nawdex

NATIONAL WATER DATA EXCHANGE

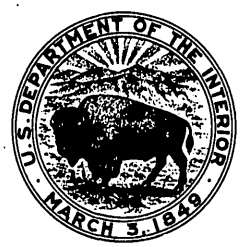
STATUS OF THE NATIONAL WATER DATA EXCHANGE (NAWDEX)—SEPTEMBER 1976

U.S. GEOLOGICAL SURVEY
Open—File Report 76—719

STATUS OF THE NATIONAL WATER DATA EXCHANGE (NAWDEX)—SEPTEMBER 1976

By MELVIN D. EDWARDS

U.S. GEOLOGICAL SURVEY
Open—File Report 76—719



1976

U.S. DEPARTMENT OF THE INTERIOR
Thomas S. Kleppe, Secretary

GEOLOGICAL SURVEY
V.E. McKelvey, Director

For additional information write to:

Chief Hydrologist
U.S. Geological Survey, WRD
421 National Center
Reston, Virginia 22092

CONTENTS

TABLES

APPENDICES

STATUS OF THE NATIONAL WATER DATA EXCHANGE (NAWDEX) - SEPTEMBER 1976

by

Melvin D. Edwards

ABSTRACT

The National Water Data Exchange (NAWDEX) has been established to assist users of water data in the identification, location, and acquisition of needed data. NAWDEX is not a depository of water data; its objectives are to provide the user with sufficient information to define what data are available, where these data may be obtained, and in what form they are available; also to describe some of their major characteristics. NAWDEX is comprised of water-oriented organizations in the Federal, State, and local governments, and in the academic and private sectors of the water-data community who work together to make their water data readily and conveniently available.

Data search and referral services are currently provided through the Program Office established by the U.S. Geological Survey which has the lead-role responsibility for NAWDEX operations. During its first year of operation, a computerized Water Data Sources Directory was developed which identifies more than 300 organizations that collect water data, the types of data they collect, and the locations within these organizations from which the data may be obtained. Also, a computerized Master Water Data Index was created that currently identifies more than 61,500 sites for which water data are available, the location of these sites, the hydrologic disciplines represented by the data, the media in which the data are available, and the organizations collecting the data. Work has begun on the development and implementation of computerized interfaces between the Master Water Data Index and two other data systems, the data files of the Storage and Retrieval System (STORET) of the U.S. Environmental Protection Agency, and the Texas Natural Resources Information System, operated by the Texas Water Development Board, which will significantly expand the contents of the index. NAWDEX is expanding its services and is establishing a nationwide network of Local Assistance Centers for local users' access to these services. Arrangements are also being made with the U.S. Environmental Protection Agency for NAWDEX to become a direct-access user of the STORET system.

INTRODUCTION

The National Water Data Exchange (NAWDEX) has been established to assist users of water data in the identification, location, and acquisition of needed data. NAWDEX is a confederation of both Federal and non-Federal organizations active in the field of water resources working together to improve access to water data. This report summarizes the development of NAWDEX, discusses its implementation during Fiscal Year 1976, and briefly presents some of the planned near-future activities of the program.

THE DEVELOPMENT OF NAWDEX

The proposal for a national system for the handling of water data was presented in 1968 by the U.S. Geological Survey's Office of Water Data Coordination (OWDC). This proposal was a part of OWDC's implementation of Circular A-67, issued by the Office of Management and Budget in 1964, which prescribed guidelines for the coordination of Federal activities in the acquisition of water data. Under the auspices of OWDC, the Federal Interagency Water Data Handling Work Group, a task group of the Federal Interagency Advisory Committee on Water Data, was established in March 1970 to develop the requirements for such a national system. The Work Group was comprised of representatives from 13 Federal agencies. It presented, in October 1971, the prerequisites and design characteristics for a National Water Data Exchange (NAWDEX). Both the Federal Interagency Advisory Committee on Water Data and the non-Federal Advisory Committee on Water Data for Public Use endorsed the NAWDEX concept and recommended that it be implemented. The U.S. Geological Survey accepted the lead-role responsibility for this effort.

