



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8**

1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
<http://www.epa.gov/region08>

August 18, 2008

Ref: 8EPR-EP

Walter Baker, Director
Division of Water Quality
Utah Department of Environmental Quality
PO Box 144870
Salt Lake City, UT 84114-4870

Subject: EPA Comments on the Proposed Revisions to
Utah's Water Quality Standards

Dear Mr. Baker:

This letter provides the comments of the U.S. EPA Region 8 Water Quality Unit (WQU) on the proposed revisions to water quality standards. Please note that the positions described in the enclosure, regarding both existing and proposed water quality standards, are preliminary in nature and should not be interpreted as final EPA decisions under CWA § 303(c).

We commend the Division for the process followed to develop the proposed revisions. The process included formation of a stakeholder workgroup and a series of work group meetings during 2007 and 2008 to discuss issues and evaluate options. Especially commendable were the efforts to develop the proposed Great Salt Lake selenium criterion. That process included formation of a steering committee and expert science panel, and completion of water quality studies. Although there are several issues where we have concerns and recommendations for revising the proposal, we are also supporting adoption of many revisions, as proposed.

We hope these comments are helpful to the Division. If there are questions concerning our comments, please contact me at (303) 312-6236, or David Moon at (303) 312-6833.

Sincerely,

Karen Hamilton, Chief
Water Quality Unit

Enclosure

cc: Leah Ann Lamb, Manager, Engineering and Water Quality Branch





U.S. EPA REGION 8 WATER QUALITY UNIT COMMENTS ON THE PROPOSED REVISIONS TO UTAH WATER QUALITY STANDARDS

Please note that the positions described in our comments, regarding both existing and proposed water quality standards, are preliminary in nature and should not be interpreted as final EPA decisions under CWA § 303(c). EPA Region 8 approval/disapproval decisions will be made following adoption of new/revised standards by the Water Quality Board (the Board), and submittal to EPA. Approval/disapproval decisions will be made considering all pertinent evidence available to the Region.

REVISIONS TO ANTIDegradATION POLICY AND ANTIDegradATION REVIEW REQUIREMENTS (R317.2-3).

The Water Quality Unit (WQU) supports adoption of the proposed revisions. We also commend the efforts of the Division of Water Quality (the Division) to develop the revisions in collaboration with a work group that featured diverse representation of Utah stakeholders.

In particular, we support the revisions that would:

- clarify the purpose of Level 1 reviews;
- streamline and clarify the criteria used to determine when Level 2 reviews are required;
- consider the projected loss of assimilative capacity when evaluating how a proposed activity will affect water quality, because assimilative capacity is a better measure of the resource to be protected; and
- consider how the projected water quality condition compares to the numeric criterion, as a means of addressing cumulative water quality degradation and controlling "pollution creep."

Our perspective is that the proposal would improve Utah's existing (approved) antidegradation program. We consider the proposed revisions to be consistent with federal antidegradation requirements. As such, we would recommend approval, if the proposed revisions are adopted by the Board and submitted to EPA.

REVISIONS TO RECREATION USE DESIGNATION DESCRIPTIONS (R317.2-6).

We support adoption of the proposed revisions. We also commend the efforts of the Division to develop the revisions in collaboration with a work group that featured diverse representation of Utah stakeholders.

In particular, we support the revisions to:

- clarify the distinction between Class 2A and Class 2B,
- base the distinction between the two use designations on existing and expected frequency of primary contact use, and

- establish that primary contact uses include a variety of activities where there is a high likelihood of ingestion of water or a high degree of bodily contact with the water (e.g., swimming, rafting, kayaking, diving and water skiing).

Our perspective is that the revisions are appropriate and consistent with federal requirements. Because both use designations provide for a high level of water quality protection (based on the associated *E. coli* criteria), we consider both to be consistent with the “swimmable” goal of CWA § 101(a)(2) (see page 2-2 of the EPA WQS Handbook). We consider the illness rates associated with the criteria for both use designations (8 illnesses per 1000 for Class 2A, and 10 illnesses per 1000 for Class 2B) to provide a high level of protection that is consistent with the State’s risk management discretion under the federal requirements. Further, our view is that clarifying the distinction between Class 2A and Class 2B would facilitate decisions by the Board regarding the appropriate use designation for individual water segments. We expect that such reviews primarily will result in an upgraded site-specific level of protection, e.g., Class 2B waters that are upgraded to Class 2A.

We think the revisions would result in incremental improvement to the level of protection for recreation uses. We consider the proposed revisions to be consistent with federal requirements. As such, we would recommend approval, if the proposed revisions are adopted by the Board.

REVISIONS TO THE GREAT SALT LAKE USE DESIGNATION (R317.2-6).

With one exception, we support adoption of the proposed revisions. The exception is that we recommend an adjustment to the description of the recreation uses to be protected in the Great Salt Lake.

Under the existing regulation, a single use designation (Class 5)¹ applies equally to all portions of the Great Salt Lake. The Division’s proposed revision is to create 4 segments and 5 use designations for the lake, and assign different use designations to each segment. This would allow different uses to be designated and protected in the different lake segments.

Under the Division’s proposal, a principal difference between the segments is that primary contact recreation uses would be protected only in Gilbert Bay. For the remaining segments and all transitional wetlands, only secondary contact uses would be protected. In addition, mineral extraction would be eliminated as a use to be protected for all segments.

