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Colorado Department
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MEMORANDUM

To: Persons interested in Water Quality Control Division's Antidegradation Significance Determination Guidance
From: Water Quality Control Division, Assessment Unit Staff
Date: April 23, 2002
Subject: First Update to Guidance, Version 1.0, December 2001

The Colorado Water Quality Control Division (WQCD) released Version 1.0 of the Antidegradation Significance Determination Guidance in December of 2001. As issues come to light, updates to the Guidance will be provided via memorandum and posted on the Assessment Unit website. Significant changes or additions to the Guidance will be incorporated in the release of subsequent versions. Implementation of a portion of the "New or increased water quality impacts screening test" has led to the need to make several changes and clarifications to the Guidance. The following describes the first update of changes and clarifications to Version 1.0 of the Guidance.

Setting the Value of Implicit Limits

Changes to the Guidance are necessary in regards to the "New or increased water quality impacts screening test" where the Division may recognize implicit permit limits for a permitted discharge with pollutants not explicitly limited in the current permit. This is addressed in the Guidance in Section VI, D on pages 14 and 15; in Figure 2 on page 16; and in Section VII, Question and Answer 27 on page 33.

One result of the screening test is the option to accept the "existing limit" in which case an antidegradation review would not apply and the existing limit would be retained in the next permit. It was the Division's intent that implicit limits would also be recognized in place of the "existing limit" in that process. If as a result of the screening test, the option to accept the "existing limit" was selected, then the Division intended to require an explicit limit in place of the implicit limit for the next permit.

Version 1.0 of the Guidance indicates the Division will use the average effluent concentration to determine the implicitly authorized discharge concentration (or implicit limit). If the Division used the average effluent concentration to determine the implicit limit then accepting the "existing limit" would result in a permit limit based on the average effluent concentration discharged during the previous two years. This would require the permittee to adjust their effluent concentration approximately half the time to meet the new effluent limit. The intent of the option to accept the "existing limit" was for permittees to maintain the status quo for their discharge. Using an average-based implicit limit penalizes the permittee lacking explicit permit limits in comparison to the permittee with explicit limits.

After careful consideration of this issue, the Division has decided to modify its approach on the value to use for implicit limits when recognized. Instead of using the average effluent concentration, the Division will use the maximum (of the previous two years of data). The maximum is more consistent with discharges up to an effluent limit and discharges up to design capacity. The following changes to Version 1.0 incorporate this change in approach, and clarify the Division's intent to include an explicit limit in the next permit where an implicit limit is accepted as an "existing limit".

Page 15, last paragraph, fourth sentence (Section VI, D) – change the word 'average' to 'maximum'.

Page 15, last paragraph (Section VI, D) – add the following sentence to the end of the paragraph: "In other words, in the steps above and the associated flowchart on Figure 2, the implicitly authorized discharge concentration would be used in place of 'Existing Limit'."

Page 15 (Section VI, D) – add the following paragraph after the last paragraph: "Where an implicit limit is recognized, an explicit limit will be included in the next permit based on the result of the process above and the associated flowchart. If the option is presented and accepted of retaining the "Existing Limit" then the implicit limit (maximum effluent concentration) will be included as an explicit limit in the next permit. If the result of the process is acceptance of the Non-Impact Limit or the use of the new WQBEL then these limits would become explicit limits in the next permit. If the process results in proceeding to the significance tests then the new WQBEL would become an explicit limit in the next permit along with a potential antidegradation-based limit. Limits will still be evaluated based on a reasonable potential analysis prior to inclusion in a permit."

Page 16, Figure 2, top right box of flowchart (Section VI, D) – change the word 'average' to 'maximum'.

Page 33, answer 27, 1st paragraph, 3rd sentence (Section VII, Q&A 27) – change the word 'limit' to 'level' for further clarification.

Page 33, answer 27, 3rd paragraph (Section VII, Q&A 27) – change the word 'mean' to 'maximum'. Add the following sentences to the end of the paragraph: "Where an implicit waste load allocation is recognized, the implicit limit (maximum effluent concentration) is used in place of the 'Existing Limit' in the Figure 2 flowchart (page 16). An explicit limit will then be given in the new permit based on the result of the flowchart process: either the maximum effluent concentration, new WQBEL or Non-Impact Limit (See Section VI, D on pages 14-16). Limits will still be evaluated based on a reasonable potential analysis prior to inclusion in a permit."

Clarifications

In addition to the changes mentioned above, several clarifications are made as indicated below with three new Questions and Answers; and several general revisions to existing language.

Q41: How is the BWQ established for Lakes?

