonias niger) - A common to uncommon migrant, summer resident in the eastern half of the state, and uncommon in the western half. Habitats include wetlands and flooded fields.
- White-faced ibis (Plegadis chihi) - Nests adjacent to or on large semipermanent lakes or wetlands in the eastern half of the state.
- Blue sucker (Cycleptus elongatus) - A slender, dark-colored sucker that inhabits deep, swift channels of the Missouri River over a bottom of sand, gravel, or rock.
- Sturgeon chub (Hybopsis gelida) - A slender minnow that inhabits open channels of the Missouri River over a bottom of sand or fine gravel. Listed as a State threatened species.
- Sicklefin chub (Hybopsis meeki) - A slender minnow confined to the main channel of the Missouri River in a strong current over a bottom of sand or fine gravel. Listed as a State threatened species.
- Paddlefish (Polyodon spathula) - Spends most of its life in quiet or slow-flowing waters rich in zooplankton on which it feeds but, for spawning, it must have access to a free-flowing river with gravel bars subject to sustained inundation during spring floods.
- Plains topminnow (Fundulus sciadicus) - Occurs in quiet pools of small creeks, backwaters, and overflow pools of larger streams where the water is clear and without noticeable current, often in or adjacent to beds of submergent vegetation. This species has been documented from selected areas of the Cheyenne River and Missouri River drainages.
- Topeka shiner (Notropis tristis) - A chubby, rather slab-sided minnow which lives in isolated populations in the prairie region. Inhabits quiet pools of small, clear, upland creeks having bottoms composed of sand, gravel, or rubble. At present, it is largely restricted to direct tributaries to the Missouri River having sufficient gradient to prevent extensive deposition of silt. The species is documented from selected areas of the Vermillion, James, and Big Sioux River drainages.
- Regal fritillary butterfly (Speyeria idalia) - Occurs on native prairie across the state.



Many of the previously mentioned federally listed species are also listed by the State as endangered, threatened, or rare. Some additional State listed species that may be located in the project area include the following:

Osprey (Pandion haliaeetus) - Threatened

Northern redbelly dace (Phoxinus eos) - Threatened

Blanding's turtle (Emydoidea blandingi) - Threatened

## FISH AND WILDLIFE RESOURCES WITH THE PROJECT

### Aquatic Resources

The Mid-Dakota Rural Water System Project has the potential to impact a variety of water resources due to water withdrawal at the intake structure, stream crossings, and chlorinating a quantity of water that previously supported aquatic organisms. Bartlett and West Engineers, Inc. has proposed an alternative water intake structure for Mid-Dakota Rural Water System to be located in Lake Oahe. The Mid-Dakota Rural Water System Project would require about 4,500 acre-feet of water per year to operate, and the total capacity would be 9 million gallons per day. The U.S. Fish and Wildlife Service has estimated that the 2,720 miles of proposed pipeline (including both main and secondary water transmission lines) could impact approximately 410 acres in 6,000 individual wetlands. Stream crossings would involve less than one percent of the wetland acreage. It is estimated that the project pipeline will cross approximately 250 intermittent creeks, larger streams like the James River, Medicine Knoll Creek (Hughes County), and tributaries of Firesteel Creek.

The City of Huron will be utilizing MDRWS water to meet their base demands of approximately 2 million gallons per day but will continue to use their James River water supply to meet peak demands. This may affect a positive impact on James River water quality by reducing chemical oxygen demands (COD) and biological oxygen demands (BOD) placed on the river as a result of Huron's wastewater facility and storm water runoff. The Service, as a result of our instream flow work on the James River in 1987, found that Huron's peak water demands can exceed available flows in the James River. A dilution factor of up to 2 million gallons per day could significantly improve overall water quality, increase the diversity of aquatic plant and animal communities, improve spawning success, and potentially increase the availability of and access to spawning and nursery habitat in the James River below Huron. The degree of improvement in water quality and aquatic plant and animal communities will depend on Huron's future peak water demands and how those demands coincide with available river flows and seasonal (spring through early summer) spawning and nursery requirements of fish communities.

