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NATIONAL WATER DATA EXCHANGE

**PROGRAM OBJECTIVES FOR THE NATIONAL
WATER DATA EXCHANGE (NAWDEX)
FOR FISCAL YEAR 1981**



U.S. GEOLOGICAL SURVEY
Open-File Report 80-1047

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By MELVIN D. EDWARDS



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CONTENTS

| | Page |
|--|------|
| Abstract | 1 |
| Introduction | 1 |
| Program administration, management, and coordination | 1 |
| NAWDEX services | 2 |
| Systems development | 3 |
| Data indexing | 5 |
| Training | 5 |
| Recommended methods for the handling and exchange of water data | 7 |
| Conclusion | 8 |



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By

Melvin D. Edwards

ABSTRACT

This report describes the proposed program objectives of the National Water Data Exchange (NAWDEX) for Fiscal Year 1981. These include program administration, services, water-data indexing activities, systems development, training, and the development of recommended methods for the handling and exchange of water data.

INTRODUCTION

The development of the NAWDEX program continues to progress on schedule. Many of the basic systems and procedures required for the operation of the program have been developed and are now operational. Therefore, the objectives of the program for Fiscal Year 1981 will be directed primarily at improving operational procedures and enhancing existing systems. New systems development will be continued, however, to the extent possible within the resources available.

To date, no budget increase has been allowed for the NAWDEX program for Fiscal Year 1981. The following objectives, therefore, reflect operation of the program within its current budget allocation of \$1,200,000.

PROGRAM ADMINISTRATION, MANAGEMENT AND COORDINATION

The (non-Federal) Subcommittee on Water Data Exchange and the (Federal) Subcommittee on Water-Data and Information Exchange were established in February 1979 to monitor and advise the NAWDEX program. Several suggestions and recommendations were made by these subcommittees at a joint meeting held in October 1979. The following responses are being made:

1. The NAWDEX program should simplify and reduce the volumes of printed material distributed to the membership. Also, current material is sometimes difficult to relate to material previously distributed.

A system of numbered memoranda will begin with the 1981 Fiscal Year. This system will cross-reference previous memoranda that are applicable or that have been rescinded. A thorough assessment also will be made of distributions to assure that program material is brief.

2. The NAWDEX Newsletter should be reduced in volume and distributed more frequently.

If possible, each issue will not exceed one sheet. A less formal

publication format will also be evaluated.

3. A set of guidelines is needed for the consistent application of user charges for services throughout the NAWDEX program.

Current procedures and policies related to applying user charges have been evaluated and recommended guidelines are being developed. These guidelines will be submitted for review and comment to both subcommittees and at the next membership conference.

In addition to the above, work will continue in Fiscal Year 1981 on the completion of the NAWDEX Program Guide. This guide contains information pertinent to the operation of NAWDEX and the use of its information facilities. To date, approximately one-half of the material for the Guide has been completed. Priority will be given in Fiscal Year 1981 to the completion of guidelines for the operation of Assistance Centers, a System 2000^{1/} user's manual, a Master Water Data Index retrieval manual, a Water Data Sources Directory user's manual, and appendix material.

A joint meeting of the (non-Federal) Advisory Committee on Water Data for Public Use and (Federal) Interagency Advisory Committee on Water Data will be held in Washington, D.C., in October 1980. The NAWDEX advisory subcommittees, the Subcommittee on Water Data Exchange and the Subcommittee on Water-Data and Information Exchange, will also meet during this session. A variety of issues relating to the operation of NAWDEX will be discussed at that time including matters relating to improved communication, data indexing, the establishment of Assistance Centers, and user charges. The results of these discussions will be presented at the Third NAWDEX Membership Conference scheduled for November 1980 in the Washington, D.C., area.

The NAWDEX staff will continue to participate to the greatest extent possible in presenting the NAWDEX program at meetings, scientific conferences, and exhibits. Federal travel restrictions are expected, however, to extend through Fiscal Year 1981. This may necessarily reduce the level of activity in these areas as compared to that of previous years.

