nawdex

NATIONAL WATER DATA EXCHANGE

SECOND MEMBERSHIP CONFERENCE OF THE NATIONAL WATER DATA EXCHANGE MAY 2-4, 1979, NEW ORLEANS, LOUISIANA

PROCEEDINGS

U.S. GEOLOGICAL SURVEY
Open-File Report 80—966

PROCEEDINGS OF THE SECOND MEMBERSHIP CONFERENCE OF THE NATIONAL WATER DATA EXCHANGE, MAY 2-4, 1979, NEW ORLEANS, LOUISIANA

Compiled by BEVERLY M. MYERS and JANET M. NOKES

U.S. GEOLOGICAL SURVEY
Open-File Report 80—966

1980

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PREFACE

The National Water Data Exchange (NAWDEX), a national confederation of water-oriented organizations working together to improve access to water data, held its second membership conference in New Orleans, La., on May 2-4, 1979. The purpose of the conference was to acquaint new members with the systems, resources, and services available within the program. It also served as a means of establishing and improving personal relationships within the membership, as a forum for the exchange of ideas on matters pertaining to improving the operation of NAWDEX, and identifying the needs of the water-resources community. A copy of the conference agenda is contained in apendix A. Thirty-nine participants, representing 20 organizations, were registered at the conference. All but one of the registered participants represented organizations which are members of NAWDEX. A complete list of attendees is contained in appendix B.

Three working panels were convened at the conference, each dealing with a specific subject as follows: (1) Program Administration, Management and Coordination; (2) Water Data Indexing and Technical Systems Development; and (3) NAWDEX Services and Assistance Center Activities. The reports and conclusions of these panels were presented orally on the last day of the conference and are included in the proceedings.

The benefits derived from this conference are apparent when one assesses the feedback which was generated in the general sessions and through the ad hoc working panels.

NAWDEX is constantly growing and it is important that these membership conferences be held to improve communication throughout the NAWDEX program as well as all sectors of the water-resources and environmental community.

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OPENING REMARKS

M. D. Edwards, Program Manager[1/]

Good morning ladies and gentlemen. Welcome to New Orleans and our second NAWDEX membership conference. I know that most of you were with us at our first membership conference in Denver, Colo., last year. Attendance is down somewhat from last year. I think this can be attributed to several factors, one being a severe cutback in travel funds among Federal agencies this year. Also, Mother Nature hasn't been too kind to some of our environmental people in this area for the last 2 or 3 weeks. I have talked to several people who perhaps would have been here if the flooding situation had not occurred. I would like to give a special welcome to our invited guests who are with us today. I hope that you will feel free to take part in the proceedings during the next 2 days, and if you are not yet a member of NAWDEX, we invite you to become one. I would be happy to discuss the matter with you before you leave.

The program has continued to expand, and for the remainder of the morning we are going to be looking at a lot of the things that have happened since our last meeting.

There is still a lot to be done, and that is why we are here for the next 2 days--to take a look at the program and determine what our priorities are going to be for the next year.

I hope that during the time we are here, if you have any questions about the NAWDEX program, you will make it known and give me or any of the NAWDEX staff, or other NAWDEX members, an opportunity to answer them.

I want to remind all of you of our orientation session which will be held Friday morning following the conference. During that orientation session we are going to take a closer look at some of the new capabilities of NAWDEX, in terms of new products that have been developed during the last year, and some new systems capabilities that have become available to us. Some of our contractors will be there to discuss these new systems capabilities. AMS, Incorporated, from whom we are now leasing computer time will have a representative here Friday morning to specifically discuss some of the new xeroxing and microfiche capabilities that have become available to us in the last few months.

We will proceed now with the business of the day, and I will begin by reporting on the status of NAWDEX as of this date.

[1/] National Water Data Exchange, U.S. Geological Survey, Reston, Va.

STATUS OF THE NATIONAL WATER DATA EXCHANGE (NAWDEX) - MAY 1979

By Melvin D. Edwards[1/]

I am pleased to report to you that the NAWDEX program has continued to grow in both scope and activity since our last conference in May 1978. Membership participation has grown to 135 member organizations and 2 foreign affiliates. This is an increase of 24 members and 1 foreign affiliate during the past year--an increase of 22 percent.

We have continued our efforts to improve the public awareness of NAWDEX. The NAWDEX Newsletter now has over 600 subscribers. The fourth issue was published in August 1978 and the fifth issue is now in preparation. NAWDEX personnel have exhibited or presented papers on NAWDEX at 10 major meetings, symposia, exhibits, and conferences during the past year. These have included Water Resources Conferences in the States of Alabama and Mississippi; the thirteenth meetings of the Interagency Advisory Committee on Water Data and the Advisory Committee on Water Data for Public Use; national exhibits conducted by the Water Pollution Control Federation in Anaheim, Calif., and the American Water Resources Association in Orlando, Fla.; the National Conference on Quality Assurance of Environmental Measurements in Denver, Colo.; the Water Resources Technical Engineering Committee of the American Society of Civil Engineers in Reston, Va.; the centennial celebration of the U.S. Geological Survey at its National Center in Reston, Va.; and, just this past weekend, we participated in a major exhibit sponsored by the Department of Engineering of the University of Wisconsin.

Major changes have been made in the structure of the NAWDEX Program Office during the past year to help improve our methods of operation. The office was reorganized in January 1979 with the establishment of two operational units: the User Services Unit, which places more emphasis on our user request and response activities, and the Support Services Unit, which provides better management of our computer and data-support activities. A data base administrator position has also been established to provide better management of our growing data base activities. The NAWDEX staff currently consists of nine full-time personnel and one part-time person; a net loss of one part-time person since our last conference. Two additional full-time persons are, however, in the process of being transferred from other activities to the Program Office and are already performing NAWDEX functions on a full-time basis. In addition, we are in the process of securing the employment of two additional part-time personnel. This will provide a staff of 11 full-time personnel and 3 part-time personnel within the next few months; a net increase of 4 staff members. The NAWDEX staff has also been supported this fiscal year through contractual support of 4.5 personnel years to date; an additional 2.75 personnel years of support are in the process of

1/Program Manager, National Water Data Exchange, U.S. Geological Survey, Reston, Va.

being secured; and an addition of approximately 2.5 personnel years are planned during the remainder of the fiscal year. This will provide the NAWDEX Program Office with a total work force of approximately 23 personnel years by the end of this fiscal year. This represents a significant increase over our past year of operation.

The NAWDEX budget was increased by $500,000 this fiscal year, thereby providing us with a net operating budget of $1.14 million for fiscal year 1979. This is an increase of 69 percent in funding. We have already been informed, however, that this level of funding will remain constant through fiscal year 1980.

Significant progress has also been made in our data request and response activities. A total of 67,681 request-response transactions were conducted by the Program Office and the Assistance Center network during fiscal year 1978. This was a 30 percent increase over the number of transactions reported during a comparable period in the previous year. An additional 18,213 transactions were reported during the first quarter of fiscal year 1979 displaying a continuing growth factor of about 20 percent over the same applicable period last year.

Three new centers have been added to our Assistance Center network since our last conference; this gives us a total of 56 centers. We are pleased to welcome the Nebraska Natural Resources Information System in Lincoln, Nebr., the Great Lakes Information Center in Ann Arbor, Mich., and the Geological Survey subdistrict office in Salem, Ore., to the network. I am also pleased to announce that a pilot program has been established between the Program Office and the Geological Survey's Public Inquiries Office to determine the feasibility of including NAWDEX referral services as a part of the Public Inquiries Office activities. This program is working well at the National Center in Reston and expansion of the relationship to some or all of the other nine Public Inquiries Offices is being considered. Also, at least five other organizations have indicated an interest in participating as Assistance Centers.

The Program Office made an effort to extensively expand its training program this year but met with little success. Two training sessions for the orientation and training of Assistance Center personnel were planned to be held in Denver, Colo., and Reston, Va. Twenty-seven persons were provided training in Denver in November 1978. The session to be held in Reston in December was cancelled, however, because of an insufficient number of participants. Four member orientation sessions were planned for Reston, Va.; Atlanta, Ga.; Denver, Colo.; and San Francisco, Calif. All sessions except the one in Reston were cancelled because of insufficient participant response. Those who did respond were invited to attend a 2-day session in Reston on February 28 and March 1, 1979. Twenty persons, representing 10 member organizations, attended. As a result of the poor response to training, we have completely reevaluated our programs and a new training program will be implemented in fiscal year 1980. This will be discussed later in the conference.

As indicated on the agenda, activites have been implemented for the

development of recommended methods for the handling and exchange of water data and to provide advisory support to the Program Office. These activities also will be discussed in detail later in the program.

The Program Office has continued to provide liaison for NAWDEX members in obtaining computerized access to the data files of NAWDEX, the Geological Survey's WATSTORE system, and the Environmental Protection Agency's STORET system. To date, 13 organizations representing 13 remote terminal sites are authorized access to NAWDEX; 25 organizations representing 64 terminal sites are authorized access to WATSTORE; and 9 U.S. Geological Survey Water Resources Division District Offices have been provided access to STORET. In addition, over 60 remote terminal sites of the Geological Survey's Water Resources Division have access to the NAWDEX data bases.

In order to gain additional computer resources for the NAWDEX program, to acquire increased facilities for the access of NAWDEX and WATSTORE data bases by NAWDEX members, and to assist in relieving an overload situation on the central processing unit utilized by both NAWDEX and WATSTORE, all NAWDEX data bases and software systems were moved to an outside computer system providing leased resources to the Geological Survey in January 1979. This move has provided NAWDEX with increased computer power through use of an IBM 370/165 computer—an upgrade from the IBM 370/155 previously used; expanded online, direct-access data storage; increased potential for direct-access, time sharing users of the NAWDEX data systems; a reduction in computing cost for this fiscal year; and additional peripheral hardware, including sophisticated, off-line printing capability and microfiche output capability. These capabilities and the new products made available by their use will be discussed in more detail at our orientation session scheduled for May 4, 1979, following the conference.

The development of new systems and the enhancement of existing systems has continued since our last conference. Accomplishments have included:

1. Extensive modification of the Edit/Update software for the Master Water Data Index (MWDI) which reduced its computer core requirements for execution, greatly reduced the execution time with proportionate cost savings, and simplified the design structure of the system.

2. A complete review and analysis of the MWDI data base to define needed changes and additions to improve the utility and efficiency of the data base which resulted in a series of recommended changes for future implementation.

3. The development of design specifications for a system for the indexing of areal data.

4. The implementation of a software system for producing statistical and numerical summaries of the NAWDEX data bases.

5. Modifications to extend the retrieval criteria for the MWDI.

6. A modified retrieval system for the Water Data Sources Directory (WDSD) to greatly expand the retrieval criteria capabilities and to provide

for the production of a Directory of Sources of Water-Related Data in addition to a Directory of Sources of Water Data.

Additional activities are also underway which include:

1. The development of a statistical and numerical summary of the MWDI.

2. The development of a computerized interface between the MWDI and the Texas Natural Resources Information System (TNRIS).

3. The development of interface software for summarizing the number of sites indexed in the MWDI and the transfer of this information to the WDSD.

4. The development of machine-readable edit/update audit and transaction reports to allow retrieval of these reports from remote terminal units.

We have made good progress in increasing our information resources during the past year. Nearly 200 additional organizations have been added to the WDSD. Over 600 organizations are now identified in the data base. Currently, the WDSD is being updated with information about the volumes of data indexed by each applicable organization in the MWDI. A complete retrieval of all data in the data base will be made and distributed to all organizations within the next few weeks for validation, amendments, and additions. We plan to enter this update information into the data base by late summer and to prepare the text for publication of the first volume of the WDSD in early fiscal year 1980.

Over 305,000 sites have now been indexed in the MWDI. The large increase during the past year is attributed primarily to the indexing of water-quality data available for over 100,000 ground-water sites which are being, or have been, operated by the Geological Survey. The annual updating cycles for data stored in the WATSTORE and STORET systems are underway at this time and are scheduled for completion by early June. Work has just recently been completed on the production of data integrity reports for all data contained in the MWDI. These reports are currently being prepared for dissemination to all contributing organizations for review and updating. This will be done in two phases: (1) All active sites and sites discontinued since 1974 will be disseminated in coordination with the USGS Office of Water Data Coordination (OWDC) for acquiring information necessary for their annual data-coordination cycle and the update of the Catalog of Information on Water Data; and (2) data for all sites discontinued prior to 1975 will be disseminated this summer for a one-time only review and update. You will receive specific instructions on these processes in the very near future. Also, those members who have not been provided the opportunity to index their data in the MWDI will be asked to begin this process on a voluntary basis this fiscal year.

The MWDI is now being used to produce a variety of information products. In addition to products provided on an ad hoc basis, the MWDI has been used during the past year to produce 63 index volumes for the 21 regional plans prepared by OWDC, and 21 volumes of the OWDC Catalog of Information on Water Data now being prepared for publication. Work has been completed on the first

volume of an Index to Water Data Activities in Coal Provinces of the United States, recently published by OWDC, and three additional volumes are scheduled for completion this fiscal year. In addition, four volumes of an Index to Stations in Coastal Areas are scheduled for production this summer. We now have extensive capabilities and the flexibility for the production of special-interest products, and I expect the demands for this type of information to increase. Many of these capabilities will be discussed at our orientation session on Friday morning.

I am pleased with the progress we have made in the past year. We have responded to most of the suggestions and recommendations resulting from our first membership conference and I will be addressing these items later in the program. I ask for your continued support of the program and I look forward to an equally productive year between now and our next conference.

STATUS OF RESPONSES TO RECOMMENDATIONS OF THE FIRST MEMBERSHIP CONFERENCE

By Melvin D. Edwards

I would like to report to you on the status of our responses to the recommendations of the first NAWDEX membership conference.

