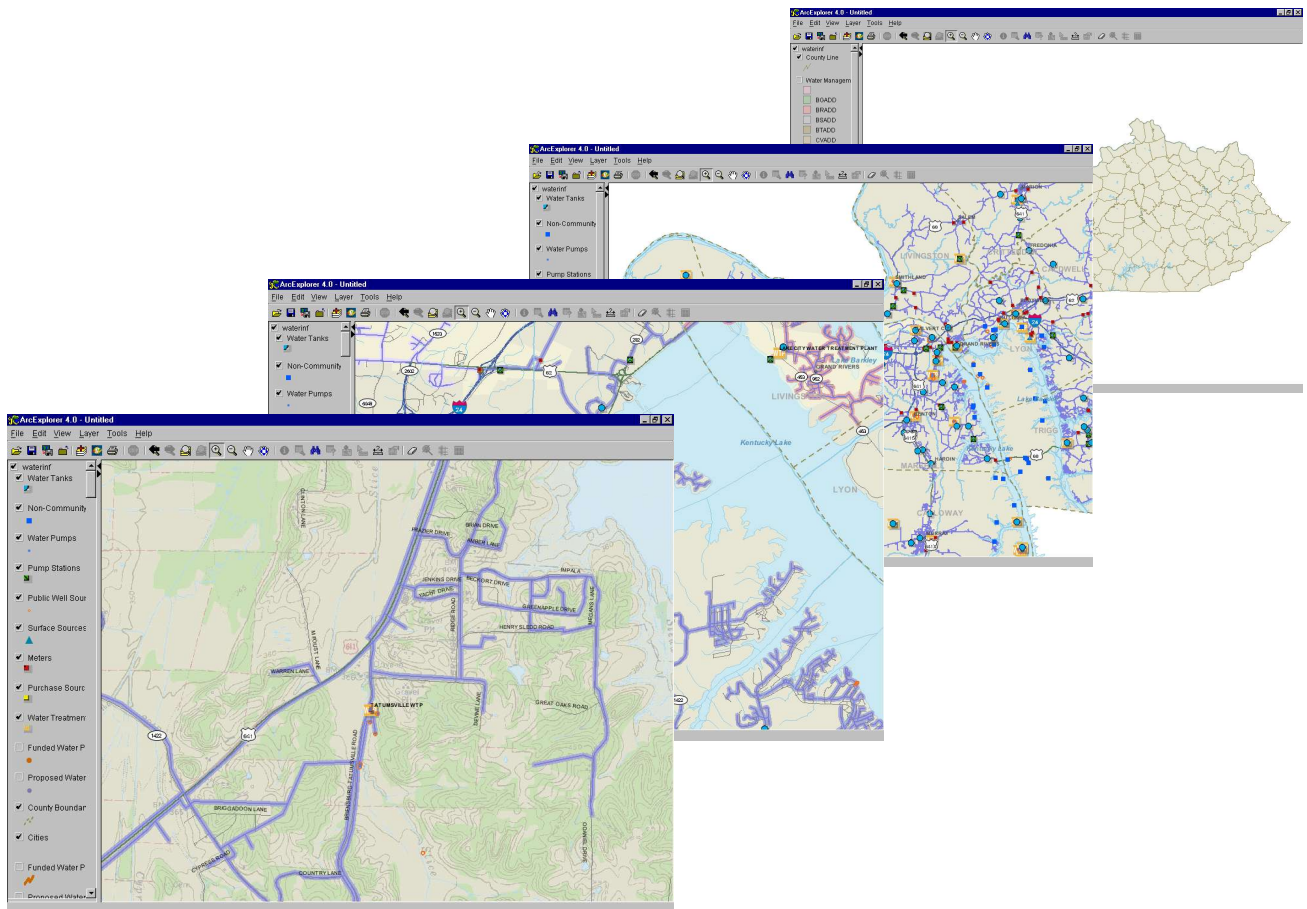# First Edition

Kentucky
Water and Sanitary Sewer
GIS Feature Attribute Standard

Approved by the
Commonwealth of Kentucky
Geographic Information Advisory Council
June 13, 2002

Table of Contents

Executive Summary

This standard describes feature attributes for water and sanitary sewer databases. These are recommendations for the utilities to use in developing their own GIS database. These are only recommendations. The intent is to encourage utilities to use GIS and to develop data that can be shared with other utilities and state agencies. This standard is not intended to be software specific.

The report of this committee has a uniquely Kentucky flavor and contains several firsts:
-   It incorporates the first, and perhaps, only statewide comprehensive water and sanitary sewer database in the nation: the Water Resource Information System (WRIS), which is housed at the Kentucky Infrastructure Authority.
-   This is the first GIAC Subcommittee to create a nested standard taking into account the needs of state, regional, local government and public and private utilities.
-   Kentucky is the first state to create a nested standard for water and sanitary sewer utilities.

This is the first edition of the standard. It is anticipated that with changes in the needs of the water and sanitary sewer utilities, changes in technology and with an increase in the number of utilities using GIS, that there will be subsequent editions to this standard.

Background and Statement of the Charge

The Utilities Subcommittee of the Geographic Information Advisory Council (GIAC) was given the charge to:

1. Identify and document the current and potential uses and users of a digital geographically referenced water and sanitary sewer dataset.

2. Work with those identified users to determine and document the necessary content that would be required in a digital geographically referenced water and sanitary sewer dataset.

3. Publish <u>draft</u> digital geographically referenced water and sanitary sewer standards including procedures for taking, answering, incorporating comments from reviewers for ultimate promulgation of the standard.

This charge was an outgrowth of the work of a previous subcommittee, the GIAC GIS Standards Subcommittee, which was charged in part to examine the TRI-Services geospatial attribution standards. They were reviewed to see if they met the needs of Kentucky local, county, regional, and state governments to create a 'nested' set of attribution standards which will enable GIS data sharing between levels of government. The GIS Standards Subcommittee made the following recommendation: "It is the general consensus of the subcommittee that a nested Kentucky Spatial Data Standard be developed and made available for use within the Commonwealth. This standard should be based on both existing, well-established models already in use, and on the SDS model wherever possible. In particular, the benefits of pre-defined RDBMS tables and attribute domains, and the education tools to create and maintain them are strongly recommended."

WRIS Overview

The WRIS is an existing, established model already in use in Kentucky. It was a product of the Governor's Water Resource Development Commission (WRDC). The WRDC was created under Executive Order in 1996 and attached administratively to the Department for Local Government. The WRDC's mission was that of planning for the provision of potable water to all Kentuckians by the year 2020.   As a part of its charge, the WRDC was directed to utilize Geographic Information System technologies coupled with engineering expertise as it developed a Strategic Water Plan for Kentucky.

Phase I of the project involved the collection of existing water and sewer infrastructure information for each system in the Commonwealth from late 1998 through mid 1999. Kentucky's fifteen Area Development Districts (ADDs) under direction of the WRDC performed this massive task. Each ADD administered a 600+ question survey to every system in their region and obtained "mapped" system information as well other administrative, planning and operations and maintenance data. Mapped information collected during this initial effort was input into ARC/INFO GIS Coverages, whereas the non-spatial data was input using MS Access forms. The Kentucky Division of Water, Drinking Water Branch and select ADD Staff compiled the original survey and data

structure for these datasets. The initial data structure allowed for database "joins/relates" between the spatial and non-spatial datasets.

In late 1998, the WRDC hired its first GIS staff person to begin the process of "seaming" and analyzing the submitted information to create statewide datasets and GIS Layers. Due to the great interest in the datasets by state agencies and other entities and the need to develop the information system with an eye towards its consistent, long-term maintenance, a technical committee was established to provide guidance and support.

The WRIS Technical Advisory Committee (TAC) was formed by the WRDC officially in February 1999. Individuals from the following agencies were asked to participate: Natural Resource and Environmental Protection Cabinet's (NREPC) Office of Information Systems, NREPC's Division of Water, Public Service Commission, Kentucky Rural Water Association (KRWA), Kentucky Geologic Survey, Cabinet for Economic Development, Kentucky Transportation Cabinet, the Area Development Districts (ADDs), and the Kentucky Office of Geographic Information. Thus, the committee makeup provided ample representation from all levels of government, including the local water and wastewater providers through the ADDs and KRWA.

During 1999, the WRIS TAC reviewed the work submitted by the ADDs, provided feedback on the original data structure, and developed a data structure for use during the collection of proposed water and wastewater system expansion information. Topics such as Digital Submission Standards for Final Design Plans and As-Builts, as well as future update policies and procedures were consistently on the agenda. The issue of data integration with other state agencies, regional planning entities and the local service providers was a pervasive theme throughout all meetings.

The information housed in the WRIS during mid-1999 had then been reviewed by the WRIS TAC and was utilized by the WRDC during the compilation of its Governor's Strategic Water Plan. Having this level of information coupled with the analysis tools of a GIS streamlined the planning process. The Water Plan was completed in October 1999 and the Wastewater in March 2000.

In April 2000, Senate Bill 409 passed both houses and was signed by the Governor. This legislation moved the WRIS to the Kentucky Infrastructure Authority (KIA) that was also relocated from the Finance Cabinet to the Office of the Governor. The KIA is governed by a board of nine members consisting of the secretaries of Economic Development, Finance and Administration, and Natural Resources and Environmental Protection Cabinets, the executive director of the Public Service Commission, the commissioner of the Department for Local Government, and members nominated by the Kentucky Association of Counties, the Kentucky League of Cities, the Kentucky Rural Water Association, and the Kentucky section of the American Water Works Association, plus a representative of a non-profit water company. Senate Bill 409 called for annual updates to the WRIS so that it was always current and at-hand for decision-support relating to water and wastewater infrastructure planning and funding

At that point, the WRIS TAC process was re-initiated with the charge to revisit the WRIS data structure and make necessary adjustments to the standard. Changes to the structure were based on multi-agency data needs, input from the ADDs, and lessons learned from the initial data collection and input processes. Additionally, it is also important to note that both overall coverage/table and record level metadata was

introduced to the WRIS at this stage. The collective effort of "re-building" the data structure yielded an even more intelligent and useful product and a standard that the KY GIS Community could embrace as it related to water and wastewater infrastructure. After nearly 10 months of meetings the new structure was rolled out and the ADDs were contracted with for another field-update of all WRIS data elements. The update process for water systems is now complete and wastewater should be done by early summer, 2002. At that point the WRIS TAC will once again have the charge of reviewing the datasets and associated standards.