Adverse impacts to aquatic food chain organisms and the diverse fishery resource of Lake Oahe as a result of intake entrainment and impingement will occur. However, the Service believes that mitigation opportunities are available that should effectively reduce impacts. Proper siting and design of

the intake structure and at depths or locations where fish species diversity and the density of organisms are reduced may be possible during most years of operation. The tentative elevation proposed for the intake structure in Lake Oahe is at 1540 mean sea level (Bruce McCollum, Bartlett and West, Engineers, Inc., personal communication 1993). Regardless of where the intake structure is located in Lake Oahe, it is recognized that there are likely to be some impacts to zooplankton and/or fish communities. The specifics of the mitigation required will be developed by the U.S. Fish and Wildlife Service and monitored by the Interagency Impact and Mitigation Assessment Team once final site plans are available.

The vast majority of the wetlands identified on National Wetlands Inventory maps and occurring along the pipeline route are very small, linear, and temporary or seasonal in nature. Larger wetlands will be encountered (e.g., Long Lake Waterfowl Production Area in north central Jerauld County and the Collins Slough State Game Area in Hand County) which may be difficult to avoid. However, at this time and because of the nature of the proposed construction activities, the Service does not anticipate that there will be any long-term, adverse impacts to wetlands in the Mid-Dakota Rural Water System Project if the mitigative measures discussed in the draft Environmental Assessment are implemented to the maximum extent possible. Impacts to wetlands that cannot be avoided should be temporary in nature and may interrupt overwater nesting and feeding activities of some species of waterfowl and shorebirds, and some winter cover may be eliminated for a season.

Service review of the general location of several construction sites for major facilities, like the 25-acre water treatment plant, pump facilities, and towers, indicated that wetland densities in these areas are generally very low. Avoidance of wetland construction should be feasible. For example, there are no wetlands indicated on National Wetlands Inventory maps at the location of the water treatment site; this site is primarily cropland.

Also, larger rivers like the James River and smaller intermittent streams that are seasonally more perennial in nature are used by fish for travel and spawning during the spring and early summer when sufficient flows are available. Pipeline construction during these periods could disrupt travel and spawning patterns of fish and other aquatic organisms. Implementation of mitigative features, such as avoidance or seasonal construction restrictions, could substantially reduce or eliminate potential long-term adverse impacts. Avoidance of wetlands located within the riparian zone of the larger streams will greatly reduce the possibility of long-term adverse effects in these sensitive areas.

### Terrestrial Resources

The draft Environmental Assessment indicated that the preferred alternative would impact approximately 1,263 acres of grassland and 9,145 acres of cropland, assuming an average disturbed width of 20 feet. The U.S. Service also has estimated that pipeline crossings of the James River, some of its tributaries, and larger streams like Medicine Knoll Creek could potentially impact about five acres of trees and shrubs in riparian areas and shelterbelts around farmsteads. These acreage figures do not consider any avoidance measures undertaken to lessen impacts. It is anticipated that many of the

impacts to woody vegetation can and will be avoided. The cropland and grassland acreage disturbed by the pipeline will be stabilized soon after the impacts occur. Pipeline placement may impact grassland breeding and nesting bird species during the year of construction. Game species, such as the sharp-tailed grouse, may be particularly sensitive to construction if pipeline routes should bisect breeding leks during April and May. Other grassland ground nesting species, such as pheasant, gray partridge, meadowlark, and bobolinks, may be impacted by pipeline construction from May through July.

Loss of woody vegetation could impact many species of game and nongame animals that depend heavily upon this habitat. Girard et al. (1987) highlighted the importance of woody cover for wildlife, especially during severe winter weather, although the potential loss of five acres of woody cover in a project area of nearly 7,000 square miles is not significant.

The location of the water treatment facility, pumping facilities, and towers will eliminate about 45 acres of primarily cropland and some tame pasture from the project area. This loss will not significantly impact wildlife resources since 85 to 90 percent of the Mid-Dakota Rural Water System Project is in small grain crops.

Project plans also call for the upgrading of approximately three miles of existing power lines and construction of new ones for the Oahe pumping plant/water treatment site. Part of the three miles of upgraded lines (administered by the Corps of Engineers) would be placed underground. Design for both the new and upgraded line would be "raptor proofed" in accordance with guidelines by Olendorf et al. (1981). This is an area that has hundreds of thousands of waterfowl migrating through it, and some years upwards of 50,000 waterfowl may winter in the area. It is also a migration corridor for many other species of migratory birds. Increased power lines in the Missouri River floodplain may increase line strikes by birds.

