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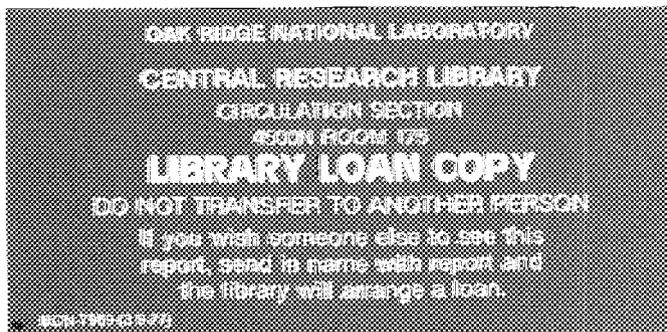
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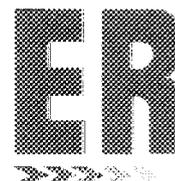
**Data Base Dictionary for the Oak Ridge
Reservation Hydrology and Geology
Study Groundwater Data Base**

B. K. Thompson



MANAGED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY
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Energy Systems Environmental Restoration Program
ORNL Environmental Restoration Program

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B. K. Thompson

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ABBREVIATIONS

AA	atomic absorption
AAS	atomic absorption spectroscopy
CVAA	cold vapor atomic absorption
GC/MS	gas chromatograph/mass spectroscopy
ICAP	inductively coupled arc plasma
MSA	method of standard additions
NTU	normal turbidity units
ORNL	Oak Ridge National Laboratory
ORR	Oak Ridge Reservation
ORRHAGS	Oak Ridge Reservation Hydrology and Geology Study
TIC	tentatively identified compound

EXECUTIVE SUMMARY

The Oak Ridge Reservation Hydrology and Geology Study (ORRHAGS) Groundwater Data Base has been compiled to consolidate groundwater data from the three U.S. Department of Energy facilities located on the Oak Ridge Reservation: the Oak Ridge K-25 Site, the Oak Ridge National Laboratory, and the Oak Ridge Y-12 Plant. Each of these facilities maintains its own groundwater and well construction data bases. Data were extracted from the existing data bases, converted to a consistent format, and integrated into the ORRHAGS Groundwater Data Base structures. This data base dictionary describes the data contained in the ORRHAGS Groundwater Data Base and contains information on data base structure, conventions, contents, and use.

1. INTRODUCTION

The Oak Ridge Reservation Hydrology and Geology Study (ORRHAGS) Groundwater Data Base has been compiled to consolidate groundwater data from the three U.S. Department of Energy facilities located on the Oak Ridge Reservation (ORR): the Oak Ridge K-25 Site, the Oak Ridge National Laboratory (ORNL), and the Oak Ridge Y-12 Plant. Each of these facilities maintains its own groundwater and well construction data bases. Data were extracted from the existing data bases, converted to a consistent format, and integrated into the ORRHAGS Groundwater Data Base structures. The ORRHAGS Groundwater Data Base, now in its first version, includes results of groundwater chemical analyses, field parameters measured during sample collection, water level measurements, information on hydrogeologic parameters, general well information, and well construction data for ~2500 wells throughout the ORR. Typically, the data coverage for a specific well is not complete, and only some of the above information is available.

The data base is not intended for regulatory compliance or administrative applications. To facilitate use of the ORRHAGS data base, this data base dictionary has been prepared to describe the data contained in the ORRHAGS Groundwater Data Base. The dictionary contains information on data base structure, conventions, contents, and use. Objectives for the data base; roles and responsibilities of the personnel involved; and flow, updates, and storage of the data are documented in the management plan for the ORRHAGS Groundwater Data Base (Thompson 1993).

The K-25 Site data extracted for the first version of the ORRHAGS Groundwater Data Base include groundwater information dating from 1987 to 1989. The data were compiled by the K-25 Site Groundwater Protection Program. They also include well construction information dating from 1986 to 1989 that was compiled by Geraghty and Miller, Inc. (1989). Any external reference, publication, or release of the K-25 Site data must be cleared by the K-25 Site Groundwater Protection Program Manager's Office, which is part of the K-25 Site Environmental Management Department.

The ORNL data extracted for the first version of the ORRHAGS Groundwater Data Base include groundwater information dating from 1985 to 1989 and well construction information dating from 1949 to 1990. All ORNL data were compiled by the ORNL Environmental Restoration Program. Any external reference, publication, or release of ORNL groundwater data must be cleared by the ORNL Groundwater Protection Program Manager's Office, which is part of the ORNL Environmental Restoration Program.

The Y-12 Plant data extracted for the first version of the ORRHAGS Groundwater Data Base include groundwater information dating from 1986 to 1989 compiled by the Y-12 Plant Environmental Management Department and well construction information dating from 1943 to 1991 (King et al. 1991). Any external reference, release, or publication of Y-12 Plant data must be cleared by the Y-12 Plant Groundwater Protection Program Manager's Office, which is managed by the Y-12 Plant Environmental Management Department.

2. STRUCTURE OF THE DATA BASE

The ORRHAGS Groundwater Data Base is stored in dBASE IV;* however, the data base is structured to be compatible with SAS† for both mainframe computers and DOS-based personal computers (PCs) and with Macintosh-compatible FoxBASE+/Mac‡ software products. The data base consists of 12 data base files: acid extractables (ACID); anions (ANION); base/neutral extractables (BASE); field parameters (FIELD); general well data (GEN); metals (METAL)—that is, cations; miscellaneous parameters (MISC); polychlorinated biphenyls (PCB); pesticides (PEST); radionuclides (RAD); volatile organic compounds (VOC); and well construction data (WCON). Section 5 describes the structure of each data base file, including the variable name, the type of variable (character, date, or numeric), the width of each variable, the number of decimal places for numeric variables, and a complete description of each variable, including units and abbreviations.

Relational data base files contain variables, called key variables, which allow the records to be identified uniquely. The key variables also make it possible to merge information from different data sets to form secondary files to meet specialized needs. The maximum number of variables that a secondary dBASE IV file can hold is 256. Within the ORRHAGS data base there are two groups of data base files; one group consists of data gathered from groundwater samples, and the other consists of data gathered from the installation of wells. Several key variables are required to uniquely identify groundwater sample data because the files contain multiple records for each well. The key variables for the groundwater sample files (ACID, ANION, BASE, FIELD, METAL, MISC, PCB, PEST, RAD, and VOC) are (1) the facility that installed the well (PLANT), (2) the well name (WELL), (3) the date a groundwater sample was collected (DATE_SAM), (4) whether or not it was a filtered sample (FILTER_Q), and (5) whether or not it was a duplicate sample (DUP_Q). The key variables for the well information files (GEN and WCON) are (1) PLANT and (2) WELL. The PLANT key variable is necessary because the well names are not unique throughout the ORR but only within each of the three sites. Wells are sometimes given alternate, temporary, or unofficial well names. Alias well names are stored in the GEN file (see Table 5.5, variable WELALT_1).

The groundwater sample files have laboratory qualifiers (EPA 1989) associated with the analytical results. Laboratory qualifiers are stored in an associated variable. This associated variable has the same variable name as the measured parameter with an underscore and the letter C (_C) at the end of the variable name. The definitions of the laboratory qualifiers are different for inorganic (Table 2.1) and organic (Table 2.2) chemicals. Inorganic chemicals are found in the ANION, METAL, and RAD files. Organic chemicals are found in the ACID, BASE, PCB, PEST, and VOC files.

*dBASE IV is the registered trademark of Ashton-Tate Corporation, Torrance, California.

†SAS is the registered trademark of SAS Institute, Inc., Cary, North Carolina.

‡FoxBASE+/Mac is the registered trademark of Fox Holdings, Inc., Perrysburg, Ohio.

Results for radionuclides are stored in the RAD file. Counting errors, which are reported along with RAD data, are stored in an associated variable. This associated variable has the same variable name as the measured parameter with an underscore and the letter E (_E) at the end of the variable name.

Table 2.1. Inorganic chemical laboratory qualifiers

Qualifier	Definition
B	Reported value is less than the contracted required detection limit but greater than the instrument detection limit
U or <	Compound was analyzed for but not detected
E	Value is estimated due to matrix interferences
M	Duplicate injection precision criteria not met
N	Spiked sample recovery not within control limits
S	Reported value was determined by the Method of Standard Additions (MSA)
W	Postdigestion spike for furnace atomic absorption (AA) analysis is out of control limits, while sample absorbance is <50% of spike absorbance
*	Duplicate analysis was not within control limits
+	Correlation coefficient for MSA was <0.995
>	Beyond instrument scale

Source: EPA (1989).

Table 2.2. Organic chemical laboratory qualifiers

Qualifier	Definition
U or <	Compound was analyzed for but not detected
J	Value is estimated, either for a tentatively identified compound (TIC) or when a compound is present (spectral identification criteria are met, but the value is less than the contract required detection limit)
C	Pesticide results were confirmed by gas chromatograph/mass spectrometer (GC/MS)
B	Analyte found in associated blank as well as in sample
E	Concentration exceeds calibration range of GC/MS instrument
D	Compound identified in an analysis at a secondary dilution factor
A	The TIC is a suspected aldol-condensation product
X	Additional flags defined separately
>	Beyond instrument scale

Source: EPA (1989).

3. CONVENTIONS OF THE DATA BASE

3.1 GENERAL CONVENTIONS

The ORRHAGS Groundwater Data Base conventions include standard variable name endings (Table 3.1), standard variable name beginnings (Table 3.2), standard formats (Table 3.3), and standard missing value substitutions (Table 3.4). Standard variable name endings are an underscore followed by a letter and represent laboratory qualifiers and special comment variables, counting error variables, logical variables (true or false), analysis method variables for metals, and well casing variables. Standard variable name beginnings are a group of characters followed by an underscore and represent date variables and source variables. Standard missing variables include missing numeric values, missing date values, and dates with the year only. The dBASE IV program does not allow numeric or date variables to be left blank.

Missing numeric entries would be replaced with the number zero. Since it is possible that zero could be an actual measured value, true missing numeric values are represented by 9999999.0000. The dBASE IV program has only one date format: a two-digit month, a two-digit day, and a two-digit year. Partial or completely missing date information is represented by standard date substitutions.

Variable names are unique in the ORRHAGS data base, except for the key variables (PLANT, WELL, DATA_SAM, DUP_Q, and FILTER_Q). Details about key variables can be found in Section 2.

3.2 FIELD AND MISCELLANEOUS FILE CONVENTIONS

Parameters that were measured in the field and the laboratory or parameters that were measured several times for each sample have similar variable names. Specific conductance and pH are measured in both the field and the laboratory. The variable names for specific conductance and pH are similar in the field and miscellaneous data files. These field variable names contain an underscore F (_F), whereas the miscellaneous variable names contain an underscore L (_L). Parameters that were measured multiple times per sample include specific conductance, dissolved oxygen, pH, redox, temperature, total organic carbon, total organic chloride, and total organic halides. Multiple measurements have the same variable name with different ending numbers.

3.3 WELL CONVENTIONS

The wells installed on the ORR have as many as three casings. The well construction file stores information related to all of the well casings. Variables related to the innermost casing end with an underscore one (_1). Variables related to the outer casing for wells with two casings and the middle casing for wells with three casings end with an underscore two (_2). Variables related to the outer casing for wells with three casings end with an underscore three (_3). Section 6 shows diagrams of the well construction variables for open and screened wells with one, two, and three casings.

Table 3.1. Standard variable name endings

Endings	Description
_A	Metal samples analyzed by the atomic absorption spectroscopy (AAS) method
_C	Laboratory or validation codes
_E	Counting errors for radiochemical analyses
_F	Field observation
_H	Metal samples analyzed by the flame-emission method
_I	Metal samples analyzed by the inductively coupled arc plasma (ICAP) method
_L	Laboratory observation
_P	Metal samples analyzed by the polar method
_Q	Logical fields; T represents true and F represents false
_V	Metal samples analyzed by the cold vapor atomic absorption (CVAA) method
_1	Inner well casing
_2	Outer well casing for wells with two well casings or middle well casing for wells with three well casings
_3	Outer well casing for wells with three well casings

Table 3.2. Standard variable beginnings

Beginnings	Variable contents
DATE_	Date values
SRC_	Data source

Table 3.3. Standard formats

Variable type	Format
Character	Capital letters
Date	Two-digit month, two-digit day, two-digit year: MM/DD/YY
Numeric	Maximum of 16 places with 4 decimal places (Numbers too large or too small are represented in exponential notation.)

Table 3.4. Missing value substitutions

Missing values	Substitution
Numeric	9999999.0000
Date	January 1, 1900: 01/01/00
Missing day and month:	
Well construction	January 1 of the given year: 01/01/YY
Well destruction	December 31 of the given year: 12/31/YY

The numbering pattern for well casings is opposite from the order of installation. Reversing the numbering ensures that information related to the central casing is always found in an _1 variable.

A few wells have two open intervals. Variables related to the innermost or deepest open interval end with an underscore one (_1). The variables related to the upper open interval end with an underscore two (_2). Variables related to the open interval of a well with only one open interval end with an underscore 1 (_1). A few wells contain four screened intervals. The variables related to the shallowest screened interval end with an underscore 1 (_1), the variables related to the next deepest screened interval end with an underscore two (_2), and so on, and the variables related to the deepest screened interval end with an underscore four (_4). Variables related to the screened interval of a well with only one screened interval end with an underscore 1 (_1).

4. USE OF THE DATA BASE

The ORRHAGS Groundwater Data Base is not the official repository of groundwater data; it was designed for research purposes only. The user should be aware that not all of the available data were incorporated into the ORRHAGS Groundwater Data Base. Data were omitted for a variety of reasons: incomplete data (i.e., missing well name), questionable data (i.e., invalid chemical name), parameters measured for a small number of observations, data inconsistent with the ORRHAGS data base structure (i.e., inability to determine if a parameter was measured in the field or in the laboratory), and data not applicable to ORRHAGS research (i.e., the time a sample was taken). Questions concerning information for a specific facility should be addressed to the Groundwater Protection Program Manager for that facility.

Extreme care should be used with the well construction data file. Available well construction data vary greatly from well to well, and only well construction data stored in the original data bases were reported. Because missing numeric values are represented by 9999999.0000, they must be removed before numeric analysis of the data can be performed. To avoid possible erroneous matches, groundwater records with missing sample dates, represented by 01/01/00, should be removed before data sets are merged.

Section 7 is a cross-reference between the measured parameters, the variable names, and the data base file where the data are stored. Key variables and associated variables are not included in the cross-reference.

Most of the data base files are too large to fit on a 1.2-MB floppy disk (Table 4.1). Files can be transferred on a 44-MB Bernoulli disk. Requests for data from the ORRHAGS data base are currently handled on a case-by-case basis. Data release to users will generally involve a memorandum of agreement for subsequent review of planned publication or release of data acquired. Data requests should be sent to the ORRHAGS Data Base Administrator. The management plan for the ORRHAGS Groundwater Data Base (Thompson 1993) contains additional information on the transfer and manipulation of data.

