Policy and Procedures for the Management and Archival Storage of Data Collected for Basic Data and Hydrologic Investigations, U.S. Geological Survey, West Virginia

ABSTRACT

This report describes the policy and procedures used by the West Virginia District to manage and store data collected during basic data and hydrologic investigations. It is the policy of the West Virginia District that data collected to meet the objectives of projects for basic data and hydrologic investigations by documented, organized, and archived in a manner that (1) facilitates retrieval, evaluation, and use by District personnel and others; and (2) enables independent verification of data contained in all reports and computer data bases.

This document presents simple, stand alone Data Management Procedure Documents (DPD-s) to assist District personnel in managing project data. Archiving procedures are also presented in the document to assist personnel in archiving project data at conclusion of projects.

Part 1. Data Management Procedures

Introduction

Scientific data collected by the U.S. Geological Survey (USGS) is a valuable National resource that must be managed properly (Biesecker, 1991). Data-collected activities in the Water Resources Division (WRD) of the USGS commonly are divided into two principal programs: basic-data programs provide routine, ongoing data from a nationwide system of stream-gaging stations, ground-water observation wells, and surface-and ground-water-quality sampling sites. These data usually are obtained to assess long-term trends and to establish base-line conditions for the Nation's water resources (USGS, 1984a). Basic-data programs of the USGS are recognized widely for their excellent data management. This excellence has resulted from the use of long-established procedures, training, and careful review. Most hydrologic investigations are in response to a recognized problems or an anticipated potential problem (USGS, 1984b). Data-collection activities of hydrologic investigations use a wide variety of procedures and usually are more sited specific more problem-oriented, and of shorter duration and those of basic-data programs. There often is a greater

emphasis on understanding hydrologic systems that on data management and record keeping.

The West Virginias District has developed policies and procedures to improve data management for both basic data and investigative programs .The policies establish standards for the management and storage of all data collected. The procedures delineate the specific activities required to, achieve those standards.

Purpose and Scope

The purpose of this report is to describe the policy and procedures used by the West Virginia District to manage and store data. The policy and procedures described herein apply to data collected beginning Fiscal Year 2000. All data, published and unpublished, are covered by the policy and procedures. In general, data used in analysis and information related to data analysis or interpretations are covered by the policy and procedures. In addition, this report provides district staff with a listing of personnel assigned to administer the district databases and their duties (Table 1. Database Administrators (DBA's) Duties).

Benefits of Proper Data Management

Data collected for hydrologic investigations usually are processed, documented, organized, and archived to meet the short-term needs of each project. Thought must be given to the needs of future projects, District-wide uses of the data, future national synthesis projects and the needs of other users. The problems of meeting only current project needs are readily apparent: lost data, greater effort required to retrieve data, incorrect well numbers and well names, duplicate or triplicate Site-File or water-quality entries, "lost" information (knowledge) when project personnel leave the District, difficulty in responding to information requests, and the inability to verify data stored in computer data bases or published in reports. In\complete data in computer data bases and paper files limit the utility of the data.

Proper data management will eliminate many of the problems described in the preceding paragraph. Properly managed data will facilitate and improve the retrieval, evaluation, quality assurance, use, and storage of data. Also, proper data management throughout the life of a project will greatly facilitate the production of data reports and final reports at the end of the project life cycle when time and money are short. As a result, data users can increase their productivity, and the public can have a higher degree of confidence in USGS data and reports.

Data-Management Policy

It is the policy of the West Virginia District that data collected to meet the objectives of projects be documented, organized, and archived in a manner that (1) facilitates retrieval, evaluation, and use by District personnel and others, and (2) enables an independent verification of data contained in all reports and computer data bases.

Further, it is the policy of the West Virginia District that all personnel involved in the collection or compilation of hydrologic and related data shall utilize and adhere to the Data Management Procedure Documents (DPD's) contained within this document.

CONTENTS

Table 1. DATABASE ADMINISTRATORS (DBA'S) DUTIES

All DBAs	1) User education—teaching users the correct methods for data entry and following data management procedures. Database 2) Make sure all data entered into NWIS for associated database Is complete and follow data management procedures 3) Data merges and deletions of duplicate sites 4) Assist Information Officer with information requests when needed
NWIS DBA Michael Cunningham	1) Update and installation of NWIS software 2) Perform database backups (checkpoints and tape backups) 3) Ensure real-time webpage is updating with current data
Surface –Water DBA Ronald Evaldi Stephen Ward Bonnie Taylor	1) Project chiefs will consult DBA when determining 8-15 digit order numbers for surface water site 2) Approve preliminary surface water site name given by project chiefs before entering data into GWSI 3) Maintenance of master surface water site files 4) Set up surface water sites in ADAPS
Ground-Water DBA Mark Kozar	1) Approve preliminary ground water site name given project chief before entering data into GWSI 2) Maintenance of files
Water Quality DBA Melvin Mathes	1) Return to project chiefs watlist from NWQL 2) Assist project chiefs in correction of badqw 3) Send badqw corrections to NWQL 4) Produce and hand out periodically the labweek costs from NWQL
Decodes Admin. John Atkins Freddie Brogan	1) Write fortran programs to decode all data transmitted from satellites 2) Write fortran programs for all field data 3) Keep all programs current with changes made by Cooperators
Water-Use DBA John Atkins	1) Maintain all water-use data collection by the district 2) Create and maintain the NEWUDS database
Discipline Specialist	1) Approve all non-standardized field forms before project use

Part 2. DATA ARCHIVAL PROCEDURES

INTRODUCTION

Archiving is the final step in the processes of data collection, analysis, and interpretation. Although reports represent the summary of the current work, the data and its interpretation should be available for further analysis. Archiving is a set of procedures to insure that data (both in electronic and paper form), once approved, will be permanently stored and maintained without change in a secure and accessible environment. Two terms have been defined to represent archiving—archiving and electronic archiving.