#### Endangered Species

The U.S. Fish and Wildlife Service's letter of June 17, 1993, copy attached, provided our concurrence (with one exception) with the Bureau of Reclamation's determination of a "no effect" on eight federally listed species that may occur within the project area. That exception was for the pallid sturgeon. A small population of pallid sturgeon remain in Lake Sharpe east of Pierre, South Dakota. Project plans now propose to locate the water intake in Lake Oahe. Although adult pallid sturgeon may have been trapped in Oahe Reservoir with the closure of the dam in 1958, as evidenced by the last catch records for pallid sturgeon in Oahe Reservoir in the mid-1960's, it is unlikely that successful spawning of this species is occurring. Therefore, if project plans do not change regarding the location of the intake structure, reevaluation may not be necessary; and we can concur with a "no effect" determination on the pallid sturgeon.

#### MITIGATION POLICY

The U.S. Fish and Wildlife Service's Mitigation Policy (Federal Register, Volume 46, No. 15, Pages 7644-7663, 1981) is used in the evaluation of impacts of land and water developments and in the subsequent recommendations to

mitigate adverse impacts. The policy establishes four Resource Categories, Designation Criteria, and Mitigation Planning Goals for cover types that the U.S. Fish and Wildlife Service anticipates will be impacted by the development of a project. These are presented below.

<u>Resource Category</u>	<u>Designation Criteria</u>	<u>Mitigation Planning Goal</u>
1	High value for evaluation species and unique and irreplaceable.	No loss of existing habitat value.
2	High value for evaluation species and scarce or becoming scarce.	No net loss of in-kind habitat value.
3	High to medium value for evaluation species and abundant.	No net loss of in-kind value while minimizing loss of in-kind habitat value.
4	Medium to low value for evaluation species.	Minimize loss of habitat value.

In applying the Mitigation Planning Goals, the Mitigation Policy directs that the following guidelines be followed:

#### Resource Category 1

The U.S. Fish and Wildlife Service will recommend that all losses of existing habitat be prevented as these one-of-a-kind areas cannot be replaced. Insignificant changes that do not result in adverse impacts on habitat value may be acceptable, provided they will have no significant cumulative impact.

#### Resource Category 2

The U.S. Fish and Wildlife Service will recommend ways to avoid or minimize losses. If losses are likely to occur, then the U.S. Fish and Wildlife Service will recommend ways to immediately rectify them or reduce or eliminate them over time. If losses remain likely to occur, then the U.S. Fish and Wildlife Service will recommend that those losses be compensated by replacement of the same kind of habitat value so that the total loss of such in-kind habitat value will be eliminated.

Specific ways to achieve this planning goal include (1) the physical modification of replacement habitat to convert it to the same type lost; (2) the restoration or rehabilitation of previously altered habitat; (3) increased management of similar replacement habitats so that the in-kind value of the lost habitat is replaced; or (4) a combination of these measures. By replacing habitat value losses with similar habitat values, populations of species associated with that habitat may remain relatively stable in the area over time. This is generally referred to as in-kind replacement.

### Resource Category 3

The U.S. Fish and Wildlife Service will recommend ways to avoid or minimize losses. If losses are likely to occur, then the U.S. Fish and Wildlife Service will recommend ways to immediately rectify them or reduce or eliminate them over time. If losses remain likely to occur, then the U.S. Fish and Wildlife Service will recommend that those losses be compensated by replacement of habitat value so that the total loss of habitat value will be eliminated.

In most cases, recommendation of ways to replace such habitat value losses in-kind is preferable. However, if the U.S. Fish and Wildlife Service determines that in-kind replacement is not desirable or possible, then other specific ways to achieve this planning goal include (1) substituting different kinds of habitat, or (2) increasing management of different replacement habitats so that the value of the lost habitat is replaced. By replacing habitat value losses with different habitats or increasing management of different habitats, populations of species will be different, depending on the ecological attributes of the replacement habitat. This will result in no net loss of total habitat value but may result in significant differences in fish and wildlife populations. This is generally referred to as out-of-kind replacement.

### Resource Category 4

The U.S. Fish and Wildlife Service will recommend ways to avoid or minimize losses. If losses are likely to occur, then the U.S. Fish and Wildlife Service will recommend ways to immediately rectify them over time. If losses remain likely to occur, then the U.S. Fish and Wildlife Service may make a recommendation for compensation, depending on the significance of the potential loss.

Using the Designation Criteria, the cover types that will be affected by the Mid-Dakota Rural Water Supply System fall into the following Resource Categories.