Table 4.1. Data base file size

Data base file	Size (MB) for Version 1
ACID_1.DBF	0.4
ANION_1.DBF	1.1
BASE_1.DBF	2.0
FIELD_1.DBF	2.1
GEN_1.DBF	1.4
METAL_1.DBF	7.6
MISC_1.DBF	2.7
PCB_1.DBF	0.2
PEST_1.DBF	0.7
RAD_1.DBF	4.4
VOC_1.DBF	3.5
WCON_1.DBF	3.7

5. FILE DESCRIPTIONS

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Table 5.7	Description of MISC file	45
Table 5.8	Description of PCB file	51
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Table 5.12	Description of WCON file	74

Table 5.1. Description of ACID file

Variable name	Type	Width	Decimal places	Description
BENACD	Numeric	16	4	Concentration of benzoic acid ($\mu\text{g/L}$)
BENACD_C	Character	4		Laboratory qualifiers for the concentration of benzoic acid
CLMETH	Numeric	16	4	Concentration of 4-chloro-3-methylphenol ($\mu\text{g/L}$)
CLMETH_C	Character	4		Laboratory qualifiers for the concentration of 4-chloro-3-methylphenol
CLPHEN	Numeric	16	4	Concentration of 2-chlorophenol ($\mu\text{g/L}$)
CLPHEN_C	Character	4		Laboratory qualifiers for the concentration of 2-chlorophenol
DATE_SAM	Date	8		Date the groundwater sample was taken (key)
DCP_24	Numeric	16	4	Concentration of 2,4-dichlorophenol ($\mu\text{g/L}$)
DCP_24_C	Character	4		Laboratory qualifiers for the concentration of 2,4-dichlorophenol
DMP_24	Numeric	16	4	Concentration of 2,4-dimethylphenol ($\mu\text{g/L}$)
DMP_24_C	Character	4		Laboratory qualifiers for the concentration of 2,4-dimethylphenol
DNM_46	Numeric	16	4	Concentration of 4,6-dinitro-2-methylphenol ($\mu\text{g/L}$)
DNM_46_C	Character	4		Laboratory qualifiers for the concentration of 4,6-dinitro-2-methylphenol
DNP_24	Numeric	16	4	Concentration of 2,4-dinitrophenol ($\mu\text{g/L}$)

Table 5.1 (continued)

Variable name	Type	Width	Decimal places	Description
DNP_24_C	Character	4		Laboratory qualifiers for the concentration of 2,4-dinitrophenol
DUP_Q	Logic	1		Whether it is a duplicate sample (key) T = True, it is a duplicate sample F = False, it is not a duplicate sample
FILTER_Q	Logic	1		Whether it is a filtered sample (key) T = True, it is a filtered sample F = False, it is not a filtered sample
METH_2	Numeric	16	4	Concentration of 2-methylphenol ($\mu\text{g/L}$)
METH_2_C	Character	4		Laboratory qualifiers for the concentration of 2-methylphenol
METH_4	Numeric	16	4	Concentration of 4-methylphenol ($\mu\text{g/L}$)
METH_4_C	Character	4		Laboratory qualifiers for the concentration of 4-methylphenol
NITP_2	Numeric	16	4	Concentration of 2-nitrophenol ($\mu\text{g/L}$)
NITP_2_C	Character	4		Laboratory qualifiers for the concentration of 2-nitrophenol
NITP_4	Numeric	16	4	Concentration of 4-nitrophenol ($\mu\text{g/L}$)
NITP_4_C	Character	4		Laboratory qualifiers for the concentration of 4-nitrophenol
PENTCL	Numeric	16	4	Concentration of pentachlorophenol ($\mu\text{g/L}$)
PENTCL_C	Character	4		Laboratory qualifiers for the concentration of pentachlorophenol
PHENOL	Numeric	16	4	Concentration of phenol ($\mu\text{g/L}$)

Table 5.1 (continued)

Variable name	Type	Width	Decimal places	Description
PHENOL_C	Character	4		Laboratory qualifiers for the concentration of phenol
PLANT	Character	3		Plant that installed the well (key) K25 = K-25 X10 = ORNL Y12 = Y-12
SRC_ACID	Character	30		Source of the data The plant the data came from is listed first K25 = K-25 X10 = ORNL Y12 = Y-12 The type of the original data file is listed second CHEM = a groundwater chemical file WELL = a well construction file The original data file name is listed last, in parentheses
TC_245	Numeric	16	4	Concentration of 2,4,5-trichlorophenol ($\mu\text{g/L}$)
TC_245_C	Character	4		Laboratory qualifiers for the concentration of 2,4,5-trichlorophenol
TC_246	Numeric	16	4	Concentration of 2,4,6-trichlorophenol ($\mu\text{g/L}$)
TC_246_C	Character	4		Laboratory qualifiers for the concentration of 2,4,6-trichlorophenol
WELL	Character	20		Official well name (key)

Table 5.2. Description of ANION file

Variable name	Type	Width	Decimal places	Description
ALKBCR	Numeric	16	4	Concentration of bicarbonate alkalinity as CaCO ₃ (mg/L)
ALKBCR_C	Character	4		Laboratory qualifiers for the concentration of bicarbonate alkalinity
ALKCAR	Numeric	16	4	Concentration of carbonate alkalinity as CaCO ₃ (mg/L)
ALKCAR_C	Character	4		Laboratory qualifiers for the concentration of carbonate alkalinity
ALKTL	Numeric	16	4	Concentration of total alkalinity as CaCO ₃ (mg/L)
ALKTL_C	Character	4		Laboratory qualifiers for the concentration of total alkalinity
BROM	Numeric	16	4	Concentration of bromide (mg/L)
BROM_C	Character	4		Laboratory qualifiers for the concentration of bromide
CHLOR	Numeric	16	4	Concentration of chloride (mg/L)
CHLOR_C	Character	4		Laboratory qualifiers for the concentration of chloride
CYANID	Numeric	16	4	Concentration of total cyanide (mg/L)
CYANID_C	Character	4		Laboratory qualifiers for the concentration of total cyanide
DATE_SAM	Date	8		Date the groundwater sample was taken (key)
DUP_Q	Logical	1		Whether it is a duplicate sample (key) T = True, it is a duplicate sample F = False, it is not a duplicate sample

Table 5.2 (continued)

Variable name	Type	Width	Decimal places	Description
FILTER_Q	Logical	1		Whether it is a filtered sample (key) T = True, it is a filtered sample F = False, it is not a filtered sample
FLUOR	Numeric	16	4	Concentration of fluoride (mg/L)
FLUOR_C	Character	4		Laboratory qualifiers for the concentration of fluoride
IODIDE	Numeric	16	4	Concentration of iodide (mg/L)
IODIDE_C	Character	4		Laboratory qualifiers for the concentration of iodide
NITRAT	Numeric	16	4	Concentration of nitrate as N (mg/L)
NITRAT_C	Character	4		Laboratory qualifiers for the concentration of nitrate
NITRIT	Numeric	16	4	Concentration of nitrite as N (mg/L)
NITRIT_C	Character	4		Laboratory qualifiers for the concentration of nitrite
PHOSPA	Numeric	16	4	Concentration of phosphate (mg/L)
PHOSPA_C	Character	4		Laboratory qualifiers for the concentration of phosphate
PLANT	Character	3		Plant that installed the well (key) K25 = K-25 X10 = ORNL Y12 = Y-12

Table 5.2 (continued)

Variable name	Type	Width	Decimal places	Description
SRC_AN	Character	30		Source of the data The plant the data came from is listed first K25 = K-25 X10 = ORNL Y12 = Y-12 The type of the original data file is listed second CHEM = a groundwater analyses file WELL = a well construction file The original data file name is listed last, in parentheses
SULFAT	Numeric	16	4	Concentration of sulfate (mg/L)
SULFAT_C	Character	4		Laboratory qualifiers for the concentration of sulfate
SULFID	Numeric	16	4	Concentration of sulfide (mg/L)
SULFID_C	Character	4		Laboratory qualifiers for the concentration of sulfide
WELL	Character	20		Official well name (key)

Table 5.3. Description of BASE file

Variable name	Type	Width	Decimal places	Description
ACNTHE	Numeric	16	4	Concentration of acenaphthene ($\mu\text{g/L}$)
ACNTHE_C	Character	4		Laboratory qualifiers for the concentration of acenaphthene
ACNTHY	Numeric	16	4	Concentration of acenaphthylene ($\mu\text{g/L}$)
ACNTHY_C	Character	4		Laboratory qualifiers for the concentration of acenaphthylene
ANILIN	Numeric	16	4	Concentration of aniline ($\mu\text{g/L}$)
ANILIN_C	Character	4		Laboratory qualifiers for the concentration of aniline
ANTHRA	Numeric	16	4	Concentration of anthracene ($\mu\text{g/L}$)
ANTHRA_C	Character	4		Laboratory qualifiers for the concentration of anthracene
BEN	Numeric	16	4	Concentration of benzidine ($\mu\text{g/L}$)
BEN_C	Character	4		Laboratory qualifiers for the concentration of benzidine
BENAAN	Numeric	16	4	Concentration of benzo[a]anthracene ($\mu\text{g/L}$)
BENAAN_C	Character	4		Laboratory qualifiers for the concentration of benzo[a]anthracene
BENBFL	Numeric	16	4	Concentration of benzo[b]fluoranthene ($\mu\text{g/L}$)
BENBFL_C	Character	4		Laboratory qualifiers for the concentration of benzo[b]fluoranthene
BENKFL	Numeric	16	4	Concentration of benzo[k]fluoranthene ($\mu\text{g/L}$)

Table 5.3 (continued)

Variable name	Type	Width	Decimal places	Description
BENKFL_C	Character	4		Laboratory qualifiers for the concentration of benzo[<i>k</i>]fluoranthene
BENPER	Numeric	16	4	Concentration of benzo[<i>ghi</i>]perylene ($\mu\text{g/L}$)
BENPER_C	Character	4		Laboratory qualifiers for the concentration of benzo[<i>ghi</i>]perylene
BENPYR	Numeric	16	4	Concentration of benzo[<i>a</i>]pyrene ($\mu\text{g/L}$)
BENPYR_C	Character	4		Laboratory qualifiers for the concentration of benzo[<i>a</i>]pyrene
BENZAL	Numeric	16	4	Concentration of benzyl alcohol ($\mu\text{g/L}$)
BENZAL_C	Character	4		Laboratory qualifiers for the concentration of benzyl alcohol
BISETH	Numeric	16	4	Concentration of bis(2-chloroethyl)ether ($\mu\text{g/L}$)
BISETH_C	Character	4		Laboratory qualifiers for the concentration of bis(2-chloroethyl)ether
BISETP	Numeric	16	4	Concentration of bis(2-chloroisopropyl)ether ($\mu\text{g/L}$)
BISETP_C	Character	4		Laboratory qualifiers for the concentration of bis(2-chloroisopropyl)ether
BISMTH	Numeric	16	4	Concentration of bis(2-chloroethoxy)methane ($\mu\text{g/L}$)
BISMTH_C	Character	4		Laboratory qualifiers for the concentration of bis(2-chloroethoxy)methane
BISPHT	Numeric	16	4	Concentration of bis(2-ethylhexyl)phthalate ($\mu\text{g/L}$)

Table 5.3 (continued)

Variable name	Type	Width	Decimal places	Description
BISPHT_C	Character	4		Laboratory qualifiers for the concentration of bis(2-ethylhexyl)phthalate
BROPHE	Numeric	16	4	Concentration of 4-bromophenyl phenyl ether ($\mu\text{g/L}$)
BROPHE_C	Character	4		Laboratory qualifiers for the concentration of 4-bromophenyl phenyl ether
BUTBPH	Numeric	16	4	Concentration of butyl benzyl phthalate ($\mu\text{g/L}$)
BUTBPH_C	Character	4		Laboratory qualifiers for the concentration of butyl benzyl phthalate
CHLANI	Numeric	16	4	Concentration of 4-chloroaniline ($\mu\text{g/L}$)
CHLANI_C	Character	4		Laboratory qualifiers for the concentration of 4-chloroaniline
CHLNAP	Numeric	16	4	Concentration of 2-chloronaphthalene ($\mu\text{g/L}$)
CHLNAP_C	Character	4		Laboratory qualifiers for the concentration of 2-chloronaphthalene
CHLPPE	Numeric	16	4	Concentration of 4-chlorophenyl phenyl ether ($\mu\text{g/L}$)
CHLPPE_C	Character	4		Laboratory qualifiers for the concentration of 4-chlorophenyl phenyl ether
CHRYSE	Numeric	16	4	Concentration of chrysene ($\mu\text{g/L}$)
CHRYSE_C	Character	4		Laboratory qualifiers for the concentration of chrysene

Table 5.3 (continued)

Variable name	Type	Width	Decimal places	Description
D_24	Numeric	16	4	Concentration of 2,4-D ($\mu\text{g/L}$)
D_24_C	Character	4		Laboratory qualifiers for the concentration of 2,4-D
DATE_SAM	Date	8		Date the groundwater sample was taken (key)
DIACAL	Numeric	16	4	Concentration of diacetone alcohol ($\mu\text{g/L}$)
DIACAL_C	Character	4		Laboratory qualifiers for the concentration of diacetone alcohol
DIBANT	Numeric	16	4	Concentration of dibenzo[<i>a,h</i>]anthracene ($\mu\text{g/L}$)
DIBANT_C	Character	4		Laboratory qualifiers for the concentration of dibenzo[<i>a,h</i>]anthracene
DIBFUR	Numeric	16	4	Concentration of dibenzofuran ($\mu\text{g/L}$)
DIBFUR_C	Character	4		Laboratory qualifiers for the concentration of dibenzofuran
DIC_12	Numeric	16	4	Concentration of 1,2-dichlorobenzene ($\mu\text{g/L}$)
DIC_12_C	Character	4		Laboratory qualifiers for the concentration of 1,2-dichlorobenzene
DIC_13	Numeric	16	4	Concentration of 1,3-dichlorobenzene ($\mu\text{g/L}$)
DIC_13_C	Character	4		Laboratory qualifiers for the concentration of 1,3-dichlorobenzene
DIC_14	Numeric	16	4	Concentration of 1,4-dichlorobenzene ($\mu\text{g/L}$)

Table 5.3 (continued)

Variable name	Type	Width	Decimal places	Description
DIC_14_C	Character	4		Laboratory qualifiers for the concentration of 1,4-dichlorobenzene
DIC_33	Numeric	16	4	Concentration of 3,3'-dichlorobenzidine ($\mu\text{g/L}$)
DIC_33_C	Character	4		Laboratory qualifiers for the concentration of 3,3'-dichlorobenzidine
DIEPHT	Numeric	16	4	Concentration of diethyl phthalate ($\mu\text{g/L}$)
DIEPHT_C	Character	4		Laboratory qualifiers for the concentration of diethyl phthalate
DMTPHT	Numeric	16	4	Concentration of dimethyl phthalate ($\mu\text{g/L}$)
DMTPHT_C	Character	4		Laboratory qualifiers for the concentration of dimethyl phthalate
DNPHT	Numeric	16	4	Concentration of di- <i>n</i> -butyl phthalate ($\mu\text{g/L}$)
DNPHT_C	Character	4		Laboratory qualifiers for the concentration of di- <i>n</i> -butyl phthalate
DNI_24	Numeric	16	4	Concentration of 2,4-dinitrotoluene ($\mu\text{g/L}$)
DNI_24_C	Character	4		Laboratory qualifiers for the concentration of 2,4-dinitrotoluene
DNI_26	Numeric	16	4	Concentration of 2,6-dinitrotoluene ($\mu\text{g/L}$)
DNI_26_C	Character	4		Laboratory qualifiers for the concentration of 2,6-dinitrotoluene
DNOCTP	Numeric	16	4	Concentration of di- <i>n</i> -octyl phthalate ($\mu\text{g/L}$)

Table 5.3 (continued)

Variable name	Type	Width	Decimal places	Description
DNOCTP_C	Character	4		Laboratory qualifiers for the concentration of di- <i>n</i> -octyl phthalate
DUP_Q	Logical	1		Whether it is a duplicate sample (key) T = True, it is a duplicate sample F = False, it is not a duplicate sample
FILTER_Q	Logical	1		Whether it is a filtered sample (key) T = True, it is a filtered sample F = False, it is not a filtered sample
FLUORA	Numeric	16	4	Concentration of fluoranthene ($\mu\text{g/L}$)
FLUORA_C	Character	4		Laboratory qualifiers for the concentration of fluoranthene
FLUORE	Numeric	16	4	Concentration of fluorene ($\mu\text{g/L}$)
FLUORE_C	Character	4		Laboratory qualifiers for the concentration of fluorene
HXCBEN	Numeric	16	4	Concentration of hexachlorobenzene ($\mu\text{g/L}$)
HXCBEN_C	Character	4		Laboratory qualifiers for the concentration of hexachlorobenzene
HXCBUT	Numeric	16	4	Concentration of hexachlorobutadiene ($\mu\text{g/L}$)
HXCBUT_C	Character	4		Laboratory qualifiers for the concentration of hexachlorobutadiene
HXCCYC	Numeric	16	4	Concentration of hexachlorocyclopentadiene ($\mu\text{g/L}$)
HXCCYC_C	Character	4		Laboratory qualifiers for the concentration of hexachlorocyclopentadiene
HXCETA	Numeric	16	4	Concentration of hexachloroethane ($\mu\text{g/L}$)

Table 5.3 (continued)

Variable name	Type	Width	Decimal places	Description
HXCETA_C	Character	4		Laboratory qualifiers for the concentration of hexachloroethane
INDPYR	Numeric	16	4	Concentration of indeno(1,2,3- <i>cd</i>)pyrene ($\mu\text{g/L}$)
INDPYR_C	Character	4		Laboratory qualifiers for the concentration of indeno(1,2,3- <i>cd</i>)pyrene
ISOPRO	Numeric	16	4	Concentration of isophorone ($\mu\text{g/L}$)
ISOPRO_C	Character	4		Laboratory qualifiers for the concentration of isophorone
MTNP_2	Numeric	16	4	Concentration of 2-methylnaphthalene ($\mu\text{g/L}$)
MTNP_2_C	Character	4		Laboratory qualifiers for the concentration of 2-methylnaphthalene
NAPHTA	Numeric	16	4	Concentration of naphthalene ($\mu\text{g/L}$)
NAPHTA_C	Character	4		Laboratory qualifiers for the concentration of naphthalene
NBUTBZ	Numeric	16	4	Concentration of <i>n</i> -butyl benzenesulfonamide ($\mu\text{g/L}$)
NBUTBZ_C	Character	4		Laboratory qualifiers for the concentration of <i>n</i> -butyl benzenesulfonamide
NTAN_2	Numeric	16	4	Concentration of 2-nitroaniline ($\mu\text{g/L}$)
NTAN_2_C	Character	4		Laboratory qualifiers for the concentration of 2-nitroaniline
NTAN_3	Numeric	16	4	Concentration of 3-nitroaniline ($\mu\text{g/L}$)
NTAN_3_C	Character	4		Laboratory qualifiers for the concentration of 3-nitroaniline

Table 5.3 (continued)