We recommend an adjustment to the Division’s proposal, such that in Gilbert Bay the assigned use designation (Class 5A) would protect frequent primary contact and secondary contact uses, and for the remaining segments and all transitional wetlands, the

¹ Class 5 includes protection of primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary aquatic organisms in their food chain, and mineral extraction.

assigned use designations would protect infrequent primary contact and secondary contact uses. Our reasoning is twofold. First, this adjustment is more defensible and would better reflect the Lake's existing/potential primary contact uses. Second, the adjustment would be more consistent with the Division's statewide proposal for designating and protecting recreation uses.

With the adjustment described above, we would support adoption of the proposed revisions to the (Class 5) Great Salt Lake use designation.

REVISIONS TO CRITERIA EXCEEDANCE FREQUENCIES FOR WATER QUALITY ASSESSMENT PURPOSES (R317.2-7.1).

We have significant concerns regarding one aspect of the proposed revisions. Specifically, the proposed revisions would add the following new sentence:

For water quality assessment purposes (with the exception of TABLE 2.14.5 LIST OF HUMAN HEALTH CRITERIA (CONSUMPTION)), up to 10% of representative samples may exceed the standard.

Although revisions allowing a 10% exceedance frequency may be appropriate for assessment of certain criteria (e.g., aquatic life criteria for pH, dissolved oxygen, and temperature), we are concerned that the proposal:

- conflicts with Utah's once-in-3-year exceedance frequency for 4-day average and 1-hour average aquatic life criteria (e.g., the aquatic life criteria listed in Table 2.14.2)²;
- may be inappropriate for the criteria listed in Tables 2.14.1, 2.14.4, and 2.14.6; and
- would relax the level of protection for a large number of Utah's water quality criteria.

We note that guidance issued by EPA's national water quality assessment program has long recommended use of a 10% exceedance frequency, but only for conventional parameters (e.g., dissolved oxygen, pH, temperature).

We recommend that the Division make adjustments to the proposed sentence identified above to be more consistent with EPA guidance, and to narrow its application to parameters and criteria where allowing a 10% exceedance frequency is appropriate. We also recommend that the 10% exceedance frequency be applied only to (statewide or site-specific) criteria maxima and minima. For example, it should not be applied to average criteria, such as for dissolved oxygen. All representative data should be used in calculating ambient averages for comparison to average criteria. Also, based on similar

² Footnote #4 to Table 2.14.2 provides that: "(4) Where criteria are listed as 4-day average and 1-hour average concentrations, these concentrations should not be exceeded more often than once every three years on the average."

reasoning, it should not be applied to criteria expressed as a change in condition, such as the maximum temperature change, and maximum turbidity increase criteria listed in Table 2.14.2. Our understanding is that such criteria are assessed by comparing the entire distribution of ambient values, to evaluate whether there is a trend (either for two locations, or two time periods). Finally, in order to properly exclude certain human health criteria as intended, Table 2.14.6 should be cited, and not Table 2.14.5 as reflected in the proposal.

One option available to the Division to resolve our concerns would be to revise the proposed sentence as follows:

For water quality assessment purposes, up to 10% of representative samples may exceed the minimum or maximum criteria for dissolved oxygen, pH, and temperature, including situations where such criteria have been adopted on a site-specific basis.

We recommend that the Division modify its proposal to address the concerns discussed above. There may be options other than the specific recommendation included here that would appropriately resolve the issue.

REVISIONS TO CLASSIFICATIONS FOR WATERS OF THE STATE (R317.2-13).

Downgraded Aquatic Life Use Designations

Downgraded aquatic life use designations were proposed by the Division for several segments, including:

- Salt Creek from Confluence with Bear River to Crystal Hot Springs. Proposal: Class 3B and 3D to Class 3C. Also, Class 4 would be removed. (R317-2-13.3.a - Bear River drainage).
- Escalante River from Confluence with Boulder Creek to Headwaters. Proposal: Class 3A to Class 3B. (R317-2-13.1.a - Colorado River drainage), and
- Saleratus Creek from confluence with Bear River to Deseret Ranch High Ditch Diversion. Proposal: Class 3A to Class 3B. (R317-2.13.3.a - Bear River drainage).

Because the proposed revisions for these waters would apply a sub-category of aquatic life protection that carries with it less-stringent criteria for certain parameters (i.e., compared to the current use designation), the proposals are considered "downgrades" that trigger the federal requirement to conduct a use attainability analysis (UAA). The applicable federal UAA requirement is in the federal water quality standards regulation at 40 CFR 131.10(j)(2).

Salt Creek: We have significant concerns regarding the UAA that was posted on the DEQ website for public review. The reason cited by the Division for

removing the agriculture use designation and downgrading the aquatic life use designation from Class 3B and 3D to Class 3C is high total dissolved solids (TDS) levels. However, several important types of data were either very limited or not included. For example, the problems with the UAA include:

- limited information re: the existing aquatic life use, including limited biological assessment data;
- no physical habitat information;
- water quality data only for TDS;
- only an average TDS value is presented - no raw TDS data were presented to clarify what the average represents, and there is no information about the number of samples or where/when they were collected;
- no evaluation of how TDS varies at different locations and over time;
- no TDS tolerance data for game fish vs. non-game fish (absence of acute and chronic effect concentrations);
- no evaluation as to whether anthropogenic activities have affected TDS concentrations and other parameters (e.g., absence of land use information); and
- no evaluation re: whether any anthropogenic effects are controllable.