- **Archiving** is the systematic process of storing data and information to protect it from change or loss, by providing the necessary security.
- **Electronic archiving** is the systematic process of removing data from active, on-line computer storage and preserving it with the capability to recover the date.

To quality assure the archiving process, the following steps shall be performed by the West Virginia District (District):

- All data shall be archived as specified by current WRD and District policy.
- All model-related computer files and appropriate simulation results shall be archived as outlined in OGW Technical Memorandum 93.01
- All aquifer-test data and results shall be archived as outlined in OGW Technical Memorandum 94.02

Some of t0 desirable characteristics of the archival system are:

- The data are on media that can be permanently maintained.
- Systematic archival procedures are established and maintained.
- Archiving is for an indefinite period.
- Data are readily accessible. First priority will be given to archiving data on media that can be accessed directly by computers. When this is not feasible, data may be stored on other media.
- The data are preserved in a non-volatile state or one or extremely low volatility. (Volatility, in this sense, refers to the tendency of data, or the media on which it is stored, to deteriorate, rendering the data unreadable or inaccessible.)
- Data are verified to be accurate and complete before archiving.
- Changes can be made to the data, but a record of the transaction is archived.
- There is central coordination of the archival system, such that uniform policies, procedures, and guidelines are established for use by those archiving data, and adherence to the policies is required and monitored.
- Data are indexed before archiving.

BACKGROUND

In general, all data published in WRD reports, or used to support scientific analysis leading to conclusions in the report, are archived. The District Archival Plan (DAP) specified what data—both in electronic and paper form—are to be archived, and establishes when and why these data are to be placed in archives. The DAP requires the active participation of the project chief in the process of archiving the data. To make the process as painless and time-efficient as possible, three tables are presented as an aid to the project chief in organizing, arranging, and coding the data collected, computed, and interpreted to meet the needs of the project. Table 2 is an Archive Catalog Entry Form, the contents of which will be use as an aid to data entry in the District Archival Data Base. Table 3 summarizes the kinds of data that are to be archived and/or disposed of, and includes the Water Resources Division Records Disposition Schedule Item Number associated with they type of data. Table 4 shows the details related to various types of data to be archived; what, where, when, and how.

The what, where, and when of the data archival process is covered in the Water Resources Division Records Disposition Schedule. Data in the schedule are categorized by type, discipline, and identified by an Item Number, such as 1400-25. The prefix 1400 is common to all the data and is followed by a two-digit number representing the general category. For example, Item Number 1400-25 is Well and Spring Schedules. A general description of what data is appropriate for inclusion in that Item Number is given, and is followed by the Disposal Instruction—how long to be saved, when to destroy and so on. All data, whether it is to be kept in the District, or eventually to be sent to the Federal archives, has an Item Number.

Data are archived in the District archives or at the Federal Archives and Records Center (FARC) in Suitland, MD. District archives are various locations within and outside the District office (project office, library, secured areas within the District or Subdistrict offices). The District archivist maintains a list of the archive locations and what data are appropriate to each location. Most data that are to be kept indefinitely must be sent to the FARC for safer keeping. Archived data can be retrieved from the FARC on next-day service.

The process of sending data to the FARC is as follows. Data to be archived are organized by Item Number, documented, and placed in approved Records Center boxes. The boxes in each series (Item Number) are numbered; e.g. Box 1 of 3,2 of 3,3 of 3. A transmittal form (SF-135) is prepared that summarizes the contents of the boxes, by RCS/Item Numbers. A more detailed inventory form is placed in each box, identifying the contents of that box. The SF-135 is sent to the FARC; if everything is in order, they assign Accession numbers (for the USGS: 57, followed by the two-digit year of transmittal, followed by a 4-digit sequence number), such as 57-97-0001, and Location Numbers, such as A27416, that is unique for each box. In the example above, boxes 1 through 3 might have an accession number of 57-97-0001 and FARC

location numbers of A27416 through A27418. The Accession, Location, and Box Numbers are put on each box and the boxes are shipped or delivered to the FARC.

Because it is the project chief's responsibility to properly archive his or her data at the end of the project, and within the time frame of project funding, the details of how data are sent to the FARC are given here so that each project chief will appreciate just what is involved, and will organize the data in such a way that the end-of-project data consolidation will be as quick and painless as possible.

ARCHIVING PROCEDURES

At the outset of a project, reproduce tables 2, 3, and 4.

These tables will be used as the archival worksheets during the life of the project.

Table 2 Instructions. Table 2 is an Archive Catalog Form, the contents of which will be used as an aid to data entry in the District Archival Data Base. The MIS Project and Site Identification section can be filled out at the start of the project. The WRD Records Disposition Item Number section can be completed as the information becomes available. The Archive Destination section is completed after the data are sent to the FARC or placed in the permanent District Archives.

Table 3 Instructions. Table 3 summarizes the kinds of data that are to be archived and/or disposed of, and includes the Water Resources Division Records Disposition Schedule Item Number associated with the type of data. This table serves as a guide to the exact sections of Table 4 that will be used to document data types.

A word about Item 1400-36 (Surface Water) has several lettered subcategories; the other disciplines do not. With multi-discipline project it is not always easy to categorize data types. It is not necessary to separate all data by the discipline or category. It is not always necessary to store different Item Numbers in different boxes, when perhaps only one or two boxes are needed for the entire project. If data is eventually to be destroyed by the FARC (they have not yet ever destroyed anything), they will go by the longest disposal date, and will accept any reasonable Item Numbers. FARC will reject a box that contains large quantities of unacceptable data that should not be included. Consult the District Archivist if you have questions.

