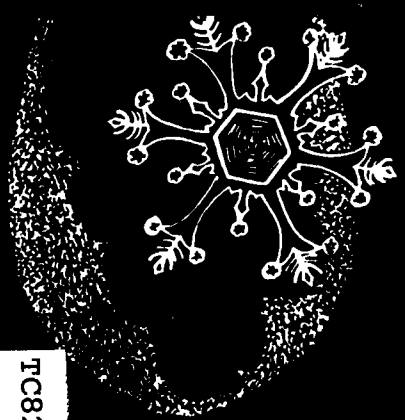
NORTH DAKOTA STATE WATER CONSERVATION COMMISSION



FIFTEENTH BIENNIAL REPORT

For the Period

July 1, 1964 — June 30, 1966

and

FOURTEENTH BIENNIAL REPORT SUMMARY

July 1, 1962 — June 30, 1964

FIFTEENTH BIENNIAL REPORT

of the

STATE WATER COMMISSION

and the

THIRTY-SECOND BIENNIAL REPORT

of the

STATE ENGINEER

of

NORTH DAKOTA

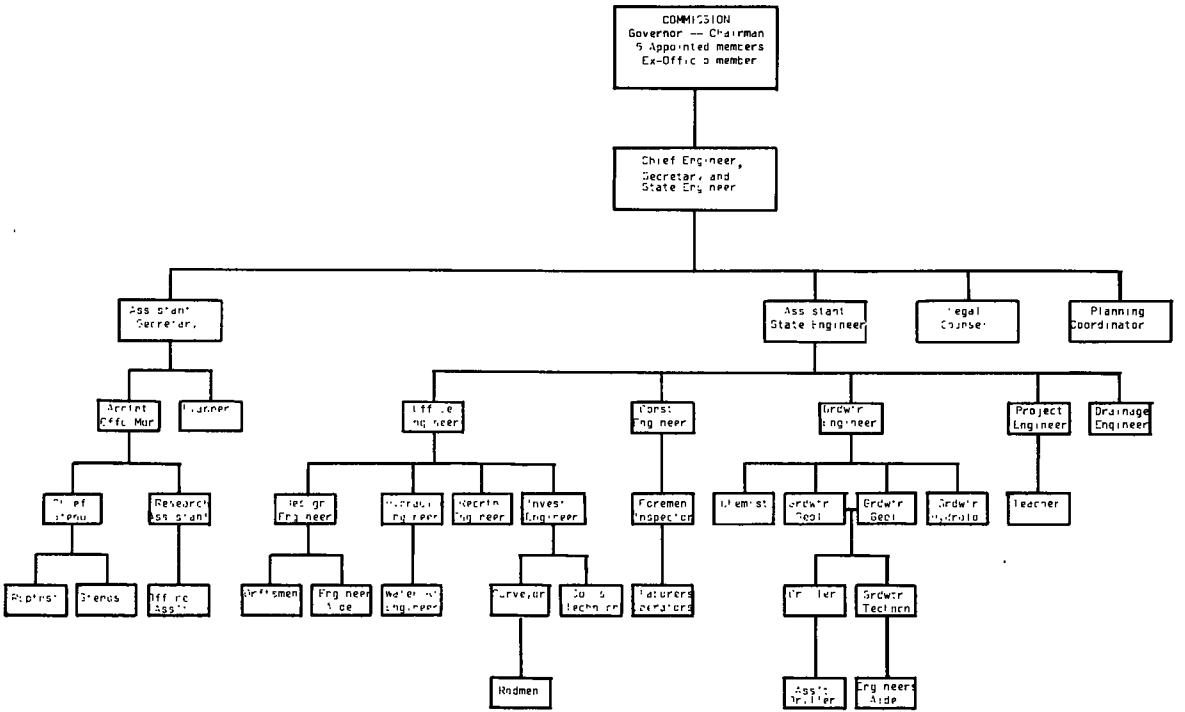
July 1, 1964 to June 30, 1966

BISMARCK TRIBUNE 16992

"Buy North Dakota Products"

NORTH DAKOTA STATE WATER COMMISSION ORGANIZATION CHART

16 June, 196[illegible]



LETTER OF TRANSMITTAL

Honorable William L. Guy
Governor of North Dakota
State Capitol
Bismarck, North Dakota 58501

RE: 1964-1966 Biennial Report, SWC File C6-1

Dear Sir:

In compliance with the provisions of the laws of North Dakota, we transmit herewith for your information and consideration the Fifteenth Biennial Report of the North Dakota State Water Commission and the Thirty-Second Biennial Report of the North Dakota State Engineer covering the period July 1, 1964 to June 30, 1966.

Respectfully submitted,

North Dakota State Water Commission
Richard P. Gallagher, Vice Chairman
Henry Steinberger
Gordon Gray
Russell Dushinske
Harold Hanson
Arne Dahl

Milo W. Hoisveen
Secretary and Chief Engineer
State Engineer

1. COMMISSION ORGANIZATION AND STAFFING

The North Dakota State Water Commission was created in 1937 by the 25th Session of the Legislative Assembly of North Dakota. The Governor is designated as ex-officio chairman of the Commission and is given authority to appoint five other qualified electors of the state to serve as members of the Commission along with the Commissioner of Agriculture and Labor, an ex-officio Commission member. The Commission selects one of its members to serve as Vice Chairman.

The State Water Commission is presently composed of the following members:

Name	Appointed	Present Term Ends
Governor William L. Guy, Ex-Officio Chairman	Jan. 1, 1961	
Richard P. Gallagher, Vice Chairman, Mandan	July 1, 1961	July 1, 1967
Henry Steinberger, Donnybrook	July 1, 1961	July 1, 1967
Gordon Gray, Valley City	July 1, 1963	July 1, 1969
Russell Dushinske, Devils Lake	July 1, 1965	July 1, 1971
Harold Hanson, New England	July 1, 1965	July 1, 1971
Arne Dahl, Commissioner of Agriculture and Labor, Ex-Officio Member	Jan. 1, 1965	
Milo W. Hoisveen, Secretary and Chief Engineer, State Engineer	July 1, 1954	

The Commission meets at irregular intervals at the call of the Chairman, or, in his absence, of the Vice Chairman, either in the principal office at Bismarck, or at such special places as may be designated.

COMMISSION STAFF AS OF JUNE 30, 1966

Milo W. Hoisveen ..... Secretary, Chief Engineer, State Engineer
Karen Anderson ..... Stenographer
Gordon Baesler ..... Draftsman
Allen Balliet ..... Rodman
Clifford Beeks, Jr. ..... Ground-Water Geologist
Ray Christensen ..... Soils Technician
Donald Delzer ..... Chemist
Jane Diede ..... Receptionist
David Donaldson ..... Ground-Water Technician
Matt Emerson ..... Water Rights Engineer
Fred Fredrickson ..... Planning Coordinator
Larry Froelich ..... Ground-Water Geologist
Dale Froemming ..... Inspector
Dale Glover ..... Hydrologist
Alan Grindberg ..... Assistant State Engineer
Arland Grunseth ..... Investigation Engineer
Rueben Herr ..... Engineer Aide
Leone Hiland ..... Chief Stenographer
Dennis Hoger ..... Rodman
Hugh Jacobson ..... Assistant Driller
Cliff Jochim ..... Special Assistant Attorney General
Lewis Knutson ..... Driller
Owen Kopp ..... Draftsman
Milton Lindvig ..... Ground-Water Engineer
Robert Luyben ..... Engineer Aide
C. P. Nelson ..... Drainage Engineer
Roy Putz ..... Office Assistant
Danuel Reiser ..... Accountant and Office Manager
Eugene Sackman ..... Surveyor
Hazen Sandwick ..... Office Engineer
George Schantz ..... Draftsman
Delton Schulz ..... Construction Engineer
Jim Schulz ..... Assistant Secretary
Clifford Scott ..... Design Engineer
Anton Senger ..... Operator
Kenneth Simenson ..... Recreation Engineer
Ann Tillotson ..... Research Assistant
Merline Van Dyke ..... Project Engineer
Pius Voeller ..... Foreman
Glen Waller ..... Instructor
Howard Walterson ..... Construction Superintendent

2. MEETINGS, CONFERENCES AND HEARINGS

During the period of this report the State Water Commission met 20 times to take up routine business of the Commission. At these meetings the Commission met with various delegations to discuss matters pertaining to the administration and development of our water resources. Meetings were held at places indicated on the following dates:

July 23, 1964, Bismarck
September 15, 1964, Bismarck
October 16, 1964, Fargo
October 29, 1964, Bismarck
January 12, 1965, Bismarck
March 16, 1965, Bismarck
May 7, 1965, Bismarck
May 24, 1965, Devils Lake, Camp Grafton
June 29, 1965, Minot
July 21, 1965, Bismarck
August 27, 1965, Lisbon
September 30, 1965, Bismarck
October 13, 1965, Devils Lake
October 29, 1965, Grand Forks
December 10, 1965, Bismarck
February 14, 1966, Bismarck
March 18, 1966, Bismarck
April 12, 1966, Bismarck
May 17, 1966, Bismarck
June 29, 1966, Bismarck

Commission members and its staff have attended many meetings and held a number of hearings during the period of this report.

3. NORTH DAKOTA'S WATER RESOURCES

If the annual precipitation received in the United States were uniformly distributed over the country and if such a uniform distribution were received regularly when needed our water problems would be insignificant. Such is not the case. The nation-wide long-time average precipitation is 30". North Dakota's is 17". The precipitation in North Dakota is extremely erratic; for example, during 1961 the total precipitation received in the northwestern part of North Dakota was 9.52 inches. During the first six months of 1966 the average received in North Dakota was 8.44 inches. These two facts point out the source of North Dakota's water problems — the limited amount of precipitation received that places much of North Dakota in a semi-

arid classification and a wide variation in the timing of the precipitation from year to year and season to season. It is of vital importance that ways be developed to conserve and utilize the available water resources of North Dakota as fully as possible and to serve our citizens' needs.

Water resources available to North Dakota spring from several sources. The rainfall received is most significant for the state's dryland agriculture. However, the waters of the rivers and streams that drain the state, (including several that have their sources in other states and Canada) are important and, when controlled and developed, will serve multiple needs. The waters from the state's many groundwater aquifers, more of which are being discovered each year, offer an important potential supply for agricultural and industrial use. An aquifer is a water-bearing bed of earth, gravel, or porous stone which contains and transmits ground water.

Surface Water

Geographically, North Dakota lies in two drainage basins. Approximately 41% of the state is drained into the Hudson Bay through the Mouse and Red Rivers and their tributaries, and about 59% is drained into the Mississippi River and to the Gulf of Mexico through the Missouri River and its tributaries. Of the average annual precipitation received in North Dakota each year, approximately three-fourths of an inch escapes from the state in surface runoff through these drainage systems. This average runoff amounts to 2½ billion gallons a day. This runoff plus the water that enters North Dakota through our interstate and international rivers less the amount that must be allowed to flow out of the state constitutes our manageable surface water supply.

Lakes

About 2% of North Dakota's 70,665 square miles are water area. Included in this area are man-made lakes or reservoirs and countless other natural lakes, serving recreation, irrigation, stock watering, industry, wildlife, and human needs. Most notable of the natural lakes are Devils Lake in Ramsey County and Lake Metigoshe in Bottineau County. Devils Lake is the largest natural lake in North Dakota. From 1867 to 1940 the level of the lake receded 35 feet and since that time it has fluctuated considerably from year to year. Restoration of Devils Lake is contemplated in the Garrison Diversion Unit. Prominent among the man-made lakes are Garrison Reservoir, Oahe Reservoir, Lake Ashtabula (Baldhill Dam), Lake Tschida (Heart Butte Dam), Patterson Lake (Dickinson Dam), Jamestown Reservoir, and Lake Darling.

Because of the extreme variation in the flow of our rivers and streams, construction of dams is essential to store flood waters for release downstream for various beneficial purposes. The feasibility of such projects is dependent on many factors including the quantity and quality of the water supply; needs to be served; costs; dam and reservoir sites and others. Although control of several of our rivers

and streams is a reality because of major structures built in recent years, the need exists for other projects of this nature in other areas of the state.

Ground Water

An important source of water is that found under the surface of the earth in layers and deposits of materials that are saturated with water. Such water is termed "ground water."

The largest amount of fresh water in storage in the United States is contained in ground-water reservoirs — far more than is found in all surface reservoirs and lakes, including the Great Lakes. It has been estimated that the total amount of useable water in ground-water reservoirs equals ten years annual precipitation or approximately 38,700 billion gallons.

Although we have only begun to properly study and evaluate this vital resource in North Dakota, prospects appear bright for moderate to large-scale development of ground water in a large number of areas. On the other hand, the outlook appears somewhat less favorable for several other areas in the state.

The importance of ground water to North Dakota can hardly be overstated. Practically the entire rural population obtains its needed supply of water through wells or from springs which are merely agents discharging ground water naturally at the earth's surface. Most municipalities in North Dakota are supplied by ground water. Some of the larger are Minot, Jamestown, Valley City and Devils Lake. Considerable quantities of ground water are used by industry each year in the Fargo-Moorhead area. Development of ground water for irrigation is steadily increasing each year.

4. WATER COMMISSION GOALS AND OBJECTIVES

Shortly after the State Water Commission was organized in 1937, certain goals were proposed for a water resource program. These goals still remain today as the objectives of the Commission. They include:

1. Water for human needs
2. Water for animal needs
3. Water for irrigation
4. Water for industry, other than that available through municipal supplies
5. Water for recreation and wildlife
6. Water control to avert floods

Water for Human Needs

Throughout the United States the demand for water is ever increasing. Demographers estimate by 1980 the population of this country will reach or exceed 250 million people, and the use of water will have increased by 50%. The domestic water requirement for farm homes alone will have increased from 18 million gallons a day to 38 million gallons a day in 1980. The rapid growth of cities and

the anticipated increased demand for water is expected to intensify the need to find and develop new sources of water for domestic and municipal use. The Commission's ground-water investigation program coupled with its efforts to conserve and utilize surface supplies is directed toward this objective.

Water for Animal Needs

It is estimated that during the next 15 years in the United States sheep production will need to be increased 25% and beef cattle production 50% in order to meet consumer demand. By that time livestock raisers will need an additional 68 million gallons a day to meet their needs. A more extensive livestock industry is expected to develop in North Dakota in the future and with it will come a need for an assured constant flow in the streams, added stockwater impoundments, and development of underground sources through wells.

Water for Irrigation

With 250 million people in the United States by 1980, the demand for agricultural commodities will increase significantly. This population increase will result in a greater demand for meat products, vegetables and all cereal grains. In addition, world markets are expanding enabling the United States to export more food.

These increasing demands and the constant reduction in the acres of available farm land, require more intensified agricultural development. Water permits have been issued for irrigating 192,000 acres in North Dakota. Through the development of Garrison Diversion, a million acres more could be irrigated. Other projects can bring the total irrigated land to over 1,600,000 acres in 2000.

Water for Industry

With increased agricultural productivity through irrigation, new industries to process the farm commodities will require large amounts of water. Stored water, water diverted from the Missouri River and groundwater aquifers can provide this need. Excellent industrial water supplies are available from North Dakota's major rivers and their tributaries.

Water Control for Recreation and Wildlife

Water is a key factor adding to the enjoyment of most outdoor recreation activities. A national recreation survey revealed that 44% of the population preferred water based recreation over any other. Even in land based activities such as camping and picnicking, a lake or stream greatly enhances an area's recreational desirability. Providing water recreation in the form of hunting and fishing is big business. It is presently the third largest in the state, exceeded only by the agricultural and oil industries. The large dams and reservoirs and many of the small dams receive extensive recreational use. As our population increases and more free time becomes available to the nation's citizens a greater need for recreational areas will develop.

Flood Control

Flooding is a natural spring occurence in North Dakota which causes extensive damage to life and property. Flood prevention con-

trol is provided through the construction of dams and reservoirs to store flood waters; by protective works such as levees and land treatment measures. These facilities and practices are an important phase of a water resource program. In our semi-arid state every effort should be made to conserve flood waters through storage reservoirs so they will be available for future beneficial use.

Since its establishment, the Commission has devoted its efforts to providing for the control, conservation, development and utilization of the state's water resources. Several major projects constructed in the state by federal agencies have been advocated and promoted by the Commission. These projects store flood waters that are available to serve several purposes. A list of the major water projects constructed in North Dakota by federal agencies is as follows:

5. MAJOR EXISTING STORAGE RESERVOIRS

Name	Location	Cooperating Federal Agency	Capacity in Acre-Feet	Use
Lake Darling	Northwest	U. S. Fish and Wildlife	112,000	Wildlife refuge and some flood control.
Garrison Dam	Northwest	Corps of Engineers	24,600,000 (2,640,000 now reserved for North Dakota.)	Municipal water irrigation, flood control, navigation and power.
Dickinson Dam	Southwest	U. S. Bureau of Reclamation	9,500 flood, 4,000 active.	Irrigation and municipal.
Heart Butte Dam	Southwest	U. S. Bureau of Reclamation	428,000 flood, 225,000 active	Flood control and irrigation.
Oahe Dam	Southwest	Corps of Engineers	23,000,000 reservoir in South Dakota, extends into North Dakota.	Municipal water, irrigation, flood control, navigation and power.
Jamestown Dam	Southeast	U. S. Bureau of Reclamation	320,000 flood, 30,000 active.	Flood control, irrigation and municipal.
Baldhill Dam	Southeast	Corps of Engineers	116,500 flood, 70,000 active.	Flood control and municipal water.
Lake Traverse	Southeast	Corps of Engineers	137,000 flood reservoir in South Dakota extends into North Dakota.	Flood control.
Homme Dam	Northeast	Corps of Engineers	6,700 flood, 3,650 active.	Municipal water supply.
Bowman-Haley Dam	Southwest	Corps of Engineers	73,000 flood, 16,000 active.	Municipal water supply.

There are a number of projects that have been proposed and investigated or are under consideration at the present time. The construction of these can serve an important function in the area in which they are located and, consequently, to the state.

6. THE STATE WATER RESOURCES PROGRAM

The Commission performs a variety of functions and duties in implementing the State Water Resources Program. These responsibilities have been given to the Commission by the Legislature and, generally, the program covers these points:

1. Collection of basic data.
2. Preparation and maintenance of a state-wide master plan of water resources development.
3. Investigation and planning of proposed water resources projects.
4. Construction and repair of dams, drains and other water management facilities.
5. Co-ordination of Federal and State agencies' programs of water resource planning, development and research.
6. Cooperation with counties, water management districts and other entities in planning and completing water resources development projects.
7. Organization of the various types of legal entities through which water resources projects can be completed and operated.
8. Administration of the State water laws.
9. Representation of state interests at various conferences relative to the co-ordination of the activities of Federal and State agencies in waer resources development in North Dakota, adjoining states, and Canada, as well as in matters of interest from a national standpoint.
10. Promotion and direction of the development of water resources projects throughout the state in accordance with the master plan for benefit to the citizens of North Dakota and the United States.

The Commission's activities can be categorized into six broad programs. They are:

I. Engineering Investigations, Planning, Design and Research

A. Comprehensive State Water Plan

Most of the Commission's engineering program is necessarily devoted to specific water facility projects and water problems; however, it is desirable to exert a continuing effort to prepare a comprehensive State-wide Water Resources Development Plan.

The Commission has outlined a "Work Program" for the State Water Plan which is being prepared by its staff in co-operation with other State agencies and Federal agencies. Major elements of the work program include:

1. Preface
2. Description of planning work
3. Statement of objectives
4. Drainage basin delineations

5. Evaluate and determine extent of beneficial uses of water
6. Determine and analyze relationship of water uses to economic, social and other physical considerations
7. Determine existing and programmed supply of water
8. Determine demand for water — present and future
9. Determine needs — gap between supply of and demand for water
10. Determine sources of revenue and responsibilities
11. Schedule development — through year 2000
12. State Water Plan

An initial draft of the Plan is scheduled for completion by September 1, 1968.

B. Individual project investigations, planning and design

The greater portion of the Commission's investigation program is devoted to specific water resources projects and problems. Project proposals are stimulated by water problems that have developed due to a surplus or a deficiency of water or because of a specific need that exists in an area.

A project proposal which is submitted to the Commission is first subjected to a field inspection to determine the local interest and whether or not the proposal warrants further detailed investigations. If there is strong local interest in the project, and it appears to be feasible, the proponents are requested to make a minimum deposit of $200 to be applied to the detailed investigation costs. If the project is built, this money is credited to the local sponsor's share of the project costs.

Before the detailed investigation is begun, the approval of the State Water Commission is obtained. The investigation made by the Commission includes topographic mapping, hydrologic studies, and, if a dam is involved, a site foundation study.

The Commission maintains a topographic survey crew and a soils technician in its investigation division. These crews are maintained on a year-round basis and spend considerable time in the field conducting their operations. In addition, the Commission maintains a soils laboratory where standard tests can be conducted to determine the suitability of soils for structural foundations.

After the data from the field investigation has been obtained, it is transferred to the design division for a preliminary design and costs estimate of the project facilities. A design and cost estimate are essential for further consideration of the project by the Commission and the proponents as the allocation of funds is dependent on the project's economic feasibility. If all cooperating entities agree to participate in the project, the design information is used as the basis for construction of the facility.

During the past biennium, the design division has prepared plans for numerous facilities as shown in the projects tabulation in this report.

C. Research

Research activities involving all phases of water resources administration, management and utilization are conducted by the Commission in co-operation with the North Dakota Water Resources Research Institute at North Dakota State University.

Project proposals for research are funded through Federal grants from the Office of Water Resources Research recently established. Subjects currently under study or programmed include:

- ★ Artificial recharge of ground-water aquifers
- ★ Economics of water use for irrigation
- ★ Effects of farm chemicals on water micro-organisms
- ★ Hydraulics of dams and water control structures
- ★ Evaporation suppression and
- ★ Cooling water studies including heat pollution in the Missouri River near large thermal generating power plants.

II. Construction of Water Project Facilities

The Commission's construction division supervises its repair and building program. This work is generally done by private contractors under contract to the Commission, but for exceptional cases the Commission is equipped to handle most work with its own crews on a force account basis.

When a project has been completed, it is assigned to the project sponsor for operation and maintenance. The maintenance of water facility structures is specialized so the Commission arranges periodic inspections of these facilities by its engineers and needed repairs are made so the structure is not completely lost.

III. Flood Control, Drainage and Channel Improvements

In some areas of North Dakota, particularly the Red River Valley, valuable agricultural land is subject to periodic flooding during the spring snow melt and periods of excess rainfall. As a result, crop production is significantly reduced and the income of the farmers in the area, and consequently, the economy of the state, are adversely affected. Much of this land is the most highly productive in the state when protected from flooding.

The Commission drainage program is devoted primarily to the construction of floodways that serve large areas subject to water damage. This program was initiated in 1943 when the Legislature appropriated funds to the Commission to assist in its implementation.

Funds appropriated to the Commission for drainage work are allocated to the various drainage projects that qualify for State assistance in accordance with their rules and regulations. State

assistance to counties for this work is generally 40% of the qualified construction costs. The Commission will only co-operate in the construction of legal drains, which are constructed under the sponsorship of some legal entity, such as the board of drain commissioners; board of county commissioners; a township board; or a water management district. The local share of the drain costs are paid by special assessments levied on the property benefited by the improvement.

Flood prevention and control studies for municipalities are conducted by the Commission which also provides project assurances to the Federal government for these facilities as well as cost participation where required.

Channel improvement work includes provision of bank stabilization works and channel clearing to improve the hydraulics of our streams for flood prevention and pollution abatement.

IV. Basic Data Compilation

Basic data compilation is the preparation of topographic maps showing land features and configuration of areas of the state; the gathering of stream flow information, referred to as hydrographic surveying; inventorying information relating to underground water resources; and compiling statistics on quality of our waters. The Commission has three cooperative programs with the United State Geological Survey dealing with basic data compilation. Much of the essential information needed for the planning and development of any water resources project is obtained from these cooperative programs. In addition, information gathered by the Commission in their investigation endeavors is utilized in augmenting the data collected under the United States Geological Survey Cooperative Programs.

V. Administration of State Water Program

Administration of the State water laws and the State water resources program includes processing and granting of water permit applications, maintaining necessary financial records relating to the Commission's activities, public relations work devoted to providing accurate and up-to-date information on water resources plans and developments in the State, establishing special districts concerned with water resources planning and development, and participation in numerous conferences and meetings with local groups, State and Federal agencies, and hearings before congressional committees relating to water resources development in North Dakota.

VI Irrigation Development

The Commission's function in irrigation development includes the creation of irrigation districts, provision of basic data on resources for irrigation, co-operation with other State and Federal agencies involved in irrigation activities, installation of "pilot wells" where feasible to stimulate development and technical assistance in all phases of artificial application of water to the land.

Each of these phases of the Commission's program is important to the overall development of the State's water resources. The procedures followed by the Commission in each of these various functions are flexible enough to meet the situation that is peculiar to the type of project under consideration or the type of problem to be solved.

7. PROJECT SUMMARY

Shown in the following tables are summaries of specific projects and programs with which the Commission has been concerned during the July 1, 1964 — June 30, 1966, period. The projects are listed in State Water Commission project number sequence under each category. Costs for the specific projects on which there was activity during the biennium are shown in Chapter 8, "Recap of Disbursements and Project Costs."

A. Engineering Investigations and Design — This table indicates the projects on which various phases of investigations and design have been accomplished. In some instances, the projects were constructed in the biennium, in which case they are shown in the "Construction and Maintenance" table.

B. Construction and Maintenance — These projects were completed by the Commission utilizing force account crews and private contractors. The projects' purpose, type of structure involved, and work accomplished are briefly summarized.

C. Drainage — The location, drainage area, and scope of work are shown for each project. Some mapping and engineering investigation activities are conducted by the staff on numerous projects which are not shown; however, they are listed in Chapter 8 along with the costs attributable to each.

The drainage project work involves also the review and coordination of Soil Conservation Service watershed improvement works along with Corps of Engineers flood control projects and Fish and Wildlife Service works. The Commission staff provided technical assistance to other Federal, State and local entities in "task force" activities involving multi-use water management projects.

D. Ground Water Surveys — Projects shown in this tabulation are conducted by the Commission staff in co-operation with the United States and North Dakota Geological Surveys and State Laboratories Department. The accompanying map indicates the status of county-wide studies. In addition to county-wide surveys, intensified studies are made for municipalities by the Commission to locate municipal and industrial water supplies from ground water sources.

E. Regional and State-wide Projects and Programs — Significant programs and projects of the Commission, covering large areas of the State, are shown in this section. Full details and data concerning these programs and Commission projects are always available to the public.

