Appendix 1. Database Dictionary for the Study of Anthropogenic and Natural Contaminants

TANC Database—TANC_STUDIES Table Data Dictionary

[The TANC_Studies table stores descriptions of the TANC study areas]

STUDY_UNIT (USGS NAWQA Study Unit Code) Character; Width 4; **MANDATORY**
STUDY_UNIT is only served to the end user from the TANC Sites table

TANC_STUDY (TANC Study Identifier) Character; Width 12; **MANDATORY**
Each site for a study unit is given a code to identify the study unit,TANC, and the year the study unit was incorporated into the overall TANC study. The field is 12 characters wide so that an a, b, or c can be appended for study units with more than one TANC study area (nvbrtanc01a, nvbrtanc01b, sanjtanc01, hpgwtanc01)

SU_START_DATE (Study Unit Starting Date) Integer; Width 4
The year the study unit was started, or restarted in USGS NAWQA Cycle II

REGIONAL (Regional-Scale Investigation Flag) Boolean; Width 1; Yes (-1), No (0)
Indicates that the study unit conducted a TANC regional-scale investigation

LOCAL (Local-Scale Investigation Flag) Boolean; Width1; Yes (-1), No (0)
Indicates that the study unit conducted a TANC local-scale investigation

GENERAL_LOCATION (General Geographic Location) Character; Width 50
General geographic location of the TANC regional-scale investigation

SPECIFIC_LOCATION (Specific Geographic Location) Character; Width 50
Additional information on the specific geographic location of the TANC regional-scale investigation, if needed

AREA (Area of Regional-Scale Investigation) Real; Width 10; Decimal 2
Area of the regional-scale investigation, in square miles. This is the area of the regional ground-water flow model

AREA_SQUARE_KILOMETERS (Area of Regional–Scale Investigation, in Square Kilometers) Real; Width 10; Decimal 2
This is a calculated field (AREA multiplied by 2.59)

AQUIFER_LITH (Aquifer Lithology); Character; Width 4
Lithology(ies) of the aquifer simulated. For example, sand and gravel or limestone. Use USGS National Water Information System, Ground Water Site Inventory System (NWIS GWSI) C096 definitions (National Water Information System, Ground Water Site Inventory System *http://pubs.usgs.gov/of/2005/1251/pdf/gwcoding_Sect2-1.pdf accessed May 15, 2007)*

AQUIFER_TYPE (Aquifer Type Code); Character; Width 1
Aquifer type code for the aquifer simulated. Use NWIS GWSI [*C713*] definitions

PRINCIPAL_AQUIFER (USGS NAWQA Principal Aquifer); Character; Width 50
USGS NAWQA principal aquifer in which the TANC regional-scale investigation is located

LOCAL_AQUIFER_NAME (Aquifer Name); Character; Width 50
Local or study-unit name for the aquifer that is simulated in the TANC regional-scale investigation. If no local name, enter NA

PRINCIPAL_CATEGORY; Character; Width 50
Principal category of the aquifer being studied. (Values from the Ground Water Atlas of the United States *http://capp.water.usgs.gov/aquiferBasics/index.html*, accessed May 23, 2007)

HIERARCHICAL _CLASS_1; Character; Width 50
First level subdivision of the principal category of aquifer being studied. (Values are from the USGS Lexicon of Hydrogeologic Names in the United States, which were derived from the Ground Water Atlas of the United States *http://capp.water.usgs.gov/aquiferBasics/index.html*, accessed May 23, 2007)

HIERARCHICAL_CLASS_2; Character; Width 50

Second level subdivision of the principal category of aquifer being studied. (Values are from the USGS Lexicon of Hydrogeologic Names in the United States, which were derived from the Ground Water Atlas of the United States *http://capp.water.usgs.gov/aquiferBasics/index.html, accessed May 23, 2007)*

HIERARCHICAL_CLASS_3; Character; Width 50

Third level subdivision of the principal category of aquifer being studied. (Values are from the USGS Lexicon of Hydrogeologic Names in the United States, which were derived from the Ground Water Atlas of the United States *http://capp.water.usgs.gov/aquiferBasics/index.html*, accessed May 23, 2007)

HIERARCHICAL_CLASS_4; Character; Width 50

Fourth level subdivision of the principal category of aquifer being studied. (Values are from the USGS Lexicon of Hydrogeologic Names in the United States, which were derived from the Ground Water Atlas of the United States *http://capp.water.usgs.gov/aquiferBasics/index.html*, accessed May 23, 2007)

TANC Database—SITES Table Data Dictionary

[The Sites table, which is joined to tables in the greater USGS NAWQA Data Warehouse *http://infotrek.er.usgs.gov/traverse/f?p=NAWQA:HOME:822423385428597*, accessed May 15, 2007, stores information on sites included in the TANC study]

STUDY_UNIT (USGS NAWQA Study Unit Code) Character; Width 4; **MANDATORY**
USGS NAWQA Program study unit code. Used in conjunction with SITE_ID to create multiple-field primary key

SITE_ID (Station ID) Character; Width 24; **MANDATORY**
USGS NWIS GWSI (National Water Information System, Ground Water Site Inventory System, *http://pubs.usgs.gov/of/2005/1251/*, accessed May 15, 2007) Site ID [*C1*]. If a 15-digit Site ID is not available for a retrospective data site, SITE_ID can be the utility's short ID or a shortened version of STATION_NM. Must be unique within a given study unit. SITE_IDs for retrospective data collected from different depths at a single location also must be unique, but may be similar except for an ending depth added to the end of the ID (for example, CPT1A_92.5; CPT1A_110). SITES_RMKS field can be used to identify such sites related by depth. Used with STUDY_UNIT to create multiple-field primary key

STATION_NM (Local Number or Name) Character; Width 50
Name for sampling location, such as common name for a well or name of a well field if aggregate samples for a well field are stored. Commonly will match Station Name *[C12]* in GWSI database. May be the same as SITE_ID if no other local number or name is used

TANC_STUDY (Tanc Study Identifier) Character; Width 12; **MANDATORY**
Used to associate sites with year Study Unit was incorporated into TANC and separate sites from different study areas within a single Study Unit (sanjtanc01, nvbrtanc01a, nvbrtanc01b). TANC_STUDY codes are only served to the end user from the TANC_Studies table

SUCODE (USGS NAWQA Study Unit Network Code) Character; Width 50
Four-digit study unit abbreviation concatenated to USGS NAWQA network code. Multiple codes are allowed and must be separated by commas

STATE (State) Character; Width 2
Two-character State code. Not numeric State code

LAT (Latitude of Sampling Location) Real; Width 10; Decimal 2
Same as USGS NWIS GWSI field *[C9].* Units of degrees, minutes, decimal seconds, no spaces. Horizontal datum must be NAD83. Latitude should be considered essential

LAT_DECIMAL (Latitude in Decimal Degrees) Real; Width 10; Decimal 6

LONG (Longitude of Sampling Location) Real; Width 10; Decimal 2
Same as USGS NWIS GWSI field *[C10].* Units of degrees, minutes, decimal seconds, no spaces. Datum must be NAD83. Longitude should be considered essential

LONG_DECIMAL (Longitude in Decimal Degrees) Real; Width 10; Decimal 6
Longitude should be negative

COOR_METH (Method Used to Determine Lat / Long) Character; Width 1
Same as USGS NWSI GWSI field Lat/Long Method code *[C35].* Valid values include–but are not limited to–D, DGPS; G, GPS; M, map; S, survey; U, unknown

ALTITUDE (Altitude of Land Surface) Real; Width 10; Decimal, 2
Similar to USGS NWIS GWSI *[C16].* Units in feet above NGVD 29. NULL value is –9999

ALTITUDE_METERS (Altitude of Land Surface, in Meters Above NGVD 29) Real; Width, 10; Decimal, 2
This is a calculated field (ALTITUDE multiplied by 0.3048)

STA_TYPE (TANC Station Type Code) Character; Width 2
Valid values include USGS NWIS QWDATA (National Water Information System, Water Quality System, *http://pubs.usgs.gov/of/2006/1145/* accessed May 15, 2007) Table 11 *Station Type codes* (GW, well; used to identify sites that are composed of a single well. AG, aggregate ground water; used to identify sites where water from multiple wells has been blended by a water supplier. ME, meteorological). An additional code that is not a valid value for the NWIS database has been added to the TANC database. Specifically, BH, bore hole; used to identify sites where samples are collected but a well is not established (for example, hydropunch site or core hole not completed as a well). The BH code is equivalent to the combined C802 and C002 (X; test hole) fields in the NWIS GWSI database. (Note that the code CH is NOT used to identify core holes; rather, core samples are associated with a GW or BH STA_TYPE code and coded in the Results_Rgnl Table [Medium = 'E'] independently of site information)

SITE_USE (Primary Use of Site Code) Character; Width 2
Valid values are the same as those for the USGS NWIS QWDATA *Primary Use of Site code* Table 12 (C, standby; O, observation; R, recharge; T, test; U, unused; W, withdrawal of water; Z, destroyed)

WEB_FLAG (TANC Flag for Proprietary Data) Character; Width 1
P is stored if data from the site are proprietary and not available for release. All public-supply well sites (TANC database Well_Info table WATER_USE codes CWS, NTNCWS, TNCWS, and WS) should have proprietary data flags to prevent the accidental disclosure of precise well location

SITES_RMKS (Relevant Information or Remarks) Character; Width 100

TANC Database—WELL_INFO Table Data Dictionary

[The Well_Info table, which is joined to tables in the greater USGS NAWQA Data Warehouse, stores information on wells included in the TANC study. Sites in this table have TANC database Sites table STA_TYPE codes of GW (finished wells), BH (considered to be unfinished wells), or AG (site represents combined wells). Null values are coded for BH and AG sites where Well_Info table fields are not applicable]