Table 4 Instructions. Table 4 shows in detail the types of data to be archived; what, where, when, and how. Project files should be organized with those categories in mind. It is expected that at the very outset of a project the types of data to be acquired will be known. Table 4 can serve as a checklist, for initial organization of the project files and for archiving at the end of the project. File drawers, folders, and even Records Center-approved archiving boxes can be used for storage of data during the life of project.

There are three categories of data that are to be archived—Original Data (recorded, measured, or observed in the field), documents associated with Computation and Interpretation, and Supporting Documentation. At the left of every category of data is

a 3-digit number. This number will eventually be put in the District's Archival Database as one of the search tools for all projects.

For the most part, many types of data (field, computed, support) can be saved or archived in one place. The only exceptions are recorded data and streamflow discharge measurements. Recorded data (charts, tapes, electronic) need to be archived independently. All streamflow discharge measurements should eventually be stored separately from other project files, in the same place as measurements from other projects or the data network.

Maintain a paper copy of Table 4 with the project files. As one or more categories of data become available, check them off on the paper copy. At the end of the project, edit an electronic copy of table 4, deleting every item that does not apply. What's left will be detailed listing of what needs to be archived. If a type of data is found that is not yet listed on table 4, consult the District Archivist so that the number and type of data can be added to the list.

<u>Some hints on what to save and what not to save beyond the length of a project</u>

Don't have duplicates

Save most recent lab printout that has more data than the previous, discarding the previous (unless it contain important notes)

Once a report is approved and published, miscellaneous correspondence, review, and so forth are no longer needed. See next section for archival procedures for report-related material.

This section lists the items that are to be stored or, disposed of, and the duration of time established to enact these procedures for report-related materials according to FARC guidelines and recommendations, and the District in-house policies. The Water Resources Division Records Disposition Schedule is followed for report publishing disposition activities using the number referenced in the "item number column." Specific items to be handled and present procedures are added in italics to the list as they relate to Pub Unit and District needs.

1400-03 Reports control files-Destroy in agency 3 years after publication

1. Routing sheet
2. Correspondence
3. History
4. Illustrations; original artwork, Adobe Illustrator, Photoshop and related files (eps, tif)
5. Text; Framemaker, Platemaker files
6. Colleague reviews
7. Region review
8. Galley proof
9. Page proof
10. Negatives of printed report

WV procedures are:

Project files are boxed for storage in the warehouse at completion of project.

All items shown above in 1400-03, reports control files, will be returned to the author or designated person 3 years after publication date with the instruction to destroy or save as keepsakes in their own personal office or home space.

Popular or important reports control files (1400-03), ext, illustrations and plates may be kept longer than three years at the request of the Project Chief.

1400-04 Computerized status of reports. Destroy at the end of the year

1400-05 Reports Publication, financial records. Keep for 3 years

1400-07 Bibliographic Report Cards-Destroy when reference no longer needed.

Add bibliography of report to West Virginia District bibliography

Table 2. ARCHIVE CATALOG FORM

MIS Project Identification(s)/Site Identification

_____

Project Account Number(s)_____
Project Date_____

Project Location
Site(s)_____
Town(s)_____
Basin(s)_____

Discipline(s) SW ( ) GW ( ) QW ( ) WU ( ) GP ( ) B ( ) O ( )
(SW – Surface Water; GW – Ground water; QW – Water Quality; WU-Water Use; GP – Geophysical; B – Biology; O – Other (specify)
_____)

Publication Identification(s)	**Author(s)**
_____	_____
_____	_____
_____	_____
_____	_____

WRD Records Disposition Item Number(s)

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Archive Destination_____
(District Archive (Paper / CD-Rom); Town Files; Federal Archive Record Center (FARC), Waltham, MA; Other (specify)

FARC Accession Number_____
FARC or District Location Number_____

Date Archived_____
Disposal Date_____

Reviewed by _____ **Date**_____

TABLE 3.—SUMMARY OF WRD RECORDS DISPOSITION SCHEDULE ITEM NUMBERS FOR ARCHIVING ORIGINAL DATA, COMPUTATION AND INTERPRETIVE DATA, AND SUPPORTING DOCUMENTATION

A. ORIGINAL DATA

1. CONTINUOUS-RECORD DATA

SURFACE WATER	GROUND WATER	WATER QUALITY
All 1400-36a	All 1400-27	All 1400-43

2.FIELD DATA

SURFACE WATER	GROUND WATER	WATER QUALITY/ BIOLOGY SEDIMENT	...`WATER USE	GEO PHYSICS	DATA TYPES
Direct Meas. 1400-36b	Pumping Records 1400-23	All 1400-40	. All 1400-30	All 1400-30	All 1400-36
Indirect Meas. 1400-36c	Site Data 1400-25				
Level Notes 1400-36c	Water-level data 1400-27	All			
	Aquifer test drive 1400-28				
	Drilling/well data 1400-30				

B. COMPUTATION AND INTERPRETIVE DATA

All analyses, computed data, interpretive data, and interpretive reports

C. SUPPORTED DOCUMENTATION

SURFACE WATER	GROUND WATER	WATER QUALITY/..... BIOLOGY	WATER USE	OTHER
All 1400-36m	All 1400-27	All 1400-40	All 1400-20	All 1400-36

