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Reply To: OWW – 130

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Memorandum

To: Johnna Sandow
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Subject: Implications of Reasonable Potential Analyses or New Technology-based Limits
for Tier II Antidegradation Review in Idaho

1. Purpose and Scope

The purpose of this memorandum is to provide a possible approach to determine under what circumstances a draft reissued permit that either: a) includes a new effluent limit for a pollutant that had not been limited in the prior permit (*see* Section 3.1), or b) continue to have no effluent limits for a given pollutant in both the expired and draft reissued permits (*see* Section 3.2), should be considered to allow “lower water quality.” This is in response to questions raised about these permitting situations by Idaho’s Attorney General’s office to EPA Region 10’s Office of Regional Counsel. The process is summarized in Figure 1, on Page 8.

Where the circumstances of a) or b) above are considered to allow “lower water quality” in a draft permit, IDEQ would need to determine if allowing such “lower water quality” “is necessary to accommodate important economic or social development in the area in which the waters are located” in order to comply with Idaho’s Tier II antidegradation policy (IDAPA 58.01.02.051.02). Alternatively, IDEQ could elect not to do a Tier II antidegradation review and instead certify more stringent effluent limits that do not allow “lower water quality.”

Initial permits issued to new sources and new dischargers, other changes made to a draft reissued permit relative to the prior permit, and all other water quality standards (WQS), including the “Special Resource Waters” provisions of the Idaho WQS, are beyond the scope of this memorandum.

2. Background

2.1. Antidegradation Requirements

Idaho’s EPA-approved WQS include an antidegradation policy in Section 51 (IDAPA 58.01.02.051) and a definition of “lower water quality” in Section 10 (IDAPA 58.01.02.010.49). In this memorandum, the antidegradation requirements of IDAPA 58.01.02.051.01 will be referred to as “Tier I,” and the requirements of IDAPA 58.01.02.051.02 will be referred to as “Tier II.” The Idaho WQS include a third level of antidegradation protection for waters designated as “outstanding resource waters,” (IDAPA 58.01.02.051.03 or “Tier III”) but no waters of the State of Idaho have been so designated at this time.

2.2. NPDES Permitting Provisions in the Clean Water Act and Implementing Regulations

Under federal NPDES regulations, effluent limits are required for “all pollutants or pollutant parameters...which the (permitting authority) determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard...” (40 CFR 122.44(d)(1)(i)). EPA Region 10 is the NPDES permitting authority for Idaho. EPA uses generally the procedures of Chapter 3 of the *Technical Support Document for Water Quality-based Toxics Control*¹, hereinafter referred to as the TSD, to determine if the various pollutants known or expected to be present in discharges have such “reasonable potential” (RP).

Using these procedures, EPA may find that the discharge of a pollutant that has not previously had an effluent limit in a given permit has RP. EPA will then calculate water quality-based effluent limits (WQBELs) such that “the level of water quality to be achieved by limits on point sources...is derived from, and complies with all applicable water quality standards” (40 CFR 122.44(d)(1)(vii)(A), *see also* CWA Section 301(b)(1)(C)). Generally, this would be accomplished using the procedures described in Chapter 5 of the TSD.

Draft reissued permits may also contain new technology-based effluent limits, based on either new or revised effluent limit guidelines or on the authority of Section 402(a)(1)(B) of the Clean Water Act (CWA), known as “best professional judgment” effluent limits.

Alternatively, EPA may find that the discharge of a pollutant does not have the reasonable potential to cause or contribute to excursions above WQS, and that technology-based requirements are not applicable or appropriate for that pollutant; thus, no effluent limits are required for the pollutant on either a technology or water quality basis.

Tier II antidegradation analysis requires a determination of whether a draft reissued permit allows “lower water quality” relative to the prior permit. This assessment must evaluate the effect of the permittee’s current and future pollutant discharges. It is important to assess the effect of all pollutants that may be discharged under the new permit in comparison with the prior permit, not just those pollutants whose discharge may be subject to specific effluent limitations in the permit. This is necessary because a permit may authorize the discharge of pollutants other than those for which specific effluent limitations may be established. As EPA has explained, even if no effluent limits are established for a given pollutant, the permittee is nonetheless authorized to discharge that pollutant, as long as those pollutants are constituents of wastestreams, 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 (*see* memorandum from Robert Perciasepe, Assistant Administrator for Water, to Regional Administrators and Regional Counsels, July 1, 1994, at Pages 2-3).

