

## EPA TOTAL MAXIMUM DAILY LOAD (TMDL) DECISION RATIONALE

**TMDL:** Jordan River Watershed *E. Coli* TMDLs

**ATTAINS TMDL ID:** R8-UT-2023-01

**LOCATION:** Salt Lake County, UT

**IMPAIRMENTS/POLLUTANTS:** The TMDL submittal addresses 14 water quality limited segments, or assessment units (AUs), with drinking water and infrequent primary contact recreation uses that are impaired due to elevated levels of *E. coli* bacteria.

### Waterbody/Pollutants Addressed in this TMDL Action

| Assessment Unit ID | Waterbody Description   | Pollutants Addressed |
|--------------------|---|----------------------|
| UT16020204-002_00  | Jordan River from Davis County line upstream to North Temple Street   | <i>E. coli</i>       |
| UT16020204-003_00  | Jordan River from North Temple to 2100 South  | <i>E. coli</i>       |
| UT16020204-004_00  | Jordan River from 2100 South to the confluence with Little Cottonwood Creek   | <i>E. coli</i>       |
| UT16020204-005_00  | Jordan River from the confluence with Little Cottonwood Creek to 7800 South   | <i>E. coli</i>       |
| UT16020204-026_00  | Mill Creek from confluence with Jordan River to Interstate 15 crossing  | <i>E. coli</i>       |
| UT16020204-017_00  | Mill Creek and tributaries from Interstate 15 to USFS Boundary  | <i>E. coli</i>       |
| UT16020204-021_00  | Little Cottonwood Creek and tributaries from Jordan River confluence to Metropolitan WTP  | <i>E. coli</i>       |
| UT16020204-019_00  | Big Cottonwood Creek and tributaries from Jordan River to Big Cottonwood WTP  | <i>E. coli</i>       |
| UT16020204-033_00  | Emigration Creek and tributaries from 1100 East (below Westminster College) to stream gauge at Rotary Glen Park (40 44 58.49N, 111 48 36.29W) above Hogle Zoo | <i>E. coli</i>       |
| UT16020204-025_00  | Parleys Canyon Creek and tributaries from 1300 East to Mountain Dell Reservoir  | <i>E. coli</i>       |
| UT16020204-013_00  | Parleys Canyon Creek and tributaries from Mountain Dell Reservoir to headwaters   | <i>E. coli</i>       |
| UT16020204-035_00  | Red Butte Creek and tributaries from 1100 East to Red Butte Reservoir   | <i>E. coli</i>       |
| UT16020204-029_00  | Rose Creek and tributaries from confluence with Jordan River to headwaters  | <i>E. coli</i>       |
| UT16020204-024_01  | Midas Creek and tributaries from confluence with Jordan River to headwaters   | <i>E. coli</i>       |

**BACKGROUND:** The Utah Department of Environmental Quality, Division of Water Quality (DWQ) submitted to EPA the final *E. coli* TMDLs for the Jordan River Watershed, with a submittal letter requesting review and approval dated January 18, 2023. EPA reviewed and provided comments on earlier draft report versions in July and August 2022.

The submittal included:

- Letter requesting EPA's review and approval of the TMDLs
- Final TMDL report for Jordan River Watershed *E. coli* TMDL
- TMDL report appendices

**APPROVAL RECOMMENDATIONS:** Based on the review presented below, the reviewer recommends approval of the final Jordan River Watershed *E. Coli* TMDLs. All the required elements of approvable TMDLs have been met.

**TMDL Approval Summary**

|                                      |    |
|--------------------------------------|----|
| Number of TMDLs Approved:            | 14 |
| Number of Causes Addressed by TMDLs: | 14 |

**REVIEWER:** Peter Brumm, EPA

The following review summary explains how the TMDL submission meets the statutory and regulatory requirements of TMDLs in accordance with Section 303(d) of the Clean Water Act (CWA), and EPA's implementing regulations in 40 C.F.R. Part 130.

