

Adopted by the CWCB Board

November 16, 2011

**Guidelines Regarding the Reporting of Water Use and
Conservation Data by Covered Entities**

**Appendix B
Reporting Data Definitions**

Descriptions of the data for the Guidelines were developed through the advisory groups and supplemented with terminology that is utilized within the water resources industry, as identified through published professional references.¹ The following definitions clarify specific terminology that could have multiple interpretations throughout the water industry but is not intended to be comprehensive to the extent of defining every term in the data reporting list. The definitions are intended to help provide clarity, and are not intended to promote one type of system or program over another. The metadata category of the reporting tool provides an opportunity to describe situations that are unique or need further clarification.

- 1) Distributed Water.** The purpose of the distributed water information is to determine the total amount of water provided to end users (customers) through distribution system(s), based on water production records. This may also be referred to as “water production” data (i.e. amounts of water pumped into the distribution system). This may entail multiple types of distribution systems such as potable water delivered through a treated water system and/or non-potable water delivered as raw water or reuse. For example, surface water may be diverted from a stream, treated, and distributed as a potable water supply; ground water may be pumped from a well and distributed as a non-potable raw water supply, etc. May include stand-alone systems that are under the responsibility of the reporting entity.
 - a) Potable Water Into a Distribution System:** Volume of treated water entering the distribution system. May include both surface and ground water supplies.
 - b) Non-Potable Raw Water Into a Distribution System:** Volume of raw water entering the distribution system. May include both surface and ground water supplies.
 - c) Non-Potable Reuse (or Reclaimed) Water Into a Distribution System:** Volume of reuse or reclaimed water entering the distribution system.
- 2) Customer Categories.** Report water use data for each distribution system. The following customer categories apply to Potable Water uses and some categories may also apply to Non-Potable Raw Water and Non-Potable Reuse (or Reclaimed) water uses. The reporting tool allows reporting for each customer category within each distribution system. Based on existing water conservation plans and input from the advisory committees, the following customer categories are relevant for the majority of reporting entities. These definitions are not suggesting entities modify customer categories, rather that any exceptions be reported by describing as metadata using the reporting tool.
 - a) Residential:** Residential water use will be differentiated by single family and multi-family uses if the covered entity tracks these customer uses separately; otherwise total residential water use may be reported.
 - (i) Single Family:** Includes all billed and metered water use by single-family residential customers for indoor and outdoor uses served by a distribution system. Single-family

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uses may include, but are not limited to, residential single family, large residential lots, small residential lots, owners, renters, individual mobile homes and standard Single Family Equivalent taps, 5/8 inch taps, and/or 3/4 inch taps that serve single family dwellings.

- (ii) Multi-Family:** Includes all billed and metered water use by multi-family residential customers for indoor and outdoor uses in locations both inside and outside of the city/town limits. Multi-family uses may include, but are not limited to, attached residential units (e.g. duplexes, triplexes), master-metered mobile homes, apartments, condominiums, and town homes. Note that some entities may include multi-family irrigation under “irrigation only” accounts.
- b) Commercial, Industrial, and Institutional (CII):** Includes all billed and metered water use by CII customers for indoor and combined indoor and outdoor uses (report CII taps for outdoor-only uses under the “irrigation only” category) in locations both inside and outside the city/town limits. CII uses may include, but are not limited to, commercial businesses, industry, dairies, greenhouses, hotels, motels, restaurants, offices, breweries, military, hospitals, schools, assisted living and extended care facilities, churches, airports, fairgrounds, car washes, etc. City/Municipal/District uses may be reported separately or otherwise noted.
- c) Municipal/Utility Facility:** Includes all billed and metered water use by the water utility, municipality, and/or the district that operates the water utility for indoor and combined indoor and outdoor uses (report Municipal/Utility facility taps for outdoor-only uses under the “irrigation only” category). Municipal/Utility Facility uses may include, but are not limited to, recreation centers, town hall, administrative buildings, hydrants, other government uses, etc. These uses may be aggregated under the CII category.
- d) Irrigation Only:** Includes all billed and metered water use by customers for outdoor watering exclusively (report Residential taps for outdoor-only uses under the appropriate Residential category). The Irrigation Only category may include, but is not limited to, city and town parks, HOAs, open space, swim clubs, landscape uses, golf courses, etc.
- e) Other:** Includes any other water use not captured in the above defined categories with the exception of non-revenue (a.k.a. unaccounted for) water (reported separately). Other uses may include large short-term seasonal uses (e.g., snow making), one time construction water, bulk water, etc. Explicitly report any single “other” use that is greater than 3% of the total metered water use for a particular distribution system, separate from the general “Other” category.
- f) Wholesale:** Includes water sold by the reporting entity to another entity, for resale to the end customer.
- 3) Metered Water Use.** The purpose of the metered water use information is to determine the demand or total amount of water used by end users (customers) indoors and outdoors. Metered water use data are typically available through billing records, with entities using a variety of billing cycle periods. Individual billing records often include information regarding the type of account (i.e. customer category), meter size, meter readings, and dates of readings. The reporting tool will allow metered water use data to be entered for each