Table 4: DETAILED LISTING OF DATA TO BE ARCHIVED

Types of Data	WRD Records Disposition Item #	FARC Disposal Date	District Location	District Disposal Data	Format (Electronic, Paper, Other)	Dates (Period of Record)
A. ORIGINAL DATA						
A. 1. CONTINOUS-RECORD DATA Primary sensor data 101 Observers' cards and books 102 Recorder charts 103 Digital-punch tapes Electronically recorded records 104 First generation ASC11 files (.RAW,.PRN,.DAT) in Engineering units 105 DCP Unit Values as stored in ADAPS	1400-:( ) (GW-27) (SW-36a) (TEMP-38) (QW-43)	75 year retention period	Charts, tapes, and cards stored in District Archives, Electronic stored on floppy or CD-ROM by water year	Boxes sent to FARC every 2-5 years. CD ROMs stored in District archive		
A. 2 FIELD DATA **A.2.a.**SURFACE WATER 111 Current-meter discharge measurements 112 Original field observations, notes, and Measurements 113 Observer's notes and readings 114 Field notes and observations 115 Beginning and ending information for Recorded data (inspection sheets) 116 Crest-gage stage inspections 117 Photographs and slides	1400-36b	75 year retention period	Current station folders, active project folder, or, for inactive projects or published data reports, in District archives	Selected data more than 10 years old sent to FARC on 5-year transmittal schedule (sent at same time as station or project folders)		

Table 4: DETAILED LISTING OF DATA TO BE ARCHIVED

Type of Data	WRD Records Disposition Item	FARC Disposal Date	District Location	District Disposal Date	Format (Electronic, Paper, Other)	Dates (Period of Record)
A.2.b. INDIRECT MEASUREMETS AND N-VERIFICATION DATA **131 Field-survey notes** **132 Photographs and stereo slides** **133 Channel roughness coefficients** **134 Bridge, culvert, and weir coefficients** **135 Computations**	**1400-36a**	**75-year retention period**	**Cabinet in District Archives**	**Send data more than 0 Years old to FARC with next transmittal of field data**		
A.2.c. **141 Level notes and index tests**	**1400-36d**	**75-year retention period**	**Active station data held in a District file cabinet**	**Discontinued stations to FARC with measurement/ Inspection Data shipment**		

Table 4: DETAILED LISTING OF DATA TO BE ARCHIVED

Type of data	WRD Records Dispostion Item #	FARC Disposal Date	District Location	District Disposal Date	Format (Electronic, Paper, Other)	Dates (Period of Record)
A.2.d. GROUND WATER		75-year retention period	With project files	To FARC with other field data		
151 Water-level data sheets	1400-27					
152 Surveying records	1400-27					
153 Field notes-geologic and hydrologic	1400-28					
154 Soil-moisture data	1400-28					
155 Soil-temperature data	1400-28					
156 Verification data	1400-30					
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171 Pumping records	1400-23		District Files Cabinet	Kept permanently in District Files		
172 Well schedules	1400-25					
173 Spring schedules	1400-25					
174 Aquifer test results	1400-28					
175 Aquifer-test data	1400-28					
176 Well-field location maps	1400-30					
177 Drill-core description	1400-30					
178 Drill-cuttings descriptions	1400-30					
179 Well logs	1400-30					
180 Driller's logs	1400-30					
181 Geologic maps	1400-30					

Table 4: DETAILED LISTING OF DATA TO BE ARCHIVED

Type of Data	WRD Records Disposition Item #	FARC Disposal Data	District Location	District Disposal Data	Format Electronic, Paper, Other)	Dates (Period of Record)
A.2.FIELD DATA **A .2 .e.** WATER QUALITY, BIOLOGY, SEDIMENT 201 Field notes, including field determinations 202 Calibration readings for field instruments 203 Analyst work sheet (District lab analyses 204 Laboratory analyses 205 Quality assurance data 206 Quality-control data 207 Cross section information 208 Analyst notes for biological determinations 209 Computation sheets (sediment) 210 Cross sections information (EDI, EWI)	1400-40	75-year retention period	With project or network files	To FARC With other field data		
A.2.f. WATER USE 251 Copies of withdrawal or discharge 252 Location maps 271 Field notes 272 Supporting data 273 Site specific data 274 Aggregate data	1400-20	As noted in next column	District File Cabinets Office of District Water Use Specialist	Permanently in District Files Destroy in agency 5 years after publication of 5-year National Water Use Circular		

Table 4: DETAILED LISTING OF DATA TO BE ARCHIVED

Type of Data	**WRD Records Dispostion Item #**	**FARC Disposal date**	**District Location**	**District Disposal Date**	**Format (Electronic, Paper, Other)**	**Dates (Period of Record)**
A.2. FIELD DATA **A.2.g.** GEOPHYSICAL DATA Surface: 301 EM Conductivity 302 Refraction Data (seismic) 303 Reflection Data (seismic) 304 Radar Borehole: 320 EM Logs 321 Gamma Logs 322 Conduction Logs 323 Induction Logs 324 Caliper Logs 325 Temperature Logs 326 Grain Size/Cores 327 Lithologic Logs/Split Spoon Samples	1400-30	75-year retention period	Separate file in Groundwater Specialists Office	Maintained permanently in District archives		
A.2.h. OTHER DATA TYPES 351 Meteorological data 352 Geomorphic data 353 Sediment data 354 Lab sheets 355 Stage data 356 Tide data 357 Flow/ Q data 358 Location data 359 Demographic data 360 Audio/ Video data 361 Slides and photographs 362 Remote sensing 363 Geographic position system (GPS) data 364 Scanned original field notes and other data	1400-36b	75-year retention period	Applicable active project office area or District archive	Sent to FARC when no longer needed (hold in District 1-5 years		