3. Determining Whether a Draft Reissued Permit Allows “Lower Water Quality”

The key question in determining whether “lowering water quality” may be allowed by a draft reissued NPDES permit, for both of the cases described under “Purpose and Scope,” above, is

¹ EPA/505/2-90-001, March 1991

whether the reissued permit authorizes an increased discharge of pollutants relative to the prior permit.

If the reissued permit will authorize an increase in the discharge of pollutants relative to the prior permit, then IDEQ and EPA may reasonably conclude that the reissued permit will allow “lower water quality,” unless the change in water quality resulting from such increased discharge is not measurable (see IDAPA 58.01.02.010.49). If the reissued permit will not authorize an increase in the discharge of pollutants relative to the prior permit, then IDEQ and EPA may reasonably conclude that the reissued permit will not allow “lower water quality.”

3.1. New Effluent Limits for Pollutants Not Limited in the Prior Permit

3.1.1. New Water Quality-based Effluent Limits based on an RP Finding

In this case, EPA has found that some measure or reasonable worst-case estimate of the level of discharge that has existed since the time the prior permit was issued (e.g. the maximum expected effluent concentration² as determined using the procedures of Chapter 3 of the TSD) has the potential to cause or contribute to excursions above WQS, and therefore requires an effluent limit under 40 CFR 122.44(d)(1).

3.1.1.1. New RP Finding absent an Increased Discharge

Because any effluent limits that are established must ensure a level of water quality that meets WQS (40 CFR 122.44(d)(1), CWA Section 301(b)(1)(C)), the new effluent limits will control the discharge to lower levels than had been measured or projected in the reasonable potential analysis, which were shown to be too high to ensure compliance with WQS. Therefore, *absent an increase in the amount of the pollutant discharged by the permitted facility, in general, EPA and IDEQ may reasonably assume that the new effluent limit will control the discharge to lower levels than were expected to occur in the absence of effluent limits in the prior permit.* Therefore the new limit will not allow “lower water quality” relative to the prior permit, and no further analysis under the Tier II antidegradation rule is required (see Figure 1). Potential reasons for an RP finding that do not indicate an increase in the amount of the pollutant discharged include but are not limited to the following:

- The availability of new or additional effluent and/or receiving water quality or quantity data
- New or more stringent water quality criteria (including more stringent interpretations of narrative criteria)
- A more conservative RP analysis relative to that employed in the prior permit issuance
- A policy decision to conduct RP analyses for pollutants not previously evaluated (e.g. nutrients)

² While the TSD procedures discuss the calculation of a maximum expected effluent concentration, this concentration will generally be converted to a maximum expected load by multiplying the concentration by the effluent flow rate of the facility (see the *U.S. EPA NPDES Permit Writers’ Manual*, EPA-833-B-96-003 at Section 6.3.2).

3.1.1.2. New RP Finding Combined with Increased Discharge

Conversely, *if there has been an increase in the amount of the pollutant discharged*, depending on the particular facts, *the new limit may authorize an increased discharge and in turn allow “lower water quality”* (see Figure 1). Reasons to suspect an increase in the amount of the pollutants authorized to be discharged include but are not limited to the following:

- For publicly owned treatment works (POTWs) and other treatment works treating domestic sewage (TWTDS):
 - The design flow of the facility has increased³
 - A significant industrial user or RCRA or CERCLA discharge has begun or increased a discharge of pollutants to the collection system⁴
- For other dischargers:
 - The production capacity has increased
 - The facility has begun a new activity that increases the amount of pollutants discharged, or causes the facility to discharge pollutants not previously discharged in significant amounts.