STUDY_UNIT (USGS NAWQA Study Unit Code) Character; Width 4; **MANDATORY**
STUDY_UNIT is only served to the end user from the TANC Sites table

SITE_ID (Station ID) Character; Width 24; **MANDATORY**
Site ID. Entry must be identical to the Sites table entry. SITE_ID is only served to the end user from the TANC Sites table

PRIN_AQFR (USGS NAWQA Principal Aquifer) Character; Width 45
Valid values include the *19 USGS NAWQA principal aquifers*. Blank if not a principal aquifer

AQFR_TYPE (Aquifer Type) Character; Width 1
Valid values are the same as the USGS NWIS GWSI (National Water Information System, Ground Water Site Inventory System, *http://pubs.usgs.gov/of/2005/1251/*, accessed May 15, 2007) Aquifer Type codes *[C713]*

CONS_DATE (Date of First Construction) Integer; Width 8
Dates should be entered as YYYYMMDD. NULL value is -9999

CSNG_MAT (Casing Material) Character; Width, 1
Valid values are the same as USGS NWIS GWSI Casing Material codes *[C80].*

CSNG_DIAM (Casing Diameter) Real; Width 8; Decimal 2
Diameter of well casing, in inches. If more than one casing diameter exists, the largest diameter is recorded. NULL value –9999 is stored if the diameter is unknown

CSNG_DIAM_CENTIMETERS (Casing Diameter, in Cm) Real; Width 8; Decimal 2
This is a calculated field (CSNG_DIAM multiplied by 2.54)

T_OPEN_BLS (Top of Uppermost Open Interval) Real; Width 8; Decimal 2
Depth to top of uppermost open section, in feet below land surface. NULL is –9999

T_OPEN_METERS_BLS (Top of Uppermost Open Interval, in Meters Below Land Surface) Real; Width 8; Decimal 2
This is a calculated field (T_OPEN_BLS multiplied by 0.3048)

B_OPEN_BLS (Bottom of Lowermost Open Interval) Real; Width 8; Decimal 2
Depth to bottom of lowermost open section, in feet below land surface. NULL is –9999

B_OPEN_METERS_BLS (Bottom of Lowermost Open Interval, in Meters Below Land Surface) Real; Width 8; Dec. 2
This is a calculated field (B_OPEN_BLS multiplied by 0.3048)

NUM_OPEN (Number of Open Intervals) Character; Width 3

TOT_LENGTH_OPEN (Total Length of All Open Intervals) Real; Width 8; Decimal 2
Combined length of all open intervals, in feet. NULL value is –9999

TOT_LENGTH_OPEN_METERS (Total Length of All Open Intervals, in Meters) Real; Width 8; Decimal 2
This is a calculated field (TOT_LENGTH_OPEN multiplied by 0.3048)

GEN_LITH (Generalized Lithology) Character; Width 4
Single USGS GWSI code *[C96]* to generalize lithology of combined open/sample intervals

WELL_DPTH_BLS (Well Depth) Real; Width 10; Decimal 2
Units in feet below land surface. USGS NWIS GWSI field *[C28]*. NULL value is –9999

WELL_DPTH_METERS_BLS (Well Depth, in Meters Below Land Surface) Real; Width 10; Decimal 2
This is a calculated field (WELL_DPTH_BLS multiplied by 0.3048)

CAPACITY (Rated Pump Capacity) Real; Width 8; Decimal 2
USGS NWIS GWSI Rated Pump Capacity, in gallons per minute *[C268]*. NULL is –9999

CAPACITY_LITERS_PER_MINUTE (Rated Pump Capacity, in Liters per Minute) Real; Width 8; Decimal 2
This is a calculated field (CAPACITY multiplied by 3.785)

WATER_USE (TANC Water Use Code) Character; Width 6
Valid values include USGS GWSI National Water Use codes *[C39]* (DO, domestic; IN, industrial, IR, irrigation; LV, livestock) and one GWSI Primary Use of Water code (U, unused). A couple of codes that are not NWIS valid values have been added to accommodate TANC-specific project needs. CWS, community water system—public water system that provides water to the same population year round. Note that a public water system is one that provides piped water for human consumption to at least 15 service connections or serves an average of 25 people for at least 60 days each year as defined by the USEPA's Public Drinking Water Systems Programs *http://www.epa.gov/safewater/pws/pwss.html#pwsinfo*, accessed August 20, 2005; NTNCWS, nontransient noncommunity water systems—public water systems that serve at least 25 of the same people at least 6 months of the year and include schools, factories, and hospitals; and TNCWS, transient noncommunity water systems—systems that cater to transitory customers in nonresidential areas (campgrounds, motels, and gas stations). NWIS code CO (commercial) is used if it is not known whether a noncommunity water system is an NTNCWS or a TNCWS. If no information can be found other than that the well is for water supply, WS is used

POP_SERVED (CWS, NTNCWS, & TNCWS Populations Served) Character; Width 2
Code used to further qualify Public Water Systems. Valid values include VS, very small <500 served; S, small 501–3,300; M, medium 3,301–10,000; L, large 10,001–100,000; VL, very large > 100,000

DRILLERS_LOG (Hyperlink to .pdf of Driller's Log) Hyperlink
Intended for wells drilled specifically for the TANC study

WELL_INFO_RMKS (Relevant Information or Remarks) Character; Width 100
Good place for a study unit to code whether a CWS is screened across a confining unit

TANC Database—RESULTS_RGNL Table Data Dictionary

[The Results_Rgnl table stores information on concentrations or measurements associated with TANC regional-scale investigations. Entries are restricted to USGS NWIS QWDATA (National Water Information System, Water Quality System, *http://pubs.usgs.gov/of/2006/1145/,* accessed May 16, 2007) *Sample Type codes* 9, regular, and H, composite]

R_ID (Results ID) Integer; Width 10
Automatic sequence number used to serve as primary key for the Results_Rgnl table

STUDY_UNIT (USGS NAWQA Study Unit Code) Character; Width 4; **MANDATORY**
STUDY_UNIT is only served to the end user from the TANC Sites table

SITE_ID (Station ID) Character; Width 24; **MANDATORY**
Site ID. Entry must be identical to the Sites table entry. SITE_ID is only served to the end user from the TANC Sites table

DATE (Sample Date) Integer; Width 8; **MANDATORY**
Dates should be entered as YYYYMMDD

PCODE (Used to Uniquely Identify Parameter) Character; Width 7; **MANDATORY**
Code used to uniquely identify parameter, typically 5 digits. Additional information on parameters for which data exist in the TANC database can be found in the Parameters table. Null value –9999 will NOT be used

PNAME (Short Name for Parameter) Character; Width 30; **MANDATORY**
Entry must be identical to PNAME in the Parameters table

RESULT (Concentration or Measurement Reported) Real; Width, autoformat
Only 1 RESULT per PCODE per DATE for a given STUDY_UNIT / SITE_ID / MEDIUM combination can be stored for a site

REMARK_CODE (Info about the Magnitude [or Absence] of a Value) Character; Width 1
Valid values are the same as those for the USGS *NWIS QWDATA Remarks Code* Table 10 (Result Level) field

UNITS (Units for RESULT) Character; Width 27
Required units for each PCODE are specified in the TANC Parameters table

AGENCY (Source of Data) Character; Width 50
Collecting agency from which RESULTs were procured (for example, Ohio EPA or Ohio Department of Health). Valid agency descriptions, not codes from the *NWIS QWDATA Collecting Agency* list, are used where applicable. Separate entries for PCODE 00027 will not be coded

RETRO (Flag to Identify Result as TANC Retro Data) Character; Width 1
'R' is stored if the RESULT is part of the TANC retrospective data compilation. A blank is stored if the RESULT is not part of the retro compilation

MEDIUM (Code for Sample Medium) Character; Width 1; **MANDATORY**
6 (ground water), 7 (wet deposition), E (core material), F (interstitial water), $ (treated water supply). These are USGS *NWIS QWDATA Medium* codes

BEGIN_DPTH_BLS (Sample Beginning Depth) Real; Width 8; Decimal 2
Depth to top of sampled interval, in feet below land surface. Generally equal to top of screened interval for ground-water samples from wells. NULL is –9999

BEGIN_DPTH_METERS_BLS (Sample Beginning Depth, in Meters Below Land Surface) Real; Width 8; Decimal 2
This is a calculated field (BEGIN_DPTH_BLS multiplied by 0.3048)

END_DPTH_BLS (Sample Ending Depth) Real; Width 8; Decimal 2
Depth to bottom of sampled interval, in feet below land surface. Generally equal to bottom of screened interval for ground-water samples from wells. NULL is –9999

END_DPTH_METERS_BLS (Sample Ending Depth, in Meters Below Land Surface) Real; Width 8; Decimal 2
This is a calculated field (END_DPTH_BLS multiplied by 0.3048)

FILTERED (Flag to Indicate if Sample was Filtered) Character; Width 1
Y, sample filtered; N, sample not filtered; blank if unknown or not applicable

ANAL_METH (Analytical Test Method Number) Character; Width 20
Valid values include USGS NWIS method codes, USEPA test method numbers *http://www.epa.gov/epahome/index/*, accessed May 15, 2007, *Standard Methods for Examination of Water and Wastewater numbers* (Cleseri and others, 1998), ASTM method numbers *http://enterprise.astm.org/filtrexx40.cgi?index.frm*, accessed May 15, 2007. Insert EPA or SM or ASTM in all caps followed by blank space before actual number

DET_LIMIT (Detection Limit) Real; Width, autoformat
The larger of the reported MDL—method detection limit—OR the MRL—minimum reporting limit—OR the LRL—laboratory reporting level—OR the PQL—practical quantitation limit. Units should match the required units for the PCODE in the TANC Parameters table

RESULTS_RMKS (Relevant Information or Remarks) Character; Width 100
Good place to note type of treatment for treated water-supply samples, if known. Additional laboratory data qualifiers also could be stored here

Reference Cited

Cleseri, L.S., Greenberg, A.E., and Eaton, A.D., eds., 1998, Standard methods for the examination of waste and wastewater (20th ed.): Washington, D.C., American Public Health Association, 1220 p.