## EPA REVIEW OF THE JORDAN RIVER WATERSHED *E. COLI* TMDL

This TMDL review document includes EPA’s guidelines that summarize the currently effective statutory and regulatory requirements relating to TMDLs (CWA Section 303(d) and 40 C.F.R. Part 130). These TMDL review guidelines are not themselves regulations. Any differences between these guidelines and EPA's regulations should be resolved in favor of the regulations themselves. The italicized sections of this document describe the information generally necessary for EPA to determine if a TMDL submittal fulfills the regulatory requirements for approval. The sections in regular type reflect EPA's analysis of the state’s compliance with these requirements. Use of the verb “must” below denotes information that is required to be submitted because it relates to elements of the TMDL required by the CWA and by regulation.

### 1. Identification of Waterbody, Pollutant of Concern, Pollutant Sources, and Priority Ranking

*The TMDL submittal must clearly identify (40 C.F.R. §130.7(c)(1)):*

- *the waterbody as it appears on the State’s/Tribe’s CWA §303(d) list;*
- *the pollutant for which the TMDL is being established; and*
- *the priority ranking of the waterbody.*

*The TMDL submittal must include (40 C.F.R. §130.7(c)(1); 40 C.F.R. §130.2):*

- *an identification of the point and nonpoint sources of the pollutant of concern, including location of the source(s) and the quantity of the loading (e.g., lbs. per day);*
- *facility names and NPDES permit numbers for point sources within the watershed; and*
- *a description of the natural background sources, and the magnitude and location of the sources, where it is possible to separate natural background from nonpoint sources.*

*This information is necessary for EPA’s review of the load and wasteload allocations, which are required by regulation.*

*The TMDL submittal should also contain a description of any important assumptions made in developing the TMDL, such as:*

- *the spatial extent of the watershed in which the impaired waterbody is located;*
- *the assumed distribution of land use in the watershed (e.g., urban, forested, agriculture);*
- *population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources;*
- *present and future growth trends, if taken into consideration in preparing the TMDL (e.g., the TMDL could include the design capacity of a wastewater treatment facility); and*
- *an explanation and analytical basis for expressing the TMDL through surrogate measures, if applicable. Surrogate measures are parameters such as percent fines and turbidity for sediment impairments; chlorophyll *a* and phosphorus loadings for excess algae; length of riparian buffer; or number of acres of best management practices.*

The Jordan River Watershed is a part of the Great Salt Lake Basin, which incorporates much of northern and western Utah as well as portions of Idaho, Wyoming, and Nevada. The Jordan River Watershed comprises the downstream end of the Provo/Jordan River Basin. It is one of three river basins that contribute flow to the Great Salt Lake and incorporates all of Salt Lake County and some of the most densely populated areas of Utah. Figure 1 displays a map of the 14 *E. coli* impaired assessment units (AUs) subject to TMDLs within the watershed. Appendices A through I further characterize the hydrology and land use within each AU drainage area.

Table 3 identifies the AUs by name, ID, description, impaired beneficial use, and the year *E. coli* was first added to Utah’s 303(d) list. Twelve of the *E. coli* impairments were identified as high priority for TMDL development in the most recent 2022 Integrated Report (UDEQ, 2022). *E. coli* impairments on Parleys Canyon Creek (UT16020204-013\_00) and Midas Creek (UT16020204-024\_01) were assigned low priorities. Despite the low 303(d) list ranking, DWQ has identified all 14 *E. coli* impairments as priorities for TMDL development under Utah’s CWA §303(d) Program 2022-2032 Vision (USEPA, 2022). This TMDL report addresses *E. coli* impairments by establishing *E. coli* TMDLs. Other pollutant impairments exist in the watershed and will be subject to future TMDL development, as described on page 19 of the main report.

Chapter 2 (Bacteria Pollution) provides a primer on general *E. coli* sources and how it can be transported to surface waters. Chapter 5 (Sources) summarizes sources of *E. coli* studied in the Jordan River Watershed. DWQ provides more detailed, AU-specific, source assessments in the Appendices. These investigations identified and characterized the contribution of several permitted point sources (construction stormwater, industrial stormwater, municipal separate storm sewer systems (MS4s), sanitary sewer overflows, and wastewater treatment facilities) and nonpoint source categories (onsite septic systems, livestock, canals, domestic pets, wildlife, and recreationists/unhoused populations). DWQ properly cited all sources of data, information, and methods used during TMDL analysis.