Variable name	Type	Width	Decimal places	Description
NTAN_4	Numeric	16	4	Concentration of 4-nitroaniline ($\mu\text{g/L}$)
NTAN_4_C	Character	4		Laboratory qualifiers for the concentration of 4-nitroaniline
NTBENZ	Numeric	16	4	Concentration of nitrobenzene ($\mu\text{g/L}$)
NTBENZ_C	Character	4		Laboratory qualifiers for the concentration of nitrobenzene
NTMETH	Numeric	16	4	Concentration of <i>N</i> -nitrosodimethylamine ($\mu\text{g/L}$)
NTMETH_C	Character	4		Laboratory qualifiers for the concentration of <i>N</i> -nitrosodimethylamine
NTNPRO	Numeric	16	4	Concentration of <i>N</i> -nitrosodi- <i>n</i> -propylamine ($\mu\text{g/L}$)
NTNPRO_C	Character	4		Laboratory qualifiers for the concentration of <i>N</i> -nitrosodi- <i>n</i> -propylamine
NTPHEN	Numeric	16	4	Concentration of <i>N</i> -nitrosodiphenylamine ($\mu\text{g/L}$)
NTPHEN_C	Character	4		Laboratory qualifiers for the concentration of <i>N</i> -nitrosodiphenylamine
PHENAN	Numeric	16	4	Concentration of phenanthrene ($\mu\text{g/L}$)
PHENAN_C	Character	4		Laboratory qualifiers for the concentration of phenanthrene
PLANT	Character	3		Plant that installed the well (key) K25 = K-25 X10 = ORNL Y12 = Y-12
PYRENE	Numeric	16	4	Concentration of pyrene ($\mu\text{g/L}$)

Table 5.3 (continued)

Variable name	Type	Width	Decimal places	Description
PYRENE_C	Character	4		Laboratory qualifiers for the concentration of pyrene
SRC_BASE	Character	30		Source of the data The plant the data came from is listed first K25 = K-25 X10 = ORNL Y12 = Y-12 The type of the original data file is listed second CHEM = a groundwater analyses file WELL = a well construction file The original data file name is listed last, in parentheses
T_245	Numeric	16	4	Concentration of 2,4,5-T ($\mu\text{g/L}$)
T_245_C	Character	4		Laboratory qualifiers for the concentration of 2,4,5-T
TB_124	Numeric	16	4	Concentration of 1,2,4-trichlorobenzene ($\mu\text{g/L}$)
TB_124_C	Character	4		Laboratory qualifiers for the concentration of 1,2,4-trichlorobenzene
WELL	Character	20		Official well name (key)

Table 5.4. Description of FIELD file

Variable name	Type	Width	Decimal places	Description
CON_F1	Numeric	16	4	First field specific conductance of water ($\mu\text{mhos/cm}$)
CON_F1_C	Character	4		Laboratory qualifiers for the first field specific conductance of water
CON_F2	Numeric	16	4	Second field specific conductance of water ($\mu\text{mhos/cm}$)
CON_F2_C	Character	4		Laboratory qualifiers for the second field specific conductance of water
CON_F3	Numeric	16	4	Third field specific conductance of water ($\mu\text{mhos/cm}$)
CON_F3_C	Character	4		Laboratory qualifiers for the third field specific conductance of water
CON_F4	Numeric	16	4	Fourth field specific conductance of water ($\mu\text{mhos/cm}$)
CON_F4_C	Character	4		Laboratory qualifiers for the fourth field specific conductance of water
CON_F5	Numeric	16	4	Fifth field specific conductance of water ($\mu\text{mhos/cm}$)
CON_F5_C	Character	4		Laboratory qualifiers for the fifth field specific conductance of water
CON_F6	Numeric	16	4	Sixth field specific conductance of water ($\mu\text{mhos/cm}$)
CON_F6_C	Character	4		Laboratory qualifiers for the sixth field specific conductance of water
CON_F7	Numeric	16	4	Seventh field specific conductance of water ($\mu\text{mhos/cm}$)

Table 5.4 (continued)

Variable name	Type	Width	Decimal places	Description
CON_F7_C	Character	4		Laboratory qualifiers for the seventh field specific conductance of water
DATE_SAM	Date	8		Date the groundwater sample was taken (key)
DOXY_1	Numeric	16	4	First field dissolved oxygen (ppm)
DOXY_1_C	Character	4		Laboratory qualifiers for the first field dissolved oxygen
DOXY_2	Numeric	16	4	Second field dissolved oxygen (ppm)
DOXY_2_C	Character	4		Laboratory qualifiers for the second field dissolved oxygen
DOXY_3	Numeric	16	4	Third field dissolved oxygen (ppm)
DOXY_3_C	Character	4		Laboratory qualifiers for the third field dissolved oxygen
DOXY_4	Numeric	16	4	Fourth field dissolved oxygen (ppm)
DOXY_4_C	Character	4		Laboratory qualifiers for the fourth field dissolved oxygen
DUP_Q	Logical	1		Whether it is a duplicate sample (key) T = True, it is a duplicate sample F = False, it is not a duplicate sample
FILTER_Q	Logical	1		Whether it is a filtered sample (key) T = True, it is a filtered sample F = False, it is not a filtered sample
PH_F1	Numeric	16	4	First field pH (standard units)
PH_F1_C	Character	4		Laboratory qualifiers for the first field pH
PH_F2	Numeric	16	4	Second field pH (standard units)

Table 5.4 (continued)

Variable name	Type	Width	Decimal places	Description
PH_F2_C	Character	4		Laboratory qualifiers for the second field pH
PH_F3	Numeric	16	4	Third field pH (standard units)
PH_F3_C	Character	4		Laboratory qualifiers for the third field pH
PH_F4	Numeric	16	4	Fourth field pH (standard units)
PH_F4_C	Character	4		Laboratory qualifiers for the fourth field pH
PH_F5	Numeric	16	4	Fifth field pH (standard units)
PH_F5_C	Character	4		Laboratory qualifiers for the fifth field pH
PH_F6	Numeric	16	4	Sixth field pH (standard units)
PH_F6_C	Character	4		Laboratory qualifiers for the sixth field pH
PH_F7	Numeric	16	4	Seventh field pH (standard units)
PH_F7_C	Character	4		Laboratory qualifiers for the seventh field pH
PLANT	Character	3		Plant that installed the well (key) K25 = K-25 X10 = ORNL Y12 = Y-12
REDOX	Numeric	16	4	Field redox (mV)
REDOX_C	Character	4		Laboratory qualifiers for field redox

Table 5.4 (continued)

Variable name	Type	Width	Decimal places	Description
SRC_FLD	Character	30		Source of the data The plant the data came from is listed first K25 = K-25 X10 = ORNL Y12 = Y-12 The type of the original data file is listed second CHEM = a groundwater analyses file WELL = a well construction file The original data file name is listed last, in parentheses
TMP_F1	Numeric	16	4	First field temperature (degrees Celsius)
TMP_F1_C	Character	4		Laboratory qualifiers for the first field temperature
TMP_F2	Numeric	16	4	Second field temperature (degrees Celsius)
TMP_F2_C	Character	4		Laboratory qualifiers for the second field temperature
TMP_F3	Numeric	16	4	Third field temperature (degrees Celsius)
TMP_F3_C	Character	4		Laboratory qualifiers for the third field temperature
TMP_F4	Numeric	16	4	Fourth field temperature (degrees Celsius)
TMP_F4_C	Character	4		Laboratory qualifiers for the fourth field temperature
TMP_F5	Numeric	16	4	Fifth field temperature (degrees Celsius)
TMP_F5_C	Character	4		Laboratory qualifiers for the fifth field temperature

Table 5.4 (continued)

Variable name	Type	Width	Decimal places	Description
TMP_F6	Numeric	16	4	Sixth field temperature (degrees Celsius)
TMP_F6_C	Character	4		Laboratory qualifiers for the sixth field temperature
TMP_F7	Numeric	16	4	Seventh field temperature (degrees Celsius)
TMP_F7_C	Character	4		Laboratory qualifiers for the seventh field temperature
WELL	Character	20		Official well name (key)

Table 5.5. Description of GEN file

Variable name	Type	Width	Decimal places	Description
ACT_INAC	Character	10		Whether it is an active or an inactive well ACTIVE = it is an active well (i.e., the well is available for sampling) INACTIVE = it is an inactive well (i.e., the well has been destroyed, capped, covered, or damaged) UNKNOWN = the wells availability for sampling is not known
AQUIFER	Character	20		The generalized aquifers that the packed interval or open interval of a well is completed UNC = Unconsolidated overburden BRW = Weathered bedrock BDR = Unweathered bedrock
CHMDAT	Character	120		List of the data sets that contain groundwater analysis results for each well ACID = ACID_1.DBF ANION = ANION_1.DBF BASE = BASE_1.DBF FIELD = FIELD_1.DBF METAL = METAL_1.DBF MISC = MISC_1.DBF PCB = PCB_1.DBF PEST = PEST_1.DBF RAD = RAD_1.DBF VOC = VOC_1.DBF
EAST	Numeric	16	4	East coordinate. Coordinate grid system is found in the GRID variable
ELEVAT	Numeric	16	4	Ground surface elevation of the well (feet above mean sea level)

Table 5.5 (continued)

Variable name	Type	Width	Decimal places	Description
GEO_FORM	Character	72		<p>Geologic formation that the packed interval or open interval of a well is completed. Y-12 data contain all of the formations a well penetrated and some of the depths where the formations were encountered (data separated by /). Y-12 data are prefaced with the major formation group separated from more detailed divisions by a colon</p> <p>A = Stockdale Unit A B = Stockdale Unit B C = Stockdale Unit C CHICK = Chickamauga Group CON = Conasauga Group COPPER RIDGE = Copper Ridge Dolomite D = Stockdale Unit D E = Stockdale Unit E G = Stockdale Unit G KNOX = Knox Group MARYVILLE = Maryville Limestone MAYNARDVILLE = Maynardville Limestone NOLICHICKY = Nolichicky Shale PUMPKIN VALLEY = Pumpkin Valley Shale ROME = Rome Formation ROGERSVILLE = Rogersville Shale RUTLEDGE = Rutledge Limestone</p>
GRID	Character	15		Coordinate grid system for the well location
HYDCON	Numeric	16	4	Hydraulic conductivity (m/d)
LOGS_Q	Logical	1		<p>Indicates whether any geologic or geophysical logs were obtained</p> <p>T = True, a log was obtained F = False, a log was not obtained</p>

Table 5.5 (continued)

Variable name	Type	Width	Decimal places	Description
NORTH	Numeric	16	4	North coordinate. Coordinate grid system is found in the GRID variable
OPEN_SCR	Character	10		Indicates whether the well has an open or screened interval OPEN = an open interval SCREENED = a screened interval UNKNOWN = it is not possible to determine from the source data base if the interval is open or screened OTHER = a well that does not fall into the previous categories
PLANT	Character	20		Plant that installed the well (key) K25 = K-25 X10 = ORNL Y12 = Y-12
ROCTOP	Numeric	16	4	Depth to the top of rock (ft)
ROCTOPFR	Numeric	16	4	Depth to the top of fresh rock (ft)
ROCTOPWT	Numeric	16	4	Depth to the top of weathered rock (ft)
SITE	Character	27		Name of the site where the well is located

Table 5.5 (continued)

Variable name	Type	Width	Decimal places	Description
SRC_GEN	Character	30		Source of the data The plant the data came from is listed first K25 = K-25 X10 = ORNL Y12 = Y-12 The type of the original data file is listed second CHEM = a groundwater analyses file WELL = a well construction file The original data file name is listed last, in parentheses
TRANS	Numeric	16	4	Transmissivity (m ² /d)
WAG	Character	10		Name of the waste area grouping
WELALT_1	Character	20		First alternate well name
WELTYP_1	Character	20		First description of well type
WELTYP_2	Character	40		Second description of well type
WELL	Character	20		Official well name (key)

Table 5.6. Description of METAL file

Variable name	Type	Width	Decimal places	Description
ALUM_I	Numeric	16	4	Concentration of aluminum (ICAP, mg/L)
ALUM_I_C	Character	4		Laboratory qualifiers for the concentration of aluminum (ICAP)
ANT_I	Numeric	16	4	Concentration of antimony (ICAP, mg/L)
ANT_I_C	Character	4		Laboratory qualifiers for the concentration of antimony (ICAP)
ARSN_A	Numeric	16	4	Concentration of arsenic (AAS, mg/L)
ARSN_A_C	Character	4		Laboratory qualifiers for the concentration of arsenic (AAS)
ARSN_I	Numeric	16	4	Concentration of arsenic (ICAP, mg/L)
ARSN_I_C	Character	4		Laboratory qualifiers for the concentration of arsenic (ICAP)
BARI_A	Numeric	16	4	Concentration of barium (AAS, mg/L)
BARI_A_C	Character	4		Laboratory qualifiers for the concentration of barium (AAS)
BARI_I	Numeric	16	4	Concentration of barium (ICAP, mg/L)
BARI_I_C	Character	4		Laboratory qualifiers for the concentration of barium (ICAP)
BERY_A	Numeric	16	4	Concentration of beryllium (AAS, mg/L)
BERY_A_C	Character	4		Laboratory qualifiers for the concentration of beryllium (AAS)
BERY_I	Numeric	16	4	Concentration of beryllium (ICAP, mg/L)
BERY_I_C	Character	4		Laboratory qualifiers for the concentration of beryllium (ICAP)

Table 5.6 (continued)

Variable name	Type	Width	Decimal places	Description
BOR_I	Numeric	16	4	Concentration of boron (ICAP, mg/L)
BOR_I_C	Character	4		Laboratory qualifiers for the concentration of boron (ICAP)
CADM_A	Numeric	16	4	Concentration of cadmium (AAS, mg/L)
CADM_A_C	Character	4		Laboratory qualifiers for the concentration of cadmium (AAS)
CADM_I	Numeric	16	4	Concentration of cadmium (ICAP, mg/L)
CADM_I_C	Character	4		Laboratory qualifiers for the concentration of cadmium (ICAP)
CADM_P	Numeric	16	4	Concentration of cadmium (Polar, mg/L)
CADM_P_C	Character	4		Laboratory qualifiers for the concentration of cadmium (Polar)
CALC_I	Numeric	16	4	Concentration of calcium (ICAP, mg/L)
CALC_I_C	Character	4		Laboratory qualifiers for the concentration of calcium (ICAP)
CHRO_A	Numeric	16	4	Concentration of chromium (AAS, mg/L)
CHRO_A_C	Character	4		Laboratory qualifiers for the concentration of chromium (AAS)
CHRO_I	Numeric	16	4	Concentration of chromium (ICAP, mg/L)
CHRO_I_C	Character	4		Laboratory qualifiers for the concentration of chromium (ICAP)
CHRO_P	Numeric	16	4	Concentration of chromium (Polar, mg/L)
CHRO_P_C	Character	4		Laboratory qualifiers for the concentration of chromium (Polar)

Table 5.6 (continued)

Variable name	Type	Width	Decimal places	Description
COBL_I	Numeric	16	4	Concentration of cobalt (ICAP, mg/L)
COBL_I_C	Character	4		Laboratory qualifiers for the concentration of cobalt (ICAP)
COPP_I	Numeric	16	4	Concentration of copper (ICAP, mg/L)
COPP_I_C	Character	4		Laboratory qualifiers for the concentration of copper (ICAP)
DATE_SAM	Date	8		Date the groundwater sample was taken (key)
DUP_Q	Logical	1		Whether it is a duplicate sample (key) T = True, it is a duplicate sample F = False, it is not a duplicate sample
FILTER_Q	Logical	1		Whether it is a filtered sample (key) T = True, it is a filtered sample F = False, it is not a filtered sample
GALI_I	Numeric	16	4	Concentration of gallium (ICAP, mg/L)
GALI_I_C	Character	4		Laboratory qualifiers for the concentration of gallium
IRON_A	Numeric	16	4	Concentration of iron (AAS, mg/L)
IRON_A_C	Character	4		Laboratory qualifiers for the concentration of iron
IRON_I	Numeric	16	4	Concentration of iron (ICAP, mg/L)
IRON_I_C	Character	4		Laboratory qualifiers for the concentration of iron (ICAP)
LEAD_A	Numeric	16	4	Concentration of lead (AAS, mg/L)
LEAD_A_C	Character	4		Laboratory qualifiers for the concentration of lead (AAS)

Table 5.6 (continued)

Variable name	Type	Width	Decimal places	Description
LEAD_P	Numeric	16	4	Concentration of lead (Polar, mg/L)
LEAD_P_C	Character	4		Laboratory qualifiers for the concentration of lead (Polar)
LITH_I	Numeric	16	4	Concentration of lithium (ICAP, mg/L)
LITH_I_C	Character	4		Laboratory qualifiers for the concentration of lithium (ICAP)
MAGN_I	Numeric	16	4	Concentration of magnesium (ICAP, mg/L)
MAGN_I_C	Character	4		Laboratory qualifiers for the concentration of magnesium (ICAP)
MANG_A	Numeric	16	4	Concentration of manganese (AAS, mg/L)
MANG_A_C	Character	4		Laboratory qualifiers for the concentration of manganese (AAS)
MANG_I	Numeric	16	4	Concentration of manganese (ICAP, mg/L)
MANG_I_C	Character	4		Laboratory qualifiers for the concentration of manganese (ICAP)
MERC_V	Numeric	16	4	Concentration of mercury (CVAA, mg/L)
MERC_V_C	Character	4		Laboratory qualifiers for the concentration of mercury (CVAA)
MOLY_I	Numeric	16	4	Concentration of molybdenum (ICAP, mg/L)
MOLY_I_C	Character	4		Laboratory qualifiers for the concentration of molybdenum (ICAP)
NICK_I	Numeric	16	4	Concentration of nickel (ICAP, mg/L)

Table 5.6 (continued)