In general, the data/information presented do not adequately characterize the existing aquatic life use, the stressors limiting the use, or whether the limiting stressors can be controlled. Based on these concerns, we recommend that the Division postpone a decision about whether different use designations are appropriate, and withdraw the proposed change until a more thorough UAA can be completed. Alternatively, it might be appropriate to proceed with removing the agriculture use designation, while postponing decisions on the aquatic life use designations.

Escalante River and Saleratus Creek: We are not aware that UAAs have been completed and made available for public review. For example, UAAs were not posted on the DEQ website where the Salt Creek UAA was posted and available. Completing such UAAs prior to the public comment period, so they are available to the public at least 30 days prior to the hearing, is necessary to satisfy federal UAA and public participation requirements. Accordingly, we recommend that the Division withdraw these proposals, or make completed UAAs available for a review period not less than 30 days. See 40 CFR Part 25. Looking forward, the WQU is available and interested in providing technical assistance to Utah regarding the development of these and other UAAs.

Upgraded Recreation Use Designations

Upgraded recreation use designations (Class 2B to Class 2A) were proposed by the Division for several locations, including:

- San Juan River and Tributaries, from Lake Powell to State Line (with the exception of certain tributaries),
- Colorado River and Tributaries, from Lake Powell to State Line (with the exception of certain tributaries),
- Green River and Tributaries, from confluence with Colorado River to State Line (with the exception of certain tributaries), and
- Green River and Tributaries, from Utah-Colorado State Line to Flaming Gorge Dam (with the exception of certain tributaries).

We support adoption of these proposed site-specific revisions. The revisions appear appropriate, based on the frequency of recreation uses at these locations and the clarified descriptions of Class 2A and Class 2B that were proposed by the Division. In the future, as additional information becomes available regarding locations where Class 2B waters should be upgraded to Class 2A (based on the frequency of primary contact recreation uses), we would encourage the Division to consider additional upgrades. We anticipate that stakeholders may be in a position to provide such information to the Division.

Changes to National Wildlife Refuges and State Waterfowl Management Areas, and Other Areas Associated with the Great Salt Lake (R317.2-13.11)

Revisions to use designations were proposed by the Division for certain National Wildlife Refuges (NWRs) and State Waterfowl Management Areas (WMAs) that overlap with the footprint of the Great Salt Lake. In addition, new segments were proposed to be added to this section of the regulation for the four open water segments of the Great Salt Lake itself: Bear River Bay, Farmington Bay, Gilbert Bay, and Gunnison Bay. In all, revisions were proposed for the following areas:

- Bear River NWR, Box Elder County
- Bear River Bay
- Farmington Bay WMA, Davis and Salt Lake Counties
- Farmington Bay
- Gilbert Bay
- Gunnison Bay
- Howard Slough WMA, Weber County
- Locomotive Springs WMA, Box Elder County
- Ogden Bay WMA, Weber County
- Public Shooting Grounds WMA, Box Elder County
- Salt Creek WMA, Box Elder County
- Timpie Springs WMA, Tooele County

The Division's proposal would split each area into 3 different portions, allowing different use designations to be proposed for each:

- Open Water below 4,208
- Transitional Wetlands 4,208 ft. to Open Water
- Open Water above 4,208 ft

Under the proposal, an elevation of 4,208 feet is used to define the outer boundaries of the Great Salt Lake. Importantly, the proposal would restrict the application of the Class 2B, 3B, and 3D use designations, and the numeric criteria associated with those use designations, only to freshwater habitats located outside the footprint of the Great Salt Lake (i.e., above an elevation of 4,208 feet). Different use designations (either Class 5A, 5B, 5C, 5D, or 5E) would be applied below an elevation of 4,208 feet.

We think the Division's proposed revisions are reasonable, and we support adoption. However, we do have four comments:

- 1) We recommend deletion of section R317-2-13.13. This existing section indicates that the (previous) Class 5 is assigned to the waters of the Great Salt Lake in Box Elder, Davis, Salt Lake, Tooele, and Weber County. The proposed revisions to R317-2-13.11 appear to assign the new Class 5A, 5B, 5C, 5D, and 5E use designations to all waters of the Great Salt Lake, rendering R317-2-13.13 obsolete and a candidate for deletion. An alternative approach would be to list the proposed Great Salt Lake segments and use designations in R317-2-13.13, instead of adding them to R317-2-13.11.
- 2) The Division's proposal to remove the Class 2B, 3C, and 3D use designations and (freshwater) numeric criteria from the saline or potentially saline habitats within the footprint of the Great Salt Lake (below 4,208 feet) is reasonable for the identified NWRs and WMAs. However, these proposed revisions highlight the need to develop appropriate numeric criteria or narrative criteria assessment methods for the wetland and open water habitats of the Great Salt Lake. We acknowledge that multiple projects are underway to address this need and plan to continue to work with the Division on this topic.
- 3) We recommend changing "Open Water Above 4,208 feet" to "Freshwater Above 4,208 feet." This change would better reflect that above 4,208 feet there is a diversity of aquatic habitats, including wetlands, in the identified NWRs and WMAs.
- 4) With regard to the portions of the NWRs and WMAs surrounding the Great Salt Lake above an elevation of 4,208 feet, our understanding is that the proposal would categorically apply the same use designations and numeric criteria to all freshwater in these areas. Our comment is that, due to naturally occurring conditions, some of the numeric criteria (e.g., for pH and dissolved oxygen) may not be attainable in the wetlands. Of course, we recognize that a similar situation

exists for all freshwater wetlands statewide. Accordingly, and thinking ahead to a future water quality standards rulemaking opportunity, we encourage the Division work with appropriate stakeholders, and to consider a range of options, for clarifying and improving Utah's water quality standards for the freshwater wetlands outside the footprint of the Great Salt Lake, including all freshwater wetlands statewide.