Table 4: DETAILED LISTING OF DATA TO BE ARCHIVED

Type of Data	WRD Records Disposition Item #	FARC Disposal Date	District Location	District Disposal Date	Format (Electronic, Paper, Other)	Dates (Period of Record)
B. <u>COMPUTATION AND INTERPRETIVE DATA</u> **B.1.** NETWORK STATIONS (SW, GW, QW) 401 Station Analysis 402 Office Record 403 Rating curves and tables 404 Shift and datum schedules and plots 405 Unit Values Plots 406 Primary Computation Sheets (with estimated discharges in pencil) 407 Levels Summary Sheets 408 Pencil or electronic list of measurements 409 End-of-year Summary (annotated)	1400-36k	75-year retention period	Network file drawers	Holding District Files, or send to FARC in 5-year increments, leaving 5 years of completed (published) water year in District files		
B.2. INTERPRETIVE REPORTS: 451 Copy of published report 452 Project Description 453 Dye-dilution data 454 Reaeration Data (1400-39) 455 Time-of-travel data (1400-39) 456 Model parameters and variables 457 Final Model Version 458 Station analyses 459 Key calculations 460 Final Statistical Analysis 461 Laboratory data 462 Transport curves and tables (sediment 463 Box coefficients 464 Other key data related to project (described)	1400-36k	75-year retention period	Designated project file location	Send to FARC 3 years after completion of project and publication of initial reports and any ongoing following reports		

Table 4: DETAILED LISTING OF DATA TO BE ARCHIVED

Type of Data	WRD Records Disposition Item #	FARC Disposal Date	District Location	District Disposal Date	Format (Electronic, Paper, Other)	Dates (Period of Record)
C.SUPPORT DOCUMENTATION **C.1** SURFACE WATER 501 Station Description 502 Cableway design plans 503 Gage house design plans 504 Spin-test results 505 Methods-development data (Not in NWIS) 506 QA/QC Plans 507 Station descriptions 508 Equipment, type, models, serial number, and Tolerance (accuracy 509 Verification data 510 Laboratory data (1400-36K, 40, 41) 511 Cableway inspection forms 512 Other supporting information 513 Permits	1400-36m	75-year retention period	Held with project or network files. Network folder called "General Data and Correspondence." Hold in District until station is discontinued	Holding District Files, or send data for discontinued stations to FARC with next 5-year transmittal		
C.2. GROUND WATER 551 Methodology 552 Permits	1400-27	75-year retention period	Same as C.1	Same as C.1		
C.3. WATER QUALITY and BIOLOGY 601 Sampling protocols 602 Chain of custody forms 603 Quality-assurance plans 604 Field sampling plan 605 Permit 606 Cross sections info (EDI, EWI)	1400-40	75-year retention period	Same as C.1	Same as C.1		
C.4. WATER USE 651 Questionnaires to cooperators 652 Data-documentation file	1400-20	None	Same as other Water Use	Same as other Water Use		

Table 4: DETAILED LISTING OF DATA TO BE ARCHIVED

Type of Data	WRD Records Disposition Item #	FARC Disposal Date	District Location	District Disposal Date	Format (Electronic, Paper, Other	Dates (Period of Record)
C. <u>SUPPORT DOCUMENTATION</u> D. **5.** OTHER DATA 701 Project Proposal 702 Project description forms (all year) 703 Calculation notes 704 Safety plans 705 Accident reports 706 Project correspondence 708 Data request for interpretive analysis (1400-01, 03) 709 Joint Funding Agreements 710 Training 711 Dig Safe Reports 713 Background 714 Data collection schedules 715 Drilling schedules **END OF TABLE 4**	1400-36m	75-year retention period	Held with project or network files. Network folder called "General Data and Correspondence." Hold in District until station is discontinued (see next column)	Send data for discontinued stations to FARC with next 5-year transmittal		

DPD # Establishing ID, and Naming New Data Site

To eliminate the creation of duplicate data-collection sites, first complete a thorough search of the District Header File, and GWSI, ADAPS, and QWMENU databases. If a duplicate site is suspected, consult the discipline DBA for resolution. If a duplicate site exists, follow instructions given in DPD number 2 (Data merges and deletions). If a new data-collection site needs to be established, follow instruction given in DPD number 1.

PURPOSE

To specify procedures for determining latitude and longitude establishing ID, and naming a new data-collection site.

MATERIALS

1. USGS 7.5 minute topographic quadrangle project work map.
2. USGS 1:24,000 scale, graduated in miles and feet.
3. USGS 7.5 minute latitude-longitude scale
4. Digitizer, if available

ACCURANCE & LIMITATIONS:

1. Latitude-longitude determinations are accurate to within one second.
2. Latitude and longitude determined by GPS or digitizer will be rounded to the nearest second before entry in GWSI.

INSTRUCTIONS:

Plotting Site:

1. Each new site should be located in the field.
2. Transfer the location of the site from either the aerial photograph, plat map, or detailed sketch map to a USGS 7.5 minute topographic quadrangle map.
3. A dot will be placed in the center of all symbols marking the exact location of the site.

Establishing Site ID:

Surface Water (stream)

1. Project staff consult with SWDBA to determined 8-15 digit downstream order number for site

Ground Water (well, spring, lake)

1. Project staff will determine latitude and longitude using a USGS 7.5 minute latitude-longitude scale, digitizer, or a GPS unit in the field.
2. Add to the latitude and longitude to two-digit sequence number to determine the 15-digit site ID number

Naming Site:

Surface Water (stream)

1. Project staff determine preliminary site name.
2. The name will include name of stream.
3. For unnamed tributaries (no name shown on any maps) do not name the

stream with any local identifiers. Instead, state that it is unnamed and refer to the receiving waters to which it flows. For example, "unnamed tributary to Cheat River near Parsons, WV." Using this method will provide immediate reference to the major water body the unnamed tributary flows.

4. Site must be referenced to the nearest city, town, or village within the same state on a topographic map (scale 1:24000).