Variable name	Type	Width	Decimal places	Description
NICK_I_C	Character	4		Laboratory qualifiers for the concentration of nickel (ICAP)
NIOB_I	Numeric	16	4	Concentration of niobium (ICAP, mg/L)
NIOB_I_C	Character	4		Laboratory qualifiers for the concentration of niobium (ICAP)
PHOS_I	Numeric	16	4	Concentration of phosphorus (ICAP, mg/L)
PHOS_I_C	Character	4		Laboratory qualifiers for the concentration of phosphorus (ICAP)
PLANT	Character	3		Plant that installed the well (key) K25 = K-25 X10 = ORNL Y12 = Y-12
POTA_E	Numeric	16	4	Concentration of potassium (Flame - emission, mg/L)
POTA_E_C	Character	4		Laboratory qualifiers for the concentration of potassium (Flame - emission)
POTA_I	Numeric	16	4	Concentration of potassium (ICAP, mg/L)
POTA_I_C	Character	4		Laboratory qualifiers for the concentration of potassium (ICAP)
SELE_A	Numeric	16	4	Concentration of selenium (AAS, mg/L)
SELE_A_C	Character	4		Laboratory qualifiers for the concentration of selenium (AAS)
SELE_I	Numeric	16	4	Concentration of selenium (ICAP, mg/L)
SELE_I_C	Character	4		Laboratory qualifiers for the concentration of selenium (ICAP)

Table 5.6 (continued)

Variable name	Type	Width	Decimal places	Description
SILI_I	Numeric	16	4	Concentration of silicon (ICAP, mg/L)
SILI_I_C	Character	4		Laboratory qualifiers for the concentration of silicon (ICAP)
SILV_A	Numeric	16	4	Concentration of silver (AAS, mg/L)
SILV_A_C	Character	4		Laboratory qualifiers for the concentration of silver (AAS)
SILV_I	Numeric	16	4	Concentration of silver (ICAP, mg/L)
SILV_I_C	Character	4		Laboratory qualifiers for the concentration of silver (ICAP)
SODI_A	Numeric	16	4	Concentration of sodium (AAS, mg/L)
SODI_A_C	Character	4		Laboratory qualifiers for the concentration of sodium (AAS)
SODI_I	Numeric	16	4	Concentration of sodium (ICAP, mg/L)
SODI_I_C	Character	4		Laboratory qualifiers for the concentration of sodium (ICAP)
SRC_MET	Character	30		Source of the data The plant the data came from is listed first K25 = K-25 X10 = ORNL Y12 = Y-12 The type of the original data file is listed second CHEM = a groundwater analyses file WELL = a well construction file The original data file name is listed last, in parentheses
STRO_I	Numeric	16	4	Concentration of strontium (ICAP, mg/L)

Table 5.6 (continued)

Variable name	Type	Width	Decimal places	Description
STRO_I_C	Character	4		Laboratory qualifiers for the concentration of strontium (ICAP)
THAL_A	Numeric	16	4	Concentration of thallium (AAS, mg/L)
THAL_A_C	Character	4		Laboratory qualifiers for the concentration of thallium (AAS)
THOR_I	Numeric	16	4	Concentration of thorium (ICAP, mg/L)
THOR_I_C	Character	4		Laboratory qualifiers for the concentration of thorium (ICAP)
TIN_A	Numeric	16	4	Concentration of tin (AAS, mg/L)
TIN_A_C	Character	4		Laboratory qualifiers for the concentration of tin (AAS)
TIN_I	Numeric	16	4	Concentration of tin (ICAP, mg/L)
TIN_I_C	Character	4		Laboratory qualifiers for the concentration of tin (ICAP)
TITA_I	Numeric	16	4	Concentration of titanium (ICAP, mg/L)
TITA_I_C	Character	4		Laboratory qualifiers for the concentration of titanium (ICAP)
URAN_F	Numeric	16	4	Concentration of uranium (fluorometric, mg/L)
URAN_F_C	Character	4		Laboratory qualifiers for the concentration of uranium (fluorometric)
URAN_I	Numeric	16	4	Concentration of uranium (ICAP, mg/L)
URAN_I_C	Character	4		Laboratory qualifiers for the concentration of uranium (ICAP)
VANA_I	Numeric	16	4	Concentration of vanadium (ICAP, mg/L)

Table 5.6 (continued)

Variable name	Type	Width	Decimal places	Description
VANA_I_C	Character	4		Laboratory qualifiers for the concentration of vanadium (ICAP)
WELL	Character	20		Official well name (key)
ZINC_I	Numeric	16	4	Concentration of zinc (ICAP, mg/L)
ZINC_I_C	Character	4		Laboratory qualifiers for the concentration of zinc (ICAP)
ZIRC_I	Numeric	16	4	Concentration of zirconium (ICAP, mg/L)
ZIRC_I_C	Character	4		Laboratory qualifiers for the concentration of zirconium (ICAP)

Table 5.7. Description of MISC file

Variable name	Type	Width	Decimal places	Description
AMMONI	Numeric	16	4	Concentration of ammonia (as N, mg/L)
AMMONI_C	Character	4		Laboratory qualifiers for the concentration of ammonia
BIOXD	Numeric	16	4	Concentration of biochemical oxygen demand (mg/L)
BIOXD_C	Character	4		Laboratory qualifiers for the concentration of biochemical oxygen demand
CHMOXD	Numeric	16	4	Concentration of chemical oxygen demand (mg/L)
CHMOXD_C	Character	4		Laboratory qualifiers for the concentration of chemical oxygen demand
COLIFO	Numeric	16	4	Concentration of total coliform (colonies/100 mL)
COLIFO_C	Character	4		Laboratory qualifiers for the concentration of total coliform
CON_L1	Numeric	16	4	First laboratory specific conductance of water (μ mhos/cm)
CON_L1_C	Character	4		Laboratory qualifiers for the first laboratory specific conductance of water
CON_L2	Numeric	16	4	Second laboratory specific conductance of water (μ mhos/cm)
CON_L2_C	Character	4		Laboratory qualifiers for the second laboratory specific conductance of water
CON_L3	Numeric	16	4	Third laboratory specific conductance of water (μ mhos/cm)

Table 5.7 (continued)

Variable name	Type	Width	Decimal places	Description
CON_L3_C	Character	4		Laboratory qualifiers for the third laboratory specific conductance of water
CON_L4	Numeric	16	4	Fourth laboratory specific conductance of water ($\mu\text{mhos/cm}$)
CON_L4_C	Character	4		Laboratory qualifiers for the fourth laboratory specific conductance of water
DATE_SAM	Date	8		Date the groundwater sample was taken (key)
DUP_Q	Logical	1		Whether it is a duplicate sample (key) T = True, it is a duplicate sample F = False, it is not a duplicate sample
FECCOL	Numeric	16	4	Concentration of fecal coliform (col/100 ML)
FECCOL_C	Character	4		Laboratory qualifiers for the concentration of fecal coliform
FILTER_Q	Logical	1		Whether it is a filtered sample (key) T = True, it is a filtered sample F = False, it is not a filtered sample
HARD	Numeric	16	4	Concentration of hardness (mg/L)
HARD_C	Character	4		Laboratory qualifiers for the concentration of hardness
HYDROX	Numeric	16	4	Concentration of hydroxyl (mg/L)
HYDROX_C	Character	4		Laboratory qualifiers for the concentration of hydroxyl
NIT_KJ	Numeric	16	4	Concentration of total Kjeldahl nitrogen (mg/L)

Table 5.7 (continued)

Variable name	Type	Width	Decimal places	Description
NIT_KJ_C	Character	4		Laboratory qualifiers for the concentration of total Kjeldahl nitrogen
PH_L1	Numeric	16	4	First laboratory pH (standard units)
PH_L1_C	Character	4		Laboratory qualifiers for the first laboratory pH
PH_L2	Numeric	16	4	Second laboratory pH (standard units)
PH_L2_C	Character	4		Laboratory qualifiers for the second laboratory pH
PH_L3	Numeric	16	4	Third laboratory pH (standard units)
PH_L3_C	Character	4		Laboratory qualifiers for the third laboratory pH
PH_L4	Numeric	16	4	Fourth laboratory pH (standard units)
PH_L4_C	Character	4		Laboratory qualifiers for the fourth laboratory pH
PHN_TL	Numeric	16	4	Concentration of total phenols (mg/L)
PHN_TL_C	Character	4		Laboratory qualifiers for the concentration of total phenols
PLANT	Character	3		Plant that installed the well (key) K25 = K-25 X10 = ORNL Y12 = Y-12

Table 5.7 (continued)

Variable name	Type	Width	Decimal places	Description
SRC_MISC	Character	30		Source of the data The plant the data came from is listed first K25 = K-25 X10 = ORNL Y12 = Y-12 The type of the original data file is listed second CHEM = a groundwater analyses file WELL = a well construction file The original data file name is listed last, in parentheses
TL_DIS	Numeric	16	4	Concentration of total dissolved solids (mg/L)
TL_DIS_C	Character	4		Laboratory qualifiers for the concentration of total dissolved solids
TL_SUS	Numeric	16	4	Concentration of total suspended solids (mg/L)
TL_SUS_C	Character	4		Laboratory qualifiers for the concentration of total suspended solids
TOC_1	Numeric	16	4	Concentration of the first total organic carbon (mg/L)
TOC_1_C	Character	4		Laboratory qualifiers for the concentration of the first total organic carbon
TOC_2	Numeric	16	4	Concentration of the second total organic carbon (mg/L)
TOC_2_C	Character	4		Laboratory qualifiers for the concentration of the second total organic carbon

Table 5.7 (continued)

Variable name	Type	Width	Decimal places	Description
TOC_3	Numeric	16	4	Concentration of the third total organic carbon (mg/L)
TOC_3_C	Character	4		Laboratory qualifiers for the concentration of the third total organic carbon
TOC_4	Numeric	16	4	Concentration of the fourth total organic carbon (mg/L)
TOC_4_C	Character	4		Laboratory qualifiers for the concentration of the fourth total organic carbon
TOCL_1	Numeric	16	4	Concentration of the first total organic chloride ($\mu\text{g/L}$)
TOCL_1_C	Character	4		Laboratory qualifiers for the concentration of the first total organic chloride
TOCL_2	Numeric	16	4	Concentration of the second total organic chloride ($\mu\text{g/L}$)
TOCL_2_C	Character	4		Laboratory qualifiers for the concentration of the second total organic chloride
TOCL_3	Numeric	16	4	Concentration of the third total organic chloride ($\mu\text{g/L}$)
TOCL_3_C	Character	4		Laboratory qualifiers for the concentration of the third total organic chloride
TOCL_4	Numeric	16	4	Concentration of the fourth total organic chloride ($\mu\text{g/L}$)

Table 5.7 (continued)

Variable name	Type	Width	Decimal places	Description
TOCL_4_C	Character	4		Laboratory qualifiers for the concentration of the fourth total organic chloride
TOX_1	Numeric	16	4	Concentration of the first total organic halides ($\mu\text{g/L}$)
TOX_1_C	Character	4		Laboratory qualifiers for the concentration of the first total organic halides
TOX_2	Numeric	16	4	Concentration of the second total organic halides ($\mu\text{g/L}$)
TOX_2_C	Character	4		Laboratory qualifiers for the concentration of the second total organic halides
TOX_3	Numeric	16	4	Concentration of the third total organic halides ($\mu\text{g/L}$)
TOX_3_C	Character	4		Laboratory qualifiers for the concentration of the third total organic halides
TOX_4	Numeric	16	4	Concentration of the fourth total organic halides ($\mu\text{g/L}$)
TOX_4_C	Character	4		Laboratory qualifiers for the concentration of the fourth total organic halides
TURBID	Numeric	16	4	Turbidity (NTU)
TURBID_C	Character	4		Laboratory qualifiers for turbidity
WAT_LEV	Numeric	16	4	Water level (ft) below measuring point
WELL	Character	20		Official well name (key)

Table 5.8. Description of PCB file

Variable name	Type	Width	Decimal places	Description
DATE_SAM	Date	8		Date the groundwater sample was taken (key)
DUP_Q	Logical	1		Whether it is a duplicate sample (key) T = True, it is a duplicate sample F = False, it is not a duplicate sample
FILTER_Q	Logical	1		Whether it is a filtered sample (key) T = True, it is a filtered sample F = False, it is not a filtered sample
PCB_16	Numeric	16	4	Concentration of PCB (Aroclor 1016, $\mu\text{g/L}$)
PCB_16_C	Character	4		Laboratory qualifiers for the concentration of PCB (Aroclor 1016)
PCB_21	Numeric	16	4	Concentration of PCB (Aroclor 1221, $\mu\text{g/L}$)
PCB_21_C	Character	4		Laboratory qualifiers for the concentration of PCB (Aroclor 1221)
PCB_32	Numeric	16	4	Concentration of PCB (Aroclor 1232, $\mu\text{g/L}$)
PCB_32_C	Character	4		Laboratory qualifiers for the concentration of PCB (Aroclor 1232)
PCB_42	Numeric	16	4	Concentration of PCB (Aroclor 1242, $\mu\text{g/L}$)
PCB_42_C	Character	4		Laboratory qualifiers for the concentration of PCB (Aroclor 1242)
PCB_48	Numeric	16	4	Concentration of PCB (Aroclor 1248, $\mu\text{g/L}$)
PCB_48_C	Character	4		Laboratory qualifiers for the concentration of PCB (Aroclor 1248)

Table 5.8 (continued)

Variable name	Type	Width	Decimal places	Description
PCB_54	Numeric	16	4	Concentration of PCB (Aroclor 1254, $\mu\text{g/L}$)
PCB_54_C	Character	4		Laboratory qualifiers for the concentration of PCB (Aroclor 1254)
PCB_60	Numeric	16	4	Concentration of PCB (Aroclor 1260, $\mu\text{g/L}$)
PCB_60_C	Character	4		Laboratory qualifiers for the concentration of PCB (Aroclor 1260)
PLANT	Character	3		Plant that installed the well (key) K25 = K-25 X10 = ORNL Y12 = Y-12
SRC_PCB	Character	30		Source of the data The plant the data came from is listed first K25 = K-25 X10 = ORNL Y12 = Y-12 The type of the original data file is listed second CHEM = a groundwater analyses file WELL = a well construction file The original data file name is listed last, in parentheses
WELL	Character	20		Official well name (key)

Table 5.9. Description of PEST file

Variable name	Type	Width	Decimal places	Description
ALDRIN	Numeric	16	4	Concentration of Aldrin ($\mu\text{g/L}$)
ALDRIN_C	Character	4		Laboratory qualifiers for the concentration of Aldrin
BHC_A	Numeric	16	4	Concentration of α -BHC ($\mu\text{g/L}$)
BHC_A_C	Character	4		Laboratory qualifiers for the concentration of α -BHC
BHC_B	Numeric	16	4	Concentration of β -BHC ($\mu\text{g/L}$)
BHC_B_C	Character	4		Laboratory qualifiers for the concentration of β -BHC
BHC_D	Numeric	16	4	Concentration of δ -BHC ($\mu\text{g/L}$)
BHC_D_C	Character	4		Laboratory qualifiers for the concentration of δ -BHC
BHC_G	Numeric	16	4	Concentration of γ -BHC ($\mu\text{g/L}$)
BHC_G_C	Character	4		Laboratory qualifiers for the concentration of γ -BHC
CLRD	Numeric	16	4	Concentration of Chlordane ($\mu\text{g/L}$)
CLRD_C	Character	4		Laboratory qualifiers for the concentration of Chlordane
CLRD_A	Numeric	16	4	Concentration of α -Chlordane ($\mu\text{g/L}$)
CLRD_A_C	Character	4		Laboratory qualifiers for the concentration of α -Chlordane
CLRD_G	Numeric	16	4	Concentration of γ -Chlordane ($\mu\text{g/L}$)
CLRD_G_C	Character	4		Laboratory qualifiers for the concentration of γ -Chlordane

Table 5.9 (continued)

Variable name	Type	Width	Decimal places	Description
DATE_SAM	Date	8		Date the groundwater sample was taken (key)
DDD_44	Numeric	16	4	Concentration of 4,4'-DDD ($\mu\text{g/L}$)
DDD_44_C	Character	4		Laboratory qualifiers for the concentration of 4,4'-DDD
DDE_44	Numeric	16	4	Concentration of 4,4'-DDE ($\mu\text{g/L}$)
DDE_44_C	Character	4		Laboratory qualifiers for the concentration of 4,4'-DDE
DDT_44	Numeric	16	4	Concentration of 4,4'-DDT ($\mu\text{g/L}$)
DDT_44_C	Character	4		Laboratory qualifiers for the concentration of 4,4'-DDT
DIELDR	Numeric	16	4	Concentration of Dieldrin ($\mu\text{g/L}$)
DIELDR_C	Character	4		Laboratory qualifiers for the concentration of Dieldrin
DUP_Q	Logical	1		Whether it is a duplicate sample (key) T = True, it is a duplicate sample F = False, it is not a duplicate sample
END	Numeric	16	4	Concentration of Endrin ($\mu\text{g/L}$)
END_C	Character	4		Laboratory qualifiers for the concentration of Endrin
ENDALD	Numeric	16	4	Concentration of Endrin aldehyde ($\mu\text{g/L}$)
ENDALD_C	Character	4		Laboratory qualifiers for the concentration of Endrin aldehyde
ENDKET	Numeric	16	4	Concentration of Endrin ketone ($\mu\text{g/L}$)