NAWDEX SERVICES

Efforts will be continued to improve and expand the NAWDEX service capabilities through the establishment of additional Assistance Centers, establishing contact with more existing water-related services, and the improvement and expansion of information products. Criteria for the selection and establishment of Assistance Centers are currently under review by the NAWDEX advisory subcommittees and are planned to be made available to the membership in early 1981. The Program Office will continue its practice of providing \$500 of computer time to each new Assistance Center to facilitate their familiarization and training in the use of the NAWDEX information data bases and computerized data systems.

The constant growth of the NAWDEX data bases is steadily increasing the

^{1/} The use of brand names in this report is for identification purposes only and does not imply endorsement by the U.S. Geological Survey.

cost of retrievals in response to public requests. Likewise, the increasing volumes of information available are exceeding funds available to publish the "Index to Station Activities of the Catalog of Information of Water Data" and other special indexes previously published by the U.S. Geological Survey's Office of Water Data Coordination. Plans to publish the Water Data Sources Directory data base have also been cancelled. Several alternative actions are under consideration for Fiscal Year 1981 to compensate for these situations and still provide sufficient information products to the user community:

1. A "Guide to the Water Data Sources Directory" is scheduled for publication in early Fiscal Year 1981. This Guide will describe the information available in the Directory and contain indexes to its contents. Copies of the Directory will be made available upon request in both computer-produced photocopies or microfiche at prices based on the cost of production.

2. Numerical summaries of the water-data activities that are indexed in the Master Water Data Index are scheduled for publication in mid Fiscal Year 1981. This material will serve to inform the user community of the types of data being acquired, the sources of these data, and their geographic distribution.

3. Simplified, one-page index listings of water-data sites indexed in the Master Water Data Index are being considered. The decision to publish these indexes will not be made until after a current study by the Office of Water Data Coordination on their usefulness is completed. Should they be published, they will probably be restricted to active sites only and will be made available in both printed copy and microfiche.

4. Ad hoc listings of information from both the Water Data Sources Directory and the Master Water Data Index data bases will continue to be made upon request. They will continue to be one of the most important modes of providing information in response to requests for information on specific types of data and for specific geographic areas.

5. The NAWDEX Program Office is expanding the use of microfiche as a medium for providing information. The degree of expansion in this mode of dissemination will be determined by public acceptance and demand.

The Program Office will continue to provide access to the National Water Data Storage and Retrieval System (WATSTORE) of the U.S. Geological Survey and the Storage and Retrieval (STORET) system of the U.S. Environmental Protection Agency as long as computer access facilities are available for this service.

SYSTEMS DEVELOPMENT

Although available funding will restrict the development of extensive new systems during Fiscal Year 1981, the following systems development activities are planned:

1. Automation of the current NAWDEX User Accounting System for tracking and documenting requests received and processed by Assistance Centers, for producing statistics on service and response activities, and for providing minimal accounting procedures.

2. Redesign of the Master Water Data Index to improve the efficiency of its use and to expand its utility was begun in Fiscal Year 1980 and will be completed in Fiscal Year 1981.

3. The increasing size of the Master Water Data Index requires that the data base be divided into subsets to conform to the physical storage requirements of the data base management system utilized. Activities were implemented in Fiscal Year 1980 for the development of software that will provide automatic selection of the appropriate subset of data on input or output without intervention of the user and will be completed in Fiscal Year 1981.

4. Procedures will be implemented to store audit trails and error reports generated by the Edit/Update System of the Master Water Data Index in machine-readable form for subsequent retrieval by individual users via their computer terminals.

The following systems development activities are also planned based upon the availability of funding:

1. Modification of the Water Data Sources Directory to include names and addresses of liaison persons in each organization responsible for data-indexing and data-review activities.

