nawdex
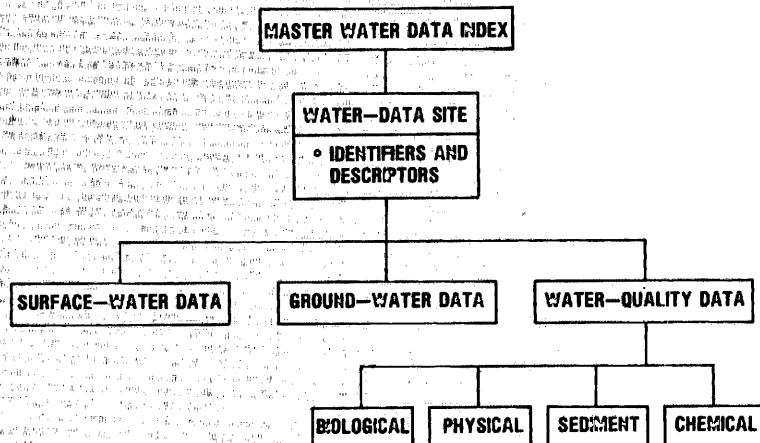
NATIONAL WATER DATA EXCHANGE

DEFINITIONS OF COMPONENTS OF THE MASTER WATER DATA INDEX MAINTAINED BY THE NATIONAL WATER DATA EXCHANGE

MASTER WATER DATA INDEX

WATER—DATA SITE
○ IDENTIFIERS AND DESCRIPTORS

SURFACE—WATER DATA | GROUND—WATER DATA | WATER—QUALITY DATA

BIOLOGICAL | PHYSICAL | SEDIMENT | CHEMICAL

U.S. GEOLOGICAL SURVEY
Open-File Report 78—183

DEFINITIONS OF COMPONENTS OF THE MASTER WATER DATA INDEX MAINTAINED BY THE NATIONAL WATER DATA EXCHANGE

By ROBERT A. PERRY and CHARLES J. LEWIS

U.S. GEOLOGICAL SURVEY
Open-File Report 78—183

1978

UNITED STATES DEPARTMENT OF THE INTERIOR
CECIL D. ANDRUS, Secretary

GEOLOGICAL SURVEY
H. William Menard, Director

The National Water Data Exchange (NAWDEX) is an interagency
program to facilitate the exchange of water data and to promote the
standardization of water-data-handling procedures. The participants in
the NAWDEX program are those Federal, State, local governmental
organizations, and private organizations that collect and use water
data.

NAWDEX maintains a "Master Water Data Index" which is a
computerized index of available water data. The Index contains
information on sites for which water data are available, the location of
these sites, the type of site, the data-collection organization, the
types of data available, the major water-data parameters for which data
are available, the frequency at which these parameters are measured, and
the media in which the data are stored.

This document defines the data components contained in the Master
Water Data Index (MWDI); it is referred to as the MWDI Data Dictionary.
Its purpose is to describe, in detail, the information in the MWDI.

Inquiries related to the Dictionary may be directed to:

> Program Manager
> National Water Data Exchange
> U.S. Geological Survey
> 421 National Center
> Reston, Virginia 22092

CONTENTS

ILLUSTRATIONS

APPENDICES

DEFINITIONS OF COMPONENTS OF THE MASTER WATER DATA INDEX
MAINTAINED BY THE NATIONAL WATER DATA EXCHANGE

By

Robert A. Perry, (USGS) and Charles J. Lewis (CACI, Inc.)

INTRODUCTION

The Master Water Data Index (MWDI) is a computerized data base, developed and maintained by the National Water Data Exchange (NAWDEX) Program Office, which contains information about water-data collection sites of NAWDEX members and participants. It contains information on the identification and location of sites for which water data are available, the type of data-collection site, the organizations collecting data at each site, the current status of each site, the types of data available, the period of time for which data are available, the major water-data parameters for which data are available, the frequency at which these parameters are measured, and the media in which the data are available.

This document contains a definition and description of each component of the Master Water Data Index (MWDI) data base. For simplicity, it is referred to as a data dictionary. It is intended, primarily, to assist those persons using the MWDI in understanding and clarifying information obtained from the data base.

The Master Water Data Index is designed to be used independently, or in conjunction with, the Water Data Sources Directory (WDSD). The WDSD is also a computerized data base developed and maintained by the NAWDEX Program Office. It contains information about organizations that are sources of water data; the major orientation of water-data activities conducted by these organizations; the names, addresses, and telephone numbers of offices within each organization from which water-data may be obtained; the types of data held by each organization and the geographic locations where these data have been collected; and alternate sources of an organization's data. A few components are common in both data bases, thereby allowing retrieved information to be cross-referenced between them. For example; a retrieval may be made from the Master Water Data Index to identify all sites, within a geographic area of interest, for which water-quality data are available. A retrieval can then be made from the Water Data Sources Directory to determine the addresses from which data may be obtained from organizations operating the identified sites. A description of the Water Data Sources Directory is found in the publication entitled "Definition of Components of the Water Data Sources Directory Maintained by the National Water Data Exchange."
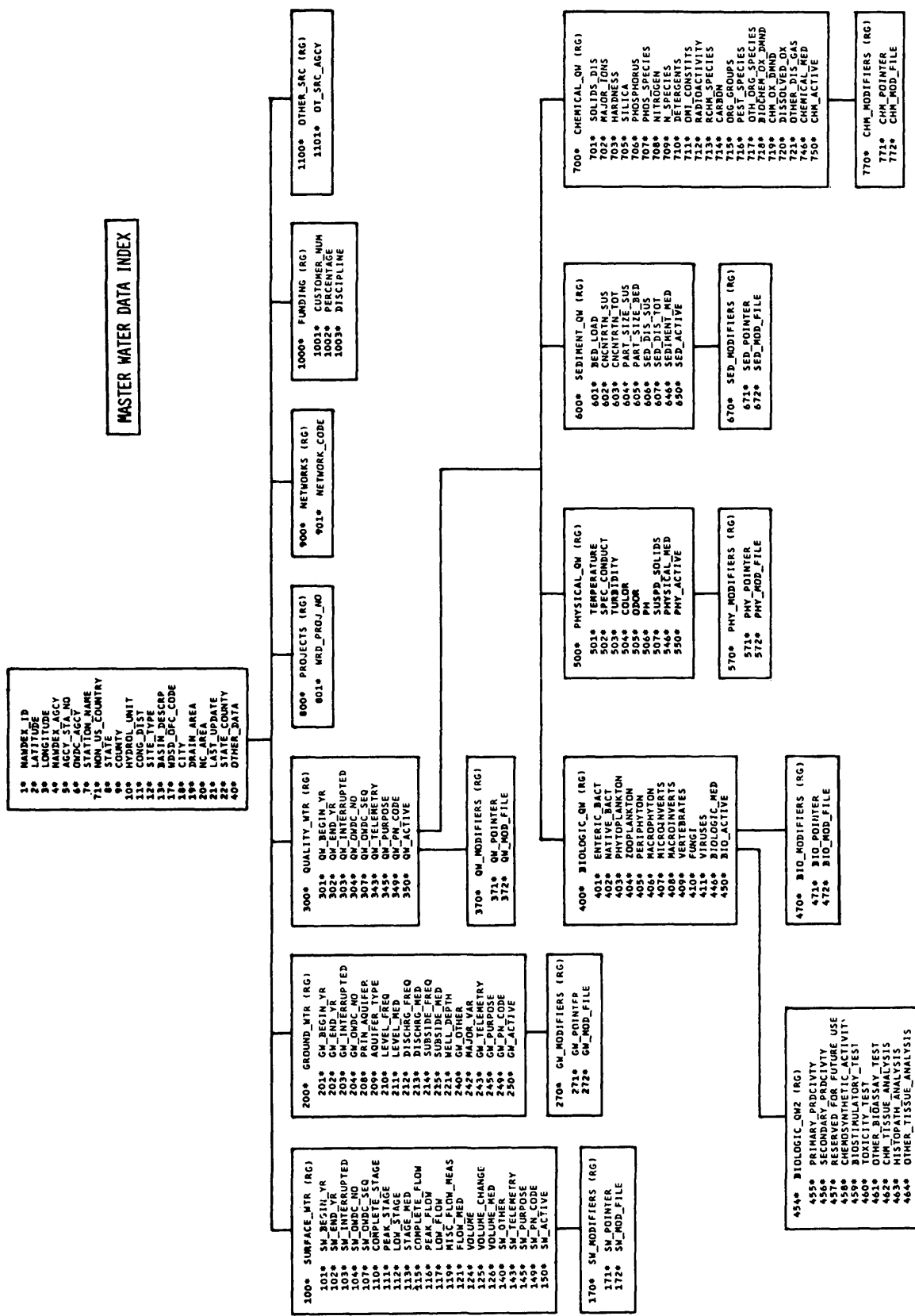
1

MASTER WATER DATA INDEX

MAWDEX_ID box:
1* MAWDEX_ID
2* LATITUDE
3* LONGITUDE
4* MAWDEX_AGCY
5* AGC_STA_NO
6* OWDC_AGCY
7* STATION_NAME
72* SON_US_COUNTRY
8* STATE
9* COUNTY
10* HYDROL_UNIT
11* CONG_DIST
12* SITE_TYPE
13* BASIN_DESCRP
17* WDSD_OFC_CODE
18* CITY
19* NC_AREA
20* DRAIN_AREA
21* LAST_UPDATE
22* STATE_COUNTY
40* OTHER_DATA

1100* OTHER_SRC (RG)
1101* OT_SRC_AGCY

1000* FUNDING (RG)
1001* CUSTOMER_NUM
1002* PERCENTAGE
1003* DISCIPLINE

900* NETWORKS (RG)
901* NETWORK_CODE

800* PROJECTS (RG)
801* WRD_PROJ_NO

300* QUALITY_WTR (RG)
301* QW_BEGIN_YR
302* QW_END_YR
303* QW_INTERRUPTED
304* QW_OWDC_NO
307* QW_OWDC_SEQ
343* QW_TELEMETRY
345* QW_PURPOSE
349* QW_PN_CODE
350* QW_ACTIVE

370* QW_MODIFIERS (RG)
371* QW_POINTER
372* QW_MOD_FILE

200* GROUND_WTR (RG)
201* GW_BEGIN_YR
202* GW_END_YR
203* GW_INTERRUPTED
204* GW_OWDC_NO
208* GW_OWDC_SEQ
209* AQUIFER
210* AQUIFER_TYPE
211* LEVEL_FREQ
212* LEVEL_MED
231* STAGE_MED
232* DISCHRG_FREQ
233* DISCHRG_MED
234* SUBSIDE_FREQ
235* SUBSIDE_MED
221* WELL_DEPTH
240* GW_OTHER
242* MAJOR_VAR
243* GW_TELEMETRY
245* GW_PURPOSE
249* GW_PN_CODE
250* GW_ACTIVE

270* GW_MODIFIERS (RG)
271* GW_POINTER
272* GW_MOD_FILE

100* SURFACE_WTR (RG)
101* SM_BEGIN_YR
102* SM_END_YR
103* SM_INTERRUPTED
104* SM_OWDC_NO
107* SM_OWDC_SEQ
110* COMPLETE_STAGE
111* PEAK_STAGE
112* LOW_STAGE
113* STAGE_MED
115* COMPLETE_FLOW
116* PEAK_FLOW
117* LOW_FLOW
119* MISC_FLOW_MEAS
121* FLOW_MED
124* VOLUME
125* VOLUME_CHANGE
126* VOLUME_MED
140* SM_OTHER
143* SM_TELEMETRY
145* SM_PURPOSE
149* SM_PN_CODE
150* SM_ACTIVE

170* SM_MODIFIERS (RG)
171* SM_POINTER
172* SM_MOD_FILE

700* CHEMICAL_QW (RG)
701* SOLIDS_DIS
702* MAJOR_IONS
703* HARDNESS
705* SILICA
706* PHOSPHORUS
707* PHOS_SPECIES
708* NITROGEN
709* N_SPECIES
710* DETERGENTS
711* OMI_CONSTITS
712* RADIOACTIVITY
713* RCHM_SPECIES
714* CARBON
715* ORG_GROUPS
716* PEST_SPECIES
717* OTH_ORG_SPECIES
718* BIOCHEM_OX_DMND
739* CHM_OX_DMND
720* DISSOLVED_OX
721* OTHER_DIS_GAS
746* CHEMICAL_MED
750* CHM_ACTIVE

770* CHM_MODIFIERS (RG)
771* CHM_POINTER
772* CHM_MOD_FILE

600* SEDIMENT_QW (RG)
601* BED_LOAD
602* CNCNTRTN_SUS
603* CNCNTRN_TOT
604* PART_SIZE_SUS
605* PART_SIZE_BED
606* SED_DIS_SUS
607* SED_DIS_TOT
646* SEDIMENT_MED
650* SED_ACTIVE

670* SED_MODIFIERS (RG)
671* SED_POINTER
672* SED_MOD_FILE

500* PHYSICAL_QW (RG)
501* TEMPERATURE
502* SPEC_CONDUCT
503* TURBIDITY
504* COLOR
505* ODOR
506* PH
507* SUSPD_SOLIDS
546* PHYSICAL_MED
550* PHY_ACTIVE

570* PHY_MODIFIERS (RG)
571* PHY_POINTER
572* PHY_MOD_FILE

400* BIOLOGIC_QW (RG)
401* ENTERIC_BACT
402* HTRPHC_BACTON
403* PHYTOPLANKTON
404* ZOOPLANKTON
405* PERIPHYTON
406* MACROPHYTON
407* MICROINVERTS
408* MACROINVERTS
409* VERTEBRATES
410* FUNGI
411* VIRUSES
446* BIOLOGIC_MED
450* BIO_ACTIVE

470* BIO_MODIFIERS (RG)
471* BIO_POINTER
472* BIO_MOD_FILE

454* BIOLOGIC_QW2 (RG)
455* PRIMARY_PRDCTVTY
456* SECONDARY_PRDCTVTY
457* RESERVED FOR FUTURE USE
458* CHEMOSYNTHETIC_ACTIVTY
459* BIOSTIMULATORY_TEST
460* TOXICITY_TEST
461* OTHER_BIOASSAY_TEST
462* CHM_TISSUE_ANALYSIS
463* HISTOPATH_ANALYSIS
464* OTHER_TISSUE_ANALYSIS

Figure 1. Hierarchical structure and contents of the Master Water Data Index data base.

2

OVERVIEW OF THE MASTER WATER DATA INDEX

Data Base Description

The Master Water Data Index (MWDI), contains the following general categories of information:

Station Identification

    Unique identifiers
    Operating organization
    Type of site (stream, well, etc.)
    Geographical identifiers
    Physical identifiers
    Station status (active, inactive)
    Supplementary data available

Type of water data collected (Surface water, ground water, water quality)

    Period of record
    Record continuity
    Data parameters collected
    Frequency of data collection
    Media on which data are stored
    Purpose of activity
    Status of activity

Data-Base Structure

The MWDI data base is managed and maintained through a generalized Data Base Management System called SYSTEM 2000. The data in a SYSTEM 2000 data base are organized into a hierarchical structure as shown in Figure 1. All the data about a single major item (in this case, a water data collection site operated by an organization) comprises a <u>logical entry</u> in the data base. In certain instances two or more organizations may be collecting different kinds of water data at the same physical site. Each organization will separately report its station activity at that site as a separate logical entry. Individual pieces of information, such as the drainage area of the station or the temperature of the water are <u>data components</u>; logically related data components are grouped into blocks called <u>repeating groups</u>.