Defining the Scope of the Standard

1. The work of this committee and this standard is limited to a document defining the attributes that are assigned to the geographic features characteristic of water and sewer systems.

2. This will be a nested standard in order to facilitate GIS data sharing among, local, county, regional, and state government. Currently, state government, the Area Development Districts, the Water Management Councils, and a growing number in the engineering community use the WRIS. It was designed to meet the needs of state, regional, and to some extent local government and serves the needs of those agencies. It is not the intent of the GIAC Subcommittee to change that standard or to revisit the work that has already been done to put that database together. Rather it is the intent to build on that work, to encourage all water utilities, many of which are operated by local government, either at the county or city level, to use GIS as a tool to assist in the operation of the utility. Consequently, this subcommittee began with the WRIS, and then added attributes, and features to meet the needs of the water and sanitary sewer systems.

3. The standard incorporates the WRIS as it currently exists, so that the data that has already been collected can form the foundation of a utility's GIS system. For many systems, the only geo-referenced digital data that currently exists resides in the WRIS. This is an incentive for the utility systems to adopt this standard.

Current and Potential Users (Charge 1)

It is necessary to define the current and potential users of the standard. All state and regional agencies concerned with planning and regulating drinking water and sanitary sewer systems currently use the WRIS, which is incorporated in this standard. The work of this committee was to enlarge the WRIS to make the data model useful to the water and wastewater utilities. Water and wastewater systems in Kentucky tend to be small, and most of them are not currently using GIS.

Potential users of this standard include all levels of government, water and wastewater utilities of all sizes, the engineering community, and all disciplines related to land use and infrastructure planning. The utilities especially should use this standard in the initial development of their system and should start with WRIS data. Those utilities that are larger and already have GIS in place can use this standard as a reference for supporting the WRIS.

Technical Considerations

1. GIS requires a considerable investment in personnel, hardware, and software. The water systems that are most likely to develop and use GIS regularly are those that can use it in conjunction with other agencies within a municipality or those water systems that are a member of a local consortium.

2. Because small water systems are included in the group of potential users, it is important to create a data model that is simple and can be used with desktop GIS software. Since the users will be new to GIS, it is necessary to restrict the model to what can be implemented within the GIS software. Given the state of the technology at this time, this rules out a fully relational database model.

3. It was also necessary to create a standard that can be used in the CAD GIS environment. Engineers, who often know and prefer the CAD environment, have created most system maps and all maps of construction projects.

Uses of the Standard (Charge 1)

Only a limited number of applications were considered and used as a criterion for including new attributes and features.

1. All state and regional agencies concerned with *planning and regulating drinking water and sanitary sewer systems* currently use the WRIS, which is incorporated in this standard. This standard then will meet the needs for planning and regulatory reports.

2. Incorporating *links to the Customer Information System (billing system) to improve customer service* will allow the GIS to be used to track the location of complaints and respond appropriately to those complaints. Since the billing system contains information on water usage, this can also be incorporated in planning and capacity modeling.

3. Attributes and features for *emergency services and emergency situation planning* will be included. Applications include fire protection, and planning and/or response to flooding, water source pollution, and extreme drought.

4. The standard will include attributes and features to *store data for modeling capacity and to illustrate the results of modeling.* This is required for all major construction projects.

5. Attributes will include those necessary for *asset management.*

Asset management is considered in reference to GASB 34 (Governmental Accounting Standards Board Statement 34). It establishes financial reporting standards for state and local governments, including states, cities, towns, villages, and special-purpose governments such as school districts and public utilities, and it was significantly revised in June 1999 (http://accounting.rutgers.edu/raw/gasb). A utility may choose to use one of two methods for reporting their infrastructure assets:

a) Calculate the historic cost less depreciation.
b) Use an infrastructure asset management system, also know as the *modified approach*, with the following components:
   - An up-to-date inventory of eligible infrastructure assets.
   - Condition assessments of the eligible infrastructure assets every three years and summarize the results using a measurement scale.
   - Estimates each year of the annual amount to maintain and preserve the eligible infrastructure assets at the condition level established and disclosed by the government.

GIS is particularly beneficial to the *modified approach* where it can provide a powerful database backbone.

This standard does not include attributes for every application, such as work order management, in which GIS could be used at the utility level. Attributes for additional applications may be incorporated into later editions of the standard.

Other Considerations

There are two existing comprehensive data models in the public domain for water and sewer utilities. These are the Spatial Data Standard (SDS) and ArcFM Water. Both of these models will be consulted as needed for the additional features, attributes, definitions, and domains that are added to the WRIS to create the nested standard. Both models are designed for the high-end GIS user and are inappropriate for the beginning GIS user with desktop software.

Process of Working with Identified Users (Charge 2)

The Utilities Subcommittee is composed of
   - members of the WRIS Technical Committee,
   - representatives of Division Of Water, Kentucky Infrastructure Authority, Public Service Commission, and Office of Geographic Information representing state government,
   - a representative of the Consulting Engineers Council
   - a representative of the Kentucky Society of Professional Engineers
   - two representatives from the Area Development Districts who work closely with the water and sanitary sewer utilities
   - a representative from the Kentucky Rural Water Association
   - a representative from a municipal water system

All of these people have some familiarity with the WRIS.

It was difficult to include people who haven't used GIS before (which was our target audience) in the development of a GIS standard. Although it could be done, it would be time consuming. At one point it was suggested to include representatives from large, medium, and small systems from each of the ADDs, but the size of that type of committee would inhibit producing results in a timely manner. However, it was important to include those who work directly with the utilities and can talk to them, assess their needs, and bring those thoughts to the committee. It was expected that those people on

the subcommittee who work closely with the utilities would consult with their constituencies about the standard as it developed.

In addition, the committee asked for brief presentations from vendors who have used the WRIS model and associated datasets to produce an application for water systems. One participant was MapSync, Inc. in Lexington. They have extended the WRIS data model to include features and attributes that are pertinent to a GIS being utilized directly by a water service provider. The application handles many operations and maintenance functions and has the ability to link to a customer information system. It also has a function that exports all features and attributes as formatted and stored within the WRIS data model utilized by regional and state government, thus enhancing the ability of water systems to share their information with the WRIS.

From an infrastructure modeling perspective, the committee learned that Pipe2000, developed by Dr. Wood and staff at the University of Kentucky has been adapted to utilize the WRIS datasets. Pipe2000, the most widely used hydraulic modeling software in the world, now utilizes WRIS datasets as base-level information for performing hydraulic analysis and developing "what if" scenarios for water and wastewater systems.

Utilities that have already used WRIS data as the foundation for mapping their system were consulted to see what features and attributes they have changed or added to the WRIS data model.

Review Procedure (Charge 3)

The process of working with the identified users continued through the review process. Once a draft was produced, a presentation was made to the Geographic Information Advisory Council on March 21, 2002, and they approved a two month period of public review and comment. The draft document of the water and sanitary/sewer standard was available on the internet on the Kentucky Infrastructure Authority's home page and on the Office of Geographic Information's and the Geographic Information Advisory Council's web sites. In addition printed copies were distributed to all the Water Management Councils that met during this time period. All water and sanitary/sewer systems were encouraged to review the document and send in comments.

Two letters were received with written comments; they were distributed to the Water and Sewer Standards subcommittee and some minor changes were made to the standard.

Implementation of the Standard

The Water Resource Information System and its Technical Advisory Committee are responsible for providing tools and data for implementing the standard.   Refer to the WRIS web page at http://wris.state.ky.us/kia/ for further information.

This is a first edition. It is anticipated that with changes in the needs of the water and sanitary sewer utilities, changes in technology and with an increase in the number of utilities using GIS, that there will be subsequent editions to this standard. Anyone with comments for a subsequent edition should contact the Kentucky Infrastructure Authority,

375 Versailles Road, Frankfort, Kentucky 40601, phone (502) 573-0260, e-mail kent.anness@mail.state.ky.us, or the Geographic Information Advisory Council.

Characteristics of the Attribute Tables

<u>Attribute Definitions for Water System Features and
Attribute Definitions for Sanitary Sewer Features</u>

A feature has point, line, or polygon geometry in a GIS. Each feature has attributes associated with it stored in a feature attribute table. Because it is a GIS feature, the geometric attributes such as measurements of latitude and longitude, perimeter, area, and length are assumed as existing for each feature. They are not repeated in the feature attribute tables in this document.

The first three columns labeled "Utility", "WRIS", and "DOW", address the nested nature of the standard. They indicate who collects the data that populates each attribute. Essentially all data is generated from information residing with the utility, so generally this column contains an asterisk for each attribute. However, there are a few attributes that are maintained in the statewide Water Resource Information System (WRIS) that the utility may choose not to maintain at the local level because they are repetitious. The attributes that have an asterisk for WRIS must be maintained in the local utility database. This is also an indication of what data is available for download from the WRIS to the utility and other agencies. The Kentucky Division of Water (DOW) maintains some of the attributes that have been submitted by the utilities to DOW on various forms, and these have been used to populate attributes in the WRIS. A quick look through the tables will show that some features are maintained only at the utility level and are not part of the WRIS. Those features in the WRIS are listed first in the attribute tables and in the order that they are used in the WRIS. Attributes for the utility level are added to the end of the feature attribute table. WRIS attributes must be defined according to the specifications in the standard and in the order that they are listed.