TANC Database—PARAMETERS Table Data Dictionary

[The Parameters table includes information on parameters that are included in the TANC study]

PCODE (Parameter Code) Character; Width 7; **MANDATORY**
Code used to uniquely identify parameter, typically 5 digits. Generally follows usage of the USGS NWIS QWDATA (National Water Information System, Water Quality System, *http://pubs.usgs.gov/of/2006/1145/*, accessed May 15, 2007) database as of November, 2006. Several PCODEs from USEPA's STORET database *http://www.epa.gov/storpubl/legacy/ref_tables.htm*, accessed August 20, 2005, that are not valid values for NWIS are included in the TANC database to accommodate miscellaneous retrospective data obtained from outside sources. Valid values for parameters not in NWIS are coded in the TANC database as the STORET PCODE or the closest NWIS PCODE followed by a '.u' for unofficial (for example, 81853.u, Trichloroethane, wu). Primary key for the Parameters table

PNAME (Short Name for Parameter) Character; Width 30; **MANDATORY**
Generally the 'Short Name' used in the USGS NWIS database as of November, 2006

R_UNITS (Required Units for Parameter) Character; Width 27
All results for a given PCODE must be converted to these required units before data are entered into the TANC database Results_Rgnl table

L_PNAME (Long Name for Parameter) Character; Width 175
'Long Name' in the November, 2006 parameters file for use in NWIS. More descriptive than the previous NWIS 'Long Name'. Can be used to differentiate between similar parameters in NWIS

MCL (Maximum Contaminant Level) Real; Width, autoformat
The highest level of a contaminant that is allowed in drinking water *http://www.epa.gov/safewater/mcl.html*, accessed May 15, 2007. MCLs are set as close to Maximum Contaminant Level Goals (MCLGs) as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards. MCLs in the TANC database are stored in the same units as those specified for the parameter in the R_UNITS field

CAS_NUM (Unique Identifier for a Chemical Substance) Character; Width 12
Chemical Abstracts Service's unique numeric identifier in the CAS Registry *http://www.cas.org/EO/regsys.html*, accessed May 15, 2007, for a chemical substance. Each CAS Registry Number designates only one substance and has no chemical significance. CAS numbers can be used to acquire information about chemical substances and will be useful for retrieving results for all PNAMEs associated with a particular substance regardless of PCODE. CAS numbers are not relevant for parameters unrelated to a chemical substance, such as Flow Rate

PARAMETERS_RMKS (Relevant Information or Remarks) Character; Width 100
Includes info on how PCODEs from outside sources are mapped to NWIS PCODEs, where relevant

TANC Database—PUMPING_RGNL Table Data Dictionary

[The Pumping_Rgnl table stores information about ALL pumping centers simulated in each of the TANC regional ground-water flow models, including pumping centers with no chemistry or contributing-area data stored in the database. This table enables the rest of the data in the database to be placed into a broader context with respect to pumping. It is a standalone table because, in many instances, different well identifiers were used in the models and in the Sites table]

TANC_STUDY (Tanc Study Identifier) Character; Width 12; **MANDATORY**
Used to associate sites with year Study Unit was incorporated into TANC and separate sites from different study areas within a single Study Unit (sanjtanc01, nvbrtanc01a, nvbrtanc01b).

WELL_ID (Well ID) Character; Width 24; **MANDATORY**
Unique well identifier used in the regional ground-water flow model

SITE_ID (Station ID) Character; Width 24
Site ID. Entry must be identical to the Sites table entry. Stored only for wells where the relationship between the WELL_ID and the SITE_ID in the Sites table is known. Some wells may exist within the Pumping_Rgnl table and the Sites table, but not contain a SITE_ID entry in the Pumping_Rgnl table because the relationship between the model WELL_ID and the SITE_ID cannot be readily determined

MFPUMP (Pumping Rate from Flow Model) Real; Width 8; Decimal 2
Representative pumping rate for the period of study (for example, 1997–2001 for most studies begun in 2001). Yield of well, in gallons per minute. Used to generate the contributing area data in the CAreaSum_Rgnl, CAreaRdxpH_Rgnl, and CAreaSrce_Rgnl tables. Value will be identical to the value in the RATE field of the Ancillary table where the simulated pumping center represents an individual well, as opposed to multiple wells. Additional information on the pumping rate can be found in the MFPUMP_REMARK field

MFPUMP_LITERS_PER_MINUTE (Pumping Rate from Flow Model, in Liters per Minute) Real; Width 8; Decimal 2
This is a calculated field (MFPUMP multiplied by 3.785)

MFPUMP_REMARK (Information Related to Pumping Rate from Flow Model) Char; Width 100
Additional information on the representative pumping rate in MFPUMP field. Must identify the period represented by the pumping rate. Should also record whether the MFPUMP entry represents the most recent pumping value for the stated period (if pumping was fairly constant) or some other representative value, such as the median

SOURCE (Source of Pumping Data) Character; Width 100
Source of the pumping data incorporated in the regional ground-water flow model

CWS (Flag to Indicate if a Well IS a Community Water Supply Well) Integer; Width 1
'1' is stored for wells that are community water-supply wells; '0' is stored for other types of supply wells, such industrial wells or irrigation wells

T_OPEN_BLS (Top of Uppermost Open Interval) Real; Width 8; Decimal 2
Depth to top of uppermost open section/top of screened interval, in feet below land surface. NULL is –9999

T_OPEN_METERS_BLS (Top of Uppermost Open Interval, in Meters Below Land Surface) Real; Width 8; Decimal 2
This is a calculated field (T_OPEN_BLS multiplied by 0.3048)

B_OPEN_BLS (Bottom of Lowermost Open Interval) Real; Width 8; Decimal 2
Depth to bottom of lowermost open section/screened interval, in feet below land surface. NULL is -9999

B_OPEN_METERS_BLS (Bottom of Lowermost Open Interval, in Meters Below Land Surface) Real; Width 8; Decimal 2
This is a calculated field (B_OPEN_BLS multiplied by 0.3048)

SIMULATED_T_OPEN_BLS (Top of Uppermost Simulated Open Interval) Real; Width 8; Decimal 2
Depth to top of uppermost simulated open section/top of screened interval, in feet below land surface. NULL is –9999

SIMULATED_T_OPEN_METERS_BLS (Top of Uppermost Simulated Open Interval, in Meters Below Land Surface) Real; Width 8; Decimal 2
This is a calculated field (SIMULATED_T_OPEN_BLS multiplied by 0.3048)

SIMULATED_B_OPEN_BLS (Bottom of Lowermost Simulated Open Interval) Real; Width 8; Decimal 2
Depth to bottom of lowermost simulated open section/screened interval, in feet below land surface. NULL is –9999

SIMULATED_B_OPEN_METERS_BLS (Bottom of Lowermost Simulated Open Interval, in Meters Below Land Surface) Real; Width 8; Decimal 2
This is a calculated field (SIMULATED_B_OPEN_BLS multiplied by 0.3048)

MF_COL (Column in Modflow Model) Integer; Width 5

MF_ROW (Row in Modflow Model) Integer; Width 5

MF_TOP_LAYER (Model Layer that Corresponds to the Top of the Screened Interval) Integer; Width 2

MF_BOT_LAYER (Model Layer that Corresponds to the Bottom of the Screened Interval) Integer; Width 2

RANK_ALL (Percentile Rank of All Wells) Real; Width, Autoformat
Percentile rank of pumping within a given study unit based on ALL simulated pumping centers in the regional ground-water flow model

RANK_CWS (Percentile Rank of All Wells) Real; Width, Autoformat
Percentile rank of pumping within a given study unit based on simulated community water-supply wells in the regional ground-water flow model

PUMPNG_RGNL_RMKS (Relevant Information or Remarks) Character; Width 100

TANC Database—ANCILLARY Table Data Dictionary

[The Ancillary table, which is joined back to tables in the greater USGS NAWQA Data Warehouse, stores ancillary data used to assist the TANC study team]

STUDY_UNIT (USGS NAWQA Study Unit Code) Character; Width 4; **MANDATORY**
STUDY_UNIT is only served to the end user from the TANC Sites table

SITE_ID (Station ID) Character; Width 24; **MANDATORY**
Site ID. Entry must be identical to the Sites table entry. SITE_ID is only served to the end user from the TANC Sites table

SWQA (Flag to Indicate Selected Use of Site) Integer; Width 1
'1' is stored for sites sampled as part of the NAWQA Source Water-Quality Assessment (SWQA) study. '2' is stored for sites where samples similar to SWQA study samples ('SWQA-like' samples) were specifically collected for the TANC study. '0' is stored for sites where neither SWQA nor SWQA-like samples were collected for use by the TANC study team