Implementation of NAWDEX began with a negotiated contract with PRC Systems Sciences Company, in January 1973, to provide assistance in the design and development of the concept. This support effort was completed in January 1974 and provided a proposed overall design of NAWDEX, a definition of the work tasks necessary to implement the system, an organizational and financial structure of the system, and a comprehensive survey of potential NAWDEX members and users. Further implementation support was obtained through a second contract with PRC Systems Sciences Company that was completed in May 1975 which produced a proposed format for the Master Water Data Index, a recommended format for a Memorandum of Understanding for NAWDEX membership, a preliminary study of sources of water-related data, and a preliminary operations manual for the system.

CURRENT IMPLEMENTATION ACTIVITIES

Further activities addressing the implementation of NAWDEX during Fiscal Year 1976 were directed primarily at establishing the NAWDEX Program Office, preparing for the establishment of a national network of Local Assistance Centers, organization and coordination of the NAWDEX membership, developing the computerized data based needed to support the NAWDEX data-indexing and request-response activities, coordinating access to member data banks, and providing a minimal level of response-referral services. A summary of each of these activities follows.

THE PROGRAM OFFICE

Design specifications for NAWDEX assigned the responsibility for program management, coordination of operational activities, liaison between members and users of the system, and technical development required for the program to a central Program Office. The Director of the U.S. Geological Survey commissioned the establishment of this Office in May 1975. The

NAWDEX Program Office began operations in the U.S. Geological Survey in August 1975, but official status was not accomplished until January 1976. The Office currently employs a full-time staff of nine persons and is supported in its implementation activities by an additional three persons devoting a part-time effort to the program and four full-time contractor personnel providing support in system design, software development, and data-base development.

LOCAL ASSISTANCE CENTERS

The service capabilities of NAWDEX will be supported by a nationwide network of Local Assistance Centers. These Centers will provide local and convenient access to NAWDEX and its services. A statement of intent was issued by the Water Resources Division in August 1976 to each of its District Offices announcing plans to designate them as Local Assistance Centers in January 1977. This network will provide access to NAWDEX in 45 states and Puerto Rico. A list of the designated locations is given in Table 1. This network will be expanded, to the extent practical, by the addition of Centers in offices of NAWDEX members who wish to participate in the program in this capacity.

All of the Water Resources Division's District Offices, with the exception of Hawaii and Puerto Rico, are equipped with computer terminals, thereby, providing ready access to the NAWDEX data bases provided to assist them in responding to user requests for data. In addition, guidelines are being prepared for the operation of Local Assistance Centers. Orientation to these guidelines will be presented to Center personnel at training sessions scheduled to be conducted in Denver, Colo. in October 1976 and Reston, Va. in November 1976.

MEMBERSHIP ACTIVITIES

Organizations that become participating members of NAWDEX form the base units of its organization. Membership is voluntary and all organizations active in the field of water resources are encouraged to participate in the program. This includes organizations within the Federal, State-governmental, local governmental, academic and private sectors of the water-data community.

A Memorandum of Understanding has been developed which is required to be signed between the NAWDEX Program Office and the participating organization to formalize its membership. A copy of this Understanding is presented in Appendix A. While the terms of the Understanding may be changed to more accurately reflect the level of participation of a member, it is designed to define the member's support of the NAWDEX program in terms of providing information about its data holdings, responding to requests for its data, and its participation in NAWDEX operational and standardization activities. It also defines the NAWDEX Program Office's commitment to support the developmental and operational activities of the program.