A. ENGINEERING INVESTIGATION AND DESIGN

Survey Crew

Project No.	Project Name	County	Field Work Accomplished: Topography	Levels	Triangulation	Investigation Engineering: Miscellaneous	Field Invest.	Office Invest.	Field Soils	Office Soils	Design
259	Kulm Dam	LaMoure	X	X	X	X	X	X			X
291	Sarnia Dam	Nelson	X	X		X	X	X			D
292	Burnt Creek	Burleigh				X	X				D
316	Lisbon Dam	Ransom	X	X		X	X	X			X
327	White Earth Dam	Mountrail							X	X	I
330	Lake Metigoshe	Bottineau						X			–
347	Velva Flood Control	McHenry	X	X	X	X					O
386	Monango Dam	Dickey	X			X	X	X			D
391	Silver Lake	Sargent	X	X		X	X	X			I
399	Kathryn Dam	Barnes					X	X			–
418	Amenia Dam (Rush River)	Cass						X			D
459	Brown Dam	Barnes	X			X	X	X			–
467	Wyard (Kiwanis) Dam	Foster					X	X			I
475	Golden and North Golden Lakes	Steele	X	X	X	X	X	X			X
528	McGregor Dam	Williams	X	X	X	X	X	X	X	X	X
558	Linton Flood Control (CE)	Emmons					X	X			I-O
561	Tioga Dam	Williams					X	X			X
565	Buffalo Lake	Pierce	X	X		X	X	X			X
567	Pembilier Dam (IJC)	Pembina-Cavalier	X				X	X			I-O
576	Missouri River Bank Stabilization	Various	X	X	X	X	X	X			I-O
600	Crystal Water Supply	Pembina	X		X	X	X	X	X	X	X
636	Des Lacs Dam	Ward		X	X						X
656	New Rockford Railroad Dam	Eddy	X	X		X	X				I
660	Grafton Railroad Dam	Walsh	X	X		X	X	X			I
671	Harvey Dam	Wells	X			X	X	X	X	X	X
690	Pipestem Dam (CE)	Stutsman					X	X			I-O
820	Oak-Willow Creek Snagging and Clearing	Bottineau-McHenry					X				–
822	St. Thomas Water Supply	Pembina						X			–
872	Milton Highway #66 Dam	Cavalier						X			D
927	Edmore Water Supply	Ramsey	X	X		X					X
983	Coleharbor Water Supply	McLean		X		X	X	X			X
1169	Pembina County Drain #62	Pembina	X	X		X					D
1282	Griggs County S.P.	Griggs					X	X			–
1289	McKenzie Co. S.P.	McKenzie					X	X			–
1316	Towner Co. Drainage	Towner					X				–
1325	Sterling Dam	Burleigh						X			D
1333	Sand Creek Dam	Williams	X	X			X	X			D
1339	Bone Hill Creek Dam	LaMoure	X			X	X				D

A. ENGINEERING INVESTIGATION AND DESIGN

Survey Crew

Project No.	Project Name	County	Field Work Accomplished: Topography	Levels	Triangulation	Miscellaneous	Investigation Engineering: Field Invest.	Office Invest.	Field Soils	Office Soils	Design
1340	Buffalo Water Supply	Cass	X	X			X	X			D
1344	Sheyenne River Flood Control (CE)	Richland-Cass					X	X			I-O
1346	Mount Carmel Dam	Cavalier	X	X		X	X	X	X	X	I
1349	Colt Dam	Mercer	X			X			X	X	X
1351	English Coulee	Grand Forks	X	X		X	X	X	X	X	I
1356	Red Willow Lake	Griggs	X	X		X	X	X			D
1358	Sheep Creek Dam	Grant	X	X			X	X	X	X	I
1361	Ray Railroad Dam	Williams	X	X			X	X	X		–
1362	Rock Lake	Towner					X	X			–
1365	Grandin Water Supply	Cass & Traill	X	X		X	X	X	X	X	X
1370	Carlyle WS No. 11 (SCS)	Pembina		X		X					I-O
1374	Roughrider Dam	McKenzie	X	X		X					D
1377	Lucca Dam	Cass & Barnes	X	X		X	X	X			D
1378	Clausen Springs Dam	Barnes	X	X		X	X	X	X	X	X
1380	North Enderlin Dam	Cass & Barnes						X			D
1382	Camel Butte Dam	Golden Valley	X	X		X	X	X	X	X	I-O
1386	Shipton Coulee Dam	Ward	X	X			X	X	X		D
1387	Hettinger Dam	Adams					X				–
1406	Bison Dam	Mercer	X	X		X	X	X			D
1407	Stanley Dam	Mountrail	X	X			X	X	X	X	–
1408	Minot Flood Control (CE)	Ward-Renville					X	X			I-O
1409	Queen City Dam	Stark	X	X		X	X	X	X	X	X
1410	Hope Dam	Steele	X	X		X	X	X			D
1418	Big Coulee Dam	Towner	X			X	X	X			I
1422	Balthauser-Moyer Cutoff (Sheyenne River)	Cass					X				I
1424	Northwood Dam	Grand Forks	X	X		X	X	X			–
1425	Hatton Dam	Steele		X		X	X	X			D
1432	Seeman Park Dam	Emmons	X	X		X	X	X			I
1433	Whitman Dam Recreation Area	Nelson					X	X			I

FOOTNOTES:
R – Resistivity
D – Deferred
X – Completed
I – In Progress
O – Completed by Others

B. CONSTRUCTION AND MAINTENANCE

SWC No.	Name	County	Purpose	Type of Structure	Work Accomplished
227	Eaton Irrigation Project	McHenry	Irrigation	Reinforced concrete gated control structure	New construction
264	Braddock Dam	Emmons	Recreation	Rolled earthfill embankment with rubble masonary ogee weir type spillway	Repair
275	Fort Ransom Dam	Ransom	Recreation	Reinforced concrete channel dam located on Sheyenne River	Repair
299	Pembina City Dam	Pembina	Recreation	Gravity type spillway structure located on Pembina River	Repair
316	Lisbon Dam	Ransom	Municipal Water Supply	Channel dam located on Sheyenne River	Repair
347	Velva Flood Control	McHenry	Flood Control	Flood protection works	Channels and dikes installed by Corps of Engineers
362	Balta Dam	Pierce	Recreation	Earthfill embankment and reinforced concrete spillway structure	Repair
374	Danzig Dam	Morton	Recreation	Earthfill embankment with reinforced concrete weir type spillway structure	Repair
407	Raub Dam	McLean	Recreation	Combination bridge and spillway structure	Repair
475	Golden Lake	Steele	Recreation	Series of canals diverting waters from Beaver Creek through three lakes and back into Beaver Creek	New construction
477	Valley City Dam	Barnes	Industrial	Gated weir type, reinforced concrete structure, Sheyenne River channel dam	New construction

SWC No.	Name	County	Purpose	Type of Structure	Work Accomplished
501	Pheasant Lake Dam (Elm River)	Dickey	Recreation	Rolled earthfill serves as embankment and Highway 11 crossing with concrete box drop spillway	New construction
561	Tioga Dam	Williams	Municipal Water Supply	Several earthfill embankments and glory hole type spillway	New construction
568	Sheyenne River Channel Clearing	Barnes, Richland, Cass	Alleviate flooding	None	Cleared river channel
586	Short Creek Dam	Burke	Recreation	Earthfill embankment with reinforced concrete chute spillway	Minor repairs to embankment area
600	Crystal Dam	Pembina	Municipal Water Supply	Gated reinforced concrete weir type channel dam located on Cart Creek	New costruction
601	Bucephalia Dam	Foster	Recreation	Earthfill embankment with rock and mortar ogee type spillway	Emergency repairs
616	McVille Dam	Nelson	Recreation	Earthfill serves as embankment and Highway 15 with a glory hole type structural plate pipe spillway	Minor repairs
622	Rice Lake	Burleigh	Recreation	Natural lake with controlled outlet ditch	Installed gated control structure
624	James River Channel Change	Stutsman	Alleviate flooding	None	Straightened river channel
636	Des Lacs City Dam	Ward	Municipal Water Supply and Recreation	Earthfill embankment and reinforced concrete chute spillway	Re-constructed spillway structure
642	Sweetbriar Dam	Morton	Recreation	Earthfill serves as embankment and Interstate Highway 94 crossing with a reinforced concrete box chute spillway	New construction

SWC No.	Name	County	Purpose	Type of Structure	Work Accomplished
681	Drayton Dam	Pembina	Municipal and Industrial	Reinforced concrete weir type channel dam located on the Red River	New construction
782	Minot Dam	Ward	Municipal Water Supply	Gated reinforced concrete weir type channel dam located on the Mouse River	New construction
870	Crown Butte Dam	Morton	Recreation	Earthfill serves as embankment and Interstate 94 crossing with a glory hole type spillway	New construction
927	Edmore Dam	Ramsey	Municipal Water Supply	Earthfill embankment with gated reinforced concrete spillway and grass covered emergency spillway	New construction
983	Colcharbor Dam	McLean	Municipal Water Supply	Earthfill embankment with glory hole type spillway and grass covered emergency spillway.	New construction
1141	Pembina Co. Drain #13	Pembina	Erosion control	Earthfill with glory hole type drop structure	Major repair
1345	Conklin Dam	McLean	Recreation	Earthfill embankment which also serves as a roadway and a combination spillway structure and road bridge	Repair
1349	Colt Dam	Mercer	Recreation	Reinforced concrete weir type channel dam located on Knife River. Beach area was included in the confines of the reservoir	New construction
1434	Minnewaukan Dam	Benson	Municipal Water Supply	Earthfill embankment with glory hole type spillway and grass covered emergency spillway	Repair
1435	Green Lake	McIntosh	Recreation	Natural lake with creek outlet	Emergency temporary repairs

C. DRAINAGE PROJECTS

SWC No.	Project	County	Drainage Area (Sq. Mi.)	Scope of Work
416	Devils Lake Basin	Ramsey, Benson and Towner	4,710.0	Engineering and investigation, Sweetwater-Dry Lake Flood Control and Lake Restoration Project #1
463	Rush Lake	Cavalier	315.0	Engineering investigation
1062	Zahn-International Drain	Bottineau	44.0	Investigations
1074	Cass County Drain #19	Cass	9.25	Investigation, engineering, hydraulic improvement (reconstruction)
1075	Cass County Drain #21	Cass	36.0	Investigation engineering - extension 5.73 miles
1076	Cass County Drain #22	Cass	12.0	Investigation engineering
1084	Cass County Drain #32	Cass	10.5	Investigation, engineering and reconstruction
1111	Grand Forks Drain #12	Grand Forks	93.0	Reconstruction
1119	Grand Forks Drain #30	Grand Forks	6.0	Reconstruction
1133	Pembina County Drainage-General	Pembina	54.7	Investigations (Auger Coulee-Rhineland International Drainage Problems)
1135	Pembina County Drain #4-18	Pembina	31.0	Investigation reconstruction
1141	Pembina County Drain #13	Pembina	37.0	Investigation engineering (repair of drop structure)
1144	Pembina County Drain #18	Pembina	31.5	Reconstruction
1153	Pembina County Drain #34	Pembina	25.0	Reconstruction
1188	Richland County Drain #26	Richland	11.5	Reconstruction
1197	Richland County Drain #39	Richland	24.9	Reconstruction
1199	Richland County Drain #55	Richland	15.6	Reconstruction
1207	Richland County Drain #65	Richland	38.0	Reconstruction
1230	Traill County Drain #8	Traill	20.0	Construction, reconstruction investigation
1256	Walsh County Drain #25	Walsh	4.1	Investigation
1320	Willow Creek-Park River Watershed	Pembina	123.0	Investigation

C. DRAINAGE PROJECTS

SWC No.	Project	County	Drainage Area (Sq. Mi.)	Scope of Work
1328	Cass County Drain #23	Cass	18.0	Engineering investigation
1353	Grand Forks County Drain #3	Grand Fork	5.0	Reconstruction
1354	Traill County Drain #39	Traill	4.0	Reconstruction
1359	Barnes County Drain #2	Barnes	15.0	Engineering investigation
1367	Auger Coulee Improvement	Pembina	47.0	Investigation
1368	St. Thomas-Lodema Watershed	Pembina	106.0	Engineering investigation
1369	Bathgate-Hamilton Watershed I	Pembina	57.0	Engineering investigation
1401	International Boundary Drain	Pembina	13.3	Engineering investigation
1412	Traill County Drain #40	Traill	3.0	Engineering investigation
1415	Richland County Drain #66	Richland	11.3	Engineering investigation
1417	Traill County Drain #44	Traill	8.0	Engineering investigation
1419	Walsh County Drain #8	Walsh	11.0	Engineering investigation
1420	Traill County Drain #9	Traill		Engineering investigation
1438	Mulberry Creek Drain	Cavalier		Engineering investigation
1439	Cypress Creek Drain	Cavalier		Engineering investigation
1443	Richland County Drain #47	Richland	18.2	Engineering investigation

D. GROUND-WATER INVESTIGATIONS, SWC Project #1395

The State Water Commission and the Water Resources Division of the United States Geological Survey have been co-operating in a ground-water investigation program for the past 21 years. The State Geologist acts as the technical advisor for the State Water Commission in matters pertaining to ground-water resources and assists in the program.

The aim of the present ground-water investigation program is to obtain an overall knowledge of the ground-water resources of North Dakota. The data gathered during the investigation will serve as a basis for effectively guiding the development of this resource for domestic, municipal, industrial and irrigation purposes. The ground-water investigation program also serves as a basis for determining administrative measures which are necessary for the efficient development and use of the ground-water resources of the State.

Because of the critical problems that many municipalities in the

State faced in obtaining an adequate and suitable water supply, a large portion of the earlier years of the program focused on small areas where municipalities requested the Commission's assistance in locating a plentiful supply of water. In recent years the ground-water investigations have been broadened to include large areas, one or two counties in size. Early in 1961, the increasing number of requests for county-wide investigations caused a change in policy of the United States Geological Survey which resulted in a discontinuance of their participation in the costs of studies aimed at providing water supply to individual communities. This was done in order to channel the main effort into larger areal investigations which more readily lend themselves to the State-wide inventory of the ground-water resources, which is the survey's primary duty.

A county ground-water investigation requires four years to complete and has three principal objectives. First, the areas having significant potential for ground-water development are located and delineated. The chemical quality of the water is determined so that its suitability for various uses is known. After the significant aquifers have been delineated, aquifer tests are conducted wherever feasible and estimates are made as to the yield of water to individual wells.

A county investigation is divided into six major phases:

(1) **Water Records.** This phase of the investigation includes the collection of hydrologic data, such as well depth, water levels, well yield and related data by measurement and verbal reports from drillers, well owners, tenants and others. Periodic water-level measurements are made in a network of observation wells and water-level recording instruments are installed on strategic wells. The observation well program is continued throughout the life of the project.

(2) **Geologic Studies.** Personnel of the North Dakota Geological Survey or the United States Geological Survey prepare a map of the county showing the geologic deposits exposed at the surface. The geologic study includes information from the test drilling and field mapping, and information from existing reports and geologic logs. Most of this work is accomplished during the first two years of study.

(3) **Surface Exploration.** Test drilling is done to determine the subsurface conditions with respect to water bearing formations and various minerals. The drilling is done with a forward rotary rig. A geologist analyses the samples as they come out of the hole and describes them and notes the depths at which they were encountered. Electric and gamma-ray logs are run in each test hole to aid in the definition and correlation of the various lithologies or types of material encountered.

(4) **Quality of Water.** Whenever possible, the specific conductance of water samples from wells is determined during the well inventory. Specific conductance gives an indication of the dissolved minerals in the water. This data is utilized

for the selection of samples for complete analysis. The samples are selected to indicate the quality of water from various aquifers, the variation in water quality with depth in a given aquifer, and the seasonal variation in quality as well as long-term variations in a given aquifer.

(5) **Aquifer Tests.** The ability of water-bearing rocks to store and transmit water can be determined by aquifer tests and by laboratory analyses of rock samples. Aquifer tests are conducted during the investigation if suitable production wells are available. If suitable production wells are not available, the possibility of constructing a production well is explored.

(6) **Report Preparation.** The results of the investigation are published in three reports. They are published co-operatively by the North Dakota Geological Survey and the State Water Commission. Report I describes the geology, Report II presents the basic data which includes information on the existing wells, test drilling and quality of water and Report III describes and evaluates the ground-water resources of the county.

The county ground-water investigations are financed on a 50%-25%-25% basis between the United States Geological Survey, State Water Commission, and a count entity respectively. The county entity is usually the Board of Commissioners or the Water Management Board. Contracts are effected between the county and the Commission and between the Commission and the United States Geological Survey.

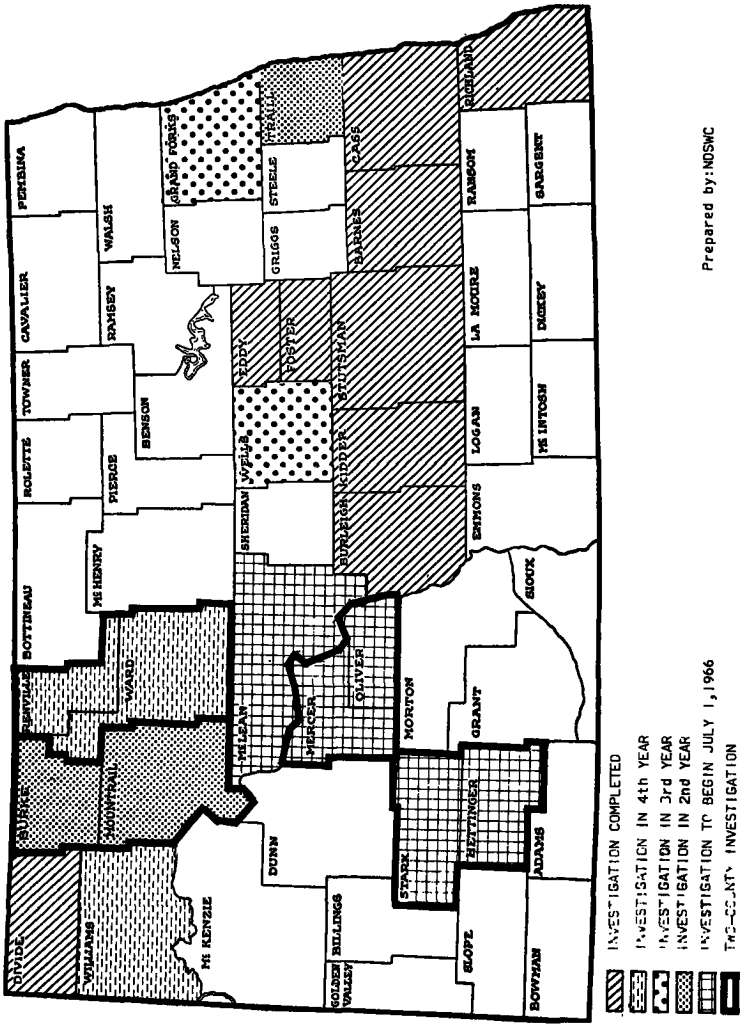
The United States Geological Survey provides the project leader who coordinates the investigation and is the principal author of the reports.

The Commission's participation in a county investigation is concerned primarily with three phases of the field work. A geologist, drill crew, equipment and supplies are provided to accomplish the subsurface exploration. Test drilling accomplished annually by the State-owned drilling rig approximates 30,000 feet, and 20,000 to 25,000 feet of drilling are contracted annually to well drillers. A chemist is provided to make chemical analyses of water samples collected during the investigation. The chemist uses the facilities and certain equipment of the State Laboratories Department. A ground-water hydrologist and equipment are provided to supervise and conduct the aquifer testing phase of an investigation.

During the past biennium the Commission has conducted co-operative ground-water investigations for cities and towns throughout the State in an effort to locate a municipal water supply from ground-water sources. The cities and towns include Rugby, Rock Lake, Lansford, and St. John. Supplemental investigations were conducted for Hatton, Hettinger and Ellendale, and the Commission co-operated with the United States Geological Survey and the City of Minot in conducting an investigation for that city.

These investigations are designed to serve a specific city or town and therefore, are more limited areally and are more detailed than a county investigation. Except for the investigation completed for Minot, the investigations are financed on a 50-50 basis by the municipality and the State Water Commission.

To date, ground-water investigations covering approximately 13,000 square miles of the State's 70,665 square miles have been completed and many of the reports are available. Investigations underway or programmed to begin July 1, 1966 cover approximately 18,400 square miles. The accompanying map indicates the status of the county-wide ground-water investigation program.



A number of significant aquifers have been discovered and partially delineated in the course of the county-wide ground-water investigations. Some of the more prominent include the Spiritwood aquifer in Barnes and Stutsman Counties, the Sheyenne Delta aquifer in Richland and Cass Counties, the Carrington aquifer in Foster and Wells Counties, the Little Muddy and Hofflund Flat aquifers in Williams County, the Steele-Tappen area in Kidder County and the Heimdal Channel aquifer in Wells, Eddy and Foster Counties. Undoubtedly, some of these aquifers extend into other counties where investigations are not underway.

The yields of these aquifers to individual wells are quite significant. The Spiritwiid aquifer is capable of yielding as much as 1000 gallons per minute to properly constructed wells; the Carrington aquifer as much as 2000 gallons per minute; the Little Muddy and Hofflund aquifers as much as 1500 gallons per minute; the Steele-Tappen area as much as 500 gallons per minute or more; the Sheyenne Delta aquifer as much as 500 gallons per minute; the Heimdal Channel aquifer as much as 1500 gallons per minute.

The Commission in co-operation with the United States Geological Survey maintains a network of observation wells for the purpose of monitoring water level changes in the various aquifers that were discovered and delineated during the county investigations. It is necessary to establish the changes in water levels as development takes place so that it is known whether or not water is being pumped from storage or whether recharge is equal to or exceeding pumpage. This data will serve as a guide for instituting proper long range water management practices. The number of observation wells increases each year as county projects are completed and key observation wells from these counties are taken into the network. Personnel of the United States Geological Survey do the field work and compile the data.

The Commission is especially grateful to the township assessors who have made a preliminary inventory of existing wells within their respective county. Special thanks are owed to various well drillers and government agencies who have furnished much valuable information for the ground-water investigations.

The ever-increasing demands for water for municipalities, irrigation and industry have pointed out the need for the continuation and expansion of the ground-water investigation program. The basic data made available through this investigational work will serve as the basis for the orderly development of the State's ground-water resources and in the economic development of North Dakota.

E. REGIONAL AND STATE-WIDE PROJECTS AND PROGRAMS

SWC No.	Project-Program	Summary
1376	Outdoor Recreation	Commission provided technical assistance in preparation of State Outdoor Recreation Plan and administrative support in establishing the State Outdoor Recreation Agency office.
1390	Watershed Protection — Soil Conservation Service	Staff reviewed Soil Conservation Service watershed work plans and co-ordinates development activities of all interested entities in multi-use Public Law 566 projects.
1392	Missouri River Reservoir Operations	Participated in conferences of Federal agencies and Missouri Basin States relative to regulating main stem reservoirs for all beneficial purposes.
1393	Hydrologic Surveys	Provided 50% matching funds to United States Geological Survey for maintaining a lake and stream gaging network across the State to collect data on surface water resources.
1394	Topographic Mapping	Provided 50% matching funds for detailed mapping of selected areas in North Dakota by the United States Geological Survey. Over one-half the State now mapped on five-foot contour intervals.
1396	Missouri Basin Comprehensive Planning	Participated in task force committees in preparation of comprehensive development plan for water and related land resources in the Missouri Basin.
1397	Pollution Abatement	Assisted State Health Department in reviewing sewage treatment works proposed for municipalities and participated in interagency conferences concerning stream and lake pollution.
1403	Water Resources Research	Provided funds and technical assistance to initiate various water resources research activities conducted by the North Dakota Water Resources Research Institute at North Dakota State University.
1416	Office of Economic Opportunity Programs	In co-operation with Public Welfare Board, provided engineer and instructor for Title V Work Training Program at Turtle Mountain Indian Reservation.
1423	Office of Emergency Planning Activities	Assisted State Civil Defense Agency in evaluations of emergency and disaster damages caused by floods and storms in the State.

SWC No.	Project-Program	Summary
1442	Flowing Wells	The 1965 Legislature transferred the responsibility for supervision and control of flowing wells to the Commission from the State Geologist. No specific program for this activity has been initiated; however, the problem is under active consideration by the Commission staff.

8. RECAP OF DISBURSEMENTS AND PROJECT COSTS

Recap of Disbursements
July 1, 1964 — June 30, 1966

Disbursements to be Accounted for:

Disbursements from Appropriations and Refunds — 1963-1965	$776,904.56	
Disbursements from Appropriations and Refunds — 1965-1967	701,127.20	
Disbursements from Appropriations and Refunds (prior) 1963-1965	25,829.98	
Credits to Project Sponsors	15,970.00	
Depreciation — Office and Field Equipment	40,193.06	
Total Disbursements to be Accounted for		$1,560,024.80
Disbursements Charged to State Water Commission Projects		**$1,397,932.83**

Disbursements Charged to General Operating Costs:

Personnel Services	$113,164.28	
Field Equipment (new) (Book Value —$165,647.42)	25,335.44	
Office Equipment (new) (Book Value —$16,668.85)	5,906.89	
Shop Building (Book Value —$42,900.00)	.....	
Materials and Supplies (Inventory —$22,423.68)	5,269.94	
Equipment Operation, Maintenance and Depreciation:		
Depreciation $40,193.06		
Operation & Maintenance 56,876.42		
Less Charged to Projects —88,697.16	8,372.32	
Miscellaneous Expenses	4,043.10	
Total Disbursements Charged to General Operating Costs		$162,091.97
Total Disbursements Accounted for		$1,560,024.80

NORTH DAKOTA STATE WATER COMMISSION

Project Expenditures

July 1, 1964 — June 30, 1966

Project No.	Name	County	Total Costs	Credits and Collections
160	Painted Woods I. P.	McLean	$ 7.39	
175	Lewis & Clark I. P.	McKenzie	493.08	
213	Sioux Irrigation Project	McKenzie	841.55	988.36
214	Yellowstone Pumping I. P.	McKenzie	233.40	
227	Eaton Flood I. P.	McHenry	15,148.98	9,349.83
232	Knife River Flood Control	Mercer	54.02	
237	Missouri River Diversion (GDU)	Various	6,365.78	
246	Antelope Creek Dam	Mercer	44.44	
249	Mott Dam and Flood Control	Hettinger	67.10	
259	Kulm Dam	LaMoure	2,253.67	200.00
262	Cannonball and Cedar R. Dev.	Various	1,262.53	
263	Dickinson Dam	Stark	15.79	
264	Braddock Dam	Emmons	123.52	
275	Ft. Ransom Dam	Ransom	70.08	
291	Sarnia Dam	Nelson	2,071.01	200.00
292	Burnt Creek	Burleigh	234.88	
299	Pembina City Dam	Pembina	1,419.30	731.10
305	Red River Basin	Various	2,971.31	
316	Lisbon Dam	Ransom	921.40	
322	State Water Plan	Various	278.30	
327	White Earth Dam	Mountrail	1,909.74	
330	Lake Metigoshe	Bottineau	674.66	
346	Epping Dam	Williams	17.86	
347	Velva Flood Control	McHenry	11,255.73	
353	Cedar Dam	Slope		1,282.20
359	Wolf Butte Dam	Adams	70.40	
362	Balta Dam	Pierce	1,241.75	
374	Danzig Dam	Morton	144.98	
382	Elgin Dam	Grant	40.43	
386	Monango Dam	Dickey	2,427.26	
390	Beaver Lake Dam	Logan	58.81	
391	Silver Lake Dam	Sargent	1,843.22	
394	Odland Dam	Golden Valley	12.55	
399	Kathryn Dam	Barnes	498.89	
407	Raub Dam	McLean	149.38	445.46
416	Devils Lake Basin	Ramsey, Towner and Benson	2,147.02	
418	Amenia Dam	Cass	1,789.87	
421	E-Six Dam	Slope	59.65	
427	Lidstrom Dam	Stark	24.70	
443	Lake Juanita Dam	Foster	166.44	
448	Minto Dam	Walsh	13.75	
450	Sykeston Dam	Wells	187.58	
459	Brown Dam	Barnes	289.10	
463	Rush Lake	Cavalier	338.91	
467	Wyard "Kiwanis" Dam	Foster	309.63	
475	Golden Lake	Steele	28,129.20	
477	Valley City Mill Dam	Barnes	42,104.23	50,089.62
489	Ray Dam	Williams	10.16	
495	Peterson Dam	Nelson	107.71	
501	Elm River Dam (Pheasant Lake)	Dickey	4,123.06	19,621.19
518	Sheyenne Dam	Eddy	66.11	
528	McGregor Dam	Williams	5,253.99	
558	Linton Flood Control	Emmons	286.83	
560	Blacktail Dam	Williams	10.16	
561	Tioga Dam	Williams	654.04	
565	Buffalo Lake	Pierce	1,640.03	
566	Snyder Lake	Towner	776.09	
567	Pembilier Dam	Pembina-Cavalier	3,183.64	
568	Sheyenne R. Channel Clearing	Cass, Barnes, Richland, and Ransom	106,730.13	
576	Missouri R. Bank Stabilization	Burleigh, Morton Oliver, McLean and Mercer	1,802.53	
586	Short Creek Dam	Burke	5,327.55	3,432.17
599	Sheyenne Diversion	Cass	186.92	
600	Crystal Dam	Pembina	30,551.72	
601	Bucephalia Dam	Foster	1,038.04	
613	Arnegard Dam	McKenzie	78.89	
616	McVille Railroad Dam	Nelson	59.85	
622	Rice Lake	Burleigh	1,415.76	

NORTH DAKOTA STATE WATER COMMISSION (Cont.)

Project No.	Name	County	Total Costs	Credits and Collections
624	James River Channel Change	Stutsman	11,631.12	
627	Froelich Dam	Sioux	51.37	
632	Antler Creek Dam	Bottineau	81.86	
636	Des Lacs City Dam	Ward	39,146.29	19,118.71
642	Sweetbriar Creek Dam	Morton	101,251.90	48,011.18
656	New Rockford Railroad Dam	Eddy	733.47	200.00
660	Grafton Railroad Dam	Walsh	637.99	200.00
661	Park River Channel Change	Pembina	513.92	
662	Park River Channel Clearing	Walsh	75.94	
665	Armourdale Dam	Towner	497.33	
671	Harvey Dam	Wells	3,477.68	
677	Ft. Clark Accretion	Oliver	23.27	
679	Ditch Mapping	Various	168.74	
681	Drayton Dam	Pembina	158,794.93	68,862.36
689	Hillsboro Water Supply	Traill	101.20	
690	Pipestem Dam	Stutsman	19.25	
702	Boundary Creek WMD	Bottineau	52.31	
708	Grant County WMD	Grant	11.55	
716	Rush River WMD	Cass	40.81	
747	Devils Lake GW Survey	Ramsey	2,200.00	
748	Dickinson GW Survey	Stark	252.71	
750	Ellendale GW Survey	Dickey	3,028.40	500.00
762	Hatton GW Survey	Traill	3,988.72	2,500.00
763	Hettinger GW Survey	Adams	958.10	
780	Michigan GW Survey	Nelson	278.31	
782	Minot Water Supply	Ward	87,583.88	200.00
798	St. John GW Survey	Rolette	2,064.51	1,500.00
802	Sheyenne GW Survey	Eddy	580.80	
810	Westhope GW Survey	Bottineau	107.40	
816	Barnes County GW Survey	Barnes	1,287.09	3,000.00
817	Burleigh County GW Survey	Burleigh	2,530.32	
818	Kidder County GW Survey	Kidder	3,401.46	
819	Stutsman County GW Survey	Stutsman	495.00	
820	Oak-Willow Creek S & C	Bottineau and McHenry	447.62	
822	St. Thomas Water Supply	Pembina	74.03	
826	Garrison Dam and Reservoir	Various	49.12	
829	Rush River Flood Control	Cass	62.33	
839	Elm River Watershed	Cass, Traill, and Steele	274.25	
841	Maple River Watershed	Barnes, Ransom, Cass, and Steele	149.88	
842	Starkweather Watershed	Cavalier	150.37	
843	Edmore Watershed	Cavalier and Ramsey	111.10	
846	Square Butte Watershed	Oliver	40.81	
848	Tewaukon Watershed	Sargent	35.97	
849	Tongue River Watershed	Cavalier and Pembina	181.72	
851	Wild Rice Watershed	Sargent	38.39	
852	Willow Coulee Watershed	Rolette, McHenry and Bottineau	69.00	
853	Turtle Mt. Res. Improvement	Rolette	542.62	
858	Foster-Eddy County GW Survey	Foster and Eddy	24,432.63	7,500.00
859	Williams County GW Survey	Williams	29,014.66	5,937.50
860	McKenzie County GW Survey	McKenzie	179.08	
861	Burke-Mountrail Co. GW Survey	Burke and Mountrail	5,108.98	
862	Divide County GW Survey	Divide	2,907.30	8,625.00
863	Ward-Renville Co. GW Survey	Ward and Renville	49,717.87	18,994.00
864	Bottineau County GW Survey	Bottineau	36.30	
865	Garrison Res. Negation Study	Various	269.94	
866	Cass County GW Survey	Cass	20,552.83	10,000.00
867	Richland County GW Survey	Richland	18,299.95	12,000.00
868	Traill County GW Survey	Traill	6,392.10	4,250.00
870	Crown Butte Dam	Morton	15,217.44	10,198.40
871	Pembina River S & C	Pembina and Cavalier	253.13	
872	Milton Highway #66 Dam	Cavalier	36.08	
927	Edmore Water Supply	Ramsey	18,089.13	5,000.00
		Walsh, Grand Forks, and		

NORTH DAKOTA STATE WATER COMMISSION (Cont.)