RDX_SWQA (Code to Indicate Redox Signature) Character; Width 6
Code to describe SWQA sample in terms of redox indicators. 'O2' is stored when sample has a signature consistent with oxygen reducing; 'NO3', consistent with denitrifying; 'MN', consistent with manganese reducing; 'FEHSO4', consistent with iron reducing high sulfate; 'FELSO4', consistent with iron reducing low sulfate. 'X' (miXed) is stored when sample contains evidence of two or more redox states; 'R#' (Range) is stored when redox indicators are missing from sample and redox signature can't be narrowed beyond a given range; # holds the number of redox indicator species used to describe redox (for example, R3; Nitrate, ferrous iron, and sulfate data are available). 'I' (Indeterminate) is stored where appropriate data are available but are not consistent with any of the above categories. Blank is stored if data are insufficient to describe redox. The TANC redox-classification system is the foundation for assigning redox codes

RDX_SWQAQ (X and R Redox Signature Qualifier) Character; Width 30
Code to further qualify samples for which an X or R# code is stored in the RDX_SWQA field. Valid values include any combination of the following redox codes: O2, NO3, MN, FEHSO4, FELSO4 separated by '/'. A '?' will identify redox states that can't be ruled out due to lack of data (for example, O2?/NO3?/; O2 data are missing and NO3 is present above the significance level)

BAL_RETRO (Charge Balance Flag for Retro Data Sample) Integer; Width 1
'2' is stored for sites where the representative retro data sample balances electrochemically within 10 percent; '1' is stored if the sample is not balanced; and '0' is stored if a charge balance was not or could not be calculated

RDX_RETRO (Code to Indicate Redox Signature) Character; Width 6
Code to describe representative retro data sample for the site in terms of redox indicators. 'O2' is stored when sample has a signature consistent with oxygen reducing; 'NO3', consistent with denitrifying; 'MN', consistent with manganese reducing; 'FEHSO4', consistent with iron reducing high sulfate; 'FELSO4', consistent with iron reducing low sulfate. 'X' (miXed) is stored when sample contains evidence of two or more redox states; 'R#' (Range) is stored when redox indicators are missing from sample and redox signature can't be narrowed beyond a given range; # holds the number of redox indicator species used to describe redox (for example, R3; Nitrate, ferrous iron, and sulfate data are available). 'I' (Indeterminate) is stored where appropriate data are available but are not consistent with any of the above categories. Blank is stored if data are insufficient to describe redox. The TANC redox-classification system is the foundation for assigning redox codes

RDX_RETROQ (X and R Redox Signature Qualifier) Character; Width 30
Code to further qualify samples for which an X or R# code is stored in the RDX_RETRO field. Valid values include any combination of the following redox codes: O2, NO3, MN, FEHSO4, FELSO4 separated by '/'. A '?' will identify redox states that can't be ruled out due to lack of data (for example, O2?/NO3?/; O2 data are missing and NO3 is present above the significance level)

QW (Flag to Indicate if Site HAS Water Quality Data) Integer; Width 1
'1' is stored for sites with water-quality data in the database

SOLIDS (Flag to Indicate if Site HAS Solid Phase Data) Integer; Width 1
'1' is stored for sites with solid phase data

C_AREA (Flag to Indicate if Site HAS Simulated Contributing Area) Integer; Width 1
Flag to indicate if site has contributing area data in the TANC database modeling tables (CAreaSum_Rgnl, CAreaRdxpH_Rgnl, and CAreaSrce_Rgnl). '1' is stored where data in the modeling tables represent the individual site; '2' is stored where data in the modeling tables represent multiple sites, including the individual site, and occurs when contributing areas were computed using combined pumping from more than one well in the same model grid block due to a lack of well-by-well location information

INSIDE_MODEL (Flag to Indicate if Site is IN Modeled Area) Integer; Width 1
'1' is stored for sites WITHIN the boundary of the regional ground-water flow modeled area. '0' is stored if the site is NOT within the regional ground-water flow modeled area

RATE (Representative Pumping Rate) Real; Width 8; Decimal 2
Representative pumping rate for the selected period of study (for example, 1997–2001 for most studies begun in 2001). Yield of well, in gallons per minute. May be based on the most recent value for the period, if pumping was fairly constant, or can be a median. The key here is to store what is most representative for the well/study area and to note what was done in the RATE_REMARK field. Generally consistent with pumping rates simulated in the regional ground-water flow model. Value will be less than the rate simulated in the corresponding model when the simulated pumping rate represents combined pumping from multiple sites (i.e., C_AREA flag of '2')

RATE_LITERS_PER_MINUTE (Representative Pumping Rate) Real; Width 8; Decimal 2
This is a calculated field (RATE multiplied by 3.785)

RATE_REMARK (Information Related to Representative Pumping Rate) Char; Width 100
Additional information on the representative pumping rate stored in the RATE field. Must include the period of time represented by the pumping rate

LOCAL_NETWORK (Flag to Indicate if Site IS Part of a TANC Local-Scale Sampling Network) Integer; Width 1
'1' is stored for sites that are part of a TANC local-scale sampling network

TANC_ANCILLARY_RMKS (Relevant Information or Remarks) Char; Width 100
Good place to store info related to the retro redox determination

Reference Cited

Chapelle, F.H., 2001, Ground-water microbiology and geochemistry (2nd ed.): New York, John Wiley and Sons, Inc., p. 291.

TANC Database—CAREASUM_RGNL Table Data Dictionary

[The CAreaSum_Rgnl table stores information on supply-well contributing areas from TANC regional-scale investigations. All fields summarize steady-state contributing areas for discharging supply wells that were computed by use of regional ground-water flow models and pumping data stored in the Pumping_Rgnl table]

STUDY_UNIT (USGS NAWQA Study Unit Code) Character; Width 4; **MANDATORY**
STUDY_UNIT is only served to the end user from the TANC Sites table

SITE_ID (Station ID) Character; Width 24; **MANDATORY**
Site ID. Entry must be identical to the Sites table entry. *SITE_ID is only served to the end user from the TANC Sites table*

AREA_CONTRIBUTING_RECHARGE (Area Contributing Recharge, In Square Feet) Real; Width; autoformat
Steady state 'area contributing recharge' to the simulated discharging supply well, in square feet, computed using pumping data stored in the Pumping_Rgnl table. Follows usage of the USGS Office of Ground Water (OGW Technical Memorandum No. 2003.02 *http://water.usgs.gov/admin/memo/GW/auto.html*, accessed May 15, 2007) and is the surface area on the three-dimensional boundary of the ground-water system that delineates the location of the water entering the ground-water system that eventually flows to the well and discharges

AREA_CONTRIBUTING_RECHARGE_SQUARE_METERS (Area Contributing Recharge, In Square Meters) Real; Width; autoformat
This is a calculated field (AREA_CONTRIBUTING_RECHARGE multiplied by 0.0929)

ZOC_AREA (Area of Zone of Contribution, In Square Feet) Real; Width, autoformat
Steady state 'areal extent of the zone of contribution' to the simulated discharging supply well, in square feet, computed using pumping data stored in the Pumping_Rgnl table. Follows usage of the USGS Office of Ground Water and is the projection of the three-dimensional volume of water flowing to the discharging well to a two-dimensional map [see AREA_CONTRIBUTING_RECHARGE for reference]

ZOC_AREA_SQUARE_METERS (Area of Zone of Contribution, In Square Meters) Real; Width, autoformat
This is a calculated field (ZOC_AREA multiplied by 0.0929)

ZOC_VOLUME *(Volume of Zone of Contribution) Real; Width, autoformat*
Steady state 'zone of contribution' to the simulated discharging supply well, in cubic feet. Follows usage of the USGS Office of Ground Water and is the three-dimensional volumetric part of the aquifer through which ground water flows to the discharging well from the area contributing recharge [see AREA_CONTRIBUTING_RECHARGE for reference]

ZOC_VOLUME_CUBIC_METERS (Volume of Zone of Contribution, In Cubic Meters) Real; Width, autoformat
This is a calculated field (ZOC_VOLUME multiplied by 0.02832)

TOTINFLOW (Simulated Inflow to Supply Well, In Cubic Feet Per Second) Real; Width, autoformat
Flow to supply well computed from forward tracked particles, in cubic feet per second

TOTINFLOW_CUBIC_METERS_PER_SECOND (Simulated Inflow to Supply Well, In Cubic Meters Per Second) Real; Width, autoformat
This is a calculated field (TOTINFLOW multiplied by 0.02832)

TTMIN (Minimum Traveltime) Real; Width, autoformat
Minimum traveltime along simulated particle pathlines that define the zone of contribution to the supply well, in years

TTMAX (Maximum Traveltime) Real; Width, autoformat
Maximum traveltime along simulated particle pathlines that define the zone of contribution to the supply well, in years

TT_LT10YR_PCT (Percent of Well Inflow <10 Years) Real; Width, autoformat
Percentage of inflow to the supply well that has a simulated traveltime less than 10 years

TT_LT20YR_PCT (Percent of Well Inflow <20 Years) Real; Width, autoformat
Percentage of inflow to the supply well that has a simulated traveltime less than 20 years

TT_LT30YR_PCT (Percent of Well Inflow <30 Years) Real; Width, autoformat
Percentage of inflow to the supply well that has a simulated traveltime less than 30 years

TT_LT40YR_PCT (Percent of Well Inflow <40 Years) Real; Width, autoformat
Percentage of inflow to the supply well that has a simulated traveltime less than 40 years

TT_LT50YR_PCT (Percent of Well Inflow <50 Years) Real; Width, autoformat
Percentage of inflow to the supply well that has a simulated traveltime less than 50 years

TT_LT60YR_PCT (Percent of Well Inflow <60 Years) Real; Width, autoformat
Percentage of inflow to the supply well that has a simulated traveltime less than 60 years

TT_LT100YR_PCT (Percent of Well Inflow <100 Years) Real; Width, autoformat
Percentage of inflow to the supply well that has a simulated traveltime less than 100 years

TT_LT200YR_PCT (Percent of Well Inflow <200 Years) Real; Width, autoformat
Percentage of inflow to the supply well that has a simulated traveltime less than 200 years