The next group of columns labeled "Attribute Name", "Width", "Type", and "Dec" refer to the specifications for creating the feature attribute table. In order to share data the specifications must be followed exactly. The "Attribute Name" is a short name that is to be used for the item, column, or field name in the table. The data types or "Type" in this standard have been limited to I for integer, C for character or text, and N for numeric data with at least one decimal place. There is no data type for date; dates are consistently listed as 8 C (character) data in order to expedite transferring information between different software. Data is to be entered in YYYYMMDD format, which allows sorting dates. The "Width" refers to the number of places reserved in an attribute table for the data and "Dec" refers to the number of decimal places for numeric (N) attributes.

The "Description" of each attribute contains a short definition and, if applicable, the values that should populate the field. This standard has avoided codes and lookup tables in order to make the standard simple to use. For example, the field PURPOSE in the WATLIN Table has the definition, "Purpose of Waterline (TRANSMISSION, DISTRIBUTION, BOTH)". The values for populating the table are in uppercase. WRIS attributes are restricted to the values in the description. All data should be entered in uppercase. Users of this standard are encouraged to construct their own look up tables from the information in the attribute descriptions, if their software allows it, because the end result will be cleaner data.

Feature ids, which are unique identifiers that do not change when records are added and deleted, are strongly recommended for each feature attribute table. The software may generate the IDs, or the user may enter them. The feature ids are used to relate tables to each other. Data should always be put in a feature id, even if it is only a unique integer. For example, if a utility has four pumps, and there is no particular name for them, label them 1, 2, 3, and 4. Attributes that are feature ids are labeled as such in the description.

At the beginning of the water and sanitary sewer tables, there is a statement about the unique identifier for each water or sanitary sewer utility. This unique identifier must be carried in each table. In addition there is a list of "Record Level Metadata" that is carried in each table in the WRIS. Metadata is simply information about the data. Any download from the WRIS will have this information. The utility should retain this information and update the fields that have an asterisk in the "Utility" column as they work with the data. It is recommended that the utility maintain record level metadata in each feature attribute table, even for those features that are not in the WRIS.

There are two additional attributes for plan ids (maps or engineering drawings) and image files that are listed at the beginning of the water and sanitary sewer tables. These are to be inserted by the utility into those feature tables where paper map or image data are available.

The date format and address fields conform to the Common Data Definitions, 1999, published by the Governor's Office of Technology (GOT). For a complete list of county codes, refer to page 32 of the Common Data Definitions report available on the GOT web site's Enterprise Architecture and Standards page at http://www.state.ky.us/kirm/arcstand.htm.

Attribute Definitions for Water System Features

Utility	WRIS	DOW	Feature	Attribute Name	Width	Type	Dec	Description - All entries must be in uppercase
*	*			**ITEMS FOR ALL ATTRIBUTE TABLES**				
*	*	*		PWSID is a unique identifier for the water utility. This is the Public Water Supply ID from the Natural Resources and Environmental Protection Cabinet's Division of Water (NREPC DOW) database. When information is shared with other organizations, this serves as a unique identifier of the utility. The PWSID along with the OWNER, which is the official name for the water system, should be consistent with the information available on the WRIS web page, at http://wris.state.ky.us/kia/watsys/watsys.htm. The PWSID is in each feature attribute table and must be used with any information submitted to the WRIS. Utilities may decide not to carry the OWNER in each feature attribute table, but it will appear in the statewide WRIS.				
*	*			**Record Level Metadata** - these attributes are added to the end of each feature attribute table				
*	*			AGENCY_CONT	75	C		Agency where update was made - for example, a utility name, an Area Development District name, an engineering firm name
*	*			CONTACT	75	C		Person who made the update
*	*			LAST_UPDT	8	C		Date of last update
*	*			XY_SOURCE	75	C		Source of location (DRG/DOQ/GPS/County Road Map/As-Builts/Other)
	*			XY_ISSUES	254	C		Any issues with accuracy of location
*	*			ATT_SOURCE	75	C		Source of attribute (DRG/DOQ/GPS/County Road Map/As-Builts/Other)
	*			ATT_ISSUES	254	C		Any issues with accuracy of attribute
	*			COMMENTS	254	C		Any comments on boundary or location
	*			ADDNAME	5	C		Name of ADD feature is located within, use UPPERCASE abbreviations (PEADD, PUADD). Most utilities will not need to carry this attribute, unless they have a service area that crosses Area Development District boundaries.
*				**Additional Attributes** - these attributes can be added to the end of those feature attribute tables where there is applicable data				
*				PLAN_ID	30	C		Reference to most recent engineering plan or map that includes this feature
*				IMAGE_PATH	50	C		Use this to hot link image (such as an engineering plan or photo) to this feature
*	*			**Existing Waterlines - WATLIN**				
*				WATLIN_ID	10	I		Unique identifier for each record in the WATLIN table. This can be an ID generated by the software.
*	*	*		PWSID	7	C		Public water Supply ID from NREPC DOW database
	*	*		OWNER	75	C		OWNER of waterline: (ie. EAST CLARK WATER DISTRICT)
*	*			PURPOSE	25	C		Purpose of waterline (TRANSMISSION, DISTRIBUTION, BOTH)
*	*			STATUS	25	C		Waterline status (IN SERVICE / OUT OT SERVICE)
*	*			STAT_REAS	25	C		If out of service, give reason why
*	*			DISC_STATUS	25	C		Discontinued status. Method of disconnection
*	*			PRESSURE	3	C		Pressurized (YES/NO)
*	*			SIZE	12	N	2	Line diameter in inches, if unknown use 9999
*	*			TRANUSE	25	C		Transmission Use (RAW, FINISHED)
*	*			YEARCON	8	C		Year of construction/completion. If funding is committed, show as existing line
*	*			TYPE	25	C		Type (GRAVITY LINE, PUMPED INTAKE)

Utility	WRIS	DOW	Feature	Attribute Name	Width	Type	Dec	Description - All entries must be in uppercase
*	*			MATERIAL	25	C		Material (AC,PVC,PE, IRON, OTHER, UNKNOWN)
*	*			OTHMATERIAL	50	C		Description of OTHER category of MATERIAL
*				LATERAL	3	C		Is this line a lateral? (YES/NO) A lateral line is a service line; for example, a lateral line extends from the meter to the point of service. The WRIS does not collect information on lateral lines, so the utility should be able to distinguish this information when sharing data with the WRIS.
*				PRESSRATE	50	C		Pressure Rating of the Pipe; expressed as DR, SDR, and/or Class
*	*			**Well Source - WELLSRC**				
				This is the only feature which includes community & non community systems.				
*	*	*		PWSID	7	C		Public water Supply ID from NREPC DOW database
	*	*		OWNER	75	C		OWNER of well source: (ie. EAST CLARK WATER DISTRICT)
*	*	*		AKGWA_ID	8	C		Well ID; this is a semi-permanent id attached to the well and maintained by NREPC/DOW Groundwater Branch. Each well should have an AKGWA_ID.
*	*			WELLNAME	75	C		Unique ID (for that water system) or common name for a well source. Corresponds to WELLNAME in WATPUMP coverage. This serves as the unique identifier for each record in the WELLSRC table.
*	*			METR_ID	75	C		Unique ID or common name for a meter that may be associated with a well source. This could be a number, street name, or common location name where the meter is located. If you do use a name and there is more than one meter at that given location use a meter number as well, so that you have a unique (to that water system) identifier ... for example, Vine St #2. The value for this field would correspond to the METR_ID field in METERS and PURCHSRC coverages.
*	*	*		AVAIL	25	C		Availability (PERMANENT, SEASONAL, TEMPORARY, EMERGENCY, OTHER)
*	*	*		USAGE	30	C		Well Usage. All wells in this coverage are water supply wells. Wells that are only for Public water supply should have PUBLIC as the well usage. Some wells are not capped off/closed, but are not currently in use. These wells may be used again in the future. These wells would be classified as PUBLIC, NOT USED. Some wells are used for both Public Water supplies and for other uses. These wells will be classified as PUBLIC, followed by the other usage. For example, if a well is used for Public water supply and for Industrial purposes, it would be classified as PUBLIC, INDUSTRIAL. (PUBLIC; PUBLIC, NOT USED; PUBLIC, INDUSTRIAL; PUBLIC, LIVESTOCK)
*	*	*		SURF_EL	12	N	2	Surface elevation (feet above sea level)
*	*	*		DEPTH	12	N	2	Depth (feet)
*	*	*		PERM_ID	7	C		Water Withdrawal Permit Number (NREPC/DOW) if applicable (all wells producing greater than 10,000 gallons/day should have one)
*	*	*		WP_STATUS	20	C		Wellhead Protection Status (NO ACTIVITY, P-I APPROVED, P-1 SUBMITTED, P-II APPROVED, P-II SUBMITTED)
*	*	*		ELEV_SRC	40	C		Source of Surface Elevation Information
*	*	*		DEPTH_SRC		C		Source of Depth Information
*	*	*		SYS_TYPE	35	C		System Type (COMMUNITY, TRANSIENT NON COMMUNITY, NON TRANSIENT NON COMMUNITY)