If EPA and IDEQ determine that there has been an increase in the amount of the pollutant discharged, EPA and IDEQ should evaluate the new effluent limits to determine if these limits could allow “lower water quality” relative to the level of water quality that was expected to result from the prior permit (i.e. in the absence of effluent limits and prior to the increase in the discharge). To accomplish this, EPA and IDEQ should compare the new effluent limits to the level of discharge that was expected to occur, in the absence of effluent limits, in the prior permit.

3.1.1.2.1. New Limits Control the Discharge to the Same or Lower Levels than Previously Expected

If EPA and IDEQ determine that the new effluent limits authorize the same or lower levels of discharge relative to those expected to occur under the prior permit (i.e., in the absence of effluent limits and prior to the increase in the discharge), EPA and IDEQ may reasonably conclude that the new limits will not allow “lower water quality” relative to the prior permit, and no further analysis under Tier II antidegradation is required (see Figure 1).

³ Increases in the actual effluent flow rate or population served by a POTW, absent an increase in the design flow rate of the POTW, should not be considered an increase in the amount of pollutants authorized to be discharged by the POTW for the purpose of a Tier II antidegradation review. The design flow of a POTW must be reported on the permit application (see EPA Form 3510-2A, Rev. 1-99, at Page 3, item A.6. and 40 CFR 122.21(j)(1)(vi)). Furthermore, “in the case of POTWs, permit effluent limitations, standards, or prohibitions shall be calculated based on design flow” (40 CFR 122.45(b)(1)). EPA Region 10 interprets this to mean that reasonable potential analyses for POTWs should also be calculated using the design flow of the POTW. Because the design flow must be reported on the permit application for a POTW, and because effluent limits and reasonable potential are calculated based on the design flow, POTWs may discharge pollutants up to their design flow (see memorandum from Robert Perciasepe, Assistant Administrator for Water, to Regional Administrators and Regional Counsels, July 1, 1994, at Pages 2-3).

⁴ Discharges to a POTW collection system from significant industrial users (SIUs) as well as RCRA and CERCLA wastes must be reported on the NPDES permit application for a POTW (see EPA Form 3510-2A at Part F and 40 CFR 122.21(j)(6-7)). Such SIU, RCRA and CERCLA discharges are therefore part of the waste streams identified in the application process. If these discharges have increased since the time the previous permit was issued, this may increase the amount of pollutants authorized to be discharged from the POTW.

3.1.1.2.2. New Limits Authorize an Increased Discharge

If EPA and IDEQ determine that the new effluent limits authorize the permittee to discharge the pollutant in greater amounts than were expected to occur under the prior permit (i.e., in the absence of effluent limits and prior to the increase in the discharge), then EPA and IDEQ should then determine whether the resulting change in receiving water quality would constitute “lower water quality” as defined in IDAPA 58.01.02.010.49 (see Figure 1).

If the new limits allow “lower water quality,” the options for proceeding are as follows:

- IDEQ could conduct a Tier II antidegradation analysis to determine “after full satisfaction of the intergovernmental coordination and public participation provisions of the (Idaho Department of Environmental Quality’s) continuing planning process,” if “allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located.” This analysis may either, 1) support the proposed lowering of water quality and allow the proposed effluent limits to take effect, or 2) demonstrate that either “lower water quality” is not necessary or that a reduced lowering of water quality is achievable, in which case more stringent limits would be established accordingly, or
- The State could elect not to do a Tier II antidegradation review and instead certify more-stringent effluent limits which did not allow “lower water quality” in its CWA Section 401 certification of the permit.

3.1.2. New Technology-based Effluent Limits

The first step in the permit development process is the derivation of technology-based effluent limits (TBELs) for a given pollutant. Following this step, the permit writer derives effluent limits that are protective of water quality standards (i.e., water quality-based effluent limits (WQBELs) for the pollutant. The permit writer then either applies both limits in the permit or compares the TBEL and the WQBEL and applies the more stringent limit in the NPDES permit. In some cases, when a permit is reissued, it may contain a new effluent limit for a pollutant that was not limited in the prior permit, which is technology-based rather than water quality-based. For example, new effluent limit guidelines may have been promulgated since the prior permit was issued, which place technology-based controls on pollutants not previously limited, or EPA may have established a new “best professional judgment” technology-based effluent limit under the authority of Section 402(a)(1)(B) of the CWA. For the purposes of this discussion, it is assumed that EPA has verified that the technology-based effluent limits are adequately stringent to ensure compliance with applicable water quality criteria and Tier I antidegradation requirements. Otherwise, certainly, more stringent water quality-based effluent limits for the pollutant would be proposed in addition to or lieu of the technology-based effluent limits.