A41: The BWQ is established in the same manner for lakes as it is for streams. The BWQ (as defined in Section VI, A on page 10) is the ambient condition of the water quality as of September 30, 2000. It is also the fully mixed condition below a discharge that was in place prior to September 30, 2000. When calculating BWQ with a discharge in place prior to September 30, 2000, a low flow (or dilution) value is needed. The value will be determined based on the results of the required mixing zone analysis (the Basic Standards at Section 31.10(4)(b)(i) and the WQCD's

Colorado Mixing Zone Implementation Guidance, April 2002 require mixing zone studies for all discharges to lakes). Necessary adjustments for the baseline dilution condition of September 30, 2000 may be made to the current mixing zone analysis results. See also Q&A number 42 for more information on mixing zones.

Q42: How does antidegradation correspond with mixing zones?

A42: The regulations regarding mixing zones are included in the Basic Standards at Section 31.10 and state that antidegradation does not apply within the mixing zone. Therefore, as standards must be met at the edge of the mixing zone, so must the SCT for reviewable waterbodies. Further guidance on mixing zones is included in the WQCD's Colorado Mixing Zone Implementation Guidance, dated April 2002.

Q43: What constitutes a new discharge?

A43: A new discharge would include existing effluent proposed for discharge to a location outside of the mixing zone of the existing discharge; effluent proposed for discharge from an additional outfall; existing effluent to which new pollutants are added; or effluent proposed for discharge from a new facility (except for replacement facilities with effluent proposed for discharge to the same location).

Other miscellaneous corrections

Page 13, Figure 1. Antidegradation Review Process Overview – A change will be made in the next version of the Guidance to indicate that a “UP” designation does not automatically mean that antidegradation is not required (see also Q&A number 36). An antidegradation review is required for impacts to ‘reviewable’ waterbodies; therefore, there could be an impact to a use protected waterbody which also impacts a reviewable waterbody. A common example of this is a discharge to a tributary just above its confluence with a mainstem. The tributary could be designated as use protected and the mainstem could be ‘reviewable’ with the discharge affecting both the tributary and mainstem segments. The change to Figure 1 would be made to ensure consistency with Q&A number 36.

Page 16, Figure 2. Screening Process – Is there a New or Increased WQ Impact? – A change will be made in the next version of the Guidance to the diamond just below the Step 4 box. The diamond currently reads “Is $\text{Load}_{\text{old}}/\text{DF}_{\text{new}} > \text{Existing Limit?}$ ” If the design flow does not change between permit cycles then the $\text{DF}_{\text{old}} = \text{DF}_{\text{new}}$ and the result of $\text{Load}_{\text{old}}/\text{DF}_{\text{new}}$ is $\text{Load}_{\text{old}}/\text{DF}_{\text{old}}$. Meanwhile, $\text{Load}_{\text{old}}/\text{DF}_{\text{old}}$ equals the Existing Limit. So, if the design flow doesn't change, then the result becomes “Existing Limit > Existing Limit?” and leads to Step 4b. The results of Steps 4a and 4b would then be the same since under Step 4b, the Non-Impact Limit would be the same as the Existing Limit. To avoid confusion, the diamond will be changed to read “Is $\text{Load}_{\text{old}}/\text{DF}_{\text{new}} > \text{or} = \text{Existing Limit?}$ ” and the associated text in Section VI, D will be updated to reflect the change in the flowchart.

Page 27, Question and Answer No. 10 – Change first sentence of answer as follows: “To determine the baseline water quality, obtain data from a water quality station located below a fully mixed condition ~~downstream of~~ within the segment portion in question.”

Page 29, Question and Answer No. 16 – Change second sentence of second paragraph as follows: “The BWQ is determined as indicated in Q&A numbers 9, 10 or 12. If the BWQ must be estimated for a discharge in place prior to September 30, 2000, where representative downstream data isn’t available, then the following approach will be used for determining the BWQ for ammonia which replaces the approach set out in Q&A number 11. ~~by entering~~ The mean monthly discharge concentrations of total ammonia and the mean monthly discharge flows are entered into the model.”

Page 34, Question and Answer No. 30 – Change the second sentence of answer as follows: “The ADBEL is implemented in permits as a two-year moving average; therefore, seasonal or monthly limits are generally not an option. ADBELs for ammonia may provide an exception as explained in Q&A number 16.”

Questions regarding these changes should be directed to the Assessment Unit staff at (303) 692-3500. This update will be posted along with the Guidance on the Assessment Unit website at http://www.cdphe.state.co.us/wq/Assessment/assessment_practices_and_methods.htm