Utility	WRIS	DOW	Feature	Attribute Name	Width	Type	Dec	Description - All entries must be in uppercase
*				COLLECTOR	10	C		HORIZONTAL or VERTICAL for type of collector.
*	*		**Surface/Spring Water Source - SURFSRC**					
*	*	*		PWSID	7	C		Public water Supply ID from NREPC DOW database
	*	*		OWNER	75	C		OWNER of Public Water Supply: (ie. EAST CLARK WATER DISTRICT)
*	*	*		SRC_ID	2	C		DOW assigned Source ID that indicates the chronological order in which they came on-line of the sources for each system. For example, the first source to come on-line is given the value 01, the second 02, and so on.
*	*			PWSSRC_ID	9	C		This is a combination of the PWSID and SRC_ID that creates a Unique ID for each Surface Water Source in the Commonwealth. This is the unique identifier for each record in the SURFSRC table.
*	*	*		PLANT_ID	1	C		DOW assigned Plant ID that indicates the chronological order in which the WTPs came on-line for a given system with Multiple Plants. For example, the first source to come on-line is given the value A, the second B, and so on. Currently no system has more than 2 plants.
*	*			PWSPL_ID	8	C		This is a combination of the PWSID and PLANT_ID that creates a Unique ID for each WTP in the Commonwealth.
*	*	*		SRCNAME	75	C		Water source name
*	*	*		INTK_LOC	150	C		Intake location: (River mile & description)
*	*	*		SRCTYPE	25	C		Source Type: (RIVER, MINE, SPRING, LAKE, RESERVOIR)
*	*	*		AVAIL	25	C		Availability (PERMANENT, SEASONAL, EMERGENCY, OTHER, UNKNOWN)
*	*	*		OTHAVAIL	25	C		Description of OTHER category of AVAIL
*	*			TOPINTK_EL	12	N	2	Elevation of the top intake (feet above mean sea level)
*	*			INTK_EL2	12	N	2	If multiple intake levels, give elevation of 2nd highest intake.
*	*			LOWINTK_EL	12	N	2	If multiple intake levels, give elevation of lowest intake.
*	*	*		PERM_ID	8	C		Water Withdrawal Permit Number (NREPC/DOW permit) (all withdrawals greater than 10,000 gallons/day should have one)
*	*	*		PWDRAW1 - 12	12	N	2	Permitted Withdrawal amount (millions of gallons/day), starting with PWDRAW1 as January. This is a series of twelve attributes, one for each month, beginning with PWDRAW1, PWDRAW2, etc, for the current calendar year.
*	*	*		AVGWDRAW	12	N	2	Average Withdrawal in last 12 months (millions of gallons/day)
*	*	*		HWDRAW	12	N	2	Maximum Monthly Average withdrawal in last 12 months (millions of gallons/day)
*	*			INTKTYPE	25	C		Type of intake structure: (VARIABLE, RISER, WET WELL, OTHER, UNKNOWN)
*	*			OTHINTK	25	C		Description of OTHER category of INTKTYPE
*	*			*The Items below are to only be completed if the source is a spring*				
*	*	*		AKGWA_ID	14	C		Well ID; this is a semi-permanent id attached to the well and maintained by NREPC/DOW Groundwater Branch. Corresponds to AKGWA_ID in WATLIN and WATPUMP coverage.
*	*	*		WELLPLANP1	3	C		Approved phase I wellhead protection plan? (YES/NO)
*	*	*		WELLPLANP2	3	C		Approved phase II wellhead protection plan? (YES/NO)
*	*	*		SWAPP	3	C		Approved SWAPP (Surface Water Assessment and Protection Program) plan? (YES/NO)

Attribute Definitions for Water System Features

Utility	WRIS	DOW	Feature	Attribute Name	Width	Type	Dec	Description - All entries must be in uppercase
*	*			**Water Treatment Plants - WTP**				
*	*	*		PWSID	7	C		Public water Supply ID from NREPC DOW database
	*	*		OWNER	75	C		OWNER of water treatment plant (ie. EAST CLARK WATER DISTRICT)
*	*	*		PLANT_ID	1	C		DOW assigned Plant ID that indicates the chronological order in which the WTPs came on-line for a given system with Multiple Plants. For example, the first plant to come on-line is given the value A, the second B, and so on. Currently no system has more than 2 plants.
*	*			PWSPL_ID	8	C		This is a combination of the PWSID and PLANT_ID that creates a Unique ID for each WTP in the Commonwealth. Use this as the unique identifier for each record in the WTP table.
*	*			WTPNAME	75	C		Water Treatment Plant Name - use MULTIPLE PLANTS, if applicable.
*	*	*		DES_CAPG	12	N	2	Design CAPACITY in MGD (millions of gallons per day)
*	*	*		LMTD_USE	12	N	2	Percent of limited design CAPACITY in USE. If 50% of the design capacity is in use this is expressed as 0.50.
*	*			CONDATE	8	C		Date of construction
*	*			MJEXDATE	8	C		Date of last major expansion
*	*	*		PRETREAT	50	C		Pre-Treatment Chlorination
*	*			OTHPRE	50	C		other pretreatments
*	*	*		PSTTREAT	50	C		Post-Treatment Chlorination
*	*			OTHPST	50	C		other Post-treatments
*	*	*		FLOCCULA	50	C		Flocculation
*	*	*		SEDIMENT	50	C		Sedimentation
*	*	*		FILTRATI	50	C		Filtration
*	*	*		FLUORIDA	50	C		Fluoridation
*	*	*		CTRLTYPE	50	C		What is used for Taste and Odor Control
*	*	*		CORRCTRL	50	C		Corrosion Control
*	*	*		AERATION	50	C		Aeration
*	*	*		SOFTTYPE	50	C		What is used for Softening
*	*	*		FETYPE	50	C		What is used for iron removal
*	*	*		CW_CAP	12	N	2	Clear well CAPACITY in gallons
*	*	*		AVGDP	12	N	2	Average daily production for given year (MGD millions of gallons per day)
*	*	*		HDP	12	N	2	Highest/Peak/Maximum day production for given year (MGD millions of gallons per day)
*	*			WATCOST	12	N	2	Cost of finished water per 1,000 gallons produced
*	*			**Water Tanks - WATTANK**				
*	*	*		PWSID	7	C		Public Water Supply ID from NREPC DOW database for the OWNER of the tank
	*	*		OWNER	75	C		OWNER of the tank: (ie. EAST CLARK WATER DISTRICT)
*	*			WT_ID	75	C		Unique ID (for that water system) or common name for each water tank. This value should correspond to the WT_ID in the METERS and WATPUMP coverages. Use this as the unique feature ID for each record in the table WATTANK.

Utility	WRIS	DOW	Feature	Attribute Name	Width	Type	Dec	Description - All entries must be in uppercase
*	*			CAPACITY	12	N	2	Tank capacity in gallons
*	*			TYPE	25	C		Tank Type (STANDPIPE, GROUND STORAGE, ELEVATED, HYDROPILAR, SKID-MOUNT, HYDROPNEUMATIC, OTHER)
*	*			OTHTYPE	50	C		Description of OTHER category of TYPE
*	*			OVFL_EL	12	N	2	Overflow elevation (feet above sea level)
*	*			DATE_CONSTN	8	C		Date of construction
*	*			INSPDATE	8	C		Date of last comprehensive on-site inspection (includes interior inspection)
*	*			CLNDATE	8	C		Date of last cleaning
*	*			MATERIAL	25	C		Material (STEEL, CONCRETE, OTHER, UNKNOWN)
*	*			OTHMATER	25	C		Description of OTHER category of MATERIAL
*	*			INTCOAT	25	C		Interior coating (GLASS LINE, GALVANIZED PAINT, EPOXY, OTHER)
*	*			OTHCOAT	25	C		Describe OTHER category of INTCOAT
*	*			CATHODIC	3	C		Cathodic protection (YES/NO)
*	*			PRESSURE	3	C		Pressurized (YES/NO) Does the tank operate off system pressure? If yes, there is no altitude valve.
*	*			PRESSWTCH	3	C		Pressure Switches (YES/NO)
*	*			TELEMETR	25	C		Telemetry: (DIRECT WIRING, TELEPHONE LINE, RADIO)
*	*			TELEFUNC	3	C		Is telemetry functional? (YES/NO)
*	*			AVSIZE	12	N	2	Altitude Valve diameter (inches)
*	*			AVSETT	12	N	2	Altitude Valve setting (inlet/outlet psi)
*	*			AVMANU	75	C		Altitude Valve manufacturer
*	*			MAX_CAP	12	N	2	Maximum daily service CAPACITY (gallons or feet) of water in the tank
*	*			MIN_CAP	12	N	2	Minimum daily service CAPACITY (gallons or feet) of water in the tank
*	*			UNITS	16	C		Units used in MAX_CAP and MIN_CAP (gallons or feet)
*	*			**Pumping Stations - PUMPSTAT**				
				Site of pump or pumps in a vault or building. Every pumping station (also known as a booster pumping station) has at least one pump. Any finished water pump located "downstream" from the WTP should be located at a pumping station. A pumping station should be located on a waterline.				
*	*	*		PWSID	7	C		Public water Supply ID from NREPC DOW database
*	*	*		OWNER	75	C		OWNER of Pumping Station: (ie. EAST CLARK WATER DISTRICT)
*	*			PSTAT_ID	75	C		Unique ID or common Name of the Pump Station as assigned by the OWNER. Corresponds with PSTAT_ID in METERS and WATPUMP coverages. This is the unique feature id for each record in the PUMPSTAT table.
*	*			NO_PUMPS	10	I		Number of Pumps should correspond with the number of water pumps at that point in the WATPUMP table.
*	*			PRESCTRL	3	C		Pressure Controls (YES/NO)
*	*			CHLORTN	3	C		Chlorination (YES/NO)
*	*			AUX_PWR	3	C		Auxiliary Power (YES/NO)
*	*			TELEMETR	25	C		Telemetry (TELEPHONE LINE, RADIO, OTHER, NONE) Limit to those choices … ALARM, ANEC, CELLULAR, FLOAT, FLOAT SWITCH, and MERCURY are invalid.
*	*			OTHTELEMETR	50	C		Description of OTHER category of TELEMETR
*	*			TELEFUNC	3	C		Is telemetry functional (YES/NO)
*	*			CONTINUOUS	3	C		Is the station running continuously (24/7) (YES/NO)