REVISIONS TO CRITERIA FOR DOMESTIC, RECREATION, AND AGRICULTURAL USES (R317.2-14.1).

E. coli

The Division's proposal is to revise the maximum criteria for *E. coli* applicable to Classes 1C, 2A and 2B and make certain clarifying changes to the footnote associated with these criteria. The maximum criteria for Class 1C, 2A and 2B would be revised from 940, 576, and 940 CFU per 100 ml, to 668, 409, and 668 CFU per 100 ml, respectively. In addition, footnote #7 would be revised in several ways. For example, footnote #7 would be revised to indicate that, for water quality assessment purposes, up to 10% of representative samples may exceed the applicable maximum criterion.

We support adoption of the proposed revisions. We also commend the efforts of the Division of Water Quality to develop the revisions in collaboration with a work group that included diverse representation of Utah stakeholders.

We note that the proposed maximum criteria are numerically equivalent to the 90th percentile values in the statistical distributions associated with the target geometric means of 206 CFU per 100 ml (for Class 1C and 2B) and 126 CFU per 100 ml (for Class 2A). See the 1986 EPA criteria document. The proposals therefore recognize that it is reasonable, and consistent with the target geometric mean values for up to 10 percent of observed single sample values to exceed the proposed maximum criteria. Expressing the same numeric values as true maxima would be inconsistent with, and more stringent than, the associated geometric mean criteria.

We also view as reasonable the proposed revisions to footnote #7 that would encourage additional monitoring, when observed exceedances are based on small datasets. This proposal appropriately recognizes that *E. coli* levels in surface waters are often highly variable - both spatially and temporally - and that a small dataset may not accurately characterize water quality conditions.

Total Dissolved Solids - Statewide Criterion

The Division's proposal is to replace the two total dissolved solids (TDS) statewide criteria³ for protection of agricultural uses with a single value based on protection of the more sensitive irrigation use. In addition, footnote #4 would be revised in several ways. For example, footnote #4 would be revised to clarify the situations where site-specific

³ 1,200 mg/L for irrigation uses, and 2,000 mg/L for livestock uses.

criteria may be adopted. In addition, footnote #4 would be revised to establish that, for water quality assessment purposes, up to 10% of representative samples may exceed the standard.

We support adoption of the proposed revisions. We also commend the efforts of the Division to develop the revisions in collaboration with a work group that featured diverse representation of Utah stakeholders.

The proposed revisions to footnote #4 recognize that a criterion less stringent than the statewide criterion may be appropriate on a site-specific basis because of attainability considerations (e.g., natural/unalterable conditions) or because a less-stringent criterion is adequate to protect the crops to be irrigated. The proposed revisions also recognize that a site-specific criterion more stringent than the statewide criterion may be necessary where the agriculture use includes crops that are especially sensitive to TDS.

We agree with the Division that it is reasonable and appropriate to consider attainability and crop sensitivity in determining TDS criteria for the protection of agricultural uses.

Total Dissolved Solids - Site-Specific Criteria

The Division's proposal includes several new/revised site-specific TDS criteria for the protection of agriculture uses, as follows:

- Antelope Creek and tributaries from confluence with Duchesne River to headwaters: 2,655 mg/l;
- Indian Canyon Creek and tributaries from confluence with Duchesne River to headwaters: 2,180 mg/l;
- Muddy Creek and tributaries from the confluence with ~~Quitcupah~~ Ivie Creek to U-10: 2,600 mg/l;
- Paria River from the Utah/Arizona border to confluence of Cottonwood Wash: 1,500 mg/l;
- Paria River from confluence of Rock Springs Creek to headwaters: 2,500 mg/l;
- Price River and tributaries up to 7,500 feet in elevation from confluence with Green River to confluence with Soldier Creek: 3,000 mg/l;
- Price River and tributaries up to 7,500 feet in elevation from the confluence with ~~Coal~~ Soldier Creek to Carbon Canal Diversion: 1,700 mg/l; with the following exceptions:
- Soldier Creek and tributaries to 7,200 feet in elevation from confluence with Price River: 1,700 mg/l;
- Coal Creek and tributaries to 7,200 feet in elevation from confluence with Price River: 1,700 mg/l;
- Pinnacle Creek and tributaries to 7,500 feet in elevation from confluence with Price River: 3,800 mg/l;
- Gordon Creek Creek and tributaries to 7,500 feet in elevation from confluence with Price River: 3,800 mg/l;

- Quitchupah Creek from the confluence with Ivie Creek to U-10: ~~{2,600}~~ 1,700 mg/l;
- South Fork Spring Creek and Spring Creek from the confluence with Cutler Reservoir to US 89: 1,600 mg/l (March-Sept.) 2,400 mg/l (Oct.-Feb.)