Under the concept of the hierarchical structure, every data component "belongs to" a repeating group, and every repeating group "belongs to" a higher level repeating group (the logical entry is, itself, a repeating group at the highest level, belonging to the data base). Thus, information about the temperature of water "belongs to"

the set of information about the type water data (water quality) collected; the type of water data information "belongs to" the collection site; and the collection site (the logical entry) is a repeating group belonging, in turn, to the data base as a whole.

A fundamental aspect of the repeating group is that it can occur once, many times, or not at all. Each logical entry contains all the information about an individual site, and because the logical entry is a repeating group that can occur many times, there can be information about many sites in the data base. Similarly, for any particular logical entry (site) there can be data on more than one type of water data collected. Each "type of water data" repeating group contains information on particular data parameters collected.

Figure 1 identifies the various repeating groups which have been defined for the MWDI data base. They are arranged in a logical tree structure representing their hierarchical relationships to each other. That is, all those repeating groups, defined by boxes, which appear below the single box located at the top of the figure are groups of related data components directly related to the description of the site. According to the situation at a particular site, any one of these lower-level repeating groups may occur once, several times, or not at all. The absence of a repeating group may be the result of the lack of data, or applicability, to that particular site. For example, the repeating group labeled "Surface Water Data" would not be appropriate with a site who's type was identified "well."

An important aspect of the system is that logical entries can be of varying length, since, if a repeating group is not required, it is not stored and no space is reserved for it. If information that belongs in a nonexistent repeating group is added later, the repeating group is created and stored in any available space.

This document contains a detailed explanation of each Master Water Data Index (MWDI) repeating group and data component. It is organized in the same order as the MWDI data base, with descriptions of data components belonging to the same repeating group being located together. Each page in this document describes one repeating group or data component. A user searching for the description of a particular data component should use Figure 1 to determine its repeating group (RG), then find the page number of that repeating group in the Table of Contents. The description of the data component follows the description of the repeating group.

At the top of each page, certain attributes of the data component defined are listed to provide information generally needed only by data processing personnel for software development. These include IN RG, DATA TYPE, PICTURE, and LARGEST VALUE. A full definition of each of these attributes is found below. For the majority of users it will only be necessary to consider these attributes when producing a report or formulating a complex retrieval using the SYSTEM 2000 Immediate Access retrieval language. In other words, the majority of users need not be concerned with these attributes.

The attributes with which all users should be concerned are COMPONENT NAME, COMPONENT NUMBER, and KEY. COMPONENT NAME and COMPONENT NUMBER are simply labels for the component and may be used interchangeably by the user whenever referring to a component. The KEY attribute is an indicator of the relative expense and response time the user can expect when formulating a retrieval using the component in a conditional select clause. For most cases, using key components (KEY=Yes) instead of non-key components (KEY=No), in specifying the selection criteria for a data base retrieval, will result in faster response and lower expense. Additional information on the use of attributes may be obtained from the System 2000 Reference Manual.

Figure 2 illustrates the format used to describe MWDI components. Following is an explanation of each part of the description.

IN RG - A number appears here, which is the number of the repeating group (RG) to which the repeating group or data component belongs. For example, the top level repeating group, as shown in Figure 1, is repeating group 0. Data components 1 through 40 belong to repeating group 0, as do repeating groups 100, 200, 300, 800, 900, 1000, and 1100. All data components that belong to the same repeating group appear together in this document.

COMPONENT NAME - The unique name of the repeating group or data component as used in the data base.

NAWDEX

MASTER WATER DATA INDEX

DATA DICTIONARY

IN RG   COMPONENT NAME   COMPONENT NUMBER

MANDATORY_____   KEY_____   DATA TYPE_____

PICTURE_____   LARGEST VALUE_____

Data Values

General Description

Figure 2. Format of a component description.

COMPONENT NUMBER - The unique number of the repeating group or data
    component as used in the data base.

MANDATORY - Marked either "Yes" or "No." If "Yes," a value for the data
    component must be present in every occurence of the repeating group.
    For example, data component 1, NAWDEX_ID, is mandatory because it is
    the unique identification code of the site and, therefore, must
    always be present. On the other hand, data component 115, COMPLETE_FLOW
    is not mandatory because not every site has streamflow measurements
    and, therefore, the data component may be null (non-valued).

KEY - Marked either "Yes" or "No." In SYSTEM 2000, certain data
    components are designated by the designer of the data base as KEY
    to provide efficiencies in data retrieval. However, any data
    component, whether KEY or not, can be retrieved from the MWDI.
    This designation is not used for repeating groups.

DATA TYPE - Contains either NAME, TEXT, INTEGER, DECIMAL, or DATA,
    depending on what type of data are stored for the component. NAME
    and TEXT are used to store alphanumeric data (any character
    recognized by the computer), the difference being that TEXT retains
    leading and trailing blanks and multiple blanks between words, and
    NAME does not. INTEGER and DECIMAL store whole numbers and decimal
    numbers, respectively, and DATE stores dates in the MM/DD/YYYY format.
    This notation is not applicable to repeating groups.

PICTURE - Describes the "storage capacity" of the data component, using
    X(n) or 9(n) notation. Data components that are NAME and TEXT have
    PICTURE lengths of X(n), where "n" is the total number of charac-
    ters. For example, X(23) indicates that typically up to 23 charac-
    ters are stored for the data component. X indicates that only one
    character may be stored for the data component. INTEGER uses 9(n)
    to indicate the total number of digits that can be stored. For
    DECIMAL data components, 9(n).9(n) indicates places to the left and
    right of the decimal point. DATE is always MM/DD/YYYY, where MM
    equals month, DD equals day, and YYYY equals year, and, therefore,
    PICTURE designation is unnecessary. Repeating groups do not have
    a PICTURE designation.

LARGEST VALUE - This is the largest value that is allowed for the data
    component. For example, the largest value of a component designated
    as PICTURE 9(4) may be 5075 because of editing standards placed on
    data input to the data base. For data components defined as NAME
    or TEXT, the largest value is allowed to exceed the PICTURE size
    becuase of the SYSTEM 2000 "overflow" capability. An example of
    this is data component 7, STATION_NAME, which is PICTURE X(30) but
    may contain names up to 48 characters long if necessary.

7

DATA VALUES - This is a narrative definition of the values that can be stored for a data component.

GENERAL DESCRIPTION - This is a narrative description of the type of data stored for a data component, its purpose, and the source or usefulness of the data. If a coding scheme is used, the meaning of each code is explained.

MASTER WATER DATA INDEX
COMPONENT DEFINITIONS

N/A	WATER_DATA_SITE	0
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY N/A   KEY N/A   DATA TYPE   RG

PICTURE N/A   LARGEST VALUE   N/A

This is the highest level repeating group in the hierarchical structure of the data base and, therefore, represents the logical entry of a single water data collection site operated by an organization. It contains information on the identification, location, and type of site, and the organization that operates it.

0	NAWDEX_ID	1
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY Yes   KEY Yes   DATA TYPE Name

PICTURE X(20)   LARGEST VALUE   22 characters

Data Values - The NAWDEX Station Identification number can be up to
22 characters in length. The first 3-5 characters contain the NAWDEX
Agency code (see component 4) and the remaining characters contain the
Agency Station Number (see component 5). In the event no Agency Station
Number exists for a site, the latitude-longitude of the site or a unique
sequence number may be substituted. In the event duplicate Agency Station
Numbers exist, a one or two-digit sequence number may be appended to the
end of the NAWDEX_ID.

General Description - The NAWDEX_ID is assigned by the NAWDEX Program
Office and is the unique identifier of a logical entry in the data file.
A logical entry is all of the information about a site that is being stored.
A site is a hydrologic data collection site that is being operated by an
individual organization. If more than one agency is collecting hydrologic
data at the same physical site, there will be a separate logical entry
for each agency that is involved.

0	LATITUDE	2
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY Yes   KEY Yes   DATA TYPE   Integer

PICTURE 9(6)   LARGEST VALUE   900000

Data Values - This component (six digits) contains the latitudinal location of the site expressed in degrees, minutes, and seconds. For sites where seconds, and in some cases minutes, have not been submitted, zeros are stored in those portions of the value. Latitudinal locations north of the equator are positively valued and those south of the equator are negatively valued.

General Description - The latitude is the angular distance north or south from the Earth's equator measured through 90 degrees. The length of a degree varies from 68.704 statute miles at the equator to 69.407 at the poles because of the flattened figure of the Earth. The length of a second is approximately 100 feet.

13

0	LONGITUDE	3
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY Yes   KEY Yes   DATA TYPE Integer

PICTURE 9(7)   LARGEST VALUE   1800000

Data Values - This component (seven digits) contains the most accurate available longitudinal location of the site expressed in degrees, minutes, and seconds. For sites where seconds and in some cases minutes, have not been submitted, zeros are stored in those portions of the value. Longitudinal locations west of the prime meridian are positively valued and those east of the prime meridian are negatively valued.

General Description - Longitude is the angular distance, measured in degrees, due east or west from the prime meridian that runs between the north and south poles and passes through Greenwich, England. The length of a degree varies from 69.65 statute miles at the Equator to zero miles at the poles. The length of a second is a little over 100 feet at the equator and about 78 feet at the 40 degrees latitude parallel which passes through the approximate middle of the United States.

0	NAWDEX_AGCY	4
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY__Yes__   KEY__Yes__   DATA TYPE__Name_____

PICTURE__X(5)__   LARGEST VALUE____5 characters____

Data Values - The NAWDEX Agency code varies in length from three to
five characters. For Federal organizations, it is US followed by a
two or three-character abbreviation of the organization's name. Values
for non-Federal organizations whose activities are within a given state
boundary have a two-character alphabetic state code followed by a NAWDEX-
assigned sequence number. Alphabetic state codes are contained in the
Federal Information Processing Standards (FIPS) Publication 5-1, dated
June 15, 1970. Values for non-Federal organizations having activities
at the multi-state or national level have a three to five character
abbreviation of the organization name (the characters US will not appear
in the first two character positions). The NAWDEX Agency code also appears
in component 1 as the beginning part of the NAWDEX Identification Number.

NAWDEX Agency codes are presented in the publication entitled "Identification
Codes for Organizations Listed in Computerized Data Systems of the U.S.
Geological Survey" by Edwards, M. D., and Drilleau, M. O. (1978), which
may be obtained from the National Water Data Exchange, U.S. Geological
Survey, 421 National Center, Reston, Virginia 22092.

General Description - The NAWDEX Agency code is assigned by the NAWDEX
Program Office and is the unique identifier for participating Federal
and non-Federal organizations that actively collect and store water data.
Non-Federal organizations include state, county, and municipal organi-
zations as well as intergovernmental compacts, private organizations,
universities, and any local organizations at other than county or muni-
cipal level.

15

0	AGCY_STA_NO	5
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Text

PICTURE X(15)   LARGEST VALUE   15 characters

Data Values – The Agency Station Number may consist of varying configurations of alphabetic characters and numbers depending upon the type of system used by the operating organization to distinguish among its sites. For example, the U.S. Geological Survey uses either an 8-digit downstream order number or a 15-digit number, which contains the station latitude in the first 6 characters and the station longitude in the next 7 characters followed by an arbitrary 2-digit sequence number.

General Description – The Agency Station Number is the code assigned and used by the participating organization that operates hydrologic data collection sites to uniquely identify the individual sites under its control.

0	OWDC_AGCY	6
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE   X(3)   LARGEST VALUE   3 characters

Data Values - The Office of Water Data Coordination (OWDC) Agency code
for Federal organizations is a 3-character abbreviation of the organi-
zation's name. For non-Federal organizations, the code consists of
one alphabetic character followed by a 2-digit sequence number.

General Description - This code is assigned by the U.S. Geological
Survey's Office of the Water Data Coordination (OWDC) to identify
organizations reporting water-data acquisition activities listed in
the "Catalog of Information on Water Data," a report published by OWDC.
This component is partially redundant with respect to the contents of
component 5, NAWDEX_AGCY, and may be discontinued in the future.

0	STATION_NAME	7
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(30)   LARGEST VALUE   48 characters

Data Values – The station name may contain up to 48 printable characters.

General Description – The station name is assigned by the participating organization for the sites where it conducts water-data collection activities. It may contain both the name and location of the site.

0	NON_US_COUNTRY	71
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE X(2)   LARGEST VALUE   2 characters

Data Values - This component contains a two-character alphabetic country code if, and only if, the site is physically located outside the United States; if the site is located within the United States, the component is not valued. Commonly used values are:

> MX = Mexico
> RP = Republic of the Phillipine Islands
> CA = Canada

A complete list of country codes is contained in the Federal Information Processing Standards (FIPS) publication 10-2, dated 1976, entitled "Countries, Dependencies, and Areas of Special Sovereignty."

General Description - The non-U.S. country code is valued for only those sites that lie outside of the borders of the United States and its outlying areas. It bears no relationship to the location of the organization or office that is responsible for the operation of the site.

0	STATE	8
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY Yes   KEY No   DATA TYPE Integer

PICTURE   9(3)   LARGEST VALUE   100

Data Values – This component contains a two-digit numeric code representing the state in which the site is physically located. Numeric codes for foreign installations will also appear, when applicable, as follows:

         80 = Mexico
         81 = Republic of the Phillipine Islands
         87 = Canada
         99 = U.S. Foreign installations – miscellaneous
        100 = Other foreign counties

A complete list of state codes is contained in the Federal Information Processing Standards (FIPS) publication 5-1, dated June 15, 1970, entitled "States and Outlying Areas of the United States."

General Description – The STATE component is valued for those sites which are physically located within the United States. It bears no relationship to the organization or office that is responsible for the operation of the sites.

0	COUNTY	9
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Integer

PICTURE 9(3)   LARGEST VALUE 3 numeric digits

Data Values - This component contains a three-digit numeric code of the county in which the site is physically located. For sites not located in the conterminous U.S.·, Alaska, and Hawaii, this component is not valued.

General Description - The value contained in this component must be for a county located in the state identified in component 8, STATE. A complete list of county codes is contained in the Federal Information Processing Standards (FIPS) publication 6-2, dated September 15, 1973, entitled "Counties and County Equivalents of the States of the United States."

Note: Codes used to value this component include independent city codes for the states of Maryland, Missouri, Nevada, and Virginia and division codes for the state of Alaska.

0	HYDROL UNIT	10
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE X(8)   LARGEST VALUE   8 characters

Data Values - This component contains an eight-digit numeric code
identifying the site's location with reference to the areal definitions
shown on the USGS State Hydrologic Unit Maps. The format is (RRSSAACC)
where:

    RR is the 2-digit code for the regional area defined in (1) below.
    SS is the 2-digit code for the subregional area defined in (2) below.
    AA is the 2-digit code for the accounting unit area defined in (3) below.
    CC is the 2-digit code for the cataloging unit area defined in (4) below.

General Description - Hydrologic unit codes are given in the U.S.
Geological Survey map series "State Basic Hydrologic Unit Maps." The
series provides a uniform, nationally consistent set of maps showing
drainage, culture, hydrography, and hydrologic boundaries of: (1) WRC
(Water Resources Council) Regions, (2) WRC (Water Resources Council)
Subregions, (3) National Water Data Network Accounting Units, and (4)
Cataloging Units of the Catalog of Information on Water Data maintained
by the Office of Water Data Coordination (OWDC).