5. Use "AT" when the site is one mile or less from the center or principle intersection of the named town.

6. Use "NEAR" when site is more than one mile from the center pr principle intersection of the named town.

7. Add the two-letter postal abbreviation code for the State of the named town.

8. An example of a correct stream site name in West Virginia is "Cheat River near Albright, WV."

9. The site name must be unique. If "a name" already exists, additional qualifiers must be added to the new site, such as "Cheat River at Route 5 near Albright, WV". Preference to shorter names is given to continuous record sites, where possible.

10. Preliminary site name determine by project staff will be approved by the SWDBA before entry into the GWSI site file.

REFERENCES:

1. U.S. Geological Survey, 1997, Office of Ground Water, A Quality-Assurance Plan for District Ground-water Activities of the USGS, Open File Report 97-11, GWPD 5.

DPD #2 Data Merge and Data or Site Deletion

Duplicate sites and data within a database can reduce the utility and diminish the overall effectiveness and credibility of the database. A systematic method for margining data and deleting sites is required to effectively manage databases.

PURPOSE:

To specify procedures for merging data and deleting data or a site when it is determined that a duplicate site or erroneous data exists.

INSTRUCTIONS:

Data Merge:

1. Data merges should occur only when different data exists at duplicate sites.

2. Data are merged by changing the old site ID to a new site ID (all data stored under the old site ID will be stored under the new site ID).

3. If data are moved to a new site or merged with an existing site, the original site ID will be identified in the remarks field (C806) of the General Site Data Record and annotations will be made current project files (station folders, discharge measurement forms, inspection forms, GWSI forms, etc.).

Data Deletion:

Data deletions should occur only when there are duplicate or erroneous data at an individual site.

Site Deletion:

A site deletion should occur only when:

(a) A site header exists with no data in any database.

(b) A duplicate site exists with duplicate data.

REFERENCES:

1. U.S. Geological Survey, 1997, Office of Ground Water, A Quality-Assurance Plan for District Ground-water Activities of the USGS Open File Report 97-11, GWPD 5.

DPD # 3 Recording Field Notes

District policy requires the use of standardized field forms to record field data. Standardized forms, which are often formatted to meet the needs of the project, must reflect database requirements and the needs of other potential users of the data. The use of notebooks to record field data is not an acceptable substitute for standardized forms.

PURPOSE:

To specify procedures for recording and managing field notes.

INSTRUCTIONS:

1. Obtain the correct standardized field forms before doing any field work.
2. The serial numbers and/or identification numbers of all equipment used to obtain field measurements will be recorded on field forms.
3. When standardized forms do not exist the project will develop a standardized form with the following minimum and recommended additional requirements.

Minimum requirements:

a. project number
b. site name
c. site id
d. date and time of work
e. site condition
f. persons performing work

Recommended additional requirements:

g. reason for work (ex. Routine sampling)
h. weather condition
i. instrumentation
j. procedure and method of collection
j. type of data collected
l. database parameter codes

4. Any non standardized field forms developed by a project, will be reviewed by the appropriate Discipline Specialist before being used.

DOCUMENTATION:

1. All field forms must be kept in an organized binder or folder with project or network files.
2. All data and information on field forms that are to be stored in databases should be entered in a timely manner.

DPD # 4 Calibration and Performance Records for Measurement Equipment

Calibration and performance records substantiate the quality of data collected by documenting information about the: calibration, performance, maintenance, upgrades, and custody of instrumentation used for hydrologic investigations. Calibration and performance records will be kept for discharge current meters, level instruments, water-quality monitors, and other selected instruments.

PURPOSE:

To specify procedures for documenting calibration and performance records for measurement equipment.

INSTRUCTIONS:

1. Each selected measurement instrument will have a calibration and performance record in a notebook that will incorporate calibration data in a standard format.
2. The notebook will travel with the measurement equipment.
3. The first page of the record will contain equipment make, model, serial number.
4. For each typed of measurement equipment, a standard format will be created to record calibration and performance records as specified by the manufacturer, and by requirements from appropriate field forms for the type o data collection. To facilitate record review, standard formats will include the following for each calibration:

a. Custodian (name and project
b. Date, time
c. Calibration information as appropriate.

DOCUMENTATION:

Calibration and performance information for each use will be recorded on field notes with the raw data collected at a measurement site as well as being maintained in the record book that travels with the equipment.

REFERENCES:

1. Holman J.P., Gajda, W.J., Jr., 1984 Experimental Methods for Engineers, 4th ed., McGraw Hill Book Co New York, 514pp.
2. Intergovernmental Task Force on Monitoring Water Quality, 1994, The Strategy for Improving Water Quality Monitoring in the United States: U.S. Geological Survey, Reston, Va., 94p.
3. Intergovernmental Task Force on Monitoring Water Quality, 1994, The Strategy for Improving Water Quality Monitoring in the United States: Technical Appendixes U.S. Geological Survey, Reston, Va., 117 p.
4. Wilde, F.D., and, Radtke D.B. (editors), 1996. National Field Manual for the Collection of Water-Quality Data. U.S. Geological Survey Handbooks for Water-Resources Investigations, Book 9, Chapter A6.
5. Schroder, L.J., and Shampine, W.J., 1992, Guidelines for preparing a quality assurance plan for District offices of the U.S. Geological Survey: USGS OFR 92-136 14p.

6. Shampine, W.J., Pope, L.M., and Koterba, M.T., 1992, Integrating Quality Assurance in Project Work Plans of the U.S. Geological Survey: USGS OFR 92-162 12 p.

DPD # 5 Maintenance of Project Files

While a project is active, the files for each data-collection site are maintained in folders in the office of the project staff. The folders will contain all the information necessary to verify data in a report or NWIS data base.

PURPOSE:

To specify procedures to properly maintain and organize the files for each data-collection site while a project is active.