**Assessment:** EPA concludes that DWQ adequately identified the impaired waterbodies, the pollutant of concern, the priority ranking, the identification, location and magnitude of the pollutant sources, and the important assumptions and information used to develop the TMDLs.

## 2. Description of the Applicable Water Quality Standards and Numeric Water Quality Target

*The TMDL submittal must include:*

- *a description of the applicable State/Tribal water quality standard, including the designated use(s) of the waterbody, the applicable numeric or narrative water quality criterion, and the antidegradation policy (40 C.F.R. §130.7(c)(1)); and*
- *a numeric water quality target for each TMDL. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression must be developed from a narrative criterion and a description of the process used to derive the target must be included in the submittal (40 C.F.R. §130.2(i)).*

*EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.*

Chapter 3 (Water Quality Standards) describes all three components of water quality standards and explains how they were considered in the TMDL analysis. Citations to relevant state statute that establish Utah water quality standards are also included. The TMDL report explains the mechanisms by which *E. coli* impact beneficial uses and the origin of the health risk values adopted by DWQ into state regulations.

Impaired beneficial uses are displayed by AU in Table 3. Infrequent primary contact recreation is not supported on any of the 14 AUs due to elevated *E. coli* concentrations. Drinking water uses designated for Parleys Canyon Creek (UT16020204-013\_00 and UT16020204-025\_00) are also impaired by *E. coli*. Equivalent numeric *E. coli* criteria apply to both uses: concentrations may not exceed 206 most probable number (MPN) per 100 milliliter (mL) as a 30-day and recreation season geometric mean, or a

maximum of 668 MPN/100mL in more than 10% of samples collected during the recreation season. Both criteria are directly adopted as TMDL targets as described in Chapter 4.1 (Concentration-based TMDLs). Lastly page 13 states, “This TMDL supports the antidegradation component of the standards because it is written to meet numeric *E. coli* criteria to support the full attainment of the drinking water and recreational beneficial uses.”

**Assessment:** EPA concludes that DWQ adequately described its applicable water quality standards and numeric water quality targets for these TMDLs.

### 3. Loading Capacity - Linking Water Quality and Pollutant Sources

*The TMDL submittal must include the loading capacity for each waterbody and pollutant of concern. EPA regulations define loading capacity as the greatest amount of a pollutant that a water can receive without violating water quality standards (40 C.F.R. §130.2(f)).*

*The TMDL submittal must:*

- *describe the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources. In many instances, this method will be a water quality model;*
- *contain documentation supporting the TMDL analysis, including the basis for any assumptions; a discussion of strengths and weaknesses in the analytical process; and results from any water quality modeling; and*
- *include a description and summary of the water quality data used for the TMDL analysis.*

*EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation (40 C.F.R. §130.2).*

*The full water quality dataset should be made available as an appendix to the TMDL or as a separate electronic file. Other datasets used (e.g., land use, flow), if not included within the TMDL submittal, should be referenced by source and year. The TMDL analysis should make use of all readily available data for the waterbody unless the TMDL writer determines that the data are not relevant or appropriate.*

*The pollutant loadings may be expressed as either mass-per-time, toxicity or other appropriate measure (40 C.F.R. §130.2(i)). Most TMDLs should be expressed as daily loads (USEPA. 2006a). If the TMDL is expressed in terms other than a daily load (e.g., annual load), the submittal should explain why it is appropriate to express the TMDL in the unit of measurement chosen.*

*The TMDL submittal must describe the critical conditions and related physical conditions in the waterbody as part of the analysis of loading capacity (40 C.F.R. §130.7(c)(1)). The critical condition can be thought of as the “worst case” scenario of environmental conditions (e.g., stream flow, temperature, loads) in the waterbody in which the loading expressed in the TMDL for the pollutant of concern will continue to meet water quality standards. TMDLs should define the applicable critical conditions and describe the approach used to estimate both point and nonpoint source loads under such critical conditions.*

A variety of approaches were used as multiple lines of evidence to assess potential sources of *E. coli* in the Jordan River Watershed, including load duration curves (LDCs), microbial source tracking (MST), data analysis, land-use patterns, and hydrologic information.