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distribution system category of Potable Water, Non-Potable Raw Water, and Non-Potable Reuse (or Reclaimed) Water, such that outdoor and indoor uses can be determined.

- a) **Metered Water Use:** Metered water use for each customer category provided monthly, or if monthly data are not available, an estimate of monthly use from bi-monthly, quarterly, or other specified metered water use/billings.
 - b) **Average Monthly Indoor Use:** Average monthly indoor metered water use estimated for each distribution system and customer category. Average monthly indoor water use in Colorado is often projected using metered water use data for a subset of winter months, e.g. (January + February metered use) / 2. This methodology may not apply to all communities and billing cycles may affect the specific months used to estimate indoor uses. The reporting tool will allow reporting the average monthly indoor use or specification of the months in which metered water use data are most representative of indoor uses, from which CWCB may estimate the average monthly indoor use.
- 4) **Normalizing Data (or Scaling Variables).** The purpose of the normalizing data is to allow water use to be evaluated on a common unit basis and to add perspective to water use trends.
- a) **Population Served During Reporting Period:** Permanent (total year-round) residential population served reported along with the source of information (e.g. census and state demographer data). Recognizing that entities are affected differently by transient populations associated with students, tourism, jobs, military, etc., indicate whether the population is affected by these and provide an estimate if available, along with the source of information.
 - b) **Number of Active Service Connections:** Monthly number of active/billed customer accounts (service connections) by customer category.
 - c) **Number of Service Connections with Zero Use:** Monthly number of customer accounts (service connections) with zero consumption, by customer category. This may include accounts that are temporarily inactive but anticipated to come back on-line at a future date, accounts with zero use during portions of the year, etc.
- 5) **Annual Audit Report:** The purpose of the annual audit reporting data is to obtain information on water audit and loss control through real and apparent loss data. The American Water Works Association (AWWA) has developed a standard methodology for determining water loss for municipal water providers (2009 AWWA M36 Manual of Practice – *Water Audits and Loss Control Programs (3rd Edition)*). For systems in which the following data cannot be provided, the CWCB will estimate real losses as the total Distributed Water minus total Metered Water Use. The sum of total Metered Water Use, apparent losses (unauthorized consumption), and real losses should equate to the total Distributed Water.
- a) **Billed Unmetered Water Use:** Any unmetered water use such as customers billed at a flat rate. May also be used to account for metered uses with meters known to be highly nonfunctional, highly inaccurate, or readings are unobtainable in which case, estimates of water use are used in place of measured water use.