We haven't responded to all of the recommendations, of course, but I'd like to go directly to some of those things to which we were able to respond.

Four ad hoc panel sessions were conducted at our first NAWDEX membership conference. These panels dealt with subjects relating to program administration, management and coordination; request, response and service activities; water-data indexing and technical systems development; and recommended methods for the handling and exchange of water data. The results of these panels provided a wide variety of excellent recommendations which were later used as the primary basis for the development of our program objectives for fiscal year 1979.

First, I would like to consider the recommendations made by the Ad Hoc Panel for Program Administration, Management and Coordination. Their recommendations were as follows:

1. Staffing of the NAWDEX Program Office should be increased to provide the management oversight vital to this rapidly expanding project. There has been positive response to this recommendation. One hydrologist has been added to the staff since the last conference. Two full-time clerical personnel are in the process of being transferred to the Program Office from other activities within the Water Resources Division. Also, the Program Office is in the process of securing the employment of a part-time computer technician and a part-time computer programmer. One of these positions replaces a person who retired from the Program Office in May 1978. This gives us a net increase of four staff members to the Program Office since our last conference was held.

2. Action should be taken to increase NAWDEX membership by:

a. Developing a slide and cassette presentation on the NAWDEX program. There has been no action taken on this recommendation. However, it is considered by the Program Office to be a viable recommendation, and plans are to develop such a presentation as soon as personnel resources become available.

b. Developing a videotape presentation using the same approach as the slide and cassette presentation and, perhaps, using animation. The decision has been made that, once the slide and cassette presentation has been developed, this presentation will be transferred to videotape in order that it can be used in both media.

c. Promoting regional and statewide NAWDEX organizations and

facilitating the memberships of these organizations. The first step in this recommendation was taken recently by acquiring the membership of the Great Lakes Information Center which has also since become a NAWDEX Assistance Center. Great Lakes Information represents the six States in a regional area surrounding the Great Lakes. This represents our first regional NAWDEX structure, and we hope to add other regional structures to the program within the next year. We're already in discussion with the National Oceanic and Atmospheric Administration (NOAA) on the possibility of bringing some of their coastal regional centers into the program.

3. An ad hoc advisory group should be formed to provide guidance to the Program Manager. This group should be made up of member representatives selected equally from each of the categories of NAWDEX member organizations, and foreign affiliates should be invited to attend the meeting. The NAWDEX Program Manager should serve as executive secretary of this group and the group should select its own chairman.

This has been accomplished, but not within the context as originally proposed. To comply with the requirements of the Federal Advisory Committee Act, and also to take full advantage of the existing expertise of the Federal Interagency Advisory Committee on Water Data and the non-Federal Interagency Advisory Committee on Water Data for Public Use, subcommittees have been established on both of these advisory committees and will work to serve in an advisory capacity to the NAWDEX program. They are the Subcommittee on Water Data Exchange which works under the auspices of the non-Federal interagency Advisory Committee on Water Data for Public Use; and the Subcommittee on Water-Data and Information Exchange, which works under the auspices of the Federal Interagency Advisory Committee on Water Data.

While not fitting the specific requirements of the original recommendations, I believe that these two subcommittees will serve the functions of the proposed ad hoc advisory group. You will be hearing more concerning these two subcommittees by their respective chairmen later in the program.

4. Member organizations should be encouraged to designate additional NAWDEX representatives consistent with their operations and organizational structure. The NAWDEX Program Office should be provided the names and mailing addresses of these additional representatives so that they can receive NAWDEX literature.

This proposal was made to the NAWDEX membership via a memorandum submitted by me on May 30, 1978. While a few member organizations have responded to this request, thus far the response has been minimal. We will be repeating that request to try to get more organizations to do this.

5. Specifications for indexing areal and nonpoint source data should be developed. These data are required to meet an identified need of a growing user community. This has been accomplished. Design criteria for a new data base to be used for the purpose of indexing areal and nonpoint source data has been developed under contract and submitted to the NAWDEX Program Office. This design is now under consideration by the Program Office, and a decision

will be made at a later date as to the feasibility of implementing the design specifications.

6. The Water Data Sources Directory should be improved and expanded. Particular emphasis should be placed on including major computerized data bases as an initial effort. Expansions have been made in the Water Data Sources Directory, both in terms of expanding the data base to include the entry of information concerning water-related data collected by registered organizations, and to provide much more extensive retrieval-capability criteria from the data base.

Capabilities do exist in the Water Data Sources Directory for the textual description of major computerized data bases operated by each member organization. In addition, the Program Office has been studying the feasibility of using other data bases available within the NAWDEX membership for the purposes of describing data systems maintained by the NAWDEX member organizations. Special attention has been given to the Water Supply Data Base developed and implemented by the Electric Power Research Institute in San Jose, Calif. Additional information on this system will be provided to the NAWDEX membership after additional study has been made.

Also, study has been completed on expanding the Directory to include information on water-related data and a new retrieval system has been completed which offers a much-expanded set of retrieval criteria for the data base.

7. Member interaction in improving and expanding the Master Water Data Index should be encouraged. An appropriate training program to facilitate this objective should be established. An effort was made to comply with that recommendation, but met with very little success.

8. Automated capabilities for indexing computerized water data files of member organizations should be developed. This is underway and will be a continuing effort.

In addition to the two computerized interfaces previously developed, the U.S. Geological Survey's WATSTORE system and the U.S. Environmental Protection Agency's STORET system, a third interface is currently under development between the Master Water Data Index and the major data files of the Texas Natural Resources Information System. This interface is scheduled to be completed in late calendar year 1979. I would like to point out that an important feature of these three major interfaces is the fact that each of these organizations contributed the personnel and resources necessary to do the programming, to summarize their data bases, and to provide that information to NAWDEX in a machine-readable form that we can index. This is a most important contribution to this program. These organizations are to be recognized for the contribution that they've made through these contributed resources.

Plans are also being made to develop additional computerized interfaces with other member data systems during fiscal year 1980.

9. Software should be developed to make it possible to assemble summary information from the Master Water Data Index. This has been accomplished. A new software system called QWICKTAB was implemented by the NAWDEX Program Office in February 1979. This new system provides for the development and presentation of both statistical and numerical summaries from both the Master Water Data Index and the Water Data Sources Directory.

In addition, a statistical package called SAS, Statistical Analysis System, is now in use by the NAWDEX Program Office to provide added capabilities in producing ad hoc type statistics from the NAWDEX data bases.

10. Major non-Federal NAWDEX members should be encouraged to become Assistance Centers. This is being accomplished in a very deliberate manner. Since our last meeting, two non-Federal organizations have agreed to participate and have become a part of our Assistance Center network. These are the Nebraska Natural Resources Information System and the Great Lakes Information center.

Plans are to accelerate the program of encouraging non-Federal NAWDEX members to participate in this activity during the remainder of fiscal year 1979 and continuing into fiscal year 1980. Several mechanisms are being explored to encourage organizations to participate in this activity.

11. Recommended standards for the handling and exchange of water data should be developed. This activity was implemented in February of 1979 and will be discussed in more detail later in my presentation.

12. The NAWDEX Program Office should investigate the feasiblity of implementing the UPGRADE system of the Council on Environmental Quality (CEQ) for use by NAWDEX Assistance Centers and for providing service for NAWDEX users.

Although the NAWDEX Program Office considers this to be a viable recommendation, resources have not been available during this fiscal year to allow us to explore this possibility. Also, computer resources are not available within the Geological Survey to allow us to support additional systems at this time. However, we do intend to make future contact with CEQ in terms of investigating the availability of UPGRADE for use by NAWDEX member organizations. I am familiar with the operations of the system, and it was demonstrated at our conference last year. It is being used successfully by the Geological Survey in terms of performing statistical type analysis and displays of water quality data. If you have a need for such a system, we would be happy to contact CEQ for you. A representative of CEQ, Mr. Gevantman, is here today. He would be happy to discuss it with you also, I am sure.

13. Membership conferences should continue to be held annually. The location should be varied to accommodate the participation of local members, and an attempt should be made to reduce the duration of the conference to 2 days by reducing the number of papers to be presented. The format of working panels should be continued, and the membership should be given an opportunity to recommend subjects to be discussed at these working panels. All of these

recommendations were accepted and were used in the development of our second membership conference being held here today.

We will next consider the recommendations provided by the Ad Hoc Panel on Request, Response, and Service Activities. They were as follows:

1. The NAWDEX Program Office should continue to seek access to water data systems which are nationwide in scope and are available through public and nonpublic organizations. As much as possible, the NAWDEX Program Office should facilitate access to such systems for NAWDEX Assistance Centers and should, in fact, encourage direct access by the centers. This is a viable recommendation, but again little progress has been made in this area during the past year because of restricted resources available.

Many states are recognizing the need to coordinate natural resources and related data at the State level. As a result, many centralized data banks and information systems within State governments are either being designed or are already in development. NAWDEX should make a concerted effort to solicit participation from State natural resources information systems as Assistance Centers. As previously discussed, this activity is underway.

It is also recognized that regional offices of various Federal agencies provide data and other services to an extensive user community. NAWDEX should seek to establish Assistance Centers within selected entities from this group. Close coordination between Assistance Centers who serve users in common geographic areas should be strongly encouraged by the Program Office. Pilot programs in this area are underway with the addition of the Assistance Center facilities of the Great Lakes Information Center which serves as a regional information referral center for the Great Lakes area, and also the pilot program underway with the Geological Survey's Public Inquiries Office.

2. The ad hoc panel agreed that the NAWDEX Policies and Procedures Manual is very well organized, adequately covers the subject, and can be easily used by members. Anticipating the needs for policy changes as NAWDEX continues to develop, the panel recommends that the manual be published in loose-leaf form for ease of update. This recommendation has been accepted and is in the process of being accomplished. The title of this publication is being changed to "Operational Guidelines for Assistance Centers of the National Water Data Exchange."

Assistance Centers should be encouraged to submit a statement to the Program Office of appropriate policies and procedures, information on fees for services, and a resume of capabilities which exist for manipulation and presentation of data indexed in NAWDEX. Such information should be published in an expanded directory of Assistance Centers of NAWDEX. Consideration should be given also to including selected items relating to charges of Assistance Centers for services and other policies and procedures relating to providing services in the Water Data Sources Directory. This recommendation is currently under study by the NAWDEX Program Office, and portions of these recommendations will be implemented in future issues of the Directory of NAWDEX Assistance Centers.

3. The Program Office should expand existing capabilities for identifying the general capabilities associated with each data file included in the Master Water Data Index. Output capabilities, such as computer-generated graphic products and microfiche, should be identified in the MWDI. This capability exists as a part of the MWDI data base.

4. Since Assistance Centers are in constant contact with data users, it seems appropriate that a mechanism be established within the Program Office to compile a list of member's needs for additional capabilities from the data systems which have established cooperative programs with NAWDEX.

This is an excellent recommendation and one that we hope to pay closer attention to now that we have established our new User Services Unit and will be devoting more management time and attention to that activity.

5. It is suggested that NAWDEX consider developing computer software to track individual accesses to the Water Data Sources Directory and the Master Water Data Index. Each access could be tied to individual Assistance Centers through computer account numbers. Potential reporting errors would be documented. The development of design criteria for an automated accounting system for the NAWDEX program and its Assistance Center network is scheduled for early fiscal year 1980.

The panel also recommended the following new capabilities:

1. An automated bibliographic cross-reference file to associate entries in the Master Water Data Index to available published supported information. No action has been taken on this recommendation. However, a new bibliographic reference system is under design within the Geological Survey's Water Resources Division. The NAWDEX Program Office is closely following the development of this system to determine the feasibility of using the system for the aforementioned purpose.

2. Computer output microform capabilities should be considered by NAWDEX as the Master Water Data Index continues to grow. Microfiche capabilities are currently available for output from both the NAWDEX Water Data Sources Directory and the Master Water Data Index.

3. Additional software to provide expanded selection capabilities for the MWDI should be developed. Expanded capabilites should include selection of data indexes by length of record. In addition, the availability of a histogram generation program to portray the relative frequency of stations with selected lengths of record would be useful. No action has been taken on this recommendation. However, we will continue to evaluate this recommendation as we develop our priorities for future systems development.

Next, we will consider the recommendations from the Ad Hoc Panel for Recommended Standards for the Handling and Exchange of Water Data. The panel recommended that the following actions should be taken in this area:

1. NAWDEX and the Office of Water Data Coordination should jointly organize a working group for NAWDEX members and other organizations vitally

interested in water resources data to implement the purpose stated below:

Purpose: To develop recommended optimal methods for the handling and exchange of water-related data as specified by (1) data handling, and (2) data exchange.

Action has been taken on this recommendation through the establishment of a Technical Group, No. 12, which will serve under the Coordinating Council for Water Data Acquisition Methods, which works under the aegis of the Interagency Advisory Committee on Water Data. This group will be working toward the development of recommended methods for the handling and exchange of water data. I serve as the chairman of this technical working group, and more details on the accomplishements of the group will be given later in the program.

2. It is further recommended that this working group be established by September 1, 1978, and that a report relating to their progress be given at the 1979 NAWDEX membership meeting. The report should include a schedule for meeting the purposes of the objective. Although the establishment of the working group was not accomplished until February 1979, a report of the progress of that working group will be given later in the program.

3. It is further recommended that the items to be addressed by the working group should include, but not be limited to, the following: Federal Information Processing Standards, Hydrologic Units, identifying type of data storage, site location, data codes, common data exchange formats, and identification of accepted standards via codes. These items and others are all included in the activities of the Recommended Methods Work Group.

4. It is further recommended that the term "methods" be used in lieu of the term "standards". This recommendation has been adopted and is now in use.