Utility	WRIS	DOW	Feature	Attribute Name	Width	Type	Dec	Description - All entries must be in uppercase
*				CAPACITY	14	N	2	Pump station CAPACITY in gpm (gallons per minute)
*	*			**Water Pumps - WATPUMP** (all water pumps)				
				Pumps may be located in conjunction with many different features. Pumps located on a waterline are normally referred to as a booster Pump Station. Each booster Pump Station should have at least one pump. Pumps are also located at the water plant. Pumps may also be located at a well or at a surface water source.				
*	*	*		PWSID	7	C		Public Water Supply ID from NREPC DOW database for the OWNER of the water pump
	*	*		OWNER	75	C		OWNER of Water Pump: (ie. EAST CLARK WATER DISTRICT)
*	*			WP_ID	75	C		Unique ID (for that water system) or common Name for each water Pump as assigned by the OWNER. This is the unique feature ID for each record in the WATPUMP table.
*	*			WELLNAME	75	C		Well Name - If a Water Pump is associated with a well, what is its name? Corresponds with WELLNAME in WELLSRC coverage.
*	*			PSTAT_ID	75	C		Unique ID or common Name of the Pump Station If the water Pump is associated with a Pumping Station or Vault. Corresponds with PSTAT_ID in METERS and PUMPSTAT coverages
*	*			WT_ID	75	C		Unique ID or common name for each water tank that may be associated with a particular water pump. This value should correspond to the WT_ID in the WATTANK and METERS coverages.
*	*			APPLICATION	25	C		What/where is the application of the pump? (SURFACE SOURCE, WELL SOURCE, WATER TREATMENT PLANT, WATER TANK, WATERLINE, SERVICE LINE)
*	*			USE	20	C		USE (BOOSTER PUMP, HIGH SERVICE, RAW WATER, HYDROPNEUMATIC, OR BACKWASH)
*	*			OTHUSE	25	C		Description for OTHER category of USE
*	*			WAT_TYPE	10	C		Water Type (RAW, FINISHED) Location of pump should generally correspond with the water type … well and surface water source should be raw, water service line should be finished, those located on a waterline or at a booster pumping station should be finished, those at a WTP could be either raw or finished.
*	*			CAPACITY	12	N	2	Pump CAPACITY in gpm (gallons per minute) - This is the same as the design flow rate.
*	*			TYPE	25	C		TYPE (TURBINE, CENTRIFUGAL, SUBMERSIBLE, OTHER)
*	*			OTHTYPE	50	C		Description for OTHER category of TYPE
*	*			HRSEPOWR	12	N	2	Horsepower
*	*			TDHEAD	12	N	2	Head (total dynamic Head) in feet at design flow
*	*			OPERATL	3	C		Is the Pump Operational? (YES/NO)
*				MANUF	20	C		Manufacturer
*				MODEL	10	C		Model
*				YEAR	10	C		Year the pump was manufactured (or purchased) so that the age of the pump can be calculated
*				INSTALLED	8	C		Date installed
*	*			**System Meters - METERS**				
				A meter measures the volume of water that passes through a pipe. All meters must be tested periodically to comply with 807 KAR 5:066 Section 16. (The frequency of testing is dependent upon the meter size.) The WRIS only collects information for meters that are used to monitor the system and for billing wholesale water customers.				

Utility	WRIS	DOW	Feature	Attribute Name	Width	Type	Dec	Description - All entries must be in uppercase
*	*	*		PWSID	7	C		Public Water Supply ID from NREPC DOW database for the system that owns the meter
	*	*		OWNER	75	C		OWNER of meter: (ie. EAST CLARK WATER DISTRICT)
*	*			METR_ID	75	C		Unique ID or common name for each meter assigned by the OWNER. This could be a number, street name, or common location name where the meter is located. If you do use a name and there is more than one meter to at that given location use a meter number as well, so that you have a unique (to that water system) identifier … for example, VINE ST #2. The METR_ID corresponds to METR_ID in the PURCHSRC and in the WELLSRC coverages. This is the unique identifier for each record in the METERS table.
*	*			PURPOSE	20	C		Purpose (MONITOR, INTERCONNECT, RAW GROUNDWATER, RAW SURFACE WATER, FINISHED WATER, WATER TANK)
*	*			PSTAT_ID	75	C		Unique ID or common Name of the Pump Station If the meter is associated with a Pumping Station. Corresponds with PSTAT_ID in PUMPSTAT and WATPUMP coverages.
*	*			WT_ID	75	C		Unique ID or common Name for each water tank that may be associated with a particular meter. This value should correspond to the WT_ID in the WATTANK and WATPUMP coverages.
*	*			SIZE	12	N	2	Meter size (inches)
*	*			TESTDATE	8	C		Date of most recent test
*	*			TYPE	15	C		Meter type (COMPOUND, VENTURI TUBE, PROPELLER, TURBINE, DISC, OTHER, UNKNOWN) Do not use brand names such as Sensus or Neptune
*	*			OTHTYPE	50	C		Description of OTHER category of TYPE
*				MANUF	20	C		Manufacturer
*				MODEL	10	C		Model
*				READ	20	C		Type of read: MANUAL, TOUCH, RADIO
*				YEAR	8	C		Year the meter was manufactured (or purchased) so that the age of the meter can be calculated
*				INSTALLED	8	C		Date installed
*				MBOX	3	C		If this meter accessible through a meter box top? (YES/NO)
*				MBOXTYPE	10	C		Type of meter box top: FORD, GODDARD, VAULTS, OTHER
*				*Use the following fields for the physical location of the system meter*				
*				PLACE	75	C		Place detail such as "SIDE OF DRIVEWAY NEAR STREET"
*				STREET	64	C		Street Address
*				CITY	30	C		City name if within city limits, otherwise leave blank and use COUNTY
*				COUNTY	3	C		County Code for Kentucky, 001-120
				The Items below are to only be completed if the meter is associated with a Purchase Source / System Interconnect.				
*	*			ADJ_UTIL	75	C		Name of the adjoining utility at an interconnect. An adjoining utility may be selling water to this utility, or purchasing water from this utility. The GIS Technician should check to be sure that this matches the interconnected utility's waterline. The name should be the same as the one used by NREPC/DOW in their list of PWSIDs.
*	*			PMETR_ID	75	C		Unique ID or name for each meter assigned by the Purchaser if the meter is a PURCHASE SOURCE / INTERCONNECT (see purpose above). This could be a number, street name, or common location name where the meter is located. If you do use a name and there is more than one meter to at that given location use a meter number as well, so that you have a unique (to that water system) identifier … for example, VINE ST #2.

Utility	WRIS	DOW	Feature	Attribute Name	Width	Type	Dec	Description - All entries must be in uppercase
*	*			**Purchased Water Source-PURCHSRC**				
				Purchased water must be measured through a meter. The point for the purchased water source should align with a meter. Generally either the purchaser or the seller owns the meter. Both may include data regarding the same meter, since both often read it. Consequently, there are two places to insert the meter id in this coverage. Be sure to check both the PURNAME and PMETR_ID against the OWNER and METR_ID in the Meter coverage and/or the SELNAME and METR_ID against the OWNER and METR_ID in the Meter coverage.				
*	*	*		SELPWSID	7	C		Seller's Public Water Supply ID from NREPC DOW database
*	*	*		SELNAME	75	C		Seller's Name
*	*			METR_ID	75	C		Unique ID or common name for each meter - Meter ID assigned by the SELLER. This could be a number, street name, or common location name where the meter is located. If you do use a name and there is more than one meter to at that given location use a meter number as well, so that you have a unique (to that water system) identifier … for example, VINE ST #2. The METR_ID corresponds to METR_ID in the METER and in the WELLSRC coverages.
*	*	*		PURPWSID	7	C		Purchaser's Public Water Supply ID from NREPC DOW database
*	*	*		PURNAME	75	C		Name of Purchaser - entity that purchases water at this point
*	*			PMETR_ID	75	C		Unique ID or common name for each meter - Meter ID or common name assigned by the PURCHASER. This could be a number, street name, or common location name where the meter is located. If you do use a name and there is more than one meter to a that given location use a meter number as well, so that you have a unique (to that water system) identifier … for example, VINE ST #2. The PMETR_ID corresponds to the PMETR_ID in the METERS coverage.
*	*	*		AVAIL	10	C		Availability: (PERMANENT, SEASONAL, EMERGENCY, OTHER, UNKNOWN)
*	*			OTHAVAIL	25	C		Description of OTHER category of AVAIL
*	*			ESTVOL	12	N	2	Total estimated available volume of seller
*	*	*		CURPURCH	12	N	2	Current purchase (gallons per day)
*	*	*		AVGWDRAW	12	N	2	Average daily usage for last 12 months in gallons
*	*	*		HWDRAW	12	N	2	Highest daily usage for last 12 months in gallons
*	*			MAXAMNT	12	N	2	Maximum contract amount, If applicable (gallons per day)
*	*			RAWPRICE	12	N	2	Price of raw water per 1000 gallons
*	*			EFFPRICE	12	N	2	Effective price of finished water per 1000 gallons purchased
*	*			PURCHCON	3	C		Is there a written purchase contract? (YES/NO)
*	*			REQWAT	12	N	2	Total annual volume of water required to be available under purchase contract agreement (gal)
*	*			EXPIR_DATE	8	C		Expiration Date of Contract
*	*			SPC_COND	100	C		Cite special conditions/restrictions
*	*			**Non Community Water System Facilities/Locations - NONCOMMPTS (Points)**				
*	*	*		PWSID	7	C		Public Water Supply ID from NREPC DOW database of responsible entity. This is the unique feature id for each record in the NONCOMMPTS table.
*	*	*		OWNER	75	C		OWNER of Public Water Supply