0	CONG_DIST	11
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Integer

PICTURE   9(3)   LARGEST VALUE   2 digits

Data Values - This component contains the two-digit code of the U.S. Congressional District in which the station is physically located.

General Description - Congressional District boundaries are specified in the laws and/or court orders establishing districts within the various states based upon population census. They are identified and defined in the "Congressional Directory" which may be obtained from the Super-intendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

MANDATORY Yes   KEY Yes   DATA TYPE Name

PICTURE X(2)   LARGEST VALUE   2 characters

Data Values - This component contains a two-character alphabetic code that describes the type of water body subject to hydrologic data collection activities performed at the site, or the type of data collected at the site.

General Description:

Code   Meaning

SW   Stream - A body of water flowing in a natural channel as distinct from a canal (See Canal below).

LK   Lake, reservoir - An inland body of standing water, an expanded part of a river, or an impoundment formed by an dam.

CN   Canal - An artificial waterway designed for navigation or for transporting water for municipal water supply, land irrigation, or drainage (See Drain below).

DR   Drain - A small artificial water-course designed to drain swampy areas or irrigated lands. Theoretically it is actually a small canal, but it is referred to as a "drain" in many localities.

ES   Estuarine Zone or Estuary - The term "estuarine zone" means an environmental system consisting of an estuary and those transitional areas which are consistently influenced or affected by water from an estuary such as, but not limited to, salt marshes, coastal and intertidal areas, bays, harbors, lagoons, inshore water, and channels. The term "estuary" means that part of a river or stream, or other body of water having unimpaired connection with the open sea, where the sea water is measurably diluted with fresh water derived from land drainage. The term includes estuary-type areas of the Great Lakes.

SB   Subsidence - A site where data are obtained on the lowering of the elevation of the land surface, resulting from the compaction of sediments composing an aquifer system, due to the withdrawal of subsurface fluids.

GW   Well - An artificial excavation that derives some water from the
         interstices of the rocks or soil which it penetrates, and
         from which water can be drawn by means of siphon.

SP   Spring - A place where water flows from a rock or soil upon the
         land surface or into a body of water.

SM   Soil Moisture (soil water) - A site where phenomena on soil
         moisture is measured. Soil moisture is the water
         diffused in the soil immediately below the land surface
         (zone of aeration), from which water is discharged by
         transpiration in plants or by evaporation from the soil.

ME   Meteorological - A site where measurements are made to describe
         the scientific phenomena related to the atmosphere such
         as temperature, solar radiation, winds, quantity of
         precipitation, quality of precipitation, etc.

SS   Specific Source - An artificial conduit or other conveyance where
         pollutants are discharged (from factories, sewage
         treatment plants, etc) into a water body of aquifer.

OC   Ocean - A site located in any of the world's oceans.

OT   Other - Other types of sites where hydrologically related data,
         not categorized above, are collected.

0	BASIN DESCRP	13
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY __No__   KEY __No__   DATA TYPE __Integer__

PICTURE __9(3)__   LARGEST VALUE __124__

Data Values - The Basin Descriptor component may contain up to three
numeric codes. It is used to classify conditions in the drainage area
of the data collection site. Code "3" (Urban) and code "4" (Natural)
are mutually exclusive; one or the other will always be present but
both will never be present in the same component.

Code	Meaning
1	Regulation
2	Diversion
3	Urban
4	Natural

General Description - A Basin Descriptor is a general term used to
describe man's effect on the hydrologic characteristics of a drainage
basin or an aquifer.

Regulation - The artificial manipulation of the flow of a stream. The
term does not apply to ground water sites.

Diversion - The taking of significant quantities of water from a stream
or other body of water into a canal, pipe, or other conduit.
This term applies to ground water stations when pumping is
significant.

Urban   -   The situation where streamflow patterns at a site are
affected significantly by urban development. The effect
is considered to be significant when approximately 20-25
percent or more of the drainage area is covered by a dense
road grid (indicating the presence of impermeable surfaces
of roads, parking lots, and building roofs). The term is
also applied to the setting in which a ground water site is
situated, but it is based upon a macroscopic scale and not
restricted just to the immediate vicinity of the site.

Natural -   The opposite of "Urban."

26

0	WDSD_OFC_CODE	17
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY Yes   DATA TYPE Name

PICTURE   X(4)   LARGEST VALUE   4 characters

Data Values - This component contains from two to four alphanumeric
characters to identify a particular office or the organization, as
recorded in the NAWDEX Water Data Sources Directory (WDSD) data base,
which is responsible for the data collection activities performed at the
site. The code assigment is unique, by organization, and represents the
relationship of a particular office to the parent organization. This
component corresponds to component 102, OFC_CODE in the WDSD data base.

For U.S. Geological Survey stations the values for this component code
consists of 2 or 4 numeric digits. The first two digits are the FIPS
state code of the location of the Water Resources Division district
office that operates the station, and the second two digits, if present,
are an arbitrary code assigned to the subdistrict office that operates
the site.

General Description - The WDSD code is assigned by the NAWDEX program
office and used by NAWDEX support software to retrieve addresses of
operating offices from the NAWDEX WDSD data base.

0	CITY	18
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(5)   LARGEST VALUE   5 characters

Data Values - The City component contains a 4-digit numeric code of the city in which the office that operates the site is located.

General Description - City codes are listed in the "Worldwide Geographical Location Codes" publication which is prepared by the Office of Finance, General Services Administration. If the office is not in a city, or if the city code is not known, the five-digit U.S. Postal ZIP Code for the office operating the site is stored in this component.

0	DRAIN_AREA	19
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY   No   KEY   No   DATA TYPE   Decimal

PICTURE 9(7). 9(2)   LARGEST VALUE   9,999,999.99

Data Values - This component contains the value of the site's drainage
area in square miles. The component allows values specified to the
hundredths of a square mile for small drainage areas, and values seven
digits to the left of the decimal point for large drainage areas.
The component is not valued for ground water stations.

General Description - The drainage area of the stream at the specific
location of the site is that area, measured in a horizontal plane,
enclosed by a topographic divide from which direct surface runoff from
precipitation normally drains by gravity into the stream above the
site; it includes all closed basins, or noncontributing areas, within
the total drainage area.

0	NC_AREA	20
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   Y

Data Values - This component is valued with an "N" if the contri-
buting drainage area is equal to the total drainage area, or valued
with a "Y" when the contributing drainage is less than the total drain-
age area. The "Y" value, therefore, signifies the existence of a
noncontributing area in the drainage area referred to in component 19.

General Description - A noncontributing drainage area situation can
occur when part of the drainage area consists of highly porous soil
or depressions in the land surface that either allows all runoff to enter
the ground-water zone or traps the water in ponds, lakes, or swamps,
etc., so that precipitation does not contribute to runoff. Noncontri-
butive conditions are rarely caused by manmade structures and then
only when there is total diversion of runoff (including flood flows)
from the drainage area.

0	LAST_UPDATE	21
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY Yes   KEY No   DATA TYPE Date

PICTURE N/A   LARGEST VALUE current date

Data Values - This component contains the month, day, and year of the last date (MM/DD/YYYY) that an update of any type was processed against the station logical entry. This date is generated by the computer at the time a transaction is performed against the data base.

General Description - An update is defined as any computer transaction that adds, deletes, or changes data values in the MVDI data base.

31

0	STATE_COUNTY	22
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY   Yes   KEY Yes   DATA TYPE   Integer

PICTURE   9(5)   LARGEST VALUE   5 numeric digits

Data Values - This component contains a concatenation (SSCCC) of the 2-digit numeric state code and the 3-digit numeric county code of the state and county in which the site is physically located.

General Description - These codes also appear in component numbers 8(STATE) and 9(COUNTY) but are repeated here in a combined format to provide computer search strategy efficiencies for retrievals involving specific states and counties.

0	OTHER DATA	40
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY   No   KEY No   DATA TYPE   Name

PICTURE   X(4)   LARGEST VALUE   123456

Data Values – The Other Data component provides for the entry of up to
six one-digit numeric codes to indicate the availability of supplementary
or special purpose data for a station:

     1   Precipitation/Quantity
     2   Wind
     3   Evaporation
     4   Radiation
     5   Soil Moisture
     6   Datum

General Descriptions:

Precipitation/Quantity – The discharge of water, in liquid or solid
   state, out of the atmosphere. Precipitation includes rainfall,
   snow, hail, and sleet. For the purposes of this data file, pre-
   cipitation data collection refers specifically to the quantity of
   water that is precipitated (usually expressed in inches).

Wind – Air in natural motion parallel to the surface of the earth.
   Data parameters commonly measured are velocity (miles per hour)
   and/or direction in degrees from true north (clockwise).

Evaporation – The process by which water is changed from the liquid
   or the solid state into the vapor state. In hydrology, evaporation
   is vaporization that takes place at a temperature below the boiling
   point. It is usually measured with evaporation pans.

Radiation (solar) – The process in which energy (as waves or particles)
   is emitted from the sun, transmitted through space and absorbed by
   the earth. The rate of solar radiation is measured with a variety
   of instruments. A general method is to convert the sun's radiation
   into heat, which can be accurately measured.

Soil Moisture (soil water) – The water diffused in the soil immediately
   below the land surface (zone of aeration), from which water is dis-
   charged by the transpiration in plants or by evaporation from the soil.

Datum – Any level surface, line, or point used as a reference in measuring elevations. For the purposes of the MWDI, datum refers to station datum that has been referenced to mean sea level.

<u>   0   </u>   <u>SURFACE_WTR   </u>   <u>   100   </u>
IN RG   COMPONENT NAME   COMPONENT NUMBER

MANDATORY<u> N/A   </u>   KEY<u> N/A   </u>   DATA TYPE<u>   RG   </u>

PICTURE<u>   N/A   </u>   LARGEST VALUE<u>   N/A   </u>

A repeating group containing data values indicating the types of surface-
water data collection activities performed, the years in which these
activities took place, and the media in which surface-water data for
the sites are available.

100	SW_BEGIN_YR	101
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY Yes   KEY No   DATA TYPE Integer

PICTURE   9(4)   LARGEST VALUE   current year

Data Values – The Surface Water Data Collection Begin Year component contains a 4-digit numeric value identifying the year that surface-water data were first collected at the site, e.g. 1910.

General Description – This component identifies the calendar year in which the acquisition of surface-water data first began at a site, regardless of the types of surface-water data that were collected. This date will never change even though surface-water data collection may be deactivated and reactivated several times during a site's history.

100	SW_END_YR	102
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Integer

PICTURE 9(4)   LARGEST VALUE   current year

Data Values – The Surface Water Data Collection End Year component
contains a 4-digit numeric value identifying the year that all surface-
water data collection activities were ceased at the site. If the organi-
zation is currently collecting any surface-water data at the site, this
component is not valued.

General Description – This component identifies the calendar year in
which all surface-water data collection activity at the site was
discontinued. If at a later date, the collection of any of the surface-
water parameters is resumed, the former end date is deleted.

100	SW_INTERRUPTED	103
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   Y

<u>Data Values</u> – The Surface Water Interrupted component contains a value of "Y" if the collection of all surface water parameters has been discontinued (for more than one year) and later resumed one or more times in the history of the site. If surface water data collection has not been discontinued at any time, the component is not valued.

<u>General Description</u> – The presence of a value of "Y" for this component indicates one or more interruptions in the period of record of surface water data acquisition during the period beginning with SW_BEGIN_YR (component 101) through the present time (if currently active), or ending with SW_END_YR (component 102).

100	SW_OWDC_NO	104
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(5)   LARGEST VALUE   5 characters

Data Values - The Surface Water OWDC Number component contains a 5-character alpha-numeric code.

General Description - A unique identification number assigned by the U.S. Geological Survey's Office of Water Data Coordination (OWDC) to each site in the "Part A-Streamflow and Stage" section of the "Catalog of Information on Water Data."

MANDATORY   No   KEY   No   DATA TYPE   Integer

PICTURE   9(13)   LARGEST VALUE   13 digits

Data Values – The Surface Water OWDC Sequence Number consists of 13 numeric digits.

General Description – A 13-digit downstream order number is assigned by the U.S. Geological Survey's Office of Water Data Coordination (OWDC) to each site in the "Part A-Streamflow and Stage" section of the "Catalog of Information on Water Data." It is used as a sort-key to arrange sites in downstream order.

100	COMPLETE_STAGE	110
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE 1 character

Data Values - A 1-character code in this component indicates the
frequency with which stage observations or instrument recorded stage
determinations are made at the site. This component is not valued
for partial record sites (see next paragraph). See Appendix A for
frequency codes.

General Description - The stage of a stream or lake is the height of
the water surface above an established datum plane. The water-surface
elevation referred to some arbitrary or predetermined gage datum is
called the gage height. The terms may be used interchangeably when,
as in this particular instance, they are used to describe data collec-
tion activity at a site. Records of stage at a site are obtained
by systematic observations of a nonrecording gage or from data automa-
tically registered by a water-stage recording instrument. This com-
ponent pertains only to those sites where a complete record (full
range) of stage is being determined. Partial record sites where
stage determinations are purposely limited to only those above or below
a predetermined gage height are be separately accounted for in components
111 (PEAK_STAGE) and 112 (LOW_STAGE).

100	PEAK_STAGE	111
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE   1 character

Data Values - The Peak Stage component, if applicable, will be valued with a 1-character code as follows:

Code   Meaning

1   Year round - Peak stage sensing devices are operated, and determinations are made on a year round basis.

2   Seasonal - Peak stage sensing devices are operated, and determinations are made only during certain portions of the year.

E   Eliminated activity - Peak stage data collection, on a year round or seasonal basis, has been conducted in the past but has since been discontinued. Also applies, if the site previously measured peak stage only, or peak stage and low stage only, but now measures complete stage.

Null   A null value signifies that there has been no peak stage only, or peak stage and low stage only, activity in the history of the site.

General Description - This component pertains primarily to those sites where less than a complete record (full range) of stage is being determined. It is predominantly a type of partial record site where stage determinations are limited to a predetermined range in stage. This component and component number 110 (COMPLETE_STAGE) may both be valued if peak stages are discretely available in addition to complete stages.

100	LOW_STAGE	112
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - The Low Stage component, if applicable, will be valued
with a 1-character code as follows:

Code	Meaning
1	Year round - Low stage sensing devices are operated, or observations are made, on a year round basis.
2	Seasonal - Low stage sensing devices are operated, or observations are made, only during certain portions of the year.
E	Eliminated activity - Low stage data collection, on a year round or seasonal basis, has been conducted in the past but has since been discontinued. Also applies, if the site previously measured low stage only, or peak stage and low stage only, but now measures complete stage.
Null	A null value signifies that there has been no low stage only, or peak stage and low stage only, activity in the history of the site.

General Description - This component pertains primarily to those sites
where less than a complete record (full range) of stage is being deter-
mined. It is predominantly a type of partial record site where stage
determinations are limited to a predetermined range in stage. This
component and component number 110 (COMPLETE_STAGE) may both be valued
if low stage is discretely available in addition to complete stage.

100
IN RG

STAGE_MED
COMPONENT NAME

113
COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE 1 character

Data Values – This component contains a 1-character code indicating
the type(s) of storage media (document, computer readable, etc.)
on which the data values for stage are stored and available to
potential users of the data. See Appendix B for Data Storage codes
and also see component number 110 (COMPLETE_STAGE) for the defi-
nition of stage.