The LDC method is summarized in Chapter 5.3.2 (Load Duration Curves) and applied to each AU in the appendices (e.g., Figure A-8). A LDC is a graphical representation of pollutant loads across various

flows. The approach correlates water quality conditions with stream flow and provides insight into variable source contributions as shown generally in Table 7. EPA has published guidance on the use of duration curves for TMDL development (USEPA, 2007) and the practice is well established.

MST uses an analysis of microbial genetic material to determine which human or animal source contributed fecal material to a water sample and thus can assist in identifying pollutant sources and developing *E. coli* TMDL implementation strategies. These analyses were performed throughout the Jordan River Watershed from 2018–2021. A summary of the MST results is contained in the appendices. MST techniques, such as those described in this submittal, are endorsed by EPA for TMDL development (USEPA, 2011). In addition to applying LDC and MST approaches, DWQ investigated water quality datasets, land-use patterns and hydrologic information for each AU. These analyses are contained in the appendices.

In general, observed *E. coli* concentrations peak in July-August and LDCs indicate greater reductions are needed during high to mid-range flow zones. Monitoring data also indicates much higher concentrations of *E. coli* in stormflow when compared to baseflow (see Figure 8). These multiple lines of evidence suggest that summer precipitation events, which result in stormwater runoff, are critical conditions that should be addressed during TMDL implementation.

TMDLs are established as daily, recreation season, and 30-day limits. As described in Chapter 4.1 (Concentration-based TMDLs), these limits are expressed in concentrations, however, the analysis considers loads where the LDC process, contained in the appendices, compares current loads to maximum allowable loads and where Figure 4 and Table 5 present load limits at a range of example flows. DWQ's decision to establish concentration based TMDLs is consistent with the flexibility afforded in regulations (40 C.F.R. §130.2(i)) and is appropriate for this submittal given the numeric water quality criteria are expressed in concentrations and the characteristics of the waterbodies and pollutant of interest.

**Assessment:** EPA concludes that DWQ's loading capacity was calculated using an acceptable approach, used observed concentration data and water quality targets consistent with numeric water quality criteria, and has been appropriately set at a level necessary to attain and maintain the applicable water quality standards. The pollutant caps have been expressed as daily limits. The critical conditions were factored into the calculations and were based on a reasonable approach to establish the relationship between the target and pollutant sources.

#### 4. Load Allocation

*The TMDL submittal must include load allocations (LAs). EPA regulations define LAs as the portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution and to natural background sources. Load allocations may range from reasonably accurate estimates to gross allotments (40 C.F.R. §130.2(g)). Where possible, separate LAs should be provided for natural background and for nonpoint sources.*

*In the rare instance that a TMDL concludes that there are no nonpoint sources or natural background for a pollutant, the load allocation must be expressed as zero and the TMDL should include a discussion of the reasoning behind this decision.*

As described in Chapter 4.3 (Load Allocation), DWQ established a single concentration-based LA for each AU. The LA is equal to 206 MPN/100mL *E. coli* as a 30-day and recreation season geometric mean, and 668 MPN/100mL *E. coli* as a daily maximum during the recreational season. This composite LA represents all natural and human-caused nonpoint source contributions in a single allocation; however, individual nonpoint source categories are characterized in greater depth in Chapter 5.2 (Nonpoint Sources) and the appendices. Nonpoint source categories assessed and included within the LA include onsite septic systems, livestock, canals, domestic pets, wildlife, and recreationists/unhoused populations.

**Assessment:** EPA concludes that the LAs provided in the TMDL submittal are reasonable and will result in attainment of the water quality standards.