Finally, we will consider the recommendations of the Ad Hoc Panel on Water Data Indexing and Technical Systems Development. The following specific recommendations were made by that panel:

1. Systems documentation and training. Existing documents are good, but need to be enhanced, organized into a single unit, and have an overview that takes the user through the system. Training and funding is needed to let member personnel become aware of how to use NAWDEX and what advantages there are in using the NAWDEX system.

The following suggestions were made to attain these goals:

Organize all NAWDEX documentation into a multivolume, cohesive unit. This is currently being accomplished through the development of a new NAWDEX program guide consisting of five volumes. These volumes include an administrative guide, a systems guide, a guide to the Water Data Sources Directory, a guide to the Master Water Data Index, and a set of appendixes.

An overview document is needed with a flowchart on how to use the total

NAWDEX system. This overview document is being developed as a part of the new NAWDEX program guide.

Distribute brochures and samples of output from affiliated systems. This is being accomplished as material is provided to the NAWDEX Program Office for distribution. If you have brochures on your data systems and services, I encourage you to distribute that information to other NAWDEX members. Try to keep members aware of what's available within the program.

Circulate an order form which lists available documents. This has not yet been accomplished. It's something we're seriously looking at.

Write a manual on how to use time sharing batch terminals. Include information on control cards, phone numbers and how to actually use the data bases with applications examples.

A tutorial type System 2000 manual currently exists and is now being updated to include the latest version of the System 2000 data base management system. Appropriate control cards, phone numbers and other information necessary to access the NAWDEX data bases will be included as a part of the new program guide.

Insure that designated representatives with member organizations receive all documents. All current NAWDEX systems documents are in the process of being rewritten and formalized for publication as official documents. As this is accomplished, the documents will be distributed to all NAWDEX member representatives.

Update and publish an active membership mailing list. This is being done in the form of a NAWDEX Membership Directory. Also, a computerized mailing list of all NAWDEX member organizations and designated representatives is maintained by the NAWDEX Program Office and a complete set of membership mailing labels can be made available to NAWDEX members upon request.

Provide information on how to access systems of other members and how to handle referrals (with examples). Information on systems and services of other members is being made available in our "Operational Guidelines for Assistance Centers" (formerly the "Policies and Procedures Manual") which is being prepared for publication and distribution. Information on how to access these systems will have to be provided by the individual member organizations maintaining these systems.

"Flag" documents as technical or nontechnical. This is being done through a new annotated bibliography of all NAWDEX publications which will be included as a part of the new program guide. This bibliography is in preparation for publication and should be available to all members within the next few weeks.

Enhance the documentation on the Master Water Data Index data preparation input with respect to Part 5 of the encoding form. This is the encoding form for entering information into the data base on water quality data. More space needs to be provided in the fields to be encoded. The form is being redrafted

now, and this recommendation is being considered in the redesign of that form.

Provide training in NAWDEX systems for all member organizations similar to that provided in the NAWDEX Assistance Center seminars and conduct hands-on workshops throughout the year. This type of training program is being considered for implementation during fiscal year 1980.

Prepare materials suitable for an introduction for potential NAWDEX users. In addition to the leaflet entitled "NAWDEX--A Key to Finding Water Data," a new brochure has recently been drafted which will describe the capabilities of the NAWDEX program, including examples of many of the NAWDEX information products available, as well as descriptions of many of the NAWDEX data systems. It is hoped that this brochure will be available for public distribution in early fiscal year 1980.

NAWDEX staff members should educate the water community about the NAWDEX program by making presentations to professional and other academic societies. This is being accomplished to the extent possible within personnel travel funds available to the NAWDEX Program Office.

Provide nonmember training on how to index data for the MWDI. This was discussed briefly at our recent NAWDEX orientation session. It will be discussed briefly at our orientation session on Friday morning, and a more complete training session in this area is being planned for fiscal year 1980.

Prepare a manual or handbook on training. Hopefully, the new program guide will serve this purpose.

Hold a NAWDEX users' symposium. This is a viable recommendation, but no action has been taken on this so far.

Acquire funds for training program development. Funds for training purposes are allocated as a part of the NAWDEX program financial plan in each fiscal year.

2. Current and Planned NAWDEX Systems and Data. Member systems accessible through NAWDEX need to be inventoried and published. Such an inventory is currently being compiled and hopefully it will be published in the near future by the American Water Resources Association. In addition, brief summaries of NAWDEX systems and services available through NAWDEX are being made a part of the Operational Guidelines for Assistance Centers of the National Water Data Exchange.

It is recommended that the Department of Commerce seek funds to finance the integration of precipitation data from all stream stations in NAWDEX indexing systems. Distinctions between the EPA agency codes for data in STORET and the operating organizations who collect data should be shown in the Master Water Data Index.

In regard to the first recommendation, such a proposal was made in April 1976 by a task group of the Interagency Advisory Committee on Water Data through a document entitled "Development of a Catalog of Information on

Surface Meteorological Data." In addition, a workshop is being held on this subject next week in Harpers Ferry, W. Va., by NOAA, and I will be participating in that workshop.

In regard to the second part of this proposal, both the NAWDEX organization code and the EPA code are stored as a part of the Master Water Data Index and can be readily identified if needed.

Index the USGS Unit Value Files of WATSTORE. This has not been accomplished, and there are no resources currently available to do so.

Documentation of ground-water parameter groupings is needed. Show sources of data to define any duplication of data storage and identify the original source of information for water quality data indexed. This capability presently exists within the Master Water Data Index and is being utilized to the greatest extent possible with the information we have available.

Planned systems should include:

Revised software for continued indexing of STORET. This has been done. This revised software has been made available, and new software is currently under development to identify those stations within STORET that have been terminated and become obsolete.

Integration of digitized files of hydrologic unit codes into the MWDI update system. This has been accomplished.

Expansion of the set of command strings using System 2000 Immediate Access or natural language to facilitate retrieval from the MWDI. The set of command strings for use with the MWDI has been expanded significantly during the past year. These have been made a part of the data base definition and are available for use. New command strings are developed and added to the system upon demand.

Improving the software for updating the Water Data Sources Directory with information on sites indexed in the Mater Water Data Index. This software development is underway at this time and is scheduled for completion this summer.

Revision of the Water Data Sources Directory to allow the input of information on water-related data and more flexible queries. This has been accomplished.

Producing a Water Data Sources Directory, a Water-Related Data Sources Directory, or a combined Directory in hard copy for member agency review. This is being accomplished at this time.

Review and revision of the MWDI to incorporate new and needed indexing items. This has been accomplished.

Development of design criteria for indexing areal data. This has been accomplished.

Development of documentation for use of graphic output systems available in NAWDEX. This is available on a limited basis.

Needed systems and data extensions identified beyond those current and planned should include:

Instream flow recommendations based on adequate field investigations along with methods used, agency date, and status of implementation. This file has been described in concept and tentatively labeled "Instream Flow Information System (IFIS)" by the Cooperative Instream Flow Service Group, U.S. Fish and Wildlife Service, but has not been implemented. No action has been taken by NAWDEX on this recommendation. However, we do hope to work closely with the Instream Flow Group as the development of this system progresses.

Biological data base for riverine habitat. This has been discussed in terms of BIO-STORET and RIMS (Riverine Information Management System). There has been no action on this recommendation.

Dam operational index categories, release times, etc., particularly sequentially over total river reaches. Several systems of this nature exist and could be indexed by NAWDEX.

Discussions have been held with the Corps of Engineers on their dam index system, and the Corps has agreed to cooperate with the NAWDEX Program Office in making this information available to interested users.

Expand categories of information on toxics, based on expected actions by EPA in response to the Toxic Substances Control Act. The number of parameter codes being indexed by the NAWDEX/STORET interface system was expanded during fiscal year 1978, and a significant amount of information on toxic substances is expected to be added to the Master Water Data Index during the STORET indexing cycle that's in process right now.

In addition, there is a need to identify users of various data files and establish priorities for systems in data file development. This would aid in determining what is to be added to NAWDEX and when.

The user accounting system of the NAWDEX program serves in part to satisfy this response. Additional requirements of this type will be considered in the future design of an automated NAWDEX accounting system.

3. Member input and technical support of systems development. Areas in which NAWDEX coordination could be useful:

a. Development of standardized formats for the transfer of data among processing sites. This is being included in the new activity for the development of recommended methods for the exchange of water data and is a

recognized mechanism for saving a significant amount of time in the exchange of data between systems annually.

b. Development of standardized indexing schemes (not necessarily one scheme). This item is also being considered in the new activity for the development of recommended methods for the handling and exchange of water data.

c. Inclusion of major State water-related data bases in the NAWDEX system. This is being accomplished to the extent possible within the resources available to both the NAWDEX Program Office and member organizations.

d. Establishment of a file of experts and (or) contact persons with respect to water-related data collection, sources, and analysis. At this time we rely upon the designated NAWDEX representatives to be a source of this type of information.

e. Development of a software inventory for water-related analysis program. There has been no action taken on this recommendation.

4. Problems, comments, and recommendations regarding data indexing.

Submitters of new data should be responsible for accuracy of original report and followup verfication. Reports and entries of unverified data should not be submitted by members. NAWDEX agrees with this recommendation. No action has been taken at this time.

NAWDEX should provide close guidance to those members (and others) wishing to index their own existing data bases. The NAWDEX Program Office is providing consultation and technical assistance to those organizations wishing to proceed in indexing their existing data bases.

Consideration should be given to incorporation of some type of "data credibility" code or field. This recommendation is being considered as a part of the activity for the development of recommended methods for the handling and exchange of water data.

NAWDEX should move into its new coding format as soon as possible. This will be accomplished as soon as approval is received from the Office of Management and Budget on the new encoding format and encoding instructions.

5. Automated interfaces between the Master Water Data Index and member data systems.—NAWDEX should request extra funding and personnel to provide for technology transfer to enhance the capabilities of states to automate their interfacing capability; to consult with local cooperating organizations to develop automated interfaces; to purchase assistance for the local cooperative organizations to develop automated interfaces; and to provide technology guidance as soon as possible to new members.

Sufficient funding is expected to be available in fiscal year 1980 to make a minimal start toward this effort. Those items under consideration for

implementation during fiscal year 1980 are the acquisition of contractual support to provide technical assistance and systems development, and the development of member interfaces and technology guidance by the NAWDEX Program Office staff to the extent possible within available personnel resources. No additional personnel are expected to be made available to the NAWDEX Program Office within the next year.

The panel considered the Water Data Sources Directory (WDSD) an important part of the NAWDEX information base. It was recommended that the effort be made to obtain more complete information for the WDSD for all agencies in the Master Water Data Index.

We are in the process of getting that information to the registered organizations so that they can update and expand that information for the WDSD.

In conclusion, not all recommendations made by the ad hoc panels in our first membership conference were accomplished due to a lack of personnel and financial resources. Many of those recommendations that were not accomplished, however, were considered viable and will remain on the priority list for future action by the NAWDEX Program Office.

The work of the ad hoc panels during our last conference was very helpful to the NAWDEX Program Office in the development of our program objectives for fiscal year 1979; in helping to establish priorities on the development of systems and indexing techniques; and in other matters relating to establishing priorities in the administration of the total NAWDEX program.

I feel confident that we will receive the same type of important input from the ad hoc panels that will convene here at our second membership conference.

REPORT ON THE USGS NAWDEX COORDINATING COMMITTEE

By Melvin D. Edwards

A NAWDEX Coordinating Committee was established by the Chief Hydrologist of the Geological Survey's Water Resources Division in July 1978. The Committee has a continuing responsibility to advise the Chief Hydrologist on the functions and operations of the NAWDEX program. It reviews the effectiveness of the NAWDEX Program Office and USGS-established NAWDEX Assistance Centers in providing designated services to NAWDEX members, to the Office of Water Data Coordination and other Water Resources Division programs and offices, to private organizations, and to the general public. The Committee may address all items of consequence from the Charter to assess the progress of NAWDEX operations, including its organization, staffing, funding, accomplishments, and its immediate and long-term goals. The NAWDEX Program Office, on the other hand, may use the Committee in an advisory capacity to provide guidance for its operational procedures and other mission-related functions.

The Committee consists of the Chief of the Office of Water Data Coordination, the Assistant Chief Hydrologist for Operations, the Assistant Chief Hydrologist for Scientific Publications and Data Management, and the NAWDEX Program Manager. The Chief, Office of Water Data Coordination, serves as its chairman.

I would like to stress that this Committee supports, and does not conflict with, the Subcommittees that will be discussed later in the program. Rather, it is a mechanism for assuring maximum support for the NAWDEX program by the Geological Survey, as well as assuring that the Geological Survey, the Water Resources Division specifically, gains maximum benefit from the program.

The Committee has been very helpful to me over the last several months in matters relating to reorganization of the Program Office, the acquisition of additional staffing, resolution of problems relating to publication procedures, logistics associated with space for housing the Program Office, and improving our program relationship with the Office of Water Data Coordination.

As the Program Manager of NAWDEX, I wish to express my appreciation to the other members of the Committee for their assistance. I am sure I can count on their continued support in the future. Further, I believe that the establishment of this Committee clearly demonstrates the Chief Hydrologist's interest in the future success and viability of the NAWDEX program.

A REPORT OF THE SUBCOMMITTEE ON WATER DATA EXCHANGE (NAWDEX) OF THE NON-FEDERAL ADVISORY COMMITTEE ON WATER DATA FOR PUBLIC USE

By C. R. Baskin[1/]

At the First Membership Conference for NAWDEX Users, the Ad Hoc Panel on Program Administration, Management, and Coordination recommended that an advisory group be formed to provide guidance to the NAWDEX Program Manager. The Panel recommended that the group should be made up of representatives of NAWDEX members: Federal, State, and local government organizations; and interstate, academic, and private organizations. The Panel also recommended that the group should meet approximately quarterly at the expense of the NAWDEX Program Office.