Project No.	Name	County	Total Costs	Credits and Collections
929	Forest River Watershed	Nelson	412.81	
935	Bench Marks	State-wide	82.14	
936	Field Notes and Plats	State-wide	264.80	
941	Benson County GW Survey	Benson	35.82	
948	Emmons County GW Survey	Emmons	1,818.69	
950	Grand Forks County GW Survey	Grand Forks	9,887.30	15,000.00
952	Griggs County GW Survey	Griggs	36.30	
953	Hettinger-Stark Co. GW Survey	Hettinger and Stark	354.95	
954	LaMoure County GW Survey	LaMoure	23.90	
958	McLean County GW Survey	McLean	177.63	
959	Mercer-Oliver Co. GW Survey	Mercer and Oliver	903.72	
962	Nelson County GW Survey	Nelson	150.01	
964	Pembina County GW Survey	Pembina	36.30	
968	Rolette County GW Survey	Rolette	132.50	
970	Sheridan County GW Survey	Sheridan	31.34	
974	Steele County GW Survey	Steele	36.30	
978	Wells County GW Survey	Wells	12,965.16	21,000.00
982	Park River WS and FC	Walsh, Cavalier and Pembina	83.85	
983	Coleharbor Water Supply	McLean	12,969.40	4,500.00
984	Souris River Basin	Various	2,156.44	
989	Quality of Water Studies	Various	1,088.15	
999	Road Drainage – General	Various	425.77	
1001	Barnes County Road Drainage	Barnes	40.81	
1007	Burleigh Co. Road Drainage	Burleigh	40.32	
1015	Dickey County Road Drainage	Dickey	290.95	
1019	Griggs County Road Drainage	Griggs	40.81	
1022	LaMoure County Road Drainage	LaMoure	88.06	
1033	Pembina County Road Drainage	Pembina	53.13	
1048	Traill County Road Drainage	Traill	211.48	
1049	Walsh County Road Drainage	Walsh	52.13	
1051	Wells County Road Drainage	Wells	189.66	
1053	Drainage – General	Various	3,153.20	
1055	Barnes County Drain #1	Barnes	10.56	
1056	Bottineau Co. Drainage – General	Bottineau	194.92	
1057	Bottineau County Drain #2	Bottineau	21.12	
1059	Braumann Group Drain	Bottineau	63.36	
1060	Kramer Drain	Bottineau	147.84	
1061	Stone Creek Drain	Bottineau	21.45	
1062	Zahn-International Drain	Bottineau	199.82	
1063	Cass County Drainage – General	Cass	382.84	
1064	Cass Drain #2	Cass	78.43	
1065	Cass Drain #3	Cass	98.56	
1066	Cass Drain #9	Cass	44.89	
1067	Cass Drain #10	Cass	35.42	
1068	Cass Drain #12	Cass	54.36	
1069	Cass Drain #13	Cass	238.70	
1070	Cass Drain #14	Cass	159.39	
1071	Cass Drain #15	Cass	35.42	
1072	Cass Drain #16	Cass	44.96	
1073	Cass Drain #18	Cass	47.36	
1074	Cass Drain #19	Cass	965.84	
1075	Cass Drain #21	Cass	6,584.33	
1076	Cass Drain #22	Cass	1,585.83	
1077	Cass Drain #24	Cass	28.41	
1078	Cass Drain #25	Cass	17.71	
1079	Cass Drain #26	Cass	17.99	
1080	Cass Drain #27	Cass	37.88	
1081	Cass Drain #29	Cass	303.85	
1082	Cass Drain #30	Cass	28.41	
1084	Cass Drain #32	Cass	3,882.20	
1085	Cass Drain #34	Cass	42.24	
1086	Cass Drain #35	Cass	9.47	
1087	Cass Drain #36	Cass	9.47	
1088	Cass Drain #37	Cass	47.36	
1089	Cass Drain #39	Cass	35.97	
1090	Cass Drain #40	Cass	203.68	
1091	Cass Drain #41	Cass	18.94	
1093	Cass Drain #45	Cass	18.94	
1094	Cass Drain #46	Cass	37.88	
1096	Cass Drain #49	Cass	9.47	
1098	Cavalier Co. Drainage – General	Cavalier	342.64	

NORTH DAKOTA STATE WATER COMMISSION (Cont.)

Project No.	Name	County	Total Costs	Credits and Collections
1099	Cavalier Drain #1	Cavalier	21.12	
1101	Dickey Co. Drainage — General	Dickey	167.88	
1102	Dickey Drain #1	Dickey	107.25	
1105	Grand Forks Drainage — General	Grand Forks	392.07	
1106	Grand Forks Drain #1 and #2	Grand Forks	47.36	
1108	Grand Forks Drain #9	Grand Forks	163.27	
1109	Grand Forks Drain #10	Grand Forks	29.45	
1111	Grand Forks Drain #12	Grand Forks	1,106.48	
1113	Grand Forks Drain #14	Grand Forks	18.94	
1115	Grand Forks Drain #19	Grand Forks	70.84	
1116	Grand Forks Drain #23	Grand Forks	19.64	
1117	Grand Forks Drain #27	Grand Forks	153.68	
1118	Grand Forks Drain #28	Grand Forks	171.97	
1119	Grand Forks Drain #30	Grand Forks	2,138.87	
1120	Falconer Twp. Drain #2	Grand Forks	45.46	
1122	Falconer Twp. Drain #4 & #5	Grand Forks	34.05	
1124	Michigan Twp. Drain #1	Grand Forks	9.82	
1125	Rye Twp. Drain #1	Grand Forks	9.81	
1128	Strabane Twp. Drain #1	Grand Forks	9.82	
1132	McHough Drain "Slough"	Nelson	31.68	
1133	Pembina Co. Drainage — General	Pembina	3,074.32	
1134	Pembina Drain #3	Pembina	42.90	1,750.61
1135	Pembina Drain #4 and #18	Pembina	4,691.72	
1136	Pembina Drain #6	Pembina		1,814.24
1137	Pembina Drain #7	Pembina		1,114.12
1138	Pembina Drain #8	Pembina	10.56	
1139	Pembina Drain #10	Pembina	28.77	
1140	Pembina Drain #11	Pembina	9.82	
1141	Pembina Drain #13	Pembina	4,629.27	1,516.37
1144	Pembina Drain #18	Pembina	1,129.26	
1145	Pembina Drain #20	Pembina	47.52	
1150	Pembina Drain #28	Pembina	18.94	
1153	Pembina Drain #34	Pembina	19,872.23	
1154	Pembina Drain #38	Pembina	31.68	
1155	Pembina Drain #42	Pembina	49.08	
1156	Pembina Drain #43	Pembina	29.46	
1157	Pembina Drain #47	Pembina	9.47	
1164	Pembina Drain #64	Pembina	18.94	
1165	Brodeur Drain	Pembina	21.12	
1167	Park Twp. Drain	Pembina	10.56	
1169	Pembina Drain #62	Pembina	90.64	
1172	Ransom Co. Drain — General	Ransom	98.92	
1174	Richland Co. Drainage — General	Richland	138.07	
1175	Richland Drain #1	Richland	10.56	
1178	Richland Drain #4	Richland	10.56	
1179	Richland Drain #5	Richland	28.41	
1180	Richland Drain #7	Richland	37.88	
1182	Richland Drain #12	Richland	52.80	
1183	Richland Drain #15	Richland	21.12	
1184	Richland Drain #17	Richland	18.94	
1185	Richland Drain #18	Richland	100.33	
1186	Richland Drain #21	Richland	10.56	
1188	Richland Drain #26	Richland	4,052.69	
1189	Richland Drain #27	Richland	9.47	
1190	Richland Drain #28	Richland	21.12	
1191	Richland Drain #30	Richland	52.80	
1192	Richland Drain #32	Richland	31.68	
1193	Richland Drain #33	Richland	21.12	
1194	Richland Drain #34	Richland	10.56	
1195	Richland Drain #35	Richland	21.12	
1196	Richland Drain #37	Richland	37.88	
1197	Richland Drain #39	Richland	3,137.45	
1198	Richland Drain #41	Richland	31.68	
1199	Richland Drain #55	Richland	13,110.90	
1200	Richland Drain #56	Richland	18.94	
1201	Richland Drain #57	Richland	28.41	
1202	Richland Drain #58	Richland	18.94	
1205	Richland Drain #63	Richland	9.81	
1206	Richland Drain #64	Richland	9.47	
1207	Richland Drain #65	Richland	5,974.31	
1208	Barrie Drain #1	Richland	10.56	
1209	Center-Dwight Drain	Richland	31.68	
1211	Jensen-Dinger Drain	Richland	10.56	
1213	Mideman-McDonald Drain	Richland	10.56	

NORTH DAKOTA STATE WATER COMMISSION (Cont.)

Project No.	Name	County	Total Costs	Credits and Collections
1214	Rush Lake Drain	Richland	10.56	
1219	Sargent Co. Drainage — General	Sargent	10.56	
1220	Sargent Drain #3	Sargent	31.68	
1221	Sargent Drain #9	Sargent	31.68	
1223	Steele Co. Drainage — General	Steele	268.79	
1224	Traill Co. Drainage — General	Traill	253.29	
1225	Traill Drain #2	Traill	31.68	
1226	Traill Drain #4 and #14	Traill	42.24	
1227	Traill Drain #5	Traill	10.56	
1228	Traill Drain #6	Traill	10.56	
1229	Traill Drain #7	Traill	80.63	
1230	Traill Drain #8	Traill	226.77	
1231	Traill Drain #10	Traill	31.68	
1232	Traill Drain #13	Traill	21.12	
1236	Traill Drain #17	Traill	10.56	
1237	Traill Drain #18	Traill	31.68	
1239	Traill Drain #20	Traill	21.12	
1240	Traill Drain #22	Traill	10.56	
1242	Traill Drain #24	Traill	31.68	
1243	Traill Drain #26	Traill	10.56	
1244	Traill Drain #27	Traill	21.56	
1245	Traill Drain #28	Traill	21.12	
1246	Traill Drain #29	Traill	62.40	
1247	Traill Drain #30	Traill	31.68	
1248	Traill Drain #32	Traill	21.12	
1250	Traill Drain #35	Traill	31.68	
1251	Traill Drain #42	Traill	17.99	
1252	Walsh Co. Drainage — General	Walsh	164.20	
1253	Walsh Drain #4	Walsh	28.41	
1256	Walsh Drain #25	Walsh	317.00	
1258	Walsh Drain #27	Walsh	18.94	
1259	Walsh-Pembina Drain #50	Walsh-Pembina	47.36	
1260	Ops Drain #1	Walsh	10.56	
1261	Prairie Center Drain #1	Walsh	10.56	
1263	Adams Co. Small Projects	Adams	76.78	
1264	Barnes Co. Small Projects	Barnes	44.44	
1277	Emmons Co. Small Projects	Emmons	27.03	
1281	Grant Co. Small Projects	Grant	9.24	
1282	Griggs Co. Small Projects	Griggs	237.91	
1287	McHenry Co. Small Projects	McHenry	134.39	
1289	McKenzie Co. Small Projects	McKenzie	86.68	
1290	McLean Co. Small Projects	McLean	84.37	
1295	Oliver Co. Small Projects	Oliver	56.54	
1307	Stark Co. Small Projects	Stark	105.82	
1316	Towner Co. Drainage	Towner	347.38	
1320	Willow Coulee Watershed	Pembina	252.92	
1322	Amenia Ground Water Survey	Cass	786.50	
1324	Oak Creek Dam	Bottineau	55.90	
1325	Sterling Dam	Burleigh	262.08	
1328	Cass Co. Drain #23	Cass	280.20	
1333	Sand Creek Dam	Williams	1,930.14	
1337	Well Log Program	State-wide	328.91	
1339	Bone Hill Creek Dam	LaMoure	740.73	
1340	Buffalo Water Supply	Cass	670.32	200.00
1341	Rugby Ground Water Survey	Pierce	8,017.62	1,100.00
1342	Boundary Creek Watershed	Bottineau	88.88	
1344	Sheyenne R. FC (Kindred Dam)	Cass-Richland	723.48	
1345	Conklin Dam	McLean	4,094.65	570.24
1346	Mt. Carmel Dam	Cavalier	8,171.52	
1347	Kindred City Dam	Richland	58.53	
1348	Stutsman Co. Drainage — General	Stutsman	87.34	
1349	Colt Dam	Mercer	33,106.94	15,554.36
1350	Lewis & Clark Trail	Various	22.55	
1351	English Coulee Outfall	Grand Forks	8,776.84	500.00
1353	Grand Forks Co. Drain #3	Grand Forks	2,889.70	
1354	Traill Co. Drain #39	Traill	7,587.99	
1356	Red Willow Lake	Griggs	750.30	
1357	Lansford Water Supply	Bottineau	3,156.88	1,500.00
1358	Sheep Creek Dam	Grant	5,710.41	200.00
1359	Barnes Co. Drain #2	Barnes	490.19	
1360	Barnes Co. WMD	Barnes	30.80	
1361	Ray Railroad Dam	Williams	2,510.17	200.00
1362	Rock Lake Dam	Towner	282.55	
1363	Stutsman Co. WMD	Stutsman	53.90	

NORTH DAKOTA STATE WATER COMMISSION (Cont.)

Project No.	Name	County	Total Costs	Credits and Collections
1364	Rock Lake City Water Supply	Towner	4,882.17	1,500.00
1365	Grandin Water Supply	Cass	7,709.20	200.00
1367	Auger Coulee Improvement	Pembina	157.50	
1368	St. Thomas-Lodema WS #111	Pembina	743.70	
1369	Bathgate-Hamilton WS #1	Pembina	320.12	
1370	Carlyle Watershed #11	Pembina	2,315.70	
1372	Foster Co. WMD	Foster	69.30	
1374	Roughride Dam	McKenzie	574.42	200.00
1375	Mouse River Irrig. Dist.	McHenry	289.56	
1376	Outdoor Recreation — General	State-wide	18,543.02	
1377	Lucca Dam	Cass-Barnes	2,464.55	200.00
1378	Clausen Springs	Barnes	4,329.36	200.00
1379	Sheldon Dam	Cass	130.27	
1380	North Enderlin Dam	Cass, Barnes	74.03	
1381	Scandia-Scotia Drain	Bottineau	80.63	
1382	Camel Hump Dam	Golden Valley	1,995.81	200.00
1386	Shipton Coulee Dam	Ward	2,510.06	200.00
1387	Hettinger Dam	Adams	94.34	
1390	Watershed Projects — General	Various	81.29	
1392	Missouri R. Reser. Operations	Various	481.97	
1393	Hydrologic Surveys — General	Various	45,311.21	
1394	Topographic Surveys — General	Various	22,878.45	
1395	Ground Water Surveys — General	Various	102,412.01	
1396	Missouri Basin Comp. Planning	Various	4,341.38	
1397	Pollution Control — General	Various	138.44	
1398	Conservation Training Center	Various	228.25	
1399	Harvey Pumping Irrig. Dist.	Wells	569.58	
1400	Water Permits — General	State-wide	6,355.87	
1401	International Boundary Drain	Pembina	435.68	
1402	Carlson Dam	Griggs	55.33	
1403	North Dakota Water Resources Research	Various	1,863.41	
1404	Mercer Co. WMD	Mercer	133.75	
1405	Mountrail Co. WMD	Mountrail	70.01	
1406	Hazen Bison Dam	Mercer	894.87	200.00
1407	Stanley Dam	Mountrail	3,612.07	200.00
1408	Minot Flood Control	Ward	213.30	
1409	Queen City Dam	Stark	3,098.25	200.00
1410	Hope Dam	Steele	1,338.74	
1411	Natural Beauty Conferences	Various	185.96	
1412	Traill Co. Drain #40	Traill	39.44	
1415	Richland Co. Drain #66	Richland	311.71	
1416	OEO Program-General	Various	2,490.59	
1417	Traill Co. Drain #44	Traill	140.94	
1418	Big Coulee Dam	Towner	1,215.76	200.00
1419	Walsh Co. Drain #8	Walsh	221.47	
1420	Traill Co. Drain #9	Traill	123.05	
1422	Balthauser-Moyer Cutoff	Cass	719.58	
1423	OEP — General	State-wide	2,410.11	
1424	Northwood Dam	Grand Forks	836.66	200.00
1425	Hatton Dam	Traill	741.37	200.00
1426	Hettinger Co. WMD	Hettinger	54.88	
1427	Bottineau Co. WMD	Bottineau	140.34	
1429	Stark Co. WMD	Stark	31.81	
1430	Pilot Wells — General	Various	3,441.65	
1431	Emergency-Disaster Operations	Various	2,034.56	1,161.10
1432	Seeman Park Dam	Emmons	218.41	
1433	Whitman Dam	Nelson	140.53	
1434	Minnewaukan Dam	Benson	2,112.88	
1435	Green Lake	McIntosh	265.24	
1438	Mulberry Creek Drain	Cavalier	57.64	
1439	Cypress Creek Drain	Cavalier	22.22	
1443	Richland Co. Drain #67	Richland	90.31	
		TOTALS	$1,397,932.83	$384,518.12

ABBREVIATIONS USED

WS — Water Supply or Watershed
Co. — County
Dist. — District
I.P. — Irrigation Project
R. — River
Irrig. Dist. — Irrigation District
OEO — Office of Economic Opportunity
Twp. — Township
F.C. — Flood Control
S & C. — Snagging and Clearing
GW — Ground Water
WMD — Water Management District
OEP — Office of Emergency Planning

9. FINANCIAL STATEMENT

MONTHLY REPORT OF APPROPRIATIONS AS OF JUNE 30, 1966
1965 — 1967 APPROPRIATIONS

"General Operations"

Account	AVAILABLE FUNDS Appropriation	Receipts	DISBURSEMENTS To Date	June 1966	ACCOUNT BALANCES Unexpended	Encumb.	Unencumb.
1005—Salaries Expense	$431,000.00	$147,000.00	$225,996.00	$25,965.53	$352,004.00	$.....	$352,004.00
2005—Fees and Services	130,000.00	.....	42,548.09	8,361.29	87,451.91	.....	87,451.91
3005—Supplies and Material ..	175,000.00	.....	76,306.43	5,066.53	98,693.57	.....	98,693.57
4005—Equipment	50,000.00	.....	17,267.40	7,297.58	32,732.60	.....	32,732.60
	$786,000.00	$147,000.00	$362,117.92	$46,690.93	$570,882.08	$.....	$570,882.08
Transferred $147,000 from Contract Fund to "1005" on October 29, 1965							
"Contract Fund"							
001-770-Contract Approp.....	570,000.00	.....	100,000.00	.....	470,000.00	350,000.00	120,000.00
336-770-Contract "Cash"	422,922.57	192,791.75	486,009.28	20,050.95	129,705.04	127,581.00	2,124.04
	$992,922.57	$192,791.75	$586,009.28	$20,050.95	$599,705.04	$477,581.00	$122,124.04

STATUS OF CONSTRUCTION BOND GUARANTEE FUND
AS OF JUNE 30, 1966

Account	AVAILABLE FUNDS Appropriation	Receipts	DISBURSEMENTS To Date	June 1966	ACCOUNT BALANCES Unexpended	Encumb.	Unencumb.
535-770 Const. Bond Guar.....	$90,000.00	$25,841.59	$21,455.09	$.....	$94,385.90	$.....	$94,385.90
0500 Investment Principal	20,500.00	.....	2,000.00	.....	18,500.00	.....	18,500.00
	$110,500.00	$25,841.59	$23,455.69	$.....	$112,885.90	$.....	$112,885.90

NOTE: — Fund #535-770 receipts are obtained from retirement of and interest on securities that were in the commission's sinking fund in excess of the amount required to retire the series "J" bond issue on December 10, 1957. Original disbursements from Fund #535-770 were made during the early 1940's in accordance with Section 61-02-56 of the Century Code which provides that the commission may guarantee or insure or agree to pay, the interest on and principal of commission revenue bonds, not exceeding 20% of the par value of any such bonds.

SCHEDULE OF BONDS AND INTEREST RECEIVABLE — FUND 535-770

TYPE	Due Date	Interest	Interest Rec. to Maturity	Principal	Total Income Anticipated
U. S. Series K Bonds.....	4-67	2.76%	$ 82.80	$ 2,000.00	$ 2,082.80
U. S. Treasury Bonds	12-68	2.50%	337.50	3,000.00	3,262.50
Sioux Irrigation District Bonds	1984 Serially	2.25%	3,442.50	13,500.00	19,325.00
			$3,862.80	$18,500.00	$24,670.00

Excess over $90,000 cash in Fund 535-770 to be credited to General Fund — 1-2-58 AG Opinion.

10. INTERNATIONAL AND INTERSTATE COMPACTS

International Joint Commission

As a result of varied and complex problems occurring on the streams flowing across the United States-Canadian boundary, the International Joint Commission was created in 1909 by treaty between Great Britain and the United States. The Commission is composed of three members each from the United States and Canada.

It is authorized to consider and determine the rights of the two nations or subdivisions thereof to the use of the waters of the rivers, streams and lakes in which both countries have an interest. Problems and disputes arising from the use of such common waters, called "references," are referred to the International Joint Commission.

Saskatchewan, Manitoba and North Dakota are concerned with the Souris River and the Souris-Red River References. The Souris River Reference is dated January, 1940 and the Souris-Red River Reference is dated January, 1948. Several subcommittees have been appointed to study specific questions involved in these references.

Souris River Reference

Three determinations have been requested in the Souris Reference:

1. The apportionment of the waters of the Souris River and its tributaries between Saskatchewan and Manitoba, Canada and North Dakota.
2. The methods of control and operation to regulate the flow of the Souris River and its tributaries.
3. Interim measures to be in effect until final determination of the first two points has been made.

The final agreement, entered into in 1942, allows the province of Manitoba a flow of 20 cfs from stored waters in North Dakota and allows Saskatchewan to retain 50% of the water rising in that Province. The water rights issued by the State of North Dakota and the Province of Saskatchewan far exceed the water allocated to them.

International Souris River Board of Control

In 1959 the International Joint Commission established the International Souris River Board of Control composed of two members, one from the United States and one from Canada. This Board was charged with the responsibility of carrying out the provisions of an interim order on the Souris River recommended by the Commission in 1959 to replace the initial interim order of 1940. Provisions of the 1959 interim order are set forth in the 12th Biennial Report of the State Water Commission.

As a result of International Souris River Board of Control actions, 38 streamflow gaging stations, 17 reservoir level measuring stations and six evaporation stations are maintained within the Souris River watershed. In this biennium, a small diversion dam at Minot and a flood control project at Velva were the only developments on the Souris River.

Pembina River Engineering Board

The Pembina River, a principal tributary of the Red River of the North, has 1,961 square miles of its 3,950 square mile drainage area in

the United States and the remainder in Canada. It is now under the jurisdiction of the International Joint Commission, under the provisions of the Red River Reference of 1948.

Records available in the State Water Commission office indicate that the history of flooding on the Pembina River dates back to 1798 when the Selkirk Expedition located on its banks where the City of Pembina now stands. Flood damage on the Canadian side is not commensurate with that occurring on the United States side of the boundary, because the Pembina River flows in a moderately deep valley which attains canyon proportions in the escarpment near Walhalla. As this stream flows toward the Red River, it decreases in gradient and the channel becomes relatively shallow when it reaches the floor of ancient Lake Agassiz east of Walhalla. The channel in this area has a capacity of 2,000 to 5,000 cfs. As a result, heavy runoff overflows its banks and spreads devastation through almost 100,000 acres of rich agricultural land. Many residents of northeastern North Dakota are of the opinion that the 1950 flood was the third to the worst on record. On April 18, 1950, a flow of 20,400 cubic feet per second was recorded at Walhalla. Two days later when the flood crested at Neche, 20 miles east of Walhalla, a flow of 10,700 cubic feet per second was recorded. Almost 50% of the water had overflowed the banks of the Pembina and spread over farm land as far distant as the Tongue River.

The Corps of Engineers studied the area for flood control and related purposes. They proposed a dam on the Pembina River upstream from Walhalla. A complete study of this project resulted in an unfavorable cost-benefit ratio. In 1959 the Commission and the Manitoba Water Control Conservation Branch made a joint survey to determine the feasibility of directing water from this proposed dam into Manitoba for irrigation use.

In 1960 the Chief Engineer of the State Water Commission and the Director of the Manitoba Water Resources and Conservation Board presented their survey results to the International Joint Commission. That group directed its engineering board to make further studies to ascertain the feasibility of undertaking the project as a joint venture between the two Countries. The International Joint Commission established the International Pembina Engineering Board to report on a coordinated plan of development. In December, 1964, the International Pembina River Engineering Board submitted its report to the International Joint Commission in which it recommended two possible plans as being feasible.

The first of these plans features a reservoir on the Pembina River upstream from Walhalla and canals and conduits to carry the water into Manitoba. The other plan includes the dam near Walhalla, Pembilier Dam, and a dam in Manitoba near Kalieda, as well as the irrigation and water supply features in the first plan. This report is now under review by the International Joint Commission and the proponents of the plan are hopeful of its early approval, as a satisfactory benefit-cost ratio has been ascertained.

Yellowstone River Compact

North Dakota, Montana and Wyoming have negotiated a compact on the Yellowstone River which was approved by the represen-

tatives of those states and their state legislatures, ratified by Congress in 1951 and signed into law by the President October 30, 1951. This compact provides for the division of the Yellowstone River waters and its tributaries among these three states affected by the Yellowstone River. The provisions of the compact have been printed in previous biennial reports of the State Water Commission.

The compact commission in the last biennium has been concerned with industrial water rights, large stockwater dams and the maintenance of gaging equipment along the Yellowstone River. The Yellowstone River drains very little of North Dakota, but does contribute 57% of the water at the confluence of the Missouri and Yellowstone Rivers. Because only a small portion of North Dakota is affected by the Yellowstone, the States of Montana and Wyoming have a controlling voice over matters in which the Commission is involved and also finance 50% of Commission operating costs. The other half of the costs are borne by the Federal government.

Tri-State Compact

The Bois de Sioux and Ottertail Rivers which have their confluence at Wahpeton, North Dakota and Breckenridge, Minnesota, form the Red River of the North which flows north to constitute the North Dakota and Minnesota boundary and then flows into Canada where it empties into Lake Winnipeg. Since the Red River drains portions of South Dakota, North Dakota and Minnesota as well as Manitoba in Canada, it is both an interstate and an international stream. In 1937 the United States Congress authorized the States of North Dakota, South Dakota and Minnesota to establish the Tri-State Water Commission to administer and supervise the drainage area for the Red River of the North with the exception of the Ottertail and its tributaries. This Commission was active for a few years after its organization, but because of the requirements in the authorizing legislation that Commission representatives from all states be present at meetings of the Commission, it could not function effectively. Contributing to the compact's becoming inactive was the fact that Ottertail River was excluded from compact considerations. The Tri-State Water Commission is still in existence and can be activated as soon as members from the three states are designated and assume responsibility for the Commission's operations.

Present planning for the Red River is accomplished through the Red River Basin Planning Committee, an organization consisting of representatives from Minnesota and North Dakota.

Pursuant to Title II, Public Law 89-80, Water Resources Planning Act, application has been made to the Water Resources Council for the establishment of a Red River Basin Planning Commission. Action on the application is pending.

COMPACTS PROPOSED FOR FUTURE CONSIDERATION

Little Missouri River

The drainage area of the Little Missouri approximates 9,500 square miles of which there are 5,200 in North Dakota, 600 in South Dakota and Wyoming and approximately 3,100 in Montana.

Numerous complaints were heard in 1954 from owners of land adjacent to the river of water shortages for irrigation purposes. Since the river was a matter of jurisdiction of each of the states concerned, it was apparent that the problem of allocations could best be provided through a compact arrangement. The 1957 North Dakota State Legislature and the North Dakota Congressional delegation instigated Federal legislation authorizing compact negotiations among the affected states.

It was apparent at the first meeting of the compact that several difficult problems had to be solved that were complicated by the procedure followed in each State in allocations for water rights. Curtailing issuance of water permits on the Little Missouri River until compact negotiations were completed was given consideration. The legal differences in the adminstration of water rights among the states made such action impossible.

In 1962 the period of compact negotiations was extended by Congress until 1965. Authorization by Congress for extension of compact negotiations beyond 1965 has not been made.

James River

A tributary of the Missouri, the James River has its source in central North Dakota and flows in a southerly direction through North Dakota and South Dakota, joining the Missouri near Yankton, South Dakota. The James River is one of the principal rivers involved in the developments proposed under Missouri River Basin Projects in North and South Dakota. It will be used as a major channel in connection with the Garrison Diversion project in North Dakota and flows through the irrigable land in the proposed Oahe Diversion project in South Dakota. Because of the future developments contemplated in the James River Basin, it appears that a compact would be primarily concerned with the imported waters from the Missouri River through the Garrison and Oahe Diversion projects. Moderate interest in forming a compact was shown at one time by the James River Development Association, a private organization composed of representatives from the two states, but as yet, no definite action has been taken by Congress in authorizing such a compact nor is any such action contemplated in the near future. The Corps of Engineers has received congressional authorization to construct a flood control dam and reservoir on Pipestem Creek which is the major tributary to the James River in North Dakota. It is anticipated that this dam will have been funded and completed by 1972.

North Fork of the Grand River

The North Fork of the Grand River has its source in extreme southwestern North Dakota and flows in an easterly direction into South Dakota joining the South Fork of the Grand River immediately above the Shadehill Dam near Lemmon, South Dakota. Apportionment of the North Fork of the Grand River waters between North and South Dakota is a problem that should be resolved in the near future. The Shadehill Dam in South Dakota, constructed to provide irrigation water, stores a major portion of the runoff from both Forks of the Grand River.

The Bowman-Haley Dam project in southwestern North Dakota is presently near completion. In order to protect the interests of this area, the State Water Commission in 1963 passed a resolution reserving the North Fork of the Grand River waters in North Dakota for the beneficial use by area residents. Although North Dakota's rights to waters originating within the State are set forth in the North Dakota Constitution, these rights should be protected by a compact providing for the reasonable and equitable division of the waters in this River. The construction of the Bowman-Haley Dam will likely generate renewed interest in such a compact.

11. LEGAL WATER USERS ORGANIZATIONS

Irrigation Districts

Throughout history, man has attempted to devise ways to improve his standard of living through the control and use of the resources available to him. Irrigation of lands to provide food and fiber is an example of his efforts to this end. The science of irrigation was known and practiced by ancient civilizations — in fact, in some countries many of the canals and other works constructed to convey water to lands hundreds of years ago are still in use today. In many areas where man has settled, irrigation was a necessity, for without it the production of food crops was impossible. The high state of civilization reached by many ancient nations can be directly associated with irrigation development and with man's ingenuity to provide the means to bring irrigation waters to his land.

Irrigation development can be accomplished either on an individual basis or a group basis. Individuals often develop their own irrigation systems providing they have the financial means to pay the construction and operating costs. In many cases it is beyond the ability of one individual to build the canals and other features of an irrigation system necessary to bring irrigation water to his land. However, if he joins with his neighbors and each contributes a portion of the costs of a larger system to serve the land of all concerned, the development of irrigation becomes possible. Recognition of this approach has given rise to several types of group enterprise irrigation organizations in the western United States where irrigation is most prevalent.

In North Dakota three such irrigation organizations are provided for by law. They are irrigation companies, co-operative irrigation companies (often referred to as Mutual Aid Corporations in North Dakota) and irrigation districts. Of the three, irrigation districts are most generally used in North Dakota, although through the years several mutual aid corporations have been established for irrigation purposes. No irrigation companies are operating in North Dakota.

Co-operative irrigation companies are ordinarily organized on a non-profit basis. They are governed by a board of directors and have authority to enter into contracts, incur obligations and hold property. Membership in a co-operative irrigation company is voluntary in that those individuals who do not wish to join are not compelled to take stock in the company. If they are members of the co-operative organization they cannot be denied their rightful proportion of the water

supply. Water rights may be held by the individual stockholders or by the company. The primary purpose of the company is to own irrigation works to deliver water to its members or farm operators. The affairs of such companies are conducted in accordance with the laws of the State, the articles of incorporation of the company, its by-laws, and the rules and regulations governing the delivery of water. The stockholders of the co-operative companies control the policy of the organization through the board of directors they elect, generally on the basis of one vote for each share of stock. The co-operative irrigation company is limited in its financing capabilities because the bonds or securities it issues are not tied to the land. The assets of the company which it can use to secure its bond issues are generally the irrigation system to serve certain lands. As a result, this type of organization ordinarily has been unable to finance developments requiring a large expenditure of funds.