INSTRUCTIONS:

1. At minimum, the following data, if applicable, are to be stored in project folders for each data-collection site:

a. Site description including, how to access site, copy of a topographic map showing site location and topographic map name.
b. Safety information including site safety plan.
c. Dated printout of GWSI Site-File information.
d. Original field notes
e. Driller's log, geophysical logs, and well construction information.
f. Photographs of relevant features of the site.
g. Copies of analytical services request forms (laboratory login sheets).
h. Water-quality analytical laboratory related forms.
i. Printouts of water quality data from all labs used on project.
j. Water-quality sample rerun and verification.
k. Quality assurance reports for non-USGS labs used.
l. Permission and permits for sampling or installing wells, gages, or other monitoring equipment.
m. Water-level and discharge-measurement notes.
n. Level notes and computations, including information on the altitude of the land surface and a description of the measuring point, reference points and bench marks.
0. Aquifer test, slug test, and other hydraulic data.
p. Dated printouts of primary computation for recording instruments.
q. Copies of all rating tables, datum corrections, and shift information
r. Station analysis

2. Any changes in data (for example, water-quality reruns, incorrectly located sites, math errors in levels or other calculations) are to be explained, data, and initialed in the project folders and appropriate updates are made to NWIS data base.

DOCUMENTATION:

1. Each project will keep an explanation of project filing system (what data is being stored and where it is physically located in the office).

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REFERENCES:

1. WSP 2175: Measurements and Computation of Streamflow, Volume 1 and

2. WRD 92.035: Policy of the Water Resources Division on the Use of Laboratories.

3. WRD 92.036: Policy of the Water Resources Division on the Use of Laboratories by National Water-Quality Programs.

4. WRD 92-037: Policy of the Water Resources Division on Laboratory Analytical Methodology.

DPD #6 Management of Non-Standard Digital Data

Non-standard digital data includes all digital data that cannot be stored in the National water Information System (NWIS) data base. Geophysical logs, Global Positioning System (GPS) data, data logger records, digital format are non-standard digital data.

PURPOSE:

To specify procedures to properly maintain and organize non-standard digital data files are suitable formatted, stored and documented for present and future use.

ACCURACY & LIMITATIONS:

1. The accuracy of data stored will reflect the accuracy of the input reading and conform to USGS report standards for rounding, and use of significant figures.
2. ASCII files should be used whenever practicable; however more complex formats are sometimes required (such as GIS data layers or other multifaceted graphical output like pictures, video or sound). Project chiefs may establish other formats in cooperation with the appropriate database administrators to determine appropriate, durable storage formats. Non-standard digital data stored in commercial databases for project use will be stored in ASCII format at the conclusion of the project unless it is procedures as a stand-alone electronic publication.

INSTRUCTIONS:

1. Non-standard digital data should be stored in a manner that, at a minimum, identifies the data by site ID, data type, and date of collection.
2. All non-standard digital data that is: suitable for publication, or is suitable for use in future studies will be stored in an ASCII format if possible, and in another standard format if not.
3. Digital data collected by project will be stored in directories documented and designated for project data on one of the available distributed information systems so that:
    a. Digital project records will receive the benefit of systematic backups performed by the computer unit.
    b. Digital information will be universally available to project teams.
    c. Digital information will be available for all internal reviews.
4. Filename conventions will indicate site
5. Project staff will follow file name convention and data forms when the District establishes databases for non-standard digital data.
6. For each data collection site the following three files will be maintained and stored together for each data type.
    a. Raw data as recorded by the instrument.
    b. Transitional information identifying who, what, where, and how, data was recorded and transformed for interpretive use as well as the expected accuracy and precision of the measurements.

c. Transformed data including shifts and other modifications needed to use the data.

7. Data file formats should be tab or space delimited ASCII where practical. Numerical data may be floating point or fixed format, but if fixed, significant figures need be noted.

8. Digital data collected by project should be stored on appropriate media to provide a supplemental backup.

DOCUMENTATION:

Project Chiefs will keep a written explanation of the project filing system(s) for non-standard digital data including what is stored and the physical location of the files.

REFERENCES:

1. Intergovernmental Task Force on Monitoring Water Quality, 1994, The Strategy for Improving Water Quality Monitoring in the United States: U. S. Geological Survey, Reston, VA., 94 p.

2. Intergovernmental Task Force on Monitoring Water Quality, 1994, The Strategy for Improving Water Quality Monitoring in the United States, Reston, VA., 117 p.

3. Schroder, L.J., and Shampine, W.J., 1992, Guidelines for preparing a quality assurance plan for District offices of the U.S. Geological Survey: USGS OFR 92-136 14 p.

5. Shampine, W.J., Pope, L.M., and Koterba, M.T., 1992, Integrating Quality Assurance in Project Work Plan of the U.S. Geological Survey: USGS OFR 92-162 12 p.

DCP #7 Maintenance of Water Quality (QW) Files

While a project or network is active, the water quality files for each data-collection site are maintained in folders in the office of the project or network staff. The folders will contain all the information necessary to verify data in a report or the QW database within National Water Information Systems (NWIS)

PURPOSE:

To specify procedures for managing and maintaining QW files involving the National Water Quality Lab (NWQL).

INSTRUCTIONS:

1. Each sample sent to the NWQL will include a properly completed ASR. A copy of the ASR shall be retained for data management purposes. Additional information concerning the ASR is contained in various National Water Quality Lab Memorandums (e.g. 95-02, 95-04, and Appendix E.
2. Login sample by having information entered from ASR and field sheets into the NWIS QW Menu program as soon as possible.
3. The sample record number generated by the QW Menu program that appears on the screen shall be recorded on the field sheet or on a copy of the ASR.
4. Lab printouts (Watlist) of analyzed samples will be returned by the QWDBA to projects for review. These printouts will be maintained by the project (reference DPD 5) and later archived.
5. Project staff will review data for completeness and accuracy.
6. Project staff will request a sample re-run, if needed. The NWQL point of contact will be the webpage http://wwwnwql.cr.usgs.gov/USGS/district_rerun_request.html
7. Lab printouts of analyzed re-runs Will be returned by QWDBA to projects for further review and updating QW Menu, as necessary.