TABLE 1

Proposed Locations of NAWDEX Local Assistance Centers in WRD District Offices

ALABAMA, Tuscaloosa
ALASKA, Anchorage
ARIZONA, Tucson
ARKANSAS, Little Rock
CALIFORNIA, Menlo Park
COLORADO, Lakewood (Denver)
CONNECTICUT, Hartford
FLORIDA, Tallahassee
GEORGIA, Doraville (Atlanta)
HAWAII, Honolulu (includes American Samoa and Guam)
IDAHO, Boise
ILLINOIS, Champaign
INDIANA, Indianapolis
IOWA, Iowa City
KANSAS, Lawrence
KENTUCKY, Louisville
LOUISIANA, Baton Rouge
MARYLAND, Towson (includes Delaware and District of Columbia)
MASSACHUSETTS, Boston (includes Maine, New Hampshire, Rhode Island, and Vermont)
MICHIGAN, Okemos (Lansing)
MINNESOTA, St. Paul
MISSISSIPPI, Jackson
MISSOURI, Rolla
MONTANA, Helena
NEBRASKA, Lincoln
NEVADA, Carson City
NEW JERSEY, Trenton
NEW MEXICO, Albuquerque
NEW YORK, Albany
NORTH CAROLINA, Raleigh
NORTH DAKOTA, Bismarck
OHIO, Columbus
OKLAHOMA, Oklahoma City
OREGON, Portland
PENNSYLVANIA, Harrisburg
PUERTO RICO, Ft. Buchanan (San Juan), includes Virgin Islands
SOUTH CAROLINA, Columbia
SOUTH DAKOTA, Huron
TENNESSEE, Nashville
TEXAS, Austin
UTAH, Salt Lake City
VIRGINIA, Richmond
WASHINGTON, Tacoma
WEST VIRGINIA, Charleston
WISCONSIN, Madison
WYOMING, Cheyenne

A NAWDEX Newsletter has been developed to serve as a medium of communication between member organizations and other organizations or individuals interested in NAWDEX activities. The first issue of this Newsletter was distributed in July 1976. Subsequent issues will be released on an unscheduled basis as frequently as necessary to inform recipients of significant events and the progress of activities within the program.

To date, four Federal organizations, fifteen State-governmental organizations, one interstate commission and one private organization have added their support to NAWDEX through their membership. A list of these members is given in Table 2. Information on the program has been provided at the request of a large number of organizations that expressed an interest in NAWDEX. Several of these organizations have offered their verbal commitment to the program and the number of participating members is expected to expand appreciably during the next few months.

THE NAWDEX DATA BASES

Two major computerized data bases have been developed through contracts issued by the Program Office with CACI, Inc. which have advanced the NAWDEX program significantly. They are the Water Resources Directory and the Master Water Data Index. A contract awarded in July 1975 for the development of design specifications for the two data bases was expanded in December 1975 to continue work on their development and implementation.

The NAWDEX data bases have been developed using the System 2000 Data Base Management System. This system provides an extensive ad hoc query capability which offers extensive flexibility to the operational use of the files in response to requests for information on water data that may occur in a variety of forms and require a wide array of different outputs from the data bases. System 2000 also has a Procedural Language Interface capability which allows for the development of peripheral computer programs which can be interfaced with the data base management system.

The computerized data bases have been implemented and will be maintained on the U.S. Geological Survey's IBM 370 Model 155 computer facilities located at its National Center in Reston, Virginia. They are operational in both a batch processing mode and an interactive mode using the IBM Time Sharing Option (TSO) capabilities.

Both data bases will be available soon for access by computer terminals located at Local Assistance Centers. Center personnel will be trained in their use in late October and early November 1976. The status of the implementation of the data bases follows.

The Water Data Sources Directory: The Water Data Sources Directory (WDSD) identifies organizations that collect water data and locations within these organizations from which data may be obtained. The Directory data

Table 2. NAWDEX Members

Federal Organizations:

Agricultural Research Service, USDA

National Oceanic and Atmospheric Administration including:
- National Weather Service
- National Ocean Survey
- National Marine Fisheries Service
- Environmental Research Laboratories
- Environmental Data Service including:
  - The National Climatic Center
  - The National Oceanographic Data Center
  - The Environmental Science Information Center
  - The National Geophysical and Solar-Terrestrial Data Center
  - The Center for Experiment Design and Data Analysis