Table 5.9 (continued)

Variable name	Type	Width	Decimal places	Description
ENDKET_C	Character	4		Laboratory qualifiers for the concentration of Endrin ketone
ENSU_A	Numeric	16	4	Concentration of α -Endosulfan ($\mu\text{g/L}$)
ENSU_A_C	Character	4		Laboratory qualifiers for the concentration of α -Endosulfan
ENSU_B	Numeric	16	4	Concentration of β -Endosulfan ($\mu\text{g/L}$)
ENSU_B_C	Character	4		Laboratory qualifiers for the concentration of β -Endosulfan
ENSULS	Numeric	16	4	Concentration of Endosulfan sulfate ($\mu\text{g/L}$)
ENSULS_C	Character	4		Laboratory qualifiers for the concentration of Endosulfan sulfate
FILTER_Q	Logical	1		Whether it is a filtered sample (key) T = True, it is a filtered sample F = False, it is not a filtered sample
HEPTCH	Numeric	16	4	Concentration of Heptachlor ($\mu\text{g/L}$)
HEPTCH_C	Character	4		Laboratory qualifiers for the concentration of Heptachlor
HEPTEP	Numeric	16	4	Concentration of Heptachlor epoxide ($\mu\text{g/L}$)
HEPTEP_C	Character	4		Laboratory qualifiers for the concentration of Heptachlor epoxide
METHOX	Numeric	16	4	Concentration of Methoxychlor ($\mu\text{g/L}$)
METHOX_C	Character	4		Laboratory qualifiers for the concentration of Methoxychlor

Table 5.9 (continued)

Variable name	Type	Width	Decimal places	Description
PLANT	Character	3		Plant that installed the well (key) K25 = K-25 X10 = ORNL Y12 = Y-12
SILVEX	Numeric	16	4	Concentration of Silvex ($\mu\text{g/L}$)
SILVEX_C	Character	4		Laboratory qualifiers for the concentration of Silvex
SRC_PEST	Character	30		Source of the data The plant the data came from is listed first K25 = K-25 X10 = ORNL Y12 = Y-12 The type of the original data file is listed second CHEM = a groundwater analyses file WELL = a well construction file The original data file name is listed last, in parentheses
TOXAPH	Numeric	16	4	Concentration of Toxaphene ($\mu\text{g/L}$)
TOXAPH_C	Character	4		Laboratory qualifiers for the concentration of Toxaphene
WELL	Character	20		Official well name (key)

Table 5.10. Description of RAD file

Variable name	Type	Width	Decimal places	Description
ACT_A	Numeric	16	4	Gross alpha activity (pCi/L)
ACT_A_C	Character	4		Laboratory qualifiers for the gross alpha activity
ACT_A_E	Numeric	16	4	Counting error for gross alpha activity
ACT_B	Numeric	16	4	Gross beta activity (pCi/L)
ACT_B_C	Character	4		Laboratory qualifiers for the gross beta activity
ACT_B_E	Numeric	16	4	Counting error for gross beta activity
ACT_G	Numeric	16	4	Gross gamma activity (pCi/L)
ACT_G_C	Character	4		Laboratory qualifiers for the gross gamma activity
ACT_G_E	Numeric	16	4	Counting error for gross gamma activity
AM_241	Numeric	16	4	Concentration of americium-241 (pCi/L)
AM_241_C	Character	4		Laboratory qualifiers for the concentration of americium-241
AM_241_E	Numeric	16	4	Counting error for americium-241
ANT125	Numeric	16	4	Concentration of antimony-125 (pCi/L)
ANT125_C	Character	4		Laboratory qualifiers for the concentration of antimony-125
ANT125_E	Numeric	16	4	Counting error for antimony-125
CER144	Numeric	16	4	Concentration of cerium-144 (pCi/L)
CER144_C	Character	4		Laboratory qualifiers for the concentration of cerium-144

Table 5.10 (continued)

Variable name	Type	Width	Decimal places	Description
CER144_E	Numeric	16	4	Counting error for cerium-144
CES134	Numeric	16	4	Concentration of cesium-134 (pCi/L)
CES134_C	Character	4		Laboratory qualifiers for the concentration of cesium-134
CES134_E	Numeric	16	4	Counting error for cesium-134
CES137	Numeric	16	4	Concentration of cesium-137 (pCi/L)
CES137_C	Character	4		Laboratory qualifiers for the concentration of cesium-137
CES137_E	Numeric	16	4	Counting error for cesium-137
COBL60	Numeric	16	4	Concentration of cobalt-60 (pCi/L)
COBL60_C	Character	4		Laboratory qualifiers for the concentration of cobalt-60
COBL60_E	Numeric	16	4	Counting error for cobalt-60
DATE_SAM	Date	8		Date the groundwater sample was taken (key)
DUP_Q	Logical	1		Whether it is a duplicate sample (key) T = True, it is a duplicate sample F = False, it is not a duplicate sample
FILTER_Q	Logical	1		Whether it is a filtered sample (key) T = True, it is a filtered sample F = False, it is not a filtered sample
I_1259	Numeric	16	4	Concentration of iodine-125 and iodine-129 (pCi/L)
I_1259_C	Character	4		Laboratory qualifiers for the concentration of iodine-125 and iodine-129

Table 5.10 (continued)

Variable name	Type	Width	Decimal places	Description
I_1259_E	Numeric	16	4	Counting error for iodine-125 and iodine-129
I_131	Numeric	16	4	Concentration of iodine-131 (pCi/L)
I_131_C	Character	4		Laboratory qualifiers for the concentration of iodine-131
I_131_E	Numeric	16	4	Counting error for iodine-131
NEP237	Numeric	16	4	Concentration of neptunium-237 (pCi/L)
NEP237_C	Character	4		Laboratory qualifiers for the concentration of neptunium-237
NEP237_E	Numeric	16	4	Counting error for neptunium-237
NIOB95	Numeric	16	4	Concentration of niobium-95 (pCi/L)
NIOB95_C	Character	4		Laboratory qualifiers for the concentration of niobium-95
NIOB95_E	Numeric	16	4	Counting error for niobium-95
P_238	Numeric	16	4	Concentration of plutonium-238 (pCi/L)
P_238_C	Character	4		Laboratory qualifiers for the concentration of plutonium-238
P_238_E	Numeric	16	4	Counting error for plutonium-238
P_239	Numeric	16	4	Concentration of plutonium-239 (pCi/L)
P_239_C	Character	4		Laboratory qualifiers for the concentration of plutonium-239
P_239_E	Numeric	16	4	Counting error for plutonium-239
P_2394	Numeric	16	4	Concentration of plutonium-239 and plutonium-240 (pCi/L)

Table 5.10 (continued)

Variable name	Type	Width	Decimal places	Description
P_2394_C	Character	4		Laboratory qualifiers for the concentration of plutonium-239 and plutonium-240
P_2394_E	Numeric	16	4	Counting error for plutonium-239 and plutonium-240
PLANT	Character	3		Plant that installed the well (key) K25 = K-25 X10 = ORNL Y12 = Y-12
PROTAC	Numeric	16	4	Concentration of protactinium (pCi/L)
PROTAC_C	Character	4		Laboratory qualifiers for the concentration of protactinium
PROTAC_E	Numeric	16	4	Counting error for protactinium
RAD	Numeric	16	4	Concentration of radium (pCi/L)
RAD_C	Character	4		Laboratory qualifiers for the concentration of radium
RAD_E	Numeric	16	4	Counting error for radium
RAD226	Numeric	16	4	Concentration of radium-226 (pCi/L)
RAD226_C	Character	4		Laboratory qualifiers for the concentration of radium-226
RAD226_E	Numeric	16	4	Counting error for radium-226
RAD228	Numeric	16	4	Concentration of radium-228 (pCi/L)
RAD228_C	Character	4		Laboratory qualifiers for the concentration of radium-228
RAD228_E	Numeric	16	4	Counting error for radium-228

Table 5.10 (continued)

Variable name	Type	Width	Decimal places	Description
RUT106	Numeric	16	4	Concentration of ruthenium-106 (pCi/L)
RUT106_C	Character	4		Laboratory qualifiers for the concentration of ruthenium-106
RUT106_E	Numeric	16	4	Counting error for ruthenium-106
SRC_RAD	Character	30		Source of the data The plant the data came from is listed first K25 = K-25 X10 = ORNL Y12 = Y-12 The type of the original data file is listed second CHEM = a groundwater analyses file WELL = a well construction file The original data file name is listed last, in parentheses
STRN90	Numeric	16	4	Concentration of strontium-90 (pCi/L)
STRN90_C	Character	4		Laboratory qualifiers for the concentration of strontium-90
STRN90_E	Numeric	16	4	Counting error for strontium-90
STRONT	Numeric	16	4	Concentration of strontium (pCi/L)
STRONT_C	Character	4		Laboratory qualifiers for the concentration of strontium
STRONT_E	Numeric	16	4	Counting error for strontium
TEC_99	Numeric	16	4	Concentration of technetium-99 (pCi/L)
TEC_99_C	Character	4		Laboratory qualifiers for the concentration of technetium-99
TEC_99_E	Numeric	16	4	Counting error for technetium-99

Table 5.10 (continued)

Variable name	Type	Width	Decimal places	Description
THA_28	Numeric	16	4	Concentration of thallium-228 (pCi/L)
THA_28_C	Character	4		Laboratory qualifiers for the concentration of thallium-228
THA_28_E	Numeric	16	4	Counting error for thallium-228
THO_28	Numeric	16	4	Concentration of thorium-228 (pCi/L)
THO_28_C	Character	4		Laboratory qualifiers for the concentration of thorium-228
THO_28_E	Numeric	16	4	Counting error for thorium-228
THO_30	Numeric	16	4	Concentration of thorium-230 (pCi/L)
THO_30_C	Character	4		Laboratory qualifiers for the concentration of thorium-230
THO_30_E	Numeric	16	4	Counting error for thorium-230
THO_32	Numeric	16	4	Concentration of thorium-232 (pCi/L)
THO_32_C	Character	4		Laboratory qualifiers for the concentration of thorium-232
THO_32_E	Numeric	16	4	Counting error for thorium-232
THO_34	Numeric	16	4	Concentration of thorium-234 (pCi/L)
THO_34_C	Character	4		Laboratory qualifiers for the concentration of thorium-234
THO_34_E	Numeric	16	4	Counting error for thorium-234
THO314	Numeric	16	4	Concentration of thorium-231 and thorium-234 (pCi/L)

Table 5.10 (continued)

Variable name	Type	Width	Decimal places	Description
THO314_C	Character	4		Laboratory qualifiers for the concentration of thorium-231 and thorium-234
THO314_E	Numeric	16	4	Counting error for thorium-231 and thorium-234
TRIT	Numeric	16	4	Concentration of tritium (pCi/L)
TRIT_C	Character	4		Laboratory qualifiers for the concentration of tritium
TRIT_E	Numeric	16	4	Counting error for tritium
U_234	Numeric	16	4	Concentration of uranium-234 (pCi/L)
U_234_C	Character	4		Laboratory qualifiers for the concentration of uranium-234
U_234_E	Numeric	16	4	Counting error for uranium-234
U_2356	Numeric	16	4	Concentration of uranium-235 and uranium-236 (pCi/L)
U_2356_C	Character	4		Laboratory qualifiers for the concentration of uranium-235 and uranium-236
U_2356_E	Numeric	16	4	Counting error for uranium-235 and uranium-236
U_238	Numeric	16	4	Concentration of uranium-238 (pCi/L)
U_238_C	Character	4		Laboratory qualifiers for the concentration of uranium-238
U_238_E	Numeric	16	4	Counting error for uranium-238
WELL	Character	20		Official well name (key)

Table 5.11. Description of VOC file

Variable name	Type	Width	Decimal places	Description
ACETON	Numeric	16	4	Concentration of acetone ($\mu\text{g/L}$)
ACETON_C	Character	4		Laboratory qualifiers for the concentration of acetone
ACROLN	Numeric	16	4	Concentration of acrolein ($\mu\text{g/L}$)
ACROLN_C	Character	4		Laboratory qualifiers for the concentration of acrolein
ACRYLT	Numeric	16	4	Concentration of acrylonitrile ($\mu\text{g/L}$)
ACRYLT_C	Character	4		Laboratory qualifiers for the concentration of acrylonitrile
BENZEN	Numeric	16	4	Concentration of benzene ($\mu\text{g/L}$)
BENZEN_C	Character	4		Laboratory qualifiers for the concentration of benzene
BROMID	Numeric	16	4	Concentration of bromodichloromethane ($\mu\text{g/L}$)
BROMID_C	Character	4		Laboratory qualifiers for the concentration of bromodichloromethane
BROMOF	Numeric	16	4	Concentration of bromoform ($\mu\text{g/L}$)
BROMOF_C	Character	4		Laboratory qualifiers for the concentration of bromoform
BROMOM	Numeric	16	4	Concentration of bromomethane ($\mu\text{g/L}$)
BROMOM_C	Character	4		Laboratory qualifiers for the concentration of bromomethane
BUTANO	Numeric	16	4	Concentration of 2-butanone ($\mu\text{g/L}$)
BUTANO_C	Character	4		Laboratory qualifiers for the concentration of 2-butanone

Table 5.11 (continued)

Variable name	Type	Width	Decimal places	Description
BUTENE	Numeric	16	4	Concentration of 1-butene ($\mu\text{g/L}$)
BUTENE_C	Character	4		Laboratory qualifiers for the concentration of 1-butene
CARDIS	Numeric	16	4	Concentration of carbon disulfide ($\mu\text{g/L}$)
CARDIS_C	Character	4		Laboratory qualifiers for the concentration of carbon disulfide
CARTET	Numeric	16	4	Concentration of carbon tetrachloride ($\mu\text{g/L}$)
CARTET_C	Character	4		Laboratory qualifiers for the concentration of carbon tetrachloride
CHLBEN	Numeric	16	4	Concentration of chlorobenzene ($\mu\text{g/L}$)
CHLBEN_C	Character	4		Laboratory qualifiers for the concentration of chlorobenzene
CHLDIB	Numeric	16	4	Concentration of chlorodibromomethane ($\mu\text{g/L}$)
CHLDIB_C	Character	4		Laboratory qualifiers for the concentration of chlorodibromomethane
CHLETH	Numeric	16	4	Concentration of chloroethane ($\mu\text{g/L}$)
CHLETH_C	Character	4		Laboratory qualifiers for the concentration of chloroethane
CHLEVE	Numeric	16	4	Concentration of 2-chloroethyl vinyl ether ($\mu\text{g/L}$)
CHLEVE_C	Character	4		Laboratory qualifiers for the concentration of 2-chloroethyl vinyl ether
CHLFOR	Numeric	16	4	Concentration of chloroform ($\mu\text{g/L}$)

Table 5.11 (continued)

Variable name	Type	Width	Decimal places	Description
CHLFOR_C	Character	4		Laboratory qualifiers for the concentration of chloroform
CHLMET	Numeric	16	4	Concentration of chloromethane ($\mu\text{g/L}$)
CHLMET_C	Character	4		Laboratory qualifiers for the concentration of chloromethane
CHLTRI	Numeric	16	4	Concentration of chlorotrifluoroethene ($\mu\text{g/L}$)
CHLTRI_C	Character	4		Laboratory qualifiers for the concentration of chlorotrifluoroethene
CYCHEX	Numeric	16	4	Concentration of cyclohexane ($\mu\text{g/L}$)
CYCHEX_C	Character	4		Laboratory qualifiers for the concentration of cyclohexane
DATE_SAM	Date	8		Date the groundwater sample was taken (key)
DCDIF	Numeric	16	4	Concentration of dichlorodifluoromethane ($\mu\text{g/L}$)
DCDIF_C	Character	4		Laboratory qualifiers for the concentration of dichlorodifluoromethane
DCEA11	Numeric	16	4	Concentration of 1,1-dichloroethane ($\mu\text{g/L}$)
DCEA11_C	Character	4		Laboratory qualifiers for the concentration of 1,1-dichloroethane
DCEA12	Numeric	16	4	Concentration of 1,2-dichloroethane ($\mu\text{g/L}$)
DCEA12_C	Character	4		Laboratory qualifiers for the concentration of 1,2-dichloroethane

Table 5.11 (continued)

Variable name	Type	Width	Decimal places	Description
DCEE11	Numeric	16	4	Concentration of 1,1-dichloroethene ($\mu\text{g/L}$)
DCEE11_C	Character	4		Laboratory qualifiers for the concentration of 1,1-dichloroethene
DCEE12	Numeric	16	4	Concentration of 1,2-dichloroethene ($\mu\text{g/L}$)
DCEE12_C	Character	4		Laboratory qualifiers for the concentration of 1,2-dichloroethene
DCET12	Numeric	16	4	Concentration of <i>trans</i> -1,2-dichloroethene ($\mu\text{g/L}$)
DCET12_C	Character	4		Laboratory qualifiers for the concentration of <i>trans</i> -1,2-dichloroethene
DCPC13	Numeric	16	4	Concentration of <i>cis</i> -1,3-dichloropropene ($\mu\text{g/L}$)
DCPC13_C	Character	4		Laboratory qualifiers for the concentration of <i>cis</i> -1,3-dichloropropene
DCPT13	Numeric	16	4	Concentration of <i>trans</i> -1,3-dichloropropene ($\mu\text{g/L}$)
DCPT13_C	Character	4		Laboratory qualifiers for the concentration of <i>trans</i> -1,3-dichloropropene
DCP12	Numeric	16	4	Concentration of 1,2-dichloropropane ($\mu\text{g/L}$)
DCP12_C	Character	4		Laboratory qualifiers for the concentration of 1,2-dichloropropane
DCTET	Numeric	16	4	Concentration of 1,2-dichloro-1,1,2,2-tetrafluoroethane ($\mu\text{g/L}$)