General Description – Organizations collect hydrologic data and record
and store the information on a variety of storage media ranging from
original field notes to computer storage devices. Media is used as
a general term encompassing all means of storing and disseminating the
data.

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE   1 character

Data Values – The Complete Flow component provides for the entry of a 1-character code as follows:

Codes

Year Round	Seasonal	Meaning
1	2	Daily – Mean daily flow figures are determined either on a year-round basis or only during certain portions of a year, as indicated by the code entered.
3	4	Monthly – Monthly totals and mean monthly flow figures are determined either on a year round basis or only during certain portions of the year, as indicated by the code entered.
	E	Eliminated activity – Complete flow figures have been determined in the past, but have since been discontinued.

General Description – Surface water flow is the discharge that occurs in any natural or artificial surface channel or course. Discharge is the volume of water (or more broadly, total fluid) that passes a given point within a given period of time.

Complete Flow means that flow (discharge) figures are determined based upon a complete record (full range) of stage, as opposed to partial record flow where figures pertain only to a predetermined limited range in stage. Partial record flow sites are separately accounted for in components 116 (PEAK_FLOW) and 117 (LOW_FLOW).

100	PEAK_FLOW	116
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE   1 character

Data Values - The Peak Flow component, if applicable, is valued with a 1-character code as follows:

Code	Meaning
1	Year round - Peak flows (instantaneous discharges) only above a predetermined base, are determined on a year round basis.
2	Seasonal - Peak flows (instantaneous discharges) only above a predetermined base, are determined only during certain portions of the year.
8	Annual - Same as year round (above) except that only the maximum peak for the year is recorded.
9	Not specified - Peak flow data are collected at an irregular or unspecified frequency.
E	Eliminated activity - Peak flow data have been collected in the past but the activity has since been discontinued. Also applies, if the site previously measured peak flow only, or peak flow and low flow only, but now measures complete flow.
Null	A null value signifies that there has been no peak flow only, or peak flow and low flow only, activity in the history of the site.

General Description - This component pertains primarily to those sites where less than a complete record (full range) of flow is being or has been determined. It is predominantly a type of partial record site (commonly called a crest-stage site) where peak flows (instantaneous discharges) above a predetermined base are being determined. This component and component number 115 (COMPLETE_FLOW) may both be valued if peak flow is discretely available in addition to complete flow.

100	LOW_FLOW	117
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE 1 character

Data Values - The Low Flow component, if applicable, is valued with a 1-character code as follows:

Code   Meaning

1   Year round - Low flow determinations (machine recorded or observed) are made on a year-round basis.

2   Seasonal - Low flow determinations (machine recorded or observed) are made only during certain portions of the year.

9   Not specified - Low flow data are collected at an irregular or unspecified frequency.

E   Eliminated activity - Low flow data have been collected in the past but the activity has since been discontinued. Also applies if the site previously measured low flow only, or peak flow and low flow only, but now measures complete flow.

Null   A null value signifies that there has been no low flow only, or peak flow and low flow only, activity in the history of the site.

General Description - This component pertains primarily to those sites where less than a complete record (full range) of flow is being determined. It is predominantly a type of partial record site where only low flows are being determined. This component and component 115 (COMPLETE_FLOW) may both be valued if low flow is discretely available in addition to complete flow.

100	MISC_FLOW_MEAS	119
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE 1 character

Data Values - The Miscellaneous Flow Measurements component, if appli-
cable, is valued with a 1-character alphabetic code that describes
the frequency with which the measurements are made. See Appendix A
for frequency codes.

General Description - Field discharge measurements are made periodically
at sites other than those classified as partial-record or complete-record
gaging sites. The sites are called miscellaneous sites and the measure-
ments are made during times of drought or flood to give better areal
coverage to these events.

100	FLOW_MED	121
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY   No   KEY   No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - This component contains a 1-character code for the type(s) of storage media (document, computer readable, etc.) on which the data values for flow are stored and available to potential users of the data. See Appendix B for Data Storage codes and also see component number 115 (COMPLETE_FLOW) for the definition of flow.

General Description - Organizations collect hydrologic data and record and store the information on a variety of storage media ranging from original field notes to computer storage devices. Media is used as a general term encompassing all means of storing and disseminating the data.

100	VOLUME	124
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values – A 1-character frequency code indicates the time intervals at which reservoir or lake volumetric measurements are computed as follows:

Code	Meaning

1   Daily values – Volume figures are computed once a day.

3   Monthly values – Volume figures are computed once a month.

9   Not specified – Volume figures are computed at an irregular or unspecified frequency.

E   Eliminated activity – Volume figures have been computed in the past but the activity has since been discontinued.

General Description – The terms "volume" and "contents" are often used interchangeably when referring to the volume of water in a lake or reservoir. Lake or reservoir content is computed on the basis of a level pool and usually does not include bank storage.

| 100 | VOLUME_CHANGE | 125 |
| IN RG | COMPONENT NAME | COMPONENT NUMBER |

MANDATORY___No___   KEY___No___   DATA TYPE___Name___

PICTURE___X(1)___   LARGEST VALUE___1 character___

Data Values - A 1-character frequency code indicates the time intervals at which changes in reservoir or lake volume (contents) are computed as follows:

Code	Meaning
1	Daily values - Change in volume figures are computed once a day.
3	Monthly values - Change in volume figures are computed once a month.
9	Not specified - Change in volume figures are computed at an irregular or unspecified frequency.
E	Eliminated activity - Change in volume figures have been computed in the past but the activity has since been discontinued.

General Description - Change in volume (contents) computations are made for reservoirs and lakes where the total volume of the water body is not known. They are also often made, where the total volume is known, for the purpose of acquiring more definitive information. The figures reflect the difference (plus or minus) from a previously computed volume. See component 124 (VOLUME) for the general definition of volume.

100	VOLUME MED	126
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values – This component contains a 1-character code indicating the type(s) of storage media (document, computer readable, etc.) on which the data values for volume are stored and available to potential users of the data. See Appendix B for Data Storage codes and also see component number 114 (VOLUME) for the definition of volume.

General Description – Organizations collect hydrologic data and record and store the information on a variety of storage media ranging from original field notes to computer storage devices. Media is used as a general term encompassing all means of storing and disseminating the data.

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(6)   LARGEST VALUE ABC123456789

Data Values – The Other Surface Water component contains any combination of 1-character codes needed to indicate supplementary surface water related data available, as follows:

Code	Meaning
1	QW, recurring – Systematic water quality data collection takes place at the site.
2	QW, non-recurring – A one-time-only water quality data measurement is available.
3	Flood hydrograph – Certain sites are equipped with special-purpose stage recorders that become activated when the stage exceeds a chosen base stage. A continuous record of stage and discharge with respect to time is produced, but only for the periods when the water elevation exceeds the chosen base. This record is called a flood hydrograph.
4	Sediment data – Data on fluvial sediment are collected at the site. See component 600 for definition of sediment.
5	Cross section – A two-dimensional representation of the profile of the flood plain land surface along a plane at right angles to a stream.
6	Flow duration – A computed relationship that shows the percentage of time that specified daily discharges were equaled or exceeded in a stated number of complete years.
7	Flood frequency – A relationship showing the probability that floods of a certain magnitude are equaled or exceeded in any year; or a similar relationship between flood magnitude and frequency of exceedance.

8   Coefficient of roughness – This is the "resistance to flow" variable used in hydraulic equations to determine peak discharges in natural channels by indirect methods. The factors that exert the greatest influence upon the coefficient of roughness are the character of the bed material, cross-section irregularities, depth of flow, vegetation, and alinement of the channel.

9   Time of travel – This refers to the rate of movement of water, or waterborne materials, through the reach of stream channel for steady or gradually varied flow conditions. These studies are conducted by dye tracing methods where dye is injected at some location on a stream and detected at other locations downstream.

A   Flood plain maps – These maps either define areas inundated by specific floods of record, or show areas potentially covered by floods of selected frequencies (e.g. 10, 50, 100, or 500 year recurrence intervals).

B   Tides – Records of tidal stage collected at ocean gages or gages located in estuarine zones.

C   Surface inflow-outflow – Data related to stored water in lakes and reservoirs where inflow to and outflow from the water body is computed for the purpose of regulation or research.

General Description – Special purpose surface water data or other types of surface water related information are often collected at, or in the near vicinity of a site, in addition to, or instead of, the normal stage-discharge determinations.

MANDATORY No   KEY No   DATA TYPE Integer

PICTURE 9(1)   LARGEST VALUE   1 character

Data Values - The Surface Water Telemetry code is a 1-digit numeric code indentifying, if applicable, the type of telemetry system in use at the sites:

Code	Meaning

1   Telemeter-land lines - A telemetry system that uses electrical current conducting wires (telephone, etc.) to transmit data from a site to a distant receiving site.

2   Telemeter-radio network - A telemetry system that uses terrestrial line of sight radios (wireless transmission of electric impulses) to transmit data from a site to a distant receiving site.

3   Landsat - A satellite telemetry system used to relay data two or more times daily from in situ sensors.

4   GOES (Geostationary Operational Environmental Satellite) - A satellite telemetry system used to relay data, normally once every three hours from in situ sensors.

5   DARDC (Device for Automatic Remote Data Collection) - A telemetry system interface used to enter in situ sensor data into a landline, line of sight radio, or satellite telemetry system.

6   Other - Other telemetry systems.

7   Two or more of the above telemetry systems are in use.

8   Telemetry equipment used but type not specified.

General Description - A telemeter is an electrical apparatus for measuring quantity (e.g. stage data) and transmitting the value to a distant receiving site, and there indicating or recording the quantity measured. The Surface Water Telemetry componentt identifies the type of system or equipment being used to transmit surface water information (primarily stage data) from the data collecting site to a central receiving site.

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(4)   LARGEST VALUE   4 characters

Data Values - Up to four codes may be entered to denote the purpose(s) (classification) of a surface water site as follows:

Code   Meaning

B   Benchmark - Sites measuring natural phenomena in areas
         where man's activity has essentially no effect. These
         sites would be expected to continue at least as long
         as natural conditions exist.

H   Long-term hydrologic - Sites intended for the development
         of general hydrologic knowledge and/or trends having local
         as well as transfer value to other points.

R   Research or special study - Sites identified with research
         projects or special studies, including modeling, as part
         of a specific plan for developing specialized water infor-
         mation. These sites would be operated during the period
         of the research project or special study.

A   Areal analysis - Sites to provide data for the hydrolo-
         gic definition of an area or basin. These sites would
         generally be expected to be in operation until satisfactory
         areal definition is achieved.

S   Assessment - Sites operated for the specific purpose of
         national accounting, or determining trends, or general
         hydrologic planning.

F   Forecasting - Sites to provide data for purpose of fore-
         casting hazardous or critical conditions.

L   Compact or legal - Sites providing data used for surveil-
         lance or recordkeeping to fulfill legal requirements or
         compacts.

C   Current operation - Sites providing information necessary
     for the management and operation of hydrologic projects,
     water supplies, pollution abatement, waste disposal, etc.
     These sites would be operated as long as the specific need
     exists.

General Description - A site classification scheme devised and used
internally by the U.S. Geological Survey to identify the purpose(s)
being served by the collection of hydrological data at the site.

MANDATORY   No   KEY   No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - For sites which are in the planning stage, the Surface
Water Planned or Needed component contains a 1-character code as follows:

B   Planned to be begun - The establishment of a new site is
        planned.

R   Planned to be reestablished - The reestablishemnt of a
        discontinued site is planned.

D   Planned to be discontinued - An active site is planned to
        be discontinued.

C   Planned to be changed - A change in the parameter types or
        frequency of data collection at an active site is planned.

1   Needed to be begun - There is a need for the establishment
        of a new site.

2   Needed to be reestablished - There is a need for the reestab-
        lishment of a discontinued site.

3   Needed to be discontinued - There is a need for discontinuing
        an active site.

4   Needed to be changed - A change in the parameter types or
        frequency of data collection at an active site is needed.

General Description - The Office of Water Data Coordination (OWDC) is
responsible for coordinating Federal agency needs and plans for long-
term site activities for obtaining data on stage, flow, and quality
of surface waters and quality of ground waters. "Planned" activities
are those for which funds have been budgeted. "Needed" activities are
those that are planned but do not yet have funds budgeted for them.

100	SW_ACTIVE	150
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY Yes   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values – This component contains a value that signifies whether
or not surface water parameters (in the 100 repeating group) are
actively being collected at the site. The existence of a "Y" means that
one or more surface water parameters are actively being collected and
an "N" means that although one or more parameters have been collected
in the past, none are presently being collected.

General Description – The Surface Water Active component provides
computer search strategy efficiencies for retrievals concerned exclu-
sively with active or inactive surface water stations.

0	GROUND_WTR	200
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY   N/A   KEY N/A   DATA TYPE   RG

PICTURE   N/A   LARGEST VALUE   N/A

A repeating group containing data values indicating the types of
ground water data collection activities performed, the years in which
these activities took place, and the media on which ground water data
for the sites are available.

200	GW_BEGIN_YR	201
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY Yes   KEY No   DATA TYPE Integer

PICTURE   9(4)   LARGEST VALUE   current year

Data Values – The Ground Water Data Collection Begin Year component contains a 4-digit numeric value identifying the year that ground water data were first collected at the site, e.g. 1910.

General Description – This component identifies the calendar year in which the acquisition of ground water data was first begun at a site, regardless of the types of ground water data that were collected. This date will never change even though ground water data collection may be deactivated and reactivated several times during a site's history.

200	GW_END_YR	202
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Integer

PICTURE 9(4)   LARGEST VALUE   current year

Data Values – The Ground Water Data Collection End Year component
contains a 4-digit numeric value identifying the year that all ground
water data collection activities were ceased at the site. If the
organization is currently collecting any ground water data at the site,
this component is not valued.

General Description – This component identifies the calendar year
in which all ground water data collection activity at a site was
discontinued. If at a later date, the collection of any of the
ground water parameters is resumed, the former end date is deleted.

200	GW_INTERRUPTED	203
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values – The Ground Water Interrupted component contains a value
of "Y" if the collection of all ground water parameters has been dis-
continued (for more than one year) and later resumed one or more times
in the history of the site. If ground water data collection has not
been discontinued at any time, the component is not valued.

General Description – The presence of a value of "Y" for this component
indicates one or more interruptions in the period of record of ground
water data acquisition during the period beginning with GW_BEGIN_YR
(component 201) through the present time (if currently active), or
ending with GW_END_YR (component 202).

200	GW_OWDC_NO	204
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(5)   LARGEST VALUE   5 characters

Data Values – The Ground Water OWDC Number component contains a
five-character alpha-numeric code.

General Description – A unique identification number assigned by the
U.S. Geological Survey's Office of Water Data Coordination (OWDC) to
each site in the "Part C – Quality of Ground Water" section of the
"Catalog of Information on Water Data."

PRIN_AQUIFER
COMPONENT NAME

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(8)   LARGEST VALUE   8 characters

Data Values - The Principal Aquifer component contains the Geologic
Unit code (up to eight alpha-numeric characters) for the aquifer sup-
plying water to the well. For Geologic Unit codes see Appendix F of
the WATSTORE User's Guide, U.S. Geological Survey, Open File Report
75-426, August 1975.

General Description - An aquifer is a formation, group of formations,
or part of a formation that contains sufficient saturated permeable
material to yield significant quantities of water to wells and springs.
If a well taps more than one aquifer the principal aquifer will be the
one that yields the greatest amount of water.

