Variance Compendium

Introduction

This compendium contains information related to variances for water quality standards (WQS). Information was collected from the Internet and short interviews conducted with 9 of the 10 EPA regional WQS coordinators. Note that this compendium does not represent new information, but rather compiles existing information. The compendium is divided into frequently asked questions (FAQs), references, case studies, and appendices.

The FAQs provide readers with information such as explaining what variances for WQS are, a summary of guidance documents for variances, an overview of the coordination between the states and EPA, information used to justify a variance, EPA's approval of variances, and variance renewal information.

The three case studies provide examples of successfully approved variances that states implemented throughout the United States and used to demonstrate progress toward meeting WQS for several pollutants of concern. These case studies highlight how variances have been used in real situations, and include the following:

- Idaho Variances for Metals in the South Fork Coeur d'Alene River
- Texas WQS Variance for Aluminum in Bear Creek Tributaries
- West Virginia Variance for Chloride in Ward Hollow of Davis Creek

The nine appendices provide the following additional information:

- Appendix A: Variances by State
- Appendix B: Example Variance Application Forms
- Appendix C: Example Memorandums of Agreement (MOAs)
- Appendix D: Example Process Diagram of Roles and Responsibilities
- Appendix E: Example EPA Approval Letters for Variances
- Appendix F: Example Public Notices
- Appendix G: Example EPA Region and State Guidance Documents
- Appendix H: Example Worksheets to Justify the Economic Factor
- Appendix I: Considerations for Use of Selected 131.10(g) Factors

EPA is currently in the process of proposing targeted changes to the WQS regulations at 40 CFR Part 131 (including the variance provision), and intends to publish a notice of proposed rulemaking in the *Federal Register* in summer 2011. Once EPA publishes a notice of final rulemaking (estimated to be in summer 2012), any guidance, policy interpretations, or common practices contained in this compendium may be subject to change based on the revised regulation at 40 CFR Part 131.

This compendium was developed by an EPA contractor using information obtained from informal interviews with EPA regions.

Frequently Asked Questions

What is a variance?

EPA considers a variance to be a temporary modification to the designated use and associated water quality criteria that would otherwise be applicable without the variance. Variances have been based on analyses that meet the requirements governing changes to uses. During the duration of a variance, the highest attainable use and associated criteria are targeted (USEPA 2007; USEPA n.d.).

The purpose of a variance is to allow a state/tribe to limit applicability of certain criteria and to identify an alternative designated use (this has not always been explicit) and associated criteria to meet over a specified period (duration) while incremental improvements or studies are made. Variances allow for a more site-specific and time-limited consideration of attainability than a permanent designated use revision. They encourage maintenance of original standards as goals instead of removing or putting in place a use that represents a lesser goal than could be attained in the long term. For example, technology improvements could lower treatment costs in the future and ultimately allow attainment of the original WQS. Variances cover specific pollutants and target either pollutant sources or geographic areas. Variances only apply to the WQS for which they were written; they do not modify or affect the implementation of other standards that have not been modified (USEPA 1994; USEPA 2007; USEPA n.d.).

The variance process simplifies how to determine an existing use by limiting the scope of the demonstration in terms of time, discharges affected, and parameters considered. This makes the review and application process somewhat less open-ended (which benefits the applicant) and limits the applicability of the variance to just the applicant and the parameters and duration proposed (which benefits the environment when compared to a full designated use change).

EPA first formally indicated allowability of state WQS variance provisions in Decision of the General Counsel No. 44, dated June 22, 1976. The decision specifically considered an Illinois variance provision and expanded on the acceptability of state WQS variance procedures in Decision of the General Counsel No. 58, dated March 28, 1977. Over the years, subsequent guidance elaborated or clarified the variance policy. On July 3, 1979, EPA's Director of the Criteria and Standards Division transmitted EPA's definition of a WQS variance to the regional WQS coordinators. On March 15, 1985, the Director of the Office of Water Regulations and Standards issued clarification that any of the 131.10(g) factors could be used when granting variances (USEPA 1994). These factors are discussed in greater detail below.

40 CFR 131.13 explicitly acknowledges that states may adopt and use variances in the implementation of WQS (USEPA 2007):

> States may, at their discretion, include in their state standards policies generally affecting their application and implementation, such as mixing zones, low flows and variances. Such policies are subject to EPA review and approval.

According to an EPA memo on variances in WQS (Johnson 1985), it is appropriate to grant short term variances in situations that would also qualify for use removal or adoption of a use subcategory:

> As long as any temporary water quality standards modification conforms to the requirements established in Section 131.10(g) of the regulation for downgrading uses, such an approach is acceptable as it would lead to only a temporary change to a water quality standard rather than a permanent downgrade…

Section 131.10(g) authorizes removal of a designated use that is not an existing use if attaining the designated use is not feasible because of any of the following factors (USEPA 2007):

1. Naturally occurring pollutant concentrations prevent the attainment of the use; or
2. Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating state water conservation requirements to enable uses to be met; or
3. Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place; or
4. Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use; or
5. Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or
6. Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact.