Following the NAWDEX Membership Conference and after having had an opportunity for further thought and reflection, I suggested to the NAWDEX Program Manager that the advisory group which had been recommended at the First Annual Membership Conference should likely be established under the charters of the Federal Interagency Advisory Committee on Water Data and the non-Federal Advisory Committee on Water Data for Public Use. It was noted that the members of such a group could be drawn from representatives of NAWDEX-member entities serving on these two committees. It seemed that such an approach would assure the most mature and experienced judgement being available to the advisory group.

Subsequent to consideration by the two existing Advisory Committees, steps have been taken to set up the proposed subcommittees. I have been advised that I will be asked to chair the Subcommittee of the non-Federal Advisory Committee on Water Data for Public Use working in this particular area. Since the Subcommittee of the non-Federal Advisory Committee on Water Data for Public Use is just in the process of being named, there has not been any opportunity to have this group meet to begin examining NAWDEX operations in greater depth. It is anticipated that such opportunity will occur in the foreseeable future. It is to be hoped and expected that meetings of the Subcommittee will be held at times that intervene between meetings of the non-Federal Advisory Committee on Water Data for Public Use itself. In this fashion, there will be oversight opportunities for reviewing NAWDEX operations more frequently. A goal of at least two or three such opportunities annually continues to seem desirable. Also, periodic interface with the counterpart Subcommittee of the Federal Interagency Committee on Water Data, when such can be scheduled, will be beneficial.

The close scrutiny that the new non-Federal Subcommittee should be able to give to NAWDEX operations and the NAWDEX program will, in time, hopefully, result in improvements in the fashion in which NAWDEX is able to serve its many and varied users.

[1/] Chairman, Texas Natural Resources Information System Task Force, Austin, Tex.

I am extremely hopeful that the Subcommittee will focus sharply on recommendations and ideas coming from these annual NAWDEX membership conferences. The Subcommittee should serve as a mechanism to screen and refine membership conference input and effect its implementation. From annual membership conferences such as this and the one we had last year, a great many suggestions and ideas come forth, and it is possible that not all of them can be effectively implemented. Also, many ideas and suggestions will be generated by the NAWDEX staff and Program Manager. A determination of the priority basis on which all of these recommendations and suggestions should be considered and implemented is urgently needed. Hopefully, the newly established subcommittees on NAWDEX will in large measure be able to serve and function in this capacity.

REPORT ON THE SUBCOMMITTEE ON

WATER-DATA AND INFORMATION EXCHANGE

By Philip Cohen[1/]

The Subcommittee on Water-Data and Information Exchange was established in January 1979 after discussions held at the 13th annual meeting of the Federal Interagency Advisory Committee on Water Data. The establishment of the Subcommittee is also in response to the recommendation for the establishment of an Ad Hoc Advisory Group for NAWDEX, made at its first membership conference in May 1978. It functions under the auspices of the Federal Interagency Advisory Committee on Water Data and combines and replaces two formerly existing working groups: (1) The Federal Working Group on Improved Communications, and (2) the Federal Interagency Water Data Handling Work Group which was responsible for the original design concepts of NAWDEX. The Subcommittee works with its counterpart, the Subcommittee on Water Data Exchange, which has been established under the auspices of the non-Federal Advisory Committee on Water Data for Public Use. By working together, the two subcommittees provide representation for both the Federal and non-Federal sectors of the NAWDEX membership and, thereby, serve in an advisory capacity to the entire program.

Under the charter of the Subcommittee, I, in my capacity as the Geological Survey's Assistant Chief Hydrologist for Scientific Publications and Data Management, serve as chairman for the group; Doug Edwards, in his capacity as Program Manager for NAWDEX, serves as its executive secretary. In addition, Mr. Jack Wagar has been appointed by the Survey's Office of Water Data Coordination to serve as its liaison officer with the group.

Basic membership on the Subcommittee is from the Interagency Advisory Committee on Water Data. Other Federal organizations may, however, request representation on the Subcommittee and the Subcommittee, itself, may invite other participation or representation from the Federal sector. Each member organization of the Advisory Committee was invited in January to nominate participants for the Subcommittee. To date, 17 members and 5 alternates have been appointed by 15 Federal agencies. These agencies represent the Departments of Agriculture, Commerce, Defense, Housing and Urban Development, and Interior; and three independent agencies--the Environmental Protection Agency, the Water Resources Council, and the Council on Environmental Quality. Ten of these agencies currently are members of NAWDEX, two are in the process of becoming members, and the others will, of course, be encouraged to become members. Copies of the Subcommittee roster have been made available for those of you who are interested in the individual member participants. The excellent response by the Federal agencies to the Subcommittee indicates, to me, a strong interest within the Federal sector for the NAWDEX program and I

[1/] Assistant Chief Hydrologist for Scientific Publications and Data Management, U.S. Geological Survey, Reston, Va.

would hope that we can make constructive contributions to your program in the future.

The mission of the Subcommittee closely parallels that of our counterpart Subcommittee on Water Data Exchange whose activities were just reported to you by Mr. C. R. Baskin, its chairman. In general, we will be working toward improving old, and developing new, mechanisms and communication techniques for the exchange of water data and information on water data throughout the water-data community at all levels of the Federal and non-Federal sectors. The basic membership structure of NAWDEX is an excellent start toward accomplishing this task and we will undoubtedly be providing our support to help you to strengthen and increase this network of communication. We will monitor the progress of NAWDEX and serve in an advisory capacity, when needed, to the program for matters relating to the Federal water-data community. This includes matters concerning program objectives, budgetary needs, water-data indexing and exchange processes, and implementation of the NAWDEX concept throughout the Federal community. We will also respond on an ad hoc basis to those matters that are brought to our attention or submitted to us for action by the NAWDEX Program Manager.

Our first organizational meeting is scheduled for late May (1979). At that time, the group will be briefed on the status of the NAWDEX program and we will be discussing our mission and objectives. The Subcommittee will continue to meet in the future as often as necessary to meet its mission requirements. I would hope that there will be a joint meeting of both the Federal and non-Federal Subcommittees within the next few months in order to discuss how our activities can be mutually supportive to NAWDEX. Mr. Baskin and I will be discussing this option. Meanwhile, I ask each of the Federally designated NAWDEX representatives to feel free to provide your comments and ideas to me as to how the Subcommittee can best support your NAWDEX activities.

I believe that the Subcommittee can be highly beneficial to you and your program, and we stand ready to support you in any way possible. We will keep you informed of our future activities and hope that you will use us as a forum of discussion or an action group, as appropriate, on matters related to NAWDEX as the program continues to expand.

Thank you for the opportunity to discuss the Subcommittee with you today. I wish you a successful and productive conference and I look forward to meeting each of you in the course of the proceedings.

REPORT ON THE TECHNICAL WORKING GROUP ON RECOMMENDED METHODS FOR WATER-DATA HANDLING AND EXCHANGE

By Melvin D. Edwards[1/]

The development of recommended methods for the handling and exchange of Water Data is a defined part of the NAWDEX mission. As earlier discussed in the program, specific recommendations for the implementation of this activity were presented at the first NAWDEX membership conference. It was recommended at that time that a working group be jointly organized by NAWDEX and the Office of Water Data Coordination, consisting of NAWDEX members and other organizations vitally interested in the activity, to accomplish the tasks.

After careful consideration by the NAWDEX Program Office and the Office of Water Data Coordination it was agreed that (a) the development of recommended methods for the handling and exchange of water data should be in concert with, and an extension of, the ongoing activity for the development of recommended methods for the acquisition of water data; (b) the recommended methods should become a part of the "National Handbook of Recommended Methods for Water Data Acquisition"; and (c) the formation of a working group could best be accomplished in compliance with the Federal Advisory Committee Act by working under the aegis of the existing Federal Interagency Advisory Committee on Water Data and the non-Federal Advisory Committee on Water Data for Public Use. These proposals were later approved by these advisory committees at their 13th annual meetings held in September 1978 and November 1978, respectively.

As a result, the Working Group on Water-Data Handling and Exchange was established as the 12th Technical Working Group under the Coordinating Council for Water-Data Acquisition Methods of the Interagency Advisory Committee on Water Data. A request for nominations for the Working Group was issued to all member agencies of the Interagency Advisory Committee in January 1979. In response to this request, 18 representatives of 15 agencies of the Departments of Agriculture, Commerce, Defense, Energy, and Interior, and the Environmental Protection Agency were appointed to the Working Group.

The Working Group will function under the guidelines of the Coordinating Council for the Development of Recommended Methods for the Acquisition of Water Data. The methods developed by the group will be published as Chapter 12 of the "National Handbook of Recommended Methods for Water Data Acquisition." Prior to publication, all methods will be submitted to the Methods Coordinator of the Coordinating Council for review and comment by the Coordinating Council, the Subcommittee on Recommended Methods of the Advisory Committee on Water Data for Public Use, the entire NAWDEX membership, and other members of the Federal and non-Federal sectors that wish to serve as technical reviewers.

1/ Program Manager, National Water Data Exchange, U.S. Geological Survey, Reston, Va.

The first meeting of the Working Group was held at the U.S. Geological Survey's National Center in Reston, Va., on February 26, 1979. Mr. Dave Gudgel, Bureau of Reclamation, served as chairman pro tem for the opening session.

The Working Group was charged by Mr. A. Ivan Johnson, Methods Coordinator, to develop a detailed chapter outline by April 16, 1979, to develop a work schedule and target date, to discuss the needs for additional expertise and (or) agency representation, and to discuss the guidelines and policies for the Working Group.

The following proposed organization and objectives were presented to the Group:

A. Purpose and Scope: The Working Group will work toward the development of recommended methods for the handling and exchange of water data. This will include the study and review of existing methodologies, the endorsement of existing standards and/or methods that are adaptable for interagency use, the recommendation of amendments to existing standards and/or methods to make them adaptable for interagency use, and the development of new methods in areas where recognized standards and methods do not exist. The Working Group will give first attention to developing recommended methods for those data contained in Chapters 1-5 of the National Handbook of Recommended Methods for Water-Data Acquisition. Methods for other water data will be given future consideration as appropriate.

B. Composition: Basic membership will be from the Interagency Advisory Committee on Water Data. Other Federal organizations may request representation on the Working Group; the Group may invite other participation or representation from the Federal sector. The chairman of the Working Group will be selected by the Group from its membership.

C. Rules of Procedure: Meetings will be called by the chairman with sufficient frequency to assure completion of the methods development. The Working Group shall follow the guidelines for working groups as developed and amended by the Coordinating Council.

D. Support: Administrative support will be provided to the Working Group by the Office of Water Data Coordination.

E. Tenure: The Working Group has a continuing task in developing and updating recommended methods for the handling and exchange of water data and, therefore, has an indefinite term.

The election of a chairman and vice chairman was conducted as the first item of business. Melvin D. Edwards of the U.S. Geological Survey was elected chairman and Philip Lindenstruth of the U.S. Environmental Protection Agency was elected vice chairman.

The following actions were taken:

1. The proposed organization and objectives were reviewed and adopted by the Working Group with no changes.

2. The depth and scope of the Working Group activities were discussed. It was unanimously agreed that the group should eventually address the development of recommended methods for all 10 chapters of the "National Handbook of Recommended Methods for Water Data Acquisition." These chapters include (1) Surface-Water Quantity, (2) Ground Water Quantity, (3) Sediment, (4) Biologic and Bacteriologic Quality of Surface and Ground Waters, (5) Chemical and Physical Quality of Water and Sediment, (6) Soil Water, (7) Drainage-Basin Characteristics, (8) Evaporation and Transpiration, (9) Snow and Ice, and (10) Hydrometeorological Observations. Due to the magnitude of the tasks, however, the group agreed that initial priority will be placed on the development of methods for Chapters 1-5, above. The development of methods for the remaining chapters will be decided upon at a future date contingent upon recommendations to be made by the Coordinating Council. The group also recognized the need for the development of recommended methods for Chapter 11, Water Use Data, which will be deferred until draft methods are developed by the newly formed Working Group for Chapter 11. The group further agreed that the scope and magnitude of the tasks was so great that initial emphasis will be placed on recommended methods for application only to computerized data systems and techniques. The importance and value of data in noncomputerized form was specifically recognized and has been deferred for consideration at a later date.

Upon further discussion, the group decided that no effort will be made to develop recommended methods for the specific storage and retrieval of data within the internal agency data systems. Rather, a review of techniques and methods in current use will be made, and methods defining the state-of-the-art to be used to assure uniformity of data between systems and common formats for the exchange of data between systems will be developed.

3. It was specifically identified that the Working Group lacks expertise in the areas of ground-water hydrology and biologic and bacteriologic quality of surface and ground waters. The Methods Coordinator was, therefore, requested to undertake action to acquire participants in these areas of expertise for the Working Group.

4. A general outline of the methods to be developed was prepared. Each Working Group participant was assigned a subject within the outline for further action. Before the next meeting, each participant was to develop a list of specific data elements, techniques, and procedures for which methods must be developed or adopted, within their assigned subject areas. This information was to be used to develop a detailed outline at the next meeting of the Working Group to be held prior to April 1, 1979.

5. The Working Group agreed to respond to the deadline of April 16, 1979, for submitting a detailed outline to the Coordinating Council for review and approval. The working group also agreed to make every effort to complete

the first draft of recommended methods applicable to Chapters 1-5 of the "Handbook," as related to computerized data systems, by February 1980.