AQUIFER_TYPE
COMPONENT NAME

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE   1 character

Data Values - The component contains a 1-character alphabetic code
that best describes the type(s) of aquifer(s) supplying water to the
well as follows:

Code	Meaning
U	Unconfined single aquifer
N	Unconfined multiple aquifers
C	Confined single aquifer
M	Confined multiple aquifers
X	Mixed (confined and unconfined) multiple aquifers. This is also used when a multiple aquifer situation exists but confined/unconfined conditions have not been indicated.

General Description - A confined aquifer contains ground water that is
under pressure significantly greater than atmospheric, and its upper
limit is the bottom of a bed of distinctly lower hydraulic conductivity
than that of the material in which the confined water occurs. An un-
confined aquifer contains ground water that has a water table.

200	LEVEL_FREQ	210
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY__No____   KEY__No____   DATA TYPE__Name_____

PICTURE__X(1)__   LARGEST VALUE____1 character____

Data Values - A 1-character alphabetic code in this component indicates the frequency with which well water level measurements or instrument recorded water level determinations are made. See Appendix A for frequency codes.

General Description - The water level of a well is the distance to the water surface below a reference datum. Water level measurements are expressed in feet with reference to either mean sea level or land-surface datum. Mean sea level is the datum plane on which the network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. The altitude of the land-surface datum with respect to mean sea level is often known.

200	LEVEL_MED	211
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE   1 character

Data Values - This component contains a 1-character code indicating the type(s) of storage media (document, computer readable, etc.) on which the data values for well water levels are stored and available to potential users of the data. See Appendix B for Data Storage codes and also see component number 210 (LEVEL_FREQ) for the definition of level.

General Description - Organizations collect hydrologic data and record and store the information on a variety of storage media ranging from original field notes to computer storage devices. Media is used as a general term encompassing all means of storing and disseminating the data.

200	DISCHRG_FREQ	212
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which well discharge measurements are made. See Appendix A for frequency codes.

General Description - The discharge from a well is either the natural flow from a well or that produced by pumping. Discharge is the volume of water (or more broadly, total fluid) that passes a given point within a given period of time, usually expressed in gallons per minute.

200	DISCHRG_MED	213
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - This component contains a 1-character code indicating the type(s) of storage media (document, computer readable, etc.) on which the data values for well discharge are stored and available to potential users of the data. See Appendix B for Data Storage codes and also see component number 212 (DISCHRG_FREQ) for the definition of discharge.

General Description - Organizations collect hydrologic data and record and store the information on a variety of storage media ranging from original field notes to computer storage devices. Media is used as a general term encompassing all means of storing and disseminating the data.

200	SUBSIDE_FREQ	214
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which subsidence data are collected. See Appendix A for frequency codes.

General Description - Subsidence is the lowering of the land surface, resulting from the compaction of sediments composing an aquifer system when subsurface fluids are withdrawn.

200	SUBSIDE_MED	215
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - This component contains a 1-character code indicating
the type(s) of storage media (document, computer readable, etc.) on
which the data values for subsidence are stored and available to
potential users of the data. See Appendix B for Data Storage codes
and also see component number 214 (SUBSIDE_FREQ) for the definition
of subsidence.

General Description - Organizations collect hydrologic data and record
and store the information on a variety of storage media ranging from
original field notes to computer storage devices. Media is used as a
general term encompassing all means of storing and disseminating the
data.

200	WELL_DEPTH	221
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY   No   KEY   No   DATA TYPE   Integer

PICTURE   9(5)   LARGEST VALUE   99999

Data Values - This component contains the depth (up to five digits) of the well in feet.

General Description - The greatest depth below land surface at which water can enter the well will be reported. For screened or perforated wells, the depth to the bottom of the screen or to the lowest perforations will be reported. For open-hole or open-end wells, the total depth will be reported.

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(6)   LARGEST VALUE   ABC123456789

Data Values - The Other Ground Water component will contain any combination of 1-character codes needed to indicate supplementary ground water related data available as follows:

Code	Meaning
1	Total annual pumpage or flow - The total volume of water withdrawn from a well in a year's time, usually expressed in acre-feet or millions of gallons.
2	Depth of well - The total depth to which the hole was drilled even though it may have been plugged back in completing the well.
3	Casing record - Information on well casing material, diameter, and length.
4	Screen record - Information about openings that permit water to enter the well, including perforations and uncased sections of the aquifer.
5	Drillers log - Description by the driller of the geologic materials penetrated from the land surface to the greatest depth of the well.
6	Geologic Log - Same as code "5" except that the description is made by a geologist.
7	Instrument log - Measurements of physical phenomena about the well or natural phenomena in the earth surrounding the well, or responses of the earth material around the well to induced stimuli such as radiation, electric current, induced magnetic field, etc.

8   Hydraulic conductivity - The rate at which water moves through aquifer material under a unit hydraulic gradient, expressed as volume per unit time per unit cross section ($ft^3/day/ft^2$ or $M^3/day/M^2$) reduced to feet per day or meters per day.

9   Transmissivity - The rate at which water moves through the aquifer expressed as volume per unit time per unit width ($ft^3/day/ft$ or $M^3/day/M$) reduced to (ft^2/day or M^2/day). Note that transmissivity is a property of a vertical strip of the aquifer and is the product of hydraulic conductivity of the material and the saturated thickness of the aquifer.

A   Storage coefficient - The volume of water an aquifer releases from or takes into storage per unit surface area of the aquifer per unit change in head.

B   Construction - Information about the construction of the well such as: the means of drilling, hole diameter, date drilled, drillers name, type of finish (screening, perforations), type of casing, etc.

C   Lift - The means by which water is removed from the well such as type of pump, etc.

D   Discharge-drawdown - The difference between the static water level and the water level during the largest sustainable discharge rate.

General Description - Supplementary ground water data or related information about the station.

200	MAJOR_VAR	242
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(4)   LARGEST VALUE   1234567

Data Values - The Causes of Major Variances in Observed Data component
may contain up to seven 1-digit numerical codes as follows:

Code	Meaning
1	Pumping - The artificial removal of water from an aquifer.
2	Evapotranspiration - Water withdrawn from a land area by evaporation from water surfaces and moist soil and by plant transpiration.
3	Changes in stream or lake stage - The transfer of water to and from ground water and surface water bodies.
4	Recharge from soil moisture - The downward percolation from the unsaturated zone (soil moisture or soil water) to the saturated zone of an aquifer.
5	Infiltration - The infusion of water into an aquifer from surface water sources such as spreading ponds, storage lagoons, disposal pits, etc.
6	Natural dissolution - The dissolving of minerals (such as limestone) resident in the aquifer.
7	Injection of fluids - Deep well artificial recharge of fluids into an aquifer.

General Description - This component identifies the artificial and natural
phenomena that cause variations and fluctuations in the movement and
amount of fluid in an aquifer.

GW_TELEMETRY
COMPONENT NAME

243
COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Integer

PICTURE 9(1)   LARGEST VALUE   1 character

Data Values – The Ground Water Telemetry code is a 1-digit numeric code identifying, if applicable, the type of telemetry system in use at the site:

Code   Meaning

1   Telemeter-land lines – A telemetry system that uses electrical current conducting wires (telephone, etc.) to transmit data from a site to a distant receiving site.

2   Telemeter-radio network – A telemetry system that uses terrestrial line of sight radios (wireless transmission of electric impulses) to transmit data from a site to a distant receiving site.

3   Landsat – A satellite telemetry system used to relay data two or more times daily from in situ sensors.

4   GOES (Geostationary Operational Environmental Satellite) – A satellite telemetry system used to relay data, normally every three hours, from in situ sensors.

5   DARDC (Device for Automatic Remote Data Collection) – A telemetry system interface used to enter in situ sensor data into a landline, line of sight radio, or satellite telemetry system.

6   Other – Other telemetry systems.

7   Two or more of the above telemetry systems are in use.

8   Telemetry equipment used but type not specified.

General Description – A telemeter is an electrical apparatus for measuring quantity (e.g. water level data) and transmitting the value to a distant receiving site, and there indicating or recording the quantity measured. The Ground Water Telemetry component identifies the type of system or equipment being used to transmit ground water information from the data collection site to a central receiving site.

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(4)   LARGEST VALUE ABCFHORS

Data Values - Up to four codes may be entered to denote the purpose(s) (classification) of a ground water site as follows:

Code   Meaning

B   Benchmark - Sites measuring natural phenomena in areas
        where man's activity has essentially no effect. These
        sites would be expected to continue at least as long
        as natural conditions exist.

H   Long-term hydrologic - Sites intended for the development
        of general hydrologic knowledge and/or trends having local
        as well as transfer value to other points.

R   Research or special study - Sites identified with research
        projects or special studies, including modeling, as part
        of a specific plan for developing specialized water infor-
        mation. These sites would be operated during the period
        of the research project or special study.

A   Areal analysis - Sites to provide data for the hydrologic
        definition of an area or basin. These sites would gener-
        ally be expected to be in operation until satisfactory areal
        definition is achieved.

S   Assessment - Sites operated for the specific purpose of
        national accounting, determining trends, or general
        hydrologic planning.

F   Forecasting - Sites to provide data for the purpose of fore-
        casting hazardous or critical conditions.

L   Compact or legal - Sites providing data used for surveil-
        lance or record-keeping to fulfill legal requirements or
        compacts.

C   Current operation - Sites providing information necessary
    for the management and operation of hydrologic projects,
    water supplies, pollution abatement, waste disposal, etc.
    These sites would be operated as long as the specific need
    exists.

General Description - A site classification scheme devised and used
internally by the U.S. Geological Survey to identify the purpose served
by collection of hydrologic data at the site.

MANDATORY No   KEY No   DATA TYPE Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - For stations which are in the planning stage, the Ground Water Planned or Needed component will contain a 1-character code as follows:

Code	Meaning
B	Planned to be begun - The establishment of a new site is planned.
R	Planned to be reestablished - The reestablishment of a discontinued site is planned.
D	Planned to be discontinued - An active site is planned to be discontinued.
C	Planned to be changed - A change in the parameter types or frequency of data collection at an active site is planned.
1	Needed to be begun - There is a need for the establishment of a new site.
2	Needed to be reestablished - There is a need for the reestablishment of a discontinued site.
3	Needed to be discontinued - There is a need for discontinuing an active site.
4	Needed to be changed - A change in the parameter types or frequency of data collection at an active site is needed.

General Description - The Office of Water Data Coordination (OWDC) is responsible for coordinating Federal agency needs and plans for long-term site activities for obtaining data on stage, flow, and quality of surface waters and quality of ground waters. "Planned" activities are those for which funds have been budgeted. "Needed" activities are those that are planned but do not yet have funds budgeted for them.

200	GW_ACTIVE	250
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY Yes   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - This component contains a value that signifies whether or not ground water parameters (in the 200 repeating group) are actively being collected at the site. The existence of a "Y" means that one or more ground water parameters are actively being collected and an "N" means that although one or more parameters have been collected in the past, none are presently being collected.

General Description - The Ground Water Active component provides computer search strategy efficiencies for retrievals concerned exclusively with active or inactive ground water stations.

0	QUALITY_WTR	300
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY   N/A   KEY   No   DATA TYPE   RG

PICTURE   N/A   LARGEST VALUE   N/A

A repeating group containing data values indicating the types of
water quality data collection activities performed, the years in
which these activities took place, and the media on which water
quality data for the sites are available.

300	QW_BEGIN_YR	301
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY Yes   KEY No   DATA TYPE Integer

PICTURE   9(4)   LARGEST VALUE   current year

Data Values – The Quality of Water Data Collection Begin Year compo-
nent contains a 4-digit numeric value identifying the year that water
quality data were first collected at the site, e.g. 1910.

General Description – This component identifies the calendar year in
which the acquisition of water quality data was first begun at a site,
regardless of the types of water quality data that were collected. This
date will never change even though water quality data collection may be
deactivitaed and reactivated several times during a site's history.

300	QW_END_YR	302
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Integer

PICTURE   9(4)   LARGEST VALUE   current year

Data Values - The Quality of Water Data Collection End Year component
contains a 4-digit numeric value identifying the year that all water
quality data collection activities were ceased at the site. If the
organization is currently collecting any water quality data at the
site, this component is not valued.

General Description - This component identifies the calendar year in
which all water quality data collection activity at a site was dis-
continued. If at a later date, the collection of any of the water
quality parameters is resumed, the former end date is deleted.

<u>300</u>   <u>QW_INTERRUPTED</u>   <u>303</u>

IN RG   COMPONENT NAME   COMPONENT NUMBER

MANDATORY <u>No</u>   KEY <u>No</u>   DATA TYPE <u>Name</u>

PICTURE <u>X(1)</u>   LARGEST VALUE <u>1 character</u>

<u>Data Values</u> The Quality of Water Interrupted component contains a value of "Y" if the collection of water quality parameters has been discontinued (for more than one year) and later resumed one or more times in the history of the site. If water quality data collection has not been discontinued at any time, the component is not valued.

<u>General Description</u> - The presence of a value of "Y" for this component indicates one or more interruptions in the period of record of water quality data acquisition during the period beginning with QW_BEGIN_YR (component 301) through the present time (if currently active), or ending with QW_END_YR (component 302).

<u>300</u>   <u>QW_OWDC_NO</u>   <u>304</u>

IN RG   COMPONENT NAME   COMPONENT NUMBER

MANDATORY <u>No</u>   KEY <u>No</u>   DATA TYPE <u>Name</u>

PICTURE <u>X(5)</u>   LARGEST VALUE   <u>5 characters</u>

<u>Data Values</u> – The Quality of Water OWDC Number component contains a 5-character alpha-numeric code.

<u>General Description</u> – A unique identification number assigned by the U.S. Geological Survey's Office of Water Data Coordination (OWDC), to each station in the "Part B – Quality of Surface Water" section of the "Catalog of Information on Water Data."

<u>300</u>   <u>QW_OWDC_SEQ</u>   <u>307</u>
IN RG   COMPONENT NAME   COMPONENT NUMBER

MANDATORY <u>No</u>   KEY <u>No</u>   DATA TYPE <u>Integer</u>

PICTURE   <u>9(13)</u>   LARGEST VALUE   <u>13 digits</u>

<u>Data Values</u> – The Quality of Water OWDC Sequence Number consists of 13 numeric digits.

<u>General Description</u> – A 13-digit downstream order number assigned by the U.S. Geological Survey's Office of Water Data Coordination (OWDC) to each site in the "Part B – Quality of Surface Water" section of the "Catalog of Information on Water Data." It is used as a sort key to arrange sites in downstream order.

MANDATORY No   KEY No   DATA TYPE Integer

PICTURE 9(1)   LARGEST VALUE   1 character

Data Values - The Quality of Water Telemetry code is a 1-digit numeric code identifying, if applicable, the type of telemetry system in use at the station site:

Code	Meaning

1   Telemeter-land lines - A telemetry system that uses electrical current conducting wires (telephone, etc.) to transmit data from a site to a distant receiving site.

2   Telemeter-radio network - A telemetry system that uses terrestrial line of sight radios (wireless tranmission of electric impulses) to transmit data from a station to a distant receiving site.

3   Landsat - A satellite telemetry system used to relay data two or more times daily from in situ sensors.

4   GOES (Geostationary Operational Environmental Satellite) - A satellite telemetry system used to relay data, normally every three hours, from in situ sensors.

5   DARDC (Device for Automatic Remote Data Collection) - A telemetry system interface used to enter in situ sensor data into a landline, line of sight radio, or satellite telemetry system.