Irrigation districts, on the other hand, are public or quasi-municipal corporations organized under State law for the specific purpose of providing a water supply for the irrigation of lands. Irrigation districts are political subdivisions of the State with defined geographical boundaries. They have the power to issue bonds and to tax. Their chief source of revenue is from assessments they levy upon the land benefited. These assessments are levied on all the lands in the district susceptible of irrigation whether the owner of the land approves or objects to the irrigation development of his land.

Irrigation districts in North Dakota are organized upon petition filed with the State Engineer by the owners of the irrigable land located within the boundaries of the proposed district. Following the hearing which the State Engineer is required to hold, the landowners vote on the approval of the district's establishment. If the majority of the votes cast favor the district's establishment, it is declared established by the State Engineer. The district will include all lands set forth in his Order establishing the district. An irrigation district is governed by an elected board of directors who are owners of land within its boundaries.

Irrigation districts have the advantage over co-operative irrigation companies in that the obligations they issue are secured by the land that can be benefited by the irrigation system built to serve the district. Another difference between a co-operative irrigation company and an irrigation district is that all lands susceptible of irrigation by a district's system can be included in an irrigation district while only those lands that the owner wishes to have served by an irrigation system can be included in a co-operative irrigation company. This advantage of the irrigation district type of organization enhances the development of an irrigation system in many cases because costs associated with that system can be spread over a greater number of acres than is often the case in mutual aid corporations.

To raise revenue, irrigation districts levy special assessments against benefited lands. These special assessments are spread on the tax rolls and collected by the county treasurer along with other county taxes. They are obligations against the land and laws pertaining to

delinquencies apply to such special assessments. Irrigation districts do not have any power to make a general levy to finance their operations. Irrigation districts have the authority to enter into contracts with State or Federal agencies for the construction of irrigation facilities to serve lands in their district. These contracts also generally provide for the operation and maintenance of the irrigation system. Contracts which the irrigation districts might negotiate must be voted on and approved by the electors of the district. The Bureau of Reclamation is the Federal agency primarily concerned with irrigation development in North Dakota.

At the present time there are 21 organized irrigation districts in North Dakota comprising 495,700 acres. In addition, there are two Mutual Aid Corporations operating at the present time in North Dakota. Irrigation districts and Mutual Aid Corporations are listed in the following section of this report. They are:

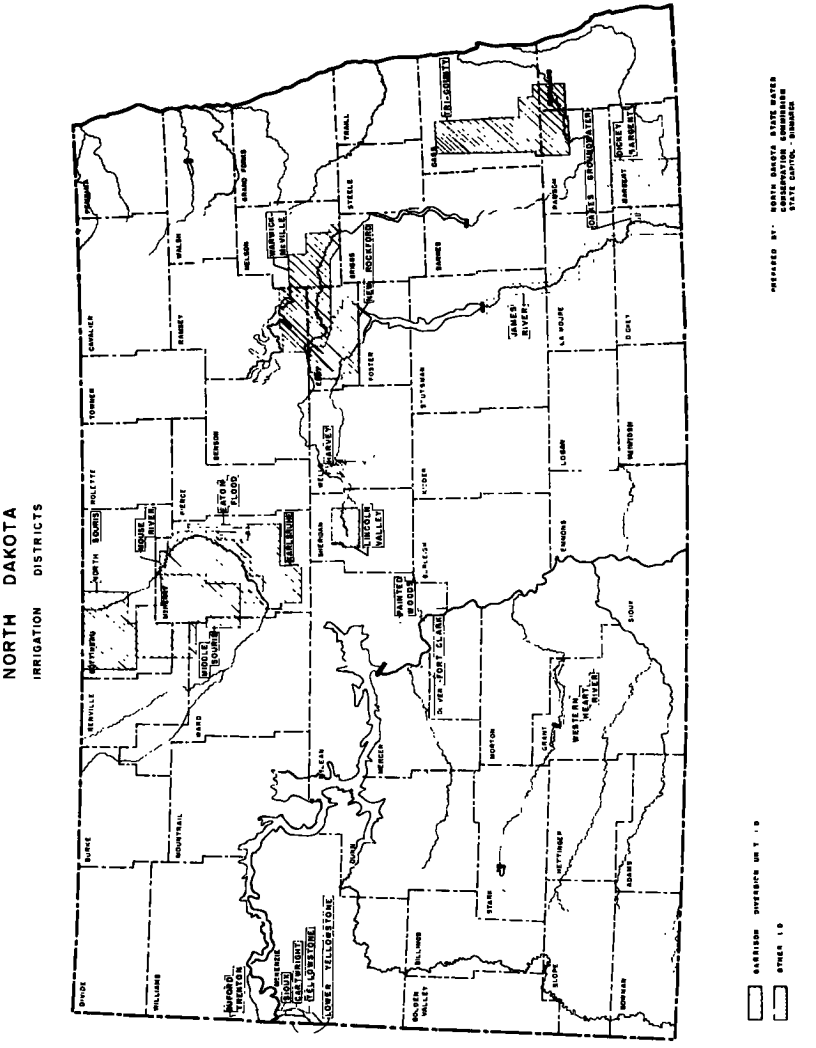
IRRIGATION DISTRICT	COUNTY	IRRIGABLE ACRES	DATE ESTAB.
BUFORD TRENTON #222	WILLIAMS	10,642	11- 3-50
J. D. Gannaway, Director	Trenton	4-67	
Donald Rider, Director	Buford	4-69	
Clarence Johnsrud, Director	Trenton	4-68	
Barney N. Nelson, Manager	Trenton	Indef.	
Joyce L. Duffey, Bookkeeper	Buford	Indef.	
Warren Gathman, Secretary-Treasurer	Buford	Indef.	
CARTWRIGHT #36	MCKENZIE	846	1-24-38
Henry Iszley, Chairman	Cartwright	4-69	
William Lassey, Director	Cartwright	4-67	
Perry Elletson, Director	Cartwright	4-68	
Mrs. Wm. Lassey, Secretary-Treasurer	Cartwright	Indef.	
DICKEY-SARGENT #694	DICKEY & SARGENT	34,136	9-27-57
Louis Rehovsky, Director	Oakes	4-68	(Division I)
Carl Daniels, Chairman	Oakes	4-67	(Division II)
Ed Houfek, Director	Stirum	4-68	(Division III)
Theo. Mathews, Jr., Director	Cogswell	4-69	(Division IV)
Ardell Cooper, Director	Brampton	4-69	(Division V)
Robert Hughes, Secretary	Ellendale	Indef.	
EATON FLOOD #227	MCHENRY	8,000	1935
Richard Oium, Chairman	Towner	5-67	
Adam C. Haman, Director	Towner	5-68	
C. E. Follman, Director	Towner	5-6	
Lytle A. Cook, Director	Towner	4-6	
Vernon Rom, Director	Denbigh	4-69	
Joseph C. McIntee, Secretary	Towner	Indef.	
FORT CLARK #287	OLIVER & MERCER	2,089	12-21-48
Kenneth Alderin, Director	Fort Clark	4-67	
Glenn Applegate, Chairman	Stanton	4-6	
Clarence Fretty, Director	Stanton	4-68	
Henry Klindworth, Secretary-Treasurer	Stanton	Indef.	
HARVEY PUMPING #1399	WELLS	5,800	3-25-66
Tony C. Faul, Director	Harvey	4-68	
Ed Mack, Director	Harvey	4-69	
Tony Seibel	Harvey	4-67	
JAMES RIVER #695	STUTSMAN, LAMOURE AND DICKEY	13,700	9-22-57
Charles G. Arndt, Chairman	Fullerton	4-67	(Division I)
Ronald Seefeldt, Director	Grand Rapids	4-69	(Division II)
Howard Wolf, Director	Ypsilanti	4-68	(Division III)
Gerald Buck, Secretary	LaMoure	Indef.	
KARLSRUHE #696	MCHENRY	13,150	6-19-58
George Lauinger, Director	Balfour	4-6	(Division I)
Leo F. Keller, Director	Karsruhe	4-67	(Division II)
Delbert Krumwiede, Chairman	Voltaire	4-68	(Division III)
Laverne Kreft, Secretary	Towner	Indef.	
LINCOLN VALLEY #697	SHERIDAN	5,400	3-30-60
Edwin Rau, Chairman	Denhoff	4-69	
Walter Essig, Director	Denhoff	4-68	
Edward Coombs, Director	Anamoose	4-67	
Wayne Hankel, Secretary	McClusky	Indef.	

IRRIGATION DISTRICT	COUNTY	IRRIGABLE ACRES	DATE ESTAB.
LOWER YELLOWSTONE #552	MCKENZIE (Richland and Dawson, Montana—55,000 A.)	20,000	1909
Gene Denowh, Director	Fairview, Mont.	4-68	
Leonard R. Berry, Director	Fairview, Mont.	4-67	
Marion B. Martin, Director	Fairview, Mont.	4-69	
Victor N. Norlin, Secretary	Sidney, Mont.	Indef.	
MIDDLE SOURIS #698	MCHENRY, WARD RENVILLE AND BOTTINEAU	87,000	9- 4-58
Gerhard Ronnie, Director	Rt. #4, Minot	4-69	(Division I)
W. H. Sallee, Chairman	Upham	4-67	(Division II)
Oliver E. Hansen, Director	Deering	4-69	(Division III)
	1326 - 4th St. S. W.		
E. P. Nicolaisen, Vice Chairman	Minot	4-67	(Division IV)
Earl C. Palmer, Director	Glenburn	4-69	(Division V)
E. E. Pfau, Director	Upham	4-68	(Division VI)
Harland, Nelson, Director	Glenburn	4-68	(Division VII)
Alvin Kramer, Secretary	County Agent, Minot	Indef.	
MOUSE RIVER #1375	MCHENRY	49,000	12-7-64
John Kvame, Director	Granville	4-1-69	(Division I)
J. C. Eaton, Jr., Chairman	Minot	4-1-69	(Division II)
Fred Peterson, Director	Bantry	4-1-68	(Division III)
William Wagar, Director	Bantry	4-1-67	(Division IV)
J. R. Garnant, Director	Bantry	4-1-67	(Division V)
LaVerne Kreft, Secretary	Towner	Indef.	
NEW ROCKFORD #1338	EDDY	56,000	12-17-63
William Neuharth, Director	New Rockford	4-69	(Division I)
Marvin Tollefson, Director	New Rockford	4-68	(Division II)
John Gisi, Director	New Rockford	4-67	(Division III)
William Starke, Chairman	New Rockford	4-69	(Division IV)
Charles Richter, Director	New Rockford	4-68	(Division V)
Adolph P. Gross, Secretary	New Rockford	Indef.	
NORTH SOURIS #981	BOTTINEAU	46,068	10-1-62
Justin Thompson, Director	Antler	4-67	(Division I)
William Munn, Jr., Director	Westhope	4-69	(Division II)
Lawrence Rosendahl, Director	Westhope	4-68	(Division III)
John C. Talcott, Director	Westhope	4-68	(Division IV)
Howard Henry, Chairman	Westhope	4-67	(Division V)
Banks H. Sieber, Secretary	Bottineau	Indef.	
OAKES GROUND WATER #592	DICKEY	640	4-15-57
Ivan Rodine, Chairman	Oakes	4-68	
Chester Ahlin, Director	Oakes	4-6	
Mary C. Roney, Director	Oakes	4-67	
C. E. Roney, Secretary	Oakes	Indef.	
PAINTED WOODS #160	MCLEAN	1,970	1937
Oscar Oberg, Chairman	Washburn	4-6	
Lambert Chesworth, Director	Washburn	4-6	
Robert Bickert, Director	Washburn	4-67	
Gerald Oberg, Secretary	Wilton	Indef.	
SIOUX #213	MCKENZIE	800	1938
James Gullickson, Director	Cartwright	4-69	
Richard Croy, Director	Cartwright	4-68	
Lawrence Croy, Director	Cartwright	4-67	
Melvin E. Sandy, Treasurer	Cartwright	Indef.	
Emil Hartl, Assessor	Cartwright	Indef.	
Alfred V. Gullickson, Secretary	Cartwright	Indef.	
TRI-COUNTY #699	CASS, RANSOM AND RICHLAND	88,000	4-18-58
John L. Olsen, Director	Leonard	4-68	(Division I)
Ervin Bartholomay, Director	Sheldon	4-69	(Division II)
Thomas Spiekermeier, Director	Sheldon	4-67	(Division III)
Gordon Roesler, Director	Leonard	4-68	(Division IV)
Lawrence Baarstad, Chairman	Leonard	4-69	(Division V)
Hugo Hoffman, Director	Wheatland	4-6	(Division VI)
Lorry Madsen, Director	Wheatland	4-67	(Division VII)
Clark N. Richards, Secretary	Leonard	Indef.	
WARWICK-MCVILLE #700	NELSON, BENSON, EDDY AND RAMSEY	48,000	11-6-57
Vernon Neshiem, Director	Pekin	4-68	(Division I)
Richard Morken, Director	Pekin	4-68	(Division II)
William Knauss, Director	Tolna	4-67	(Division III)
Howard L. Pare, Director-Secretary	Tolna	4-6	(Division IV)
Edward Reeves, Director	Warwick	4-6	(Division V)

IRRIGATION DISTRICT	COUNTY	IRRIGABLE ACRES	DATE ESTAB.
WESTERN HEART RIVER #536	GRANT	2,463	11-11-53
Keith Rhodenbaugh, Director	Carson	4-68	
Levi Dawson, Director	Almont	4-69	
Edward Pfliiger, Director	Carson	4-67	
John Heinz, Secretary-Treasurer	Carson	Indef.	
YELLOWSTONE PUMPING #214	MCKENZIE	2,000	1938
Dale Dean, Director	Cartwright	4-67	
Gerald Melland, Director	Cartwright	4-69	
Mike Flynn, Chairman	Fairview, Mont.	4-68	
Laurence A. Arpin, Secy-Treas.	Fairview, Mont.	Indef.	

Mutual Aid Corporations

MUTUAL AID CORPORATION	COUNTY	IRRIGABLE ACRES	DATE ESTAB.
DICKINSON #263	STARK	400	1959
George Gress, President	Dickinson		
Ray Gress, Jr., Vice-President	Dickinson		
J. P. Krank, Secretary	Dickinson		
LEWIS AND CLARK #175	MCKENZIE	4,800	1957
Joseph C. Paulson, President	Box 150, Williston		
Edwin Dahl, Vice-President	424 1st Ave. E., Williston		
Oline Horde, Director	So. Star Rt., Williston		
Al Stepanek, Director	Alexander		
Lorenz Sorviteh, Treasurer	Williston		
John Schmitz, Secretary	1219 - 4th Ave. E., Williston		


NORTH DAKOTA
IRRIGATION DISTRICTS
GARRISON DIVERSION UNIT
STAGE 1.0
PREPARED BY: NORTH DAKOTA STATE WATER CONSERVATION COMMISSION STATE CAPITOL, BISMARCK

GARRISON

Garrison Diversion Conservancy District

The Garrison Diversion Conservancy District was established by the North Dakota Legislature in 1955 as the over-all legal entity that would represent the water users who would benefit through the development of the Garrison Diversion Unit in North Dakota. The Conservancy District, consisting of 25 counties, is governed by a Board of Directors consisting of one director elected from each of the counties. Directors serve for a term of four years and are eligible for re-election. The Board of Directors is presently composed of the following members:

Roy A. Holand, Chairman ..... LaMoure
Henry J. Steinberger, 1st Vice-Chairman ..... Donnybrook
James B. Collinson, 2nd Vice-Chairman ..... Devils Lake
E. G. Ranum ..... Valley City
Vernon Sturlaugson ..... Minnewaukan
Lester M. Anderson ..... Maxbass
Henry A. Hendrickson ..... Fargo
Forrest M. Gottschalk ..... Oakes
Wilfred P. Boyle ..... New Rockford
Ralph L. Harmon ..... Carrington
John S. Dean ..... Hatton
Leon A. Sayer, Jr. ..... Cooperstown
Bill Long ..... Upham
Carl Kuehn ..... Washburn
Earl Burns ..... Tolna
Frank V. Schaan ..... Balta
Alf N. Larson ..... Enderlin
Robert Radcliffe ..... Leonard
William Bosse ..... Cogswell
Ben F. Kludt ..... McClusky
H. J. Vosseteig ..... Finley
Francis H. Simmers ..... Jamestown
Orlin F. Gunderson ..... Buxton
W. M. Harrington ..... Minot
Donald D. Frost ..... Harvey
Vernon S. Cooper, Secretary-Treasurer ..... Carrington

Since its organization in 1955 the Garrison Diversion Conservancy District has been involved in a number of activities in connection with the Garrison Diversion Unit. These activities range from the negotiation of repayment contracts for the Garrison Diversion Unit with the Bureau of Reclamation and irrigation districts existing in the project area, assisting in the establishment of irrigation districts, participating in and conducting an extensive public relations program relating to the Garrison Diversion Unit, participating in the planning for various phases of the Garrison Diversion Unit with the appropriate Federal and State agencies, supporting legislation and appropriations for the Garrison Diversion Unit before committees of Congress and other interested organizations and associations, and carrying out such other functions as are required of the District by law. These efforts were rewarded when on August 5, 1965, Public Law 89-108 authorized to

be appropriated $207,000,000 for construction of an initial 250,000 acre irrigation project. The actual appropriation is still pending in Congress but approval at an early date is anticipated.

Repayment contracts and the Board's request for secretarial action to approve the contracts were submitted to the Bureau of Reclamation in August of 1965. Contract hearings were scheduled in December of 1965, and on January 26, 1966, Chairman Roy A. Holand, for and on behalf of the Board of Directors of the Garrison Diversion Conservancy District, signed the Master Contract for the Garrison Diversion Unit. Chairman Holand also signed the Three-Way Contracts with the Lincoln-Valley, the Dickey-Sargent, the Warwick-McVille and the James River Irrigation Districts. The signing of these contracts was later approved by the irrigation districts involved. Such approval meant that the districts, encompassing 113,065 irrigable acres, had successfully met the requirements set forth by the Bureau of Reclamation as to the irrigation districts that would have to negotiate repayment contracts before construction of project facilities could be initiated.

These contracts have been reviewed in the appropriate District Court and are presently in the United States Supreme Court pending confirmation.

In 1965 Carrington, North Dakota, was selected as a permanent headquarters site for the Garrison Diversion Conservancy District. The Carrington City Hall has housed District headquarters since June, 6, 1966.

Water Management Districts

Provision exists in North Dakota statutes for the organization and establishment of water management districts. These districts provide the local people in a given area a legal entity through which they can provide for the planning, development and control of water resources in their area.

Water management districts have the power to investigate, construct or to arrange for the construction of water resources projects in their areas. These projects can be of many types and can serve many purposes. They can be facilities to provide conservation storage of water; to maintain water levels in lakes or to augment flows in streams; to regulate and control flood waters; to provide for removing surplus waters from agricultural lands, or they can be projects of a related nature that will provide benefits to the district through the conservation and regulation of the district's water resources.

Such districts also have the authority to enter into contracts with the United States, its agencies or with the agencies of the State government for the construction of projects that will benefit the district. Districts have the power to levy special assessments or raise funds through a general mill levy, not exceeding three mills, to meet their costs of operation and the costs of the projects in which the district becomes involved. The levy for the budget of a water management

district is made by the board of county commissioners of the county in which the district is based.

The procedure provided in State law for the organization of water management districts is as follows: A petition is filed with the State Water Commission by the governing board of a municipality, county or other political subdivision or by 51% of the freeholders of the proposed district requesting that a water management district be established. The proposed district may extend across county boundaries. The State Water Commission, upon receipt of this petition, determines whether or not it would be advisable to establish such a district and, if they believe it would be advantageous to do so, calls a hearing (or hearings) on the petition. Following the hearing, if it appears that it is desirable to organize the district, the Commission will issue its order declaring the water management district established. After the Commission's order is issued, the board of county commissioners of the county or counties in which the district is located is required to appoint a board of commissioners for the district.

The Commission has co-operated extensively with many of the water management districts that have been organized in planning, constructing and developing various types of water projects, administering the law under which the districts operate and advising them in matters dealing with their operation.

Thirty-nine water management districts, 27 of which are county-wide have been organized in the state. They are as follows:

Name	Address	Position	Term Expires
Adams County Water Management District #701			
Ira Martin,	Hettinger	— Chairman	June 24, 196
Duane Hanson,	Reeder	— Member	June 24, 1968
Ervin E. Klein,	Lemmon, South Dakota	— Member	June 24, 196
Betty Svihovec,	Hettinger	— Sec.-Treas.	Indefinite
Barnes County Water Management District #1360			
John T. Heimes,	208 2nd Ave. SW, Valley City	—Chairman	Nov. 196
John Carlisle,	961 Chautauqua Blvd., Valley City	—Member	Nov. 1967
Martin L. Larson,	Kathryn	—Member	Nov. 1969
William T. Baribeau,	677 Chautauqua Blvd., Valley City	—Sec.-Treas.	Indefinite
Bottineau County Water Management District #1427			
Warren Brown,	Willow City	—Chairman	May, 1971
Paul Kretschmar,	Kramer	—Member	May, 1969
Axel Svee,	Maxbass	—Member	May, 1968
C. R. Keller,	Bottineau	—Secretary	
Boundary Creek Water Management District #702 (Bottineau County)			
Marion L. Condit,	Souris	—Chairman	1969
Lawrence Herslip,	Souris	—Member	1967
Marvin Norstegaard,	Souris	—Member	1970
Kenneth Joranstad	Souris	—Treasurer	Indefinite

Bowman County Water Management District #821
Ralph Keller, Scranton—Chairman ..... Feb. 2, 1970
Howard White, Bowman—Member ..... Feb. 2, 1970
Chris Nester, Rhame—Member ..... July 1, 1969
John A. Amundson, Bowman—Sec.-Treas. ..... Indefinite

Burke County Water Management District #703
O. J. Fisher, Bowbells—Chairman ..... Jan. 1970
Norbert Kihle, Columbus—Member ..... Jan. 1968
Ted Gibson, Powers Lake—Member ..... Jan. 196
Bert L. Wilson, Jr., Bowbells—Sec.-Treas. ..... Indefinite

Cavalier County Water Management District #987
O. S. Johnson, Langdon—Chairman ..... May 22, 1968
Olin Olson, Langdon—Member ..... May 22, 196
W. E. Coffey, Munich—Member ..... May 22, 1970
Ted G. Voiles, Langdon—Sec.-Treas. ..... Indefinite

Chain Lakes Water Management District #704 (Ramsey County)
L. A. Anderson, Churchs Ferry—Chairman
John Magnuson, Churchs Ferry—Member
Roy Cowan, Churchs Ferry—Member
F. E. Foughty, 16 Bangs Block, Devils Lake—Sec.-Treas. ..... Indefinite

Foster County Water Management District #1372
Sam Nicolson, Carrington—Chairman 196
Wallace Topp, Grace City—Member 1967
Eugene Schimke, Carrington—Member 1969
George E. Walton, Carrington—Sec.-Treas. ..... Indefinite

Grand Forks County Water Management District #1319
Art Thoraldson, 611 Campbell Drive,
Grand Forks—Chairman ..... Nov. 196
Simon Fagstad, Larimore—Member ..... Nov. 1968
Roy Ronan, Manvel—Member ..... Nov. 196
Vincent Reed, 211 Fenton Ave., Grand Forks—Sec.-Treas. Indefinite

Grant County Water Management District #708
Harry R. Zacher, Elgin—Chairman, Sec.-Treas. 1970
Herbert Leer, New Leipzig—Member 1967
Albert L. Rivinius, Elgin—Member 1968

Griggs County Water Management District #1440
C. J. Sutter, Cooperstown—Chairman 1969
Earny Ronningen, Binford—Member 1968
David Lunde, Cooperstown—Sec.-Treas. 1971

Hettinger County Water Management District #1426
George Hardmeyer, Mott—Chairman ..... April, 1971
Chris Tarpo, Jr., New England—Member ..... April, 1968
Frank Mayer, Bentley—Member ..... April, 1969
Louise Friesz, Mott (Court House)—Sec.-Treas. .....

LaMoure County Water Management District #995
Arlee C. Hanson, Litchville—Chairman ..... May 6, 1968
L. E. Laney, Verona—Member ..... May 6, 1966

Glenn Witt, Berlin—Member ..... May 6, 196
Joe R. Laney, Verona—Sec.-Treas. ..... Indefinite

Lower Heart Water Management District #709 (Morton County)
R. E. Sylvester, Box 625, Mandan—Chairman 196
W. S. Russell, Mandan—Member 196
Frank Rumer, Route 2, Mandan—Member 1967
Marylyn Yetter, 200½ Collins, Mandan—Secretary ..... Indefinite
Jake Geiss, 507 7th Ave. NW, Mandan—Treasurer ..... Indefinite

Maple River Water Management District #710 (Cass County)
H. H. Wheeler, Wheatland—Chairman ..... Dec. 31, 1967
Francis Archbold, Enderlin—Member ..... Dec. 31, 1968
William Martin, Chaffee—Member ..... Dec. 31, 1969
F. J. Woell, Casselton—Sec.-Treas. ..... Indefinite

Marmarth Water Management District #711 (Slope County)
Carl Homan, Marmarth—Chairman 1967
A. L. Graham, Marmarth—Member 1967
J. B. Bonenberger, Marmarth—Member 1967
Leo Merz, Marmarth—Secretary ..... Indefinite
Hilda E. Corneil, Marmarth—Treasurer ..... Indefinite

Mercer County Water Management District #1404
Herb Engbrecht, Beulah—Chairman ..... October, 1968
Wilfred Herman, Golden Valley—Member ..... October, 1970
Walter Sailer, Hazen—Sec.-Treas. ..... October, 1967

Morton County Water Management District #994
A. C. Mork, Center Route, Mandan—Chairman ..... May, 196
Alfred Underdahl, Hebron—Member ..... May, 196
Sig Peterson, Almont—Member ..... May, 1968
N. J. Mosbrucker, Box 649, Mandan—Sec.-Treas. ..... Indefinite

Mountrail County Water Management District #1405
LeRoy Bloom, Plaza—Chairman ..... June, 1968
Dave Coons, Coulee—Member ..... June, 1970
Ray Riersgard, Ross—Member ..... June, 1967
W. G. Matson, Stanley—Sec.-Treas. ..... Indefinite

Nelson County Water Management District #712
George F. McHugh, Lakota—Chairman ..... Mar. 7, 196
Oscar Fjestad, Dahlen—Member ..... Mar. 7, 196
Mylo Engen, Tolna—Member ..... Mar. 7, 1967
Aron Anderson, Lakota—Sec.-Treas. ..... Indefinite

Oak Creek Water Management District #713 (Bottineau County)
Lyle L. Knoepfle, Farm, Bottineau—Chairman ..... Mar. 10, 1967
Hartley Carlson, 813 Nichol, Bottineau—Member ..... May 1, 1967
Byron Bullinger, Bottineau—Member .....
Glenn K. Swanson, Grafton—Secretary ..... Indefinite
Cliff Keller, 217 West 13, Bottineau—Treasurer ..... Indefinite

Oliver County Water Management District #991
Oliver Light, Center—Chairman ..... June 1, 1967
Albert Bauer, New Salem—Member ..... June 1, 196

Raymond Price, Hensler—Member ..... June 1, 1968
Ervin Schulte, Center—Sec.-Treas. ..... Indefinite

Pembina County Water Management District #714

Ed Thomson, Cavalier—Chairman ..... Dec. 31, 196
C. R. Howell, Walhalla—Member ..... Dec. 31, 196
Leo Laxdal, Gardar—Member ..... June 1, 1969
LaVern Knuth, Cavalier—Sec.-Treas. ..... Indefinite

Richland County Water Management District #715

Tallaf A. Lee, Kindred 58051—Chairman ..... Sept. 4, 1969
Holger Bertelsen, Fairmount 58030—Member ..... Jan. 4, 196
Laverne K. Olson, Wyndmere 58081—Member ..... Feb. 18, 1969
Mrs. Verne E. Kasson, Wahpeton 58075—Secretary ..... Indefinite
Mrs. Odin Wold, Wahpeton 58075—Treasurer ..... Indefinite

Rush River Water Management District #716 (Cass County)

Ken McIntyre, Harwood—Chairman ..... July, 1967
Lester Chaffee, Amenia—Member ..... July, 1967
Robert C. Lewis, 701 Black Bldg., Fargo—Member ..... July, 1967
Rhoda Lee, Court House, Fargo—Secretary ..... Indefinite
Manfred H. Ohnstad, 133 West Main,
West Fargo—Attorney ..... Indefinite

Sargent County Water Management District #717

William Bosse, Cogswell—Chairman ..... Feb. 6, 1970
Ole Breum, Rutland—Member ..... Feb. 6, 1969
Milton Bergsjoe, DeLamere—Member ..... Feb. 6, 1967
Robert A. Case, Forman—Sec.-Treas. ..... Indefinite

Sioux County Water Management District #718

Ole A. Olson, McIntosh, South Dakota—Chairman 1969
Frank Stockert, Solen—Member .....
Elliott Jacobsen, Fort Yates—Secretary .....