2. Development of specifications for a graphic display system for the Master Water Data Index capable of producing interactive, graphic displays of the contents of the Index interfaced with geographic boundaries, project boundaries, hydrologic boundaries, and stream traces.

3. A survey made in Fiscal Year 1980 indicated that several member organizations wish to develop a computerized interface between their data systems and the Master Water Data Index. These activities will be supported by the Program Office to the extent possible within available fiscal and personnel resources.

4. The use of computers for electronic conferencing and electronic mail is growing in popularity. This mode of information dissemination has applicability within NAWDEX for reporting and distributing information on current hydrologic conditions in areas of high interest, extreme hydrologic events, and many other areas. It also has applicability in the exchange or referral of requests and information between offices of the NAWDEX Assistance Center network. During Fiscal Year 1981, the availability of existing systems for these uses will be investigated and the specifications for a

NAWDEX network will be developed within the extent of available resources.

DATA INDEXING

Encoding and processing instructions for the preparation and entry of index information into the Master Water Data Index and the Water Data Sources Directory will have been distributed to the entire membership by the end of the 1980 fiscal year. Major efforts during Fiscal Year 1981 will be directed at the entry of information about water-related data such as water-use data, meteorological and climatic data, land-use data, and many other categories into the Water Data Sources Directory and at gaining the participation of all water-data collecting members in initiating or continuing the indexing of their available data in the Master Water Data Index.

Automated indexing cycles for data stored in the Geological Survey's National Water Storage and Retrieval System (WATSTORE), the Environmental Protection Agency's Storage and Retrieval (STORET) system, and the water-data files of the Texas Natural Resources Information System (TNRIS) will be continued. As previously mentioned under the section on systems development, additional automated interfaces with member data systems will also be developed and implemented within the resources available.

The Geological Survey's Water Resources Division is making the facilities of its Management Information System (MIS) available to NAWDEX for the indexing of miscellaneous and areal hydrologic investigations. This system, including input and output instructions, direct access by authorized members, and the input of information by members will be implemented during the first half of Fiscal Year 1981 with full implementation planned by the end of the fiscal year.

The NAWDEX Program Office will continue to coordinate its data-gathering and indexing activities closely with those of the Office of Water Data Coordination (OWDC). Better communication will be established between the OWDC liaison officials of member organizations participating in the OWDC coordination program and designated NAWDEX representatives in order to avoid duplication of effort in data indexing and possible confusion about the NAWDEX and OWDC programs within these organizations.

TRAINING

Although funds available for travel by the NAWDEX staff are expected to be limited during Fiscal Year 1981, a full training program is planned. All courses are currently scheduled to be held at the Geological Survey's training center in Denver, Colo. Due to these anticipated restrictions, some of these courses may be relocated to the Washington, D.C. area. Any changes in location will be noted at the time of announcement of each course. All participants in training will, by necessity, continue to be responsible for all travel and subsistence associated with these activities. The following courses are planned:

Course Title: NAWDEX MEMBERSHIP ORIENTATION

Location and Date: Denver, Colorado; November 12-14, 1980

Description:

The session provides a comprehensive overview of the NAWDEX program to members of the National Water Data Exchange (NAWDEX). Orientation is provided on the NAWDEX concept and mission, NAWDEX service functions, NAWDEX publications and documentation, membership-related activities, the NAWDEX data bases, the input of data to the data bases, systems for use with the data bases, and output products available from NAWDEX. The session is designed to strengthen member involvement, and to improve understanding and utilization of the NAWDEX program and the supporting service benefits.

Attendees: Participants should be individuals designated as NAWDEX representatives or others closely involved in the NAWDEX program. Attendance will be limited to 30.

Course Title: SYSTEM 2000 NATURAL LANGUAGE FOR GROUND-WATER SITE-INVENTORY
AND NAWDEX DATA BASES

Location and Date: Denver, Colorado; December 15-19, 1980

Description:

The course stresses the use of SYSTEM 2000 natural language to retrieve data from the Ground-Water Site-Inventory (GWSI) and NAWDEX data bases. Several problems will be given to be coded and run on the computer. An overview of the data base structure and application software will be given for both GWSI and NAWDEX.