Soil Conservation Service, USDA

U.S. Geological Survey, Water Resources Division

State Organizations

Commonwealth of Pennsylvania, Department of Environmental Resources

Iowa Geological Survey

Texas Natural Resources Information System representing:
- Texas Water Development Board
- Texas General Land Office
- Texas Air Control Board
- Texas Forest Service
- Texas Industrial Commission
- Texas Department of Health Resources
- Bureau of Economic Geology, University of Texas at Austin
- Texas Water Quality Board
- Railroad Commission of Texas
- Texas Department of Agriculture
- Texas Department of Highways and Public Transportation
- Texas Parks and Wildlife Department
- Texas State Soil and Conservation Board
- Texas Water Rights Commission

Interstate Organizations

Ohio River Valley Water Sanitation Commission

Private Organizations

Gidley Laboratories, Inc.

base was created in June 1976 and currently contains information for 19 Federal organizations and 300 non-Federal organizations. These are organizations that currently contribute information to the Office of Water Data Coordination's Catalog of Information on Water Data.

Coding forms have been developed for the manual encoding of information for the registration of new organizations in the Directory and instructions have been written defining how they are to be encoded. The coding forms and the instructions for their use were forwarded to all NAWDEX member organizations and members of the Federal Interagency Water Data Handling Work Group for review and comment in July 1976. The forms and instructions are undergoing minor revisions based upon these reviews. Upon the completion of these revisions, the coding forms will be forwarded to the Office of Management and Budget for official approval for their use.

Work began in July 1976 on the development of computer software to be used for the retrieval of information in a publishable form from the Directory. This software is scheduled for completion in October, 1976. At that time, all information contained in the Directory will be forwarded to each respective organization for review, verification and update. After completion of this validation effort, the contents of the Directory will be published for public distribution.

Data-base security and recovery procedures for use in the management and maintenance of the data base are nearly complete. An effort is also underway to obtain additional contractural support in the development of data-base update procedures and a user's instruction manual to be used for updating purposes. The Water Data Sources Directory data base is scheduled to be fully implemented with total retrieval and update capabilities by January 1977.

The Master Water Data Index: The Master Water Data Index (MWDI) identifies point-source locations for which water data are available, the types of data being collected at each location, the period of record for which the data are available, and the collecting organization. The Index data base was created in June 1976. It currently contains information for over 61,500 water-data sites for which data have been collected by over 300 organizations. The data currently contained in the data base were obtained from the Catalog of Information on Water Data maintained by the Office of Water Data Coordination (OWDC) and the Hydrologic Station File inventory of the U.S. Geological Survey's Water Resources Division. When it is fully operational, the Master Water Data Index will be used to replace the capabilities of these two data systems. Procedures have been established, however, that permit these two systems to remain in operation until the time of their replacement with no loss of data that have been added or corrected since their conversion to the MWDI. All such data or corrections will be transferred to the MWDI at the time of their discontinuance. NAWDEX will then provide full support to the continuation of the OWDC cataloging activity required for their coordination functions as wells as the station inventory activities of the Water Resources Division.

The development of procedures for the editing, updating, and entry of new data into the MWDI began in August 1976. Additional contractural support has also been obtained to assist in the immediate development of data encoding forms, encoding instructions, and data preparation instructions for use with the MWDI data base. Additional support is planned in October of Fiscal Year 1977 for the development of software for printed and machine-readable outputs, data base validation, and data-base management procedures. The Master Water Data Index is scheduled to be fully operational with total retrieval and update capabilities by April 1977.

Data Base Dictionaries: A dictionary of definitions for each data item stored in each of the NAWDEX data bases is being prepared. The dictionary for the Water Data Sources Directory is under development. The dictionary for the Master Water Data Index has, however, been developed and is being prepared for distribution to all NAWDEX members for review and comment. These dictionaries will be published and made available to all Local Assistance Centers and NAWDEX members.