Slope County Water Management District #1 #719
(Inactive — not county-wide)

Southeast Cass County Water Management District #720

Howard Emerson, 110-1st Ave. W.,
West Fargo—Chairman ..... July 1, 1968
Robert Meyer, Route 1, Fargo—Member ..... July 1, 196
Al Pyle, 320 SE 4th, West Fargo—Member ..... July 1, 196
Daniel Twichell, 133 W. Main, West Fargo—Sec.-Treas. ..... Indefinite

Stark County Water Management District #1429

Roy Schnell, Dickinson—Chairman ..... May, 1971
Nick Schneider, Belfield—Sec.-Treas. ..... May, 1969
Richard Elkins, Taylor—Member ..... May, 1968

Stutsman County Water Management District #1363

Don Hastings, Route 1, Jamestown—Chairman 1969
H. W. Lyons, 315 2nd Ave. SE, Jamestown—Member 1967
Phil Hoffman, Medina—Member 196
George Whitney, 1506 - 4th Ave. NE,
Jamestown—Secretary ..... Indefinite
Louise Murphy, 116½ NW 3rd, Jamestown—Treasurer ..... Indefinite

Sweetwater-Dry Lake Water Management District #722
(Ramsey County)

Gordon Berg, Webster—Chairman ..... Jan. 1, 1967
Milton Sampson, Edmore—Director ..... Jan. 1, 1968
Robert Garske, Webster—Director ..... Jan. 1, 1970
F. E. Foughty, 16 Bangs Block, Devils Lake—Counsel ..... Indefinite
E. O. Bottolfson, Devils Lake—Sec.-Treas. ..... Indefinite

Traill County Water Management District #724

Rodney Cooper ..... May 1, 196
Gilman Wastvedt, Hatton—Member ..... May 1, 1969
Duane Lemm, Hillsboro—Chairman ..... May 1, 1968
Genevie K. Grothmann, Hillsboro—District Clerk ..... Indefinite
Howard Kaldor, Hillsboro—Treasurer ..... Indefinite

Upper West Souris Water Management District #725 (Renville County)

Henry J. Steinberger, Donnybrook—Chairman ..... July 11, 196
Harry Stanley, Tolley—Member ..... July 11, 196
E. William Jensen, Kenmare—Member ..... July 11, 196
Esther Hochsprung, Mohall—Sec.-Treas. ..... Indefinite

Walsh County Water Management District #726

Charles Zahradka, Lawton—Chairman ..... Jan. 1, 1970
Joseph L. Bina, Conway—Member ..... Jan. 1, 1967
Milton Johnston, 923 McHugh, Grafton—Member ..... Jan. 1, 1969
E. R. Nyman, 511½ Hill, Grafton—Sec.-Treas. ..... Indefinite

Ward County Water Management District #1336

Vernon Fahy, 821 - 10th Ave. NW, Minot—Chairman ..... Oct. 16, 196
Donald Modin, Kenmare—Member ..... Oct. 16, 196
Everett Johnson, Max—Member ..... Oct. 16, 1968
Bertha Dosch, 512 - 23rd St. NW, Minot—Sec.-Treas. ..... Indefinite

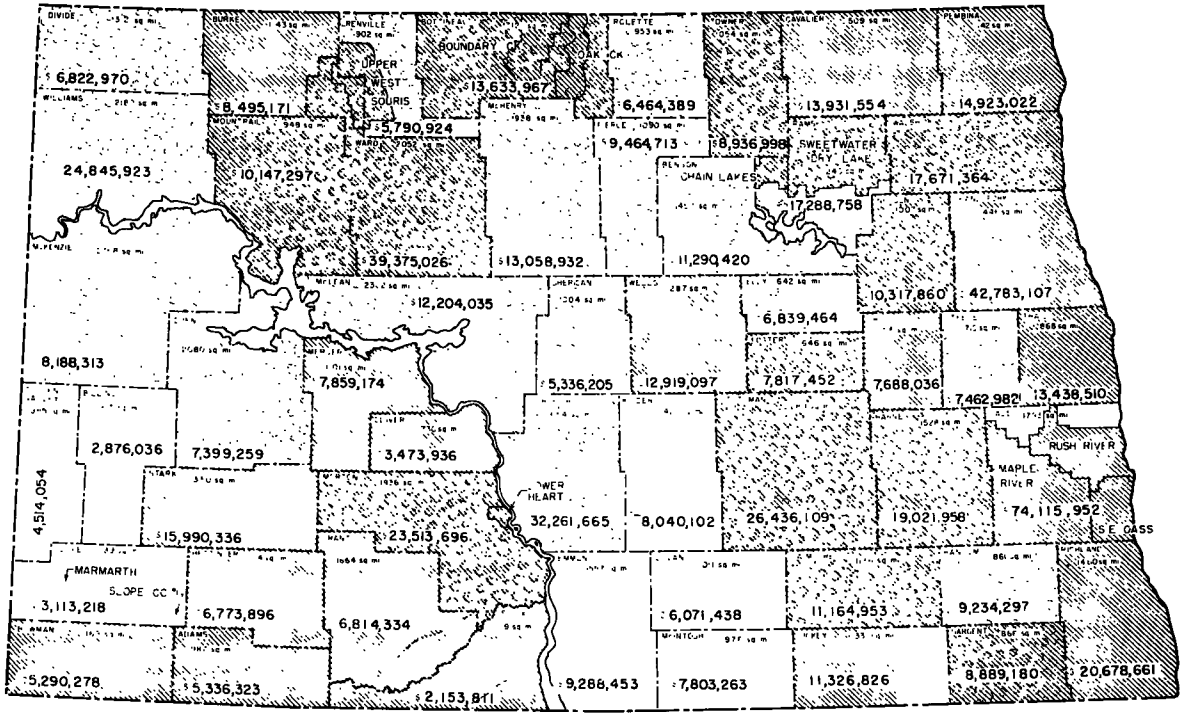
Wells County Water Management Dstrict #727

Jerry Schroeder, 815 Lincoln Ave., Harvey—Chairman ..... July, 1971
Paul G. Schadewald, Sykeston—Member ..... July, 1969
Norman Rodel, Fessenden—Member ..... July, 1968
Arthur G. Gunderson, Fessenden—Sec.-Treas. ..... Indefinite

West Dickey County Water Management District #728

Owen R. Sizer, Ellendale—Chairman ..... Aug. 196
Howard Ladd, Forbes—Member ..... Aug. 1969
B. C. Simek, Fullerton—Member ..... Aug. 1968
Hardis Kupfer (Mrs.), Ellendale—Sec.-Treas. ..... Indefinite

NORTH DAKOTA STATE WATER COMMISSION



WATER MANAGEMENT DISTRICT COUNTY PARK DISTRICT

692,567,697 TOTAL TAXABLE VALUATION - 1964

70,665 Sq. Mi. TOTAL STATE AREA

AUG. - 66

*179/1M

12. WATER PERMITS

Economic growth and development is dependent upon an area's resources of which water is of vital importance. In North Dakota it is imperative that substantial development of our water resources be accomplished in order to provide prospective industrial and agricultural water users with adequate supplies. In the more arid southwestern part of the State this need is most pronounced. Even in the Red River Valley area where rainfall is greatest and generally considered adequate, several localities face the threat of water shortages. As the demand for water for beneficial purposes grows, the importance of water rights becomes more apparent. In recent years there has been a noticeable increase in the water right filings with the State Engineer for irrigation, municipal, industrial and other beneficial purposes.

A water right does not guarantee the holder a water supply of a certain quantity but it does give him protection as to a priority to use the available water supply. A water right does not give private ownership in the water itself but does give the owner a permit or license to utilize a water course or the contents of an aquifer. This is the case whether the water right is based upon ownership of riparian land or upon the statutory right of prior appropriation. The right of use is a property right and is entitled to protection to the same extent as other forms of property.

There are two basic doctrines applied to water rights — the riparian doctrine and the prior appropriation doctrine. Under the riparian doctrine the owner of the land adjacent to a stream has certain rights, in common with other similarly situated owners, in the flow of the water by virtue of such land ownership. Under the prior appropriation doctrine the first user of water acquires a priority to continue the use of that water and the nearness of the land he owns to the water course is not a factor in his right. The prior appropriation doctrine requires the filing of an application to appropriate water with a designated State agency in order to establish the water right holder's priority date as to the use of the water.

North Dakota, prior to July 1, 1963, recognized both doctrines, but since then recognizes only the prior appropriation doctrine.

It can be seen that the application of both of these doctrines in a given state can lead to certain conflicts. The priority of the water right holder under the appropriation doctrine in relation to that of the riparian landowner, the amount of water to which a riparian landowner is entitled, the extent of riparian land, and the type of use involved are all causes of the conflicts that exist between the two doctrines.

In 1905 the enactment of the Irrigation Code marked a significant change in, and enlargement of, water rights in North Dakota. The principal features of the code were:

1. A declaration that all waters within the limitations of the state from all sources of water supply belong to the public and, except as to navigable waters, are subject to appropriation for beneficial use.

2. Establishment of the test of prior appropriation for beneficial use by providing that "beneficial use shall be the basis, the measure and the limit of the right to use of water" and that "priority in time shall give the better right."
3. A declaration that the "United States, the state, or any person, a corporation or association may exercise the right of eminent domain to acquire for a public use any property or rights for the application of water to beneficial uses," and for the creation and establishment of administrative machinery, such as a state engineer and water commissioners to apportion waters, grant water rights, and in general, supervise the system.

Since the enactment of the Irrigation Code in 1905 many changes and modifications have been made to the North Dakota water laws dealing with water rights. Principal among these are the provisions defining public waters subject to appropriation for beneficial use as set forth in Section 61-01-01 of the North Dakota Century Code. This Section defines the waters within the limits of the state that belong to the public and which are subject to the appropriation for beneficial use as waters on the surface of the earth excluding diffused surface waters, waters under the surface of the earth, residual waters resulting from beneficial use and all waters artificially drained, and all waters in non-contributing drainage areas as defined in this Section.

In order to obtain an appropriative water permit in North Dakota it is necessary to proceed as follows:

1. Prepare, complete and execute in duplicate an application in the prescribed form and file it with the State Engineer accompanied by the proper filing fees and a transparency and two prints of the map showing the land and the area involved;
2. The receipt in the State Engineer's office of a properly completed application usually establishes the priority date of the water permit;
3. The State Engineer reviews the application and determines whether water is available to serve the needs of the applicant and that the requested permit to appropriate water is not contrary to the public interest;
4. If found to be in satisfactory form, the State Engineer will cause to be published in a newspaper in an area in which the diversion of water is sought to be accomplished, a notice of hearing on the application, which notice will be published once each week for two consecutive weeks, and the cost of the publication will be paid by the applicant;
5. At the time and place of the hearing the State Engineer will hear testimony from interested parties and make his determination as to the water permit. The State Engineer can reduce the amount of water requested to be diverted, specify when diversion may not be made, and specify the time within which the water must be applied to a beneficial use;
6. Approval of an application by the State Engineer is subject to review, concurrence or amendment by the State Water

Commission before processing of the application has been completed and the applicant is granted a temporary water permit;

7. When water has been applied to a beneficial use the applicant must notify the State Engineer who then inspects the project. If the project is found satisfactory the State Engineer will issue a perfected water permit;
8. The perfected water permit becomes evidence of the water right and may be recorded in the office of the Register of Deeds in the county where the water is beneficially used;
9. Approval of a water permit application by the State Engineer and the State Water Commission does not in itself grant a water right. Frequently, water permit applicants are of the opinion that they have obtained a water right upon receipt of approval of the water permit application; however, the water must have been beneficially used before a perfected permit is granted and an actual right exists.

There are few court decisions in North Dakota dealing with the right to use water; therefore, many of the procedures followed in administering the water permit laws are based on practices and court interpretations in the other 17 western states.

In administering the state's water permit laws, the State Water Commission thoroughly reviews and investigates every application as the quantities allowed must be in proportion to the water available and not in excess of the water actually required. Even an apparently abundant water supply can rapidly become depleted or over-appropriated, according to records of the State Engineer, and yet actually have an adequate water supply which could be available to other water users anxious to develop such a supply.

In administering the state's water permit laws, the State Water the state, the 1955 Legislature made an appropriation to the Commission to conduct a water permit study. The valuable information gained from this study has been beneficial to the Commission and the state in the administration of water laws. A report of this study was published in 1957 and was printed in the Eleventh Biennial Report of the Commission.

To alleviate the problems involved in the administration of water permits, the Commission has undertaken a comparison of water rights requested with the availability of water in several of the streams in the state. Data obtained from stream flow records of the United States Geological Survey is correlated with water usage and proposed water usage. In many instances water is allowed to go to waste because of under-development. This study provides valuable data that would greatly enhance the development of North Dakota's natural resources for both agricultural and industrial purposes.

Although most of the water permit applications received by the Commission are for irrigation purposes, there has been an increasing number from municipalities for water supplies. These municipalities have found it necessary to develop new water supplies to meet the de-

mands created by increased population and industrial expansion. Many of the state's municipalities depend on ground-water aquifers for their water supply. In many cases these aquifers are limited in the quantity and quality of water they can produce. Of primary concern to industry when locating new plants is the water supply that will be available to them. If such a needed supply is not available at a chosen site, the industry must look elsewhere for its plant location.

Much of North Dakota's precious water is lost each year through evaporation from reservoir storage. Evaporation losses increase as the surface area or number of reservoirs increases. The loss of water by evaporation from stock ponds in a small area has been very apparent in several river basins. The Commmission is encouraging the use of dugouts and the limitations of surface area and proper spacing of stock water ponds and reservoirs in an attempt to reduce the loss attributed to evaporation. This practice may permit the use of stockwater ponds to others who have insufficient flow to meet their present requirements.

The use of a water master for control of water use in the state has often been advocated. It is intended that the water master would protect the rights of small users and also the downstream users who have rights prior to those of upstream appropriators.

Because detailed information relative to water permit applications for the 1962-1964 biennium was not incorporated into the last biennial report, such information together with a summary of water permit activity for the current reporting period is included herein as follows:

WATER RIGHTS

For Period from July 1, 1962 to June 30, 1964

Applications Filed			195
Irrigation			91
Acres Requested		16,083.70	
Acre-feet Requested		29,097.30	
Industrial Use			19
Acre-feet Requested		953,188.12	
Municipal Use			54
Acre-feet Requested		63,974.70	
Recreation			5
Acre-feet Requested	(annual use)	428	
	(storage)	451	
Stockwater			11
Acre-feet Requested		1,353.30	
Recreation and Wildlife			4
Acre-feet Requested	(annual use)	477	
	(storage)	2,117.93	
Wildlife Research			1
Acre-feet Requested		480	
Recreation, Fish and Wildlife			1
Acre-feet Requested		2,050	

Fish and Wildlife		1	
Acre-feet Requested	(annual use)	400	
	(storage)	2,772	
Domestic Use		1	
Acre-feet Requested		.8	
Domestic and Fire Protection		3	
Acre-Feet Requested		14.5	
Domestic, Fire Protection and Irrigation		2	
Acre-feet Requested		17.2	
Domestic, Fire Protection and Wildlife		1	
Acre-feet Requested		.8	
Domestic and Wildlife		1	
Acre-feet Requested		.8	
Applications Approved			153
Irrigation		98	
Acres Approved		15,719.10	
Acres-feet Approved		25,914.8	
Industrial Use		15	
Acre-feet Approved		785,913.42	
Municipal Use		26	
Acre-feet Approved		52,933.70	
Recreation		6	
Acre-feet Approved		1,378	
Recreation and Wildlife		3	
Acre-feet Approved		467	
Stockwater		3	
Acre-feet Approved		75.3	
Wildlife		1	
Acre-feet Approved		840	
Recreation, Fish and Wildlife		1	
Acre-feet Approved		2,050	
Pending June 30, 1964			68
Deferred		1	
Withdrawn		1	

WATER RIGHT APPLICATIONS
July 1, 1962 to June 30, 1964

No.	NAME AND ADDRESS	County	Source	Acre Feet	Acres	Date of Claim	Status
1025	Kreiger, Robert, Dunn Center	Dunn	Unnamed Creek Trib. Spring Creek	25	17.2	7-10-62	Approved
1026	Schlosser, J. P., Mandan	Morton	Square Butte Creek (Backwater Missouri)	216.3	108.1	7-19-62	Approved
1027	Oster, Ernest O., Hazen	Mercer	Unnamed Creek Trib. Knife River	19	15	7-21-62	Approved
1028	Rime, Francis M., Emmet	McLean	Garrison Reservoir	179.2	89.6	5-25-62	Approved
1029	Lunde, Andrew and Hannah, Crosby	Divide	Unnamed Creek Trib. Long Creek	20	19	7- 2-62	Approved
1030	Wachter Real Estate Trust, Bismarck	Morton	Missouri River	2,801.4	1,400.7	7-26-62	Approved
1031	Adams, G. D., McKenzie	Burleigh	Ground Water	350	168.6	7-31-62	Pending
1032	Adams, James T., McKenzie	Burleigh	Ground Water	235	156.8	7-31-62	Approved
1033	Adams, John E., Driscoll	Burleigh	Ground Water	219	146.4	7-31-62	Approved
1034	Beach, City of	Golden Valley	Ground Water	322.6		7-31-62	Approved
1035	Belfield, City of	Stark					Withdrawn
1036	Tatley, Clara G., Bismarck	Burleigh	Ground Water	693	462	8-27-62	Approved
1037	Watkins, Wayne, Manning	Dunn	Unnamed Trib. to Crooked Creek	15	15	8-30-62	Approved
1038	Neurohr, Matt, Dodge	Dunn	Unnamed Creek Trib. To Spring Creek	11	11	9- 5-62	Approved
1039	Basin Electric Power Cooperative, Bismarck	Mercer	Missouri River	30,000		9-24-62	Approved
1040	Robertson, Roy, Sidney, Mont.	McKenzie	Dry Run Creek Trib. North Fork Smith Creek	15.8	15.8	9-27-62	Approved
1041	Holsti, Arthur, Urho and Emil, Hazelton	Emmons	Spring runoff—dry coulee Trib. Long Creek	13.6	13.6	9-28-62	Approved
1042	Koch, Vincent, Mandan	Oliver	Unnamed Coulee Trib. to Square Butte Creek	18.4	18.4	10- 1-62	Approved
1043	Maxwell, Elvin F., Fessenden	Wells	James River	60	40	9-29-62	Approved
1044	North Dakota State Game and Fish Department, Bismarck	Grant	Unnamed intermittent waterway trib. Snake Creek trib. Cannonball River	45		10- 4-62	Deferred

1045	Walsh County Water Management District, Grafton	Walsh	North Branch Forest River	180		10-25-62	Approved
1046	Gowan Bros., et al, Oslo, Minn.	Grand Forks	Red River	147	294.1	10-27-62	Approved
1047	Boehm, Matt F., Mandan	Morton	Square Butte Creek	20	20	11- 5-62	Approved
1048	Gowan, Roy and Charles, Oslo, Minn.	Grand Forks	Red River	87.9	87.9	10-29-62	Approved
1049	Gwyther, Robert D., acting for himself and as executor of the estate of B. P. Gwyther	Morton	Missouri River	2,140	1,070.9	11-23-62	Approved
1050	Gustafson, Hilmer, Dodge	Dunn	Unnamed Tributary, Trib. Spring Creek	6	6	12- 3-62	Approved
1051	Steffenson, Richard, Hensler	Oliver	Unnamed Tributary to Shirk Creek, Tributary Missouri River	156	78	12- 4-62	Approved
1052	Pribyl, Edmund, Manning	Dunn	Crooked Creek Tributary Knife River	15	15	12- 7-62	Approved
1053	Prease, Bernard, Emmet	McLean	Dry draw, surface run-off tributary Missouri River	40	20	12-10-62	Approved
1054	Pearse, Garry A., Grand Forks	Grand Forks	Red River	1.5	1	12-14-62	Approved
1055	West Fargo Holding, Inc., West Fargo	Cass	Sheyenne River	275		12-19-62	Approved
1056	Perhus, Clinton, Taylor	Dunn	Knife River	22.5	15	12-22-62	Approved
1057	Funk, Adam, Hebron	Mercer	South Fork Elm Creek Tributary Knife River	30	30	12-27-62	Approved
1058	U. S. Fish & Wildlife Service, Minneapolis	Stutsman	Dry draw and ground water from well in James River	840		1- 3-63	Approved
1059	Smith, William L., Steele	Kidder	Underground supplies and unnamed creek tributary unnamed pond	1,200	800.1	1-10-63	Approved
1060	Leach, Thomas W., Bismarck	Burleigh	Ground Water	78	78	1-23-63	Approved
1061	Texaco, Inc., Denver	Williams	Ground Water	9.4		1-24-63	Approved
1062	Lindvig, Ray S., Williston	Williams	Little Muddy Creek and Unnamed Stream	81.5	74	2- 1-63	Approved
1063	Mortenson, Billie, Kenmare	Ward	Ground Water	290	145	2-15-63	Approved
1064	Ferebee, George, Halliday	Dunn	Spring Creek and Unnamed Intermittent Stream Tributary Spring Creek, Tributary Knife River	37	37	2-16-63	Approved
1065	Dvorak, Charles V., Manning	Dunn	Crooked Creek Tributary Knife River	15	15	2-15-63	Approved

WATER RIGHT APPLICATIONS
July 1, 1962 to June 30, 1964

No.	NAME AND ADDRESS	County	Source	Acre Feet	Acres	Date of Claim	Status
1066	Davis, Eugene C., Rhame	Slope	Unnamed Creek Tributary Little Missouri River	221	147.2	2-19-63	Approved
1067	Wahpeton, City of	Richland	Ottertail, Bois de Sioux and Red Rivers	4,563		2-21-63	Approved
1068	South McLean Mutual Aid Cooperative Irrigation Project, Wilton	McLean	Missouri River and Well Adjacent to Missouri River	1,938	969	2-20-63	Approved
1069	Brokaw, Dale, Williston	Williams	Unnamed Creek Tributary Little Muddy Creek	13	13	3- 6-63	Approved
1070	Ellwein, F. H., New Salem	Morton	Sweetbriar Creek Tributary Heart River	48.6	32.4	3- 7-63	Approved
1071	Enzi, Ethyl and Herbert C., Linton	Emmons	West Branch Long Lake Creek, Long Lake Creek	65	65	3-12-63	Approved
1072	North Dakota State Game and Fish Department, Bismarck	Logan	Watershed Sec. 15-135-67 Tributary Unnamed Slough	10		3-15-63	Approved
1073	Yegen Dairy Farm, Bismarck	Burleigh	Ground Water	270	265	3-26-63	Approved
1074	Calvert Exploration Co., Bismarck	Burleigh	Ground Water	1		3-26-63	Approved
1075	Walsh County Water Management District, Grafton	Nelson and Walsh	Middle Branch Forest River	267		2-24-63	Approved
1076	Northern Sugar Corporation, Denver	Pembina	Red River	4,250		3-18-63	Approved
1077	Richman, John, Williston	Williams	Little Muddy Creek Tributary Missouri River	81.9	81.9	3-26-63	Approved
1078	Buford-Trenton Irrigation District, Trenton	Williams	Trenton Lake	5,197.4	2,588.8	4- 3-63	Approved
1079	Hartsoch, Lloyd and Arvey, White Earth	Williams	Garrison Reservoir	320	160	4- 4-63	Approved
1080	Texaco Co., Denver	McKenzie	Ground Water	12		4- 2-63	Approved
1081	Grand Forks Country Club, Grand Forks	Grand Forks	Red River	90	65	4- 6-63	Approved
1082	Flegel, Clifford, Carrington	Foster	Ground Water	18	9	4-25-63	Approved
1083	Foster County, Carrington	Foster	James River	2,050		5-23-63	Approved

1084	Wilson, Bernard I., Sentinel Butte	Golden Valley	Small Tributary Garner Creek Tributary Little Missouri River	29.3		5-25-63	Approved
1085	Tschida, Anton and Leo, Fort Rice	Morton	Missouri River	462	231	6- 6-63	Approved
1086	Manz, Andrew W., Williston	Williams	Ground Water	36	18.3	6- 1-63	Approved
1087	Jorgenson, John, Bowman	Bowman	Intermittent Creek Tributary Grand River	15	15	6- 7-63	Approved
1088	Dolajak, Mike, Dickinson	Stark	Ground Water	105	70	11-18-63	Pending
1089	Bayer, Frank A., Fargo	Cass	Sheyenne River	22.5	22.5	6-21-63	Approved
1090	Layons, George and Thomas	Williams	Little Muddy Creek Tributary Garrison Reservoir	80	80	6-22-63	Approved
1091	Fargo, City of	Cass	Stored Water from Lake Ashtabula	35,880		6-27-63	Approved
1092	Remillong, R. H., Sentinel Butte	Golden Valley	Unnamed Creek Tributary Little Missouri River	76	76	7- 1-63	Approved
1093	Foell, Quinten and Lillian, Moffit	Emmons	Unnamed Streams Trib. Dutton Slough	92.2	92.2	7- 1-63	Approved
1094	North Dakota State Game and Fish Department, Bismarck	Slope	Little Missouri River	95		5-18-63	Approved
1095	North Dakota State Game and Fish Department, Bismarck	Morton	Crown Butte Creek Tributary Heart River	100		7-25-63	Approved
1096	Valley City, City of	Barnes	Sheyenne River	6,686		7- 1-63	Approved
1097	Tioga, City of	Williams	Tioga Dam Reservoir and Adjacent Wells Tributary Intermittent Stream in Missouri River Basin	620		8- 1-63	Approved
1098	Bagley, Kenneth, Rhame	Bowman	Intermittent Creek Trib. Little Missouri River	21		8- 6-63	Approved
1099	Connell, Doris, Medora	Billings	Tepee Creek Tributary Little Missouri River	38.8	38.8	8- 8-63	Approved
1100	Mork, Jr., Andrew C., Mandan	Morton	Missouri River	760	379.9	12-21-62	Approved
1101	Nelson, Alvin, Grassy Butte	McKenzie	Beiccgel Creek Tributary Little Missouri River	50.7	50.76	8- 8-63	Approved
1102	Klaudt, Reinhold J., Linton	Emmons	Unnamed Intermittent Stream Tributary Beaver Creek	53.6	26.8	9- 9-63	Approved
1103	West Fargo, Village of	Cass	Ground Water	60		9-12-63	Approved
1104	Larimore Golf Club, Larimore	Grand Forks	Turtle River Tributary Red River	78.8	45	9-13-63	Approved
1105	Olson, Roy, Cartwright	McKenzie	Yellowstone River	70	35.5	10- 2 63	Approved

WATER RIGHT APPLICATIONS
July 1, 1962 to June 30, 1964

No.	NAME AND ADDRESS	County	Source	Acre Feet	Acres	Date of Claim	Status
1106	Schiermeister, Leo W., Hazelton	Emmons	Missouri River and Underground Sources	477	238.6	10- 3-63	Approved
1107	U. S. Forest Service, Billings	McKenzie	Horse Creek Tributary Yellowstone River	180		10- 3-63	Approved
1108	Ferderer, George R., Mandan	Morton	Unnamed Creek Tributary *Otter* Creek, Square Butte Creek	24	24	10-14-63	Approved
1109	Lake Agassiz Sugar Corporation, West Fargo	Cass	Sheyenne River	4,250		8-10-63	Approved
1110	Edmore, City of	Ramsey	Sweetwater Lakes	400		10- 8-63	Approved
1111	Tjelde, Leif, Cartwright	McKenzie	Lower Yellowstone River	209	104.5	10-23-63	Approved
1112	Boehm, Leo J., Mandan	Morton	Boehm Creek Tributary Crown Butte Creek and Heart River	20		10-29-63	Approved
1113	Carrington, City of	Foster	Ground Water	614		11- 9-63	Approved
1114	Northwood, City of	Grand Forks	Ground Water	58		11-19-63	Approved
1115	Reeder, Village of	Adams	Ground Water	160		11-21-63	Approved
1116	Zahn, Joseph, Bismarck	Oliver	Unnamed Creek Tributary Knife River	43		12- 2-63	Approved
1117	Siouxland Dressed Beef, Division of Needham Packing Co., West Fargo	Cass	Ground Water	1,850		12- 3-63	Approved
1118	Wilton, City of	McLean	Ground Water	328		12-10-63	Approved
1119	Braun, C. C., Glen Ullin	Morton	Unnamed Creek Tributary Big Muddy Creek and Heart River	25		12-18-63	Approved
1120	Jamestown, City of	Stutsman	Ground Water	7,650		1- 6-64	Approved
1121	Calvert Drilling and Producing Co., Bismarck	Williams	Ground Water	1		1-15-64	Approved
1122	Oakes Country Club, Oakes	Dickey	Beaver Creek Tributary James River	30	22.54	1-27-64	Approved
1123	Price, Raymond O., Price	Oliver	Missouri River	180.4	90.2	1-27-64	Approved
1123a	Greenshields, Lemore, Dodge	Dunn	Schaffner Creek Tributary Knife River	173.5	131.5	1-22-64	Approved

1124	Hunter, Village of	Cass	South Branch Elm River Tributary Red River	1,100		1-22-64	Approved
1125P	Willow City, City of	Bottineau	Ground Water	225		1931	Pending
1126	Ashley, City of	McIntosh	Ground Water	1,100		3-18-64	Approved
1127	Portal, City of	Burke	Ground Water	162		2- 4-64	Approved
1128	Walhalla Country Club, Walhalla	Cavalier	Pembina River	100	46.7	3-14-64	Approved
1129	Pick City, City of	Mercer	Garrison Reservoir	160		2-13-64	Approved
1130	Klein, Eugene, Eckelson	Barnes	Ground Water	480	240	2-18-64	Approved
1131	O'Neil, Owen, Dunn Center	Dunn	Unnamed Dry Channel Tributary Spring Creek	53	53	2-25-64	Approved
1132	Burke, Monty, McKenzie	Burleigh	Ground Water	404	202	3-31-64	Pending
1133	U. S. Forest Service, Watford City	McKenzie	Streams Tributary Tobacco Garden Creek	30.4		1-31-64	Pending
1134	U. S. Forest Service, Watford City	McKenzie	Streams Tributary Bennie Pierre Creek	471.2		1-31-64	Pending
1135	U. S. Forest Service, Watford City	McKenzie	Streams Tributary Charbonneau Creek	119.7		1-31-64	Pending
1136	U. S. Forest Service, Watford City	McKenzie	Streams Tributary Cherry Creek	110.3		1-31-64	Pending
1137	U. S. Forest Service, Watford City	McKenzie	Streams Tributary Yellowstone River	189.3		1-31-64	Pending
1138	U. S. Forest Service, Watford City	McKenzie	Streams Tributary Missouri River	254.6		1-13-64	Pending
1139	Buehner, Henry, Dunn Center	Dunn	Unnamed Dry Channel Tributary Knife River	25	25	2-21-64	Approved
1140	Glenburn, City of	Renville	Ground Water	96.5		3- 9-64	Approved
1141	Wachter Real Estate Trust, Bismarck	Morton	Missouri River	622	311	3-23-64	Approved
1142	Horner, George J., Linton	Emmons	Beaver Creek and Clear Creek Tributary Missouri River	180	120	3-25-64	Approved
1143	Becker, Quentin, New Salem	Morton	Sweetbriar Creek Trib. Heart River	57.3	57.3	3-26-64	Approved
1144	Jennings, Jr., George, Bismarck	Burleigh	Missouri River	40	20	3-26-64	Approved
1145	Christ, Jr., Robert J., Wimbledon	Barnes	Ground Water	400	192	3-31-64	Approved
1146	Carson, City of	Grant	Ground Water	50		2-17-64	Approved
1147P	Berthold, City of	Ward	Ground Water	15		7- 1-1900	Approved
1148	Hagan, Dr. E. J., Williston	Williams	Tributary to Sand Creek Trib. Missouri River	16	16	4- 8-64	Approved
1149	Rolette, City of	Rolette	Ground Water	225		2-13-64	Approved