TT_GTE200YR_PCT (Percent of Well Inflow >= 200 Years) Real; Width, autoformat
Percentage of inflow to the supply well that has a simulated traveltime equal to or greater than 200 years

TIME_10TH (10th Percentile Traveltime, In Years) Real; Width, autoformat
10th percentile of the traveltimes associated with the simulated particle pathlines that define the zone of contribution to the supply well, in years

TIME_25TH (25th Percentile Traveltime, In Years) Real; Width, autoformat
25th percentile of the traveltimes associated with the simulated particle pathlines that define the zone of contribution to the supply well, in years

TIME_50TH (Median Traveltime, In Years) Real; Width, autoformat
Median of the traveltimes associated with the simulated particle pathlines that define the zone of contribution to the supply well, in years

TIME_75TH (75th Percentile Traveltime, In Years) Real; Width, autoformat
75th percentile of the traveltimes associated with the simulated particle pathlines that define the zone of contribution to the supply well, in years

TIME_90TH (90th Percentile Traveltime, In Years) Real; Width, autoformat
90th percentile of the traveltimes associated with the simulated particle pathlines that define the zone of contribution to the supply well, in years

TIME_MEAN (Mean Traveltime, In Years) Real; Width, autoformat
Mean of the traveltimes associated with the simulated particle pathlines that define the zone of contribution to the supply well, in years

DISTANCE_10TH (10th Percentile Distance Traveled) Real; Width, autoformat
10th percentile of the length of the simulated particle pathlines that define the zone of contribution to the supply well, in miles

DISTANCE_10TH_KM (10th Percentile Distance Traveled, In Kilometers) Real; Width, autoformat
This is a calculated field (DISTANCE_10TH multiplied by 1.6093)

DISTANCE_25TH (25th Percentile Distance Traveled) Real; Width, autoformat
25th percentile of the length of the simulated particle pathlines that define the zone of contribution to the supply well, in miles

DISTANCE_25TH_KM (25th Percentile Distance Traveled, In Kilometers) Real; Width, autoformat
This is a calculated field (DISTANCE_25TH multiplied by 1.6093)

DISTANCE_50TH (Median Distance Traveled) Real; Width, autoformat
Median of the length of the simulated particle pathlines that define the zone of contribution to the supply well, in miles

DISTANCE_50TH_KM (Median Distance Traveled, In Kilometers) Real; Width, autoformat
This is a calculated field (DISTANCE_50TH multiplied by 1.6093)

DISTANCE_75TH (75th Percentile Distance Traveled) Real; Width, autoformat
75th percentile of the length of the simulated particle pathlines that define the zone of contribution to the supply well, in miles

DISTANCE_75TH_KM (75th Percentile Distance Traveled, In Kilometers) Real; Width, autoformat
This is a calculated field (DISTANCE_10TH multiplied by 1.6093)

DISTANCE_90TH (90th Percentile Distance Traveled) Real; Width, autoformat
90th percentile of the length of the simulated particle pathlines that define the zone of contribution to the supply well, in miles

DISTANCE_90TH_KM (90th Percentile Distance Traveled, In Kilometers) Real; Width, autoformat
This is a calculated field (DISTANCE_90TH multiplied by 1.6093)

DISTANCE_MEAN (Mean Distance Traveled) Real; Width, autoformat
Mean of the length of the simulated particle pathlines that define the zone of contribution to the supply well, in miles

DISTANCE_MEAN_KM (Mean Distance Traveled, In Kilometers) Real; Width, autoformat
This is a calculated field (DISTANCE_MEAN multiplied by 1.6093)

VELOCITY_10TH (10th Percentile Velocity) Real; Width, autoformat
10th percentile of the velocities for the simulated particle pathlines that define the zone of contribution to the supply well, in miles per year

VELOCITY_10TH_ KILOMETERS_PER_YEAR (10th Percentile Velocity, In Kilometers per Year) Real; Width, autoformat
This is a calculated field (VELOCITY_10TH multiplied by 1.6093)

VELOCITY_25TH (25th Percentile Velocity) Real; Width, autoformat
25th percentile of the velocities for the simulated particle pathlines that define the zone of contribution to the supply well, in miles per year

VELOCITY_25TH_ KILOMETERS_PER_YEAR (25th Percentile Velocity, In Kilometers per Year) Real; Width, autoformat
This is a calculated field (VELOCITY_25TH multiplied by 1.6093)

VELOCITY_50TH (Median Velocity) Real; Width, autoformat
Median of the velocities for the simulated particle pathlines that define the zone of contribution to the supply well, in miles per year

VELOCITY_50TH_ KILOMETERS_PER_YEAR (Median Velocity, In Kilometers per Year) Real; Width, autoformat
This is a calculated field (VELOCITY_50TH multiplied by 1.6093)

VELOCITY_75TH (75th Percentile Velocity) Real; Width, autoformat
75th percentile of the velocities for the simulated particle pathlines that define the zone of contribution to the supply well, in miles per year

VELOCITY_75TH_ KILOMETERS_PER_YEAR (75th Percentile Velocity, In Kilometers per Year) Real; Width, autoformat
This is a calculated field (VELOCITY_75TH multiplied by 1.6093)

VELOCITY_90TH (90th Percentile Velocity) Real; Width, autoformat
90th percentile of the velocities for the simulated particle pathlines that define the zone of contribution to the supply well, in miles per year

VELOCITY_90TH_ KILOMETERS_PER_YEAR (90th Percentile Velocity, In Kilometers per Year) Real; Width, autoformat
This is a calculated field (VELOCITY_90TH multiplied by 1.6093)

VELOCITY_MEAN (Mean Velocity) Real; Width, autoformat
Mean of the velocities for the simulated particle pathlines that define the zone of contribution to the supply well, in miles per year

VELOCITY_MEAN_ KILOMETERS_PER_YEAR (Mean Velocity, In Kilometers per Year) Real; Width, autoformat
This is a calculated field (VELOCITY_MEAN multiplied by 1.6093)

PERM (Permeability, In Inches/Hour) Real; Width, autoformat
Flow-weighted average permeability of the soil in the area contributing recharge to the supply well, in inches/hour. Values from STATSGO Soil Characteristics for the Conterminous United States *http://water.usgs.gov/lookup/getspatial?muid*, accessed August 20, 2005

PERM_CM_PER_HOUR (Permeability, In Centimeters/Hour) Real; Width, autoformat
This is a calculated field (PERM multiplied by 2.54)

AWC (Available Water Capacity) Real; Width, autoformat
Flow-weighted average available water capacity of the soil in the area contributing recharge to the supply well, in inches per inch [see PERM for data reference]

OM (Organic Material) Real; Width, autoformat
Flow-weighted average organic material in soil in the area contributing recharge to the supply well, in percent by weight [see PERM for data reference]

SAND (Percent Sand) Real; Width, autoformat
Flow-weighted average percent sand in soil in the area contributing recharge to the supply well [see PERM for data reference]

SILT (Percent Silt) Real; Width, autoformat
Flow-weighted average percent silt in soil in the area contributing recharge to the supply well [see PERM for data reference]

CLAY (Percent clay) Real; Width, autoformat
Flow-weighted average percent clay in soil in the area contributing recharge to the supply well [see PERM for data reference]

HDG_A (Percent Soil in Hydrologic Drainage Group A) Real; Width, autoformat
Flow-weighted average percent soil in hydrologic drainage group A in area contributing recharge to the supply well [see PERM for data reference]

HDG_AC (Percent Soil in Hydrologic Drainage Group AC) Real; Width, autoformat
Flow-weighted average percent soil in hydrologic drainage group AC in area contributing recharge to the supply well [see PERM for data reference]

HDG_AD (Percent Soil in Hydrologic Drainage Group AD) Real; Width, autoformat
Flow-weighted average percent soil in hydrologic drainage group AD in area contributing recharge to the supply well [see PERM for data reference]

HDG_B (Percent Soil in Hydrologic Drainage Group B) Real; Width, autoformat
Flow-weighted average percent soil in hydrologic drainage group B in area contributing recharge to the supply well [see PERM for data reference]

HDG_BC (Percent Soil in Hydrologic Drainage Group BC) Real; Width, autoformat
Flow-weighted average percent soil in hydrologic drainage group BC in area contributing recharge to the supply well [see PERM for data reference]

HDG_BD (Percent Soil in Hydrologic Drainage Group BD) Real; Width, autoformat
Flow-weighted average percent soil in hydrologic drainage group BD in area contributing recharge to the supply well [see PERM for data reference]

HDG_C (Percent Soil in Hydrologic Drainage Group C) Real; Width, autoformat
Flow-weighted average percent soil in hydrologic drainage group C in area contributing recharge to the supply well [see PERM for data reference]

HDG_CD (Percent Soil in Hydrologic Drainage Group CD) Real; Width, autoformat
Flow-weighted average percent soil in hydrologic drainage group CD in area contributing recharge to the supply well [see PERM for data reference]

HDG_D (Percent Soil in Hydrologic Drainage Group D) Real; Width, autoformat
Flow-weighted average percent soil in hydrologic drainage group D in area contributing recharge to the supply well [see PERM for data reference]

SAND_10TH (10th Percentile Traveltime Through Sand, In Years) Real; Width, autoformat
10th percentile of traveltimes through sand along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

SAND_25TH (25th Percentile Traveltime Through Sand, In Years) Real; Width, autoformat
25th percentile of traveltimes through sand along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

SAND_50TH (Median Traveltime Through Sand, In Years) Real; Width, autoformat
Median of traveltimes through sand along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

SAND_75TH (75th Percentile Traveltime Through Sand, In Years) Real; Width, autoformat
75th percentile of traveltimes through sand along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