Table 5.11 (continued)

Variable name	Type	Width	Decimal places	Description
DCTET_C	Character	4		Laboratory qualifiers for the concentration of 1,2-dichloro-1,1,2,2-tetrafluoroethane
DCTRI	Numeric	16	4	Concentration of 1,2-dichloro-1,1,2-trifluoroethane ($\mu\text{g/L}$)
DCTRI_C	Character	4		Laboratory qualifiers for the concentration of 1,2-dichloro-1,1,2-trifluoroethane
DMBT23	Numeric	16	4	Concentration of 2,3-dimethylbutane ($\mu\text{g/L}$)
DMBT23_C	Character	4		Laboratory qualifiers for the concentration of 2,3-dimethylbutane
DMPN24	Numeric	16	4	Concentration of 2,4-dimethylpentane ($\mu\text{g/L}$)
DMPN24_C	Character	4		Laboratory qualifiers for the concentration of 2,4-dimethylpentane
DUP_Q	Logical	1		Whether it is a duplicate sample (key) T = True, it is a duplicate sample F = False, it is not a duplicate sample
ETBENZ	Numeric	16	4	Concentration of ethylbenzene ($\mu\text{g/L}$)
ETBENZ_C	Character	4		Laboratory qualifiers for the concentration of ethylbenzene
ETCYCB	Numeric	16	4	Concentration of ethylcyclobutane ($\mu\text{g/L}$)
ETCYCB_C	Character	4		Laboratory qualifiers for the concentration of ethylcyclobutane
ETMETB	Numeric	16	4	Concentration of 1-ethyl-2-methylbenzene ($\mu\text{g/L}$)

Table 5.11 (continued)

Variable name	Type	Width	Decimal places	Description
ETMETB_C	Character	4		Laboratory qualifiers for the concentration of 1-ethyl-2-methylbenzene
FILTER_Q	Logical	1		Whether it is a filtered sample (key) T = True, it is a filtered sample F = False, it is not a filtered sample
FLTRIC	Numeric	16	4	Concentration of fluorotrichloromethane ($\mu\text{g/L}$)
FLTRIC_C	Character	4		Laboratory qualifiers for the concentration of fluorotrichloromethane
HEXAMT	Numeric	16	4	Concentration of hexamethylcyclotrisiloxane ($\mu\text{g/L}$)
HEXAMT_C	Character	4		Laboratory qualifiers for the concentration of hexamethylcyclotrisiloxane
HEXANO	Numeric	16	4	Concentration of 2-hexanone ($\mu\text{g/L}$)
HEXANO_C	Character	4		Laboratory qualifiers for the concentration of 2-hexanone
METOX	Numeric	16	4	Concentration of 2-methoxy-2-methylpropane ($\mu\text{g/L}$)
METOX_C	Character	4		Laboratory qualifiers for the concentration of 2-methoxy-2-methylpropane
MTHBUT	Numeric	16	4	Concentration of 2-methyl-butane ($\mu\text{g/L}$)
MTHBUT_C	Character	4		Laboratory qualifiers for the concentration of 2-methyl-butane
MTHCYH	Numeric	16	4	Concentration of methylcyclohexane ($\mu\text{g/L}$)

Table 5.11 (continued)

Variable name	Type	Width	Decimal places	Description
MTHCYH_C	Character	4		Laboratory qualifiers for the concentration of methylcyclohexane
MTHCYP	Numeric	16	4	Concentration of methylcyclopentane ($\mu\text{g/L}$)
MTHCYP_C	Character	4		Laboratory qualifiers for the concentration of methylcyclopentane
MTHECL	Numeric	16	4	Concentration of methylene chloride ($\mu\text{g/L}$)
MTHECL_C	Character	4		Laboratory qualifiers for the concentration of methylene chloride
MTHP_2	Numeric	16	4	Concentration of 2-methylpentane ($\mu\text{g/L}$)
MTHP_2_C	Character	4		Laboratory qualifiers for the concentration of 2-methylpentane
MTHP_3	Numeric	16	4	Concentration of 3-methylpentane ($\mu\text{g/L}$)
MTHP_3_C	Character	4		Laboratory qualifiers for the concentration of 3-methylpentane
MTHPEN	Numeric	16	4	Concentration of 4-methyl-2-pentanone ($\mu\text{g/L}$)
MTHPEN_C	Character	4		Laboratory qualifiers for the concentration of 4-methyl-2-pentanone
MTHPRO	Numeric	16	4	Concentration of 2-methyl-1-propane ($\mu\text{g/L}$)
MTHPRO_C	Character	4		Laboratory qualifiers for the concentration of 2-methyl-1-propane

Table 5.11 (continued)

Variable name	Type	Width	Decimal places	Description
PLANT	Character	3		Plant that installed the well (key) K25 = K-25 X10 = ORNL Y12 = Y-12
SRC_VOC	Character	30		Source of the data The plant the data came from is listed first K25 = K-25 X10 = ORNL Y12 = Y-12 The type of the original data file is listed second CHEM = a groundwater analyses file WELL = a well construction file The original data file name is listed last, in parentheses
STYREN	Numeric	16	4	Concentration of styrene ($\mu\text{g/L}$)
STYREN_C	Character	4		Laboratory qualifiers for the concentration of styrene
TECETA	Numeric	16	4	Concentration of 1,1,2,2-tetrachloroethane ($\mu\text{g/L}$)
TECETA_C	Character	4		Laboratory qualifiers for the concentration of 1,1,2,2-tetrachloroethane
TECETE	Numeric	16	4	Concentration of tetrachloroethene ($\mu\text{g/L}$)
TECETE_C	Character	4		Laboratory qualifiers for the concentration of tetrachloroethene
TETMTS	Numeric	16	4	Concentration of tetramethylsilane ($\mu\text{g/L}$)

Table 5.11 (continued)

Variable name	Type	Width	Decimal places	Description
TETMTS_C	Character	4		Laboratory qualifiers for the concentration of tetramethylsilane
TOLUEN	Numeric	16	4	Concentration of toluene ($\mu\text{g/L}$)
TOLUEN_C	Character	4		Laboratory qualifiers for the concentration of toluene
TRC111	Numeric	16	4	Concentration of 1,1,1-trichloroethane ($\mu\text{g/L}$)
TRC111_C	Character	4		Laboratory qualifiers for the concentration of 1,1,1-trichloroethane
TRC112	Numeric	16	4	Concentration of 1,1,2-trichloroethane ($\mu\text{g/L}$)
TRC112_C	Character	4		Laboratory qualifiers for the concentration of 1,1,2-trichloroethane
TRICLE	Numeric	16	4	Concentration of trichloroethene ($\mu\text{g/L}$)
TRICLE_C	Character	4		Laboratory qualifiers for the concentration of trichloroethene
TRICTR	Numeric	16	4	Concentration of trifluoroethene ($\mu\text{g/L}$)
TRICTR_C	Character	4		Laboratory qualifiers for the concentration of trifluoroethene
TRIFLE	Numeric	16	4	Concentration of 1,1,2-trichloro-1,2,2-trifluoroethane ($\mu\text{g/L}$)
TRIFLE_C	Character	4		Laboratory qualifiers for the concentration of 1,1,2-trichloro-1,2,2-trifluoroethane
TRM135	Numeric	16	4	Concentration of 1,3,5-trimethylbenzene ($\mu\text{g/L}$)

Table 5.11 (continued)

Variable name	Type	Width	Decimal places	Description
TRM135_C	Character	4		Laboratory qualifiers for the concentration of 1,3,5-trimethylbenzene
VNYACE	Numeric	16	4	Concentration of vinyl acetate ($\mu\text{g/L}$)
VNYACE_C	Character	4		Laboratory qualifiers for the concentration of vinyl acetate
VNYCHL	Numeric	16	4	Concentration of vinyl chloride ($\mu\text{g/L}$)
VNYCHL_C	Character	4		Laboratory qualifiers for the concentration of vinyl chloride
WELL	Character	20		Official well name (key)
XYLENE	Numeric	16	4	Concentration of total xylenes ($\mu\text{g/L}$)
XYLENE_C	Character	4		Laboratory qualifiers for the concentration of total xylenes

Table 5.12. Description of WCON file

Variable name	Type	Width	Decimal places	Description
CASBOT_1	Numeric	16	4	Depth from land surface to the bottom of the first casing (ft)
CASBOT_2	Numeric	16	4	Depth from land surface to the bottom of the second casing (ft)
CASBOT_3	Numeric	16	4	Depth from land surface to the bottom of the third casing (ft)
CASDI_1	Numeric	16	4	Diameter of the first casing (in.)
CASDI_2	Numeric	16	4	Diameter of the second casing (in.)
CASDII_1	Numeric	16	4	Inside diameter of the first casing (in.)
CASDIO_1	Numeric	16	4	Outside diameter of the first casing (in.)
CASDIO_2	Numeric	16	4	Outside diameter of the second casing (in.)
CASDIO_3	Numeric	16	4	Outside diameter of the third casing (in.)
CASMAT_1	Character	15		First casing material
CASMAT_2	Character	15		Second casing material
CASMAT_3	Character	15		Third casing material
CASTOP_1	Numeric	16	4	Elevation of the top of the first casing (feet above mean sea level)
COMCON_1	Character	80		Comment one for well construction
COMCON_2	Character	80		Comment two for well construction
COMCON_3	Character	80		Comment three for well construction
COMCON_4	Character	80		Comment four for well construction
COMCON_5	Character	80		Comment five for well construction

Table 5.12 (continued)

Variable name	Type	Width	Decimal places	Description
COMCON_6	Character	80		Comment six for well construction
COMCON_7	Character	80		Comment seven for well construction
COMCON_8	Character	80		Comment eight for well construction
COND_DEV	Numeric	16	4	Specific conductance of water at the time of development (us/cm)
CONSMTHD	Character	20		Method of well construction
CONTNAME	Character	25		Well contractor
CSHBOT_1	Numeric	16	4	Depth from land surface to the bottom of the first casing hole (ft)
CSHBOT_2	Numeric	16	4	Depth from land surface to the bottom of the second casing hole (ft)
CSHDI_1	Numeric	16	4	Diameter of the first casing hole (in.)
CSHDI_2	Numeric	16	4	Diameter of the second casing hole (in.)
CSHDI_3	Numeric	16	4	Diameter of the third casing hole (in.)
DATE_CON	Date	8		Date a well was completed or the date the bore was taken. Note: In some cases the actual date is listed and in other cases only the year is given
DATE_DES	Date	8		Date a well was destroyed
MP	Numeric	16	4	Measure point elevation (ft)
MP_COR	Numeric	16	4	Measure point correction, above(-) or below(+) land surface (ft)
OPNBOT_1	Numeric	16	4	Depth from land surface to the bottom of the first open interval (ft)

Table 5.12 (continued)

Variable name	Type	Width	Decimal places	Description
OPNBOT_2	Numeric	16	4	Depth from land surface to the bottom of the second open interval (ft)
OPNDI_1	Numeric	16	4	Diameter of the first open interval (in.)
OPNDI_2	Numeric	16	4	Diameter of the second open interval (in.)
OPNTOP_1	Numeric	16	4	Depth from land surface to the top of the first open interval (ft)
OPNTOP_2	Numeric	16	4	Depth from land surface to the top of the second open interval (ft)
PACKBOT	Numeric	16	4	Depth from land surface to the bottom of the packed interval (ft)
PACKTOP	Numeric	16	4	Depth from land surface to the top of the packed interval (ft)
PLANT	Character	3		Plant that installed the well (key) K25 = K-25 X10 = ORNL Y12 = Y-12
SCRBOT_1	Numeric	16	4	Depth from land surface to the bottom of the first screened interval (ft)
SCRBOT_2	Numeric	16	4	Depth from land surface to the bottom of the second screened interval (ft)
SCRBOT_3	Numeric	16	4	Depth from land surface to the bottom of the third screened interval (ft)
SCRBOT_4	Numeric	16	4	Depth from land surface to the bottom of the fourth screened interval (ft)
SCRDI_1	Numeric	16	4	Diameter of the screen (in.)
SCRDI_1	Numeric	16	4	Inside diameter of the screen (in.)

Table 5.12 (continued)

Variable name	Type	Width	Decimal places	Description
SCRMAT_1	Character	15		Material composition of the first screen
SCRSLTSZ	Numeric	16	4	Screen slot size (in.)
SCRTOP_1	Numeric	16	4	Depth from land surface to the top of the first screen (ft)
SCRTOP_2	Numeric	16	4	Depth from land surface to the top of the second screen (ft)
SCRTOP_3	Numeric	16	4	Depth from land surface to the top of the third screen (ft)
SCRTOP_4	Numeric	16	4	Depth from land surface to the top of the fourth screen (ft)
SEALBOT	Numeric	16	4	Depth to the bottom of the seal (ft)
SEALTOP	Numeric	16	4	Depth from land surface to the top of the seal (ft)
SRC_WCON	Character	30		Source of the data The plant the data came from is listed first K25 = K-25 X10 = ORNL Y12 = Y-12 The type of the original data file is listed second CHEM = a groundwater analyses file WELL = a well construction file The original data file name is listed last, in parentheses
WELDEP	Numeric	16	4	Total depth of the well (ft) below land surface The total depth value is the "as built" depth, based on drilling records or on well measurement immediately after construction

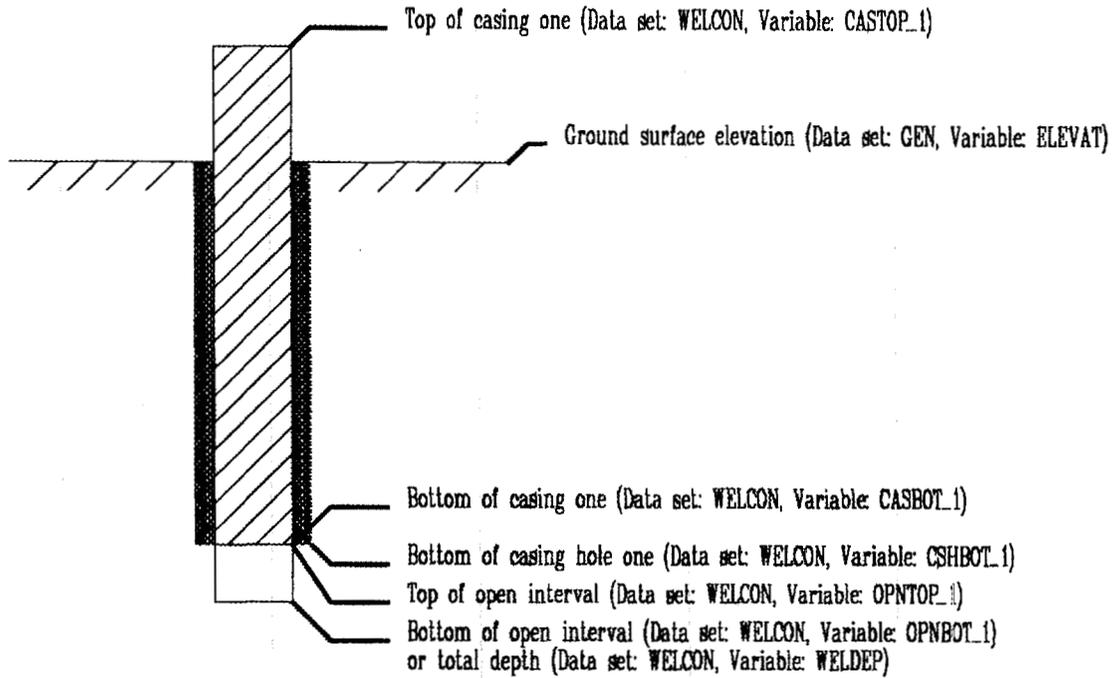
Table 5.12 (continued)

Variable name	Type	Width	Decimal places	Description
WELL	Character	20		Official well name (key)