WATER RIGHT APPLICATIONS
July 1, 1962 to June 30, 1964

No.	NAME AND ADDRESS	County	Source	Acre Feet	Acres	Date of Claim	Status
1150	Olson, Marvin, Almont	Morton	Muddy Creek Tributary Heart River	192	128	4-16-64	Approved
1151P	McVille, City of	Nelson	Ground Water	105	12	1- 1-21	Approved
1152	Jonk, Cornelis, J., Park River	Walsh	Park River	4.6	4.6	4-22-64	Approved
1153	Moen Bros., Moorhead	Burleigh	Slough	21.1		4-23-64	Exp. 8-31-64
1154	Medina, City of	Stutsman	Ground Water	160		4-29-64	Approved
1155	Elvik, Knute, Almont	Grant	Unnamed Coulee Trib. Heart River	34	61	4-29-64	Approved
1156	Megarry Bros., Inc., St. Cloud	Dunn	Knife River	30		4-22-64	Exp. 9-30-64
1157	Almont, Village of	Morton	Ground Water	70		5- 2-64	Approved
1158P	Garrison, City of	McLean	Ground Water	630		9- 1-32	Approved
1159	O'Callaghan, Jr., Garry, Hazelton	Emmons	Ground Water	225	170	5- 6-64	Pending
1160P	Wishek, City of	McIntosh	Ground Water	523		10- 1-36	Approved
1161	United Power Association, Elk River, Minn.	Mercer	Missouri River	733,000		5- 8-64	Approved
1162	Peters, Ernest, Lark	Grant	Unnamed Coulee Tributary Louse Creek Tributary Cannonball River	40	38	5- 8-64	Pending
1163	Walker, Kenneth, Hoople	Walsh	Ground Water	340	74.7	5-19-64	Pending
1164	Edgeley, City of	LaMoure	Ground Water	800		1- 1-10	Pending
1165P	Hillsboro, City of	Traill	Ground Water	485		7-23-1900	Pending
1166	Streeter, City of	Stutsman	Ground Water	730		5-20-64	Pending
1167	S & S Construction Co., Moorhead;	McLean	Strawberry, Crooked and Brekken Lakes	8.72		5-20-64	Pending
1168	Sharon, Village of	Steele	Ground Water	200		5-22-64	Pending
1169P	Stuart, T. S., Ambrose	Divide	Long Creek Tributary Mouse River	60	45.9	7- 1-29	Pending
1170	Walsh County Water Management District, Grafton	Walsh	Middle Branch Forest River	2,772		4-30-64	Pending
1171	Anderson, Waldie, Drayton	Pembina	Red River	240	126.7	5-26-64	Pending
1172	Parshall, City of	Mountrail	Ground Water	523		4-22-64	Pending

1173P	Mostad, Alfred, Minot	Ward	Terminal Channel Souris River	28.8	14.4	7- 1-30	Pending
1174	Underwood Sand and Gravel Co., Underwood	McLean	Lake, Drain for Approx. Two Townships	1		6- 2-64	Pending
1175	Lidgerwood, City of	Richland	Ground Water	182		6- 3-64	Pending
1176	Schmid, Irvin, Beulah	Mercer	Spring Creek Tributary Knife River	100	53.2	6- 3-64	Pending
1177	Strasburg, City of	Emmons	Ground Water	483		6- 4-64	Pending
1178	Ray, City of	Williams	Ground Water	141		6- 4-64	Pending
1179P	Mott, City of	Hettinger	Fort Union Aquifer	100		6- 3-24	Pending
				400		6- 3-64	Pending
1180	Richardton, City of	Stark	Ground Water	250		6- 4-64	Pending
1181	Dakota Salt and Chemical Co.	Williams	Ground Water	274		6-11-64	Pending
1182	Arthur, Village of	Cass	Ground Water	100		6-10-64	Pending
1183	Williston Packing Co., Williston	Williams	Ground Water	110		6-11-64	Pending
1184	Wildrose, City of	Williams	Ground Water	53		6-27-64	Pending
1185P	Rolla, City of	Rolette	Ground Water	1,120		10- 1-27	Pending
						10- 1-40	Pending
1186P	Kathryn, City of	Barnes	Spring	30		12-15-36	Pending
1187	Hope, City of	Steele	Ground Water	200		6-13-64	Pending
1188	Grenora, City of	Williams	Ground Water	75		6-13-64	Pending
1189	Drake, City of	McHenry	Ground Water	724		6-15-64	Pending
1190	Charchenko, Ernest, Killdeer	Dunn	Knife River	150	75	6-16-64	Pending
1191	National Park Service, Medora	Billings	Ground Water	4		6-19-64	Pending
1192	National Park Service, Medora	Billings	Ground Water	.8		6-19-64	Pending
1193	National Park Service, Medora	McKenzie	Ground Water	3.8	2	6-19-64	Pending
1194	National Park Service, Medora	Billings	Ground Water	.8		6-19-64	Pending
1195	National Park Service, Medora	Billings	Ground Water	.8		6-19-64	Pending
1196	National Park Service, Medora	Billings	Ground Water	4		6-19-64	Pending
1197	National Park Service, Medora	McKenzie	Ground Water	6.5		6-19-64	Pending
1198	National Park Service, Medora	Billings	Ground Water	13.4		6-19-64	Pending
1199	Megarry Bros., St. Cloud	Dunn	Spring Creek Tributary Knife River	6		6-19-64	Exp. 11-1-64
1200P	Lakota, City of	Nelson	Ground Water	400		7- 1-19	Pending
						6- 1-35	Pending
1201	McGregor, Jr., Donald, McGregor	Williams	Unnamed Coulees Trib. White Earth Drainage Basin	57	57	6-22-64	Pending

WATER RIGHT APPLICATIONS
July 1, 1962 to June 30, 1964

No.	NAME AND ADDRESS	County	Source	Acre Feet	Acres	Date of Claim	Status
1202	Martin, James F., Trenton	Williams	Unnamed Coulee Trib. Missouri River	30	30	6-22-64	Pending
1203P	Turtle Lake, City of	McLean	Ground Water	485		6- 1-34	Pending
						6-26-64	Pending
1204	Zeeland, City of	McIntosh	Ground Water	365		6-26-64	Pending
1205	Selfridge, City of	Sioux	Ground Water	105		6-26-64	Pending
1206	Hannaford, Village of	Griggs	Ground Water	200		6-27-64	Pending
1207	Mapleton, Village of	Cass	Maple River and Groundwater Sources Tributary Sheyenne River	65		6-23-64	Pending
1208P	Scranton, City of	Bowman	Ground Water	160		6- 1-42	Pending
1209	Alexander, Village of	McKenzie	Ground Water	77		6-25-64	Pending
1212P	Larimore, City of	Grand Forks	Ground Water	500		6- 1-18	Pending
1216P	Haugan, Olaf, Watford City	McKenzie	Clay Creek Tributary Tobacco Garden and Missouri River	38.4	38.4	10- 1-10	Pending
1217	Powers Lake, City of	Burke	Ground Water and Powers Lake	730		6- 6-64	Pending
1218	Nervig, Casper B., Williston	Williams	Unnamed Creek Tributary Little Muddy Creek	50	9.4	6-20-64	Pending
1219	Hazen, City of	Mercer	Ground Water	420		6-26-64	Pending
1223P	Velva, City of	McHenry	Ground Water	225		6-29-10	Pending
				225		6-29-64	Pending
1224	Boe, LaVerne, Turtle Lake	McLean	Tributary Unnamed Tributary Turtle Creek	10		6-16-64	Pending
1226	Nygaard, Peter A., Alexander	McKenzie	Unnamed Creek Tributary Yellowstone River	57		6- 5-64	Pending
1232F	Steele, City of	Kidder	Ground Water	285		7- 1-36	Pending
				285		5-21-64	Pending

WATER RIGHTS

For Period From July 1, 1964 to June 30, 1966

APPLICATIONS FILED		158
Irrigation		69
Acres Requested	10,016.45	
Acre-feet Requested	15,444.98	
Industrial Use		12
Acre-feet Requested	33,116.0	
Municipal Use		24
Acre-feet Requested	9,038.90	
Recreation		11
Acre-feet Requested	1,214.0	
Stockwater		4
Acre-feet Requested	90.20	
Municipal and Industrial		1
Acre-feet Requested	3,000.0	
Fish and Wildlife		11
Acre-feet Requested	11,929.06	
Recreation, Fish and Wildlife and Flood Control		3
Acre-feet Requested	3,770.0	
Flood Control, Recreation and Municipal		1
Acre-feet Requested	135,000.0	
Flood Control		2
Acre-feet Requested	116.0	
Industrial and Stockwater		1
Acre-feet Requested	1,600.0	
Stockwater and Fish Pond		2
Acre-feet Requested	84.0	
Municipal, Recreation, Fish and Wildlife		1
Acre-feet Requested	200.0	
Recreation, Stockwater and Wildlife		4
Acre-feet Requested	178.5	
Recreation, Fish and Wildlife		4
Acre-feet Requested	723.0	
Recreation and Stockwater		2
Acre-feet Requested	40.0	
Stockwater, Fish and Wildlife		1
Acre-feet Requested	100.0	
Waterfowl Production, Stockwater, Recreation, Flood Control		1
Acre-feet Requested	32.0	
Wildlife Wetland Improvement		2
Acre-feet Requested	194.0	
Drainage Research		1
Acre-feet Requested	160.0	
Withdrawn		1

APPLICATIONS APPROVED 213

Irrigation		78
Acres Approved	9,333.3	
Acre-feet Approved	13,615.45	
Industrial		16
Acre-feet Approved	33,485.73	
Municipal		54
Acre-feet Approved	16,120.4	
Recreation		11
Acre-feet Approved	1,651.5	
Stockwater		11
Acre-feet Approved	1,318.2	
Municipal and Industrial		1
Acre-feet Approved	3,000.0	
Fish and Wildlife		11
Acre-feet Approved	11,929.06	
Recreation, Fish and Wildlife and Flood Control		3
Acre-feet Approved	3,770.0	
Flood Control, Recreation and Municipal		1
Acre-feet Approved	135,000.0	
Flood Control		2
Acre-feet Approved	116.0	
Stockwater and Fish Pond		2
Acre-feet Approved	84.0	
Municipal, Recreation, Fish and Wildlife		1
Acre-feet Approved	200.0	
Recreation, Stockwater and Wildlife		4
Acre-feet Approved	178.5	
Recreation, Fish and Wildlife		4
Acre-feet Approved	698.0	
Recreation and Stockwater		2
Acre-feet Approved	40.0	
Waterfowl Production, Stockwater, Recreation, Flood Control		1
Acre-feet Approved	32.0	
Wildlife Wetland Improvement		2
Acre-feet Approved	194.0	
Domestic, Fire, Irrigation and Wildlife		8
Acre-feet Approved	34.1	
Flood Control, Fish, Wildlife and Municipal		1
Acre-feet Approved	400.0	
Pending		10

WATER RIGHT APPLICATIONS

July 1, 1964 to June 30, 1966

No.	NAME AND ADDRESS	County	Source	Acre-Feet	Acres	Date of Claim	Status
1210	Flaxton, City	Burke	Ground Water	135		7- 1-64	Approved
1211P	Rhame, Village of	Bowman	Ground Water	95		1-11-19	Approved
1213P	Watford City, City of	McKenzie	Ground Water	585	294 acre-feet	7- 1-35	Approved
					291 acre-feet	7- 1-64	Approved
1214	Gackle, City of	Logan	Ground Water	160		7- 6-64	Approved
1215	Mehlhoff, Lawrence, Tuttle	Kidder	Ground Water and Unnamed Lake	450	298	7- 7-64	Pending
1220	Bowman County Water Management District, Bowman	Bowman	North Fork Grand River and Spring Creek Tributary Grand River	3,000		7-13-64	Approved
1221	Maple River Golf Club, Inc., West Fargo	Cass	Maple River Tributary Sheyenne River	75	105	7-17-64	Approved
1222	Sheldon, George J., Tioga	Williams	Garrison Reservoir	300	150.4	7-20-64	Approved
1225	Nelson, Arne, Grenora	Divide	Unnamed Stream Tributary Unnamed Slough	10	10.8	7-15-64	Approved
1227	Lisbon Bissell Golf Club, Lisbon	Ransom	Sheyenne River	10	49.1	7-22-64	Approved
1228	Aneta, City of	Nelson	Ground Water	150		7-23-64	Approved
1229	Stevens, Elmer, Valley City	Barnes	Sheyenne River	82	41	7-27-64	Approved
1230P	Hebron, City of	Morton	Ground Water	425		8- 1-28	Approved
1231	Delzer, Raymond, Bismarck	Burleigh	Unnamed Creek Tributary Burnt Creek	60	115.1	7-27-64	Approved
1233P	Goodrich, City of	Sheridan	Ground Water	130	65 acre-feet	7- 1-14	Approved
					65 acre-feet	8-18-64	Approved
1234	U. S. Forest Service, Dickinson	Billings	Unnamed Tributary Knife River	4.2 5.9	annual use storage	8- 1-64	Approved
1235	Sabin, Ellis, Morristown, S. Dak.	Grant	Unnamed Creek Tributary Cannonball River	35	35	8-26-64	Approved
1236	Voigt, John F., Shields	Grant	Unnamed Dry Wash Tributary Cannonball River	32	32	8-28-64	Approved
1237	Rodvold, Jewell D., Zahl	Williams	Unnamed Channel of Little Muddy Creek	35.5	35.5	9- 4-64	Approved

WATER RIGHT APPLICATIONS
July 1, 1964 to June 30, 1966

No.	NAME AND ADDRESS	County	Source	Acre-Feet	Acres	Date of Claim	Status
1238	Mehlhoff, John F., Tuttle	Kidder	Ground Water	396	148	9-10-64	Pending
1239	Woodbury, William, Carson	Grant	Boxelder Creek Tributary Cannonball River	63	42.2	9-16-64	Approved
1240	Stewart, Lloyd, Carson	Grant	Three Mile Creek Tributary Cannonball River	148	149	8-31-64	Approved
1241	Friese, Lester, Leonard	Ransom	Sheyenne River	276.6	184.4	9-22-64	Approved
1242	Mathison, Harold, Sentinel Butte	Golden Valley	Unnamed Intermittent Draw Tributary Bullion Creek and Little Missouri Rver	54.7	54.7	9-29-64	Approved
1243	U. S. Bureau Sport Fisheries and Wildlife, Minneapolis	Emmons	Horsehead Creek	82.5		9-23-64	Approved
1244	Drayton, City of	Pembina	Red River	1,000 3,400	annual use storage	10- 9-64	Approved
1245	Triple J. Ranch, Amidon	Slope	Unnamed Intermittent Draws Tributary Little Missouri River	126	63	10- 9-64	Approved
1246	Turbiville, Harry J., Marmarth	Bowman	Little Gumbo Tributary Little Missouri River	204.5	204.5	10-16-64	Approved
1247	Michigan, City of	Nelson	Ground Water	150		9-15-64	Approved
1248	Weekes, Martin, Raleigh	Grant	Unnamed Draw Tributary Cannonball River	40		10-16-64	Approved
1249	Weeks, Martin, Raleigh	Grant	Unnamed Draw or Coulee Tributary Cannonball River	50	52	10-16-64	Approved
1250	Shelley, Russel, Watford City	McKenzie	Unnamed Intermittent Draws Tributary Missouri River	120	74.5	10-30-64	Approved
1251	Deering, Village of	McHenry	Ground Water	35		11- 6-64	Approved
1252	Taylor, James L., Watford City	McKenzie	Yellowstone River	79.4	79.4	11-19-64	Approved
1253	Knutson, Rueben A., Dunn Center	Dunn	Unnamed Intermittent Stream Tributary Spring Creek and Knife River	36	36	11-20-64	Approved
1254	Upham, City of	McHenry	Ground Water	100		12-10-64	Approved

1255	Erickson, Leonard, Rugby	Pierce	Unnamed Tributary Souris River (noncontributing)	19.4	19.4	11-21-64	Approved
1256P	Kjos, Henry and Inga, Park River	Walsh	Ground Water	47		9- 1-39	Approved
1257	Stevenson, J. C., Carson	Grant	Boxelder Creek Tributary Cannonball River	56	56	10-29-64	Approved
1258	Flasher, Village of	Morton	Ground Water	165		1- 6-65	Approved
1259P	U. S. Bureau Sport Fisheries and Wildlife, Minneapolis	Kidder	Alkaline Lake Tributary Long Lake (Apple Creek Watershed)	291 1,724	annual use storage	12-21-42	Approved
1260P	U. S. Bureau Sport Fisheries and Wildlife, Minneapolis	Kidder	Harker Lake, South Marsh, Southeast Slough (Apple Creek Watershed)	1,695		12-21-42	Approved
1261	U. S. Bureau Sport Fisheries and Wildlife, Minneapolis	Sargent	Wild Rice River Tributary Red River	7,139		12-28-64	Approved
1262	U. S. Bureau Sport Fisheries and Wildlife, Minneapolis	Sargent	Unnamed Creek and Wild Rice River Tributary Red River	1,130		12-28-64	Approved
1263	U. S. Bureau Sport Fisheries and Wildlife, Minneapolis	Sargent	Wild Rice River Tributary Red River	686		12-28-64	Approved
1264	Nelson, Lester, Lemmon, South Dakota	Adams	Dugout in Water Table	45	45	1-11-65	Approved
1265	Nordell, Ben T. and Luella, Williston	Williams	Missouri River	130	65	2- 4-65	Approved
1266	Balliet, Richard, Shields	Sioux	Surface Runoff Only Tributary Cannonball River	17	17	2- 4-65	Approved
1267	Greenwood, Floyd, Hoople	Walsh	Ground Water	17		1-21-65	Approved
1268	Weber, Gustav H., Hillsboro	Traill	Goose River Tributary Red River	5	5	2-11-65	Approved
1269	Haugen, Elven, Williston	Dunn	Deep Creek Tributary Knife River	97	97	1-21-65	Approved
1270	Belfield, City of	Stark	Ground Water	360		2- 1-65	Approved
1271	Fay, Charles, Williston	Williams	Unnamed Coulee Tributary Little Muddy Creek	49.5	49.5	2-10-65	Approved
1272	Hoff, Lee, Leith	Grant	Unnamed Creek Tributary Cannonball River	108	108	2-24-65	Approved

WATER RIGHT APPLICATIONS
July 1, 1964 to June 30, 1966

No.	NAME AND ADDRESS	County	Source	Acre-Feet	Acres	Date of Claim	Status
1273P	U. S. Bureau Sport Fisheries and Wildlife, Minneapolis	Burke	Intermittent Stream Tributary Elbow Lake	124 2,295	annual use storage	3-27-36	Approved
1274P	U. S. Bureau Sport Fisheries and Wildlife, Minneapolis	Burke	Intermittent Stream Tributary Upper Lostwood Lake	730 2,236	annual use storage	1-18-37	Approved
1275	Brakken, Reuben, Williston	Williams	Garrison Reservoir	440	220.6	3-12-65	Approved
1276	Kling, Mrs. Ida, Werner	Dunn	Missouri River	200	100	3-13-65	Approved
1277	Boundary Creek Water Management District, Bottineau	Bottineau	Unnamed Tributary Boundary Creek	252 1,172	annual use storage	3-22-65	Approved
1278	Peterson, Sig, Almont	Morton	Sims Creek Tributary Big Muddy Creek and Heart River	41.6	41.6	3-31-65	Approved
1279	Foster County Water Management District, Carrington	Foster	Pipestem Creek	970		2-10-65	Approved
1280	Gibbons, Loyd and A. A., Thunder Hawk, South Dakota	Sioux and Grant	Unnamed Channel Tributary Cedar Creek	150	154	3-24-65	Approved
1281	Rabe, W. O., Dickinson	Slope	Deep Creek Tributary Little Misouri River	63.7	63.7	3-30-65	Approved
1282	Foster County Water Management District, Carrington	Foster	James River	210 1,600	annual use storage	2-10-65	Approved
1283	Allen, Lowell, Ray	Williams	Beaver Creek Tributary Garrison Reservoir	150	78	4- 8-65	Approved
1284	Flynn, William and James, Grand Forks	Grand Forks	Red River	360	376	4-19-65	Approved
1285	Stutsman County Water Management District, Jamestown	Stutsman	Pipestem Creek	135,000		3-13 65	Approved
1286	Erickson, Harold, Carrington	Foster	Ground Water	100 730	annual use storage	5- 4-65	Approved

1287	Minnewaukan, City of	Benson	Ground Water	140			4-10-65	Approved
1288	Bartz, Clayton, Beach	Pierce	Ground Water	300		152.6	5- 4-65	Pending
1289	Schug, Frank, Valley City	Barnes	Sheyenne River and Diversion from Small Tributary Sheyenne River	220.2		220.2	5- 5-65	Approved
1290	Hove, George, A., Stanley	Williams	Garrison Reservoir	283		141.5	5- 7-65	Approved
1291	Myers, Robert, Sentinel Butte	Golden Valley	Unnamed Intermittent Draw Tributary Little Missouri River	47		23.4	5-12-65	Approved
1292	Wyndmere, City of	Richland	Ground Water	215			5-16-65	Approved
1293P	Fairmount, City of	Richland	Ground Water	170			1922	Approved
1294	Walsh County Water Management District, Grafton	Walsh	North Branch Forest River	66 915	annual use storage		6-11-65	Approved
1295	Frederick, Joe J., Richardton	Dunn	Little Knife River	170		113	6-12-65	Approved
1296	Walsh County Water Management District, Grafton	Walsh	North Branch Forest River	50 502	annual use storage		6-11-65	Approved
1297P	Hettinger, City of	Adams	Ground Water - Fox Hills Sandstone	625	300 acre-feet 325 acre-feet		6-15-25 9-26-64	Approved Approved
1298P	Union Stockyards Company of Fargo, West Fargo	Cass	Ground Water	1,600			10- 1-35	Pending
1299	Granville, City of	McHenry	Ground Water	153			4-24-65	Approved
1300P	Otter Tail Power Co., Fergus Falls, Minnesota	Richland	Red River	18,000			10-13-27	Approved
1301P	Otter Tail Power Co., Fergus Falls, Minnesota	McLean	Missouri River	7,500			10- 8-26	Approved
1302P	Otter Tail Power Co., Fergus Falls, Minnesota	Stutsman	Ground Water	216			3 31-24	Approved
1303	Hvistendahl, Dale and Charlotte, Oakes	Dickey	Ground Water	849		424.7	7- 2-65	Approved
1304	Ulsrud, Oliver, Columbus	Burke						Wishdawn
1305P	Grand Forks Park District, Grand Forks	Grand Forks	Red River	119.58		95.67	6- 1-38	Approved
1306	Dodge, W. C., Keene	McKenzie	Unnamed Channel Tributary Dimmick Lake	40		40	6-24-65	Approved
1307	Bratlein, Albert, Zahl	Williams	Unnamed Coulees Tributary Little Muddy Creek	59.5		59.5	7-12-65	Approved

WATER RIGHT APPLICATIONS
July 1, 1964 to June 30, 1966

No.	NAME AND ADDRESS	County	Source	Acre-Feet	Acres	Date of Claim	Status
1308	Kehoe, William, Valley City	Barnes	Unnamed Creek Tributary Sheyenne River	19.36		7-15-65	Approved
1309	Keller, Joe, Beulah	Oliver	Unnamed Creek Tributary Otter Creek and Knife River	35		7-20-65	Approved
1310	Grandin, Village of	Traill	Elm River	200 50	annual use storage	8- 2-65	Approved
1311	Fauske, Elwood A., Dunseith	Rolette	Watershed - Souris River	71.5		7-28-65	Approved
1312	Levis, Robert H., Hensler	Oliver	Missouri River and Wells in Missouri River Bottoms	3,828.2	1,928.1	8- 2-65	Approved
1313	Hauge, Village of	Emmons	Ground Water	22.4		8- 7-65	Approved
1314	Gerving Valley Ranch, Glen Ullin	Morton	Unnamed Creek Tributary Heart River	21 30	annual use storage	8-27-65	Approved
1315P	McCarroll, Edward C., Tolley	Renville	Mouse River	90	90	7- 1-65	Approved
1316	Palczewski, Frank, Scranton	Bowman	Unnamed Tributary Grand River	33 47	annual use storage	7-23-65	Approved
1317	Kratz, Vernon, Valley City	Barnes	Unnamed Creek Tributary Sheyenne River	7.5 24.4	annual use storage	7-24-65	Approved
1318	Heinze, Edwin J., Dazey	Barnes	Unnamed Creek Tributary Sheyenne River	32 73.61	annual use storage	8-16-65	Approved
1319	Underwood Sand and Gravel Co., Underwood	McLean	Missouri River	1		8-31-65	Approved
1320	Anderson, Arthur, Arnegard	McKenzie	Unnamed Channel Tributary Little Missouri River	115.5	115.5	9- 1-65	Approved
1321	Wolsky, Melvin, Nome	Barnes	Unnamed Creek Tributary Sheyenne River	14. 22.5	annual use storage	9- 2-65	Approved
1322	Klandl, Clarence, Sidney, Montana	McKenzie	Bennie Pierre	150	152.7	9- 3-65	Approved

1323	Anderson, Lawrence N., Valley City	Barnes	Unnamed Creek Tributary Sheyenne River	19.5 52	annual use storage	9- 4-65	Approved
1324	Minnkota Power Cooperative, Inc., Grand Forks	Oliver	Reservoir on Square Butte Creek	6,500		9-10-65	Approved
1325	Olson, Oscar O., Valley City	Barnes	Unnamed Creek Tributary Sheyenne River	14 28	annual use storage	9-11-65	Approved
1326	Porsborg, Kenneth, Mandan	Morton	Unnamed Creek Tributary Heart River	12 42	annual use storage	9-16-65	Approved
1327	Mell, Norman, Ross	Mountrail	Unnamed Lake Tributary Ross Basin	40	20	9-17-65	Approved
1328	Crystal, City of	Pembina	Cart Creek Tributary Park River	300 200	annual use storage	9-20-65	Approved
1329	TenBrock, Merrill, McIntosh, South Dakota	Sioux	Unnamed Wash Tributary Cedar Creek	12 20	annual use storage	9-20-65	Approved
1330	Syvrud, M. G., Mandan	Morton	Unnamed Coulee Tributary Sweetbriar Creek	13.5 35	annual use storage	9-23-65	Approved
1331	Rugby, City of	Pierce	Ground Water	1,050		9-25-65	Approved
1332	LaMoure County Water Management District, LaMoure	LaMoure	Unnamed Intermittent Stream Tributary Maple River	82 330	annual use storage	9-29-65	Approved
1333	Benedictine Sisters of the Annunciation, B.V.M., Bismarck	Burleigh	Apple Creek (backwater of Missouri River)	32.78	16.39	9-29-65	Approved
1334	Lein, Leonard, Regent	Hettinger	Unnamed Intermittent Draw Tributary Indian Creek and Cannonball River	34 75	annual use storage	9-30-65	Approved
1335	Weekes, J. F., McIntosh, South Dakota	Grant	Unnamed Intermittent Draw Tributary Cedar Creek	222	222	8-28-65	Approved
1336	Lange, Donald, Baldwin	Burleigh	Unnamed Intermittent Stream Tributary Missouri River	6 35	annual use storage	10- 5-65	Approved

WATER RIGHT APPLICATIONS
July 1, 1964 to June 30, 1966

No.	NAME AND ADDRESS	County	Source	Acre-Feet	Acres	Date of Claim	Status
1337	Frojen, H. Daniel, Oakes	Dickey	James River	80	80	10-29-65	Approved
1338	Coleharbor, City of	McLean	Intermittent Stream Tributary Garrison Reservoir	140 60	annual use storage	11-13-65	Approved
1339	U. S. Bureau Sport Fisheries and Wildlife, Minneapolis	Stutsman	Tributary Pipestem Creek	45 49	annual use storage	11-17-65	Approved
1340	Thom, Harley B., Bismarck	Burleigh	Ground Water	150	75	5-15-66	Approved
1341	Dickinson, City of	Stark	Heart River	200	56.5	1- 4-66	Approved
1342	Raney, Robert, Drayton	Pembina	Red River	480	1,280.8	1- 7-66	Approved
1343	Harmon, Ralph L., Carrington	Foster	Ground Water	600	400	1-28-65	Approved
1344	Perhus, Kermit, Marshall	Dunn	Intermittent Stream Tributary Knife River	95	95	1-25-66	Approved
1345	Berg, Richard O., Kathryn	Barnes	Unnamed Creek Tributary Sheyenne River	20 16.07	annual use storage	1-21-66	Approved
1346	Steele County Park Board, Finley	Steele	Beaver Creek Tributary Goose River	2,300		2- 3-66	Approved
1347	Huber, Lloyd, Hannaford	Oliver	Otter Creek Tributary Knife River	40	40.1	2- 4-66	Approved
1348	Semerad, Joe V., Dickinson	Dunn	Tributary Crooked Creek, Crooked Creek and Knife River	26	26	2- 8-66	Approved
1349	Wells County Water Management District, Fessenden	Wells	Sheyenne River	600 2,200	annual use storage	1-13-66	Approved
1350	Lazy S. Ranch, Bismarck	Burleigh	Missouri River	86	43	1-25-66	Approved
1351	Sauk Valley Township, McGregor	Williams	Unnamed Intermittent Stream Tributary White Earth River	150 760	annual use storage	2-11-66	Approved
1352	Heiser, George N., Dickinson	Dunn	Crooked Creek Tributary Knife River	61	61	2-14-66	Approved

1353	Gruber, Frank, Gascoyne	Bowman	North Fork Grand River	147		98	2-28-66	Approved
1354	Lahren, Irvin, Washburn	McLean	Painted Woods Creek	16.4		8.2	3- 2-66	Approved
1355	Kjorstad, Selmer, Williston	Williams	Garrison Reservoir	268		133.9	3- 1-66	Approved
1356	Perhus, Clinton, Taylor	Dunn	Knife River	141		141	3- 9-66	Approved
1357	Murrey, Frank, Wilton	Burleigh	Unnamed Coulee (Dry Coulee) Tributary Missouri River	20 23.4	annual use storage		3-11-66	Approved
1358	Fradet, Lawrence and Florence, Horace	Cass	Sheyenne River	10		10	3-23-66	Approved
1359	Jolin, Warren, Edgeley	LaMoure	Maple River Tributary James River	10 120	annual use storage		3-29-66	Approved
1360	Mosbrucker, Anton, Center	Oliver	Unnamed Tributary Square Butte Creek	100 236	annual use storage		3-17-66	Pending
1361	U. S. Bureau Sport Fisheries and Wildlife, Minneapolis	Stutsman	Unnamed Creek Tributary Marsh in Sec. 15, 16, Twp. 14, Rge. 69	51 32	annual use storage		4-19-66	Approved
1362	U. S. Bureau Sport Fisheries and Wildlife, Minneapolis	Steele	South Branch Goose River	1,218 1,044	annual use storage		4-25-66	Approved
1363	Komrosky, Edwin, Valley City	Barnes	Unnamed Creek Tributary Sheyenne River	144 288	annual use storage		5- 2-66	Approved
1364	Larson, Martin L., Kathryn	Barnes	Creek Tributary Sheyenne River	6.6 18	annual use storage		5- 2-66	Approved
1365	Thoreson, Martin, Fingal Alfred Monson, Valley City	Barnes	Unnamed Creek Tributary Sheyenne River	26.1 100.5	annual use storage		5- 2-66	Approved
1366	Komrosky, Eugene, Valley City	Barnes	Unnamed Creek Tributary Sheyenne River	50 112	annual use storage		5- 2-66	Approved
1367	Barnes County Water Management District, Valley City	Barnes	Stoney Slough (Clausen Springs Dam) Tributary Sheyenne River	126 597	annual use storage		4-23-66	Approved

WATER RIGHT APPLICATIONS

July 1, 1964 to June 30, 1966

No.	NAME AND ADDRESS	County	Source	Acre-Feet	Acres	Date of Claim	Status
1368	Schultz and Lindsay Construction Co., Fargo	Billings	Little Missouri River Trib. Missouri River	15		5- 6-66	Approved
1369	Towner, City of	McHenry	Ground Water	1,120		5- 6-66	Approved
1370	Collins, William & Sons, Inc., and Fisher Sand & Gravel Co.	Morton	Heart River	50		6- 7-66	Approved
1371	S & S Construction Co., Moorhead, Minnesota	Burleigh	Apple Creek	10		6- 8-66	Approved
1372	McGregor, Donald, McGregor	Williams	Ground Water	30		6-16-66	Pending
1373	Agricultural Research Service (USDA) Mandan	Grand Forks	Sandstone Aquifer (Ground Water)	160		6-21-66	Pending
1374	Dickinson, City of	Stark	Unnamed Tributary Heart River	250		6-22-66	Pending
1375	Carlson Bros. and M. Tande, Aneta	Griggs	Unnamed Creek Tributary Sheyenne River	35 71	annual use storage	6-24-66	Pending
1376	New England, City of	Hettinger	Cannonball River	10	53.0	6-28-66	Pending

13. PUBLIC RELATIONS

The State Water Commission conducts a limited public relations program designed to inform the public about North Dakota's water resources. The Commission provides both general and specific information in a variety of ways—exhibits, public appearances, news releases, personal interviews, printed material and personal replies to inquiries.