User's Manual: A User's Manual for use in retrieving data from the NAWDEX data bases is being completed and prepared for distribution. This manual presents, in tutorial manner, the general concepts of the retrieval of data using the System 2000 Data Base Management System. Appendices to the Manual also present specific applications related to each of the two data bases. The manual will be made available to all organizations that have direct access to the NAWDEX data bases.

Interfaces With Member Data Bases: A primary mission of NAWDEX is, of course, to index the data holdings of its member organizations. Since much of these data are contained in computerized data bases, a computerized interface between a member's data bases and the Master Water Data Index is highly beneficial. This not only provides more information on the data available, it greatly reduces the manual encoding required to fully index an organization's data.

The development of a computerized interface between the Master Water Data Index and the Water Quality File of the Storage and Retrieval System (STORET) maintained by the Office of Water and Hazardous Materials of the U.S. Environmental Protection Agency began in June 1976. The STORET system contains more than 30 million water quality parametric observations for over 200,000 sites maintained by over 200 organizations. Since the U.S. Geological Survey contributes nearly all of its water-quality data to the STORET system, this interface will also include the indirect indexing of the Water Quality File of the Geological Survey's National Water Data Storage and Retrieval System (WATSTØRE). The STORET interface is expected to more than triple the contents of the Master Water Data Index. The systems-analysis phase of this interface has been completed and the development of specifications for the interface system began in August 1976. The interface is scheduled to be completed by May 1977.

Work also began in June 1976 on the interfacing of the Water Resources Files of the Texas Natural Resources Information System (TNRIS) maintained by the Texas Water Development Board with the Master Water Data Index. The TNRIS System is supported by the participation of 14 organizations in the state of Texas. The interface with this system is being currently developed through the cooperative effort of the staff of the Texas Water Development Board as a membership contribution to the NAWDEX program. This effort is providing a valuable contribution to the indexing effort.

Several organizations have expressed an interest in utilizing the indexing facilities of the Master Water Data Index in lieu of developing their own indexing capabilities. A standardized, machine-readable format is, therefore, being developed which will allow other organizations to develop computerized interfaces with the Master Water Data Index in lieu of developing their own indexing capabilities. The Program Office will cooperate in such efforts whenever possible.

ACCESS TO MEMBER DATA BASES

It is not a part of the NAWDEX mission to develop and maintain a data base for the storage and retrieval of water data. Neither is it a part of the NAWDEX mission to provide data processing services for its member organizations. NAWDEX does have an obligation, however, to provide minimal storage and retrieval capabilities for water-data contributed to the program by member organizations and to facilitate, to the greatest extent possible, access to the data holdings of its members.

The Water Resources Division of the U.S. Geological Survey announced in January 1976 that it was providing direct-access use by outside organizations to selected files of its computerized National Water Data Storage and Retrieval System (WATSTØRE) as a part of its membership support of the NAWDEX mission. At that time, it made two data files available: (1) The Station Header File which contains site-identification information for over 140,000 sites for which data are stored in the WATSTØRE Daily Values File; and (2) The Daily Values File which contains all the computerized daily streamflow data stored by the Water Resources Division as well as significant amounts of water-quality data including daily specific conductance, temperature, suspended-sediment concentrations and suspended-sediment discharges. This file currently contains over 118 million daily values. These files may be used for retrieval purposes only, or they may be used to store data by WATSTØRE user organizations. They may also be used to store data contributed to the NAWDEX program.

Since its original announcement, the Water Resources Division has also made its Peak Flow File, which contains over 300,000 annual peak observations of streamflow and river stages, available to WATSTØRE users for retrieval purposes only. Data available from other WATSTØRE files are also available upon request. These data include nearly 1,000,000 chemical analyses contained it its Water Quality File and ground-water information for over 350,000

sites in its Ground Water Site Inventory File. All WATSTØRE data files will be accessible by the proposed NAWDEX Local Assistance Centers for data retrieval and dissemination.

