Utah Division of Water Quality (DWQ) Comment Responses to Proposed Changes to UAC R317-2, Comment Period Ending March 17, 2010
Division of Administrative Rules File 33233

Comments were received from Western Resource Advocates and US Environmental Protection Agency Region 8 (USEPA). The comments requesting clarifications or changes are excerpted below along with DWQ's response. The complete comments are available in Western Resource Advocate's March 17, 2010 letter and USEPA's March 18, 2010 letter (http://www.waterquality.utah.gov/WQS/index.htm#docs).

R317-2-3.5.b.1.(a)

Western Resource Advocates Comment:

> "Proposed R317-2-3.5(b)(1)(a) provides that Level II Anti-Degradation Review would not be required where "the proposed concentration-based effluent limit is less than or equal to the ambient concentration in the receiving water during critical conditions[.]"
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> Again, this proposed rule fails to comply with the letter and the purpose of the Clean Water Act's anti-degradation policy. This approach fails to protect beneficial uses from increases in the loading of toxic and bioaccumulating pollutants. While understanding and protecting ambient concentrations of these parameters in receiving waters is important, so is the overall loading of the system. Toxic and bioaccumulating pollutants can build up in the ecosystem over time and constitute a particularly dire threat to wildlife and, in some cases, public health. As a result, many states have special considerations for toxics or bioaccumulative parameters in their anti-degradation rules (for example, Colorado).
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> Based on this analysis, we request that DWQ amend subsection (a) to exempt non-toxic and non-bioaccumulative parameters. There is no basis in the record or otherwise to demonstrate that the described situation will guarantee that the proposed activity will not "lower" or adversely impact water quality."

DWQ Response:

We disagree that pollutants that are toxic or bioaccumulative should be required to undergo a Level II antidegradation review. DWQ recognizes that toxic or bioaccumulative compounds should be addressed in a manner consistent with Utah Rules. If toxic or bioaccumulative pollutants in an effluent are less than the ambient concentrations, the effluent will not lower water quality. Toxicity and bioaccumulation are considered in deriving the Standards in UAC R317-2 and these Standards will protect the beneficial uses. Toxicity and bioaccumulation potential are explicitly considered when evaluating alternatives for Parameters of Concern (Section 4.0, DWQ, 2010[1]). In addition, using toxicity or bioaccumulation potential as an antidegradation criterion instead of a comparison to existing concentrations in the receiving waters is potentially stricter than Federal regulations.

1. R317-2-3.5.b.1.(d)

Western Resource Advocates Comment:

> "Proposed R317-2-3.5(b)(1)(d) provides that Level II Anti-Degradation Review would not be required where "a new or renewed UPDES permit is being issued, and water quality-based effluent limits are not required for a specific pollutant because it has been determined that the discharge will not cause, have reasonable potential to cause, or contribute to an exceedance of a State water quality standard for the pollutant."
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> This proposed rule fails to comply with the letter and the purpose of the Clean Water Act's anti-degradation policy. Under the Act, it is inappropriate to use the results of a "reasonable potential analysis" to trigger anti-degradation review of a pollutant. The reasonable potential analysis, as described here, is designed to determine if a discharge will cause or has the potential to cause or contribute to a violation of a state water quality standard.
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> Anti-degradation review, by contrast, is designed to address discharges that do not cause or contribute to a criteria violation, but do degrade water quality by "using up" a portion of the assimilative capacity. If the "reasonable potential analysis" is used as proposed here, no parameter will receive an anti-degradation review until the assimilative capacity of a water body is used up to, or close to, the point of causing or contributing to a violation. This is directly counter to the concept of using an anti-degradation review to maintain good water quality and to protect assimilative capacity.
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> We understand that the agency can not propose to conduct a full anti-degradation review of every parameter in a proposed discharge. However, the agency may not restrict its review to only those parameters that show a reasonable potential to violate the water quality criteria. Such an approach would completely flip the concept of anti-degradation on its head and undermine the statutory requirement. Instead, the language of subsection (d) should be changed to allow the agency to decline review of parameters that show no measurable change from the previous permit (in the case of renewed permits) or no measurable change in ambient and loading conditions (in a new permit)."

USEPA Comment:

> "We thank UDEQ for addressing our concerns with the initial antidegradation proposal by clarifying permit situations that would not be considered a lowering of water quality. The WQU agrees that examples (a)-(c) in the revised proposal are situations that should not be considered a lowering of water quality and recommends adoption of these three provisions. However, example (d) does not clearly identify situations where water quality would be maintained, and in at least some situations could allow a lowering of water quality without an

antidegradation review. Due to this uncertainty, the WQU does not recommend adoption of example (d). Further explanation of our recommendations follows.