Utility	WRIS	DOW	Feature	Attribute Name	Width	Type	Dec	Description - All entries must be in uppercase
*	*			SOURCE	25	C		Source Type. Non community systems either purchase and/or have a well surface or spring source. If a system has a well, surface or spring source that system also has a treatment plant. (PURCHASE, WELL, SURFACE, SPRING)
*	*	*		SYS_TYPE	35	C		System Type (COMMUNITY, TRANSIENT NON COMMUNITY, NON TRANSIENT NON COMMUNITY)
*				**Customer Meters - CUSTMETER**				
				Meters in this table measure the volume of water that passes through a pipe, for the purpose of billing a customer. This table should link to the Customer Information System (CIS), which varies from utility to utility. It is expected that CUSTMETER will need to be customized for each utility. The link between the CIS and GIS can be used for customer service applications and determining actual water use, which is necessary for system operation, planning, and modeling.				
*				PWSID	7	C		Public Water Supply ID from NREPC DOW database for the system that owns the meter
*				CIS_METR				This meter id should correspond to the meter id in the Customer Information Systems (CIS). The width and type of CIS_METR must be the same as the corresponding item in the CIS. This is the unique identifier for the CUSMETER Table.
*				CUSTYPE	20	C		Customer Type might include RESIDENTIAL, INDUSTRIAL, COMMERCIAL, WHOLESALE. This should correspond with the rate categories in the CIS.
*				SIZE	12	N	2	Meter size (inches)
*				TYPE	15	C		Metertype (COMPOUND, VENTURI TUBE, PROPELLER, TURBINE, DISC, OTHER, UNKNOWN) Do not use brand names such as Sensus or Neptune
*				OTHTYPE	50	C		Description of OTHER category of TYPE
*				MANUF	20	C		Manufacturer
*				MODEL	10	C		Model
*				YEAR	8	C		Year the meter was manufactured (or purchased) so that the age of the meter can be calculated
				INSTALLED	8	C		Date installed
*				TESTDATE	8	C		Date of most recent test
*				MASTER	3	C		Is this a master meter used for billing multiple customers? (YES/NO)
*				CUST_LOC				Some Customer Information Systems (CIS) or the billing system used by a water utility, have unique Customer Locations. The width and type of CUST_LOC must correspond to the corresponding item in the CIS. If there is a location address in the CIS (as distinct from a billing address), then there may be no need for the location attributes in the CUSTMETER table.
*				MBOX	3	C		If this meter accessible through a meter box top? (YES/NO)
*				MBOXTYPE	10	C		Type of meter box top: FORD, GODDARD, VAULTS, OTHER
				Use the following fields for the physical location of the meter (not the billing address)				
*				PLACE	75	C		Place detail such as building name
*				STREET	64	C		Street Address
*				CITY	30	C		City name if within city limits, otherwise leave blank and use COUNTY
*				COUNTY	3	C		County Code for Kentucky, 001-120

Attribute Definitions for Water System Features

Utility	WRIS	DOW	Feature	Attribute Name	Width	Type	Dec	Description - All entries must be in uppercase
*			**Fire Hydrants - HYDRANT**					
				Even though hydrants may be considered a type of valve, they are considered a separate feature. Attributes are included specifically for the purpose of fighting fire.				
*				HYD_ID	25	C		Unique feature id for each hydrant
*				PWSID	7	C		Public Water Supply ID from NREPC DOW database if the water system owns the hydrant
*				OWNER	75	C		Owner Name
*				MAINSIZE	12	N	2	Diameter of the water main in inches, which corresponds to size in WATLIN table
*				STATPR	12	N	2	For Fire Depts: static pressure (psi)
*				RESIDPR	12	N	2	For Fire Depts: residual pressure (psi)
*				FLOWPRES	12	N	2	For Fire Depts: flow pressure (psi)
*				FLOWGPM	12	N	2	For Fire Depts: flow in gal/min
*				FLOW20PSI	12	N	2	For Fire Depts: flow at 20 psi in gal/min
*				REMARKS	100	C		Remarks on flow
*				FLOWDATE	8	C		Date of flow tested
*				MANUF	20	C		Manufacturer of hydrant
*				MODEL	10	C		Model
*				YEAR	8	C		Year the hydrant was manufactured (or purchased) so that the age of the hydrant can be calculated
*				INSTALLED	8	C		Date installed
*				PAINTED	8	C		Date the hydrant was painted
*				ELEVATION	8	N	4	Feet above mean sea level as xxxx.xxxx
*				E_ACCURACY	6	N	4	Accurate within xx.xxxx feet. This should be survey grade accuracy or less than one foot in order for this information to be useful. Estimate can be based on accuracy of source.
*				E_SOURCE	40	C		Source of elevation, such as GPS SURFACE survey, AS BUILT with plan identification, GPS MINUS DEPTH OF VALVE
*				E_DATE	10	C		Date elevation measured
*				*Use the following fields for the physical location of the hydrant*				
*				PLACE	75	C		Place detail such as "IN FRONT OF SHOE FACTORY"
*				STREET	64	C		Street Address
*				CITY	30	C		City name if within city limits, otherwise leave blank and use COUNTY
*				COUNTY	3	C		County Code for Kentucky, 001-120
*				BOX	5	C		For Fire Dept.: Location of hydrant on response grid
*			**Valves - WVALVE**					
*				WVAL_ID	25	C		Unique feature id for each valve
*				PWSID	7	C		Public Water Supply ID from NREPC DOW database
*				SIZE	12	N	2	Diameter of the water main in inches, which corresponds to size in WATLIN table
*				WVAL_USE	20	C		LINE, BLOW-OFF, HYDRANT, FIRE SERVICE, DOMESTIC SERVICE, OTHER
*				WVAL_TYPE				BUTTERFLY, DISC, DOUBLE_DISC, BALL, etc. Do not confuse this with the manufacturer and model, which are different attributes.
*				MANUF	20	C		Manufacturer of valve

Utility	WRIS	DOW	Feature	Attribute Name	Width	Type	Dec	Description - All entries must be in uppercase
*				MODEL	10	C		Model
*				YEAR	8	C		Year the valve was manufactured (or purchased) so that the age of the valve can be calculated
*				OPENS	10	C		How the valve opens: LEFT(CCW) or RIGHT(CW)
*				TURNS	12	N	2	Number of turns
*				NORMALOPEN	3	C		Is the valve normally left open? YES/NO
*				DATE_INSP	8	C		Inspection Date
*				FUNCTIONAL	3	C		Is the valve functional upon inspection? YES/NO
*				INSTALLED	8	C		Date installed
*				WMANH_ID	25	C		If this valve is accessible through a manhole, then enter the unique feature id for the manhole
*				VBOX	3	C		If this valve accessible through a valve box top? (YES/NO)
*				VBOXTYPE	10	C		Type of meter box top: FORD, GODDARD, VAULTS, OTHER
*				ELEVATION	8	N	4	Feet above mean sea level as xxxx.xxxx
*				E_ACCURACY	6	N	4	Accurate within xx.xxxx feet. This should be survey grade accuracy or less than one foot in order for this information to be useful. Estimate can be based on accuracy of source.
*				E_SOURCE	40	C		Source of elevation, such as GPS SURFACE survey, AS BUILT with plan identification, GPS MINUS DEPTH OF VALVE
*				E_DATE	8	C		Date elevation measured
*				*Use the following fields for the physical location of the valve*				
*				PLACE	75	C		Place detail such as "IN FRONT OF SHOE FACTORY"
*				STREET	64	C		Street Address
*				CITY	30	C		City name if within city limits, otherwise leave blank and use COUNTY
*				COUNTY	3	C		County Code for Kentucky, 001-120
*				BOX	5	C		For Fire Dept.: For those valves used by Fire Departments, the location of valve on response grid
*			**Zone - WZONE**					
			Subareas (polygons) of the service area that the utility has defined. An example would be pressure zones.					
*				WZONE_ID	25	C		Unique feature id for each zone
*				PWSID	7	C		Public Water Supply ID from NREPC DOW database
*				WZ_NAME	25	C		The name of the zone
*			**Points of Interest on the Water Line - POI**					
			Each type of point could be a seperate feature or they could be incorporated into one feature as shown.					
*				POI_ID	25	C		Unique feature id for each point of interest
*				PWSID	7	C		Public Water Supply ID from NREPC DOW database
*				POI_TYPE	25	C		Type of Point of Interest such as STREAM CROSSING, SPOT DEPTH, LOW PRESSURE, LINE LEAK
*				DESCRIPTION	254	C		Description and additional information about the point
*				SURF_EL	8	N	4	Surface elevation (feet above sea level)
*				ELEV_SRC	40	C		Source of Surface Elevation Information
*				DEPTH	7	N	4	Depth (feet)
*				DEPTH_SRC	40	C		Source of Depth Information

Utility	WRIS	DOW	Feature	Attribute Name	Width	Type	Dec	Description - All entries must be in uppercase
*				ELEVATION	8	N	4	Feet above mean sea level as xxxx.xxxx This should be the surface elevation minus the depth or a GPS reading for elevation at the point.
*				E_ACCURACY	6	N	4	Accurate within xx.xxxx feet. This should be survey grade accuracy or less than one foot in order for this information to be useful. Estimate can be based on accuracy of source.
*				E_SOURCE	40	C		Source of elevation, such as GPS SURFACE survey, AS BUILT with plan identification, GPS MINUS DEPTH
*				E_DATE	8	C		Date elevation measured