Attendees: All persons who are engaged in retrieving data from the GWSI and NAWDEX data bases. It is recommended that the attendees be familiar with Job Control Language and basic computer terminology. Attendance will be limited to 30.

Course Title: SEMINAR ON NAWDEX DATA SYSTEMS

Location and Date: Denver, Colorado; February 10-13, 1981

Description:

The seminar provides instruction and workshops in the use of the National Water Data Exchange (NAWDEX) data bases and associated software systems. Instruction is provided for the encoding of data for the Water Data Sources Directory and Master Water Data Index; the pre-edit and submission of data to the data bases; and the use of software systems for the retrieval of data from the data bases. This session does not include detailed instruction in the use of SYSTEM 2000 which is offered in the course entitled "SYSTEM

2000 FOR GROUND-WATER SITE-INVENTORY AND NAWDEX DATA BASES."

Attendees: Participants should be those individuals having "hands-on" responsibilities for the computer processing, storage, and retrieval of data in the NAWDEX data bases. Attendance will be limited to 30.

Course Title: SEMINAR FOR NAWDEX ASSISTANCE CENTERS

Location and Date: Denver, Colorado; March 30 - April 3, 1981

Description:

The seminar provides guidelines and instruction in the operation of National Water Data Exchange (NAWDEX) Assistance Centers. Emphasis is placed on the receipt of, processing of, and response to requests for water-data information. Class problems and workshops will be used. Orientation is provided on services available through NAWDEX, the member organizations, and the diverse products and services available through NAWDEX data-base systems.

Attendees: Attendees should be those U.S. Geological Survey and non-U.S. Geological Survey individuals serving as Assistance Center contacts and (or) having the responsibility for receiving and responding to requests for water data and information. Attendance will be limited to 30.

Should demand for attendance at the above courses significantly exceed the limitations given, additional sessions will be scheduled, if possible.

In addition to these courses, special orientation and training sessions may be negotiated with the NAWDEX Program Office staff providing the receiving organization(s) assume the full cost of staff travel and subsistence.

All training courses will be announced to the membership in advance of their being held.

RECOMMENDED METHODS FOR THE HANDLING AND EXCHANGE OF WATER DATA

The NAWDEX Program Manager will continue to serve as chairman of the Working Group for the Development of Recommended Methods for the Handling and Exchange of Water Data during Fiscal Year 1981. The first draft of recommended methods for the handling and exchange of water data in machine-readable forms is scheduled to be submitted by the Working Group to the Coordinating Council for Water-Data Acquisition Methods of the (Federal) Interagency Advisory Committee on Water Data in the fall of 1980 for review. The NAWDEX membership will also be provided an opportunity to review and comment on the methods. A final draft of these methods is planned to be submitted for publication by the summer of 1981.

During the review of the above methods, the Working Group will continue its work toward the development of data handling and exchange methods for the

remaining chapters of the "National Handbook of Recommended Methods for Water-Data Acquisition" to which the above methods are found not to be applicable. Problems associated with the handling and exchange of data in non-machine-readable form and bibliographic data will also be considered during the year.

The development of new recommended methods and the review and amendment of previously recommended methods will be a continuing, long term project.

CONCLUSION

Further growth and expansion of NAWDEX is important for its continued success and better utilization by the user community. The proposed objectives for Fiscal Year 1981 are designed to maintain both momentum and growth. As in the past, however, they will be amended as necessary to achieve maximum benefit from the resources available and to meet short-term and unanticipated needs.

The NAWDEX Program Office wishes to acknowledge the outstanding support of the program provided by the membership. Membership support is the most important factor in the success of NAWDEX. With the continued input of member-provided expertise, contributed resources, and information services, the proposed objectives can be successfully accomplished.