## 5. Wasteload Allocations

*The TMDL submittal must include wasteload allocations (WLAs). EPA regulations define WLAs as the portion of a receiving water's loading capacity that is allocated to existing and future point sources (40 C.F.R. §130.2(h)). If no point sources are present or if the TMDL recommends a zero WLA for point sources, the WLA must be expressed as zero. If the TMDL recommends a zero WLA after considering all pollutant sources, there must be a discussion of the reasoning behind this decision, since a zero WLA implies an allocation only to nonpoint sources and natural background will result in attainment of the applicable water quality standards, and all point sources have no measurable contribution.*

*The individual WLAs may take the form of uniform percentage reductions or individual mass based limitations for dischargers where it can be shown that this solution meets WQSs and does not result in localized impairments. In some cases, WLAs may cover more than one discharger (e.g., if the source is contained within a general permit).*

Point sources are summarized in Chapter 5.1 (Point Sources) and further characterized by AU within the appendices (e.g., Table A-4). The general strategy for establishing WLAs is described in Chapter 4.2 (Wasteload Allocation). Every TMDL in this submittal includes best management practice (BMP)-based WLAs for stormwater permits. As of March 1, 2022, there were 389 construction stormwater permits and 28 industrial stormwater permits in the project area. For reasons explained in the submittal, DWQ considers *E. coli* contributions from these sources to be unlikely if they follow their existing Utah Pollutant Discharge Elimination System (UPDES) permit requirements.

MS4s are identified as a contributing source of *E. coli* for all 14 streams, and in some cases, MS4s are considered the primary source. These TMDLs do not require MS4s to implement structural BMPs or include *E. coli* effluent limits in future permits. Instead, stormwater WLAs will be implemented through the iterative adoption of programmatic BMPs. MS4s will be required to submit TMDL compliance report forms and complete other requirements further explained in Chapter 7.2 (Stormwater Strategy).

Two TMDLs also assigned WLAs for individual, non-stormwater, UPDES permits. These permits allow Publicly Owned Treatment Works (POTWs) to discharge treated wastewater and are confirmed to be sources of *E. coli* through the TMDL analysis. Concentration-based WLAs are established for the South Valley Water Reclamation Facility (UT0024384) as part of the Jordan River (UT16020204-005\_00) TMDL and the Central Valley Water Reclamation Facility (UT0024392) as part of the Mill Creek (UT16020204-026\_00) TMDL. The concentration-based limits adopted as WLAs are a maximum

monthly average of 126 MPN/100mL and a weekly maximum average of 157 MPN/100mL. These concentrations match the *E. coli* effluent limits of current permits and are more stringent than applicable numeric criteria and TMDL targets (i.e., 126 and 157 MPN/100mL vs. 206 and 668 MPN/100mL).

**Assessment:** EPA concludes that the WLAs provided in the TMDL are reasonable, will result in the attainment of the water quality standards and will not cause localized impairments. The TMDL submittal accounts for all point sources contributing loads to impaired segments, upstream segments and tributaries in the watershed.

## 6. Margin of Safety

*The TMDL submittal must include a margin of safety (MOS) to account for any lack of knowledge concerning the relationship between load allocations, wasteload allocations and water quality (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)). The MOS may be **implicit** or **explicit**.*

*If the MOS is **implicit**, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is **explicit**, the loading set aside for the MOS must be identified.*

DWQ applied an implicit MOS approach that included treating *E. coli* as a conservative pollutant with no die-off rate as described in Chapter 4.4 (Margin of Safety).

**Assessment:** EPA concludes that the TMDLs incorporate an adequate implicit margin of safety. The conservative assumptions described in the TMDL document are explained and reasonable.

## 7. Seasonal Variation

*The TMDL submittal must be established with consideration of seasonal variations. The method chosen for including seasonal variations in the TMDL must be described (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)).*

Chapter 4.5 (Seasonality) mentions that the TMDLs, set equal to the numeric *E. coli* criteria, are protective of the recreation season when the criteria apply.

Additionally, the LDC method, which is summarized in Chapter 5.3.2 (Load Duration Curves) and applied to each AU in the appendices (e.g., Figure A-8), incorporates variations in stream flow, which in turn, is influenced by other climatic and human factors that change throughout the year. The LDC approach correlates water quality impairments to flow conditions and provides insight into variable source contributions. Figure 4 displays the TMDL across a range of flows. Monitoring data was also reviewed for seasonal variations in the appendices by graphing *E. coli* concentrations by collection month and recreation season (e.g., Figure A-5) and reviewing datasets for patterns and trends.