The technical rationales for these proposed criteria revisions were included in various documents produced by Utah's TMDL program, and collected in a July 14, 2008 letter from Carl Adams, Utah DEQ, TMDL / Watershed Planning Program Manager, to Sandra Spence, EPA Region 8, Water Quality Unit (Adams Letter).

Based on our review of the technical rationales, we have several comments and concerns regarding the Division's proposal.

1) Exceedance Frequency. It is unclear whether the Division's intent is to apply these criteria as maximum (not to be exceeded) concentrations, or as 85th/90th percentile criteria, for comparison to 85th/90th percentiles of the ambient data. For example, whereas the statewide criterion is clearly a maximum value with a 10% exceedance frequency, no exceedance frequency is specified for the site-specific criteria. If the proposed criteria are intended to be maximum (not to be exceeded) values, they would each require water quality improvement, since they are calculated from 85th/90th percentile ambient values. We recommend clarifying footnote #4 to indicate the intended exceedance frequency for these criteria.

A related concern is that the Division used the 85th percentile for some segments and the 90th percentile for others. The rationale is not clear. We suggest that the Division either clarify the rationale for varying the methodology, or use a consistent method for all segments.

2) Spatial Variability. Where data are available for multiple stations within a segment, and the data indicate differences in water quality at the different locations, the proposed criteria were calculated based on the station with the highest observed TDS concentrations. Either the 85th or 90th percentile was selected as the basis for the proposed criteria. We are concerned that, depending upon how assessment and discharge permitting decisions are made, this approach may allow water quality to be degraded in the higher quality portions of these segments. Note that this is a general concern regarding all of the attainability-based TDS criteria.

To address this general concern, we recommend that the Division modify its proposed revisions to footnote #4 to identify the monitoring location used to derive each site-specific criterion, and also indicate the following within footnote #4:

"For the site-specific TDS criteria listed here that are based on natural or unalterable conditions:

- the identified TDS concentration establishes a numeric criterion only at the specific monitoring location used to derive the criterion,

- at these specific monitoring locations, assessments will be based on comparison of the 85th/90th percentile of the representative ambient observations to the adopted numeric criterion,
- at locations within each segment where quality is expected to be better or worse than the site-specific criterion, the site-specific requirement is to maintain the existing water quality condition, and
- permitting decisions will be based on maintaining and protecting the existing condition, including the spatial variability within the segment."

We believe this recommended clarification would be appropriate and would help to maintain and protect the existing water quality condition in these segments with elevated TDS concentrations. We recognize that there may be other options to address this issue that the Division may want to consider.

3) Comments Regarding Individual Proposed Criteria

- *Paria River from confluence of Rock Springs Creek to headwaters.*

The Division proposed a site-specific TDS criterion of 2,500 mg/L (the 85th percentile at Kodachrome Basin Road).

We are concerned that the technical rationale does not adequately characterize the effect of anthropogenic activities on the high TDS concentrations (such as from irrigation), and that it includes little evidence to support the conclusion that anthropogenic contributions cannot be reduced. For example, it would be useful to include additional information regarding land uses in the watershed (e.g., number of irrigated acres), irrigation practices, and evidence to support the conclusion that "potential anthropogenic sources were found to be controlled to the maximum extent feasible, primarily through the use of efficient irrigation techniques."

Based on the concerns identified above, we recommend that the Division work with the Region to develop a more complete technical rationale. In particular, it would be useful to include additional evidence on the question of whether anthropogenic contributions can be reduced. If such information is not readily available, we would recommend withdrawing this proposal until a more complete technical rationale can be prepared.

- *Paria River from the Utah/Arizona border to confluence of Cottonwood Wash.*

The Division proposed a site-specific TDS criterion of 1,500 mg/L (85th percentile at US 89 Crossing).

We support adoption of this proposed site-specific TDS criterion. Our perspective is that the technical rationale adequately supports the conclusion that the proposed criterion describes the natural/unalterable water quality condition.

- *Antelope Creek and tributaries from confluence with Duchesne River to headwaters, and Indian Canyon Creek and tributaries from confluence with Duchesne River to headwaters.*

The Division proposed site-specific TDS criteria for Antelope Creek and Indian Canyon Creek of 2,655 mg/l (90th percentile at US 40 Crossing) and 2,180 mg/l (90th percentile above confluence with Strawberry River), respectively.

There are several things that we like about the rationale for these proposals. In particular, it is compelling that less than 1 percent of both basins are irrigated. Also, it is helpful that the rationale includes information regarding the level of protection that the proposed criteria will provide for stock watering and the (limited) irrigation uses in these basins.

However, we have concerns regarding the statement that “conditions in these watersheds can improve to some extent.” It is not clear that the proposed criteria are consistent with this conclusion. For example, if the expectation is that TDS concentrations can be improved to some extent, the proposed criteria should require that level of water quality improvement (we acknowledge that the proposed criteria might require improved water quality – see our comment #1 in this section regarding the need to clarify the intended exceedance frequency). Also, the rationale would be improved by adding information about the loading contribution from irrigated lands and the potential for reducing that load (e.g., does the contribution from irrigated lands, on a per acre basis, appear to be greater than from the non-irrigated lands, and can it be reduced?). We suggest that the Division further develop its proposal and rationale to address these concerns.