	<u>Resource Category</u>			
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Cropland				X
Grassland/Pasture			X	
James River Woodland	X			
Palustrine Wetland		X		
Riparian/Woody Draws		X		
Riverine		X		

## MITIGATION

Section 1911 of Public Law 102-575 (House Resolution 429), in addition to providing funds for a wetland enhancement component for the Mid-Dakota Rural Water System, also provided for acre-for-acre mitigation, based on ecological equivalency, for fish and wildlife losses that might result from construction and operation of the system. Mitigation for a project includes avoiding impacts, then minimizing impacts, and finally offsetting impacts that were unavoidable by compensatory mitigation. Analysis of the potential impacts identified during the Service's review of the proposed pipeline routing indicates that considerable avoidance and minimizing of project impacts are possible.

## DISCUSSION

### Avoidance and Minimization

The following measures should be implemented to avoid or minimize impacts to natural resources:

1. Water intakes should be placed at depths greater than 20 feet, screened with vertical slot openings that do not exceed 0.25 inches, and designed to ensure that intake velocity is less than 0.18 foot per second immediately in front of intake screens.
2. Rivers and streams encountered by the pipeline route should be crossed perpendicular to flow and accomplished in a manner to reduce soil erosion and to disturb as little vegetation as possible. In perennial streams, like the James River, or in larger intermittent streams having substantial seasonal flows, the U.S. Fish and Wildlife Service would prefer that sheet steel piling be used instead of soil blocks. Particular care should be taken to prevent soil from entering the watercourse. Also, crossings should not be undertaken during fish spawning periods. Most spawning occurs during the period April-June.
3. Impacts to wetlands encountered by the pipeline route should be avoided by either going around the wetland or minimizing impacts by crossing the wetland basin when dry, if possible, and restoring the wetland bottom to pre-project elevations. In cases where wetland basins to be crossed are formed because of impermeable soils, the soil area disturbed shall be packed to reestablish the impermeability of the basin's floor.
4. Woody vegetation (brush, trees, woody draws, etc.) encountered along the pipeline route should be avoided by either going around the cover or by placing the pipeline along road right-of-way or section lines which may have been previously cleared of woody vegetation.
5. Grasslands encountered by the pipeline route should be reclaimed immediately following trench backfilling by reseeding of indigenous species. Grasslands provide important breeding and nesting cover for many birds, and avoiding certain areas (e.g., wooded or shrub sites) by utilizing highway right-of-way to the maximum extent possible would benefit birds.



6. Water treatment and other facilities, including roads, parking lots, towers, etc., should be located to avoid impacts to any trees near the site. Grassland impacts to ground nesting birds can be minimized by using only the area necessary for construction and timing construction to begin later than July 1 after most ground nesting birds have hatched.
7. Impacts to croplands will likely be short term and only involve a small percentage of the total amount of croplands existing in the project area. Measures should be undertaken to minimize erosion from exposed soil when pipeline routes cross cropland.
8. Efforts should be made by the Interagency Impact and Mitigation Assessment Team (IMA Team) to identify any potential American burying beetle habitat that the Mid-Dakota Rural Water System Project would impact. If these sites cannot be avoided, then American burying beetle surveys will be completed prior to the pipeline crossing.

#### Compensatory Measures

The following compensatory measures should be undertaken to offset unavoidable impacts from the Mid-Dakota Rural Water System Project:

1. Woody vegetation impacted by the Mid-Dakota Rural Water System Project should be replaced on at least a ratio of two planted acres for every acre impacted. This ratio is necessary because woody vegetation removed by the Mid-Dakota Rural Water System Project will require a number of years to rejuvenate. Experience also indicates that a portion of the planted woody cover will not survive. This survival rate can be increased by maintenance of the planted trees to reduce plants competing for water/sunlight, additions of water, and good location selection with respect to soils and other factors. Therefore, ratios greater than 2:1 may be appropriate if maintenance or water additions are not possible.
2. In order to more clearly define the magnitude of unavoidable, long-term aquatic impacts in Lake Oahe resulting from the operation of the intake system, the Service recommends that the Bureau of Reclamation and project sponsors investigate the feasibility of funding a two- to three-year intake monitoring program. The objective of the monitoring program would be to ascertain a year-round profile of the species of fish and their densities that may be drawn into the caisson (well) throughout a full range of operational conditions. The U.S. Fish and Wildlife Service will develop a mitigation plan to offset aquatic impacts with a supplemental report to this Fish and Wildlife Coordination Act Report. The Interagency Impact and Mitigation Assessment Team will monitor the results of mitigation features and then make recommendations to the project sponsors on the need for either additional studies or appropriate mitigation alternatives.
3. Unavoidable, long-term, aquatic impacts may result from either the intake location and operation and/or the large number of wetland/stream crossings within the Mid-Dakota Rural Water System Project. If entrainment or impingement of zooplankton and fish larval stages in Lake