SAND_90TH (90th Percentile Traveltime Through Sand, In Years) Real; Width, autoformat
90th percentile of traveltimes through sand along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

SAND_MEAN (Mean Traveltime Through Sand, In Years) Real; Width, autoformat
Mean of traveltimes through sand along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

SLITCLAY_10TH (10th Percentile Traveltime Through Clay, Silt, or Till, In Years) Real; Width, autoformat
10th percentile of traveltimes through clay, silt, or till along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

SILTCLAY _25TH (25th Percentile Traveltime Through Clay, Silt or Till, In Years) Real; Width, autoformat
25th percentile of traveltimes through clay, silt, or till along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

SILTCLAY _50TH (Median Traveltime Through Clay, Silt, or Till, In Years) Real; Width, autoformat
Median of traveltimes through clay, silt, or till along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

SILTCLAY _75TH (75th Percentile Traveltime Through Clay, Silt, or Till, In Years) Real; Width, autoformat
75th percentile of traveltimes through clay, silt, or till along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

SILTCLAY _90TH (90th Percentile Traveltime Through Clay, Silt, or Till, In Years) Real; Width, autoformat
90th percentile of traveltimes through clay, silt, or till along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

SILTCLAY _MEAN (Mean Traveltime Through Clay, Silt, or Till, In Years) Real; Width, autoformat
Mean of traveltimes through clay, silt, or till along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

CARBONATE_10TH (10th Percentile Traveltime Through Carbonate, In Years) Real; Width, autoformat
10th percentile of traveltimes through carbonate along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

CARBONATE _25TH (25th Percentile Traveltime Through Carbonate, In Years) Real; Width, autoformat
25th percentile of traveltimes through carbonate along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

CARBONATE _50TH (Median Traveltime Through Carbonate, In Years) Real; Width, autoformat
Median of traveltimes through carbonate along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

CARBONATE _75TH (75th Percentile Traveltime Through Carbonate, In Years) Real; Width, autoformat
75th percentile of traveltimes through carbonate along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

CARBONATE _90TH (90th Percentile Traveltime Through Carbonate, In Years) Real; Width, autoformat
90th percentile of traveltimes through carbonate along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

CARBONATE _MEAN (Mean Traveltime Through Carbonate, In Years) Real; Width, autoformat
Mean of traveltimes through carbonate along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

SEDIMENTARY_10TH (10th Percentile Traveltime Through Sedimentary, In Years) Real; Width, autoformat
10th percentile of traveltimes through sedimentary rock along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

SEDIMENTARY _25TH (25th Percentile Traveltime Through Sedimentary, In Years) Real; Width, autoformat
25th percentile of traveltimes through sedimentary rock along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

SEDIMENTARY _50TH (Median Traveltime Through Sedimentary, In Years) Real; Width, autoformat
Median of traveltimes through sedimentary rock along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

SEDIMENTARY _75TH (75th Percentile Traveltime Through Sedimentary, In Years) Real; Width, autoformat
75th percentile of traveltimes through sedimentary rock along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

SEDIMENTARY _90TH (90th Percentile Traveltime Through Sedimentary, In Years) Real; Width, autoformat
90th percentile of traveltimes through sedimentary rock along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

SEDIMENTARY _MEAN (Mean Traveltime Through Sedimentary, In Years) Real; Width, autoformat
Mean of traveltimes through sedimentary rock along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

CRYSTALLINE_10TH (10th Percentile Traveltime Through Crystalline, In Years) Real; Width, autoformat
10th percentile of traveltimes through crystalline rock along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

CRYSTALLINE _25TH (25th Percentile Traveltime Through Crystalline, In Years) Real; Width, autoformat
25th percentile of traveltimes through crystalline rock along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

CRYSTALLINE _50TH (Median Traveltime Through Crystalline, In Years) Real; Width, autoformat
Median of traveltimes through crystalline rock along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

CRYSTALLINE _75TH (75th Percentile Traveltime Through Crystalline, In Years) Real; Width, autoformat
75th percentile of traveltimes through crystalline rock along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

CRYSTALLINE _90TH (90th Percentile Traveltime Through Crystalline, In Years) Real; Width, autoformat
90th percentile of traveltimes through crystalline rock along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

CRYSTALLINE _MEAN (Mean Traveltime Through Crystalline, In Years) Real; Width, autoformat
Mean of traveltimes through crystalline rock along simulated particle pathlines that define the zone of contribution to the supply well, in years. Based on discretized lithologies as defined by study unit modelers

TANC Database—CAREARDXPH_RGNL Table Data Dictionary

[The CAreaRdxpH_Rgnl table stores information on redox and pH conditions within supply well contributing areas from TANC regional-scale investigations. All fields describe the steady state 'zone of contribution' for discharging supply wells that were computed by use of regional ground-water flow models and pumping data stored in the Pumping_Rgnl table]

STUDY_UNIT (USGS NAWQA Study Unit Code) Character; Width 4; **MANDATORY**
STUDY_UNIT is only served to the end user from the TANC Sites table

SITE_ID (Station ID) Character; Width 24; **MANDATORY**
Site ID. Entry must be identical to the Sites table entry. SITE_ID is only served to the end user from the TANC Sites table

PCT_RDXUNK (Percentage of Water Entering Well from Unknown Redox Zone) Real; Width, autoformat
Percentage of simulated inflow to the supply well from areas defined by study unit modelers as having unknown redox conditions

PCT_O2NO3 (Percentage of Water Entering Well from O2NO3 Redox Zone) Real; Width, autoformat
Percentage of simulated inflow to the supply well from areas defined by study unit modelers as having O_2- or NO_3-reducing redox conditions

PCT_FESO4 (Percentage of Water Entering Well from FESO4 Redox Zone) Real; Width, autoformat
Percentage of simulated inflow to the supply well from areas defined by study unit modelers as having Mn-, Fe- or SO_4-reducing redox conditions

MAX_O2NO3 (Maximum Traveltime for a Particle Through O2NO3 Redox Zone, In Years) Real; Width, autoformat
Maximum time that any particle travels through areas defined by study unit modelers as having O_2- or NO_3-reducing conditions, in years

MAX_FESO4 (Maximum Traveltime for a Particle Through FESO4 Redox Zone, In Years) Real; Width, autoformat
Maximum time that any particle travels through areas defined by study unit modelers as having Mn-, Fe- or SO_4-reducing conditions, in years

FESO4_GT200_PCT (Percentage of Water That Spent Greater Than 200 Years in FESO4 Redox Zone) Real; Width, autoformat
Percentage of water that discharges to the supply well that is estimated to have spent greater than 200 years in areas defined by study unit modelers as having Mn-, Fe- or SO_4-reducing conditions

ZOC_O2NO3_PCT (Percentage of Zone of Contribution That Is In O2NO3 Redox Zone) Real; Width, autoformat
Percentage of zone of contribution that is associated with areas defined by study unit modelers as having O_2- or NO_3-reducing redox conditions

ZOC_FESO4_PCT (Percentage of Zone of Contribution That Is In FESO4 Redox Zone) Real; Width, autoformat
Percentage of zone of contribution that is associated with areas defined by study unit modelers as having Mn-, Fe- or SO_4-reducing redox conditions

TT_RDXUNK_PCT (Percentage of Total Traveltime Spent in Unknown Redox Zone) Real; Width, autoformat
Percentage of total traveltime associated with unknown redox zones

TT_O2NO3_PCT (Percentage of Total Traveltime Spent in O2NO3 Redox Zone) Real; Width, autoformat
Percentage of total traveltime associated with O_2- or NO_3-reducing redox conditions. Computed as O_2NO_3_MEAN/TIME_MEAN*100. O2NO3_MEAN is defined in this table (CAreaRdxpH_Rgnl); TIME_MEAN is defined in the TANC database CAreaSum_Rgnl table

TT_FESO4_PCT (Percentage of Total Traveltime Spent in FESO4 Redox Zone) Real; Width, autoformat
Percentage of total traveltime associated with Mn-, Fe- or SO_4-reducing redox conditions. Computed as FESO4_MEAN/TIME_MEAN*100. FESO4_MEAN is defined in this table (CAreaRdxpH_Rgnl); TIME_MEAN is defined in the TANC database CAreaSum_Rgnl table

O2NO3_10TH (10th Percentile Traveltime Through O2NO3 Zone, In Years) Real; Width, autoformat
10th percentile of the traveltimes through areas defined by study unit modelers as having O_2- or NO_3-reducing conditions along simulated particle pathlines that define the zone of contribution to the supply well, in years

O2NO3_25TH (25th Percentile Traveltime Through O2NO3 Zone, In Years) Real; Width, autoformat
25th percentile of the traveltimes through areas defined by study unit modelers as having O_2- or NO_3-reducing conditions along simulated particle pathlines that define the zone of contribution to the supply well, in years

O2NO3_50TH (Median Traveltime Through O2NO3 Zone, In Years) Real; Width, autoformat
Median of the traveltimes through areas defined by study unit modelers as having O_2- or NO_3-reducing conditions along simulated particle pathlines that define the zone of contribution to the supply well, in years

O2NO3_75TH (75th Percentile Traveltime Through O2NO3 Zone, In Years) Real; Width, autoformat
75th percentile of the traveltimes through areas defined by study unit modelers as having O_2- or NO_3-reducing conditions along simulated particle pathlines that define the zone of contribution to the supply well, in years

O2NO3_90TH (90th Percentile Traveltime Through O2NO3 Zone, In Years) Real; Width, autoformat
90th percentile of the traveltimes through areas defined by study unit modelers as having O_2- or NO_3-reducing conditions along simulated particle pathlines that define the zone of contribution to the supply well, in years