- *Two segments of the Price River, as well as 4 tributaries to the Price River including Soldier Creek, Coal Creek, Pinnacle Creek and Gordon Creek.*

The Division proposed site-specific TDS criteria as follows:

- Price River and tributaries up to 7,500 feet in elevation from confluence with Green River to confluence with Soldier Creek. Proposed Criterion: 3,000 mg/l (based on 90^h percentile at Lower Price River near Woodside).
- Price River and tributaries up to 7,500 feet in elevation from the confluence with Soldier Creek to Carbon Canal Diversion. Proposed Criterion: 1,700 mg/l (based on achievement of 50% of the potential load reduction listed in Table A-2 multiplied by the 90th percentile).

- Soldier Creek and tributaries to 7,200 feet in elevation from confluence with Price River. Proposed Criterion: 1,700 mg/l (based on achievement of 50% of the potential load reduction listed in Table A-2 multiplied by the 90th percentile).
- Coal Creek and tributaries to 7,200 feet in elevation from confluence with Price River: 1,700 mg/l (based on achievement of 50% of the potential load reduction listed in Table A-2 multiplied by the 90th percentile).
- Pinnacle Creek and tributaries to 7,500 feet in elevation from confluence with Price River: 3,800 mg/l (based on 90th percentile).
- Gordon Creek and tributaries to 7,500 feet in elevation from confluence with Price River: 3,800 mg/l (based on 90th percentile).

We have several comments and concerns regarding the rationale for these six site-specific TDS criteria:

- It is not clear why loading reductions are considered feasible in some segments but not others. It would be useful to include evidence and rationale to support these conclusions. For example, it would be useful to include additional information regarding land uses in the watershed (e.g., number of irrigated acres), irrigation practices, and evidence to support the estimates regarding the potential for load reductions.
- It is not clear why it was assumed that only 50% of the potential load reduction can actually be achieved. It would be useful to include evidence and rationale to support this assumption.
- The cited Table A-2, which apparently includes important information regarding potential for load reductions, was not included in the July 14, 2008 Adams letter that was made available to the public on the DEQ website.
- It is not clear why the proposed criteria are identical for the upper segment of the Price River, Soldier Creek, and Gordon Creek. Likewise, it is not clear why the proposed criteria are identical for Gordon Creek and Pinnacle Creek. It appears that the Division may have used monitoring data at one location to characterize water quality for locations/segments where data are not available. If this is the case, we are concerned that it is not appropriate to propose site-specific criteria for locations/segments where no ambient monitoring data are available. Such an approach may fail to adequately characterize spatial variability, and result in adoption of criteria that are either over or under protective. Generally, we recommend that site-specific criteria based on natural/unalterable conditions should only be proposed where adequate representative data are available.

To address these comments and concerns, we recommend that the Division work with the Region to prepare a more complete technical rationale for these segments, and reconsider what site-specific criteria are appropriate for these waters, addressing the above points. If adequate information is not readily available, we would recommend withdrawing these proposals until a more complete technical rationale can be completed.

- *A segment of Muddy Creek and a segment of Quitchupah Creek.*

The Division proposed to revise previously-adopted site-specific TDS criteria for these two creeks as follows:

- For Muddy Creek, the Division proposed to apply the previously-adopted site-specific criterion of 2,600 mg/l to a revised segment; the proposal would move the lower segment boundary from the confluence with Quitchupah Creek to the confluence with Ivie Creek.
- For Quitchipah Creek from the confluence with Ivie Creek to U-10, the Division proposed to revise the previously-adopted site-specific TDS criterion from 2,600 mg/L to 1,700 mg/l.

A technical rationale for these proposals was not included in the July 14, 2008 Adams letter. Accordingly, we recommend that the Division work with the Region to prepare a technical rationale and provide it for public comment. In general, prior to adopting revised site-specific criteria, it is important to ensure that the supporting information is well documented and available for review. This is important to support EPA oversight efforts, and to meet the federal public participation requirements at 40 CFR Part 25.

- *South Fork Spring Creek and Spring Creek from the confluence with Cutler Reservoir to US 89.*

The Division proposed seasonal site-specific criteria of 1,600 mg/l (March-Sept.) and 2,400 mg/l (Oct.-Feb.).

This proposal is based on a request from Swift & Company, which apparently is a permitted discharger to the segment. A document posted on the DEQ website and identified as "Use Attainability Analysis: South Fork Spring Creek" cites a February 5, 2008 letter from Swift & Company to William O. Moellmer, Utah DEQ, and a non-dated letter to the Utah Water Quality Board.

We have several comments and concerns regarding this site-specific proposal:

- A site-specific TDS criterion may be appropriate for this segment based on identification of the highest attainable level of water quality (i.e., natural/unalterable conditions).

- Our perspective is that the information presented does not adequately demonstrate that the proposed TDS criteria describe the highest attainable level of water quality.
- For example, it would be useful to expand the technical justification to include an analysis of discharge control alternatives, and the ambient water quality condition attainable for each alternative. Such information would better support a decision regarding the TDS concentrations that are feasible to achieve.
- The proposal addresses both the South Fork of Spring Creek and Spring Creek from the confluence with Cutler Reservoir to US 89. It is not clear from the supporting information why the attainable TDS concentrations are expected to be similar at these two locations, such that the same site-specific criterion is appropriate for both creeks.

Based on the concerns identified above, we recommend that the Division work with Swift & Company and the Region to develop a more complete technical rationale. In particular, additional evidence is needed to support a decision regarding the TDS concentrations that are feasible to achieve. If such information is not readily available, we would recommend withdrawing this proposal until a more complete technical rationale can be completed.