Throughout the year the Commission makes available for display at fairs, conventions and other functions in North Dakota cities, an exhibit containing maps, pictures, graphs and written explanations pertaining to specific projects, and general information about the state's water resources. A Commission employee devotes a portion of his time to accompanying the exhibit.

14. COOPERATIVE PROGRAMS

Various Federal, regional and State agencies are involved in water resources development of a complimentary nature. Major agencies and programs concerned with water resources development with which the Commission operates include:

DEPARTMENT OF AGRICULTURE:

U. S. Forest Service: This Federal agency, a division of the U. S. Department of Agriculture, co-operates with the Commission in the planting of trees in water and related land type recreational areas throughout the state.

Agricultural Research Service: Studies relative to irrigation feasibility and practices in North Dakota completed by the Agricultural Research Service and other governmental agencies provide invaluable information for the thousands of prospective irrigators in the Garrison Diversion Unit as well as for other smaller units planned and already in existence.

U. S. Soil Conservation Service: The U. S. Soil Conservation Service co-operates with the Commission in watershed protection and flood prevention, drainage, irrigation and stock water developments.

CORPS OF ENGINEERS: The U. S. Army Engineer District, Omaha, is responsible for Corps of Engineer activities in all areas of North Dakota tributary to the Missouri River. The St. Paul District has the responsibility for the planning, construction and, where appropriate, maintenance and operation of Federal improvements for flood control and allied purposes in that portion of North Dakota drained by the Red River of the North and the Souris River.

DEPARTMENT OF INTERIOR:

U. S. Fish and Wildlife Service: The development of recreation projects where fish and wildlife enhancement is possible provides an area in which significant co-operative efforts are possible on the part of the Fish and Wildlife Service and the State Water Commission.

Bureau of Reclamation: This agency is chiefly involved in the development of major irrigation projects within the State of North Dakota. The well-known Garrison Diversion Unit plan was formulated by the Bureau. Other major activities

of the Bureau include the operation of irrigation development farms and the administration of the power market program accruing from the Garrison Dam.

U. S. Geological Survey: This Federal agency co-operates primarily in stream gaging, topographic mapping, and ground-water surveys. A knowledge of minimum and maximum flow levels for North Dakota streams is essential in order to to provide public and industrial water supplies, to assure dilution of wastes and to insure an adequate water supply for irrigation purposes. Under the topographic mapping program conducted co-operatively between this agency and the State Water Commission, topographic quadrangle maps are made of various sections of the state as designated by the Commission. The ultimate aim of the ground-water survey program is to obtain an overall knowledge of the ground-water resources in the entire State of North Dakota that would provide a sound basis for effectively directing development of this resource for domestic, municipal, industrial and irrigation purposes.

Bureau of Outdoor Recreation: The need for increased outdoor recreation facilities in the State of North Dakota for beneficial use by local citizens as well as the ever-increasing number of out-of-state visitors is readily apparent. The Bureau of Outdoor Recreation co-operates with the Commission through its grant program for the development of these needed facilities.

MISSOURI BASIN INTER-AGENCY COMMITTEE: This Committee was created in 1945 to provide an organization, composed of representatives from the states and Federal agencies concerned in the Missouri River Basin Project, that could coordinate the policies, programs and activities of the Federal and State governments in the development of this project. Coordination by agencies is encouraged in the following: (1) Collection and interpretation of basic data. (2) Investigation and planning of water and related land resource projects. (3) Programming of water and related land resources construction and developments.

Governor William L. Guy is a regular member of the Agency while Milo W. Hoisveen, North Dakota State Engineer, is an alternate member.

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE: The primary area of co-operation with the Department of Health, Educaton and Welfare occurs through efforts on the part of both Federal and State agencies to prevent, detect, and correct, if necessary, pollution problems in the State of North Dakota.

STATE AGENCIES:

North Dakota State University: North Dakota State University has co-operated in the preparation of many valuable reports essential to the work of the Commission. Aside from special, one-time studies and/or reports such as the Garri-

son Negation Studies, the University engages in a continuing program of co-operative soil surveys.

Department of Public Instruction: In the Department of Public Instruction the Commission has an outlet for information to schools throughout the state. Promoting an awareness of the need for a water-conservation attitude in the minds of North Dakota's junior citizens now can contribute significantly to the solving and/or alleviation of water problems in years to come.

State Game and Fish Department: The principal area of co-operation between the State Game and Fish Department and the Water Commission occurs in the construction of small dams throughout the state where fish and wildlife interests may be enhanced or are imperiled.

North Dakota Geological Survey: The existence of ground-water aquifers is determined through the ground-water investigation program conducted co-operatively by the U. S. Geological Survey, the State Water Commission and the North Dakota Geological Survey.

State Health Department: This agency co-operates with the Water Commission in a number of ways, including the performance of various administrative functions to prevent or alleviate pollution problems and the review and approval of all municipal water supply and sewage facility plans. The Health Department also co-operates with the Commission in representing the state before the International Joint Commission and other organizations concerned with pollution of North Dakota waters.

State Highway Department: The State Highway Department co-operates with the Commission in matters pertaining to the construction of highways throughout the state insofar as they affect the natural drainage pattern. On many highway streamcrossings, the fill can also be utilized as a dam thus paring considerably the cost of two separate structures. The State Water Commission reviews proposed highway streamcrossings in an effort to determine their desirability and feasibility for multiple-purpose structures of this type.

State Historical Society: The State Historical Society and the Commission function co-operatively in the development of certain park areas when water and related land resources considerations are involved.

State Laboratories Department: Analysis of surface and ground-water samples for chemical and sedimentation characteristics is carried on through the co-operative efforts of the State Laboratories Department and the Commission. The results of these quality of water studies are most useful in considering the problems created by dwindling fresh water supplies in some portions of the state.

State School of Forestry: Tree plantings abutting reservoirs enhance their appearance and, in many instances, help to sta-

bilize adjacent land-forms. Such a tree planting program is co-operatively carried on by the State School of Forestry and the Commission.

Soil Conservation Committee: The Soil Conservation Committee has been designated as the State agency to review plans for watershed projects. The State Water Commission co-operates with the Committee in reviewing the engineering aspects of these projects.

State Tax Commissioner: In conjunction with its assessing process, the State Tax Commissioner's office conducts an inventory of wells throughout the state significantly, contributing to the Commission's overall effectiveness.

Valley City Teachers College: Members of the State Water Commission staff serve as instructors at the North Dakota Conservation Training Center held each summer at Camp Ritchie, 12 miles north of Valley City on the shore of Lake Ashtabula.

North Dakota Economic Development Commission: The primary function of this agency is to promote the state-wide development of business. Because an industry's decision to locate within a state is often largely dependent upon water availability, liaison activity between the two commissions chiefly centers around water resources inventories. Preparation of a State Water Plan, Project #322, is being accomplished as part of the overall State Development Plan in co-operation with the State Planning Agency, a division of Economic Development Commission.

State Land Department: The State Land Department co-operates with the Commission in the recreational development of state-owned lands.

Garrison Diversion Conservancy District: The Conservancy District is principally concerned with the organization of irrigation districts within the Garrison Diversion Unit. A more detailed summary of its activities during the biennium may be found in Chapter II.

North Dakota Natural Resources Council: The Natural Resources Council, which consists of the heads of various state departments, was organized in 1961 to promote the welfare of the State by providing a method of collecting, analyzing and interpreting information and making recommendations to the several state agencies responsible for the various phases of resource management on matters relating to soils, water, forests, minerals, fish and wildlife.

State Civil Defense: Through its emergency flood control assistance and its water supply provisions, the State Civil Defense office functions co-operatively with the Commission in times of critical need.

Bank of North Dakota: The Bank of North Dakota co-oper-

ates with the Commission through its assistance in financing water projects.

Legislative Research Committee: The Legislative Research Committee co-operates with the Commission through its review of current water legislation in light of possible necessary changes and up-dating.

State Outdoor Recreation Agency: With respect to the development of North Dakota's outdoor recreation facilities, the Water Commission is primarily responsible for functions in the outdoor recreation program related to water resources. It has the authority to provide revenue, plan, develop, regulate and manage, maintain, promote, and research. Commission maintenance work is limited to structures utilized for water projects. Regulatory functions pertain to water utilization which includes issuance of water and construction permits. Outdoor recreation areas and facilities, as such, are not under direct Commission management.

REGIONAL:

Association of Western State Engineers: The Association of Western State Engineers is composed of state engineers or the state officials responsible for the control of the waters of the states which make up the 17 Western Reclamation States. It provides its members an opportunity to review various phases of water resource development and has been active in obtaining Congressional approval of various policy matters dealing with water resources. It has strongly supported full recognition of the states' rights to control and allocate water within their boundaries.

Mississippi Valley Association: Regional in scope, this voluntary Association is organized to promote the better and wiser use of water resources in the 23 states of the watershed of the Mississippi River and its tributaries. Articulation of Mississippi Valley Association recommendations on specific projects is made in the form of a platform sent annually to the Congress. Russell Dushinske, Devils Lake; James Moore, Bismarck; and Homer Ludwig, Fargo; represent North Dakota in Mississippi Valley Association affairs.

Missouri River States Committee: This Committee was created in December of 1941 for the purpose of securing flood control, irrigation, navigation, power development and related improvements of the entire Missouri River Basin. The Governors of the ten Missouri Basin States in addition to representatives named by each Governor compose the Committee. Delegates from North Dakota during the last biennium include Governor William L. Guy, Oscar Berg, Milo W. Hoisveen and Henry Steinberger. The Committee generally meets twice a year in conjunction with the Missouri Basin Inter-Agency Committee.

National Reclamation Association: Principally concerned with

the enactment of Federal legislation to provide for protection of states' rights and the authority of the states to control the waters within their boundaries, this voluntary organization composed of citizens organizations and governmental agencies in the 17 Western Reclamation States, is very influential in all matters pertaining to reclamation development and serves to unite the interest of all proponents of reclamation development in the West. Milo W. Hoisveen, Chief Engineer for the State Water Commission, is presently 1st Vice President of this Association.

The National Rivers and Harbors Congress: A nationwide organization consisting of Federal, State and local leaders, the National Rivers and Harbors Congress is devoted to the development of America's water resources. Its annual endorsements of certain water projects throughout the nation are very influential because of the careful scrutiny given to a project before an endorsement is rendered. Fred Fredrickson, Planning Coordinator for the State Water Commission, is a director.

Red River Basin Planning Committee: Representatives of North Dakota and Minnesota constitute this quasi-official committee which has as its objective comprehensive planning for the development of water resources in the Red River Valley. North Dakota's members are Milo W. Hoisveen, Oscar Lunseth and Gordon Gray. The Governors of both states serve as ex-officio members. During the current biennium and largely through the efforts of this Committee, an application for the establishment of a Red River Basin Planning Commission was submitted to the Secretary of Interior for his consideration. Action upon this application is imminent.

North Dakota Water Users' Association: Formed in 1959 through a merger of the North Dakota Reclamation Association and the Missouri-Souris Projects Association this organization, composed of individuals and organizations interested in furthering the water resources development program of the state, has been very active in conducting meetings relative to water questions and in supporting water law legislation and/or appropriations. While this organization is essentially state-wide in scope, its membership is not limited to North Dakotans. Consequently, it has a limited but real regional influence. Association offices are maintained in Minot with Oscar N. Berg, as its executive Vice President.

In addition, the Commission participates in meetings of organizations of national and state-wide scope interested in water and related land resources development including:

Association of County Commissioners

Council of State Governments

North Dakota Oahe-Garrison Reservoir Inter-Agency Council
Greater North Dakota Association
North Dakota Association of Soil Conservation Districts
North Dakota Irrigation District Directors Association
North Dakota League of Women Voters
North Dakota Parks Association
North Dakota Rural Electrification Association
North Dakota Stockmen's Association
North Dakota Water Management Districts Association
North Dakota Well Drillers Association
North Dakota Wildlife Federation
United States Committee on Large Dams
Water Resources Associated

15. COMMISSION PUBLICATIONS

During the 1964-1966 biennium the Commission has prepared the the following publications, available to the general public from the Commission.

A. Information Series:

2. "Hydrologic Methods Applied to Small Watersheds" by Dale H. Glover, Commission Hydrologist
3. "Water," a brochure explaining the State Water Commission activities, including a state water resources development map
4. Part 1 - "Drainage Area Data—Cannonball River Basin"
   Part II - "Drainage Area Data—Heart River Basin"
   Part III - "Drainage Area Data—Knife River Basin"
   Part IV - "Drainage Area Data—Litte Missouri River Basin"
5. "Standard Specifications for Dam Construction"
6. "Pembina River Basin Development Hearing Statements"
7. "Missouri River Bank Stabilization Hearing Statements"
8. "State Water Plan Outline"

B. Ground-Water Study Reports:

Reports have been published for some 70 municipal groundwater studies conducted by the Commission since 1945. Information concerning city and county studies is noted in the "Project Summary" of this report, Project #1395.

C. Topographic Maps:

Over 50% of the state has been mapped through the cooperative mapping program with the U. S. Geological Survey, State Water Commission Project #1394. State indexes and the maps are available at the Commission's Bismarck office.

16. PROPOSED LEGISLATION

Each item of proposed legislation herein summarized is deemed of such importance as to warrant consideration by the Legislative and Executive Divisions of North Dakota Government.

Interference of Wells

As our ground-water resources are exploited to provide consumptive water needs, new wells may interfere with existing wells necessitating laws for regulation of this activity in order to relate the natural hydrologic laws to the regulations for appropriating this resource for beneficial purposes. A suggested statement follows: "Appropriative right shall relate only to quantities of water for beneficial uses and not to water levels, water pressure, water quality, means of use or ease of withdrawal."

Publication of Notices

Section 61-05-10, North Dakota Century Code, provides for publishing hearing notices in the official newspaper of the county wherein an irrigation district is to be established. Section 61-10-25 provides that hearing notices be published in a newspaper of general circulation in the area where an irrigation district's boundaries are to be modified. Changes should be instituted which would apply consistency to the procedures in organization and organizational changes relating to these legal entities.

Access to Water

Improvements made for the management of water by a public entity should be accessible to the public for beneficial uses wherever practicable. Existing laws do not specifically provide for such access when improvements are installed.

Removal of Channel Obstructions in Nonnavigable Streams

Provisions should be made for the county governing body to levy a tax to clear stream channels. This levy should be in addition to the levy limitation for general tax purposes and should remain available until expended to provide a continuing maintenance fund for channel improvement works.

Exemptions from Taxation of Inundated Lands

Section 57-02-10, North Dakota Century Code, provides for exempting inundated lands from taxation in certain instances. The procedures are somewhat difficult to administer and the terms require more clarification. Some suggested changes would include deleting "inundated" as a basis for exemption, adding "state and political subdivisions" to holders of easements, adding "flooding and flowage rights" easements, and changing the time for declaration of exemption from "completion" of projects to filing of easement.

Water Resources Development Fund

In June 1966 a "Future Projects" report was tabulated, projecting estimated costs for water resources planning and development activities for the six-year period, July 1, 1967 to June 30, 1973. This study indicates the estimated costs will total $8.5 million or $2.83 million on the average per biennium.

Project development costs vary greatly each year due to initiation of large federally constructed works and their accompanying requirements for local and State participation. It is recommended that a "Water Resources Development Fund" be created within the State Water Commission which would be of a continuing nature to build reserves for future large project works contemplated to preclude a large drain in any one biennium upon the state's financial resources.

Release of Easements No Longer Needed

There are several small federally constructed dams located in the state which are in need of repair and for which the original landowner gave a flooding easement to the State of North Dakota for the use and benefit of the public. In some cases the need for the impoundment no longer exists and in others the costs of repair are prohibitive. It is recommended that the State Water Commission be authorized to convey such easements to either the present landowner or some State political subdivision or Federal agency interested in maintaining the dam.

Recreational Projects of Water Management Districts

Subsection 10 of Section 61-16-11 of the North Dakota Century Code authorizes a board of commissioners of a water management district to "do all things reasonably necessary and proper to preserve the benefits to be derived from the conservation, control and regulation of the water resources of this state." This has been interpreted by some as allowing a water management district to financially participate in the construction of recreational facilities when such facilities are operated in conjunction with a water-related project. It is suggested that the board of commissioners of a water management district be given this specific authority.

Approval of Projects by Water Management Districts

Section 61-16-15 of the North Dakota Century Code provides that no dams or other water-related devices shall be constructed within a water management district without the approval of the district's board of commissioners. A number of livestock dugouts are constructed by the Soil Conservation Service with capacities of two acre-feet or less. No water permits are needed for such structures. It is suggested that in the interest of expediency 61-16-15 be amended to exclude such structures from the provisions of that law.

Land Required for Reservoirs Defined as "Right of Way"

Section 14 of the Constitution of North Dakota, commonly referred to as the "quick-take section," allows a State agency, after making an offer of purchase to the landowner, to deposit such amount offered with the clerk of the district court and take immediate possession of land needed for right of way purposes. It is recommended that land required for the con-

struction, repair or maintenance of a dam or reservoir be defined as "right of way."

Appointment of Water Management District's Board of Commissioners

The law provides that after the State Water Commission has established a water management district that the county commissioners shall appoint the board of commissioners. It does not, however, set a time limit within which such board shall be appointed. It is suggested that a law be enacted establishing such a time limit and providing that in the event the county commissioners fail to act within such time limit, the State Water Commission may appoint the board of commissioners.

Fourteenth Biennial Report

Thirty-First Biennial Report of State Engineer

For the Period July 1, 1962 - June 30, 1964

Honorable William L. Guy
Governor of North Dakota
State Capitol
Bismarck, North Dakota

RE: 1962-1964 Biennial Report, SWC File C6-1

Dear Governor Guy:

In compliance with North Dakota laws, we transmit herewith for your information and consideration the Fourteenth Biennial Report of the North Dakota State Water Commission and the Thirty-First Biennial Report of the State Engineer for the period July 1, 1962 to June 30, 1964.

Respectfully submitted,

Oscar Lunseth, Vice Chairman
Einar Dahl
Math Dahl
Richard P. Gallagher
Gordon Gray
Henry Steinberger

Milo W. Hoisveen
Secretary and Chief Engineer
State Engineer

COMMISSION MEMBERS AND STAFF

Name	Position	Date Appointed	Present Term Ends
Gov. William L. Guy	Chairman	1- 1-61	
Oscar Lunseth	Vice Chairman	5- 1-51	7- 1-65
Einar Dahl	Member	4- 3-39	7- 1-65
Math Dahl	Ex-officio member	5-27-49	
Richard Gallagher	Member	7- 1-61	7- 1-67
Gordon Gray	Member	7- 1-63	7- 1-68
Henry Steinberger	Member	7- 1-61	7- 1-67
Milo W. Hoisveen	Secretary, Chief Engineer and State Engineer	7- 1-54	
Gordon Baesler	Draftsman	7-55	
Ray Cristensen	Engineering Aid	12-63	
Vernon Cooper	Assistant Secretary	2-48	
Sherryn Drake	Research Assistant	3-64	
Virgle Engstrom	Rodman	8-61	
Fred Fredrickson	Planning Coordinator	7-43	
Larry Froelich	Geologist	6-62	
Dale Glover	Hydrologist	9-62	
Leone Hiland	Chief Stenographer	6-59	
Cliff Jochim	Special Assistant Attorney General	5-63	
Lanny Knutson	Assistant Driller	8-61	
Lewis Knutson	Driller	9-55	
Milton Lindvig	Ground-Water Engineer	11-63	
Kay Liversage	Stenographer	6-62	
C. P. Nelson	Drainage Engineer	12-59	
Roy Putz	Office Assistant	9-47	
Merril Rivinius	Investigation Engineer	2-61	
Eugene Sackman	Surveyor	3-57	
Hazen Sandwick	Office Engineer	7-58	
George Schantz	Engineering Aid	10-63	
Roger Schmid	Geologist	3-61	
Delton Schulz	Construction Engineer	7-61	
Jim Schulz	Accountant-Office Manager	9-58	
Anton Senger	Equipment Operator	8-61	
Pius Voeller	Construction Foreman	2-61	
Howard Walterson	Construction Superintendent	3-59	
Jean Walterson	Draftsman	12-57	
Jenene Wilke	Stenographer	6-64	
Victor Ziegler	Operations Engineer	7-56	

COMMISSION MEETINGS

Date	Location
July 19, 1962	Bismarck, North Dakota
August 29, 1962	Bismarck, North Dakota
September 27, 1962	Bismarck, North Dakota
October 9, 1962	Bismarck, North Dakota
October 15, 1962	Bismarck, North Dakota
November 15, 1962	Bismarck, North Dakota
December 18, 1962	Bismarck, North Dakota
January 18, 1963	Bismarck, North Dakota
March 20, 1963	Bismarck, North Dakota
April 30, 1963	Bismarck, North Dakota
June 10, 1963	Bismarck, North Dakota
July 31, 1963	Bismarck, North Dakota
August 20, 1963	Minot, North Dakota
September 24, 1963	Bismarck, North Dakota
October 8, 1963	Fargo, North Dakota
November 5, 1963	Tioga, North Dakota
December 27, 1963	Valley City, North Dakota
February 14, 1964	Bismarck, North Dakota
February 25, 1964	Fargo, North Dakota
April 20, 1964	Bismarck, North Dakota
May 28, 1964	Bismarck, North Dakota
June 18, 1964	Bismarck, North Dakota

NORTH DAKOTA STATE WATER COMMISSION
MONTHLY REPORT OF APPROPRIATIONS AS OF JUNE 30, 1964
1963—1965 APPROPRIATIONS

FUND–2770	AVAILABLE FUNDS Appropriation	Receipts	DISBURSEMENTS To Date	June 1964	FUND BALANCES Unexpended	Encumb.	Unencumb.
1. Comm. Per Diem and Expense—15	$ 6,500.00	$	$ 3,793.22	$ 98.06	$ 2,706.78	$ 450.00	$ 2,256.78
2. Administration—301	70,000.00	538.58	34,340.98	4,584.21	36,197.60	1,400.00	34,797.60
3. Maintenance of Dams—302	150,000.00	59,276.48	144,435.96	14,622.64	64,840.52	5,700.00	59,140.52
4. International and Interstate—303	10,000.00	10.00	5,915.48		4,094.52		4,094.52
5. Topographic—304	30,000.00	6,210.42	23,040.32		13,170.10	13,170.10	
6. Hydrographic—305	27,500.00	2,750.00	17,135.91	5,000.00	13,114.09	1,614.09	11,500.00
7. Engr. and Geol.—306	60,000.00	43,554.03	80,082.86	3,147.68	23,471.17	1,200.00	22,271.17
8. Coop W/US Dept., Etc.—307	60,000.00	6,000.00	36,653.38	5,053.69	29,346.62	500.00	28,846.62
9. Engr. Investigation—308	145,000.00	2,400.00	65,191.24	5,827.72	82,208.76	3,500.00	78,708.76
10. Adm. Water Rights—309	10,000.00		6,021.40	829.55	3,978.60		3,978.60
Totals	$569,000.00	$120,739.51	$416,610.75	$39,163.55	$273,128.76	$27,534.19	$245,594.57

NOTE:—$10,000 Transferred from #304 to #305, 306 and 307.

$ 6,210.42 transferred from Em. Comm. to #304

NORTH DAKOTA STATE WATER COMMISSION
STATUS OF CONTINUING APPROPRIATIONS
AS OF JUNE 30, 1964

FUND	AVAILABLE FUNDS		DISBURSEMENTS		FUND BALANCES		
	Appropriation	Receipts	To Date	June 1964	Unexpended	Encumb.	Unencumb.
20. Multiple Purpose	$500,000.00	$.....	$.....	$.....	$.....	$.....	.....
Carried Forward—3770	337,928.21	79,941.19	275,724.27	69,630.18	642,145.13	395,052.54	247,092.59
21. Construction Bond Guarantee—8770	90,000.00	21,332.39	20,539.00	.....	90,793.39	.....	90,793.39

NOTE:—Fund #21 receipts are obtained from retirement of and interest on securities that were in the Commission's Sinking Fund in excess of the amount required to retire the series "J" bond issue on December 10, 1957. Original disbursements from Fund #21 were made during the early 1940's in accordance with Section 61-02-56 of the Century Code which provides that the Commission may guarantee or insure, or agree to pay, the interest on and principal of Commission Revenue Bonds, not exceeding 20% of the par value of any such bonds.

SCHEDULE OF BONDS AND INTEREST RECEIVABLE — FUND #21 "8770"

Type	Due Date	Interest Rate	Interest Rec. To Maturity	Principal	Total Income Anticipated
U. S. Series "K" Bonds	5-65	2.76%	$ 41.40	$ 1,500.00	$ 1,541.40
U. S. Series "K" Bonds	4-67	2.76%	165.00	2,000.00	2,165.60
U. S. Treasury Bonds	12-68	2.50%	375.00	3,000.00	3,375.00
Sioux Irrigation District Bonds	1984 Serially	2.25%	4,173.75	15,500.00	19,673.75
			$4,755.75	$22,000.00	$26,755.75

Fund Balance	$90,793.39
Less Original Appropriation	—90,000.00

NOTE:—Excess over $90,000 cash to be credited to General Fund. 1-2-58 Attorney General Opinion $27,549.14

NORTH DAKOTA STATE WATER COMMISSION
RECAP OF DISBURSEMENTS
July 1, 1962 — June 30, 1964

Disbursements to be Accounted for:		
Disbursements from Appropriations and Refunds '61-'63	$498,743.44	
Disbursements from Appropriations and Refunds '63-'65	682,335.02	
Disbursements from Appropriations '61-'63 Prior	10,473.71	
Materials Used from Inventory (Net)	9,728.14	
Depreciation — Office and Field Equipment	43,648.14	
Credit to Project Sponsors	22,025.77	
Credit for QW Lab Services to State Lab	13,080.00	
Credit from U.S.G.S.—GW Branch	151,650.00	
Total Disbursements to be Accounted for		$1,431,684.22
Disbursements Charged to SWC Projects		$ 929,374.55
Disbursements Charged to Coop Programs with U.S.G.S.		
Topographic Surveys	$ 23,246.65	
Hydrographic Surveys	42,682.12	
Groundwater Surveys	254,920.99	
Quality of Water Surveys	188.50	
Total Disbursements Charged to Coop Programs W/USGS		321,038.26
Disbursements Charged to General Operating Costs:		
Personal Services	$124,139.58	
Field Equipment (new) (Book Value — $172,967.97)	51,810.18	
Office Equipment (new) (Book Value — $17,688.49)	2,631.70	
Shop Building (new) (Book Value — $45,300.00)	3,216.95	
Supplies and Small Tools	(487.65)	
Materials (Inventory — $18,764.22)		
Equipment Operation, Maintenance and Depreciation:		
Depreciation $ 43,648.14		
Operation and Maintenance 56,172.69		
Less Charged to Projects —102,472.57	(2,651.74)	
Miscellaneous Expenses	2,612.39	
Total Disbursements Charged to General Oper. Costs		$ 181,271.41
Total Disbursements Accounted for		$1,431,684.22

NORTH DAKOTA STATE WATER COMMISSION
Project Expenditures
July 1, 1962 — June 30, 1964

Project No.	Name	County	Total Costs	Credits and
36	Cartwright Irrigation Project	McKenzie	$ 77.04	$ 977.72
213	Sioux Irrigation Project	McKenzie	129.36	2,965.08
214	Yellowstone Irrigation Project	McKenzie	77.59	
216	Bowman-Haley Project	Bowman	55,146.80	
222	Buford-Tenton Irrigation Project	Williams	9,834.35	5,968.67
227	Eaton Irrigation Project	McHenry	6,798.80	3,200.00
237	Missouri River Diversion	Various	5,529.55	
253	Jackson Dam	McKenzie		3,500.00
259	Kulm Dam	LaMoure	108.02	
262	Cannonball & Cedar River Project	Various	314.16	
263	Dickinson Dam	Stark	86.63	
299	Pembina City Dam	Pembina	42.90	1,000.00
300	Baldhill Dam	Barnes	19.25	
304	SW Fargo Flood Control	Cass	591.47	
305	Red River Water Supply	Various	147.52	
319	Wakopa Project	Rolette	2,618.69	
322	State Water Plan	Various	777.37	
327	White Earth Dam	Mountrail	1,379.03	200.00
330	Lake Metigoshe Improvement	Bottineau	2,789.79	3,116.10
336	Powers Lake Dam	Burke	62.02	
338	Timber Creek Dam	McKenzie	144.23	
342	Hansen Dam	Barnes	12.10	
346	Epping Dam	Williams	256.64	
347	Velva Flood Control	McHenry	2,203.81	
352	Jung Dam	Hettinger	61.77	
353	Cedar Dam	Slope	10,555.65	10,000.00
359	Wolf Butte Dam	Adams	3,164.58	
362	Balta Dam	Pierce	413.60	
378	School Section Dam	Slope	80.78	
386	Monango Dam	Dickey	1,724.60	
388	Spring Lake Dam	Bowman	8,691.52	
390	Beaver Lake Dam	Logan	42.85	
394	Odland Dam	Golden Valley	8,380.25	
395	Weisser Dam	Emmons and McIntosh	72.93	
407	Raub Dam	McLean	6,690.93	2,900.00
415	Peterson Dam	Bowman	33.06	
416	Devils Lake Basin	Ramsey	769.03	
418	Amenia Dam	Cass	409.82	200.00
443	Lake Juanita Dam	Foster	788.74	
448	Minto Dam	Walsh	196.35	
450	Sykeston Dam	Wells	45,489.85	30,610.70
464	Niagara Dam	Grand Forks	3,151.78	1,575.89
467	Wyard Dam	Foster	1,585.80	200.00
475	Golden Lake	Steele	8,632.85	1,700.00
477	Valley City Mill Dam	Barnes	37,161.33	
482	Hillsboro Dam	Traill	12,113.51	7,156.75
489	Ray Dam	Williams	1,952.54	
501	Elm River Dam	Dickey	67,513.59	30,000.00
512	Nieuwsma Dam	Emmons	508.65	
520	Grand Forks Dam	Grand Forks	3,522.59	1,761.29
527	Kelley Slough	Grand Forks	1,185.03	
528	Spangrud Dam	Williams	2,261.58	200.00
543	North Lemmon Lake Dam	Adams	2,188.06	
550	Wildwood Lake	McLean	440.64	
558	Linton Flood Control	Emmons	1,218.40	200.00
560	Blacktail Dam	Williams	227.41	
561	Tioga Dam	Williams	55,455.47	28,200.00
565	Buffalo Lake	Pierce	2,383.24	200.00
566	Snyder Lake	Towner	994.07	200.00
567	Pembilier Dam	Pembina-Cavalier	3,971.35	
575	Smishek Lake	Burke	294.79	
576	Missouri R. Bank Stabilization	McLean, Oliver, Burleigh, and Morton	2,738.16	
586	Short Creek Dam	Burke	49,496.22	36,000.00
592	Oakes Goundwater Irrigation Project	Dickey	564.63	
593	Sherwood Dam	Renville	931.38	200.00
599	Sheyenne River Diversion Dam	Cass	264.11	
600	Crystal Dam	Pembina	565.91	