**Assessment:** EPA concludes that seasonal variations were adequately described and considered to ensure the TMDL allocations will be protective of the applicable water quality standards throughout any given year.



## 8. Reasonable Assurances

*When a TMDL is developed for waters impaired by both point and nonpoint sources, EPA guidance (USEPA, 1991) and court decisions say that the TMDL must provide reasonable assurances that nonpoint source control measures will achieve expected load reductions in order for the TMDL to be approvable. This information is necessary for EPA to determine that the TMDL, including the load and wasteload allocations, has been established at a level necessary to implement the applicable water quality standards (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)).*

*EPA guidance (USEPA, 1997) also directs Regions to work with States to achieve TMDL load allocations in waters impaired only by nonpoint sources. However, EPA cannot disapprove a TMDL for nonpoint source-only impaired waters, which do not have a demonstration of reasonable assurance that LAs will be achieved, because such a showing is not required by current regulations.*

Despite text contained in Chapter 4.7 (Reasonable Assurance) suggesting that reasonable assurance (RA) is not a required element of these TMDLs, EPA expects RA to be provided in all TMDLs developed for waters impaired by both point and nonpoint. Every TMDL included in this submittal is developed for an AU impaired by both point and nonpoint sources, thus RA must be provided. Furthermore, DWQ provided a sufficient demonstration of RA in the submittal as recorded throughout the TMDL report and summarized here. In general, reasonable assurance is provided for point sources through UPDES permitting requirements and nonpoint sources through nonregulatory, voluntary-based approaches.

Construction and industrial stormwater permittees are not considered significant contributors of *E. coli* based on the known makeup of discharge from these types of sites, however, they are required by their UPDES permits to develop a Stormwater Pollution Prevention Plan (SWPPP) that details stormwater control measures to minimize the discharge of pollutants including *E. coli*. MS4 WLAs will be implemented through an iterative adoption of programmatic BMPs consistent with EPA guidance for establishing WLAs for stormwater sources (USEPA, 2014b). Sanitary sewer overflows have occurred in the Jordan River Watershed and are being addressed through the Utah Sewer Management Program (UAC R317-801) to minimize future occurrences. POTW discharges are required by existing UPDES permits (UT0024384 and UT0024392) to disinfect wastewater to *E. coli* levels below numeric criteria and TMDL targets (i.e., 126 and 157 MPN/100mL vs. 206 and 668 MPN/100mL) demonstrating that point sources were not assigned less stringent WLAs to account for more nonpoint source reductions.

Nonregulatory, voluntary-based reasonable assurances are provided where the submittal discusses DWQ's monitoring strategy that will be used to gauge TMDL effectiveness in the future and where the submittal discusses the core aspects of a TMDL implementation strategy. These assurances include the recommendation of specific activities to focus implementation by source category (Table 8), facilitating education and training by sharing technical resources that assist with implementing relevant practices, and identifying funding opportunities (Chapter 7.3). Reasonable assurance justifications are provided throughout Chapter 4.7 (Reasonable Assurance), Chapter 6 (Monitoring Plan), and Chapter 7 (Implementation Strategy).

**Assessment:** EPA considered the reasonable assurances contained in the TMDL submittal and concludes that they are adequate to meet the load allocation reductions. Nonpoint source load reductions are expected to occur through the implementation of BMPs planned to begin in the near future. Point

sources with UPDES permits require that the effluent limits be consistent with assumptions and requirements of WLAs for the discharge contained in the TMDLs.

## 9. Monitoring Plan

*The TMDL submittal should include a monitoring plan for all:*

- *Phased TMDLs; and*
- *TMDLs with both WLA(s) and LA(s) where reasonable assurances are provided.*

*Under certain circumstances, a phased TMDL should be developed when there is significant uncertainty associated with the selection of appropriate numeric targets, estimates of source loadings, assimilative capacity, allocations or when limited existing data are relied upon to develop a TMDL. EPA guidance (USEPA. 2006b) recommends that a phased TMDL submittal, or a separate document (e.g., implementation plan), include a monitoring plan, an explanation of how the supplemental data will be used to address any uncertainties that may exist when the phased TMDL is prepared and a scheduled timeframe for revision of the TMDL.*