When a new or renewed UPDES permit is being issued, example (d) exempts parameters that do not have reasonable potential to cause or contribute to an excursion of a water quality standard. At this time, EPA does not have a national policy on whether this approach is appropriate; however, we are concerned that under this exemption, water quality degradation could be allowed without a Level II review. Parameters identified in the permit application process that do not have effluent limits are still considered a pollutant covered by the permit. Section 402(k) of the CWA provides that compliance with an NPDES permit shall be deemed compliance with certain provisions of the Clean Water Act including provisions related to water quality effluent limitations (CWA § 302).

It is reasonable not to require a Level II review when effluent quality for a parameter authorized in the discharge, but without effluent limits, has remained the same or decreased. However, situations may arise where the reasonable potential test is not triggered but effluent quality is getting worse. When the pollutant concentration is increasing over time, a re-issued permit could authorize an increased discharge of the pollutant compared to the previous permit even if an effluent limit is not established, which would constitute a lowering of water quality. In such cases, it may be appropriate for the permit reissuance process to include an antidegradation review in order to consider alternatives for eliminating or minimizing the discharge of the pollutant.

Given these concerns, the WQU does not recommend adoption of example (d). We recommend that this issue be addressed as part of the current water quality standards workgroup process in support of the Division's efforts to develop the *Utah Antidegradation Reviews: Implementation Guidance.* Based on the workgroup discussions, the Division can evaluate whether the issue can be addressed in the guidance document, or whether additional rule changes might be appropriate. The WQU is available to work with UT to clarify what situations without reasonable potential should be considered a lowering of water quality and subject to antidegradation review."

DWQ Response:

DWQ believes focusing on pollutants with effluent limits is consistent with the applicable federal regulatory requirements. The Level II antidegradation review (ADR) for a new permit considers <u>all</u> pollutants that could degrade water quality per R317-2-3.5. For a renewing permit, the Tier II ADR requires a determination of whether a draft reissued permit allows "lower water quality" relative to the prior permit. This applies to all pollutants that will potentially degrade water quality whether they do, or do not, have effluent limits. If no effluent limits are established for a given pollutant based on the reasonable potential analyses, the permittee is authorized to discharge that pollutant, as long as those pollutants are constituents of waste-streams, operations, or processes that

were clearly identified during the permit application process, regardless of whether or not they were specifically identified as present in the facility discharges[2].

For renewing permits, the permittees complied with the ADR requirements applicable at the time their original permit was issued. These permits authorize the discharge of pollutants with and without effluent limits. Therefore, if a permittee is not requesting an increase in flow, concentration, or loading, the permit will not authorize lower quality when compared to the previous permit and an additional Level II ADR is not required. Pollutants that are identified in the Level II ADR alternatives analysis for detailed evaluation will have effluent limits in the permit. Therefore, focusing on pollutants with effluent limits is appropriate.

If a situation arises with a specific permit where focusing the Level II ADR on pollutants with effluent limits could allow significant impacts to water quality without a Level II ADR, the Executive Secretary of the Utah Water Quality Board has the authority to require a Level II ADR (R317-3.8.a.1.).

We believe our approach will also address concerns from DWQ permitting staff with regards to implementing ADRs for publicly owned treatment works (POTWs) with an industrial pretreatment program. USEPA has not addressed the industrial pretreatment program in existing guidance.

As part of the industrial pretreatment program, delegated POTW's develop local limits to control industrial dischargers. These local limits are based on effluent water quality standards and biosolids disposal requirements, with the most stringent criteria governing. As part of the wasteload allocation, DWQ evaluates each pollutant and determines the maximum pollutant concentration in the effluent at design flow, i.e., a load, that will not violate water quality standards at 100 percent of the assimilative capacity. DWQ then identifies pollutants that warrant effluent limits based on an analysis of reasonable potential. This maximum pollutant load is used by the POTW to develop a maximum allowable headwork load (MAHL) based on the treatment methods and removal efficiency. This MAHL is compared to the residential/commercial background loads and a net allocated load is then converted into a local limit. The more stringent of the local limit and any applicable categorical limit is applied to the industrial discharge.

These local limits apply to all industrial dischargers for the permit cycle. If at permit renewal, a new pollutant or more restrictive effluent limit is added to the POTW permit based on an analysis of reasonable potential, this new limit will be converted into a revised local limit for that pollutant if necessary. If no new limits are stipulated in the permit, the local limit continues to be based on the assimilative capacity of the POTW and receiving water.