Oahe should become a significant problem at any time during the life of the project, as a result of the operation of the intake structure, the Service will work with the SDDGFP, project sponsors, and the Bureau to develop appropriate compensatory measures. Compensatory measures might include a cost sharing opportunity for the construction and operation of fingerling rearing ponds using the wetland enhancement raw water line. A stocking program to replace the potential loss of forage species may also be considered if compensation becomes necessary. The IMA Team will develop compensatory proposals for unavoidable adverse impacts associated with pipeline and facility construction activities throughout the ten-year construction period.

called Dave  
Albright  
11-14-93  
to discuss  
concern

#### WETLAND DEVELOPMENT AND ENHANCEMENT COMPONENT

An authorized plan to improve wildlife habitat in central and western South Dakota was funded by the Mid-Dakota Rural Water System. The April 1990 report by South Dakota State University, in cooperation with the U.S. Fish and Wildlife Service, Wetland Development and Enhancement Component of the Mid-Dakota Rural Water System, is a plan to establish dependable brood water for waterfowl mainly by adding water to seasonal wetlands to convert them to semipermanent basins. The report discusses development opportunities at Hyde, Marshall, Anderson, and Kahre Waterfowl Production Areas. The Service has recently reexamined the feasibility of working with these sites, and we believe that some adjustments in the Enhancement Component may be necessary. Additional sites that the U.S. Fish and Wildlife Service believes need further evaluation by the U.S. Fish and Wildlife Service and the Interagency Impact and Mitigation Assessment Team are Schumacker, Bower, Rogers, and Korkow Waterfowl Production Areas. *Schumacker Bower*

The feasibility of supplying water in sufficient quantities to many of these Waterfowl Production Areas needs to be addressed by the Interagency Impact and Mitigation Assessment Team in the near future. Except for Hyde Waterfowl Production Area, where a raw water line will be available, the expense of supplying treated water to very large, cattail-choked wetland basins may be prohibitive and will not likely produce the desired changes in wetland types. Other sites now being considered by the Service are closer to the main water transmission line on Highway 14, are considerably smaller than most sites presently under consideration, and are only a few miles west of Huron. Presently, there appears to be an excellent opportunity to enhance several seasonal type wetlands on the Korkow Waterfowl Production Area, including the purchase of an adjacent private wetland for enhancement and to round-off this Waterfowl Production Area. The Service recently purchased an additional 120 *180* acres within one-half mile of the Korkow Waterfowl Production Area, Beadle County, where excellent enhancement opportunities exist. Supplemental Fish and Wildlife Coordination Act Reports will address wetland acreages to be enhanced after Interagency Impact and Mitigation Assessment Team review.

## CONCLUSIONS

The U.S. Fish and Wildlife Service's review of Mid-Dakota Rural Water System's proposed routing of the main and secondary water transmission lines, the location of the water treatment plant, and the proposed siting of the other facilities indicate that there appears to be substantial latitude available to effectively avoid most wetlands and riparian and woody habitats. Some wetlands and woody habitat will be impossible to avoid, but, in general and as previously discussed in other sections, Service anticipates that there should be few long-term adverse impacts to the project area's natural resources, provided there is timely and effective implementation of all mitigation measures discussed in this report and in the draft Environmental Assessment. The Service also anticipates that there will be unavoidable impacts to the aquatic environment of Lake Oahe as a result of the proposed intake structure. However, if the Service's recommended mitigative measures (addressed on Pages 15-16) are fully implemented, impacts on zooplankton communities and larval fish stages should be insignificant. Quantification of this impact may be addressed in future supplemental reports once a decision is finalized on the location, proposed elevation, and specifics of the intake structure configuration and if a decision is made to monitor intake operations.