The second meeting of the Working Group was held at the U.S. Geological Survey's National Center in Reston, Va., on March 29, 1979. The following business items were discussed:

1. The summary of the first meeting of the Working Group was approved with no changes by those in attendance.

2. Additional Working Group members are needed to assist in the development of recommended methods for ground-water quantity data and biologic and bacteriologic data. The Methods Coordinator was requested on April 9, 1979, to seek assistance from the U.S. Geological Survey to assist in ground-water methods and from both the U.S. Environmental Protection Agency and the U.S. Geological Survey to assist in biologic and bacteriologic methods.

3. A procedure for control of the technical quality of recommended methods was submitted by the chairman and approved by the Working Group with minor changes. This procedure was submitted to the Methods Coordinator for approval on April 9, 1979.

4. Limitations on travel funds pose a problem for those persons attending the Working Group sessions from out of town. Three such persons stated they are under rigid restrictions. The chairman was asked to seek funds for relief in this matter. If no funds are available, alternative procedures will have to be discussed.

5. Working team assignments for future methods development will remain the same.

6. It was agreed by all members present that the ASCII (American Standard Code for Information Interchange) character set will be used in all recommended methods.

7. The majority of the day was devoted to developing a detailed outline for the methods to be recommended. Each attendee presented the segment of the outline developed by his or her task assignment. Each segment was discussed and a concensus reached on those elements to be included in the outline. The completed outline is included in your registration packet.

This outline was submitted by the Chairman to the Methods Coordinator on April 9, 1979 for review and approval. The Working Group stresses, however, that this must be treated as a tentative outline. A complete and final product cannot be produced until research on all methods has been completed and all required data elements identified.

8. A variety of items were discussed that will require future resolution by the Working Group. These include: hardware compatibility as it relates to exchange formats, the need for mandatory and optional items, the possible

inclusion of real-time data exchange formats, and quality assurance indicators.

9. There was also continued discussion on the required depth and scope of the methods to be recommended. It was reiterated and agreed upon that initial methods will be restricted to the exchange of data in machine-readable form and that the methods will also be restricted to exchange formats only and will not include systems design for the storage and retrieval of data.

10. The next meeting of the Working Group is scheduled in late May or early June. A time and place will be announced later. In the interim, each team will begin research on existing and available methods related to their applicable disciplines. Chairman Edwards has provided each member with documentation on the NAWDEX and WATSTORE systems, and vice chairman Lindenstruth has provided each member with documentation on the STORET system. All members were also requested to provide additional documentation that they consider applicable. The results of the team research will be the major issue to be discussed at the next meeting.

We have made good progress in initiating this important activity. I can assure you that the Working Group consists of participants that are highly capable and interested in accomplishing our tasks. I am confident that a high-quality set of recommended methods will be developed. Our work has just begun, however, and I ask that each of you give us your support in reviewing the results of our work, thereby assuring that methods are developed that will meet all of our needs.

ORGANIZATION OF INSTRUMENTATION

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION

By Russell C. Wagner[1/]

INSTRUMENTATION COMMITTEE

A "Board of Directors" which is composed of representatives of the Surface Water, Ground Water and Water Quality Branches, research, data processing, and one District Chief from each of the 4 operating regions makes up the Instrumentation Committee of the Water Resources Division of the U.S. Geological Survey.

INSTRUMENTATION COORDINATOR

This is a staff position under the Assistant Chief Hydrologist for Operations. He provides liaison between the Hydrologic Instrumentation Facility and Reston Headquarters. Responsible for program briefings and presenting budgets and long-term plans to senior headquarters staff.

HYDROLOGIC INSTRUMENTATION FACILITY

The Water Resources Division has consolidated several groups supporting instrumentation to a new facility being completed at the National Space Technology Laboratories (NSTL) in Mississippi (50 miles east of New Orleans, La.). The Hydrologic Instrumentation Facility (HIF) will have nationwide responsibility for developing, testing, maintaining, procuring and distributing instrumentation in support of all WRD field programs. The HIF will have four operating sections, as follows:

Instrumentation Research & Development Laboratory

This laboratory will be the principal technical resource of the Instrumentation Facility. The Chief of the laboratory will be the principal technical consultant and staff advisor to the Chief of the Facility and will be responsible for the research and development of hydrologic instrumentation, both in-house and by contract. The lab will provide technical report writing and drafting services for instrumentation documentation. Personnel will play a principal role in technical specification writing and will act as technical officers on contracts for documentation and instrumentation development.

Evaluation and Testing Section

This section will set standards for performance of commercially procured instrument systems, evaluate commercially procured systems to include detailed engineering analysis and testing, and coordinate the procurement of such systems by WRD field offices. Where suitable, design changes to commercially

[1/]Chief, Hydrologic Instrumentation Facility, U.S. Geological Survey, Water Resources Division, National Space Technology Laboratories, Miss.

available products will be specified and, using section personnel as technical officers, such changes shall be made and shall be thoroughly documented.

Field Service and Supply

This section will maintain liaison with the field operating offices relative to equipment needs and operate the warehouse, develop and maintain inventory control systems, provide shipping and receiving services, and process orders from the field.

Repair and Calibration Section

This section will maintain quality control on all incoming equipment from vendors to insure satisfaction of procurement specifications and will repair and calibrate all operational equipment returning from the field. In general, the section will be responsible for insuring that all equipment entering the warehouse inventory is operable. The machine shop will be the responsibility of this section. When it is practical or economical, the machine shop will fabricate specialized parts or units for inventory.

NEBRASKA DATA BANK PROGRAM

By Mahendra K. Bansal[1/]

It is my pleasure to talk about the Nebraska Natural Resources Information System.

The Natural Resources Data Bank program started in 1969 with the passage of a bill by the State legislature. Section 2-1568 of the Nebraska Revised Statutes directs the Nebraska Natural Resources Commission to establish, maintain, and administer a Data Bank in the field of soil and water resources in the State of Nebraska. Section 2-1569 defines the basic data concerning the soil and water resources which shall be stored, processed and managed in the Data Bank. There is a Data Bank advisory committee that looks into the activities of the Data Bank and assists in the coordination and dissemination of the Data Bank resources to all State, Federal and local agencies, and the public.

The data information which is presently available in the Data Bank are the:

1. Climatological data consisting of rainfall, snowfall, temperature, evaporation and events data acquired from the U.S. National Climatic Center, Asheville, N.C.

2. Water data consisting of streamflow and peakflow records provided by the U.S. Geological Survey, National Center, Reston, Va.

3. Water quality data from the EPA's (Environmental Protection Agency) STORET system.

4. Well registrations, surface water rights, canal diversions, reservoir storage, and miscellaneous discharge data collected by the Nebraska Department of Water Resources. This data are computerized, stored, processed, and managed in the Data Bank.

5. Ground-water level data gathered from the Conservation and Survey Division of the University of Nebraska.

6. Soils information consisting of the published soil surveys, soil interpretative maps, and mathematical evaluation of soil erosion losses. This data are digitized and processed in the Data Bank.

7. Public health drinking water monitoring data which is computerized and managed in the Data Bank for the State Department of Health.

8. The other data stored and processed in the Data Bank are the

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agricultural crop statistics, dam inventory, demographic, and land use data.

The basic data are acquired from the collecting agencies. It is updated on a regular basis. The data processed in the Data Bank are identified on the basis of station number, standard hydrologic units, and location information such as county, natural resources district, township-range, latitude-longitude, and river basin number. The data are organized sequentially and indexed chronologically in the Data Bank.

We have two facilities or data retrieval systems. Firstly, the users can send data requests to us, and we provide them the information. This information can be retrieved in the format we have available or in the format they wish to have it. In order to acquaint the users with the resources and facilities of the Data Bank, a User's Manual of the Nebraska Natural Resources Information System is available from the Commission.

Secondly, the users can directly access the data from the Data Bank. They would need a terminal communicating with the IBM 360/370 System of the University of Nebraska, Lincoln Computing Facility. All the data sets and computer programs accessing the data files are stored onto disk packs. Government agencies are encouraged to use this system. The direct access system is so designed that one need not be a computer programmer to be able to access the data from the Data Bank. A Data Access manual is published to acquant users with the control commands, data definition, and job language required to access a data set. To further assist users, various data access examples have been illustrated in the manual.

The services of the Data Bank are free to all users, including government agencies and the public. A minimal execution cost is charged to cover the computer use involved in retrieving the information requested by the user.

We are a NAWDEX member and also a NAWDEX Assistance Center for Nebraska. We would like NAWDEX to cooperate with us in acquiring data from the Federal agencies such as the National Climatic Center, WATSTORE and STORET systems. We would welcome NAWDEX assistance in quality control of data gathered from the Federal collecting agencies.

We can help NAWDEX in indexing information that is available with the Nebraska Natural Resources Data Bank. The customers or users who are not aware of the State of Nebraska Data Bank can contact NAWDEX. We will then supply the information to the users.

Also, I have brought along with me some copies of the Users and Data Access manuals. Those who are interested in a copy can pick one up from the display area, or they can list their name and we will mail them a copy from Nebraska.

STATUS OF AUTOMATED SNOW DATA COLLECTION SYSTEM (SNOTEL)

By Norman Miller[1/]

Progress in installation of an automated snow data collection system in the 10 Western States (excluding California) has continued throughout the past year. The Soil Conservation Service (SCS) has a total of 230 sites currently operational with more than 400 sites expected to be operational by mid-summer of 1980. Current plans are to install a total of approximately 470 automated sites in the Western States and up to 40 sites in Alaska. All automated sites currently are collecting data on accumulated snow-water content, accumulated precipitation, and max/min temperatures. The system has the capacity to handle up to 16 parameters.

Studies are in progress at the present time to determine how the data needs of Federal, State, and private cooperators can best be met. For instance, the Forest Service has indicated an interest in collecting humidity and wind data for use in their Fire Weather Warning System. The SCS is currently working on procedures to permit Federal and State agencies, with a need for real time data, to tie directly into the system via computer terminal.

Since the last meeting of this group in May 1978, two full-scale field tests have been made to determine whether the communication system was adequate to satisfy the specifications. The communication system, which was designed and is being installed by Western Union, uses the ionized trails of meteors that disintegrate in the troposphere to reflect radio signals from remote data sites to the "base" station. It was known that the reduction in meteor shower activity between summer and winter varied by a ratio of 4:1 with winter being the most critical. Accordingly, there was some concern whether messages could be received within the specified time period during the critical winter period. A test during January-February 1979 of 140 sites resulted in an accumulated daily performance of 97 percent of the sites reporting within a 3-hour period with more than 90 percent reporting within one hour. This was well within the specified limits.

Plans are to hold "current" data in the Portland computer for 30 to 60 days after which daily values for each of the parameters will be archived in the USDA computer at Ft. Collins. Requests for snow and related hydrometeorological data should be directed to the SCS Water Supply Forecasting Staff in Portland rather than Ft. Collins, because Ft. Collins at present, is not staffed to handle requests of this type.

1/ Soil Conservation Service-CTU, USDA, Lanham, Md.

REMARKS BY J. E. WAGAR[1/] ON THE OFFICE OF WATER DATA COORDINATION AND ITS RELATIONSHIP WITH NAWDEX

I think that perhaps the best way to explain the close relationship between NAWDEX and the Office of Water Data Coordination (OWDC) is to explain briefly what we are concerned with in OWDC.

As the name indicates, we are involved with water data and coordination. We oversee the implementation of Circular A-67 issued by the Office of Management and Budget. That Circular includes the following charges:

1. Exercise leadership in achieving effective coordination of water-data acquisition activities.
2. Undertake continuing and systematic review of water-data requirements and activities.
3. Prepare and keep current a Federal plan for efficient utilization of water-data acquisition activities.
4. Maintain a central catalog of information on water data and on Federal activities being planned and conducted to acquire water data.
5. Design and operate a national network for acquiring data on the quality and quantity of surface and ground waters, including the sediment load of streams.
6. Organize the national network data and the catalog of information to facilitate maximum use.

Copies of a blue pamphlet titled "Water-Data Coordination" are available from OWDC which list these charges, and provide other information on our activity. Obviously we needed information on the ongoing activities as a base for coordination and network design; thus, we set high priority on establishing and maintaining a "Catalog of Information" to obtain this base for the activity. The cataloging activity involved all the Federal agencies collecting water data, and many (about 200) non-Federal agencies joined in on a voluntary basis.

With the advice and assistance of two advisory committees, one from the Federal sector and the other from the non-Federal sector, plans were developed for all aspects of the coordination activity. There is information on these two committees in the blue pamphlet, including lists of the current membership.

We are now seeing the fruits of this early planning--the Recommended Methods handbook, the National Stream Quantity and Quality Network (NASQAN), the field coordination activity, and the National Water Data Exchange (NAWDEX), just to mention a few.

As these activities have developed, there are integral ties between them, and Doug Edwards has asked me to address the ties between the field coordination activity and the NAWDEX activity.

[1/] Hydrologist, U.S. Geological Survey, Office of Water Data Coordination, Reston, Va.

The field coordination activity is involved with coordination of the activities that produce data. NAWDEX is involved with the data produced and in connecting the people who need data with the data that is available.

Basically, the coordination procedure was designed to bring information on ongoing, planned, and needed activites together in a common format (as used in the Catalog of Information on Water Data) on an areal basis of manageable size--the 21 major water-resource regions designated by the Water Resources Council were selected as the base areal units.

Thus, the field coordination and planning activity was organized on these 21 major water-resources regions and to direct this activity a position was staffed in each of the Water Resources Division's four regional offices. These individuals serve as OWDC Regional Representatives as well as the Division's Regional Program Officers. The Regional Representatives work with some 130 field-level officials designated by some 30 Federal agencies and regional river basin commissions to coordinate the activities and develop the "Regional Plans" for each of the 21 water resources regions. They also serve as the contact with the non-Federal agencies for updating the Catalog, in some cases working through the Division's district offices for this purpose.

Now how does this relate to NAWDEX? Well, the NAWDEX concept moved from the planning stage to the implementation stage, and an index of data sources was required.