NORTH DAKOTA STATE WATER COMMISSION
Project Expenditures
July 1, 1962 — June 30, 1964

Project No.	Name	County	Total Costs	Credits and
616	McVille Railroad Dam	Nelson	1,473.78	1,228.15
622	Rice Lake	Burleigh	7.70	
624	James River Channel Change	Stutsman	809.68	
625	Mayville Dam	Traill	86.79	
627	Froelich Dam	Sioux	6,465.52	8,591.90
632	Antler Creek Dam	Bottineau	32,659.54	11,822.42
636	Des Lacs City Dam	Ward	1,228.36	
640	Cavalier City Dam	Pembina	1,884.80	200.00
642	Sweetbriar Creek Dam	Morton	3,142.39	
647	Green River Dam	Billings	97.77	
649	Ypsilanti Dam	Stutsman	725.01	
650	Bowbells Stoney Creek Dam	Burke	114.84	
662	Park River Snagging and Clearing	Walsh	7,771.15	6,192.95
665	Armourdale Dam	Towner	88.53	
667	Northgate Dam	Burke	72.93	
670	Tobiason Dam	Steele	164.37	
671	Harvey Dam	Wells	3,941.80	
677	Fort Clark Accretion	Oliver	869.13	
679	Ditch Mapping	Various	1,303.35	
681	Drayton Dam	Pembina	7,292.86	
689	Hillsboro Water Supply	Traill	40.92	
690	Pipestem Reservoir	Stutsman	387.09	
698	Middle Souris Irrigation District	McHenry Renville, Ward, Bottineau	52.80	
701	Adams County WMD	Adams	46.20	
702	Boundary Creek WMD	Bottineau	142.56	
705	Elm Creek WMD	Cass, Traill, Steele	39.94	
707	Fremont Twp. WMD	Cavalier	243.10	
710	Maple River WMD	Cass	592.19	
725	Upper West Souris WMD	Renville, Ward	69.96	
732	Aneta Groundwater Study	Nelson	132.00	
736	Berthold Groundwater Study	Ward	550.00	
738	Bottineau Groundwater Study	Bottineau	1,949.67	
739	Bowbells Groundwater Study	Burke, Ward	594.00	
748	Dickinson Groundwater Study	Stark	9,097.00	3,750.00
750	Ellendale Groundwater Study	Dickey	1,601.94	500.00
764	Hillsboro Groundwater Study	Traill	550.00	
765	Hoople Water Supply	Walsh	412.50	
772	Leeds Groundwater Study	Benson	264.00	
773	Lehr Groundwater Study	Logan, McIntosh	99.00	
774	Linton Groundwater Study	Emmons	550.00	
776	Little Muddy Valley GWS	Williams	276.79	
778	Max Groundwater Study	McLean, Ward	550.00	
795	Reynolds Groundwater Study	Grand Forks	2,390.33	
797	Rolla Groundwater Study	Rolette	5,935.43	1,500.00
799	Sanborn Groundwater Study	Barnes	502.78	
802	Sheyenne Groundwater Study	Eddy	2,494.31	1,500.00
803	Stanley Groundwater Study	Mountrail	330.00	
805	Strasburg Groundwater Study	Emmons	550.00	
807	Tioga Groundwater Study	Williams, Mountrail	594.00	
810	Westhope Groundwater Study	Bottineau	330.00	
815	Zeeland Groundwater Study	McIntosh	220.00	
816	Barnes County Groundwater Study	Barnes	30,119.06	6,276.00
817	Burleigh County Groundwater Study	Burleigh	18,086.05	6,000.00
818	Kidder County Groundwater Study	Kidder	1,644.72	
819	Stutsman Co. Groundwater Study	Stutsman	3,336.58	
822	St. Thomas Water Supply	Pembina	72.52	
823	Grenora Dam	Williams	975.40	
825	Caledonia Dam	Traill	278.91	
826	Garrison Dam and Reservoir	Various	90.04	
839	Elm River Watershed	Cass, Traill, Steele	533.79	
841	Maple River Watershed	Barnes, Steele, Ransom, Cass	2,637.54	200.00
843	Edmore Watershed	Cavalier, Ramsey	223.58	
846	Square Butte Watershed	Oliver	192.58	

NORTH DAKOTA STATE WATER COMMISSION
Project Expenditures
July 1, 1962 — June 30, 1964

Project No.	Name	County	Total Costs	Credits and Collections
849	Tongue River Watershed	Cavalier Pembina	112.26	
853	Turtle Mountain Reservation Improvement	Rolette	14,845.31	
858	Foster-Eddy Groundwater Study	Foster, Eddy	10,183.04	11,250.00
859	Williams County Groundwater Study	Williams	3,636.07	5,937.50
861	Burke County Groundwater Study	Burke	36.30	
862	Divide County Groundwater Study	Divide	27,066.58	8,625.00
863	Ward-Renville Groundwater Study	Ward, Renville	21,153.26	19,250.00
864	Bottineau County Groundwater Study	Bottineau	93.78	
865	Garrison Reservoir Negation Study	Various	116.01	
866	Cass County Groundwater Study	Cass	16,088.37	20,000.00
867	Richland County Groundwater Study	Richland	8,765.80	6,000.00
868	Traill County Groundwater Study	Traill	42.05	
869	Weather Modification	Various	37.07	
870	Crown Butte Dam	Morton	4,418.13	800.00
872	Milton Highway No. 66 Dam	Cavalier	1,800.00	
926	Dickinson Flood Control	Stark	1,394.01	200.00
927	Edmore Water Supply	Ramsey	13,622.01	7,064.38
928	Bois-de-Sioux River Watershed	Richland	192.97	
929	Forest River Watershed	Walsh, Grand Forks, Nelson	889.80	
931	Ryder Water Supply	Ward	1,238.39	1,000.00
935	Bench Marks	State Wide	1,078.60	
936	Field Notes and Plats	Various	158.58	
939	Cedar River Flood Control	Hettinger, Adams, Bowman, Slope	192.67	
941	Benson County Groundwater Study	Benson	118.65	
945	Dickey County Groundwater Study	Dickey	145.20	
950	Grand Forks County Groundwater Study	Grand Forks	126.42	7,500.00
952	Griggs County Groundwater Study	Griggs	220.43	
956	McHenry County Groundwater Study	McHenry	36.30	
958	McLean County Groundwater Study	McLean	4,683.38	
960	Morton County Groundwater Study	Morton	31.17	
962	Nelson County Groundwater Study	Nelson	53.13	
974	Steele County Groundwater Study	Steele	28.19	
978	Wells County Groundwater Study	Wells	130.35	
980	Maple River Watershed	Dickey	213.51	
981	North Souris Irrigation District	Bottineau	242.57	
982	Park River WS and Flood Control	Cavalier, Walsh, Pembina	900.84	
983	Coleharbor Water Supply	McLean	1,205.26	200.00
984	Souris River Basin Storage and Reg.	Various	5,372.55	
985	Turtle River Watershed	Nelson, Grand Forks	207.63	
986	Wild Rice "B" Watershed	Richland	117.39	
987	Cavalier County WMD	Cavalier	116.60	
988	Antelope Creek Improvement	Richland	1,056.69	
989	Quality of Water Studies	State Wide	4,242.25	
991	Oliver County WMD	Oliver	23.87	
992	Surrey Groundwater Study	Ward	4,101.06	1,500.00
993	Long Creek	Divide	106.26	
994	Morton County WMD	Morton	18.65	
995	LaMoure County WMD	LaMoure	169.94	
996	Mouse River Park Dam	Renville	372.98	
999	Road Drainage General	Various	1,451.44	
1004	Bottineau County Road Drainage	Bottineau	156.86	
1007	Burleigh County Road Drainage	Burleigh	113.25	
1008	Cass County Road Drainage	Cass	464.79	
1015	Foster County Road Drainage	Foster	39.22	

NORTH DAKOTA STATE WATER COMMISSION
Project Expenditures
July 1, 1962 — June 30, 1964

Project No.	Name	County	Total Costs	Credits and Collections
1017	Grand Forks Co. Road Drainage	Grand Forks	562.45	
1038	Richland County Road Drainage	Richland	107.35	
1040	Sargent County Road Drainage	Sargent	39.22	
1048	Traill County Road Drainage	Traill	23.10	
1053	Drainage General	Various	2,037.48	
1054	Barnes County Drainage General	Barnes	234.14	
1056	Bottineau County Drainage General	Bottineau	39.22	
1063	Cass County Drainage General	Cass	764.79	
1064	Cass County Drain #2	Cass	1,507.02	
1069	Cass County Drain #13	Cass	5,079.11	
1071	Cass County Drain #15	Cass	8,958.25	2,217.78
1075	Cass County Drain #21	Cass	9,164.69	
1076	Cass County Drain #22	Cass	101.64	
1081	Cass County Drain #29	Cass	21,559.09	8,845.66
1083	Cass County Drain #31	Cass	15.84	
1084	Cass County Drain #32	Cass	38.23	
1089	Cass County Drain #39	Cass		1,802.47
1090	Cass County Drain #40	Cass	40.32	
1093	Cass County Drain #45	Cass	36.80	
1097	Noble Twp. Drop Structure	Cass	826.46	
1098	Cavalier County Drainage General	Cavalier	25.03	
1105	Grand Forks Co. Drainage General	Grand Forks	153.65	
1108	Grand Forks Drain #9	Grand Forks	1,672.54	
1110	Grand Forks Drain #11	Grand Forks	63.36	
1111	Grand Forks Drain #12	Grand Forks	6,109.00	
1112	Grand Forks Drain #13	Grand Forks	5,436.12	
1113	Grand Forks Drain #14	Grand Forks	156.60	
1114	Grand Forks Drain 18	Grand Forks	243.06	
1119	Grand Forks Drain #30	Grand Forks	62.67	
1130	Mountrail Co. Drainage General	Mountrail	155.32	
1133	Pembina County Drainage General	Pembina	997.18	
1134	Pembina County Drain #3	Pembina	10,228.45	1,750.61
1136	Pembina County Drain #6	Pembina	12,830.44	1,814.24
1137	Pembina County Drain #7	Pembina	11,171.96	1,114.12
1141	Pembina County Drain #13	Pembina	3,111.10	1,537.95
1142	Pembina County Drain #16	Pembina	95.23	
1144	Pembina County Drain #18	Pembina	7,157.69	
1146	Pembina County Drain #22	Pembina	1,888.70	
1153	Pembina County Drain #34	Pembina	31.68	
1157	Pembina County Drain #47	Pembina	64.41	
1161	Pembina County Drain #55	Pembina	76.45	
1174	Richland County Drainage General	Richland	250.34	
1176	Richland County Drain #2	Richland	2,557.05	
1182	Richland County Drain #12	Richland	38.23	
1185	Richland County Drain #18	Richland	185.61	
1199	Richland County Drain #55	Richland	412.46	
1207	Richland County Drain #65	Richland	16,577.23	
1217	Tri-County Drain #6	Richland, Ransom, Sargent	167.92	
1222	Sargent County Drain #11	Sargent	273.38	
1224	Traill County Drainage General	Traill	105.42	
1241	Traill County Drain #23	Traill	125.79	
1246	Traill County Drain #29	Traill	40.32	
1249	Traill County Drain #34	Traill	29.04	
1256	Walsh County Drain #25	Walsh	166.85	
1268	Bowman County Small Projects	Bowman	111.38	
1291	Mercer County Small Projects	Mercer	34.71	
1292	Morton County Small Projects	Morton	34.71	
1297	Pierce County Small Projects	Pierce	107.91	
1306	Slope County Small Projects	Slope	226.23	
1313	Ward County Small Projects	Ward	135.19	
1316	Towner County Drainage	Towner	1,294.47	200.00
1317	Larson-Lignite Dam	Burke	1,627.26	200.00
1318	Liberty Twp. Dam	Ransom	1,281.68	200.00
1319	Grand Forks WMD	Grand Forks	1,044.80	
1320	Willow Coulee WS	Pembina	83.73	
1321	Cassedy-Long Lake	Bottineau	2,055.62	
1322	Amenia Groundwater Study	Cass	2,118.12	1,300.00
1323	Blabon Dam	Steele	2,163.04	1,081.52
1324	Oak Creek Dam	Bottineau	3,197.93	200.00

NORTH DAKOTA STATE WATER COMMISSION
Project Expenditures
July 1, 1962 — June 30, 1964

Project No.	Name	County	Total Costs	Credits and Collections
1325	Sterling Dam	Burleigh	1,345.59	200.00
1326	Girl Scout Jamboree	Various	2,010.01	2,010.01
1327	Crosby-Mohall Groundwater Study	Various	1,650.00	
1328	Cass Drain #28	Cass	447.08	
1330	Pembina County Drain #5	Pembina	63.36	
1331	Richland County Drain #14	Richland	114.68	
1332	Clear Lake	McIntosh	522.73	200.00
1333	Sand Creek Dam	Williams	2,015.82	200.00
1334	Traill County Drain #38	Traill	4,480.48	
1335	Park River Bank Stabilization	Walsh	2,842.59	1,421.29
1336	Ward County WMD	Ward	868.82	
1337	Well Log Program	State Wide	316.35	
1338	New Rockford Irrigation District	Eddy	563.76	
1339	Bone Hill Creek Dam	LaMoure	972.92	200.00
1341	Rugby Groundwater Study	Pierce	4,705.13	3,000.00
1342	Boundary Creek Watershed	Bottineau	109.02	
1345	Conklin Dam	McLean	2,883.17	2,900.00
1346	Mt. Carmel Dam	Cavalier	745.40	200.00
1347	Kindred Dam	Richland	130.38	
1348	Stutsman County Drainage General	Stutsman	117.65	
1349	Colt Dam	Mercer	637.35	200.00
1350	Lewis & Clark Trail Study	Various	104.72	
1351	English Coulee Dam	Grand Forks	426.45	500.00
1353	Grand Forks County Drain #3	Grand Forks	96.47	
1354	Traill County Drain #39	Traill	47.52	
1355	LaMoure County Drain #1	LaMoure	40.32	
1358	Sheep Creek Dam	Grant	360.53	
		TOTALS	$929,374.55	$342,616.15

ABBREVIATIONS USED:

Co. — County
Dist. — District
Imp. — Improvement
Irrig. Proj. — Irrigation Project
R. — River
Reg. — Regulation
St. — Study
Twp. — Township
WMD — Water Management District
WS — Water Supply or Watershed

International and Interstate Compacts

The Commission is active in negotiations and administration of compacts concerning interstate and international streams. The streams and entities concerned with North Dakota in the compacts are:

Stream	State or Country
Mouse (Souris) River	Canada
Red River	Canada, Minnesota
Pembina River	Canada
Yellowstone River	Montana, Wyoming
Little Missouri River	South Dakota, Montana, Wyoming
Grand River	South Dakota
James River	South Dakota

Irrigation Districts

Organized districts with which the Commission is cooperating in irrigation development are:

Name	Location (Co.)	Date Estab.	Irrigable Acres
Buford-Trenton #222	Williams	11- 3-50	10,642
Cartwright #36	McKenzie	1-24-38	846
Dickey-Sargent #694	Dickey, Sargent	9-27-57	34,136
Eaton Flood #227	McHenry	1935	8,000
Fort Clark #287	Oliver, Mercer	12-21-48	2,089
James River #695	Stutsman, LaMoure and Dickey	9-20-57	13,700
Karlsruhe #696	McHenry	6-19-58	13,150
Lincoln Valley #697	Sheridan	3-30-60	5,400
Lower Yellowstone #552	McKenzie (Richland and Dawson, Mont. — 55,000 A.)	1909	20,000
Middle Souris #698	McHenry, Ward, Renville and Bottineau	9- 4-58	87,000
New Rockford #1338	Eddy	12-17-63	56,000
North Souris #981	Bottineau	10- 1-62	46,068
Oakes Groundwater #592	Dickey	4-15-57	640
Painted Woods #160	McLean	1937	1,970
Sioux #213	McKenzie	1938	800
Tri-County #699	Cass, Ransom and Richland	4-18-58	88,000
Warwick-McVille #700	Nelson, Benson, Eddy and Ramsey	11- 6-57	48,000
Western Heart River #536	Grant	11-11-53	2,463
Yellowstone Pumping #214	McKenzie	1938	2,000
*Dickinson #263	Stark	1959	400
*Lewis and Clark #175	McKenzie	1957	4,800

*Mutual-Aid Corporations

Water Management Districts

Water Management Districts are created by the Commission upon petition from landowners or a local legal entity such as a township or county. Districts now organized include:

Name	Location (Co.)	Date Created
Adams County #701	Adams	10-28-49
Boundary Creek #702	Bottineau	7- 6-60
Bowman County #821	Bowman	9-10-49
Burke County #703	Burke	12-27-57
Cavalier County #987	Cavalier	12-31-62
Chain Lakes #704	Ramsey	6-10-55
Grand Forks County #1319	Grand Forks	10-28-63
Grant County #708	Grant	10-24-38
LaMoure County #995	LaMoure	3-20-63
Lower Heart River #709	Morton	12- 4-53
Maple River #710	Cass	8-31-56
Marmarth #711	Slope	3-20-56
Morton County #994	Morton	4-30-63
Nelson County #712	Nelson	7-30-46
Oak Creek #713	Bottineau	1- 5-56
Oliver County #991	Oliver	4-30-63
Pembina County #714	Pembina	8-21-50
Richland County #715	Richland	8- 8-58
Rush River #716	Cass	12-21-49
Sargent County #717	Sargent	1-14-57
Sioux County #718	Sioux	1- 5-38
Slope County #719	Slope	4-29-36
Southeast Cass #720	Cass	7- 1-61
Sweetwater-Dry Lake #722	Ramsey	6-10-55
Towner County #723	Towner	6-14-60
Traill County #724	Traill	4-16-56
Upper West Souris #725	Renville	6-10-55
Walsh County #726	Walsh	12-19-56
Ward County #1336	Ward	9-30-63
Wells County #727	Wells	5-23-61
West Dickey #728	Dickey	1- 6-61

Recommendation

The Commission recommends that each county in North Dakota create a water management district to administer and develop the water resources in their areas. In 1963, the North Dakota Water Management Districts Association, Inc., was organized to promote the development of water resources and to provide a vehicle for interchange of ideas and plans for administration and development of our water and related resources.

WATER RIGHTS

For Period From July 1, 1962 to June 30, 1964

Number Filed		183
Number for Irrigation		87
Acres Requested	15,703.69	
Acre-feet Requested	28,830.1	
Number for Industrial Use		19
Acre-feet Requested	952,946.22	
Number for Municipal Use		48
Acre-feet Requested	61,227.79	
Number for Recreation		5
Acre-feet Requested	428	
Number for Stockwater Use		10
Acre-feet Requested	1,296.4	
Number for Recreation and Wildlife		3
Acre-feet Requested	467	
Number for Wildlife		1
Acre-feet Requested	840	
Number for Recreation, Fish and Wildlife		1
Acre-feet Requested	2,050	
Number for Fish, Wildlife and Storage		1
Acre-feet Requested	2,772	
Number for Domestic Use		1
Acre-feet Requested	.8	
Number for Domestic Use and Fire Protection		3
Acre-feet Requested	14.5	
Number for Domestic Use, Fire Protection and Irrigation		2
Acre-feet Requested	17.20	
Number for Domestic Use, Fire Protection and Wildlife		1
Acre-feet Requested	.8	
Number for Wildlife and Domestic Use		1
Acre-feet Requested	.8	
Number Approved		152
Number for Irrigation		97
Acres-Approved	12,983.80	
Acre-feet Approved	25,745.7	
Number for Industrial Use		15
Acre-feet Approved	785,913.42	
Number for Municipal Use		26
Acre-feet Approved	52,933.70	
Number for Recreation		6
Acre-feet Approved	1,378	
Number for Recreation and Wildlife		3
Acre-feet Approved	467	
Number for Stockwater		3
Acre-feet Approved	75.3	
Number for Wildlife		1
Acre-feet Approved	840	
Number for Recreation, Fish and Wildlife		1
Acre-feet Approved	2,050	
Number Pending June 30, 1964	58	

Cooperative Programs

Various Federal and State agencies are involved in water resources development of a complimentary nature. Major programs and agencies concerned with which the Commission cooperates include:

Agency	Program
Department of Agriculture:	
Forest Service	Irrigation practices.
Agricultural Research Service	Recreation area tree plantings.
Soil Conservation Service	Watershed planning and construction.
Corps of Engineers	Flood control projects.
Department of the Interior:	
Fish and Wildlife Service	Recreation project development.
Bureau of Reclamation	Irrigation project development.
U. S. Geological Survey	Ground water, topographic and stream gaging surveys.
Bureau of Outdoor Recreation	Coordination of outdoor recreation development in North Dakota.
Missouri Basin Inter-Agency Committee	Comprehensive Missouri River Basin surveys.
Department of Health, Education and Welfare	Pollution control.
North Dakota State University	Soils surveys.
Department of Public Instruction	Information dissemination to schools.
State Game and Fish Department	Dam investigations and construction.
North Dakota Geological Survey	Ground water surveys.
State Health Department	Pollution control.
State Highway Department	Dam construction in connection with roadways.
State Historical Society	Park development.
State Laboratories Department	Quality of water studies.
State School of Forestry	Tree plantings at reservoirs.
State Soil Conservation Committee	Watershed planning.
State Tax Commissioner	Well inventory through assessors.
Valley City Teachers College	Instruction at Conservation Training Center.
Economic Development Commission	Compilation of data.
State Land Department	Recreation development on State-owned lands.
Garrison Diversion Conservancy District	Irrigation district organization.
North Dakota Natural Resources Council	Coordination of resources development
State Civil Defense	Emergency flood control and water supply provisions.
Bank of North Dakota	Financing water projects.

Legislative Research Committee	Water law revisions.
Governor's Committee on Outdoor Recreation	Outdoor recreation development.
Red River Basin Planning Committee	Basin development.

In addition, the Commission participates in meetings of organizations of national and state-wide scope interested in water and related land resources development including:

*Association of County Commissioners
*Association of Western State Engineers
*Council of State Governments
*Garrison Reservoir Inter-agency Council
*Greater North Dakota Association
*Mississippi Valley Association
*Missouri River States Committee
*National Reclamation Association
*National Rivers and Harbors Congress
*North Dakota Association of Soil Conservation Districts
*North Dakota Irrigation District Directors Association
*North Dakota League of Women Voters
*North Dakota Parks Association
*North Dakota Rural Electrification Association
*North Dakota Stockmen's Association
*North Dakota Water Management Districts Association
*North Dakota Water Users Association
*North Dakota Well Drillers Association
*North Dakota Wildlife Federation
*United States Committee on Large Dams
*Water Resources Associated

Public Relations and Publications

An exhibit of Water Resources Development in North Dakota is displayed by the Commission each year at various fairs and other large public gatherings.

Reports on Ground Water Surveys are published as the studies are completed. In addition, reports are made available on other facets of water resources development as the need arises and funds become available.

Commission staff members speak at many public functions and for any group which requests their participation. Press releases are issued periodically concerning developments "on the waterfront" which are of interest to North Dakota citizens.

Topographic maps, published by the United States Geological Survey, are distributed by the Commission to any interested individual or organization.

A film on groundwater hydrology was procured during the biennium to assist in the public relations program of the Commission.

Legislation

The State Water Commission staff has prepared and presented to the Legislative Research Committee's Sub-Committee on Natural Resources, numerous bills dealing with the administration of the state's water permit laws. The majority of such bills have been approved and will be recommended by the sub-committee to the full Legislative Research Committee.

The Commission is also very interested in legislation creating a multiple-purpose revolving fund which will allow it to lend money to local entities to cover construction costs of water related projects. The money repaid by the local entities will be deposited in the multiple-purpose revolving fund to be re-used for similar purposes. The fund will also be available to the Commission for continued participation in federal, interstate, international, state, area or local water resources development projects, activities or programs.

For further information concerning water resources development, contact:

North Dakota State Water Commission
1301 State Capitol
Bismarck, North Dakota 58501
Telephone: 223-8000, Ext. 251 (Area Code 701)

NORTH DAKOTA STATE WATER COMMISSION

Payroll — June, 1966

Hoisveen, Milo W.	$1,292.00
Grindberg, Alan	772.50
Anderson, Karen	275.00
Baesler, Gordon	572.73
Balliet, Allen	300.00
Beeks, Cliff, Jr.	334.04
Christensen, Ray	425.00
Delzer, Donald	550.00
Diede, Jane	250.00
Donaldson, David	325.00
Dushinske, Russell	15.00
Emerson, Matt	550.00
Fredrickson, Fred	790.00
Froelich, Larry	660.00
Froemming, Dale	400.00
Gallagher, Richard	15.00
Glover, Dale	750.00
Gray, Gordon	15.00
Grunseth, Arland	725.00
Hanson, Harold	15.00
Herr, Reuben	376.00
Hiland, Leone	475.00
Hoger, Dennis	300.00
Jacobson, Hugh	335.00
Jochim, Cliff	420.00
Koch, Kay	335.38
Knutson, Lewis	500.00
Kopp, Owen	350.00
Lindvig, Milton	725.00
Luyben, Robert	376.36
Nelson, C. P.	750.00
Putz, Roy	325.00
Reiser, Danuel	500.00
Sackman, Eugene	525.00
Sandwick, Hazen	870.00
Schantz, George	350.00
Schultz, Delton	750.00
Schulz, Jim	860.00
Scott, Clifford	750.00

Senger, Anton	450.00
Simenson, Kenneth	675.00
Steinberger, Henry	15.00
Tillotson, Ann	300.00
Van Dyke, Merline	647.71
Voeller, Pius	500.00
Waller, Glen	600.00
Walterson, Howard	550.00
Ziegler, Victor	122.73
SWC Group Insurance	120.00
	$22,884.45

17. INDEX

Administrative Activities 14
Agriculture, Department of 81, 106
Agricultural Research Service 81, 106
Appropriation of Water 55
Bank of North Dakota 84, 106
Basic Data Compilation 14
Bonds and Interest Receivable 36, 96
Bureau of Reclamation 81, 106
Channel Improvements 13
Civil Defense, State 84, 106
Compacts, Proposed 39
Construction 13
Construction Bond Guarantee Fund 36, 96
Construction and Maintenance Projects 18
Cooperative Programs 81, 106
Corps of Engineers 81, 106
Design 12
Disbursements, Recap of 28, 97
Drainage 13
Drainage Projects 21
Economic Development Commission, North Dakota 84, 106
Engineering Investigations 11
Engineering Investigation and Design Projects 16
Financial Statement 35, 95
Fish and Wildlife Service, United States 81, 106
Flood Control 13
Flowing Wells 28
Forest Service, United States 81, 106
Forestry, State School of 83, 106
Game and Fish Department, State 83, 106
Garrison Diversion Conservancy District 47, 84, 106
Geological Survey, North Dakota 83, 106
Geological Survey, United States 82, 106
Goals and Objectives, Water Commission 8
Grand River — Compact 40
Ground Water 8
Ground Water Investigation Program Map 25
Ground Water Investigation Projects 22
Health Department, State 83, 106
Health, Education and Welfare, Department of 82, 106
Highway Department, State 83, 106
Historical Society, State 83, 106
Hydrologic Surveys 27
Index 111
Interior, Department of 81, 106
International and Interstate Compacts 37, 102
International Joint Commission 37
Irrigation Companies 41
Irrigation Development 14
Irrigation Districts 41, 103
Irrigation Districts — North Dakota Map 46
James River — Compact 40
Laboratories Department, State 83, 106

Lakes 7
Land Department, State 84, 106
Legislation, Proposed 87, 108
Legislative Research Committee 85, 107
Little Missouri River — Compact 39
Meetings, Commission 6, 94
Mississippi Valley Association 85
Missouri Basin Comprehensive Planning 27
Missouri Basin Inter-Agency Committee 82, 106
Missouri River Reservoir Operations 27
Missouri River States Committee 85
Mutual Aid Corporations 45
National Reclamation Association 85
National Rivers and Harbors Congress 86
Natural Resources Council, North Dakota 84, 106
Office of Economic Opportunity Program 27
Office of Emergency Planning Activities 27
Organization Chart 2
Outdoor Recreation 27
Outdoor Recreation, Bureau of 82, 106
Outdoor Recreation Agency, State 85
Park Districts, County — North Dakota Map 54
Pembina River Engineering Board 37
Planning 12
Pollution Abatement 27
Projects Costs 29, 98
Project Summary 15
Public Instruction, Department of 83, 106
Public Relations 81, 107
Publications 87, 107
Red River Basin Planning Committee 86, 107
Regional Projects and Programs 27
Research 13, 27
Reservoirs, Major Existing Storage 10
Soil Conservation Committee 84, 106
Soil Conservation Service, United States 81, 106
Souris River Board of Control 37
Souris River Reference 37
State Agencies 82
State University, North Dakota 82, 106
State Water Plan 11
Statewide Projects and Programs 27
Surface Water 7
Tax Commissioner, State 84, 106
Tri-State Compact 39
Topographic Mapping 27
Valley City Teachers College 84, 106
Water Management Districts 48, 104
Water Management Districts — North Dakota Map 54
Water Permits 55
Water Resources Program, State 11
Water Right Applications (July 1, 1962 — June 30, 1964) 58, 105
Water Right Applications (July 1, 1964 — June 30, 1966) 69
Water Users' Association, North Dakota 86
Water Users' Organizations, Legal 41
Watershed Protection — Soil Conservation Service 27
Western State Engineers, Association of 85
Yellowstone River Compact 38