As with a new WQBEL, the question of whether a new TBEL allows “lower water quality” depends on whether the new TBEL allows an increased discharge of the pollutant. However, the need for a new TBEL would not have resulted from a finding that previous levels of discharge were too high to ensure compliance with WQS. Thus, a new TBEL will not necessarily control the discharge to lower levels than expected to occur in the absence of effluent limits.

3.1.2.1. New TBELs Control the Discharge to the Same or Lower Levels than Previously Authorized

As with a new water quality-based limit, *if the new TBELs authorize the same or lower levels of discharge relative to those expected to occur under the prior permit (i.e., in the absence of effluent limits), EPA and IDEQ may reasonably conclude that the new limits will not allow “lower water quality” relative to the prior permit, and no further analysis under Tier II antidegradation is required* (see Figure 1).

3.1.2.2. New TBELs Authorize an Increased Discharge

As with a new water quality-based limit, *if the new TBELs authorize the permittee to discharge the pollutant in greater amounts than were expected to occur under the prior permit (i.e., in the absence of effluent limits), then EPA and IDEQ should then determine whether the resulting change in receiving water quality would constitute “lower water quality” as defined in IDAPA 58.01.02.010.49. If EPA or IDEQ determine that the resulting change in receiving water quality constitutes “lower water quality,” the options for proceeding are the same as those described in Section 3.1.1.2.2.*

3.2. No Effluent Limits for a Given Pollutant in Either the Prior or Reissued Permits

If there are no technology-based effluent limits applicable to a given pollutant, and the discharge of that pollutant does not have RP to cause or contribute to excursions above WQS in the RP analyses supporting either the prior permit or the draft reissued permit, then neither the prior nor the draft reissued permit will include an effluent limit for the pollutant. However, as discussed in Section 2.2, above, the permittee is authorized to discharge the pollutant, under both the prior and draft reissued permits, as long as it is a constituent of wastestreams, operations or processes that were clearly identified during the permit application process.

3.2.1. No Limits for a Given Pollutant and no Increased Discharge

If neither the prior nor the draft reissued permits contain an effluent limit for a given pollutant, there is no anticipated or proposed increase in the discharge of a pollutant relative to the prior permit, and limits for that pollutant can be shown to be unnecessary under the NPDES regulations (40 CFR 122.44), then the draft reissued permit can be considered to maintain the status quo for that pollutant and the draft reissued permit should not be considered to allow “lower water quality” relative to the prior permit.

3.2.2. No Limits for a Given Pollutant but with Increased Discharge

In some cases, when a permittee applies for a reissued permit, the wastestreams, operations and processes and the range and amounts of pollutants present in such wastestreams may have changed since the time the prior permit was issued. If so, a draft reissued permit, based on the updated application that does not establish effluent limits for that pollutant, may anticipate a greater discharge of a given pollutant relative to the prior permit. If EPA or IDEQ determine that the continued absence of effluent limits in the draft reissued permit is likely to result in an increased discharge of the pollutant relative to the prior permit (e.g., for one of the reasons under Section 3.1.1.2, above) even if it has not increased to the point where the discharge has RP to

cause or contribute to an excursion above water quality criteria, EPA and IDEQ should determine whether this increase could allow “lower water quality.”

The process for this evaluation is similar to that described in Section 3.1.1.2, above, for a new water quality-based effluent limit. The difference is that, since there are no effluent limits in either case, a comparison should be made between the level of discharge expected to occur under both the previous and reissued permits. If IDEQ or EPA finds that the increased discharge would result in “lower water quality,” the options for proceeding are the same as those described in Section 3.1.1.2.2.

Figure 1