O2NO3_MEAN (Mean Traveltime Through O2NO3 Zone, In Years) Real; Width, autoformat
Mean of the traveltimes through areas defined by study unit modelers as having O_2- or NO_3-reducing conditions along simulated particle pathlines that define the zone of contribution to the supply well, in years

FESO4_10TH (10th Percentile Traveltime Through FESO4 Zone, In Years) Real; Width, autoformat
10th percentile of the traveltimes through areas defined by study unit modelers as having Mn-, Fe- or SO_4-reducing conditions along simulated particle pathlines that define the zone of contribution to the supply well, in years

FESO4_25TH (25th Percentile Traveltime Through FESO4 Zone, In Years) Real; Width, autoformat
25th percentile of the traveltimes through areas defined by study unit modelers as having Mn-, Fe- or SO_4-reducing conditions along simulated particle pathlines that define the zone of contribution to the supply well, in years

FESO4_50TH (Median Traveltime Through FESO4 Zone, In Years) Real; Width, autoformat
Median of the traveltimes through areas defined by study unit modelers as having Mn-, Fe- or SO_4-reducing conditions along simulated particle pathlines that define the zone of contribution to the supply well, in years

FESO4_75TH (75th Percentile Traveltime Through FESO4 Zone, In Years) Real; Width, autoformat
75th percentile of the traveltimes through areas defined by study unit modelers as having Mn-, Fe- or SO_4-reducing conditions along simulated particle pathlines that define the zone of contribution to the supply well, in years

FESO4_90TH (90th Percentile Traveltime Through FESO4 Zone, In Years) Real; Width, autoformat
90th percentile of the traveltimes through areas defined by study unit modelers as having Mn-, Fe- or SO_4-reducing conditions along simulated particle pathlines that define the zone of contribution to the supply well, in years

FESO4_MEAN (Mean Traveltime Through FESO4 Zone, In Years) Real; Width, autoformat
Mean of the traveltimes through areas defined by study unit modelers as having Mn-, Fe- or SO_4-reducing conditions along simulated particle pathlines that define the zone of contribution to the supply well, in years

PH_GT8_10TH (10th Percentile Traveltime Through pH>8 Zone, In Years) Real; Width, autoformat
10th percentile of the traveltimes through areas defined by study unit modelers as having pH greater than 8 along simulated particle pathlines that define the zone of contribution to the supply well, in years

PH_GT8_25TH (25th Percentile Traveltime Through pH>8 Zone, In Years) Real; Width, autoformat
25th percentile of the traveltimes through areas defined by study unit modelers as having pH greater than 8 along simulated particle pathlines that define the zone of contribution to the supply well, in years

PH_GT8_50TH (Median Traveltime Through pH>8 Zone, In Years) Real; Width, autoformat
Median of the traveltimes through areas defined by study unit modelers as having pH greater than 8 along simulated particle pathlines that define the zone of contribution to the supply well, in years

PH_GT8_75TH (75th Percentile Traveltime Through pH>8 Zone, In Years) Real; Width, autoformat
75th percentile of the traveltimes through areas defined by study unit modelers as having pH greater than 8 along simulated particle pathlines that define the zone of contribution to the supply well, in years

PH_GT8_90TH (90th Percentile Traveltime Through pH>8 Zone, In Years) Real; Width, autoformat
90th percentile of the traveltimes through areas defined by study unit modelers as having pH greater than 8 along simulated particle pathlines that define the zone of contribution to the supply well, in years

PH_GT8_MEAN (Mean Traveltime Through pH>8 Zone, In Years) Real; Width, autoformat
Mean of the traveltimes through areas defined by study unit modelers as having pH greater than 8 along simulated particle pathlines that define the zone of contribution to the supply well, in years

TANC Database—CAREASRCE_RGNL Table Data Dictionary

[The CAreaSrce_Rgnl table stores information on potential contaminant sources within supply-well contributing areas from TANC regional-scale investigations. All fields describe the steady state 'area contributing recharge' for discharging supply wells that were computed by use of regional ground-water flow models and pumping data stored in the Pumping_Rgnl table]

STUDY_UNIT (USGS NAWQA Study Unit Code) Character; Width 4; **MANDATORY**
STUDY_UNIT is only served to the end user from the TANC Sites table

SITE_ID (Station ID) Character; Width 24; **MANDATORY**
Site ID. Entry must be identical to the Sites table entry. *SITE_ID is only served to the end user from the TANC Sites table*

AREAL_RECHARGE (Percentage of Well Inflow from Areal Recharge) Real; Width, autoformat
Percentage of simulated inflow to the supply well from simulated areal recharge

SW_LEAKAGE (Percentage of Well Inflow from Surface Water Leakage) Real; Width, autoformat
Percentage of simulated inflow to the supply well from simulated surface-water features

MF_RECHARGE (Percentage of Well Inflow from Mountain Front Recharge) Real; Width, autoformat
Percentage of simulated inflow to the supply well from simulated mountain-front recharge

REG_INFLOW (Percentage of Well Inflow from Regional Inflow) Real; Width, autoformat
Percentage of simulated inflow to the supply well from lateral boundaries of the simulated aquifer

URBAN (Percentage of Well Inflow from Urban Areas) Real; Width, autoformat
Percentage of simulated inflow to the supply well from urban areas based on the enhanced National Land Cover Data (NLCDE), which is the National Land Cover Data (NLCD) for the period 1990-1995 enhanced with historical land use and land cover (GIRAS) data for the period 1970-1985 where problems with attribute miscoding and data coverage at quadrangle boundaries existed in the original NLCD *http://pubs.usgs.gov/ds/2006/240/#proc*, accessed August 20, 2005

AGRICULTURE (Percentage of Well Inflow from Agricultural Areas) Real; Width, autoformat
Percentage of simulated inflow to the supply well from areas that were agricultural in the early 1990's based on the enhanced National Land Cover Data (NLCDE) [see URBAN for a more complete data reference]

FOREST (Percentage of Well Inflow from Forested Areas) Real; Width, autoformat
Percentage of simulated inflow to the supply well from areas that were forested in the early 1990's based on the enhanced National Land Cover Data (NLCDE) [see URBAN for a more complete data reference]

RANGELAND (Percentage of Well Inflow from Rangeland/Shrubland Areas) Real; Width, autoformat
Percentage of simulated inflow to the supply well from areas that were rangeland/shrubland in the early 1990's based on the enhanced National Land Cover Data (NLCDE) [see URBAN for a more complete data reference]

BARREN (Percentage of Well Inflow from Barren Areas) Real; Width, autoformat
Percentage of simulated inflow to the supply well from areas that were barren in the early 1990's based on the enhanced National Land Cover Data (NLCDE) [see URBAN for a more complete data reference]

WETLAND (Percentage of Well Inflow from Wetland Areas) Real; Width, autoformat
Percentage of simulated inflow to the supply well from areas that were wetlands in the early 1990's based on the enhanced National Land Cover Data (NLCDE) [see URBAN for a more complete data reference]

WATER (Percentage of Well Inflow from Water Areas) Real; Width, autoformat
Percentage of simulated inflow to the supply well from areas that were water in the early 1990's based on the enhanced National Land Cover Data (NLCDE) [see URBAN for a more complete data reference]

URB_RES (Percentage of Well Inflow from Urban Residential Areas) Real; Width, autoformat
Percentage of simulated inflow to the supply well from areas that were urban residential in the early 1990's based on the enhanced National Land Cover Data (NLCDE). This is a subdivision of the URBAN field [see URBAN for a more complete data reference]

URB_COMIND (Percentage of Well Inflow from Urban Commercial/Industrial Areas) Real; Width, autoformat
Percentage of simulated inflow to the supply well from areas that were urban commercial/industrial in the early 1990's based on the enhanced National Land Cover Data (NLCDE). This is a subdivision of the URBAN field [see URBAN for a more complete data reference]

PERSONS2000 (People in Contributing Area from 2000 Census) Real; Width, autoformat
Estimated number of people in the contributing area from the 2000 census data based on the percentage of the census block within the simulated area contributing recharge. Census data obtained by the USGS NAWQA Program from *http://www.esri.com/data/download/census2000_tigerline/index.html*, accessed August 20, 2005

A_PERSONS2000 (People in Contributing Area from 2000 Census Adjusted by Urban Areas) Real; Width, autoformat
Estimated number of people in the contributing area from the 2000 census data based on the percentage of urban area within the census block in the simulated area contributing recharge. Census data obtained by the USGS NAWQA Program from *http://www.esri.com/data/download/census2000_tigerline/index.html*, accessed August 20, 2005; urban land use data from the NLCDE *http://landcover.usgs.gov/* , accessed August 20, 2005

HOUSES2000 (Houses in Contributing Area from 2000 Census) Real; Width, autoformat
Estimated number of houses in the contributing area from the 2000 census data based on the percentage of the census block within the simulated area contributing recharge [see PERSONS2000 for data reference]

A_HOUSES2000 (Houses in Contributing Area from 2000 Census Adjusted by Urban Areas) Real; Width, autoformat
Estimated number of houses in the contributing area from the 2000 census data based on the percentage of urban area within the census block in the simulated area contributing recharge [see A_PERSONS2000 for data reference]

PERSONS1990 (People in Contributing Area from 1990 Census) Real; Width, autoformat
Estimated number of people in the contributing area from the 1990 census data based on the percentage of the census block within the simulated area contributing recharge [see PERSONS2000 for data reference]

A_PERSONS1990 (People in Contributing Area from 1990 Census Adjusted by Urban Areas) Real; Width, autoformat
Estimated number of people in the contributing area from the 1990 census data based on the percentage of urban area within the census block in the simulated area contributing recharge [see A_PERSONS2000 for data reference]