The NAWDEX Program Office is coordinating all access by outside users to the WATSTØRE system. This is intended to better coordinate the access to WATSTØRE with the NAWDEX mission. A Memorandum of Agreement has been developed which must be signed between the Water Resources Division and the user organization prior to its access. A sample copy of this Agreement is presented in Appendix B. After this Agreement has been signed by both organizations, the Program Office coordinates the necessary procedures to be established between the user organization, the Water Resources Division, and the U.S. Geological Survey's Computer Center Division for access to the system. Table 3 lists those organizations that have established access with WATSTØRE.

The Office of Water and Hazardous Materials of the U.S. Environmental Protection Agency has also expressed an intent to support the NAWDEX program by providing better accessibility to its Storage and Retrieval System (STORET) and allowing the use of STORET for the storage of water-quality data contributed to the NAWDEX program.

A Memorandum of Understanding is being developed between STORET and the Program Office which will recognize STORET as a participating member of NAWDEX and will recognize NAWDEX as a user of STORET. In general, the Understanding will allow NAWDEX direct access to STORET for data retrieval and dissemination purposes and will allow NAWDEX direct access to STORET for the storage of data. The terms of this Understanding are expected to be completed by November 1976.

Although it may be inferred from the above arrangements, it is not the policy of the Program Office to establish direct access with the data bases of all member organizations nor to assume any of the data management responsibilities of its member organizations. The arrangements with the WATSTØRE and STORET systems are designed uniquely to facilitate the Program Office mission of providing a minimal storage and retrieval capability for data contributed to the program. Similar arrangements with other organizations may be established to expand this capability for other types of water and water-related data if resources permit.

USER ASSISTANCE SERVICES

A major mission of NAWDEX is to provide assistance to users of water data in identifying, locating, and acquiring needed data. The Program Office has been responding to requests for this type of assistance since October 1975. Due to the fact that NAWDEX is a newly established organization, its services have not been widely advertised and its activity in this area has been minimal. To date, less than 100 such requests have been fulfilled. No large activity in responding to requests for services

TABLE 3. CURRENT USERS OF WATSTØRE

Army Corps of Engineers
Iowa Geological Survey
Soil Conservation Service, USDA
Susquehanna River Basin Commission
Texas Natural Resources Information System
West Virginia Geological and Economic Survey

would have been possible, however, during the first year of operation due to the extremely large amounts of developmental work that had to be performed. NAWDEX is now becoming more widely known through published articles and presentations at meetings and conferences. The expanding membership, the availability of the Water Data Sources Directory and the Master Water Data Index, and the upcoming network of Local Assistance Centers will greatly expand the NAWDEX capabilities for user assistance services during the next fiscal year.

While there was an understandable low level of demand for information on water data during the first year of NAWDEX operation, there has been a larger than expected level of requests for information on existing water and hydrologic data base systems and technology relating to the development of such data bases. The Program Office has exchanged information on these subjects with several foreign, Federal, and academic organizations. While this area has not been clearly defined as a major mission of NAWDEX, the high level of interest thus far indicates that technology transfer may be one of high significance to the water-data community. The NAWDEX membership offers an important source of assistance with information in these matters. The Program Office will, therefore, redirect its planning to include this important area of interest.

NAWDEX CHARGES FOR SERVICES

It has been announced from the beginning of NAWDEX that charges for services through NAWDEX may be required as assessed at the option of the organization supplying the data or service. This policy has been adhered to in the referral of all requests for data to other organizations.

Based upon authority already existing within the U.S. Geological Survey, the Program Office is using a schedule of charges developed for its use and for the use of all Geological Survey offices serving as Local Assistance Centers. Existing authority allows for the reimbursement of costs incurred in responding to requests for data as related to actual computer costs, materials provided, copying and reproduction costs, and administrative charges. Estimates of costs are provided to users upon request.