*For TMDLs that need to provide reasonable assurances, the monitoring plan should describe the additional data to be collected to determine if the load reductions included in the TMDL are occurring and leading to attainment of water quality standards.*

*EPA guidance (USEPA. 1991) recommends post-implementation monitoring for all TMDLs to determine the success of the implementation efforts. Monitoring plans are not a required part of the TMDL and are not approved by EPA but may be necessary to support the decision rationale for approval of the TMDL.*

In Chapter 6 (Monitoring Plan), DWQ commits to conduct future water quality monitoring to judge progress towards achieving the goals outlined in the TMDL report. Monitoring will continue until full-support status is attained for all AUs and they can be delisted for *E. coli* as part of the Integrated Report process. DWQ will also collaborate with stakeholders conducting data collection activities and the submittal includes a list of specific follow-up monitoring recommendations. This TMDL submittal is not considered a phased TMDL.

**Assessment:** Monitoring plans are not a required element of EPA's TMDL review and decision-making process. The TMDLs submitted by DWQ includes a monitoring plan written to evaluate the progress toward attainment of water quality standards. EPA is taking no action on the monitoring plan included in the TMDL submittal.

## 10. Implementation

*EPA policy (USEPA. 1997) encourages Regions to work in partnership with States/Tribes to achieve nonpoint source load allocations established for 303(d)-listed waters impaired by nonpoint sources. Regions may assist States/Tribes in developing implementation plans that include reasonable assurances that nonpoint source LAs established in TMDLs for waters impaired solely or primarily by nonpoint sources will in fact be achieved. The policy recognizes that other relevant watershed management processes may be used in the TMDL process. EPA is not required to and does not approve TMDL implementation plans.*

*EPA encourages States/Tribes to include restoration recommendations (e.g., framework) in all TMDLs for stakeholder and public use to guide future implementation planning. This could include identification of a*

*range of potential management measures and practices that might be feasible for addressing the main loading sources in the watershed (see USEPA. 2008, Chapter 10). Implementation plans are not a required part of the TMDL and are not approved by EPA but may be necessary to support the decision rationale for approval of the TMDL.*

DWQ's strategy to implement TMDL recommendations and proposed next steps to improve water quality are covered in Chapter 7 (Implementation Strategy). The focus is to decrease *E. coli* loading from nonpoint sources as well as from stormwater, which will be addressed through the MS4 permitting process. First, the TMDL report acknowledges successful planning and implementation activities already completed by local partners dating back to the 1970s. This includes stream, riparian, and hydrology restoration, as well as the development of educational outreach materials.

Next the TMDL report summarizes and supports future implementation activities by recommending general BMPs by nonpoint source category as summarized in Table 8, providing technical resources that assist with implementing relevant practices, and identifying funding opportunities (Chapter 7.3). TMDL implementation will be guided by the nine-element watershed planning process as discussed in Chapter 7.4 (EPA's Nine-element Watershed Planning). Completed and in-progress nine-element watershed plans for the Jordan River Watershed include the *Revised Salt Lake County Integrated Watershed Plan* (Salt Lake County, 2017) and the Emigration Canyon Watershed Plan, which is slated to be finalized in 2023. An information and education strategy is also discussed.

The implementation of POTW WLAs is occurring through existing UDPES permits because current effluent limits are consistent with the newly established WLAs. These TMDLs do not require MS4s to implement structural BMPs or add *E. coli* effluent limits to future permits. Instead, stormwater WLAs will be implemented through the iterative adoption of programmatic BMPs. In response to these TMDLs and among other requirements further explained in Chapter 7.2 (Stormwater Strategy), MS4 permittees are expected to:

- implement the six nonstructural minimum control measures (UDEQ, 2021),
- identify sources of *E. coli* within their jurisdiction and target audiences that may be contributing to the sources,
- develop and maintain an inventory of areas in their MS4 that are potential sources of *E. coli* that will be inspected annually, added to the MS4's prioritized street sweeping areas, and maintained at the same frequency as other priority areas in their MS4,
- have BMPs (structural and/or nonstructural) that reduce the potential of *E. coli* discharge at sites owned and operated by the MS4 deemed "high priority,"
- analyze *E. coli* (MPN/100mL) at established wet-weather monitoring sites,
- promote the use of low-impact development controls that have a medium or high pollutant-removal effectiveness for *E. coli* as identified in the *Guide to Low-impact Development within Utah* (UDEQ, 2020), and
- submit a TMDL compliance report form with their annual report that includes identification of problem areas for which source control BMPs were developed, the cost, and the anticipated pollutant reduction.