DOCUMENTATION:

Data are recorded on field sheets, NWQL lab printouts, ASR's, and in NWIS.

REFERENCES:

1. U.S. Geological Survey, 1990, National Water Information System User's Manual Water Quality System, U.S. Geological Survey Open File report 89-617, Volume 2, Chapter 2.

DPD #8 Maintenance of Water Quality Files Non-USGS Analytical Laboratories

Water Resources Division Memorandum 92.36 requires that all national water-quality programs are required to use the Water Resources Division's Branch of Analytical Services for analytical services providing data for non-research purposes. Before considering use of an alternative laboratory, the policy on such sue must be considered, and the District Water-quality Specialist (NEDMAC Water-quality Specialist) must be consulted.

All cooperator laboratories providing analytical services for non-research purposes shall be approved by the WRD in accordance with Water Resources Memorandum 92.35, and quality assurance procedures must be established for each cooperator laboratory supplying data. The District Water Quality Specialist must be consulted, and approval obtained before using cooperator laboratories.

PURPOSE:

To specify procedures for managing and maintaining QW files from Non-USGS Analytical Labs.

INSTRUCTIONS:

1. Each sample sent to a Non-USGS Analytical Lab will include a properly completed lab form (or ASR). A copy of the lab form (or ASR) shall be retained for data management purposes. The Non-USGS lab form (and/or supplement attachment) must contain all information contained on NWQL ASR form.
2. Project staff shall review Non-USGS lab printouts of analyzed samples for completeness and accuracy. These protocols will be maintained by the project and later archived.
3. Login analytical results from Non-USGS lab sample record number, and record number generated by QWMENU shall be recorded on the field sheet or Non-USGS lab sheet (ASR).

DOCUMENTATION:

Data are recorded on field sheets, Non-USGS lab printouts, ASR's or Non-USGS Analytical Lab, and in NWIS.

DPD #9 MANAGEMENT OF STREAM SEDIMENT DATA

While a project or network is active, the stream sediment data files will be maintained in folders by project or network staff.

PURPOSE:

To specify procedures for managing and maintaining stream sediment data.

INSTRUCTIONS:

1 .Before data collection begins asite must be established using procedures described in DPD 1.

2 .Complete a standard sediment data collection field form for each sample.

3. Login sample by having information entered from the field form into the NWIS QWMENU program.

4. The sample record number generated by QWMENU program shall be recorded on the field sheet.

5 .Before shipping sediment samples to a USGS Sediment Lab, complete a standard laboratory sediment analyses form and ask about any special instructions that may be required to shipping samples.

6. Lab analytical results for sediment data will be entered into QWMENU within 30 days of receipt.

7. For continuous sediment stations, after analysis using sediment computation methods described by Porterfield (1972) and SEDCALC by Koltun and others (1994), all daily suspended-sediment data must be entered into ADAPS.

REFERENCES:

1. Edwards, T.K., and Glysson, G.D., 1988, Field methods for measurement of fluvial sediment: U.S. Geological Survey Open-File Report, 118 P.

2. Glysson, G.D., 1987, Sediment-transport curves: U.S. Geological Survey Open-File Report 87-218, 47 p.

3. Knott, J.M., Glysson, G.D., Malo, B.A., and Schroder, L.J., 1993, Quality assurance plan for the collection and processing of sediment data by the U.S. Geological Survey Water Resources Division: U.S. Geological Survey Open-File Report 92-499, 18 p.

4. Koltun, G.F., Gray, J.R. and McElhone, T.J., 1994., User's manual for SEDCALC, a computer program for computation of suspended-sediment discharge: U.S. Geological Survey Open-File Report 94-459.

5. Novak, C.E., 1985, Water Resources Division data reports preparation guide: U.S. Geological Survey Water Resources Division, 119 p.

6. Office of Surface Water, 1991, Programs and plans—guidelines for the analyses of sediment data: U.S. Geological Survey Office of Surface Water Technical Memorandum No 91.15, 30 p.

7. Porterfield, George, 1972, Computation of fluvial sediment discharge, TWRI 3-C3, 66 p.

8. U.S. Geological Survey Water Resources Division Missouri District, 1993, Technical memo series—quality assurance and operating plan for sediment activities of the Missouri District, 49 p.

DPD #10 Management of Geophysical Data

Geophysical records, including borehole geophysical logs and results of surface geophysical surveys, have enduring value to hydrologic studies and to the general public. However, the NWIS database has no provisions for most geophysical data. This DPD establishes a method of managing and storing geophysical data for current and future uses.

ACCURACY & LIMITATIONS:

1. The accuracy of recorded geophysical data should reflect the accuracy of measurements made by the geophysical equipment, not the maximum places stored in the data logger.

INSTRUCTIONS:

1. A graph of each log should be made on a sheet of paper to be stored in District files which includes (front and/or back) the following information:

a. type of log
b. method/probe type used
c. Well name & site id or, if for surface geophysics, location by latitude and longitude of base point lengths and directions of lines, and information indicating location relative to features on the land surface such as roads, streams, and other landmarks likely to remain static for 10-20 years. (Preferably with a sketch or a base map).
d. date of log
e. Project name
f. Project chief
g. Logger's name
h. Brief description of the reason for log
i. the expected accuracy and precision of measurements

2. Digital copies of geophysical logs will be created, stored and handled according to specifications in DPD#6 Management of non-standard digital data. Digital data for some types of logs will b e best stored in compact disks (CD's) because of the size of the files.