What better way to build the source files for NAWDEX to do its job than to use the Catalog as the base. No one could come up with a better solution; thus, we proceeded to expand the items in the file to better meet the new needs, and moved to a better and more viable data management system. The result is the Master Water Data Index (MWDI) and the Water Data Sources Directory (WDSD) which are now up and going. As you realize, I have greatly oversimplified this to compact it into a short presentation.

But, in order for the field coordination activity to be effective, information on ongoing activities must flow to the OWDC Regional Representatives along with the information they receive on plans and needs from the participants in the coordination activity. Therefore, we have worked out a plan for updating the current stations activities in the MWDI through the OWDC Regional Representatives, which will assure that the agencies will be receiving only a single request for this information instead of several. Even with this plan, there will have to be separate requests for the historical records in the MWDI and for the WDSD.

Perhaps if I can leave you with this thought--both the field coordination program and NAWDEX are important parts of the overall coordination activity. On the one side, in the field coordination program, we are concerned with coordination of ongoing, planned, and needed activities; on the NAWDEX side, we are concerned with data dissemination and handling. Both activities use a common tool, the Catalog, or the NAWDEX source files, however you care to envision the files.

THE HYDROLOGIC INFORMATION STORAGE AND RETRIEVAL SYSTEM (HISARS) IN VIRGINIA

By Thomas W. Johnson[1/]

HISARS is an acronym for Hydrologic Information Storage and Retreival System, which is somewhat of a misnomer, since although it does store and retrieve streamflow and peakflow information, it also stores and retrieves weather data such as hourly and daily precipitation, max/min temperatures, snowfall and snow on the ground, and event data such as days with hail, sleet, or snow.

Ed Wiser of North Carolina State University, Raleigh, wrote the original program. We got it from him about 4 years ago and modified it for Virginia. Anybody that gets the basic program from Ed will have to modify it somewhat for his own locality and computer. It is not designed to be a replacement for systems such as WATSTORE (the U.S. Geological Survey's National Water Data Storage and Retrieval System). WATSTORE handles masses of data, HISARS does not. HISARS is pretty much designed for single-state application.

We get our data, as does everybody that runs HISARS, from the U.S. Geological Survey, once a year, and we then update our system. We also get data from the National Weather Service in Asheville, N.C., to update the weather files.

One example will give you a pretty good idea of the economics of HISARS. We pay the National Weather Service on the order of $300 to $400 a year for data. Once we get it into HISARS, which is a matter of six or seven computer runs, if everything goes well, it can be accessed and printed on standard priority. Unless you print an excessive amount of data, computer charges will run from $2 to $3. For that money you can print, for instance, the temperature records from one station for 10 years. If you buy that same data from the National Weather Service, my guess is you are going to pay about $50 to $100.

We are currently running HISARS on an IBM 370. We, in Virginia, have done something that nobody else has done with HISARS in that we have designed what we call a CMS interface. CMS is IBM's Conversational Monitoring System. This is a totally interactive system, in that the user only has to have a terminal that is compatible with the computer. He has to have an account with the Computer Center and know how to log onto the system. Then, all he has to do is to link over to our disk, which we tell him how to do in the user's guide, and issue one command, "HISARS". From there on out, all he has to do is answer questions which the computer will ask him.

When he is through, he gets a chance to review his answers and change them if he wants to. When he is satisfied, the computer takes over, builds

1/Assistant to the Director, Virginia Water Resource Research Center, Blacksburg, Va.

the job control language deck, builds the command cards for HISARS, and submits the whole thing to the main computer. As far as we know, no one else has done this with HISARS.

On the NAWDEX table out front, there is a stack of publications that we at the Virginia Water Center publish concerning both HISARS and the WRSIC (Water Resources Scientific Information Center) information and retrieval system that we also operate in Virginia.

If you want further information about HISARS, our address and phone number are in the publication. I will be glad to talk to you here. I don't have it with me, but I can give you the name and address for Ed Wiser at NC State at Raleigh if you want to consider getting and using HISARS. You can go to Ed to get the most current version.

THE NATIONAL CLIMATE PROGRAM ACT

By Harold S. Lippmann[1/]

I am standing in front of you now not only as a representative of the National Weather Service, but also as a representative of the National Oceanic and Atmospheric Administration.

The material that is being passed out is, you might say, distantly related to NAWDEX. But I wanted to take this opportunity to call your attention to the National Climate Program Act[2] which has been passed by the Congress and signed by the President. What is being passed out is a copy not of the final act itself, but a copy of the conference report, which is duplicated in the final act. So what you have is the exact material of the act itself, but not presented in that way. The reason I am calling your attention to it now is that there are provisions in this act that both Federal and non-Federal agencies should be aware of and possibly want to take advantage of sometime in the future.

The program calls for assessment of the effect of climate, among other things, on water resources. And the program calls for mechanisms for intergovernmental climate-related studies and services. It has quite a wide range of applications. It calls for establishment of supporting committees--interagency and advisory committees. It calls for the organizational implementation of State programs.

You will see that these state programs can be partially supported by the funds that can be appropriated. Now this is an enabling act. This is an authorization act. It does not appropriate funds. No funds have been appropriated as yet. However, we are in for a sizable chunk of money in the next budget to support the implementation of this act.

I just wanted to call your attention to this act, so you might consider whether you have programs which could rightfully be supported under the terms of this program; and if so, to take action either with your own agency, if it is a Federal agency; or if it is non-Federal, with your State agency, so that you get into the State program and get funded for it. If you have any questions, I will be glad to answer them.

1/National Weather Service, NOAA, Hydrologic Services Division, Silver Spring, Md.

2/Copy not available for publication.

NAWDEX PROGRAM OBJECTIVES FOR FISCAL YEAR 1980

By Melvin D. Edwards

I do not intend to present you with an elaborate set of objectives at this time for our forthcoming program year. Rather, I intend to outline some of the major elements that I feel need close attention. I would expect that our panel seminars at this conference will delineate those objectives that should receive highest priority.

First, the NAWDEX Program Office will be required to operate within the same fiscal allocations and the same general staffing levels as those of fiscal year 1979. Our objectives and goals will continue to be to increase the productivity and efficiency of the program. Within the Program Office itself, this requires that more of its available resources be committed to supporting the operational requirements of the program; less support, therefore, will be available for new systems and procedural development. The greatest impact in the reduction of new systems development will be in: (1) a reduction in the level of effort planned for the development of systems for the indexing of areal and nonpoint source data, (2) referral of plans to initiate an interface between NAWDEX and the National Water Use Data System, and (3) less activity in the development of systems for the production of new information products. We must, then, plan to continue the advancement of the program through more effective utilization of our existing systems, more effective management of our available resources, more effective use of our service-reimbursement program, more self-sustained use of NAWDEX systems by NAWDEX members, and a more assertive program of member involvement.

We hope to improve member involvement in the program through better orientation and training of members in the use of NAWDEX and its available facilities. Four training sessions are planned for next fiscal year: (1) a seminar on the use of NAWDEX data systems; (2) two seminars for personnel of NAWDEX Assistance Centers; (3) two orientation seminars for NAWDEX members directed at better use of NAWDEX, and (4) a seminar on the use of the System 2000 Data Base Management System.

Efforts to increase member involvement in the Assistance Center Program will continue, particularly in the area of State-level and regional-level data systems and services. As in the past, NAWDEX will provide training for this activity. Also, a minimal level of financial support is planned to aid Assistance Centers to become more active in the use of the NAWDEX data bases and associated software systems.

We will continue to expand our information-gathering program by the input of additional information into our data bases—the Water Data Sources Directory and Master Water Data Index. Efforts will be made to initiate more activity in the development of computerized interfaces between the Master Water Data Index and member data systems. The following alternatives are planned to accomplish this: (1) a more assertive program of technical assistance by the Program Office to assist members in writing their own interfaces, and (2) allocation of funds to provide contractual assistance for

the cooperative development of interfaces by the Program Office and members.

It is planned to complete work on a new NAWDEX Program Guide in early fiscal year 1980. This Guide will contain revised and complete documentation on the operation of Assistance Centers, the use of NAWDEX data and software systems, and the input and retrieval of information to and from the NAWDEX data bases. Also, work is scheduled to be completed on the production of tables and text for the Water Data Sources Directory and a summary of the Master Water Data Index in late fiscal year 1979, with publication of these documents in early fiscal year 1980.

Systems development during fiscal year 1980 will be directed primarily at design criteria for an accounting system to monitor NAWDEX usage and its data-base operations; redesign of the Master Water Data Index to implement improvements, additions, and efficiencies as identified by analysis performed on the data base this fiscal year; improving software systems needed to better manage our information resources; and finalizing design criteria for systems necessary for the indexing of areal and nonpoint source data.

We will, of course, continue our activities in developing recommended methods for the handling and exchange of water data. The completion of the first draft of these methods for surface-water quantity, ground-water quantity, sediment, biological and bacteriological quality of surface and ground waters, and physical and chemical quality of water and sediment is planned for February 1980. A decision will be made at that time concerning the extent to which additional methods will be developed.

I encourage the NAWDEX membership to take advantage of the extensive systems development and implementation that have been accomplished, as well as the information resources that have been gathered during the past 3 years. Consideration should be given as to how the NAWDEX resources can be used to your advantage. I ask that each of you strive to have your organization become more active in NAWDEX during fiscal year 1980; that you help make our amassed resources, to date, more useful and cost effective; and that you use the program as a viable means of communication relating to water-data activities nationwide.

CHARGE TO THE AD HOC PANELS

By Melvin D. Edwards

During the morning session, and this afternoon, you have been advised of the accomplishments of the NAWDEX program since our last conference, the status of our current activities, and some of our objectives for the forthcoming year. During the first 3 years of its existence, NAWDEX has grown rapidly. It has grown to the point that we now are beginning to realize tangible results from our efforts. We have developed a framework upon which we can expand to become a truly comprehensive and viable program of communication and data exchange that is highly beneficial to the entire water-resources community. Our focus has been, to date, on the development of the systems, procedures, and techniques necessary to achieve our mission. The basic systems we require are now in place and operational. We must therefore, begin to focus on the use of these systems in a manner that is cost effective and beneficial not only to the membership but to our user community as well.

We are moving into a period of minimal or zero budget growth. To assure continued momentum and growth in the program, we must, achieve the two objectives I stated earlier: more self-sustained use of NAWDEX systems by NAWDEX members, and a more assertive program of member involvement. The more our systems, services, and information resources are used for your benefit and individual purposes, the more cost effective they become. As you, our members, become more involved in the program, our information resources will increase and our communication will improve. I will be asking for your support and involvement in the months ahead. I will be asking for input to our data bases, review of the information we have gathered to date, the involvement of more members in our Assistance Center network, and that each of you familiarize yourself more closely with the capabilities of the program and to help NAWDEX gain more visibility and membership support of the program.

I charge each of the panels which meet at this conference to contribute to the development of the strategies and mechanisms that will be used to help us obtain these goals.

Shortly, three panels will convene. I am charging the Ad Hoc Panel on Program Administration, Management, and Coordination to develop recommendations for improving member involvement; to determine how our newly available advisory resources can best be utilized; to prepare mechanisms for improving the structure of our member training and orientation programs and to recommend means of improving member participation in the training program; to develop priorities for expenditures for the next fiscal year; and to recommend mechanisms and incentives for improving member input to our program and member use of our available resources.

I am charging the Ad Hoc Panel on Water Data Indexing and Technical Systems Development to review our prepared programs for the verification of indexed data, the manual input of information to the data bases, and systems development for computerized interfaces with member data systems and recommend any needed improvements; to define mechanisms needed to improve access to our

data systems; to define any additional training requirements for systems access by members; and to define and give proper priority to any new systems development over the next year.

I am charging the Ad Hoc Panel on NAWDEX Services and Assistance Center Activities to recommend mechanisms and incentives necessary to increase member involvement in the Assistance Center program; to recommend means for improving our information base on member data and services; to define new information products that are needed and to determine the priority of development; to develop recommendations for improving our programs of reimbursement of services; to prepare mechanisms for increasing the use of the NAWDEX data bases in Assistance Center activities; and to recommend ways of improving public awareness of our several programs.

Many of these charges are complex and may not be fully attainable. We do, however, need your advice and counsel. NAWDEX is a program of its members. We are a confederation of organizations committed to a common goal of improving access to existing water-data resources. Your input at this conference will have a primary impact on the priorities that we establish over the next year. Therefore, I challenge you to be imaginative and resourceful in helping us to attain maximum benefits from our limited resources.

I would now like to introduce you to our panel chairmen and the respective NAWDEX staff support members.

The panel on Program Administration, Management, and Coordination will be chaired by J. B. Burford. Mr. Burford is Chief of the Hydrologic Data Laboratory in the Science Education Administration--Agricultural Research. He will be supported this afternoon by Phil Cohen, who spoke to you earlier this morning, and myself.

The panel on Water Data Indexing and Technical Systems Development will be chaired by Mr. Robert Harmeson from the Illinois State Water Survey. He will be assisted by Gayle Gillingham and Owen Williams from the NAWDEX staff.

Mr. Tom Johnson, will be chairing the panel on NAWDEX Services and Assistance Center Activities. Tom is the assistant to the Director of the Virginia Water Resources Research Center at Blacksburg. He will be assisted by Jerry Thompson of the NAWDEX staff.

With that we shall break out into our panel groups for the rest of the day.

IMPACT OF THE PRESIDENT'S WATER POLICY ON WATER DATA NEEDS AND EXCHANGE

By Thomas J. Buchanan[1/]

On June 6, 1978, President Carter announced his new water policy initiatives. You may not have heard much about it since then. However, if you are active in the water resources community, you may have heard about the task force activity and are beginning to wonder when we are really going to implement it.