SELENIUM CRITERION FOR GILBERT BAY (R317-2-14.2)

The Water Quality Unit (WQU) supports adoption of the proposed site-specific selenium standard of 12.5 mg/kg in egg/embryo tissue for Gilbert Bay of the Great Salt Lake (GSL). If adopted by the Board, this standard would represent the first selenium standard adopted for the protection of wildlife. We commend Utah for proposing a selenium criterion protective of wildlife and the efforts put into developing the proposed standard.

Based on our review of the final selenium standard report⁴, WQU believes the proposed tissue-based standard is scientifically defensible, protective of the beneficial uses, and achieves the goals of the CWA for the following reasons:

- All science panel members agreed that reproductive success of aquatic-dependent birds represents the most sensitive designated use for the GSL and recommended adoption of an egg or embryo tissue-based standard.
- The standard was developed from toxicity data for the mallard duck, which is among the most sensitive bird species to selenium, and therefore would be expected to be protective of the water fowl and shorebird beneficial use.
- The majority of the science panel members (6 out of 9) recommended that an EC10 of 12.5 mg/kg dry weight would be protective of the wildlife use.

⁴ *Great Salt Lake Water Quality Studies: Development of a Selenium Standard for the Open Waters of Great Salt Lake*. May 2008.
http://www.deq.utah.gov/Issues/GSL_WQSC/docs/GLS_Selenium_Standards/index.htm

Although it is most appropriate to establish a tissue-based standard because it directly measures the toxicity endpoint, it is important to recognize two key difficulties associated with adopting a tissue-based standard. First, it will be difficult to ascribe the source of all selenium measured in the birds' eggs to selenium from the open water of the GSL. Second, implementation of the tissue-based standard will be substantially different and may require translation to a water column value for the open water of the GSL.

With respect to the appropriate level of protection, the WQU agrees with the majority of the science panel that the tissue-based standard should be set to the EC10 for egg hatchability. The EPA does not have national guidance for deriving wildlife criteria, and therefore, the agency has not formally addressed endpoints necessary to protect wildlife on a national level. The Agency has, however established a national position that protective criteria need not be set at the "no effect" level (EC0). For example, EPA's 1985 guideline for deriving aquatic life criteria uses a threshold set at protecting 95% of the genera in the dataset. Additionally, the Agency has taken a position on the level of protection question for wildlife criteria as part of the Great Lakes Initiative. In this effort the Agency used the no observed effect concentration (NOEC), which often occurs at a similar concentration as an EC10. Overall, an EC10 would be consistent with previous approaches adopted by the EPA and the criteria development position taken by EPA, which acknowledges a criterion can incorporate some level of effect and still be considered fully protective.

With respect to the proposed revisions to Table 2.14.2, it is not clear why the proposed site-specific selenium standard would be added to this table of statewide water quality criteria. Historically, Utah's site-specific standards have been adopted as footnotes to Table 2.14.1 (e.g., TDS) or Table 2.14.2 (e.g., temperature), or they have been added as a stand alone table, such as Table 2.14.5 that includes site-specific criteria for the Jordan River.

We also suggest that the Division add further clarification to information presented in Footnote #14. Footnote #14 states that the 12.5 mg/kg dry wt. standard is a "... tissue-based standard using the complete egg/embryo based on a minimum of 5 samples over the nesting season." The standard, however, does not identify the type of "egg/embryo" to be used. It is important to identify that compliance with the standard will be based on the "egg/embryo" of aquatic-dependent birds using the waters of Gilbert Bay. We suggest that footnote #14 read, "...tissue-based standard using the complete egg/embryo of aquatic-dependent birds using Gilbert Bay based on a minimum of 5 samples over the nesting season."

We are pleased that the proposal included assessment procedures that incorporate trigger values and response actions. This is especially important since this would be the first wildlife selenium criterion if the proposal is adopted by the Board. The proposed procedures are a good start toward establishing a monitoring protocol/assessment methodology; however, we have the following questions:

- What is the preferred bird species for egg monitoring?

- How will data be evaluated when multiple locations are sampled? Independently or averaged?
- Generally, how will water column and brine shrimp data be used?
- Are there trigger values associated with the water column and brine shrimp concentrations? What is an unacceptable increase in water column and brine shrimp concentration?
- Where are the monitoring sites located? How are these related to potential point sources of selenium?
- Who is responsible for the monitoring?

To clarify the Division's intent regarding issues such as the ones listed above, the WQU strongly encourages the Division to provide detailed guidance on how the proposed tissue-based standard will be used for water quality assessment (CWA § 303(d)) and permitting purposes. Such guidance need not be included in the water quality standards regulation. Implementation guidance will be very important, for example, to ensure that permits for existing and future dischargers are consistent and effluent limits will not result in an exceedance of the proposed standard. The WQU is not aware of any documents that explain the Division's approach. Please explain the Division's approach to implementing the proposed selenium standard.

Furthermore, since GSL selenium studies are ongoing, there may be a need for future revisions to the Division's current thinking on implementation of the proposed standard (e.g., the Division and EPA may determine pieces of the implementation procedure can be improved to reflect the current scientific thinking and latest data). The Division may need to establish:

- How frequently will new data be taken into consideration?
- A policy for translating the tissue-based standard into a protective water column concentration.
- A public notice and comment protocol to allow the Division to review the need for revisions to the implementation procedure.