Util	WRIS	DOW	Feature	Attribute Name	Width	Type	Dec	Description - All entries must be in uppercase
*	*			**ITEMS FOR ALL ATTRIBUTE TABLES**				
*	*							In order to uniquely identify each system in the WRIS, either a KPDES number or a KIMOP number must be assigned to each record. A KPDES number is a unique identifier for a sewage treatment plant or package treatment plant. A KIMOP number is a unique identifier for a Kentucky Inter-Municipal Operational Permit. These numbers are from the Natural Resources and Environmental Protection Cabinet's Division of Water's (DOW) databases. When information is shared with other organizations, this serves as a unique identifier for the owner. The combination of the unique system id and the unique feature id forms is used as a unique identifier in the WRIS. This ID along with the OWNER should be consistent with the information available on the WRIS web page at http://wris.state.ky.us/kia/watsys/sewsys.htm. Utilities may decide not to carry the OWNER in each feature attribute table, but it will appear in the statewide WRIS.
*	*			**Record Level Metadata** - these attributes should be added to the end of each feature attribute table				
*	*			AGENCY_CONT	75	C		Agency where update was made - for example, a utility name, an Area Development District name, an engineering firm name
*	*			CONTACT	75	C		Person who made the update
*	*			LAST_UPDT	8	C		Date of last update
*	*			XY_SOURCE	75	C		Source of location (DRG/DOQ/GPS/County Road Map/As-Builts/Other)
	*			XY_ISSUES	254	C		Any issues with accuracy of location
*	*			ATT_SOURCE	75	C		Source of attribute (DRG/DOQ/GPS/County Road Map/As-Builts/Other)
	*			ATT_ISSUES	254	C		Any issues with accuracy of attribute
	*			COMMENTS	254	C		Any comments on boundary or location
	*			ADDNAME	5	C		Name of ADD feature is located within, use UPPERCASE abbreviations (PEADD, PUADD). Most utilities will not need to carry this attribute, unless they have a service area that crosses Area Development District boundaries.
*				**Additional Attributes** - these attributes are added to the end of those feature attribute tables where there is applicable data				
*				PLAN_ID	30	C		Reference to most recent engineering plan or map that includes this feature
*				IMAGE_PATH	50	C		Use this to hot link image (such as an engineering plan or photo) to this feature
*	*			**Existing Sewerlines - SEWLIN**				
				All Force and Gravity Lines regardless of size. No service lines required.				
*				SEWLIN_ID	10	I		Feature ID: Unique identifier. This ID can be generated by the GIS software.
*	*	*		KPDES	9	C		KPDES Number from NREPC DOW database, if applicable. This ID also references the treatment plant associated with the line.
*	*	*		KIMOP	9	C		KIMOP number from NREPC DOW database, if it is a KIMOP system.
	*	*		OWNER	75	C		OWNER of the sewerline
*	*			STPNAME	75	C		Common Name of the Sewer Treatment Plant. If there is more than 1 plant use 'MULTIPLE PLANTS'
*	*			SIZE	12	N	2	Diameter of the Sewerline in inches; for modeling purposes, the inside or interior measurement of the diameter of the pipe (as opposed to the outside or exterior diameter) needs to be maintained in the database.
*	*			YEARCON	8	C		Date (year) constructed
*	*			TYPE	25	C		Type (GRAVITY, FORCE, LOW PRESSURE, or VACUUM)
*	*			MATERIAL	25	C		Material (VCP, PVC, IRON, PE, OTHER, UNKNOWN)
*	*			OTHMATER	25	C		Description of OTHER category of MATERIAL

Attribute Definitions for Sanitary Sewer Features

Util	WRIS	DOW	Feature	Attribute Name	Width	Type	Dec	Description - All entries must be in uppercase
*	*			CSO	3	C		Does it contribute to a Combined Sewer System? (YES/NO)
*				PRESSRATE	50	C		Pressure Rating of the Pipe; expressed as DR, SDR, and/or Class
*				LATERAL	3	C		Is this line a lateral? (YES/NO) A lateral line is a service line; for example, a lateral line extends from the sewerline to the customer point of service. The WRIS does not collect information on lateral lines, so the utility should be able to distinguish this information when sharing data with the WRIS.
*				PIPESHAPE	10	C		SQUARE, ELLIPTICAL, RECTANGULAR, ROUND, OTHER ... Utilities might want to use ROUND as the default or restrict this field to shapes other than round.
*				FLOW_AREA	12	N	2	Measured in mgd (millions of gallons per day). This can be used instead of diameter for modeling purposes, particularly for those pipes that are not round.
*	*			**Lift Stations - LIFTSTAT**				
				Point feature. Sewage Pumping Stations are normally called Lift Stations. They should have at least two Pumps.				
	*	*		OWNER	75	C		OWNER of the Lift Station
*	*	*		KPDES	9	C		KPDES Number from NREPC DOW database, if applicable.
*	*	*		KIMOP	9	C		KIMOP number from NREPC DOW database, if it is a KIMOP system.
*	*			LS_ID	75	C		Feature ID: Unique ID or common name for each lift station
*	*			NO_PUMPS	2	C		Number of Pumps in the Lift Station
*	*			ODORCTRL	3	C		Is there Odor Control @ Lift Station: (YES/NO)
*	*			TELEMETR	3	C		Telemetry? (YES/NO)
*	*			TELEFUNC	3	C		Is telemetry functional (YES/NO)
*				TELE_TYPE	25	C		Telemetry: (DIRECT WIRING, TELEPHONE LINE, RADIO)
*	*			AUXPWR	3	C		Is there Auxiliary Power @ the Lift Station (YES/NO)
*	*			AUXPWR_TYPE	25	C		Type of Auxiliary Power (EMERGENCY GENERATOR, PORTABLE GENERATOR, ALTERNATIVE POWER SOURCE)
*	*			FLOW_METER	3	C		Is there a flow meter @ the Lift Station? (YES/NO)
*	*			QUICK_DISC	3	C		Is there a quick disconnect @ the Lift Station? (YES/NO)
*	*			CAPACITY	12	N	2	Lift Station is capable of _____ Gallons Per Minute
*	*			TDH	12	N	2	Total Dynamic Head of Lift Station (feet)
*	*			USE	25	C		Use (INFLUENT, EFFLUENT, IN LINE)
*	*			TYPE	25	C		TYPE (SUBMERSIBLE, GRINDER, CENTRIFUGAL, PLUNGER, EJECTOR, SCREW, HOME UNIT, OTHER, UNKNOWN). Type may be any combination of the above values (i.e. SUBMERSIBLE
*	*			OTHTYPE	25	C		Description of OTHER category of TYPE
*	*			INPUMPTYPE	45	C		Type of Influent pump used
*	*			INPUMPTDH	12	N	2	Total Dynamic Head of Influent pump (feet)
*	*			INPUMPGPM	12	N	2	Capacity if Gallons Per Minute of the Influent pump
*				INMANUF	20	C		Manufacturer of Influent Pump
*				INMODEL	10	C		Model of Influent Pump
*				INYEAR	8	C		Year the influent pump was manufactured
*				IN_INSTALLED	8	C		Date influent pump installed
*	*			EFPUMPTYPE	45	C		Type of Effluent pump used
*	*			EFPUMPTDH	12	N	2	Total Dynamic Head of Effluent pump (feet)
*	*			EFPUMPGPM	12	N	2	Capacity in Gallons Per Minute of the Effluent pump
*	*			OVFLOW	3	C		Does the lift station overflow or by-pass routinely? (YES/NO). Not required, only answer if known
*				EFMANUF	20	C		Manufacturer of effluent pump
*				EFMODEL	10	C		Model of effluent pump
*				EFYEAR	8	C		Year the effluent pump was manufactured
*				EF_INSTALLED	8	C		Date effluent pump installed
*				STRUCTURE	10	C		UNDERGROUND, BUILDING, TANK

Util	WRIS	DOW	Feature	Attribute Name	Width	Type	Dec	Description - All entries must be in uppercase
*				ELEVATION	8	N	4	Feet above mean sea level as xxxx.xxxx
*				E_ACCURACY	6	N	4	Accurate within xx.xxxx feet. This should be survey grade accuracy or less than one foot in order for this information to be useful. Estimate can be based on accuracy of source.
*				E_SOURCE	40	C		Source of elevation, such as GPS SURFACE survey, AS BUILT with plan identification, GPS MINUS DEPTH OF PUMP
*				E_DATE	8	C		Date elevation measured
*				*Use the following fields for the physical location of the lift station*				
*				PLACE	75	C		Place detail such as "IN FIELD 200 YDS FROM ROAD"
*				STREET	64	C		Street Address
*				CITY	30	C		City name if within city limits, otherwise leave blank and use COUNTY
*				COUNTY	3	C		County Code for Kentucky, 001-120
*	*		**Sewage Treatment Plants - STP**					
			Publicly owned, custom-built municipal plants and municipal package plants.					
*	*	*		OWNER	75	C		OWNER of the STP
*	*	*		KPDES	9	C		Feature ID: KPDES Number from NREPC DOW database.
*	*			STPNAME	75	C		Common Name of the STP
*	*	*		HYDR_CAP	12	N	3	Maximum Hydraulic capacity (MGD)
*				AVG_HYDR	12	N	3	Average Rated Hydraulic Capacity (Millions of Gallons per Day)
*	*	*		BOD_CAP	12	N	2	BOD Maximum Organic Capacity (lbs/day)
*	*	*		NH3_CAP	12	N	2	NH3-N Maximum Organic Capacity (lbs/day)
*	*	*		TSS_CAP	12	N	2	TSS Maximum Organic Capacity (lbs/day)
*	*	*		AVGDFL	12	N	3	Average daily flow during last twelve months (for 10K and >) in MGD
*	*	*		HDFL	12	N	3	Peak daily flow in last twelve months in MGD
*	*			BYPASS	3	C		Is raw sewage sometimes bypassed at the WWTP? (YES/NO)
*	*			CONDATE	8	C		Date of construction
*	*			MJEXDATE	8	C		Date of last Major Expansion (requiring a KPDES permit change)
*	*	*		TREATMNT	25	C		Level of Treatment process: (PRIMARY, SECONDARY, TERTIARY)
*	*	*		TYPE	25	C		Type of facility (EXTENDED AERATION, OXIDATION DITCH, OTHER, UNKNOWN)
*	*			OTHTYPE	25	C		Description of OTHER category of TYPE
*	*	*		EFFDESTTYPE	75	C		Type of Effluent Destination (STREAM, RIVER, DITCH, LEACH FIELD, LAGOON, OTHER)
*	*			OTHEFFDTYPE	75	C		Description of OTHER category of EFFDESTTYPE
*	*	*		EFFDESTNAME	75	C		Name of Destination if applicable (ie. SALT RIVER, LAKE CUMBERLAND)
*	*	*		MILEPT	12	N	2	River milepoint of effluent destination will be added if provided by DOW
*				*Use the following fields for the physical location of the sewage treatment plant*				
*				PLACE	75	C		Place detail such as "END OF GRAVEL DRIVEWAY OFF ROAD"
*				STREET	64	C		Street Address
*				CITY	30	C		City name if within city limits, otherwise leave blank and use COUNTY
*				COUNTY	3	C		County Code for Kentucky, 001-120
*	*		**Package Treatment Plants - PTP**					
			Privately owned package treatment plants					
*	*	*		OWNER	75	C		OWNER of the Package Plant
*	*	*		KPDES	9	C		Feature ID: KPDES Number from NREPC DOW database.
*	*			PTP_ID	75	C		Common Name of the PTP
*	*	*		HYDR_CAP	12	N	3	Maximum Hydraulic Capacity (Millions of Gallons per Day)
*				AVG_HYDR	12	N	3	Average Rated Hydraulic Capacity (Millions of Gallons per Day)
*				MANUF	20	C		Manufacturer