The Service has also analyzed the potential impacts of the Mid-Dakota Rural Water System Project on that portion of the Crow Creek Indian Reservation that falls within the project area. Reservation lands along the Missouri River fall within the Coteau area of South Dakota that was described in earlier sections of this report. Natural resources and land use patterns within the Crow Creek Indian Reservation are nearly identical to similar portions of Hughes and Sully Counties. Less than 50 miles of pipeline were estimated to fall within this reservation. We would anticipate that there will be no long-term adverse impacts to natural resources assuming conscientious implementation of mitigative measures.

## RECOMMENDATIONS

1. Implement all mitigative features addressed under the "Avoidance and Minimization" section (Pages 15-16) to the maximum extent possible.
2. Unavoidable losses of woody vegetation, particularly along stream courses and shelterbelts, should be replaced on at least a ratio of two planted acres for every acre impacted.
3. The magnitude of impacts to aquatic communities (forage and game fish species) will depend upon the final location and configuration of the intake structure, intake velocities, and appropriate maintenance of the integrity of the intake screens throughout the life of the project. We recommend a two- to three-year monitoring program in order to adequately assess long-term impacts. Depending upon the results of the initial monitoring period and recommendations of the IMA Team members, it may also be prudent to consider follow-up monitoring programs on a three- to five-year basis.

4. Compensation features that should be considered and that may be appropriate for the mitigation of significant, long-term aquatic impacts relative to the operation of the MDRWS intake facility might include the development of fish rearing ponds to replace fry and fingerling and/or the implementation of a forage stocking program.
5. The Wetland Development and Enhancement package is an important component of the Mid-Dakota Rural Water System Project. Further investigation by the Service and the Interagency Impact and Mitigation Assessment Team concerning the feasibility of using wetland sites previously identified in the April 1990 Wetland Development and Enhancement Component report for MDRWS is essential in the immediate future.

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# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Fish and Wildlife Enhancement  
420 S. Garfield Avenue, Suite 400  
Pierre, South Dakota 57501-5408



June 17, 1993

### MEMORANDUM

To: Project Manager, U.S. Bureau of Reclamation  
Missouri-Souris Projects Office; Bismarck, North Dakota  
(Attention: Dennis Breitzman and Greg Gere)

From: State Supervisor, Ecological Services  
South Dakota State Office; Pierre, South Dakota

Subject: Comments on Draft Environmental Assessment for the Mid-Dakota Rural  
Water System (MDRWS) Project

The following information is provided in response to your letter of May 12, 1993, transmitting the subject document and should be regarded as preliminary comments by the U.S. Fish and Wildlife Service (Service) on the potential impacts to fish and wildlife resources relative to the MDRWS project. These comments do not fulfill the National Environmental Policy Act requirements or the provisions of the Fish and Wildlife Coordination Act (FWCA). The Service, by this memorandum, is also providing concurrence (with one exception) on the Bureau of Reclamation's (BR) determination of a "no effect" on eight federally listed species that may occur within the project area. That exception is for the pallid sturgeon which is discussed later in this memorandum.

Since the Service's preliminary review of the project plans has indicated that project impacts to wetlands and terrestrial habitats are likely to be temporary and localized in nature, no attempt has been made at this time to estimate acres of habitat lost. Also, an Interagency Impact and Mitigation Assessment Team (IMA Team) will be established and will meet on an annual basis, over the ten-year construction period, to identify specific impacts and any needed mitigation. Further, the specific location of some of the primary distribution lines, many of the secondary distribution lines, and siting of other facilities (e.g., water intake structures, the water treatment plant, pump stations, and towers) have not been finalized. Therefore, Service comments, by necessity, will be quite general in nature.

The proposed Wetland Development and Enhancement Component package discussed in this assessment, and as developed in the 1990 report, remains a high priority with the Service. The Hyde Waterfowl Production Area (WPA) has tremendous enhancement potential. However, after recently discussing the



potential enhancement values of Kahre, Anderson, and Marshall WPA's with Mark Heisinger, Manager at the Service's Huron Wetland Management District Office, we believe that further evaluation of these sites is necessary. Mr. Heisinger believes that Kahre does have enhancement potential, but Anderson and Marshall WPA's have marginal potential because of limited availability of upland (acreage) nesting sites and a potential water quality problem at the Marshall WPA. Mr. Heisinger believes that three additional WPA's (Schumacker, Rogers, and Bower) have greater enhancement potential and should be evaluated by an interagency team prior to the signed FWCA report.