NEAR FUTURE PLANS

Near future plans for the NAWDEX program call for several additional activities. These include the addition of contractural support for developing new software procedures to support the NAWDEX data bases including ad hoc retrieval procedures necessary to respond to user requests, interfaces with the WATSTØRE Daily Values File and Peak Flow File, development of indexing procedures to be used with the WATSTØRE Ground Water Site Inventory File, development of graphic display capabilities to be used with the Master Water Data Index, and statistical summary capabilities for both data bases. Other activities include field validation and review of the contents of the Master Water Data Index, implementation of a full level of

data gathering activities for both data bases, publication of the Water Data Sources Directory, and development of a summary digest of the Master Water Data Index.

Attention will also be given during the next fiscal year to the expansion and publication of a Directory of Water-Related Data previously developed in a preliminary form through contractural support. This Directory will be used as a source of information directed at those data resources of NAWDEX members that do not fit the criteria of the Master Water Data Index.

Special attention will be given during the next year to the expansion of member participation within the NAWDEX program. More effort will also be directed at documenting the data resources and services available through member organizations. A major area of member participation will be a call upon all members for input to planning the development of recommended standards for the handling and exchange of water data. Members will also be asked to take a more active part in decisions on policy and in system development processes of the Program Office.

SUMMARY

The first year of the NAWDEX program has been very productive in terms of administrative and systems development. The establishment of the Program Office provides a central source of coordination and technical support for continued expansion of the program. The development and implementation of the Water Data Sources Directory and the Master Water Data Index provides a viable base for a continuing program of data indexing, data dissemination, and user assistance in identifying and locating needed water data.

Public interest in NAWDEX has been high and support of the program through membership has been excellent. The support of the U.S. Geological Survey's National Water Data Storage and Retrieval System (WATSTØRE) and the U.S. Environmental Protection Agency's Storage and Retrieval System (STORET) have provided valuable sources of data. Other extensive systems, not discussed in detail in this report, such as the Environmental Data Systems of the National Oceanic and Atmospheric Administration and the Texas Natural Resources Information System maintained by the Texas Water Development Board, provide data resources of equal importance. The expanding membership is providing, therefore, an expanding base of water data that can be made more conveniently and readily available to its users.

While much has been accomplished during the first year, much work remains to be done to develop NAWDEX into a truly comprehensive and responsive system. The continued support of its members will greatly aid the Program Office in developing the full capabilities of the NAWDEX mission.

APPENDIX A. Memorandum of Understanding for NAWDEX Membership

MEMORANDUM OF UNDERSTANDING

AND THE
UNITED STATES GEOLOGICAL SURVEY
PERTAINING TO THE NATIONAL WATER DATA EXCHANGE

The National Water Data Exchange (NAWDEX) is comprised of water-oriented organizations working together to provide convenient access to water data. The NAWDEX mission is to identify sources of water data, to index data holdings of water-oriented organizations, and to provide the linkage between those who acquire and those who use water data.

This memorandum recognizes _____ as a participating member of the National Water Data Exchange (NAWDEX). This membership will continue in effect until terminated by mutual agreement or by either agency providing sixty days written notice to the other agency.

The U. S. Geological Survey (USGS), through its NAWDEX Program Office, will provide the central management of NAWDEX, and will serve as a coordinating facility for all NAWDEX facilities.

The NAWDEX Program Office will be responsible for:

- - - Establishing response and referral mechanisms for handling requests for water data in the files of NAWDEX members.

- - - Establishing and maintaining a Master Water Data Index of data holdings of the NAWDEX members and making the index available to all.

- - - Establishing and maintaining a Water Data Sources Directory and making this directory available to all.

- - - Establishing a nationwide network of Local Assistance Centers that will provide data search assistance to requestors and aid them in accessing water data held by NAWDEX members.

_____ will be responsible for:

- - - Taking an active role in the formulation of NAWDEX policies, procedures, and standards and implementing them within its organization to the extent practicable.

- - - Participating in the development of standard techniques and methodologies for handling of water data and using them within its organization to the extent practicable.

- - - Providing information on internally held water data for inclusion in the Master Water Data Index and, as requested, providing current information to update the Master Water Data Index to reflect additions, changes, and corrections to the index.

