Summary for 2020 Listing Methodology Public Meeting
March 9, 2018
Lewis and Clark State Office Building
Jefferson City, Missouri

Data Quality Codes:

- The 2020 Listing Methodology Document (LMD) has been amended to include draft language to further describe data quality codes. Stakeholders agreed that the new statement helped clarify data quality code use.

Data Age:

- Language that was in the 2020 LMD was changed to match the wording that is in the Department's response to comments in order to remain consistent between documents.

Total Organic Carbon (TOC) Normalization:

- Language was added to the 2020 LMD to serve as a compromise with stakeholders. Previously, the Department had stated that there would not be any consideration of TOC normalization. The Department will now consider TOC normalization for Polycyclic Aromatic Hydrocarbons (PAHs) only. By default, the Department will use 1.5 percent TOC for samples without sample-specific TOC data and will compare the geometric mean to the 100 percent Probable Effect Concentration instead of 150 percent. If a sample has specific data for TOC, then it can be normalized within a 0.5-2 percent range.
- Acid Volatile Sulfide/Simultaneously Extracted Metals method will continue to be accepted by the Department since sulfides are the main binding factor for metals in sediment. TOC normalization will not be factored in to assessments for metals.

Assessing Chronic Criteria:

- The Department will continue to use the one-in-three year method to assess for impairments. The Department is not comfortable with the suggested methods because of the data variability as well as the potential for making Type I and Type II errors. The one-in-three year method allows for no more than one exceedance of acute or chronic Water Quality Standards (WQS) in the last three years of available data. Only data collected during stable flow conditions will be considered for assessments. The Department utilizes the closest USGS flow gage whenever possible to evaluate flow conditions at a particular stream. Typically four days surrounding the sampling event are considered; two days prior and one day after the sampling event. This is to evaluate the Department's four-day

chronic WQS. A question was raised about what happens when a stream's base flow is at or near zero cubic feet per second (cfs). The Department explained that the flow conditions during sampling events are the basis for assessments. Stable flow conditions can be at three different stages; high, medium, and low. These stages are tied to the 90^{th} percentile and 50^{th} percentile flows for the gaged stream. The percentage change in flow is used for making a determination of stable flow. During high stable flow no more than ten percent change in a 48-hour period occurs. During medium stable flow no more than fifteen percent change in a 48-hour period occurs. During low stable flow no more than twenty percent change in a 48-hour period occurs or flow is below one cfs. Stakeholders requested that a small portion of language be added to the 2020 LMD to describe the difference between stable and unstable flows. The Department will add language describing stable flow conditions to the 2020 LMD.

Lake Numeric Nutrient Criteria:

- This subject has been tabled until EPA approves or promulgates numeric criteria. The Department believes the 2020 LMD can be used as is if Missouri's criteria are approved. Stakeholders are encouraged to take a look at the Department's response letter to EPA's proposed lake nutrient criteria located on the Department's webpage (https://www.regulations.gov/document?D=EPA-HQ-OW-2017-0010-0292).

Assessing Small Streams:

- The Department approached assessing small streams with two points in mind:
    1. Reference streams cannot be established from streams that are potentially impaired.
    2. The Department is making an ongoing effort to further stakeholder understanding of the current process of assessing small streams. It is a temporary process until more robust biological criteria are developed.
- Stakeholders inquired if a stream is a reference stream for all categories. Can a stream be a reference stream if it is impaired? The Department clarified that the discussion of reference streams is in regards to biological criteria only. Reference streams are those that are the least impacted and best available within a particular Ecological Drainage Unit (EDU).
- The 13-step process for identifying small candidate reference streams currently being used by the Department was developed to serve as a temporary framework until small stream criteria are developed.
- Stakeholders raised concerns with waters that have been assigned a Water Body Identification (WBID) number of 3960 and what happens when they are identified as impaired. When a stream with a WBID number of 3960 is found to be impaired it will be assigned a new WBID number by the Department, specific to that stream segment. Additional concerns were raised about streams being mapped or digitized incorrectly, or streams that are not capable of meeting the designated uses assigned to them. In these

cases site visits should be conducted by the Department. Factor 4 UAAs were mentioned at this meeting as well; the premise behind these distinct UAAs is to determine when a stream has been severely altered and cannot realistically meet certain designated uses.

- Stakeholders requested more information regarding why the Department included augmented effluent flows from point sources when determining stream flow. The Department uses Valley Segment Types (VSTs) to characterize stream similarities and differences. Un-augmented flow is one of the factors in VSTs. In addition to flow, VSTs also contain temperature, size, geology and relative gradient which are used to identify potential candidate reference streams.
- Some concern was expressed regarding the Department having too much leeway in determining stream similarity, however, this flexibility allows the Department the ability to find appropriate reference streams that are least impacted.
- Watershed size was also brought up as being absent in the 13-step small stream assessment process and is believed to be important for flow. Watershed size is not always meaningful for flow due to the variability between watershed geology and land use. The VSTs and link magnitude provide a better indicator of instream water availability. The biology experiences flow, not watershed size.
- Stakeholders had concerns regarding the dismissal of a potential candidate reference stream in the event of a defined stressor existing in the watershed and there being no field verification of WQS violations. Staff explained that certain stressors such as a confined animal feeding operation (CAFO) may not be currently violating WQS but can still be having an effect on the stream. If a stressor occurs as a one-time, non-permanent event (such as a spill), a stream can continue to be a candidate reference stream. Reference streams should be least impacted streams.
- Regarding Step 10 (Calculate land use-land cover of a stream watershed and compare to EDU), stakeholders believe that the phrase "should be" leaves too much room for interpretation by the Department to determine similar land use. Staff explained that areas are broken up into EDUs which should account for similar land use between streams residing in those EDUs. The language will be changed to "tend to" in the 2020 LMD.
- Stakeholders suggested that Aquatic Ecosystem Subtypes (AES) should be considered for use due to the refinement they provide compared to EDUs. The Department believes that the use of EDUs is adequate and noted that it is sometimes difficult to find candidate reference streams at the EDU level; the availability of adequate reference streams at the AES level may be even more limited. The Department will, however, consider the use of AES.
- A stakeholder was concerned that in the past limits for lagoons such as biological oxygen demand (BOD), and total suspended solids were determined from field observations instead of scientific studies. The Department explained that reference stream data is updated periodically; the last time was in 2012. Missouri's WQS Table I contains the current wadeable/perennial biological reference streams within the state.

- Stakeholders were concerned that with growing populations and increased infrastructure, the amount of runoff entering an urban-altered stream channel will increase. This may change the presence or absence of aquatic life within an urban stream. Moving forward the Department is committed to working with communities on urban stream dynamics to ease concerns.
- Stakeholders requested more information on the headwaters reference streams work presented at a Water Protection Forum meeting on May 17, 2016 (https://dnr.mo.gov/env/wpp/cwforum/ under past meetings). The Department will provide Ethan Kleekamp's *"Streams in a Changing Landscape"* thesis, PowerPoint presentation, and GIS shape file on the Department's 303(d) webpage.

Stream Segments:

- The Department is working to prioritize enhancement of our systems so smaller impaired stream segments may be more accurately listed. The timeline for completion of this enhancement is unknown at this point, but the Department is committed to making the assessments as accurate as possible when the tools and systems are available.
- The UAA process is the method to remove or modify a designated stream use. Field verification by staff can determine if a stream has been incorrectly mapped or included in the Missouri Use Designation Dataset.

Future Meetings:

- Clean Water Commission Meeting-April 4, 2018
- May 10, 2018 – Public Availability Meeting
- May 24, 2018 – Public Availability Meeting