Service comments regarding the potential impacts on wetlands as a result of the laying of pipelines are based primarily on an analysis of wetland types, sizes, and locations along the proposed route for 228 miles of primary distribution lines. The specific location of 2,559 miles of secondary and distribution lines is unknown at this time. National Wetlands Inventory (NWI) maps indicate that there is a potential to impact literally hundreds of wetlands occurring within the 20- to 50-foot right-of-ways (ROW). The vast majority of these wetlands are very small, linear, and temporary or seasonal in nature that occur as excavated sites (PEMAX or PEMCx) immediately adjacent to state highways and county roads. However, in locations where larger intermittent streams (like Medicine Knoll Creek in the Highmore area or Firesteel Creek in the Wessington Springs area) occur, larger seasonal and semipermanent wetlands will be encountered. Density of wetlands in general along the primary pipeline route south of Highmore, South Dakota, to Wessington Springs appears to increase substantially. Larger wetland areas (like Collins Slough State Public Shooting Area and Long Lake WPA) appear to be within the proposed route and will be difficult to avoid.

After reviewing the general location sites of several of the major facilities, like the water treatment plant, pump stations, and towers, we believe it will be possible to avoid wetlands at the majority of the sites. There are no wetlands located in the general area of the proposed water treatment site. Wetlands are scattered at most other sites, except the Gettysburg Pump Station site (intersection of Highways 83 and 212) and the Springs Reservoir site located about three miles west of Wessington Springs, South Dakota. Highway construction in recent years has already impacted the large temporary/seasonal wetland complex in the Gettysburg area, and further impacts to this wetland are not desirable. Every effort should be made to avoid construction in this wetland. There are some large seasonal and semipermanent wetlands in the general area of the proposed Springs Tower. Construction in these wetlands should also be avoided.

In general, the Service concurs with the BR's assessment that there should be few long-term adverse impacts to wetlands in the project area. This analysis is based on the assumption that a conscientious effort will be made by the contractor to avoid construction in wetlands to the maximum extent possible and/or to implement the special construction procedures outlined on page 60 of the draft Environmental Assessment (EA). These procedures should also include the necessity of restoring the wetland bottom substrate after construction to original contours in order to avoid facilitating wetland drainage to a highway ROW.

Occasional Service wetland easements or WPA's or South Dakota Department of Game, Fish and Parks' (SDDGFP) Game Production Areas will be encountered along the primary and secondary distribution line routes. Specific locations of Service lands should be verified with Mark Heisinger, Manager, Huron Wetland Management Office, at (605) 352-7014. The SDDGFP's contact in Pierre is Dave McGuigan, Division Staff Specialist, at (605) 773-4194.

A discussion of surface water resources on page 53 of the EA lists the Missouri River and the James River as the only two perennial streams in the area. However, Table 4.3, page 65, under a discussion of impacts of the proposed action on fish and wildlife resources, lists the number of perennial stream crossings as three. Further explanation of this table is needed. We are not aware of any other perennial streams in the project area between the Missouri River and the James River. During periods of above normal precipitation, the larger intermittent streams, such as Medicine Knoll Creek, North and South Medicine Creek, and Firesteel Creek with its many tributaries, appear to be more perennial in character and undoubtedly provide higher fishery values.

A review of the NWI maps confirmed that the vast majority of the stream crossings will be on small intermittent streams that have little or no riparian zone, few wetlands, and limited amounts of wooded or shrub zones associated with these drainages. However, several crossings of the James River are anticipated. Construction through wooded or shrub zones should be avoided to the maximum extent possible. The Service has not attempted to calculate the number of crossings at this time since the exact location of many lines is unknown and the responsibility of identifying sensitive areas will be that of the IMA Team on an annual basis. However, the Service believes that the number of crossings is less important than being able to verify that adequate erosion/sedimentation control measures, as discussed in the EA, are implemented on a timely basis and are effective in reducing potential adverse impacts. This is particularly important on the James River riparian areas where a variety of wetland types occur. The Service would prefer that sheet piling be used for construction activities in perennial streams like the James River instead of soil to block water regardless of the time of year the work is performed. Long-term impacts to instream habitat and associated aquatic communities could result from the use of soil blocks, even in the fall or winter, should unpredicted floods or high water events occur.