HOUSES1990 (Houses in Contributing Area from 1990 Census) Real; Width, autoformat
Estimated number of houses in the contributing area from the 1990 census data based on the percentage of the census block within the simulated area contributing recharge [see PERSONS2000 for data reference]

A_HOUSES1990 (Houses in Contributing Area from 1990 Census Adjusted by Urban Areas) Real; Width, autoformat
Estimated number of houses in the contributing area from the 1990 census data based on the percentage of urban area within the census block in the simulated area contributing recharge [see A_PERSONS2000 for data reference]

PRVWAT1990 (Houses Served By Private Well in Contributing Area from 1990 Census) Real; Width, autoformat
Estimated number of houses served by a private well in the contributing area from the 1990 census data based on the percentage of the census block within the simulated area contributing recharge [see PERSONS2000 for data reference]

A_PRVWAT1990 (Houses Served By Private Well in Contributing Area from 1990 Census Adjusted by Urban Area) Real; Width, autoformat
Estimated number of houses served by a private well in the contributing area from the 1990 census data based on the percentage of urban area within the census block in the simulated area contributing recharge [see A_PERSONS2000 for data reference]

PRVSEW1990 (Houses Served By Private Sewer in Contributing Area from 1990 Census) Real; Width, autoformat
Estimated number of houses served by a private sewer in the contributing area from the 1990 census data based on the percentage of the census block within the simulated area contributing recharge [see PERSONS2000 for data reference]

A_PRVSEW1990 (Houses Served By Private Sewer in Contributing Area from 1990 Census Adjusted by Urban Area) Real; Width, autoformat
Estimated number of houses served by a private sewer in the contributing area from the 1990 census data based on the percentage of urban area within the census block in the simulated area contributing recharge [see A_PERSONS2000 for data reference]

BLT_B70 (Houses Built Before 1970) Real; Width, autoformat
Estimated number of houses built before 1970 in the contributing area from the 1990 census data based on the percentage of the census block within the simulated area contributing recharge [see PERSONS2000 for data reference]

A_ BLT_B70 (Houses Built Before 1970 Adjusted by Urban Areas) Real; Width, autoformat
Estimated number of houses built before 1970 in the contributing area from the 1990 census data based on the percentage of urban area within the census block in the simulated area contributing recharge [see A_PERSONS2000 for data reference]

BLT_7079 (Houses Built Between 1970 and 1979) Real; Width, autoformat
Estimated number of houses built between 1970 and 1979 in the contributing area from the 1990 census data based on the percentage of the census block within the simulated area contributing recharge [see PERSONS2000 for data reference]

A_ BLT_7079 (Houses Built Between 1970 and 1979 Adjusted by Urban Areas) Real; Width, autoformat
Estimated number of houses built between 1970 and 1979 in the contributing area from the 1990 census data based on the percentage of urban area within the census block in the simulated area contributing recharge [see A_PERSONS2000 for data reference]

BLT_8084 (Houses Built Between 1980 and 1984) Real; Width, autoformat
Estimated number of houses built between 1980 and 1984 in the contributing area from the 1990 census data based on the percentage of the census block within the simulated area contributing recharge [see PERSONS2000 for data reference]

A_ BLT_8084 (Houses Built Between 1980 and 1984 Adjusted by Urban Areas) Real; Width, autoformat
Estimated number of houses built between 1980 and 1984 in the contributing area from the 1990 census data based on the percentage of urban area within the census block in the simulated area contributing recharge [see A_PERSONS2000 for data reference]

BLT_8589 (Houses Built Between 1985 and 1989) Real; Width, autoformat
Estimated number of houses built between 1985 and 1989 in the contributing area from the 1990 census data based on the percentage of the census block within the simulated area contributing recharge [see PERSONS2000 for data reference]

A_BLT_8589 (Houses Built Between 1985 and 1989 Adjusted by Urban Areas) Real; Width, autoformat
Estimated number of houses built between 1985 and 1989 in the contributing area from the 1990 census data based on the percentage of urban area within the census block in the simulated area contributing recharge [see A_PERSONS2000 for data reference]

BLT_9099 (Houses Built Between 1990 and 1999) Real; Width, autoformat
Estimated number of houses built between 1990 and 1999 in the contributing area based on the percentage of the census block within the simulated area contributing recharge; difference between the 2000 and 1990 censuses [see PERSONS2000 for data reference]. Changes in census block boundaries between 1990 and 2000 may affect results [for example, negative values could result from changes in census block boundaries, or they could indicate that houses were vacated or destroyed]

A_BLT_9099 (Houses Built Between 1990 and 1999 Adjusted by Urban Areas) Real; Width, autoformat
Estimated number of houses built between 1990 and 1999 in the contributing area based on the percentage of urban area within the census block in the simulated area contributing recharge; difference between the 2000 and 1990 censuses [see A_PERSONS2000 for data reference]. Changes in census block boundaries between 1990 and 2000 may affect results [for example, negative values could result from changes in census block boundaries, or they could indicate that houses were vacated or destroyed]

ROADLENGTH (Length of Roads) Real; Width, autoformat
Total length of roads in the area contributing recharge, in feet. Data obtained by the USGS NAWQA Program from *http://www.esri.com/data/download/census2000_tigerline/index.html*, accessed August 20, 2005

ROADLENGTH_METERS (Length of Roads, In Meters) Real; Width, autoformat
This is a calculated field (ROADLENGTH multiplied by 0.3048)

TANKS_ALL (Underground Storage Tanks) Real; Width, autoformat
Number of underground storage tanks (gas stations, dry cleaners, unknown; leaking and not known to be leaking) in the area contributing recharge. Underground storage tank data are from Vista Information Solutions, Inc., San Diego, CA, and were retrieved by the USGS NAWQA Program by using the proprietary Starview 2.5.1 software and the June 1998 database. For tanks that did not have good location data, a probability that the tank would be in the contributing area was computed and then added to the number of tanks in the contributing area with more certain locations. Probabilities were computed by buffering the tank location in question with the radius of uncertainty provided in the dataset, overlaying the buffer on the simulated area contributing recharge, and dividing the area represented by the overlap of the buffer and contributing area by the total area of the buffer

TANKS_LEAKING_GAS (Leaking Underground Storage Tanks at Gas Stations) Real; Width, autoformat
Number of leaking underground storage tanks at gas stations in the area contributing recharge. Underground storage tank data are from Vista Information Solutions, Inc. For tanks that did not have good location data, a probability that the tank would be in the contributing area was computed and then added to the number of tanks in the contributing area with more certain locations [see TANKS_ALL for a more complete description and data reference]

TANKS_LEAKING_DRYCLEANER (Leaking Underground Storage Tanks at Dry Cleaners) Real; Width, autoformat
Number of leaking underground storage tanks at dry cleaners in the area contributing recharge. Underground storage tank data are from Vista Information Solutions, Inc. For tanks that did not have good location data, a probability that the tank would be in the contributing area was computed and then added to the number of tanks in the contributing area with more certain locations [see TANKS_ALL for a more complete description and data reference]

TANKS_LEAKING_UNKNOWN (Leaking Underground Storage Tanks at Unknown Facilities) Real; Width, autoformat
Number of leaking underground storage tanks in the area contributing recharge at facilities that are not known to be gas stations or dry cleaners. Underground storage tank data are from Vista Information Solutions, Inc. For tanks that did not have good location data, a probability that the tank would be in the contributing area was computed and then added to the number of tanks in the contributing area with more certain locations [see TANKS_ALL for a more complete description and data reference]

TANKS_UNDERGROUND_GAS (Underground Storage Tanks at Gas Stations not Known to be Leaking) Real; Width, autoformat
Number of underground storage tanks at gas stations in the area contributing recharge that are not known to be leaking. Underground storage tank data are from Vista Information Solutions, Inc. For tanks that did not have good location data, a probability that the tank would be in the contributing area was computed and then added to the number of tanks in the contributing area with more certain locations [see TANKS_ALL for a more complete description and data reference]

TANKS_UNDERGROUND_DRYCLEANER (Underground Storage Tanks at Dry Cleaners not Known to be Leaking) Real; Width, autoformat
Number of underground storage tanks at dry cleaners in the area contributing recharge that are not known to be leaking. Underground storage tank data are from Vista Information Solutions, Inc. For tanks that did not have good location data, a probability that the tank would be in the contributing area was computed and then added to the number of tanks in the contributing area with more certain locations [see TANKS_ALL for a more complete description and data reference]

TANKS_UNDERGROUND_UNKNOWN (Underground Storage Tanks at Unknown Facilities not Known to be Leaking) Real; Width, autoformat

Number of underground storage tanks in the area contributing recharge that are not known to be leaking at facilities that are not known to be gas stations or dry cleaners. Underground storage tank data are from Vista Information Solutions, Inc. For tanks that did not have good location data, a probability that the tank would be in the contributing area was computed and then added to the number of tanks in the contributing area with more certain locations [see TANKS_ALL for a more complete description and data reference]

FERTILIZER (Nitrogen in Fertilizer Applied) Real; Width, autoformat

Estimated amount of nitrogen in fertilizer applied to the area contributing recharge, in kilograms. Average based on 1990 through 1998 annual State- and county-level information on the tonnage of fertilizer product sales obtained by the USGS NAWQA Program from the Association of American Plant Food Control Officials (AAPFCO), University of Kentucky

MANURE (Nitrogen in Manure Applied) Real; Width, autoformat

Estimated amount of nitrogen in manure applied to the area contributing recharge, in kilograms. Average based on 1992 and 1997 animal populations *http://water.usgs.gov/lookup/getspatial?manure*, accessed May 15, 2007