

Bear Creek Watershed Association

Date: August 19, 2014

Draft Policy 31 – BCWA Estimation Reporting



Statement of Basis and Purpose

The BCWA uses a wide-variety of measurement methods, estimation techniques, and data sources. Data collection, planning and management efforts rely on diverse source types, both internal to the membership and from external contacts/sources. While the BCWA tries to screen various source data and information, occasionally data or information presented to the BCWA is in effect an *educated guess (estimation data/information)*, or has a higher degree of uncertainty. Generally data or information provided to the BCWA for use in the water quality management program has no associated qualifiers; such as data deviations, methods or techniques used to derive the data or information, precision or accuracy, errors, source(s) or level of confidence. It is essential to watershed management, which is often done at a macro-scale, to utilize any and all data or information, both internal and external. Occasionally, data or information provided to the BCWA for use in the watershed management program has been based on poor estimation or in-accurate estimation techniques. Unverified reports from citizens may also be given consideration in the management program. Data presented without a basis or reported without qualification of limitations can increase uncertainty in application to the management program. The BCWA acknowledges that watershed management is not an exact science, and recognizes approximation data or information is often used in the decision making or regulatory progresses.

The BCWA collects substantial amounts of water quality and environment data and information necessary for watershed management. Some of this data is reliable measurements taken in the field or from contracted laboratories. Some information is based on *professional judgment* made by the BCWA members and staff. Field monitoring devices have a specified level of accuracy, and as instrumentation has improved this level of accuracy have changed over the years. The BCWA is aware that reported laboratory data has an associated measurement deviation resulting from field collection methods, laboratory methods, and practical quantification levels. However, state reporting requirements only want to see the reported number without the associated qualifiers. This type of water quality data is perceived as accurate and is reported to other agencies without qualifiers. However, the laboratory reports as maintained in the BCWA data-base do provide the laboratory qualifiers. The BCWA Monitoring Plan provides information about sampling qualifiers. The BCWA acknowledges that not all measured data or information used in the watershed management program has sufficient associated qualifiers.

Data and information presented to BCWA can affect management outcomes and potentially the external perception of the BCWA. Numbers, data, or information presented without a sufficient basis or reported without representation of limitations can increase uncertainty. To reduce uncertainty, ambiguity, to enhance collaboration and action opportunities, and to better ensure that the limitations of estimates or information are documented, the BCWA will strive to document data sources. Some of the factors documented in the annually updated watershed Monitoring Plan and Data Report include:

- Field sampling equipment, methods and limitations.
- Laboratory methods and reporting limitations; quality assurance and quality controls.

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- Appropriate conversion factors or multipliers used to transform the raw data; data transformation methods, including limitations, errors, or omissions.
- Specific purpose to which the result is to serve and its proper usage.
- Written description of how results are expressed, including a range or +/- percent and units that best describes its likely precision and accuracy including appropriate use of *significant figures*.
- If appropriate, alternate method verification –estimates may be calculated by more than one method, to both verify its validity and to better estimate its precision. e.g. population estimate could be calculated by US Census bureau data, county parcels with residential structures, and service provider tap and population served information.

Policy

1. If data or information is presented to the BCWA from members or external sources for use in the watershed management program and there is uncertainty about the accuracy or precision of such data or information, then the BCWA may qualify this data or information and cite the source.
2. Numbers used in discussions or reported by the BCWA should strive to provide, *to the extent practical*, documentation on its basis and/or usage. Appropriate backup documentation will be stored in the BCWA data-base or online server, the on-line management site, or alternative system with member access.
3. Watershed measurement data/information used in the management program or decision making processes should include:
 - **Date** – Collection date, analysis date or date given to BCWA.
 - **Source or Reference** – Study/ source reference or individual (Title, Organization, Email, Phone, etc.)
 - **Storage Location of the data.**