- - - Providing data from its internal holdings either in response to a referral from the NAWDEX Program Office or a Local Assistance Center, or in response to a direct request for water data.

- - - Designating a representative of its organization to function as the primary contact for all NAWDEX matters.

It is mutually understood that membership in NAWDEX is voluntary and that all members will participate on an equal basis, and consent to be listed as a source of water data in the Water Data Sources Directory. There will be an open exchange of information among NAWDEX members and every effort will be made to provide water data to the user community in a timely and equitable manner.

_____	_____
Signature, Title	Signature, Title
Date _____	Date _____

APPENDIX B. Memorandum of Agreement for WATSTØRE Usage

MEMORANDUM OF AGREEMENT

_____

AND THE
UNITED STATES GEOLOGICAL SURVEY
RELATING TO THE USE OF THE GEOLOGICAL SURVEY'S NATIONAL WATER
DATA STORAGE AND RETRIEVAL SYSTEM

This Agreement with _____ relates to the use of the data facilities of the National Water Data Storage and Retrieval System (WATSTØRE) of the United States Geological Survey (USGS), Water Resources Division (WRD). This Agreement will continue in effect until terminated by mutual agreement or by either agency by providing sixty days written notice to the other agency.

Definitions:

For the initial purposes of this Agreement, the National Water Data Storage and Retrieval System (WATSTØRE) consists of a Station Header File and a Daily Values File. The Station Header File is an automated index of all sites for which data are stored in WATSTØRE. It contains information pertinent to the identification, location, and geographic description of each site. The Daily Values File contains water-data parameters measured or observed on either a daily schedule or on a continuous basis and numerically reduced to daily values. This Agreement also applies to the use of any additional files and data facilities of WATSTØRE made available in the future.

The WATSTØRE system is operated and maintained by the Geological Survey on its central computer facilities located at the National Center in Reston, Virginia. These computer facilities are under the management and control of the Computer Center Division, USGS. Therefore, the Water Resources Division has no administrative responsibilities related to the operation of the computer facilities or the scheduling of computer related services.

Responsibilities:

Related to this Agreement, the Water Resources Division will:

- - - Allow access to the Header File and Daily Values File of the WATSTØRE system and application software associated with these files. This will include any additional files and software systems in WATSTØRE that may be made available in the future.

- - - Provide a User's Guide and additional documentation necessary to access and use the WATSTØRE files.

- - - Provide user assistance services as required in the use of the WATSTØRE files and software systems.

- - - Serve as a liaison between _____ and the Computer Center Division in matters related to WATSTØRE.

- - - Provide training in the use of WATSTØRE to the extent possible within budgetary and manpower capabilities.

Related to the Agreement, _____ will:

- - - Acquire all computer-terminal hardware and related peripheral hard-ware necessary for access to the USGS computer facilities.

- - - Assume full responsibility for all costs associated with the use of the USGS data files and reimburse the USGS for all costs incurred.

- - - Not use the USGS computer facilities for any purpose other than those related to the use of the WATSTØRE files unless prior agreement has been arranged with the USGS for additional computer usage.

- - - Be identified as a source of water data by the National Water Data Exchange (NAWDEX). All data entered into WATSTØRE by _____ _____ will, unless password protected, be indexed in the Master Water Data Index maintained by NAWDEX and will be disseminated to other users upon request.

Designated Representatives:

_____ will designate a principal and one or more alternate representatives at each remote job entry site to serve as contacts for all WATSTØRE matters.

The Water Resources Division designates as its WATSTØRE representative:

Mr. C. R. Showen
Chief, Automatic Data Section
Water Resources Division
U. S. Geological Survey
437 National Center
12201 Sunrise Valley Drive
Reston, Virginia 22092

Telephone: (703) 860-6871

Cooperation:

In order to successfully develop and maintain the concepts of this Agreement, an open exchange of information relative to WATSTØRE, its functions and operations, will be established between _____ and the USGS, WRD.

_____ _____

Signature, Title Signature, Title

Date _____ Date _____