The President's water-policy initiatives have four basic objectives. The first is improved planning and efficient management of Federal water resource programs to prevent waste and permit necessary water projects which are cost effective, safe, and environmentally sound. The second objective is increased national emphasis on water conservation. Third is enchanced Federal/State cooperation in water-policy development and in planning. Fourth is increased attention to environmental quality. The President said, however, that we will achieve these objectives without imposing new Federal regulatory programs for water management.

To get some feeling for the effects of this water policy on NAWDEX and the needs for water data, let's take a look at the 13 principal features of the President's water policy.

1. The water policy will not preempt State or local water responsibilities.

2. Conservation is added as a specific component of the economic and environmental objectives of the Principles and Standards.

3. Consistency is to be achieved in calculating benefits and costs.

4. A water project review board within the Water Resources Council is to be established.

5. Consistency in cost sharing for structural and nonstructural flood control alternatives is proposed.

6. A greater degree of non-Federal cost sharing for all water projects is proposed.

7. Water conservation measures are a condition for receipt of Federal grant and loan funds for various purposes.

8. Planning grants to States would be significantly increased.

1/Assistant Chief Hydrologist for Operations, U.S. Geological Survey, Water Resources Division, Reston, Va.

9. A water-conservation, technical-assistance, matching-grant program is proposed.

10. More vigorous enforcement of the environmental statutes is sought.

11. More emphasis is placed on determining and encouraging application of flows for instream needs.

12. The Federal agencies are to cooperate with States in solving groundwater problems.

13. Finally, Federal agencies are to inventory and quantify Federal Reserve and Indian water rights.

In these 13 objectives lie the areas where we feel that NAWDEX and water data are going to be involved.

On July 12, 1978, the President issued 13 memoranda to implement his water policy. As a result of those 13 memos, 19 task forces were established. Those task forces are presently operating to devise guidelines for implementing the President's water policy. You'll notice I said "devising guidelines." A lot of people believe that the 19 task forces are the implementation function. They are not. They are developing the recommendations. Thus far, eight task forces have finished their work. We expect that another eight or nine will finish their work in June or July. Several task forces will continue for a considerable period of time, particularly the one that is revising the Principles and Standards.

The major efforts of the task groups will come to an end early this summer. We anticipate that the reports (results) of these groups will be aired at regional public hearings, probably in July or August. They have not yet been scheduled. Most task forces have a June 6, 1979, draft report deadline.

After the public hearings and input from the State, local, and private sectors, we then will put together the final reports, and recommendations will be made to the President for implementing the water policy. Some implementation has already come about, but the major implementation will take place after we have more public input.

This is the status of the President's water policy and the water policy implications. How is it going to affect us as water data suppliers and as people who are interested in exchanging and sharing our water data? I investigated and discovered that there are 12 areas in which we will be impacted.

As I mentioned at the beginning, the President states that water conservation is the cornerstone of the new water policy. To completely understand water conservation and to effectively implement it, you are going to need water data.

I think that when guidelines are developed for water conservation we are

going to be required--"we" the water resources community--to supply good data that can tell us how effective our water conservation measures are. I think we will find that water conservation may be the key factor in implementing the President's water policy.

The second thing, that goes hand in hand with water conservation, is water-use data. I think that to see how effective you are in the water-conservation area, you're going to have to look at water use and at changes occurring in this area.

The Geological Survey has a major water-use program. Many of our cooperating agencies (for example the Texas Natural Resources Information System, C. R. Baskin, Chairman) are in the forefront on water-use data. Many other states are also deeply involved. I think that these data banks will be extremely important in assessing the effects of water conservation.

The third area is the one I am going to talk about a little bit because it is the one in which I'm deeply involved. I am the chairman of the Instream Flows Task Force. If our recommendations are accepted, we will need a great deal of data to implement that which is needed in the instream flows area.

The President outlined four areas that we should address in instream flows that are not now addressed adequately in the water planning process. The four areas are water quality, fish and wildlife habitat, recreation, and esthetics. We are charged with devising guidelines for implementing instream flows for those four different parameters. The water quality issue of instream flows will require a mind-boggling amount of data.

When you come to the area of fish and wildlife habitat, you say, "Well, what kind of water data would you need?" When you start looking at fish and wildlife habitat you will need hydrologic data to identify the proper conditions for propagation of each species. The data needed include water depth, velocity, water temperature, and discharge. Much of the required water data exists. However, getting the data into the hands of the proper people and exchanging the data is a real challenge to all of us.

The same is true for recreation. The type of instream flow data needed by the fisherman who wants to troll is very different from that which is needed by the fellow who wants to white-water kayak. Even in the recreation area, the needs for data are going to be tremendous.

The fourth area, in which the Geological Survey is deeply involved, is the ground-water area. Gerald Meyer is the chairman of that task force. The President is recommending that we look very carefully at our ground-water resources to effectively develop these resources in areas where it may be possible to forego water projects for a considerable period by properly developing the ground-water resources. The President wants us to look at areas where we are overdeveloping our ground-water resources and to assist the states in effectively controlling that overdevelopment, to preserve those resources and to use them efficiently and effectively.

Much thought must be given to the modeling that will be needed, about the

data on water levels that will be needed, and about the quality data that will be needed just in the ground-water area. Those data reside in many, many places. We are charged with finding those data and making them available to those who use the data.

Enhanced Federal-State cooperation is another area of consideration. This part of the President's plan is to improve grants to States for planning. And if the States become more deeply involved in water planning, they must have data. Where are they going to find the data? They will turn to those of us in the water-resources community to obtain the data. I think that the States are going to respond by using the NAWDEX services and will be asking all of us who have water data to provide the data to them and to assist them in their improved planning effort.

Another area of consideration is one in which there will be grants provided for water conservation technical assistance. If the States are involved in water conservation, then they need funds to provide technical assistance to local communities. They need data to show the effects of conservation efforts.

In the next area, the President states that we have good existing enviromental legislation that protects our water resources. He further states that we have not fully utilized that environmental legislation. He recommends strongly that the existing statutes be enforced, which means that if we enforce those statues properly, more data are needed to assist in enforcement.

In another area, the President says that we are going to be more deeply involved in flood-plain management. There may be many areas where we are developing structures for flood-plain management, but in fact there may be other ways of doing the job. This may be true also for nonstructural flood control. The President firmly believes that there are nonstructural alternatives in many areas that we are overlooking. Much data is needed to address those questions.

Agricultural assistance programs in water-short areas is another area of consideration. To determine which areas are water-short and those areas where we are overdeveloping our water resources will require more data.

The final area of consideration—one of the task forces studies—is improvements in the SCS (Soil Conservation Service) program. Certainly additional hydrologic data will be needed to monitor changes in this program.

As I have indicated, the President's water policy is just getting off the ground. The task forces are nearly ready to make their final recommendations to the President this summer (1979).

I think that we will see increased activity as the fall begins, once the President decides how his water policy is going to be fully implemented and he identifies which recommendations he is going to accept.

And as he does that, I think that the needs for data as a result of the water policy are going to mushroom. I think that the activities in NAWDEX and

the activities of all who have water data are going to increase manyfold, because I believe we are the ones who can be most helpful to those involved in implementing the President's water policy.

REPORT OF THE AD HOC PANEL FOR PROGRAM ADMINISTRATION, MANAGEMENT, AND COORDINATION

Discussion Topics (Taken from recommended outline included in conference registration packet)

I. Recommendations for more assertive program of member involvement.

NOTE: The NAWDEX (National Water Data Exchange) Program Office is concerned because the member agencies and organizations are not using the NAWDEX system as much as expected.

Panel Recommendations:

(a) That the NAWDEX user members make a special effort to get their data user to query the Master Water Data Index (MWDI) for all available data listed rather than to assume that all usable data are available from any one source such as the Geological Survey's National Water Data Storage and Retrieval System (WATSTORE).

(b) That the U.S. Geological Survey, as well as other agencies and organizations which compile and publish water data, include a statement in their publications to the effect that the NAWDEX MWDI should be queried for additional data sources.

(c) That representatives from member agencies and organizations assist with the NAWDEX public relations by making presentations related to the NAWDEX activities. Presentation support material such as visual aids and factual information should be provided to the speaker by the NAWDEX office.

(d) That the NAWDEX office provide the member agencies and organizations sufficient copies of the newsletters and other such material that are required for distribution within the member agencies and organizations. This presumes that the NAWDEX office is informed as to the number of copies required.

(e) That the education and awareness endeavors be tailored to specific audiences which are to be reached.

(f) That the education and awareness efforts are tempered so that NAWDEX user services are not substantially impacted thereby.

II. NAWDEX interaction with the newly established advisory subcommittees.

Panel Recommendations:

(a) That the two newly established subcommittees use the recommendations which result from this NAWDEX membership conference as

guides for subcommittee activities--helping implement them where possible.

(b) That NAWDEX members feel free to come to the subcommittees with suggestions.

(c) That the two subcommittees should plan a joint work conference after they are organized.

III. Proposed mechanisms for improving member training and orientation.

NOTE: The panel reviewed the proposed NAWDEX training program for FY 1980 (outline included in conference registration packet) as presented by the NAWDEX Program Manager.

Panel Recommendations:

(a) That the NAWDEX office proceed with the proposed training program.

(b) That priorities be placed on the four training courses following announcement feedback.

(c) That training announcements be included in the NAWDEX Newsletter.

IV. Impact of a no-increase budget for fiscal year 1980.

The panel suggests that a study be made to review the need for user charges in addition to the charges for computer time which are presently being made.

In view of a possible no-increase budget for FY 1980, and therefore the need to set priorities on program activities, the following priority list is recommended:

1. Respond to user demands

2. Provide training for users

3. Modest system capability enhancement

4. Public relations activities

V. Expansion of NAWDEX information resources (commitment of FY 1980 funds).

NOTE: The NAWDEX office has prepared a memorandum pertaining to the subject "Input of Data to the Master Water Data Index" which is to be sent to NAWDEX members within the next few weeks. This is the initial step taken by the Program Office

to get data-collecting agencies to submit information for the MWDI.

Copies of the memorandum were made available to the panel members.

Panel Recommendations

(a) That panel members review the referenced memorandum (in draft form) and respond to the Program Office by May 15, 1979.

(b) That NAWDEX should not be expected to provide financial support to obtain information input to the MWDI or to develop interface procedures between computer systems.

These activities should be cooperative efforts jointly supported.

NOTE: The panel recognizes the need for identifying the location of available precipitation data and encourages members to more fully utilize the capabilities within the MWDI system to identify the existing data.

IV. Member use of NAWDEX facilities.

The panel felt that this discussion item was covered under item I, with the following exception:

Panel Recommendation

That the Program Office budget (FY 1980) $500 worth of computer time charges for each of the Assistance Centers, available for training in the use of NAWDEX systems.

VII. Future membership conferences.

Panel Recommendations

(a) That the next member conference not be scheduled before the fall of 1980. (18 months from this meeting.)

(b) That the next conference be held in the Reston, Va. (or nearby) area.

VIII. Other subjects as proposed by participants.

None.

Respectfully submitted,

J. B. Burford, Chairman

Participants:

C. R. Baskin, Texas Natural Resources Information System Task Force

Thomas J. Buchanan, U.S. Geological Survey, Water Resources Division

James B. Burford, Science Education Administration--AR, USDA

Philip Cohen, U.S. Geological Survey, Water Resources Division

Billy Garrett, U. S. Army Corps of Engineers

L. H. Gevantman, U.S. Council on Environmental Quality

Dave Gudgel, U.S. Bureau of Reclamation

C. L. R. Holt, U.S. Geological Survey, Water Resources Division

A. Leon Huber, Utah Water Research Laboratory, Utah State University

Hugh H. Hudson, U.S. Geological Survey, Water Resources Division

Harold S. Lippmann, National Weather Service, NOAA

Norman Miller, Soil Conservation Service, USDA

Lawrence E. Newcomb, U.S. Geological Survey, Water Resources Division

Melvin D. Edwards, National Water Data Exchange, U.S. Geological Survey

REPORT OF THE AD HOC PANEL ON WATER DATA INDEXING AND TECHNICAL SYSTEMS DEVELOPMENT

Guided not only by Doug Edwards' stirring charge to the three panels, but also by remarks gleaned from the Wednesday morning speakers and from certain expressed personal convictions, this panel's discussions focused primarily upon water data indexing, with technical systems development as a necessary adjunct to that process.

Yesterday, Phil Cohen pondered the possible reasons for so much repetitive research and data acquisition on Chesapeake Bay. One might ask: "Is it because researchers have not found good, historical information and must create their own data banks?" Now, I assume that much of the Chesapeake Bay research pre-dates the inception of NAWDEX, and if so, these information search failures provide strong support for NAWDEX' services. If, on the other hand, NAWDEX was involved, we can attribute any failure to locate suitable information to its infantile development state. (I speak here of the "system", not of the people who operate it!)

Nevertheless, either case points to the need for development of a strong, effective, and flexible central system of indexing information on a nationwide basis. Much of the information needed may be, as yet, overlooked or undiscovered. Newly acquired information must be indexed consistently with the established system, but the system, in turn, must undergo changes needed to accommodate and adequately index new data bases and new data acquisitions.

The list of recommendations the panel has compiled is not extensive, and no priority of importance is intended because of the order in which they appear. They are:

1. The QW Parameters Repeating Group for chemicals (700) is deemed too comprehensive to meet an increasing number of requests for information of more highly specific nature; therefore, it is recommended that the Technical Working Group on Recommended Methods of Water Data Handling and Exchange be asked to address the problem of modifying this Repeating Group, or its equivalent.