6   Other - Other telemetry systems.

7   Two or more of the above telemetry systems are in use.

8   Telemetry equipment used but type not specified.

<u>General Description</u> - A telemeter is an electrical apparatus for measuring quantity (e.g. temperature data) and transmitting the value to a distant receiving site, and there indicating or recording the quantity measured. The Water Quality Telemetry component identifies the type of system or equipment being used to transmit water quality information from the data collection site to a central receiving site.

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(4)   LARGEST VALUE   ABCFHLRS

Data Values - Up to four codes may be entered to denote the purpose(s) (classification) of a water quality site as follows.

Code	Meaning
B	Benchmark - Sites measuring natural phenomena in areas where man's activity has essentially no effect. These sites would be expected to continue at least as long as natural conditions exist.
H	Long-term hydrologic - Sites intended for the development of general hydrologic knowledge and/or trends having local as well as transfer value to other points.
R	Research or special study - Sites identified with research projects or special studies, including modeling, as part of a specific plan for developing specialized water information. These sites would be operated during the period of the research project or special study.
A	Areal analysis - Sites to provide data for the hydrologic definition of an area or basin. These sites would generally be expected to be in operation until satisfactory areal definition is achieved.
S	Assessment - Sites operated for the specific purpose of national accounting, determining trends, or general hydrologic planning.
F	Forecasting - Sites to provide data for the purpose of forecasting hazardous or critical conditions.
L	Compact or legal - Sites providing data used for surveillance or record-keeping to fulfill legal requirements or compacts.

C   Current operation - Sites providing information necessary
     for the management and operation of hydrologic projects,
     water supplies, pollution abatement, waste disposal, etc.
     These sites would be operated as long as the specific
     need exists.

General Description - A site classification scheme devised and used
internally by the U.S. Geological Survey to identify the purpose being
served by the collection of hydrologic data at the site.

300	QW_PN_CODE	349
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE   1 character

Data Values - For stations which are in the planning stage, the Quality of Water Planned or Needed component will contain a 1-character code as follows:

Code	Meaning

B   Planned to be begun - The establishment of a new site is planned.

R   Planned to be reestablished - The reestablishment of a discontinued site is planned.

D   Planned to be discontinued - An active site is planned to be discontinued.

C   Planned to be changed - A change in the parameter types or frequency of data collection at an active site is planned.

1   Needed to be begun - There is a need for the establishment of a new site.

2   Needed to be reestablished - There is a need for the reestablishment of a discontinued site.

3   Needed to be discontinued - There is a need for discontinuing an active site.

4   Needed to be changed - A change in the parameter types or frequency of data collection at an active site is needed.

General Description - The Office of Water Data Coordination (OWDC) is responsible for coordinating Federal agency needs and plans for long-term site activities for obtaining data on stage, flow, and quality of surface waters and quality of ground waters. "Planned" activities are those for which funds have been budgeted. "Needed" activities are those that are planned but do not yet have funds budgeted for them.

300	QW-ACTIVE	350
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY   No   KEY   Yes   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

<u>Data Values</u> - This component contains a value that signifies whether or not water quality parameters (300-700 repeating groups) are actively being collected at the site. The existence of a "Y" means that one or more water quality parameters are actively being collected and an "N" means that although one or more parameters have been collected in the past, none are presently being collected.

<u>General Description</u> - The Quality of Water Active component provides computer search strategy efficiencies for retrievals concerned exclusively with active or inactive water quality stations.

300	BIOLOGICAL_QW	400
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY N/A   KEY N/A   DATA TYPE   RG

PICTURE   N/A   LARGEST VALUE   N/A

A repeating group containing data values indicating the type of
biological data (relating to living organisms in water) collection
activities performed, the frequency at which the observations and/or
determinations are made, and the media on which biological data for
the site is available.

Components 401 through 453 deal specifically with the population,
i.e., the community structure found in aquatic habitats (what kinds
of organisms and how many of each are present).

Components 455 through 469 are concerned with general measurements
of the biological community's functions (see component 454 BIOLOGIC_QW2
for further definitions).

400	ENTERIC_BACT	401
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE 1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which a sample of the parameter is collected. See Appendix A for frequency codes.

General Description - Enteric bacteria are those which originate in the intestines of warm-blooded animals.

400	NATIVE_BACT	402
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which a sample of the parameter is collected. See Appendix A for frequency codes.

General Description - Native bacteria, for the purpose of this data base, are those which are indigenous to a natural water body.

<u>400</u>   <u>PHYTOPLANKTON</u>   <u>403</u>
IN RG   COMPONENT NAME   COMPONENT NUMBER

MANDATORY<u> No </u>   KEY<u> No </u>   DATA TYPE<u> Name </u>

PICTURE<u> X(1) </u>   LARGEST VALUE<u> 1 character </u>

<u>Data Values</u> – A 1-character alphabetic code in this component indicates
the frequency with which a sample of the parameter is collected. See
Appendix A for frequency codes.

<u>General Description</u> – Phytoplankton are the suspended or floating plant
organisms which drift passively with water currents. Examples of
phytoplankton are diatoms and blue-green algae.

400	ZOOPLANKTON	404
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which a sample of the parameter is collected. See Appendix A for frequency codes.

General Description - Zooplankton are the suspended or floating animal organisms which drift passively with water currents. Examples of zooplankton are protozoans, entomostracans, and various larvae.

PERIPHYTON

COMPONENT NAME

MANDATORY No   KEY No   DATA TYPE Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which a sample of the parameter is collected. See Appendix A for frequency codes.

General Description - Periphyton are the community of microorganisms that are attached to or live upon submerged surfaces.

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates
the frequency with which a sample of the parameter is collected. See
Appendix A for frequency codes.

General Description - Macrophytes are large aquatic plants that can
be seen without magnification, including mosses and seed plants.

400	MICROINVERTS	407
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY　No　　　　　KEY　No　　　　　DATA TYPE　　Name

PICTURE　X(1)　　　　　　　　LARGEST VALUE　　1 character

<u>Data Values</u> - A 1-character alphabetic code in this component indicates the frequency with which a sample of the parameter is collected. See Appendix A for frequency codes.

<u>General Description</u> - Small animals (without backbones) that will pass through a U.S. Standard #30 sieve (0.595 millimeter mesh opening) are classified as microinvertebrates, according to the American Public Health Association publication entitled, "Standard methods for the examination of water and waste water" (1975). The U.S. Geological Survey, however, has recently provisionally adopted the use of the U.S. Standard #70 sieve (0.210 millimeter mesh opening) for this purpose. No universal mesh opening standard has been agreed to, but most organizations use mesh opening sizes which fall within the range of the #30 to #70 sieve sizes.

400	MACROINVERTS	408
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE 1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which a sample of the parameter is collected. See Appendix A for frequency codes.

General Description - Animals (without backbones) that will not pass through a U.S. Standard #30 sieve (0.595 millimeter mesh opening) are classified as macroinvertebrates, according to the American Public Health Association publication entitled, "Standard methods for the examination of water and waste water" (1975). The U.S. Geological Survey, however, has recently provisionally adopted the use of the U.S. Standard #70 sieve (0.210 millimeter mesh opening) for this purpose. No universal mesh opening standard has been agreed to, but most organizations use mesh opening sizes which fall within the range of the #30 to #70 sieve sizes.

400	VERTEBRATES	409
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which a sample of the parameter is collected. See Appendix A for frequency codes.

General Description - A vertebrate is an animal with a backbone enclosing a nerve cord; aquatic examples include fishes and amphibians.

400	FUNGI	410
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE 1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which a sample of the parameter is collected. See Appendix A for frequency codes.

General Description - Fungi are plants lacking chlorophyll including molds, yeasts, mildews, rusts, and mushrooms. They derive their nourishment directly from other organisms (parasitic fungi) or from dead organic matter (saprophytic fungi).

400	VIRUSES	411
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which a sample of the parameter is collected. See Appendix A for frequency codes.

General Description - A class of ultramicroscopic, filterable, infectious agents, chiefly protein in composition, which are typically inert except when in contact with certain living cells.

400	BIOLOGICAL_MED	446
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - This component contains of a 1-character code indicating the type(s) of storage media (document, computer readable, etc.) on which the data values for biological parameters are stored and available to potential users of the data. See Appendix B for Data Storage codes and also see data Component number 400 (BIOLOGICAL) for the definition of biological.

General Description - Organizations collect hydrologic data and record and store the information on a variety of storage media ranging from original field notes to computer storage devices. Media is used as a general term encompassing all means of storing and disseminating the data.

400	BIO_ACTIVE	450
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY Yes   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - This component contains a value that signifies whether or not biological parameters are actively being collected at the site. The existence of a "Y" means that one or more biological parameters are actively being collected. An "N" value means that although one or more parameters have been collected in the past, none are presently being collected.

General Description - The Biological Active component provides computer search strategy efficiencies for retrievals concerned exclusively with active or inactive biological sites.

400	BIOLOGICAL_QW2	454
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY___N/A___   KEY___N/A___   DATA TYPE___RG___

PICTURE___N/A___   LARGEST VALUE_____N/A_____

Further biological analyses used in the interpretation of water quality.

Components 455-458 are concerned with community metabolism, which is the rate at which the life processes of the organisms of a community take place, i.e., growth, reproduction, and assimilation.

Components 459-461 are concerned with bioassays, which involve the use of living organisms to test the effect of a given substance.

Components 462-464 are concerned with tissue analyses, which is the examination of dead organisms to detect the presence or influence of substances or physical damage.

454	PRIMARY_PRDCTVTY	455
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which determinations are made. See Appendix A for frequency codes.

General Description - Primary productivity is the rate at which organic matter is produced by the photosynthetic and chemosynthetic activity of autotrophic organisms (chiefly green plants) using inorganic material as a carbon source and sunlight as an energy source.

SECONDARY_PRDCTVTY
COMPONENT NAME

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates
the frequency with which determinations are made. See Appendix A for
frequency codes.

General Description - Secondary productivity is the rate at which
organic matter is produced by the heterotrophic organisms of a
community.

CHEMOSYNTHETIC ACTIVITY
COMPONENT NAME

MANDATORY No   KEY No   DATA TYPE   None

PICTURE X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which determinations are made. See Appendix A for frequency codes.

General Description - Chemosynthetic activity is the synthesis of organic matter from mineral substances with the aid of chemical energy.

454	BIOSTIMULATORY TEST	459
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which determinations are made. See Appendix A for frequency codes.

General Description - Biostimulatory tests determine the reaction of an organism to a given substance or set of conditions, e.g., cold, heat, excessive nutrients, etc. Algae growth potential is an example of this type of test.

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates
the frequency with which determinations are made. See Appendix A for
frequency codes.

General Description - Toxicity tests determine the potency of a toxic
substance by measuring the intensity of a biological response.

454	OTHER BIOASSAY TEST	461
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which determinations are made. See Appendix A for frequency codes.

General Description - Other bioassay tests refer to those not covered in components 459 and 460, and may include, for example, the measurement of low-level response systems, such as heart rate.

<u>454</u>   <u>CHM_TISSUE_ANALYSIS</u>   <u>462</u>

IN RG   COMPONENT NAME   COMPONENT NUMBER

MANDATORY <u>No</u>   KEY <u>No</u>   DATA TYPE <u>Name</u>

PICTURE <u>X(1)</u>   LARGEST VALUE <u>1 character</u>

<u>Data Values</u> - A 1-character alphabetic code in this component indicates the frequency with which determinations are made. See Appendix A for frequency codes.

<u>General Description</u> - Chemical analysis of tissue involves the measurements of the types and/or amounts of chemical substances present in the tissue of an organism.

116

454	HISTOPATH ANALYSIS	463
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY__No___   KEY__No____   DATA TYPE___Name_____

PICTURE___X(1)___   LARGEST VALUE____1 character____

Data Values - A 1-character alphabetic code in this component indicates the frequency with which determinations are made. See Appendix A for frequency codes.

General Description - Histopathological analysis involves the determination of changes in an organism's tissue structure as a result of some physical (e.g., parasitism) or chemical (e.g., toxic substances) activity.

454	OTHER TISSUE ANALYSIS	464
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which determinations are made. See Appendix A for frequency codes.

General Description - Other tissue analyses of organisms refer to those not covered in components 462 and 463, and may involve, for example, determinations in flavor impairment of fish flesh.

300
IN RG

PHYSICAL_QW
COMPONENT NAME

500
COMPONENT NUMBER

MANDATORY N/A   KEY N/A   DATA TYPE   RG

PICTURE   N/A   LARGEST VALUE   N/A

A repeating group containing data values indicating the types of
physical water quality data collection activities performed, the
frequency at which the observations and/or determinations are made,
and the media on which physical water quality data for the site is
available.

Physical water quality parameters are those which pertain to the
measurement of the physical properties (temperature, turbidity, color,
etc.) of water, as distinguished from the concentrations of chemical
or biological components.

500	TEMPERATURE	501
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which observed or instrument recorded temperature data are collected. See Appendix A for frequency codes.

General Description - Temperature is a measure of the intensity aspect of heat energy present in a water body. It influences the aquatic environment and affects the aquatic biota, the concentrations of dissolved gases, and the distribution of chemical solutes (dissolved substances).

500	SPEC_CONDUCT	502
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates
the frequency with which specific conductance determinations are made.
See Appendix A for frequency codes.

General Description - Specific conductance is a measure of the ability
of a water to conduct an electrical current and is expressed in micromhos
per centimeter at 25°C.

500	TURBIDITY	503
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values – A 1-character alphabetic code in this component indicates the frequency with which turbidity determinations are made. See Appendix A for frequency codes.

General Description – Turbidity is an expression of the optical property of water that causes light to be scattered and absorbed rather than transmitted in straight lines. It is caused by the presence of a wide variety of suspended matter, such as clay, silt, finely divided organic and inorganic matter, plankton, and other microscopic organisms. It is usually measured in terms of milligrams per liter, Jackson turbidity units (JTU), or nephelometric turbidity units (NTU).

500	COLOR	504
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which color determinations are made. See Appendix A for frequency codes.

General Description - Color in water can be caused by the presence of plankton, aquatic vegetation, decaying organic matter, natural metallic ions, industrial wastes, and sewage. A distinction is made between "true color" (the color of a water sample after turbidity has been removed by filtration) and "apparent color" (the color of an untreated water sample). "True color" is usually measured by comparing the color of a water sample to that of a fixed standard. Color is expressed in terms of "color units" where one color unit is the difference in tint produced by one milligram per liter of the chloroplatinate ion.

500	ODOR	505
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE 1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which odor determinations are made. See Appendix A for frequency codes.

General Description - Odors from water can be caused by a variety of materials, both natural and foreign, in the water body. Odor tests are made by using the human sense of smell. A panel of "testers," in turn, each sniff various dilutions of a water sample until that dilution with the least, but definitely perceptible, odor to all on the panel is determined.

500	pH	506
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY   No   KEY   No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which pH determinations are made. See Appendix A for frequency codes.

General Description - PH stands for "parts hydrogen" and is a term used almost universally to express the intensity of the acid or alkaline condition of a solution. It is the logarithm of the reciprocal of hydrogen-ion concentration, or more precisely, the hydrogen-ion activity expressed in moles per liter. The practical pH scale (in standard units) ranges from 0 to 14. A pH of 7.0 indicates that the water sample solution is neutral while readings progressively lower than 7.0 denote increasing acidity and those progressively higher than 7.0 denote increasing alkalinity.