The majority of the proposed pipeline construction activities will occur on private land easements adjacent to highway ROW's. We also concur that the majority of the vegetation types affected by construction activities will be grassland and cropland plant species. These cover types are abundant throughout the project area. Hay and grassland areas are usually either heavily grazed or hayed on a regular basis and provide little benefit to wildlife species in general. Consequently, the Service anticipates that adverse impacts to wildlife species along these upland corridors will, in general, be minimal. Native grassland areas east of the Missouri River are scarce. Should construction activities occur in such an area, reseeding of the disturbed site should be done using a native grass/forb mixture. Shelterbelts and other wooded habitat areas should be avoided to the maximum extent possible. Unavoidable losses of these habitat types should be replaced on a 2:1 basis, as discussed in the EA, and in-kind with native species.



Potential adverse impacts to fish and other aquatic communities in perennial and intermittent streams can be significantly reduced (discussed on page 61 and pages 64-66) with timely and effective implementation of sedimentation/erosion control measures, seasonal construction constraints, and reestablishment of disturbed shoreline vegetation communities within the riparian zone. A positive project impact to the James River was identified on page 53, relative to the City of Huron switching the city's primary water supply from James River water to Missouri River water. The Service concurs that a noticeable improvement in streamflow below Huron may result. In fact, we would anticipate the potential for significant improvements in general water quality (total dissolved solids and BOD), particularly during drought years, as a result of the increased dilution factor. We would also anticipate greater availability of spawning and nursery habitat and marked improvements in benthic communities in general. This factor could potentially result in increased fish species diversity in the upper James River reach.

Regarding fish species diversity, it is important to note that the smaller perennial and intermittent streams frequently support a much wider array of fish species than the warmwater pan fish mentioned at the top of page 62. Although the use of these smaller intermittent streams by fish communities is necessarily on a seasonal basis, forage species such as minnows, shiners, darters, and some game fish may utilize these waters for spawning and nursery sites as conditions permit. Therefore, it is equally important that erosion/sedimentation control measures on the smaller streams be implemented before and during construction activities and that original bottom contours and protective shoreline vegetation are restored immediately after construction.

A May 24, 1993, letter from Mr. Breitzman indicated that a MDRWS intake facility at the Oahe Dam powerhouse is no longer feasible. Two alternative sites, one just above Oahe Dam in Lake Oahe and one site located below the dam one-quarter mile or so downstream of the tailrace recreation area, are now being considered. The proposed depth, intake location, and intake head configuration are not known at this time. However, the Service's general concern is that it is likely that both the number of fish species and density of fry, fingerling, and larval stages will likely be significantly higher at these new locations. Consequently, the potential adverse impacts over the life of the project (50-100 years) as a result of potential entrainment/impingement problems may increase substantially.

The general rule of thumb for intake structure design has been a design that meets water velocity requirements of 0.5 cfs and a fish screen with mesh openings of 1/4-inch or less. These criteria may be adequate for larger fingerling or adult fish. However, the Service has reviewed references in the past relative to swimming speed capabilities of fry and fingerling. These references indicate that young-of-year fish of most species are not capable of sustained swimming speeds greater than 0.1 cfs. Therefore, if an open water intake structure is to be pursued, the proper design and location of that structure is of critical importance, especially when the cost of mitigation is considered. It may be that an elevated intake structure with a multi-head, screened intake would substantially reduce or provide adequate entrainment/impingement protection. Regardless of where an intake structure

is located in Lake Oahe, there is likely to be adverse impacts to phytoplankton and zooplankton communities. Since Lake Oahe is a relatively sterile body of water, impacts on zooplankton communities could quickly affect fish population structure, at least in a portion of the reservoir.

Eight federally listed species were discussed on pages 67-69, and a determination of "no affect" was made by the BR. The Service concurs with this determination, except in the case of the endangered pallid sturgeon.

Because of the generally limited degree of disturbance expected to occur within a narrow construction corridor and the general location of the construction zones relative to the availability of similar habitat types or more preferred upland habitat types, the Service would not anticipate potential problems or conflicts with the other listed species. This analysis may need to be updated as the IMA Team has an opportunity to evaluate final construction plans.

However, there is a chance for adverse impacts to occur on the pallid sturgeon if one or more intake structures should be sited in Lake Sharpe. Although natural reproduction of the pallid sturgeon has not been documented in this location of the reservoir system, the Service is not prepared to say that it has not or will not in the future. Both the Service and SDDGFP have been working with adult pallid sturgeon from Lake Sharpe, and these fish are extremely important to future recovery plans.

Thank you for the opportunity to provide comments on the draft EA and the Wetland Enhancement package. We look forward to working with you and your staff in the future on bringing the development of enhancement opportunities in this project to successful fruition.

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