2. Clarify the present use of frequency codes for collection of information:

    a. Addition of new codes to make it possible to distinguish between continuous daily recorded information taken at different time intervals. The frequency code should show the exact interval at which data were collected (i.e.; 5 min., 15 min., etc).

    b. Modification of regulation description to show data effected; that is: low flow effected, high flow not effected.

    c. Identification of small streams peak event data.

3. Following promulgation of "Recommended Methods for Water Data

Acquisition," it is further recommended that NAWDEX data bases should be coded to reflect whether agencies inputting information to NAWDEX have followed the recommended methods.

4. Recommend that the Program Office develop and distribute formal documentation of the XEROX 9700 and microfiche capabilities now available.

5. Recommend that the Program Office develop standardized, modular "interface" software, which is highly transportable for the benefit of member organizations.

6. The Program Office should develop, or expand, a highly visible list of benefits (or incentives) to present to members (or prospective members) relating to both NAWDEX indexing activities and use of computerized interfaces.

7. The NAWDEX newsletter should include a table of contents.

8. The Program Office should establish an informal, member review board for the purpose of prepublication review of program guides and similar documents.

9. The Program Office is urged to continue investigation of use of toll-free 800 area code numbers, and commercial communications networks.

10. The Program Office is urged to provide early notification of training session dates--possibly by inclusion in the newsletters, and to attempt to accommdate member organization attendance by scheduling back-to-back sessions for different interest areas.

11. The Program Office should continue to publicize NAWDEX programs and systems capabilities through attendance at national technical meetings, user workshops (such as USGS, STORET), and other viable means.

Respectfully submitted,

Robert H. Harmeson, Chairman

Participants:

Robert H. Harmeson, Illinois State Water Survey

John Wilson, Texas Natural Resources Information System

Doug Glysson, U.S. Geological Survey, Water Resources Division

James F. Bailey, U.S. Geological Survey, Water Resources Division

Stuart Ross, U.S. Environmental Protection Agency - Region V

Charles Tobin, U.S. Environmental Protection Agency, STORET User Assistance Section

Owen Williams, U.S. Geological Survey, NAWDEX Program Office

Trent Tetterton, CACI, Inc.

J. E. (Jack) Wagar, U.S. Geological Survey, Office of Water Data Coordination

Leo Boychuk, Water Resources Document Reference Centre (WATDOC) - Environment Canada

Miguel A. Medina, School of Engineering, Duke University

REPORT FROM AD HOC PANEL ON

NAWDEX SERVICES AND ASSISTANCE CENTERS ACTIVITIES

1. Without raising the specter of competition between Federal and non-Federal agencies, the panel feels the Assistance Center network needs expansion to at least two centers per state. For several reasons, the panel feels emphasis should be on adding non-Federal agencies as Assistance Centers. Perhaps the chief reasons are the differing clientele of the two types of agencies, and the fact that the expertise of the two agencies would tend to complement each other.

2. The incentive of NAWDEX funding the first $500 of computer time appears valid for encouraging NAWDEX members to become Assistance Centers.

3. The Program Office should actively investigate the lowest possible cost for telephone links from the centers to the NAWDEX computer. Possible systems include Telenet, Tymshare, and Tymnet.

4. In considering the new systems capabilities brochure, inclusion of a toll-free number for public access to the Program Office should be investigated. An obvious drawback is cost.

5. The panel recommends that the frequency of NAWDEX Newsletters be increased. The quarterly report could perhaps be included in the Newsletter. The possibility of a typewritten, more informal newsletter format should be considered as a means of reducing processing time and cost. The NAWDEX logo should be retained as part of any format.

6. Members should be requested to publicize NAWDEX services, as appropriate, in their own newsletters. The Program Office should be included on their mailing lists.

7. As appropriate, NAWDEX services should be cited at local meetings in the States in conjunction with distribution of the NAWDEX leaflet and proposed capabilities brochure.

8. It is recommended that Chapter 4 of the new "Operational Guidelines for Assistance Centers" be abstracted into a leaflet for wide distribution. Space should be left open for an imprint of the member organization. The purpose of the leaflet should be to make known the systems and services of the NAWDEX member organizations.

9. We suggest creation of a "packaged" NAWDEX display to be available on loan to member organizations for meetings, exhibits, and so on. Ease and security of shipment should be a design factor. This should be an "unattended" type of display or presentation.

10. We suggest the use of a label or rubber stamp, using the NAWDEX logo, and worded "A NAWDEX Response Through an Identified Responding Organization". This will give publicity to NAWDEX, but perhaps, more importantly, will identify the local Assistance Center.

11. Clip art, or copies of the NAWDEX logo, should be supplied to members for local use.

12. Training in System 2000 must be continued on a regular basis if for no other reason than attrition in Assistance Center staffs. It was observed that the current reorganization of NAWDEX documentation into the 5-volume NAWDEX Program Guide will materially help in future training and will be useful to the Assistance Centers.

13. Interest was shown in the new Information Products such as Coal Area Catalog, listings from the MWDI and WDSD, and sample products of microfilm or microfiche.

14. A new subject was approached. It is recommended that the Program Office investigate the newest technology of Distributed Processing and Data Base Distribution. The concept here is local use of localized State data as opposed to use of data on the computer in Reston and the attendant communications charges. This idea would take advantage of the rapidly developing technology in microcomputers and man storage, such as the bubble memory.

Respectfully submitted,

Thomas W. Johnson, Chairman

Participants:

T. W. Johnson, Virginia Water Resources Research Center

Robbie S. Ritchey, U.S. Geological Survey, Public Inquiries Office

Gerald L. Thompson, U.S. Geological Survey, NAWDEX Program Office

Richard Talcott, Iowa Water Resources Data System, Iowa Geological Survey

A. N. Cameron, U.S. Geological Survey, Water Resources Division

Francis Sessums, U.S. Geological Survey, Water Resources Division

[illegible]bert [illegible]. Sinclair, Illinois State Water Survey

[illegible]ahendra K. Bansal, Nebraska Natural Resources Commission

Kent Ryan, Utah State Division of Water Rights

Tim Tate, Pyburn & Odom, Inc.

Ray Jensen, Office of Water Research and Technology, USDI

CLOSING REMARKS

By Melvin D. Edwards

I would like to close this second NAWDEX membership conference by thanking all of you for your attendance and participation. The attendance this year was not as great as we had hoped, but your participation was excellent. We had 39 attendees who represented 10 Federal, 6 State, and 3 academic organizations, as well as the representative of one of our foreign affiliates, Leo Boychuk, from the Water Resources Document Reference Centre in Canada. We appreciate the support he is giving us in Canada.

Reflecting on this conference, I am convinced that the number of attendees is not as important as the quality of the attendees. More simply stated, it was the interest and support of the attendees which made this conference a success. You have given me and the entire NAWDEX Program Office staff a lot of input to draw upon in formulating the objectives and plans for the next year. We intend to give consideration to each suggestion that was presented.

Meanwhile, any time the Program Office can help you in supporting NAWDEX at the local level or within your area of activity, please let us know.

With that, I'll say thank you all for coming and have a safe trip home.

APPENDIX A

AGENDA

National Water Data Exchange (NAWDEX)
Second Membership Conference
Fountain Bay Club Hotel
New Orleans, Louisiana
May 2-4, 1979

May 1, 1979

P.M.

3:00 - 6:00	Registration (Hotel Mezzanine)

May 2, 1979

A.M.

8:00 - 9:00	Registration (Hotel Mezzanine)
	General Session (Napoleon Room)
9:00 - 9:10	Welcome
9:10 - 9:30	NAWDEX Program Status Report
9:30 - 10:00	Status of Responses to Recommendations of the First NAWDEX Membership Conference
10:00 - 10:15	Coffee Break
10:15 - 11:15	Reports on Newly Established NAWDEX-Related Committees, Subcommittees, and Working Groups: - USGS NAWDEX Coordinating Committee, by M. D. Edwards - Subcommittee on Water Data Exchange (NAWDEX), by C. R. Baskin - Subcommittee on Water-Data and Information Exchange, by Philip Cohen - Technical Working Group on Recommended Methods for Water-Data Handling and Exchange, by M. D. Edwards
11:15 - 12:00	Member Statements on New Systems, Services and NAWDEX-Related Activities
12:00 - 1:30	Lunch

P.M.

1:30 - 1:45	NAWDEX Program Objectives for FY 1980
1:45 - 2:00	Charge to the Ad Hoc Panels
2:00 - 5:00	Simultaneous Ad Hoc Panel Sessions: (Coffee Break: 3:00 - 3:15)

1. Program Administration, Management, and Coordination: Chairman, J. B. Burford, USDA-SEA-AR (Patio #2)
2. Water Data Indexing and Technical Systems Development: Chairman, Robert Harmeson, Illinois State Water Survey (Creole Room)
3. NAWDEX Services and Assistance Center Activities: Chairman, T. W. Johnson, Virginia Water Resources Research Center (Magnolia Room)

6:00 - 7:30 Social Gathering (Napoleon Room)

May 3, 1979

A.M.

9:00 - 12:00 Continuation of Ad Hoc Panel Sessions
(Coffee Break: 10:00 - 10:15)

12:00 - 1:30 Lunch

P.M.

General Session Reconvenes (Napoleon Room)

1:30 - 2:00 Impact of the President's Water Policy on Water Data Needs and Exchange, Thomas J. Buchanan, USGS

2:00 - 3:15 Reports of Ad Hoc Panel Chairmen

3:15 - 3:30 Coffee Break

3:30 - 4:45 Member Comments and Open Discussion

4:45 - 5:00 Conference Summary

5:00 Conference Adjournment

May 4, 1979

A.M.

8:30 - 12:00 Optional half-day session on orientation on NAWDEX capabilities
(Coffee Break: 10:00 - 10:15)

- Introduction - M. D. Edwards, Program Manager
- NAWDEX Data Base Environment, Gayle Gillingham, Data Base Administrator
- Data Entry to NAWDEX Data Bases, Gayle Gillingham
- Access to NAWDEX Data Resources, Gayle Gillingham and J. Trent Tetterton (CACI)
- Membership Use of NAWDEX Data Services and Resources, M. D. Edwards

APPENDIX B

LIST OF ATTENDEES

SECOND MEMBERSHIP CONFERENCE OF THE NATIONAL WATER DATA EXCHANGE (NAWDEX)

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APPENDIX C

Advisory Committee on Water Data for Public Use
SUBCOMMITTEE ON WATER DATA EXCHANGE

REPRESENTATIVES

*C. R. Baskin	***Texas Department of Water Resources
**I. V. Goslin	***Upper Colorado River Commission
R. J. Hanson	Manufacturing Chemists Association
L. R. Jahn	***Wildlife Management Institute
C. C. Johnson	***Malcolm Pirnie, Inc.
D. W. Johnson	National Governor's Conference
J. W. O'Meara	National Water Resources Association
B. A. Rechard	Universities Council on Water Resources
W. Schneider	Council of State Governments
U. R. Wright	American Society of Civil Engineers

* - Chairman
** - Alternate Chairman
*** - Individual Members

APPENDIX C--Continued

Interagency Advisory Committee on Water Data
SUBCOMMITTEE ON WATER-DATA AND INFORMATION EXCHANGE

REPRESENTATIVES

Department of Agriculture	
Robert Delk	Forest Service
J. B. Burford	Science and Education Administration, Agricultural Research
Norman Miller	Soil Conservation Service
Department of Commerce	
Lottie T. McClendon	National Bureau of Standards
Harold S. Lippmann	National Weather Service
Department of Defense	
Vernon K. Hagen	Army Corps of Engineers
Gary S. Gasperino	Naval Facilities Engineering Command
Department of Housing and Urban Development	
Truman Goins	Department of Housing and Urban Development
Department of the Interior	
David F. Gudgel	Bureau of Reclamation
*Philip Cohen	Geological Survey
**Melvin D. Edwards	Geological Survey
***John E. Wagar	Geological Survey
George E. Williams	Geological Survey
Donald W. Willen	Office of Surface Mining
John T. Campbell	Office of Water Research and Technology
Independent Agencies	
Lewis Gevantman	Council on Environmental Quality
Philip H. Lindenstruth	Environmental Protection Agency
Jack R. Pickett	Water Resources Council

* - Chairman
** - Executive Secretary
*** - Liaison, Office of Water Data Coordination

ALTERNATES

Department of Agriculture	
David A. Farrell	Science and Education Administration, Agricultural Research
Harvey H. Richardson	Soil Conservation Service
Department of Commerce	
Bert Staples	National Bureau of Standards
Department of Defense	
Eugene A. Stallings	Army Corps of Engineers
Department of the Interior	
Joe O'Connor	Office of Surface Mining

APPENDIX C--Continued

WORK GROUP ON RECOMMENDED METHODS FOR WATER-DATA HANDLING AND EXCHANGE

Department of Agriculture	
Robert Delk	Forest Service
R. Eugene Rockey	Forest Service
J.B. Burford	Science and Education Administration, Agricultural Research
Roger G. Cronshey	Soil Conservation Service
Department of Commerce	
Bert Staples	National Bureau of Standards
Christopher D. Noe	National Oceanic and Atmospheric Administration, Environmental Data and Information Services
Charles N. Hoffeditz	National Oceanic and Atmospheric Administration, National Weather Service
Department of Defense	
Nancy Lopez	Army Corps of Engineers
Department of Energy	
John Wilson	Department of Energy
Alf D. Shepherd	Oak Ridge National Laboratory
Department of the Interior	
William L. Lane	Bureau of Reclamation
*Melvin D. Edwards	Geological Survey
William G. Shope, Jr.	Geological Survey
Ronald E. Hermance	National Park Service
James M. Kress	Office of Surface Mining
John T. Campbell	Office of Water Research and Technology
Independent Agencies	
**Philip H. Lindenstruth	Environmental Protection Agency
Ann De Temple	Environmental Protection Agency

*Chairman
**Vice Chairman

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