500	SUSPD_SOLIDS	507
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY __No__   KEY __No__   DATA TYPE __Name__

PICTURE __X(1)__   LARGEST VALUE __1 character__

Data Values – A 1-character alphabetic code in this component indicates the frequency with which suspended solids determinations are made. See Appendix A for frequency codes.

General Description – Suspended solids include colloidal and particulate matter, such as sand, clay, finely divided organic material, bacteria, and plankton that are suspended in the water body.

The term "suspended solids" is synonymous with "suspended sediment concentration" (component 602), however, it is generally used by sanitary engineers in connection with water treatment facilities, while "suspended sediment" is generally used by civil or hydraulic engineers in connection with sediment transport studies, and the data are reported accordingly.

500	PHYSICAL_MED	546
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - This component contains a 1-character code indicating
the type(s) of storage media (document, computer readable, etc.) on
which the data values for physical parameters are stored and available
to potential users of the data. See Appendix B for Data Storage Codes
and also see component number 500 (PHYSICAL) for the definition of
physical.

General Description - Organizations collect hydrologic data and record
and store the information on a variety of storage media ranging from
original field notes to computer storage devices. Media is used as
a general term encompassing all means of storing and disseminating the
data.

500	PHY_ACTIVE	550
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY   No   KEY   Yes   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values – This component contains a value that signifies whether or not water quality physical parameters are actively being collected at the site. The existence of a "Y" means that one or more physical parameters are actively being collected. An "N" value means that although one or more parameters have been collected in the past, none are presently being collected.

General Description- The water quality physical parameters activity component provides computer search strategy efficiencies for retrievals concerned exclusively with active or inactive physical parameter data collection sites.

300	SEDIMENT_QW	600
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY N/A   KEY N/A   DATA TYPE   RG

PICTURE   N/A   LARGEST VALUE   N/A

A repeating group containing data values indicating the types of sediment
data collection activities performed, the frequency at which the obser-
vations and/or determinations are made, and the media on which sediment
data for the site is available.

Sediment is the solid particles of inorganic or organic fragmental
material, usually derived from disintegrated rocks or other earth
material that have been or are being transported laterally or vertically
from one or more places of origin by air or water. All references to
sediment in this database pertain to fluvial sediment only--that is,
sediment which is transported by, suspended in, or deposited by water.

300	BED_LOAD	601
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - This component contains a 1-character alphabetic code
that indicates the intervals of time for which records of bedload are
available.   See Appendix A for frequency codes.

General Description - Bedload is the sediment mixture moving on or
near the stream bed by rolling, sliding, and making brief excursions
into the flow, a few diameters above the bed.   The term "diameter" is
defined as the diameter of. a sphere of the same volume as the given
particle.   Bedload discharge is the amount (weight, mass, or volume)
of bedload passing through any cross section of a stream during a unit
of time.

600	CNCNTRTN_SUS	602
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which concentration determinations are made. See Appendix A for frequency codes.

General Description - Suspended sediment is the sediment mixture that is carried in suspension in the main body of the flow of a stream for appreciable lengths of time, being kept in this state by the upward components of the turbulence of flow or by colloidal suspension.

The term for component 602 (suspended sediment concentration) is synonymous with the term for component 507 (suspended solids), however, it is generally used by civil or hydraulic engineers in connection with sediment transport studies, while "suspended solids" is generally used by sanitary engineers in connection with water treatment facilities, and the data are reported accordingly.

Suspended-sediment concentration is the velocity-weighted (representative) concentration of suspended sediment in the sampled zone (taken from the water surface to a point approximately 0.3 ft. above the bed) and is usually expressed as milligrams of dry solids per liter of water-sediment mixture.

600	CNCNTRTN_TOT	603
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE X(1)   LARGEST VALUE   1 character

Data Values – A 1-character alphabetic code in this component indicates
the frequency with which total sediment concentrations are determined.
See Appendix A for frequency codes.

General Description – Total sediment concentration is the concentration
of all of the sediment passing through a given cross-section in a stream
expressed in milligrams per liter or as parts per million. This is pos-
sible only at a total-load measuring section where physical circumstances
cause all of the sediment particles being transported to be thrown into
a fairly uniform suspension throughout the total depth by natural or
artificial turbulence.

600	PART_SIZ_SUS	604
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   No   DATA TYPE____Name____

PICTURE___X(1)____   LARGEST VALUE_____1 character_____

Data Values - A 1-character alphabetic code in this component indicates the frequency with which suspended particle-size determinations are made. See Appendix A for frequency codes.

General Description - The particle-size of suspended sediment is the diameter, usually expressed in millimeters, of a particle measured by settling, sieving, micrometric, or direct measurement methods. Particle-size data are usually expressed as a distribution showing the relative amount, in terms of percent of total weight, of a sediment sample having a specific size finer than a given size.

IN RG   COMPONENT NAME   COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values – A 1-character alphabetic code in this component indicates the frequency with which bed material particle-size determinations are made. See Appendix A for frequency codes.

General Description – The particle size of bed material sediment is the diameter, usually expressed in millimeters, of a particle measured by settling sieving, micrometric, or direct measurement methods. Particle-size data are usually expressed as a distribution showing the relative amount, in terms of percentage of total weight, of a sediment sample having a specific size finer than a given size.

600	SED_DIS_SUS	606
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY___No___   KEY___No___   DATA TYPE___Name___

PICTURE___X(1)___   LARGEST VALUE___1 character___

Data Values - A 1-character alphabetic code in this component indicates the intervals of time for which suspended-sediment discharge records are available. See Appendix A for frequency codes.

General Description - Sediment discharge (suspended) is the rate of transport of suspended sediment passing through a given cross section of a stream expressed in tons per day. It is computed from the measured suspended-sediment concentration (instantaneous sediment discharge), or from the mean-daily suspended-sediment concentration (daily sediment discharge).

600	SED_DIS_TOT	607
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the intervals of time for which sediment discharge (total) records are available. See Appendix A for frequency codes.

General Description - Sediment discharge (total) is the rate of transport of all the sediment passing through a given cross section in a stream expressed in tons per day. It is computed from the measured sediment concentration (instantaneous) at a total-load measuring section (see component 603) only, or from computed mean daily total sediment concentration (daily) based on samples.

600	SEDIMENT_MED	646
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - This component contains a 1-character code indicating
the type(s) of storage media (document, computer readable, etc.)
on which the data values for sediment parameters are stored and
available to potential users of the information. See Appendix B for
Data Storage codes and also see component number 600 (SEDIMENT) for
the definition of sediment.

General Description - Organizations collect hydrologic data and record
and store the information on a variety of storage media ranging from
original field notes to computer storage devices. Media is used as
a general term encompassing all means of storing and disseminating the
data.

MANDATORY No   KEY Yes   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - This component contains a retrieval key that signifies
whether or not sediment parameters are actively being collected at the
site. The existence of a "Y" means that one or more sediment parameters
are actively being collected. An "N" value means that although one or
more parameters have been collected in the past, none are presently being
collected.

General Description - The Sediment Active component provides computer
search strategy efficiencies for retrievals concerned exclusively with
active or inactive sediment data collection sites.

300	CHEMICAL_QW	700
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY N/A   KEY N/A   DATA TYPE   RG

PICTURE   N/A   LARGEST VALUE   N/A

A repeating group containing data values indicating the types of
chemical water quality data collection activities performed, the
frequency at which the observations and/or determinations are made,
and the media on which the chemical water quality data for the site
is available.

Chemical water quality parameters are those which pertain to the chemical
constituents and properties of substances present in water.

700	SOLIDS_DIS	701
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values – A 1-character alphabetic code in this component indicates
the frequency with which dissolved solids determinations are made. See
Appendix A for frequency codes.

General Description – Dissolved solids in water consists mainly of
inorganic salts and small amounts of organic matter. A general
working definition of "dissolved" (as compared to suspended) solids
is anything which will pass through a 0.45 micron filter.

700	MAJOR_IONS	702
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE X(1)   LARGEST VALUE   1 character

<u>Data Values</u> - A 1-character alphabetic code in this component indicates the frequency with which major ion determinations are made. See Appendix A for frequency codes.

<u>General Description</u> - Major ions include elements which are (or could be) in fairly high concentration in most natural waters, such as calcium, magnesium, sodium, potassium, bicarbonate, carbonate, sulphate, chloride, etc.

MANDATORY   No   KEY   No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values – A 1-character alphabetic code in this component indicates the frequency with which hardness determinations are made. See Appendix A for frequency codes.

General Description – Hardness has historically been defined as a measure of the ability of water to precipitate soap, and, in natural waters, is primarily a function of the presence of calcium and magnesium ions. Other constituents, such as iron, manganese, aluminum, barium, strontium, zinc, and free acid also cause hardness but they are not usually present in quantities large enough to have any objectionable effect.

Hardness is normally expressed in terms of calcium carbonate ($CaCO_3$) and is often reported as "carbonate hardness," "noncarbonate hardness," and "total hardness."

700	SILICA	705
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE   1 character

Data Values - A 1-character code in this component indicates the frequency with which silica determinations are made. See Appendix A for frequency codes.

General Description - Silica (SiO_2) is the term widely used in referring to the presence of silicon, in soluble and colloidal forms, in natural waters. Amounts of silica are commonly reported as tons per day or milligrams per liter of SiO_2.

<u>700</u>   <u>PHOSPHORUS</u>   <u>706</u>
IN RG   COMPONENT NAME   COMPONENT NUMBER

MANDATORY <u>No</u>   KEY <u>No</u>   DATA TYPE <u>Name</u>

PICTURE <u>X(1)</u>   LARGEST VALUE <u>1 character</u>

<u>Data Values</u> – A 1-character alphabetic code in this component indicates the frequency with which total phosphorus determinations are made. See Appendix A for frequency codes.

<u>General Description</u> – This component pertains only to the gross measurement (total) of the element phosphorus without regard to individual species. The measurement is usually expressed in milligrams per liter.

144

700	PHOS_SPECIES	707
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which species determinations of the element phosphorus are made. See Appendix A for frequency codes.

General Description - This component pertains to the measurement of any of the species of the element phosphorus commonly found in water, e.g., organic phosphorus, orthophosphate, etc.

700   NITROGEN   708
IN RG   COMPONENT NAME   COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which total nitrogen determinations are made. See Appendix A for frequency codes.

General Description - This component pertains only to the gross measurement (total) of the element nitrogen without regard to individual species. The measurement is usually expressed in milligrams per liter. Nitrogen in water in the form of nitrogen gas will be reported in component 721 (OTHER DISSOLVED GASES).

700	N_SPECIES	709
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which species determinations of the element nitrogen are made. See Appendix A for frequency codes.

General Description - This component pertains to the measurement of any of the species of the element nitrogen commonly found in water, e.g., nitrate, nitrite, ammonia, etc.

700	DETERGENTS	710
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY   No   KEY   No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates
the frequency with which detergent determinations are made. See Appendix
A for frequency codes.

General Description - The term "detergent" is applied to a wide variety
of cleansing agents used to wash clothes, dishes, and other articles.
Generally, detergents are organic materials that are surfactants in aqueous
solutions. Detergents are reported in terms of milligrams per liter or
as a visual observation, i.e., suds on water in terms of severity values.

<u>700</u>   <u>OMI_CONSTITS</u>   <u>711</u>
IN RG   COMPONENT NAME   COMPONENT NUMBER

MANDATORY <u>No</u>   KEY <u>No</u>   DATA TYPE <u>Name</u>

PICTURE <u>X(1)</u>   LARGEST VALUE <u>1 character</u>

<u>Data Values</u> - A 1-character alphabetic code in this component indicates the frequency with which Other Minor Inorganic Constituent determinations are made. See Appendix A for frequency codes.

<u>General Description</u> - Other Minor Inorganic Constituents are those not included in any of the other components of the 700 series, such as the halides (fluoride, bromide, iodide, etc.), the rare earths, and the transition metals (iron, manganese, etc).

.

.

.

149

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which gross radiation determinations are made. See Appendix A for frequency codes.

General Description - This component is concerned with only the gross measurement of radioactivity (alpha, beta, gamma, etc.) without regard to the radiochemical species that produces the radiation.

700   RCHM SPECIES   713
IN RG   COMPONENT NAME   COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which radiochemical species determinations are made. See Appendix A for frequency codes.

General Description - Radiochemical species refers to the individual radioactive elements that produce radioactivity such as: radium 226, cobalt 60, strontium 90, tritium, etc.

MANDATORY__No___   KEY__No___   DATA TYPE___Name_____

PICTURE___X(1)___   LARGEST VALUE___1 character___

Data Values - A 1-character alphabetic code in this component indicates
the frequency with which total carbon determinations are made.   See
Appendix A for frequency codes.

General Description - The Carbon component pertains only to the gross
measurement of all of the carbon present without regard to groups or
species.

700	ORG_GROUPS	715
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   .   LARGEST VALUE 1 character

<u>Data Values</u> - A 1-character alphabetic code in this component indicates
the frequency with which organic group determinations are made. See
Appendix A for frequency codes.

<u>General Description</u> - This component refers to the reporting of the presence
of organic groups, such as the phenols or the methols, rather than of specific
organic molecules, such as chloroform or DDT. Such results are obtained
from the application of analytic techniques as mass spectrometry, NMR
(Nuclear Magnetic Resonance) and IR (Infrared Spectroscopy).

<table>
<tr><td>700</td><td>PEST SPECIES</td><td>716</td></tr>
<tr><td>IN RG</td><td>COMPONENT NAME</td><td>COMPONENT NUMBER</td></tr>
</table>

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which pesticide species determinations are made. See Appendix A for frequency codes.

General Description - The Pesticide Species component includes insecticides, herbicides, fungicides, rodendricides, etc. Examples are: chlordane, DDT, 2,4,5-T, silvex, etc.

<u>700</u>   <u>OTH_ORG_SPECIES</u>   <u>717</u>

IN RG   COMPONENT NAME   COMPONENT NUMBER

MANDATORY <u>No</u>   KEY<u> No</u>   DATA TYPE<u>   Name</u>

PICTURE<u>   X(1)</u>   LARGEST VALUE<u>   1 character</u>

<u>Data Values</u> - A 1-character alphabetic code in this component indicates the frequency with which determinations of other organic species are made. See Appendix A for frequency codes.

<u>General Description</u> - This component refers to the reporting of the presence of specific organic species, other than pesticides, such as chloroform, PCBs (Polychlorinated Biphenyls), formaldehyde, etc.

155

<u>BIOCHM OX DMND</u>
COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE   X(1)   LARGEST VALUE   1 character

<u>Data Values</u> – A 1-character alphabetic code in this component indicates the frequency with which biochemical oxygen demand determinations are made. See Appendix A for frequency codes.

<u>General Description</u> – Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, required to stabilize the demand for oxygen in a water sample, usually resulting from the process of microorganisms consuming organic matter and utilizing the available dissolved oxygen in the oxidation process.

700	CHM_OX_DMND	719
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE 1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which chemical oxygen demand determinations are made. See Appendix A for frequency codes.

General Description - Chemical oxygen demand (COD) determinations provide a measure of the oxygen equivalent of that portion of the organic matter in a water sample that can be oxidized by a strong chemical oxidizing agent.

700	DISSOLVED_OX	720
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which dissolved oxygen determinations are made. See Appendix A for frequency codes.

General Description - Dissolved oxygen (DO) in water is expressed in milligrams per liter and the amount present reflects chemical, physical, and biological activities in the water body. It can only be increased by aeration and the photosynthetic processes of aquatic plants.