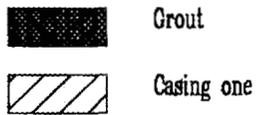
6. WELL DIAGRAMS

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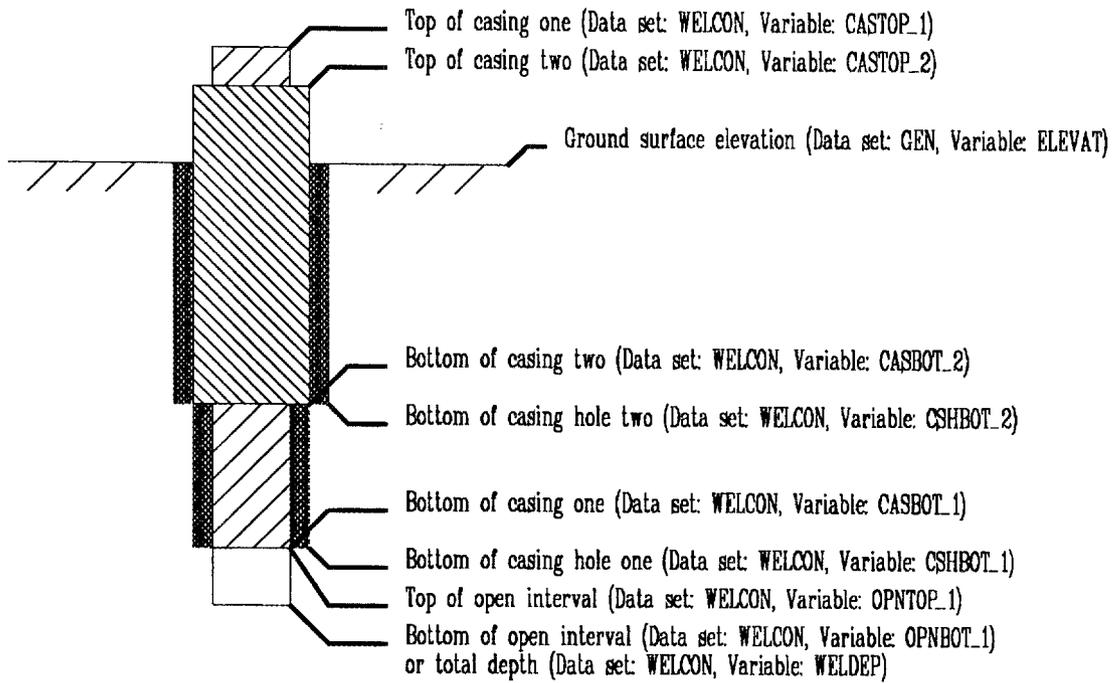
Fig. 6.1	Diagram of an open well with one casing	81
Fig. 6.2	Diagram of an open well with two casings	82
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Fig. 6.4	Diagram of a screened well with one casing	84
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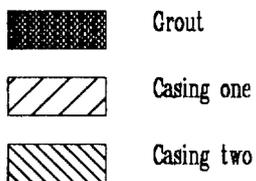
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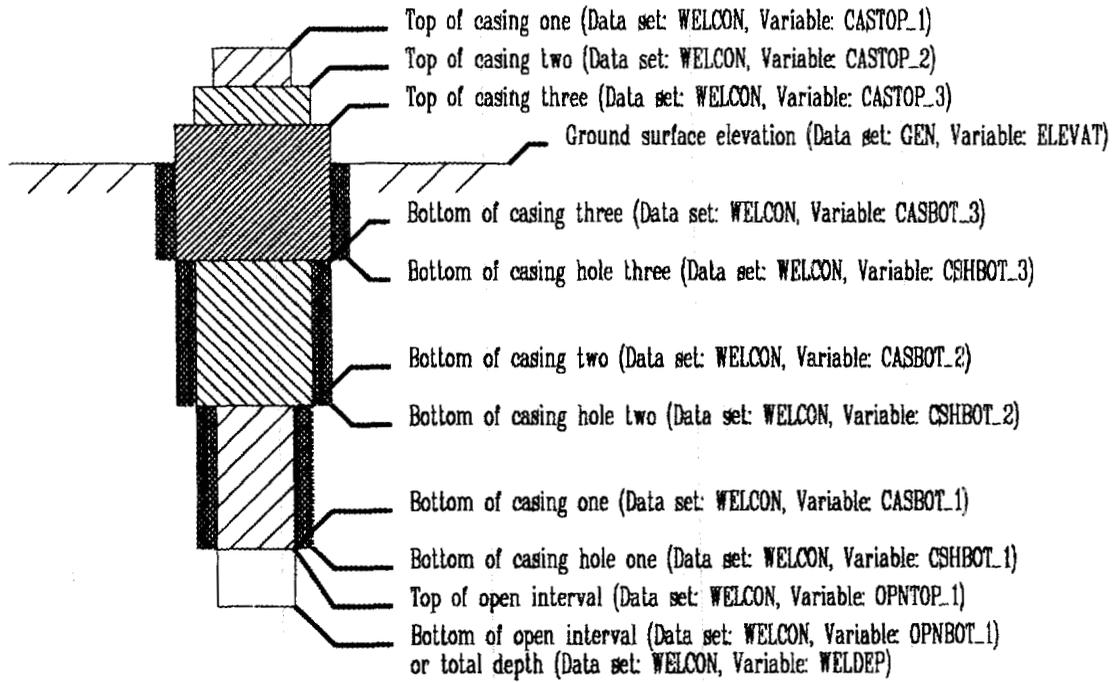
6.1. Diagram of an open well with one casing.



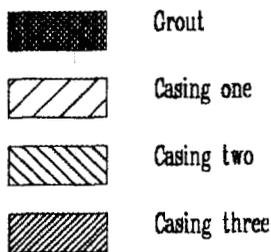
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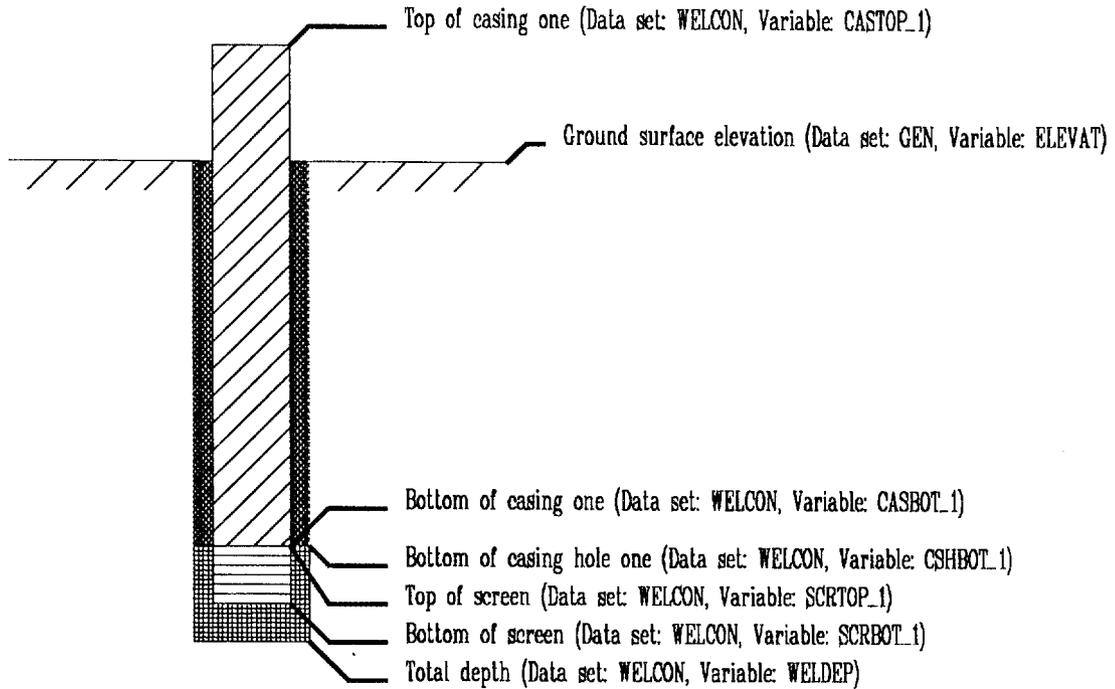
6.2. Diagram of an open well with two casings.



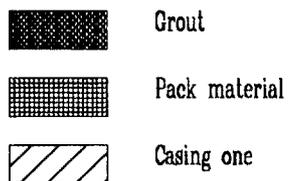
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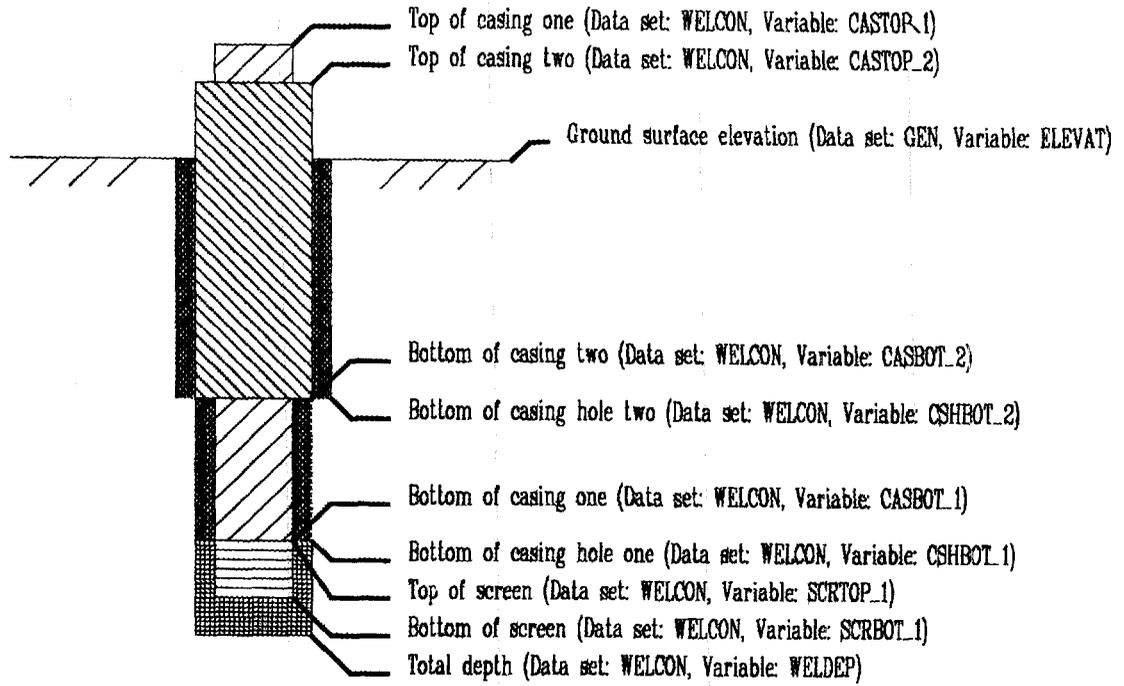
6.3. Diagram of an open well with three casings.



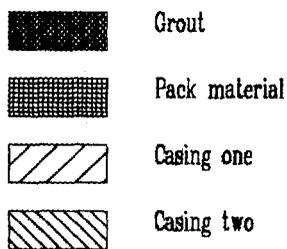
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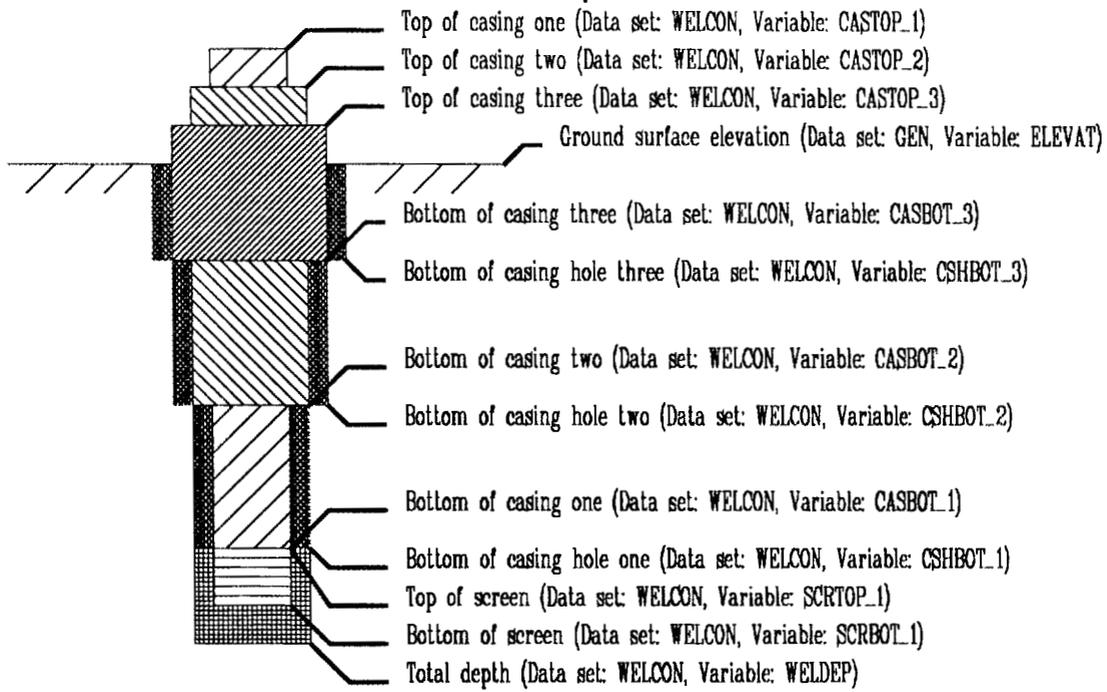
6.4. Diagram of a screened well with one casing.



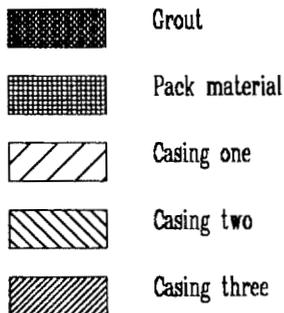
Key:



6.5. Diagram of a screened well with two casings.



Key:



6.6. Diagram of a screened well with three casings.

**7. CROSS-REFERENCE OF PARAMETERS, VARIABLES,
AND DATA BASE FILES**

Table 7.1. Cross-reference of parameters, variables, and data base files

Parameters	Variables	Data Base file
Acenaphthene	ACNTHE	BASE
Acenaphthylene	ACNTHY	BASE
Acetone	ACETON	VOC
Acrolein	ACROLN	VOC
Acrylonitrile	ACRYLT	VOC
Active or inactive well	ACT_INAC	GEN
Aldrin	ALDRIN	PEST
Alkalinity, bicarbonate (as CaCO ₃)	ALKBCR	ANION
Alkalinity, carbonate (as CaCO ₃)	ALKCAR	ANION
Alkalinity, total (as CaCO ₃)	ALKTL	ANION
Alternate well name	WELALT_1	GEN
Aluminum (ICAP)	ALUM_I	METAL
Americium-241	AM_241	RAD
Ammonia	AMMONI	MISC
Aniline	ANILIN	BASE
Anthracene	ANTHRA	BASE
Antimony (ICAP)	ANT_I	METAL
Antimony-125	ANT125	RAD
Aquifer	AQUIFER	GEN
Arsenic (AAS)	ARSN_A	METAL
Arsenic (ICAP)	ARSN_I	METAL
Barium (AAS)	BARI_A	METAL
Barium (ICAP)	BARI_I	METAL
Benzene	BENZEN	VOC
Benzidine	BEN	BASE
Benzo[a]anthracene	BENAAN	BASE
Benzo[b]fluoranthene	BENBFL	BASE
Benzo[k]fluoranthene	BENKFL	BASE
Benzo[ghi]perylene	BENPER	BASE
Benzo[a]pyrene	BENPYR	BASE
Benzoic acid	BENACD	ACID
Benzyl alcohol	BENZAL	BASE
Beryllium (AAS)	BERY_A	METAL
Beryllium (ICAP)	BERY_I	METAL
α-BHC	BHC_A	PEST
β-BHC	BHC_B	PEST
δ-BHC	BHC_D	PEST
γ-BHC	BHC_G	PEST
Biochemical oxygen demand	BIOXD	MISC
Bis(2-chloroethyl)ether	BISETH	BASE
Bis(2-chloroethoxy)methane	BISMTH	BASE

Table 7.1 (continued)

Parameters	Variables	Data Base file
Bis(2-chloroisopropyl)ether	BISETP	BASE
Bis(2-ethylhexyl)phthalate	BISPHT	BASE
Boron (ICAP)	BOR_I	METAL
Bromide	BROM	ANION
Bromodichloromethane	BROMID	VOC
Bromoform	BROMOF	VOC
Bromomethane	BROMOM	VOC
4-Bromophenyl phenyl ether	BROPHE	BASE
2-Butanone	BUTANO	VOC
1-Butene	BUTENE	VOC
Butyl benzyl phthalate	BUTBPH	BASE
Cadmium (AAS)	CADM_A	METAL
Cadmium (ICAP)	CADM_I	METAL
Cadmium (Polar)	CADM_P	METAL
Calcium (ICAP)	CALC_I	METAL
Carbon disulfide	CARDIS	VOC
Carbon tetrachloride	CARTET	VOC
Casing one bottom depth	CASBOT_1	WCON
Casing two bottom depth	CASBOT_2	WCON
Casing three bottom depth	CASBOT_3	WCON
Casing one diameter	CASDI_1	WCON
Casing two diameter	CASDI_2	WCON
Casing one inside diameter	CASDI_I_1	WCON
Casing one outside diameter	CASDIO_1	WCON
Casing two outside diameter	CASDIO_2	WCON
Casing three outside diameter	CASDIO_3	WCON
Casing one hole depth	CSHBOT_1	WCON
Casing two hole depth	CSHBOT_2	WCON
Casing one hole diameter	CSHDI_1	WCON
Casing two hole diameter	CSHDI_2	WCON
Casing three hole diameter	CSHDI_3	WCON
Casing one material	CASMAT_1	WCON
Casing two material	CASMAT_2	WCON
Casing three material	CASMAT_3	WCON
Casing one top elevation	CASTOP_1	WCON
Cerium-144	CER144	RAD
Cesium-134	CES134	RAD
Cesium-137	CES137	RAD
Chemical oxygen demand	CHMOXD	MISC
Chemical data list	CHMDAT	GEN