USEPA[3] appears to be recommending that if any parameter is increasing in the POTW's effluent, that a Level II ADR is required unless a previous Level II ADR evaluated this increase in loading. DWQ disagrees that such an approach is required by Federal or Utah laws or rules in part because permits that are being renewed complied with the ADR

requirements applicable when the permit was originally issued. In addition, such an approach would be disruptive and potentially costly with little or no benefit to water quality. With DWQ's proposed approach, the reasonable potential analysis for determining what pollutants warrant effluent limits and the criteria for focusing the Level II ADR alternative analyses on the "most important" pollutants will result in the same subset of pollutants (see Chapter 5 of the DWQ, 2010[1]).

We anticipate that requiring an additional Level II ADR during the permit cycle will be rare. Requiring a Level II ADR during the permit cycle in response to an observed increase in the POTW's effluent for any pollutant would disrupt the industrial pretreatment program. POTW's may not be able to allow any new industrial dischargers during a permit cycle, even though the discharger could meet the local limits, if the dischargers loading would result in an increase in concentration in the POTW's effluent. The delay caused by the time and resources required to conduct the Level II ADR, in addition to revising the permit, could preclude new industrial dischargers and seriously impede new economic development. A Level II ADR is required during the permit cycle if the permit is being modified to allow an increase in effluent loading (R317-3.5.b.) or the Executive Secretary determines that water quality may be significantly impacted (R317-3.5.a.1.).

Requiring an additional Level II ADR when the permit is up for renewal on an increase in the POTW's effluent for pollutants without permit limits is a *post hoc* analysis of the treatment alternatives that is not timely and could be costly and disruptive. The discharger and POTW have already purchased, constructed, and installed a treatment system to meet the local limits and the POTW effluent limits established in an approved discharge permit. The alternatives analysis in the new Level II ADR may select a different treatment option than currently employed by the discharger or the POTW. An alternative treatment option is unlikely to be feasible for already constructed POTW and could result in additional costs for industrial dischargers already meeting the local limit. A Level II ADR is required at permit renewal if pollutants with effluent limits increase beyond what was previously evaluated in a previous permit (R317-3.5.b.).

DWQ's approach is to require a revised Level II ADR when a permittee is expanding their discharge which is usually accompanied by construction activities. The Level II ADR is required to consider all parameters that may degrade water quality. However, as discussed in Section 5.2 of DWQ (2010[1]), the alternatives analysis may focus on a subset of pollutants because no treatment alternative will be the least degrading for every possible parameter. In addition to the criteria discussed in DWQ (2010[1]), the selection of the preferred treatment alternative relies on best professional judgment because representative concentration data is often an estimate at this point in the permitting process. The parameters considered for the alternatives analysis will have permitted effluent limits because these are the pollutants that have the most potential to adversely affect water quality. The parameters with effluent limits would be the baseline for determining if a revised Level II ADR is necessary in the future.

If a revised Level II ADR is required for an increase in pollutants without effluent limits as USPEA appears to be recommending, DWQ expects that the POTW's will request a sufficient amount of the assimilative capacity to support unidentified, but anticipated important social and economic activities for all possible pollutants. DWQ is uncertain how to judge whether an unspecified activity is necessary for important social and economic reasons. In any case, the alternative analysis will still focus on a subset of the pollutants most likely to adversely affect water quality. If a Level II ADR is required based on an increase in loading from pollutants without effluent limits, and the increase does not result in an effluent limit based on the reasonable potential analysis, the preferred treatment alternative based on pollutants with effluent limits (and previous Level II ADRs, if applicable) is still the preferred alternative and a revised Level II ADR will not provide useful information.

DWQ recommends that USEPA reconcile the operation and implementation of the industrial pretreatment program with the ADR requirements. This reconciliation needs to allow for orderly management of regulated industrial growth. Once USEPA has determined how this integration will function, the DWQ may have to modify its rules to be in compliance. In the interim period, the rules prepared and approved by the State Water Quality Board resolve, in our opinion, this conflict in a reasonable fashion. If USEPA rejects this position the State has taken, USEPA should provide specific instruction as to how the industrial pretreatment program should be integrated with antidegradation.

Table 2-14-1 - Site Specific Standards for Total Dissolved Solids

USEPA Comment:

> "Consolidated Coal Co. requested a site specific TDS criterion of 3,800 mg/L for Quitchupah and Ivie creeks in their comments on the December 15, 2009 proposal. In the Division's response to comments, they support adoption of the proposed TDS criterion with the condition that sulfate is not to exceed 2,000 mg/L for the protection of livestock watering agricultural use. High dietary ingestion of sulfur may cause acute death, polioencephalomalacia (PEM), trace mineral deficiencies, and/or decreased production efficiency. Supporting evidence was provided by both Consolidated Coal and the Division to support their proposals.
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> - Is the predicted range of 0.47 to 0.68 percent sulfur a good estimate of the range of sulfate doses cattle will be ingesting when sulfate concentrations are 2,000 μg/L?
> - Is it likely that the dietary sulfur level will exceed 0.50 percent?
> - If the conditions are accurate, we question if the proposed criterion would be protective of the livestock watering use. If these conditions are not accurate, what would be a more realistic sulfur dose for cattle consuming water with 2,000 μg/L sulfate given the conditions that occur at the site?"