In summary, to address the above comments and questions, we recommend that the Division: 1) add further clarification to Footnote #14 that the egg tissue to monitor is aquatic-dependent birds using the waters of Gilbert Bay, 2) work with the Region and the GSL Steering Committee to prepare more complete assessment methodology and implementation procedures.

OTHER REVISIONS TO CRITERIA FOR AQUATIC WILDLIFE (R317.2-14.2)

Dissolved Oxygen

We support adoption of the proposed revisions to the minimum dissolved oxygen criteria for Class 3A, 3B, 3C, and 3D. The Division's proposal is to convert the existing 1-day average criteria to instantaneous minimum criteria. Only the duration, and not the magnitude, of the criteria would be revised.

The Division's proposal is consistent with EPA's dissolved oxygen criteria recommendations, which were published pursuant to CWA § 304(a) (*Ambient Water Quality Criteria For Dissolved Oxygen*, U.S. EPA, April, 1986). We are concerned that the current water quality criteria very likely are underprotective in many habitats where dissolved oxygen concentrations exhibit a diel cycle. Particularly in locations where the diel swing is substantial, Utah's current 1-day average criteria likely authorize instantaneous minima that are not protective of aquatic life uses. For example, during non-ELS periods it may be possible to comply with the 1-day average criteria (either 4 mg/L or 3 mg/L, depending on use designation) even where a substantial percentage of the samples from within a given 24 hour period reflect low dissolved oxygen levels. EPA's criteria document (page 29) notes that "any dissolved oxygen criteria should include absolute minima to prevent mortality due to the direct effects of hypoxia..." Thus, we support the Division's proposal and believe it is necessary and appropriate. This revision appears to be important to assure the protection of aquatic life uses.

We recognize that the Division's proposal would make the State's dissolved oxygen criteria more stringent. However, it is important to evaluate the Division's proposal in conjunction with the proposed revisions to R317.2-7.1, which would establish that, for assessment purposes, up to 10% of representative samples may exceed the standard. Although we have concerns with the R317-2-7.1 proposal, as discussed above, under our recommended modifications to that proposal it would allow 10% of samples to exceed the dissolved oxygen minima. Establishing a 10% exceedance frequency for the dissolved oxygen minima, for assessment purposes, would temper the stringency of the proposed criteria.

It is also likely that, in some cases, site-specific adjustments to the statewide dissolved oxygen criteria will be needed. We recommend addressing these situations as they arise, by developing and adopting site-specific criteria. This approach has been implemented previously (see the dissolved oxygen criteria in Table 2.14.5 for the Jordan River, Surplus Canal, and State Canal). Any such site-specific criteria would need to be supported by a defensible site-specific technical rationale and evidence demonstrating that the revised criteria will protect the assigned use designations (e.g., based on the sensitivity of the organisms expected to be present).

Finally, we suggest that the Division consider the need for additional clarifications regarding the dissolved oxygen criteria. This may be a topic best addressed in a future rulemaking effort. For example, it may be useful to clarify the early life stage and other life stage periods (e.g., how are such periods to be determined at the time of permitting and assessment) for the 7-day average and minimum dissolved oxygen criteria. Also, it may be useful to clarify what is meant by "lower water levels in deep impoundments" in footnote #2 (e.g., is the intent to apply the criteria only to the epilimnion and metalimnion during periods of stratification?).

Ammonia for Class 3C and 3D

We support adoption of the Division's proposal to apply the 30-day average (chronic) total ammonia criteria to Class 3C and Class 3D waters. Currently, only 1-hour average (acute) criteria apply to Class 3C and Class 3D waters.

The chronic ammonia toxicity data included in EPA's 1999 Update for Ammonia do not support application of an "acute only" approach for Class 3C non-game fish segments. Nor do they support an "acute only" approach for Class 3C/Class 3D aquatic communities that include only limited fish (or no fish). The data indicate that a variety of non-game fish and invertebrate taxa are sensitive to total ammonia (see, e.g., Figure 14 on page 79 of EPA's 1999 Update for Ammonia). In fact, the two most chronically sensitive taxa are both invertebrate species. The other concern is that for total ammonia the acute-chronic ratios are relatively high. Thus, in Utah waters with a Class 3C or Class 3D use designation, the current "acute only" total ammonia criteria are very likely underprotective.

We are also concerned that several Class 3C segments are within critical habitat for Colorado River fishes that are listed as threatened or endangered under the Endangered Species Act. This is an additional reason to be concerned about the level of protection provided by the current total ammonia standards.

Accordingly, we support adoption of the Division's proposal to adopt chronic total ammonia criteria for Class 3C and Class 3D waters. This revision appears to be important for the protection of aquatic life in these waters.

Diazinon and Nonylphenol

We support adoption of the Division's proposal to add new aquatic life criteria for diazinon and nonylphenol. The proposed criteria are consistent with the EPA criteria recommendations for these parameters that were published in December of 2005, pursuant to CWA § 304(a).

One comment is that we recommend revising the proposed nonylphenol criteria so that it is clear that the criteria address an isomer mixture that includes CAS numbers 84852-15-3 and 25154-52-3.

It is also important to recognize that there are several implementation challenges associated with nonylphenol, including laboratory analyses (especially for influent waste streams) and source tracking. The WQU is available to provide information and assistance, as needed.