700	OTHER_DIS_GAS	721
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - A 1-character alphabetic code in this component indicates the frequency with which other dissolved gasses determinations are made. See Appendix A for frequency codes.

General Description - Other dissolved gasses include all gasses except oxygen which is accounted for in component number 720. Examples are: nitrogen, hydrogen sulfide, methane, etc.

700	CHEMICAL_MED	746
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE Name

PICTURE X(1)   LARGEST VALUE   1 character

Data Values - This component contains a 1-character code indicating the type(s) of storage media (document, computer readable, etc.) on which the data values for chemical parameters are stored and available to potential users of the data. See Appendix B for Data Storage codes and also see component number 700 (CHEMICAL) for the definition of chemical.

General Description - Organizations collect hydrologic data and record and store the information on a variety of storage media ranging from original field notes to computer storage devices. Media is used as a general term encompassing all means of storing and disseminating the data.

700	CHM_ACTIVE	750

CHM_ACTIVE

COMPONENT NAME

750

COMPONENT NUMBER

MANDATORY No   KEY Yes   DATA TYPE   Name

PICTURE   X(1)   LARGEST VALUE   1 character

Data Values - This component contains a retrieval key that signifies whether or not chemical water quality parameters are actively being collected at the site. The existence of a "Y" means that one or more chemical parameters are actively being collected. An "N" value means that although one or more parameters have been collected in the past, none are presently being collected.

General Description - The Chemical Active component provides computer search strategy efficiencies for retrievals concerned exclusively with active or inactive chemical quality sites.

0	PROJECTS	800
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY N/A   KEY N/A   DATA TYPE   RG

PICTURE   N/A   LARGEST VALUE   N/A

A repeating group identifying hydrologic projects, associated with the data collection station, that are conducted by the Water Resources Division of the U.S. Geological Survey. In some instances more than one project will be associated with a particular station.

800	WRD_PROJ_NO	801
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(5)   LARGEST VALUE   5 characters

Data Values - The WRD Project Number is 5 characters in length. The first
2 characters contain a meaningful alphabetic code and the remaining 3
characters contain a numeric serial number.

General Description - The WRD Project Number is assigned by the Water
Resources Division and pertains only to U.S. Geological Survey operations.
It uniquely identifies a specific work effort in a given program and
provides the funding basis for hydrologic data collection activities.
One project usually provides the funding support (wholly or partially)
for many sites. The project number is set up as follows:

State - A 2-character alphabetic abbreviation designating the district,
    region, or division headquarters office from which the project is
    programmed and supervised. For district offices, the alphabetic FIPS
    code of the state in which the office is located is used. All others
    have a meaningful abbreviation of the organizational name (WR = Western
    Region, WD = WRD (national) headquarters, etc.).

Serial Number - A 3-digit sequence number of a project activated within
    a given jurisdiction (right justified, e.g. 017). Serial numbers
    001 through 009 are reserved for dedicated projects as follows:

001	Surface Water Stations
002	Ground Water Stations
003	Water Quality Stations (SW and GW)
004	Sediment Stations
005	Precipitation Stations
006	HUD Flood Insurance Studies
007	Water Use Studies
008-009	May be assigned at a later date

0	NETWORKS	900
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY N/A   KEY N/A   DATA TYPE   RG

PICTURE   N/A   LARGEST VALUE   N/A

A repeating group identifying and containing information about networks
that the site is a member of.

900	NETWORK_CODE	901
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY Yes   DATA TYPE   Name

PICTURE   X(4)   LARGEST VALUE   4 characters

Data Values - If applicable, this component will contain a 4-character network code indicating that the site is a member of one or more networks. Possible codes are:

Code	Meaning
NSQN	The National Stream Quality Accounting Network (NASQAN) is a group of interrelated sites established and operated by the Water Resources Division of the U.S. Geological Survey at which systematic and continuing measurements are made to determine long-term trends in the physical, chemical, and biological characteristics of the Nation's surface waters.
NWQS	The National Water Quality Surveillance System is a group of interrelated sites monitored by the U.S. Environmental Protection Agency as a part of their program to monitor pollutants on a national basis.

General Description - The network code identifies sites as being members of a network of interrelated sites where data are collected for specific purpose programs.

MANDATORY N/A   KEY N/A   DATA TYPE   RG

PICTURE   N/A   LARGEST VALUE   N/A

A repeating group, containing information about supportive funding,
which will only be valued for sites operated by the Water Resources
Division of the U.S. Geological Survey. It is possible that there will
be multiple occurrences of funding support for one site, each one
representing a separate customer, hydrologic discipline, and percentage
of funds combination.

1000	CUSTOMER_NUM	1001
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(4)   LARGEST VALUE   4 characters

Data Values – The Customer Number is a 4-character alpha-numeric value. It is only valued for U.S. Geological Survey sites.

General Description – A customer number is a unique code identifying organizations that provide funding in support of Geological Survey project and site activities. The Finance and Fiscal Analysis Section, Water Resources Division, serves as liaison with the Branch of Financial Management in coordination of the assignment of customer numbers, and a list is maintained for internal use only.

1000	PERCENTAGE	1002
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Integer

PICTURE   9(3)   LARGEST VALUE   100

Data Values - The percentage component will contain up to 3 numeric characters indicating the percentages of the site's operating funds supplied by a customer (see component 1001) for activities associated with a particular discipline (see component 1003). This component is valued for U.S. Geological Survey operated sites only.

General Description - The Percentage component indicates the proportionate share of total station funds that each supporting organization allocates to each type of data (discipline activity) collected at the site. The figures are shown to the nearest 5 percent and computed by using the site operating fund total as the base figure. When added, the percentage figures will equal 100 percent for the site regardless of the number of customers or discipline activities involved.

1000	DISCIPLINE	1003
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(2)   LARGEST VALUE   2 characters

Data Values - The Discipline component will contain a meaningful two-character alphabetic abbreviation as follows:

Code	Meaning
SW	Surface Water
GW.	Ground Water
QW	Water Quality
SD	Sediment
PR	Precipitation

General Description - Discipline indicates the type of hydrologic data collection activities being funded by supporting organizations (customers). It indicates the discipline for which the customer (component 1001) supplies a percentage (component 1002) of the operating funds for the site.

0	OTHR_SRC	1100
IN RG	COMPONENT NAME	COMPONENT NUMBER

MANDATORY N/A   KEY N/A   DATA TYPE   RG

PICTURE   N/A   LARGEST VALUE   N/A

The "Other Source" repeating group identifies organizations, other than, or in addition to, the operating organization cited in component 4 (NAWDEX_AGCY), that store and make water data available for the site.

OT_SRC_AGCY
COMPONENT NAME

MANDATORY No   KEY No   DATA TYPE   Name

PICTURE   X(5)   LARGEST VALUE   5 characters

Data Values - The Other Source Agency component will contain a NAWDEX
Agency code. The NAWDEX Agency code varies in length from three to
five characters. For Federal organizations, it will be US followed by
an up to three-character abbreviation of the organization's name. Non-
Federal organizations whose activities are contained within a given state
boundary will have a two-character alphabetic state code followed by an
arbitrary sequence number. Alphabetic state codes are contained in the
Federal Information Processing Standards (FIPS) Publication 5-1, dated
June 15, 1970. Non-Federal organizations having activities at the multi-
state or national level will have a three to five character abbreviation
of the organization name (the characters US will not appear in the first
two character positions).

NAWDEX Agency codes are presented in the publication entitled "Identi-
fication Codes for Organizations Listed in Computerized Data Systems
of the U.S. Geological Survey" which may be obtained from the National
Water Data Exchange, U.S. Geological Survey, 421 National Center, Reston,
Virginia 22092.

General Description - The Other Source Agency component will contain
the NAWDEX Agency code of any organization, other than the operating
organization cited in component number 4, that also is a source of data
collected at the site. The NAWDEX Agency code is assigned by the NAWDEX
Program Office and is the unique organization identifier for the parti-
cipating Federal and non-Federal organizations that actively collect
and/or store water data. Non-Federal organizations include State, county,
and municipal organizations, as well as intergovernmental compacts, private
organizations, universities, and any local organizations at other than
the county or municipal level.

SELECTED REFERENCES

American Public Health Association, American Water Works Association, and Water Pollution Control Federation, 1975, Standard methods for the examination of water and wastewater: Washington, D.C., American Public Health Association, 14th edition, 1193 p.

Baker, C. H. Jr., and Foulk, D. G., 1975, National Water Data Storage and Retrieval System--Instructions for preparation and submission of ground-water data: U.S. Geological Survey Open-File Report 75-589, 173 p.

Benson, M. A., and Dalrymple, Tate, 1967, General field and office procedures for indirect discharge measurements: U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chap. A1, 30 p.

Brown, Eugene, Skougstad, M. W., and Fishman, M. J., 1970, Methods for collection and analysis of water samples for dissolved minerals and gases: U.S. Geological Survey Techniques of Water Resources Investigations, book 5, chap. A1, 160 p.

Buchanan, T. J., and Somers, W. P., 1968, Stage measurement at gaging stations: U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chap. A7, 28 p.

Buchanan, T. J.,and Somers, W. P., 1969, Discharge measurements at gaging stations: U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chap. A8, 65 p.

Carter, R. W., and Davidian, Jacob, 1968, General procedure for gaging streams: U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chap. A6, 13 p.

Clark, G. L., 1966, Elements of ecology: New York, London, Sydney, John Wiley & Sons, Inc., 2nd ed., 560 p.

Edwards, M. D., 1977, The National Water Data Exchange (NAWDEX): U.S. Geological Survey Open-File Report 77-259, 5 p.

Edwards, M. D., and Drilleau, M. O., 1978, Identification codes for organizations listed in computerized data systems of the U.S. Geological Survey: U.S. Geological Survey Open-File Report 78-398.

Fair, G. M., Geyer, J. C., Okun, D. A., 1966, Water and wastewater engineering - Vol. 1. Water supply and wastewater removal: New York, London, Sydney, John Wiley & Sons, Inc., 505 p.

Fair, G. M., Geyer, J. C., Okun, D. A., 1968, Water and wastewater engineering - Vol. 2. Water purification and wastewater treatment and disposal: New York, London, Sydney, John Wiley & Sons, Inc., 659 p.

Ficke, J. F., and Hawkinson, R. O., 1975, The National Stream Quality Accounting Network (NASQAN) - Some questions and answers: U.S. Geological Survey Circular 719, 23 p.

Guy, H. P., 1970, Fluvial sediment concepts: U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chap. C1, 55 p.

Guy, H. P., and Norman, V. W., 1970, Field methods for measurement of fluvial sediment: U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chap. C2, 59 p.

Hem, J. D., 1970, Study and interpretation of the chemical characteristics of natural water: U.S. Geological Survey Water-Supply Paper 1473, 2nd ed., 363 p.

Hutchinson, N. E., compiler, 1975, WATSTORE--National Water Data Storage and Retrieval System of the U.S. Geological Survey--User's guide: U.S. Geological Survey Open-File Report 75-426, 791 p.

Knecht, W. A., and Edwards, M. D., 1978, Definitions of components of the Water Data Sources Directory: U.S. Geological Survey Open-File Report 77-775, 99 p.

Langbein, W. B., and Iseri, K. T., 1960, General introduction and hydrologic definitions: U.S. Geological Survey Water-Supply Paper 1541-A, 29 p.

Lohman, S. W., 1972, Definitions of selected ground-water terms--Revisions and conceptual refinements: U.S. Geological Survey Water-Supply Paper 1988, 21 p.

Lohman, S. W., 1972, Ground-water hydraulics: U.S. Geological Survey Professional Paper 213, 70 p.

Meinzer, O. E., 1923, Outline of ground-water hydrology with definitions: U.S. Geological Survey Water-Supply Paper 494, 71 p.

Meinzer, O. E., ed., 1942, Hydrology: New York, Dover Publications, Inc., 712 p.

MRI Systems Corporation, 1973, SYSTEM 2000 reference manual: Austin, Texas, 180 p.

MRI Systems Corporation, 1972, General information manual: Austin, Texas, 23 p.

Poland, J. F., and Davis, G. H., 1969, Land subsidence due to withdrawal of fluids: Geological Society of America, 269 p.

Porterfield, George, 1972, Computation of fluvial-sediment discharge: U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chap. C3, 66 p.

Ruttner, Franz, 1963, Fundamentals of limnology: Toronto, University of Toronto Press, 295 p.

Sawyer, C. N., and McCarty, P. L., 1967, Chemistry for sanitary engineers: New York, McGraw-Hill Book Co., 2nd ed., 518 p.

Slack, J. V., Averett, R. C., Greeson, P. E., and Lipscomb, R. G., 1973, Methods for collection and analysis of aquatic biological and microbiological samples: U.S. Geological Survey Techniques of Water Resources Investigations, book 5, chap. A4, 165 p.

United Nations Educational, Scientific and Cultural Organization, World Meteorological Organization, 1974, International glossary of hydrology: WMO/OMM/BMO - No. 385, 393 p.

U.S. Department of Commerce, National Bureau of Standards, 1970, States and outlying areas of the United States: Federal Information Processing Standards Publication 5-1, 4 p.

U.S. Department of Commerce, National Bureau of Standards, 1973, Counties and county equivalents of the States of the United States: Federal Information Processing Standards Publication 6-2, 35 p.

U.S. Department of Commerce, National Bureau of Standards, 1976, Countries, dependencies, and areas of special sovereignty: Federal Information Processing Standards Publication 10-2, 25 p.

DATA COLLECTION
FREQUENCY CODES

Year-round	Meaning	Seasonal
I	Continuous - Recording Instrument Use	J
C	Continuous - Non-Recorded	D
O	Daily	P
W	Weekly	X
F	Bi-weekly	G
M	Monthly	N
H	Bi-monthly	K
Q	Quarterly	P

FREQUENCY CODES (CONT'D)

Code	Meaning
U	Unique (one time) measurement
S	Semi-annual (twice per year)
A	Annual (once per year)
B	Other periodic (less often than once per year)
Y	Seasonal (no time period specified)
Z	Data collected at an irregular or unspecified frequency
E	Eliminated activity

Frequency codes indicate the intervals of time for which records of water data are available. The meanings of the codes cited in the above table are self explanatory except for "continuous." Continuous records are those which are based upon recordings of data at intervals of four hours or less (six or more times in a 24 hour period). Continuous records based upon data automatically recorded by a recording instrument are associated with frequency codes "I" or "J", while continuous records based upon manually recorded observations are associated with codes "C" or "D." Data collected at intervals greater than four hours but at least once daily fall under the codes designated as "daily." Data collection intervals that actually fall between those listed above are recorded under the next longer frequency.

APPENDIX B

DATA STORAGE CODES

Code	Meaning

Code   **Meaning**

P   Published - Includes methods of data dissemination such as documents (work sheets, etc.) which may be copied or communicated over the telephone, as well as formal publications.

C   Computer recognizable format - Includes data stored in digital form in punched paper tapes, punched cards, magnetic tapes, magnetic disks, etc., that potentially can be transmitted to computer terminals and displayed on cathode-ray tube screens, printed out on paper, or copied to another digital recording media.

M   Microform - Includes data that has been recorded on microfilm or microfiche.

D   C and P - Computer recognizable format and published.

E   C and M - Computer recognizable format and microform.

F   C, P, and M - Computer recognizable format, published, and microform.

G   M and P - Microform and published.