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- b) **Unbilled Authorized Water Use:** Any kind of authorized water use which is unbilled (metered or unmetered). Typically describes water taken irregularly in a variety of manners from nonaccount connections that typically do not supply permanent structures. May include, but is not limited to, fire fighting, flushing of mains and sewers, street cleaning, construction, water treatment facility backwash water, etc.
 - c) **Apparent Losses:** Nonphysical losses that occur when water is successfully delivered to the customer but, for various reasons, is not measured or recorded accurately. Includes losses in customer water use attributed to inaccuracies associated with customer metering, systematic data handling error, plus unauthorized water use (theft or illegal use of water). May include, but is not limited to, water illegally withdrawn from hydrants, illegal connections, meter equipment tampering, adjustments to metered water use for meter under- or over-registration, and billing adjustments.
 - d) **Real Losses:** Physical water losses from the distribution system, up to the point of the customer's meter. May include, but is not limited to leakage from water mains and customer service connection pipes, joints, and fittings (the largest component by volume for most systems), storage tank overflows, or similar operator error.
- 6) **Supplemental Information:** Recognizing that the following information may not be available for many covered entities, it is requested to the extent that it is readily available or can be estimated within reasonable levels of effort.
- a) **Irrigated Acres:** Best estimate of irrigated acres served by each customer category, including source of information.
 - b) **Average Annual Gross Evapotranspiration Rate for Service Area:** Average local inches of gross evapotranspiration for service area during reporting period, including source of information and method used.
 - c) **Average Annual Total Precipitation for Service Area:** Average local total inches of precipitation for service area during reporting period, including source of information.
 - d) **Irrigation Application Rate:** Application rate of outdoor use in gallons per square foot of irrigated area, including source of information.
 - e) **Number of Housing Units:** Total number of households for each residential customer category. Recognizing that data for the Multi-Family category may require audits and information on occupancy rates, provide and estimate if available along with the source of information.
 - f) **Return Flows:** Water that returns to streams, rivers, and aquifers after it has been applied to beneficial use. It may return as surface flow or as ground water flow.
- 7) **Meter Types:** Specify the percentage of meters under each type of meter reading method, by customer category, for each applicable water distribution system.
- a) **Manual Read:** Manual meter reading with reading personnel physically visiting individual meters to collect readings.
 - b) **Estimated Read:** Estimated meter reading based on historical trends from past meter readings.

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- c) **AMR:** Automatic meter reading where radio signals transmit the current meter reading to a device outside of the building or meter pit in which the meter is located. Mobile AMR systems allow readings to be collected by readers with hand-held devices or via automobiles patrolling scheduled meter reading routes. Fixed network AMR include permanently installed data collector units located throughout the service area.
 - d) **AMI:** Advanced metering infrastructure, also referred to as smart meters, goes beyond AMR to include networking technology (telemetry) for remote leak detection, frequent meter data collection, and two-way communication between customer and utility.
- 8) **Rate Structures:** Provide information by customer category, for each applicable water distribution system. The reporting tool will provide an option to attach the entity's current rate structure for each customer class.
- a) **Declining tiered rates:** Lower rate charges for higher quantities of water use.
 - b) **Fixed (flat) fee:** Fixed fee (charge) regardless of how much water is used.
 - c) **Uniform rates:** Same unit charge for water regardless of how much water is used.
 - d) **Inclining tiered rates:** Higher unit charges are triggered at higher levels of water use.
 - e) **Water budget-based rates:** A variation of increasing tiered rates, where tailored allocations are developed for each customer and rates increase as the allocation is used or exceeded. Tier (or block) size is typically defined by an empirical determination of efficient use for each customer using customer specific characteristics such as irrigable area.
 - f) **Seasonal rates:** Higher prices are charged during periods of scarcity (typically summer and fall) to more efficiently allocate water in times of shortage.
- 9) **Educational Programs:** Provide information on the types of educational programs and estimates of number of customers reached with each program.
- a) **One-Way Education:** One-way educational efforts send out information without tracking or specific follow-up (e.g. bill stuffers).
 - b) **One-Way With Feedback Education:** One-way "with feedback" educational efforts send out information and allow for some level of tracking or feedback (e.g. K-12 classroom presentations and interactive websites).
 - c) **Two-Way Education:** Two-way educational efforts involve two-way communications (e.g. focus groups).
- 10) **Point of Sale Controls:** Ordinance/regulation to provide opportunity to ensure the water efficiency features meet current regulations and/or to incentivize increased efficiency through retrofit of fixtures, appliances, landscape, and irrigation systems. Requirements can be triggered before a residence or building can be sold, transferred from one owner to another, or renovated beyond a predetermined level.

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- 11) Costs:** Costs incurred by the utility/municipality/district may be reported as a total over the past reporting period, or as a breakdown by the SWSI Level categories. See the SWSI Conservation Levels Analysis Phase II Report for more information on the categories.

¹ *Citizen's Guide to Colorado Water Law, 3rd Edition.* Colorado Foundation for Water Education, 2009.

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