**Assessment:** Although not a required element of the TMDL approval, DWQ discussed how information derived from the TMDL analysis process can be used to support implementation of the TMDLs. EPA is taking no action on the implementation portion of the TMDL submittal.

## 11. Public Participation

*EPA policy is that there must be full and meaningful public participation in the TMDL development process. Each State/Tribe must, therefore, provide for public participation consistent with its own continuing planning process and public participation requirements (40 C.F.R. §25.3 and §130.7(c)(1)(ii)).*

*The final TMDL submittal must describe the State/Tribe's public participation process, including a summary of significant comments and the State/Tribe's responses to those comments (40 C.F.R. §25.3 and §25.8). Inadequate public participation could be a basis for disapproving a TMDL; however, where EPA determines that a State/Tribe has not provided adequate public participation, EPA may defer its approval action until adequate public participation has been provided for, either by the State/Tribe or by EPA.*

Chapter 8 (Public Participation) explains the public engagement process DWQ followed during development of the TMDL report. Starting in 2019, and continuing through development of the TMDLs, DWQ met multiple times with stakeholders to obtain local information, seek implementation support and keep them apprised of project updates. Stakeholders included the Jordan River Commission, county and municipal governments, the Salt Lake Conservation District, and Utah Department of Agriculture and Food, among others. A draft of the TMDL report was shared with stakeholders on June 8, 2022.

Per Utah Administrative Code (UAC) R317-1-7, DWQ brought the Jordan River Watershed *E. coli* TMDLs before the Water Quality Board on August 24, 2022 to initiate rulemaking. Next, the Jordan River Watershed *E. coli* TMDLs and proposed rule were published in the Utah State Bulletin for an official public comment period running from September 15 to October 17, 2022. During this time the draft TMDL report and appendices were published on DWQ's website. DWQ received comments from several entities including Salt Lake City Public Utilities, Salt Lake County, Bluffdale City, and University of Utah. These comments and DWQ's responses are recorded in Chapter 9 (TMDL Public Comment & DWQ Response). EPA did not submit comments during the public comment period, however, in Chapter 9 DWQ included and responded to comments EPA provided on July 26, 2022 regarding a preliminary draft. The Water Quality Board finalized rulemaking for the Jordan River Watershed *E. coli* TMDL (UAC R317-1-7.68) on December 15, 2022.

Table 10 (Public Participation Timeline) lists "December 15 – Submit to EPA for final approval." EPA notes the submission was not made until January 18, 2023 and assumes December 15, 2022 was an earlier projection that was not updated to reflect the actual submission date.

**Assessment:** EPA has reviewed the state's public participation process, the summary of significant comments received and DWQ's responses to those comments. EPA concludes that the state involved the public during the development of the TMDLs, provided adequate opportunities for the public to comment on draft documents and provided reasonable responses to the comments received.

## 12. Submittal Letter

*The final TMDL submittal must be accompanied by a submittal letter that explicitly states that the submittal is a final TMDL submitted under Section 303(d) of the Clean Water Act for EPA review and approval. This clearly establishes the State's/Tribe's intent to submit, and EPA's duty to review, the TMDL under the statute (40 C.F.R. §130.7(d)(1)). The final submittal letter should contain such identifying information as the waterbody name, location, assessment unit number and the pollutant(s) of concern.*

A transmittal letter with the appropriate information was included with the final TMDL report submission from DWQ, dated January 18, 2023 and signed by John Mackey, Division Director, Water Quality Division.

***Assessment:*** EPA concludes that the DWQ submittal clearly and unambiguously requested EPA to act on the final TMDLs in accordance with the Clean Water Act and the submittal contained all the necessary supporting information.

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