DWQ Response:

DWQ reviewed the methodology to derive the 2,000 mg/l sulfate site-specific standard (JBR Environmental 2009[4], DWQ, 2009[5]). Based on DWQ's review of the available data, 2,000 mg/l sulfate will be protective of stock watering for most scenarios in Utah and specifically for Quitchupah Creek and downstream uses based on the following factors.

1. As shown in Table 1 of DWQ (2009), 2,000 mg/l is within range of sulfate concentrations (1,000-3,000 mg/l) recommended by several western Extension Services.

2. The water rights for Quitchupah and Ivie Creeks are for stock watering during winter grazing (JBR Environmental, 2009) on Bureau of Land Management lands. Cattle water consumption, and therefore sulfate exposure from drinking water, is positively correlated with temperature. An acceptable sulfate concentration of 2,000 mg/l was based on an assumption that a cow would drink 38 l/day at 80° F. The average temperatures in the Quitchupah and Ivie Creeks area (elevation approximately 5600') for the winter grazing period are estimated to be 40° F or less based on the nearest weather stations (see Table below). At 40° F, water consumption would be reduced to 23 l/day and the corresponding sulfate exposure from water reduced by 40 percent providing a margin of safety for winter grazing.

Average Monthly Temperature at Green River (4070') and Salina (5131'), Utah (NOAA, 2001)

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Temp (F) Green River	25	34	46	54	64	73	80	77	67	54	39	29
Temp (F) Salina	28	35	41	48	56	66	72	70	61	49	36	29

3. Conservative estimates were used for water intake and feed consumption. For instance, the online calculator from Colorado State University assumes a water ingestion rate at 90° F of 48 L/day instead of 54 L/day used by DWQ and feed consumption of 2.5 percent of body weight as opposed to 3 percent used by DWQ.

Table 2-14-2 Numeric Criteria for Aquatic Wildlife

USEPA Comment:

"The Division revised the impounded wetlands footnote for DO and pH proposal to include the following language:

'To ensure protection of uses, the Executive Secretary shall develop reasonable protocols and guidelines that quantify the physical, chemical, and biological integrity of these waters. These protocols and guidelines will include input from local governments, the regulated community, and the general public. The Executive Secretary will inform the Water Quality Board of any protocols or guidelines that are developed.'

The WQU supports adoption of the proposed language; however, we would like to reiterate the comment in our January letter that implementation procedures are essential for determining the protectiveness of a narrative criterion. Implementation procedures should address both the assessment of the water body pursuant to CWA §303(d) and the development of water quality-based effluent limits pursuant to CWA §402. The submitted draft report *Development of an Assessment Framework For Impounded Wetlands of Great Salt Lake* (Utah DEQ, November 2009) outlines preliminary assessment procedures, but does not adequately address effluent limit considerations. Where assessment procedures are important for identifying impaired water bodies, permitting procedures are especially important for preventing future impairments. Although we support the proposed narrative criteria approach for pH and DO, we recommend that the Division develop permitting implementation procedures that address how the narrative criterion will be taken into consideration when reviewing existing permits and issuing new permits, in addition to finalizing the assessment procedures."

DWQ Response:
We acknowledge that the wetlands assessment methodology is currently incomplete. The focus of our currents efforts are to develop, populate, and validate a model for determining if impounded wetlands are meeting their beneficial uses. We are optimistic that the methodology may ultimately be useful for deriving permit effluent limits but the model must be validated prior to using it to develop permit limits.

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[1] DWQ, 2010. Draft Utah Antidegradation Reviews: Implementation Guidance
[2] USEPA Region 10, April 30, 2010 Memorandum to Johnna Sandow, Idaho Department of Environmental Quality, Implications of Reasonable Potential Analyses or New Technology-based Limits for Tier II Antidegradation Review in Idaho
[3] USEPA Region 8, April 26, 2010 comments on DWQ's Draft Antidegradation Implementation Guidance.
[4] JBR Environmental, 2009. Technical Rationale for a New Site-Specific Criterion for Quitchupah and Ivie Creeks. April 16
[5] DWQ, 2009. Evaluation of Acceptable Sulfate Concentrations for Quitchupah and Ivie Creeks, Consolidation Coal Company. October