Attribute Definitions for Sanitary Sewer Features

Util	WRIS	DOW	Feature	Attribute Name	Width	Type	Dec	Description - All entries must be in uppercase
*				MODEL	10	C		Model
*				YEAR	8	C		Year the package plant was manufactured
*				INSTALLED	8	C		Date installed
*				*Use the following fields for the physical location of the package treatment plant*				
*				PLACE	75	C		Place detail such as "DIRT ROAD AT BACK OF TRAILER PARK"
*				STREET	64	C		Street Address
*				CITY	30	C		City name if within city limits, otherwise leave blank and use COUNTY
*				COUNTY	3	C		County Code for Kentucky, 001-120
*	*			**KPDES Outfalls as discharge point - OUTFALLS**				
	*	*		OWNER	75	C		OWNER of the Outfall
*	*	*		KPDES	9	C		KPDES number from NREPC DOW database
*	*	*		OUTFALL_ID	3	C		Feature ID: Outfall number from NREPC DOW database available on the WRIS web page at http://wris.state.ky.us/kia/watsys/sewsys.htm.
*	*	*		OUTFALL_DESC	100	C		Outfall Description
*				OUTFALL_TYPE	25	C		Categorize as TREATMENT PLANT OUTFALL, CSO OUTFALL, etc.
*				*Use the following fields for the physical location of the outfall*				
*				PLACE	75	C		Place detail such as "CREEK BEHIND GARAGE"
*				STREET	64	C		Street Address
*				CITY	30	C		City name if within city limits, otherwise leave blank and use COUNTY
*				COUNTY	3	C		County Code for Kentucky, 001-120
*	*			**Kentucky Inter-Municipal Operating Permit points (KIMOP systems) - KIMOP**				
				The point where a KIMOP system joins a KPDES system.				
*	*	*		OWNER	75	C		OWNER of the system
*	*	*		KIMOP	9	C		Feature ID: KIMOP number from NREPC DOW database
*	*			CONTRACT	3	C		Is this service provided by contract?
*				**Sewer Manholes - SMH**				
*				SMH_ID	25	C		Feature ID: Unique id for each manhole.
*		*		KPDES	9	C		KPDES Number from NREPC DOW database, if applicable.
*		*		KIMOP	9	C		KIMOP number from NREPC DOW database, if it is a KIMOP system
*				SMH_NM	50	C		Identifier or name on manhole cover
*				CSO	3	C		Does this manhole access a Combined Sewer System? (YES/NO)
*				SMH_TYPE	10	C		Type of Sewer Manhole: DROP MANHOLE, FLOW MONITOR, HOLDING TANK, POINT OF INTERSECTION, DIVERSION GATE, CSO (Combined Sewer Overflow), etc.
*				SMH_DEPTH	8	N	2	Depth of manhole measured from the surface to the lowest invert elevation in feet
*				S_ELEV	8	N	4	Surface elevation in feet above mean sea level as xxxx.xxxx measured at the rim
*				SE_ACCURACY	6	N	4	Accurate within + or - xx.xxxx feet. This should be survey grade accuracy or less than one foot in order for this information to be useful
*				SE_SOURCE	25	C		Source of elevation, such as GPS survey, AS BUILT with plan
*				SE_DATE	8	C		Date elevation measured
*				MTCHIMNEY	15	C		Material of Chimney - BRICK, CONCRETE, FIBERGLASS, CAST IRON, MASONRY BLOCK (Cast Masonry Unit Block), PRECAST CONCRETE, OTHER

Util	WRIS	DOW	Feature	Attribute Name	Width	Type	Dec	Description - All entries must be in uppercase
*				MTCONE	15	C		Material of Cone - BRICK, CONCRETE, FIBERGLASS, CAST IRON, MASONRY BLOCK (Cast Masonry Unit Block), PRECAST CONCRETE, OTHER
*				MTWALL	15	C		Material of Wall - BRICK, CONCRETE, FIBERGLASS, CAST IRON, MASONRY BLOCK (Cast Masonry Unit Block), PRECAST CONCRETE, OTHER
*				MTBENCH	15	C		Material of Bench - BRICK, CONCRETE, FIBERGLASS, CAST IRON, MASONRY BLOCK (Cast Masonry Unit Block), PRECAST CONCRETE, OTHER
*				MTINVERT	15	C		Material of Invert - BRICK, CONCRETE, FIBERGLASS, CAST IRON, MASONRY BLOCK (Cast Masonry Unit Block), PRECAST CONCRETE, OTHER
*				SMH_DIAM	5	N	2	Diameter of the manhole in feet
*				MANUF	50	C		Manufacturer of precast material
*				INSTALLED	8	D		Date installed
*				INLETS	2	I		Number of inlets
*				OUTLETS	2	I		Number of discharge outlets
*				SMH_FLOW	12	N	2	Flow depth in inches
*				REMARKS	100	C		Remarks on flow
*				FLOWDATE	8	C		Date of flow measurement
*				PROJ_TYPE	50	C		Why was the flow measured?
*				*Use the following fields for the physical location of the manhole*				
*				PLACE	75	C		Place detail such as SIDEWALK, ROADWAY, ALLEY, BUSY STEET INTERSECTION. Include information that affects working conditions.
*				STREET	64	C		Street Address
*				CITY	30	C		City name if within city limits, otherwise leave blank and use COUNTY
*				COUNTY	3	C		County Code for Kentucky, 001-120
*			**Zones - SZONE**					
				Subareas (polygons) that the utility has defined. Examples would be gravity zones or service areas.				
*				SZONE_ID	25	C		Unique feature id for each zone
*		*		KPDES	9	C		KPDES Number from NREPC DOW database, if applicable. Could be multiple Facility Numbers, but the System should know which STP each sewerline is associated with.
*		*		KIMOP	9	C		KIMOP number from NREPC DOW database, if it is a KIMOP system
*				SZ_NAME	25	C		The name of the zone
*			**Customers - CUSTOMERS**					
				Location of Customers or users of the sewer system. This table should link to the Customer Information System (CIS), which varies from utility to utility. It is expected that CUST_ID will need to be customized for each utility. The link between the CIS and GIS can be used for customer service applications and estimating sewer use, which is necessary for system operation, planning, and modeling.				
*				CIS_ID				This id should correspond to the id in the Customer Information Systems (CIS). The width and type of CIS_ID must be the same as the corresponding item in the CIS. This is the unique identifier for the CUSTOMER Table.
*		*		KPDES	9	C		KPDES Number from NREPC DOW database, if applicable.
*		*		KIMOP	9	C		KIMOP number from NREPC DOW database, if it is a KIMOP system
*				CUSTYPE	20	C		Customer Type might include RESIDENTIAL, INDUSTRIAL, COMMERCIAL, WHOLESALE. This should correspond with the rate categories in the CIS.

Util	WRIS	DOW	Feature	Attribute Name	Width	Type	Dec	Description - All entries must be in uppercase
*				CUST_LOC				Some Customer Information Systems (CIS) or the billing system used by a water utility, have unique Customer Locations. The width and type of CUST_LOC must correspond to the corresponding item in the CIS. If there is a location address in the CIS (as distinct from a billing address), then there may be no need for the location attributes in the CUSTOMERS table.
				Use the following fields for the physical location of the customer (not the billing address)				
*				PLACE	75	C		Place detail such as building name
*				STREET	64	C		Street Address
*				CITY	30	C		City name if within city limits, otherwise leave blank and use COUNTY
*				COUNTY	3	C		County Code for Kentucky, 001-120
*			**Flow Meters - FMETERS**					
				A flow meter measures the volume of sewage that passes through a pipe.				
*		*		KPDES	9	C		KPDES Number from NREPC DOW database, if applicable.
*		*		KIMOP	9	C		KIMOP number from NREPC DOW database, if it is a KIMOP system
*				FMETR_ID	75	C		Feature ID: Unique ID or common name for each flow meter assigned by the OWNER. This could be a number, street name, or common location name. If there is more than one meter at a given location use a meter number with a name, so that you have a unique (to that sewer system) identifier … for example, VINE ST #2.
*				PURPOSE	20	C		Primary Purpose (MONITOR, INTERCONNECT, BILLING)
*				LS_ID	75	C		If the flow meter is at a lift station, then enter the unique feature ID for the lift station from the LIFTSTAT Table.
*				STPNAME	75	C		If the flow meter is at a sewage treatment plant, then enter the common name of the STP from the STP Table
*				PTP_ID	75	C		If the flow meter is at a Package Treatment Plant, then enter the common name of the PTP from the PTP Table
*				KIMOP	9	C		If the flow meter is at a KIMOP point, then enter the KIMOP number
*				SIZE	12	N	2	Flow Meter size (inches)
*				TYPE	15	C		Meter type: FLUME, ELECTROMAGNETIC, DOPPLER, VARIABLE GATE, ULTRASONIC, OTHER
*				MANUF	20	C		Manufacturer
*				MODEL	10	C		Model
*				YEAR	8	C		Year the meter was manufactured (or purchased) so that the age of the meter can be calculated
*				INSTALLED	8	C		Date installed
*				SMH_ID	25	C		If this meter is accessible through a manhole, then enter the unique feature id for the manhole.
*				FLOW	12	N	2	Measured in gallons per minute
*				REMARKS	100	C		Remarks on flow
*				FLOWDATE	8	C		Date of flow test
*				PROJ_TYPE	50	C		Why was the flow tested? Examples: annual hydrant test, test after pump installation, etc.
*				*Use the following fields for the physical location of the flow meter*				
*				PLACE	75	C		Place detail such as "REAR OF SHOE FACTORY"
*				STREET	64	C		Street Address
*				CITY	30	C		City name if within city limits, otherwise leave blank and use COUNTY
*				COUNTY	3	C		County Code for Kentucky, 001-120