Table 7.1 (continued)

Parameters	Variables	Data Base file
Chlordane	CLRD	PEST
α -Chlordane	CLRD_A	PEST
γ -Chlordane	CLRD_G	PEST
Chloride	CHLOR	ANION
4-Chloroaniline	CHLANI	BASE
Chlorobenzene	CHLBEN	VOC
Chlorodibromomethane	CHLDIB	VOC
Chloroethane	CHLETH	VOC
2-Chloroethyl vinyl ether	CHLEVE	VOC
Chloroform	CHLFOR	VOC
Chloromethane	CHLMET	VOC
4-Chloro-3-methylphenol	CLMETH	ACID
2-Chloronaphthalene	CHLNAP	BASE
2-Chlorophenol	CLPHEN	ACID
4-Chlorophenyl phenyl ether	CHLPPE	BASE
Chlorotrifluoroethene	CHLTRI	VOC
Chromium (AAS)	CHRO_A	METAL
Chromium (ICAP)	CHRO_I	METAL
Chromium (Polar)	CHRO_P	METAL
Chrysene	CHRYSE	BASE
Cobalt (ICAP)	COBL_I	METAL
Cobalt-60	COBL60	RAD
Coliform	COLIFO	MISC
Conductivity, laboratory, first measurement	CON_L1	MISC
Conductivity, laboratory, second measurement	CON_L2	MISC
Conductivity, laboratory, third measurement	CON_L3	MISC
Conductivity, laboratory, fourth measurement	CON_L4	MISC
Conductivity at development	COND_DEV	WCON
Conductivity, field, first measurement	CON_F1	FIELD
Conductivity, field, second measurement	CON_F2	FIELD
Conductivity, field, third measurement	CON_F3	FIELD
Conductivity, field, fourth measurement	CON_F4	FIELD
Conductivity, field, fifth measurement	CON_F5	FIELD
Conductivity, field, sixth measurement	CON_F6	FIELD
Conductivity, field, seventh measurement	CON_F7	FIELD
Construction comment one	COMCON_1	WCON
Construction comment two	COMCON_2	WCON
Construction comment three	COMCON_3	WCON
Construction comment four	COMCON_4	WCON
Construction comment five	COMCON_5	WCON
Construction comment six	COMCON_6	WCON

Table 7.1 (continued)

Parameters	Variables	Data Base file
Construction comment seven	COMCON_7	WCON
Construction comment eight	COMCON_8	WCON
Construction date	DATE_CON	WCON
Copper (ICAP)	COPP_I	METAL
Cyanide	CYANID	ANION
Cyclohexane	CYCHEX	VOC
2,4-D	D_24	BASE
4,4'-DDD	DDD_44	PEST
4,4'-DDE	DDE_44	PEST
4,4'-DDT	DDT_44	PEST
Destruction date	DATE_DES	WCON
Diacetone alcohol	DIACAL	BASE
Dibenzo[<i>a,h</i>]anthracene	DIBANT	BASE
Dibenzofuran	DIBFUR	BASE
1,2-Dichlorobenzene	DIC_12	BASE
1,3-Dichlorobenzene	DIC_13	BASE
1,4-Dichlorobenzene	DIC_14	BASE
3,3'-Dichlorobenzidine	DIC_33	BASE
Dichlorodifluoromethane	DCDIF	VOC
1,1-Dichloroethane	DCEA11	VOC
1,2-Dichloroethane	DCEA12	VOC
1,1-Dichloroethene	DCEE11	VOC
1,2-Dichloroethene	DCEE12	VOC
trans-1,2-Dichloroethene	DCET12	VOC
2,4-Dichlorophenol	DCP_24	ACID
1,2-Dichloropropane	DCP12	VOC
cis-1,3-Dichloropropene	DCPC13	VOC
trans-1,3-Dichloropropene	DCPT13	VOC
1,2-Dichloro-1,1,2,2-tetrafluoroethane	DCTET	VOC
1,2-Dichloro-1,1,2-trifluoroethane	DCTRI	VOC
Dieldrin	DIELDR	PEST
Diethyl phthalate	DIEPHT	BASE
2,3-Dimethylbutane	DMBT23	VOC
2,4-Dimethylpentane	DMPN24	VOC
2,4-Dimethylphenol	DMP_24	ACID
Dimethyl phthalate	DMTPHT	BASE
Di- <i>n</i> -butyl phthalate	DNBPHT	BASE
4,6-Dinitro-2-methylphenol	DNM_46	ACID
2,4-Dinitrophenol	DNP_24	ACID
2,4-Dinitrotoluene	DNI_24	BASE

Table 7.1 (continued)

Parameters	Variables	Data Base file
2,6-Dinitrotoluene	DNI_26	BASE
Di- <i>n</i> -octyl phthalate	DNOCPT	BASE
Dissolved oxygen, first measurement	DOXY_1	FIELD
Dissolved oxygen, second measurement	DOXY_2	FIELD
Dissolved oxygen, third measurement	DOXY_3	FIELD
Dissolved oxygen, fourth measurement	DOXY_4	FIELD
East coordinate (plant)	EAST	GEN
Elevation	ELEVAT	GEN
α -Endosulfan	ENSU_A	PEST
β -Endosulfan	ENSU_B	PEST
Endosulfan sulfate	ENSULS	PEST
Endrin	END	PEST
Endrin aldehyde	ENDALD	PEST
Endrin ketone	ENDKET	PEST
Ethylbenzene	ETBENZ	VOC
Ethylcyclobutane	ETCYCB	VOC
1-Ethyl-2-methyl-benzene	ETMETB	VOC
Fecal coliform	FECCOL	MISC
Fluoranthene	FLUORA	BASE
Fluorene	FLUORE	BASE
Fluoride	FLUOR	ANION
Fluorotrichloromethane	FLTRIC	VOC
Fresh rock top	ROCTOPFR	GEN
Gallium (ICAP)	GALI_I	METAL
Geological formation	GEO_FORM	GEN
Grid	GRID	GEN
Gross alpha activity	ACT_A	RAD
Gross beta activity	ACT_B	RAD
Gross gamma activity	ACT_G	RAD
Hardness	HARD	MISC
Heptachlor	HEPTCH	PEST
Heptachlor epoxide	HEPTEP	PEST
Hexachlorobenzene	HXCBEN	BASE
Hexachlorobutadiene	HXCBUT	BASE
Hexachlorocyclopentadiene	HXCCYC	BASE
Hexachloroethane	HXCETA	BASE
Hexamethylcyclotrisiloxane	HEXAMT	VOC
2-Hexanone	HEXANO	VOC
Hydraulic conductivity	HYDCON	GEN
Hydroxyl	HYDROX	MISC

Table 7.1 (continued)

Parameters	Variables	Data Base file
Indeno[1,2,3- <i>cd</i>]pyrene	INDPYR	BASE
Iodide	IODIDE	ANION
Iodine-125 and iodine-129	I_1259	RAD
Iodine-131	I_131	RAD
Iron (AAS)	IRON_A	METAL
Iron (ICAP)	IRON_I	METAL
Isophorone	ISOPRO	BASE
Lead (AAS)	LEAD_A	METAL
Lead (Polar)	LEAD_P	METAL
Lithium (ICAP)	LITH_I	METAL
Logs, existence of	LOGS_Q	GEN
Magnesium (ICAP)	MAGN_I	METAL
Manganese (AAS)	MANG_A	METAL
Manganese (ICAP)	MANG_I	METAL
Measure point	MP	WCON
Measure point correction	MP_COR	WCON
Mercury (CVAA)	MERC_V	METAL
Methoxychlor	METHOX	PEST
2-Methoxy-2-methylpropane	METOX	VOC
2-Methyl-butane	MTHBUT	VOC
Methylcyclohexane	MTHCYH	VOC
Methylcyclopentane	MTHCYP	VOC
Methylene chloride	MTHECL	VOC
2-Methylnaphthalene	MTNP_2	BASE
2-Methylpentane	MTHP_2	VOC
3-Methylpentane	MTHP_3	VOC
4-Methyl-2-pentanone	MTHPEN	VOC
2-Methylphenol	METH_2	ACID
4-Methylphenol	METH_4	ACID
2-Methyl-1-propane	MTHPRO	VOC
Molybdenum (ICAP)	MOLY_I	METAL
Naphthalene	NAPHTA	BASE
<i>N</i> -butyl benzenesulfonamide	NBUTBZ	BASE
Neptunium-237	NEP237	RAD
<i>N</i> -Nitrosodimethylamine	NTMETH	BASE
<i>N</i> -Nitrosodi- <i>n</i> -propylamine	NTNPRO	BASE
<i>N</i> -Nitrosodiphenylamine	NTPHEN	BASE
Nickel (ICAP)	NICK_I	METAL
Niobium (ICAP)	NIOB_I	METAL
Niobium-95	NIOB95	RAD
Nitrate (as N)	NITRAT	ANION

Table 7.1 (continued)

Parameters	Variables	Data Base file
Nitrite (as N)	NITRIT	ANION
2-Nitroaniline	NTAN_2	BASE
3-Nitroaniline	NTAN_3	BASE
4-Nitroaniline	NTAN_4	BASE
Nitrobenzene	NTBENZ	BASE
Nitrogen (Kjeldahl)	NIT_KJ	MISC
2-Nitrophenol	NITP_2	ACID
4-Nitrophenol	NITP_4	ACID
North coordinate	NORTH	GEN
Open interval one bottom	OPNBOT_1	WCON
Open interval two bottom	OPNBOT_2	WCON
Open interval one diameter	OPNDI_1	WCON
Open interval two diameter	OPNDI_2	WCON
Open interval one top	OPNTOP_1	WCON
Open interval two top	OPNTOP_2	WCON
Open or screened well	OPEN_SCR	GEN
Pack interval bottom	PACKBOT	WCON
Pack interval top	PACKTOP	WCON
PCB (Aroclor 1016)	PCB_16	PCB
PCB (Aroclor 1221)	PCB_21	PCB
PCB (Aroclor 1232)	PCB_32	PCB
PCB (Aroclor 1242)	PCB_42	PCB
PCB (Aroclor 1248)	PCB_48	PCB
PCB (Aroclor 1254)	PCB_54	PCB
PCB (Aroclor 1260)	PCB_60	PCB
Pentachlorophenol	PENTCL	ACID
pH, field, first measurement	PH_F1	FIELD
pH, field, second measurement	PH_F2	FIELD
pH, field, third measurement	PH_F3	FIELD
pH, field, fourth measurement	PH_F4	FIELD
pH, field, fifth measurement	PH_F5	FIELD
pH, field, sixth measurement	PH_F6	FIELD
pH, field, seventh measurement	PH_F7	FIELD
pH, laboratory, first measurement	PH_L1	MISC
pH, laboratory, second measurement	PH_L2	MISC
pH, laboratory, third measurement	PH_L3	MISC
pH, laboratory, fourth measurement	PH_L4	MISC
Phenanthrene	PHENAN	BASE
Phenol	PHENOL	ACID
Phenols (total)	PHN_TL	MISC
Phosphate	PHOSPA	ANION

Table 7.1 (continued)

Parameters	Variables	Data Base file
Phosphorus (ICAP)	PHOS_I	METAL
Plutonium-238	P_238	RAD
Plutonium-239	P_239	RAD
Plutonium-239 and plutonium-240	P_2394	RAD
Potassium (Flame - emission)	POTA_E	METAL
Potassium (ICAP)	POTA_I	METAL
Protactinium	PROTAC	RAD
Pyrene	PYRENE	BASE
Radium	RAD	RAD
Radium-226	RAD226	RAD
Radium-228	RAD228	RAD
Redox	REDOX	FIELD
Rock top	ROCTOP	GEN
Ruthenium-106	RUT106	RAD
Screen one bottom	SCRBOT_1	WCON
Screen two bottom	SCRBOT_2	WCON
Screen three bottom	SCRBOT_3	WCON
Screen four bottom	SCRBOT_4	WCON
Screen one diameter	SCRDI_1	WCON
Screen one inside diameter	SCRDI_1	WCON
Screen one material	SCRMAT_1	WCON
Screen slot size	SCRSLTSZ	WCON
Screen one top	SCRTOP_1	WCON
Screen two top	SCRTOP_2	WCON
Screen three top	SCRTOP_3	WCON
Screen four top	SCRTOP_4	WCON
Seal bottom	SEALBOT	WCON
Seal top	SEALTOP	WCON
Selenium (AAS)	SELE_A	METAL
Selenium (ICAP)	SELE_I	METAL
Silicon (ICAP)	SILI_I	METAL
Silver (AAS)	SILV_A	METAL
Silver (ICAP)	SILV_I	METAL
Silvex	SILVEX	PEST
Site	SITE	GEN
Sodium (AAS)	SODI_A	METAL
Sodium (ICAP)	SODI_I	METAL
Source of acid data	SRC_ACID	ACID
Source of anion data	SRC_AN	ANION
Source of base/neutral data	SRC_BASE	BASE
Source of field data	SRC_FLD	FIELD

Table 7.1 (continued)

Parameters	Variables	Data Base file
Source of general data	SRC_GEN	GEN
Source of metal data	SRC_MET	METAL
Source of miscellaneous data	SRC_MISC	MISC
Source of PCB data	SRC_PCB	PCB
Source of pesticide data	SRC_PEST	PEST
Source of radionuclide data	SRC_RAD	RAD
Source of volatile organic compound data	SRC_VOC	VOC
Source of well construction data	SRC_WCON	WCON
Strontium	STRONT	RAD
Strontium (ICAP)	STRO_I	METAL
Strontium-90	STRN90	RAD
Styrene	STYREN	VOC
Sulfate	SULFAT	ANION
Sulfide	SULFID	ANION
2,4,5-T	T_245	BASE
Technetium-99	TEC_99	RAD
Temperature, field, first measurement	TMP_F1	FIELD
Temperature, field, second measurement	TMP_F2	FIELD
Temperature, field, third measurement	TMP_F3	FIELD
Temperature, field, fourth measurement	TMP_F4	FIELD
Temperature, field, fifth measurement	TMP_F5	FIELD
Temperature, field, sixth measurement	TMP_F6	FIELD
Temperature, field, seventh measurement	TMP_F7	FIELD
1,1,2,2-Tetrachloroethane	TECETA	VOC
Tetrachloroethene	TECETE	VOC
Tetramethylsilane	TETMTS	VOC
Thallium (AAS)	THAL_A	METAL
Thallium-228	THA_28	RAD
Thorium (ICAP)	THOR_I	METAL
Thorium-228	THO_28	RAD
Thorium-230	THO_30	RAD
Thorium-232	THO_32	RAD
Thorium-234	THO_34	RAD
Thorium-231 and thorium-234	THO314	RAD
Tin (AAS)	TIN_A	METAL
Tin (ICAP)	TIN_I	METAL
Titanium (ICAP)	TITA_I	METAL
Toluene	TOLUEN	VOC
Total dissolved solids	TL_DIS	MISC
Total organic carbon, first measurement	TOC_1	MISC
Total organic carbon, second measurement	TOC_2	MISC

Table 7.1 (continued)

Parameters	Variables	Data Base file
Total organic carbon, third measurement	TOC_3	MISC
Total organic carbon, fourth measurement	TOC_4	MISC
Total organic chloride, first measurement	TOCL_1	MISC
Total organic chloride, second measurement	TOCL_2	MISC
Total organic chloride, third measurement	TOCL_3	MISC
Total organic chloride, fourth measurement	TOCL_4	MISC
Total organic halides, first measurement	TOX_1	MISC
Total organic halides, second measurement	TOX_2	MISC
Total organic halides, third measurement	TOX_3	MISC
Total organic halides, fourth measurement	TOX_4	MISC
Total suspended solids	TL_SUS	MISC
Toxaphene	TOXAPH	PEST
Transmissivity	TRANS	GEN
1,2,4-Trichlorobenzene	TB_124	BASE
1,1,1-Trichloroethane	TRC111	VOC
1,1,2-Trichloroethane	TRC112	VOC
Trichloroethene	TRICLE	VOC
2,4,5-Trichlorophenol	TC_245	ACID
2,4,6-Trichlorophenol	TC_246	ACID
1,1,2-Trichloro-1,2,2-trifluoroethane	TRIFLE	VOC
Trifluoroethene	TRICTR	VOC
1,3,5-Trimethylbenzene	TRM135	VOC
Tritium	TRIT	RAD
Turbidity	TURBID	MISC
Uranium (Fluor)	URAN_F	METAL
Uranium (ICAP)	URAN_I	METAL
Uranium-234	U_234	RAD
Uranium-235 and uranium-236	U_2356	RAD
Uranium-238	U_238	RAD
Vanadium (ICAP)	VANA_I	METAL
Vinyl acetate	VNYACE	VOC
Vinyl chloride	VNYCHL	VOC
Waste Area Grouping	WAG	GEN
Water level	WAT_LEV	MISC
Weathered rock top	ROCTOPWT	GEN
Well construction method	CONSMTHD	WCON
Well contractor	CONTNAME	WCON
Well depth, construction	WELDEP	WCON
Well type one	WELTYP_1	GEN
Well type two	WELTYP_2	GEN
Xylenes, total	XYLENE	VOC

Table 7.1 (continued)

Parameters	Variables	Data Base file
Zinc (ICAP)	ZINC_I	METAL
Zirconium (ICAP)	ZIRC_I	METAL

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