The six 131.10(g) factors, which are used to justify a use attainability analysis, are the same factors applied when justifying variances. When approving variances in the past, EPA has considered the following factors (USEPA 1994; USEPA 1998):

- Existing water quality criteria remain in effect for implementation in National Pollutant Discharge Elimination System (NPDES) permits, as appropriate, for those sources not included in the variance.
- Other applicable WQS will continue to be implemented.
- Meeting the standard (for which the variance applies) is unattainable based on one or more of the 131.10(g) factors.
- Variances are set for a specific duration and can be reviewed as part of state's triennial review.
- Reasonable progress can be made toward meeting the WQS; for variance renewals, verify that reasonable progress has occurred.
- The original criteria will have full effect upon expiration of the variance.
- Variances may be renewed only when the dischargers make a new demonstration of "unattainability."
- Public notice, opportunity for comment, and public hearing are all provided; the public notice should contain a clear description of the applicability of the variance upon achieving WQS in the affected waterbody segment.

- The state adopts the variance as WQS, as specified in the state's variance regulations, and submits the variance to EPA under CWA section 303(c).
- The variance is as close to the underlying numeric criteria as is achievable.
- Justification from the state includes documentation that treatment more advanced than required by sections 303(c)(2)(A) and (B) has been carefully considered, and alternative effluent control strategies have been evaluated.

Variances can be written for a single discharger, or in some cases, multiple dischargers. For example, the Michigan Department of Natural Resources and the Environment adopted, and EPA subsequently approved, a multi-discharger variance for mercury. This variance was part of a broader strategy for addressing mercury in NPDES permitted discharges as a way to address the widespread inability of municipal dischargers to meet limits based on the mercury criterion. Variances can also be written for entire waterbodies or just segments of waterbodies.

Not all states use variances. Some use variances to demonstrate progress towards meeting WQS; other states have not issued a variance to date. In some cases, regions and states may instead rely on other options, such as the development of compliance schedules or use of site-specific criteria. In other cases, the variance period has been used to develop site-specific criteria. Some states use similar tools to variances, such as temporary modifications of their WQS. Refer to Appendix G, specifically the fact sheet on Colorado, for further information. States often make decisions about whether to use a variance as a tool based on the water quality challenges they face.

States within 7 of the 10 regions have approved variances in place (Table 1). Note that the information in Table 1 is from the best available information as of January 20, 2011. Not all regions have verified these numbers. Numerous factors can affect why some states and regions have more variances than others, such as differences in WQS, the complexity of the individual case, different regulatory history among the states/regions, or decisions to use other tools instead of variances (e.g., temporary modifications to WQS). More detailed information about specific variances can be found in Appendix A.

Table 1: WQS Variances by EPA Region

Region	Number of WQS Variances
1	1–5
2	0
3	1–5
4	6–10
5	> 50
6	21–50
7	0
8	0
9	6–10
10	1–5

What kind of guidance exists on variances?

Because there is little information available about variances in current regulations, to date, EPA and states have relied on guidance for information about variances. The following guidance documents for variances were obtained through Internet research and from the EPA regions.

Court cases in the 1970s set some framework for early variances. Refer to Decision of the General Counsel No. 44 (June 22, 1976) and Decision of the General Counsel No. 58 (March 28, 1977) for more information. The court cases are available for download at: http://www.epa.gov/waterscience/standards/library/section40cfr1.pdf and http://www.epa.gov/waterscience/standards/library/section40cfr3.pdf, respectively.

On July 3, 1979 EPA's Director of the Criteria and Standards Division sent a memo to the regional WQS coordinators that transmitted EPA's definition of a WQS variance. The memo is available for download at: http://water.epa.gov/scitech/swguidance/waterquality/standards/upload/2008_08_04_standards_wqsterms.pdf.

In 1985, the Director of EPA's Office of Water Regulations and Standards issued a memo to the water division directors, responding to questions about WQS variances and issuing a reinterpretation of the factors that could be considered when granting variances (USEPA 1985). The memo is available for download at: http://water.epa.gov/scitech/swguidance/waterquality/standards/upload/2008_08_04_standards_wqsvariance.pdf.

EPA's *National Assessment of State Variance Procedures* (USEPA 1990) includes a background on variances, the reasoning for the assessment, the approach used to conduct the assessment, and major findings and conclusions. The report also recommends actions that states, regional offices, and EPA should take in response to the findings and conclusions of the assessment, as well as follow-up actions EPA took after the assessment. The report can be downloaded at: http://water.epa.gov/scitech/swguidance/waterquality/standards/upload/1999_11_03_standards_variancereport.pdf

EPA's *Water Quality Standards Handbook: Second Edition* (USEPA 1994) provides a basic background of variances, discusses variance procedural requirements, and summarizes requirements for EPA approval of state-adopted variances. The handbook is available for download at: http://water.epa.gov/scitech/swguidance/waterquality/standards/handbook/index.cfm.

EPA's Advanced Notice of Proposed Rulemaking (ANPRM) (USEPA 1998) sought comments on possible revisions to the WQS regulation at 40 CFR Part 131. The possible revisions would provide specific clarification of EPA's policy regarding variances. In addition to seeking comments, the ANPRM provides information such as essential elements of a variance, historical background, and brief summaries of different guidance documents related to the topic. The ANPRM is available at: http://www.epa.gov/fedrgstr/EPA-WATER/1998/July/Day-07/w17513.htm.

EPA also issued a guidance document on combined sewer overflows (CSOs) titled *Guidance: Coordinating CSO Long-Term Planning With Water Quality Standards Reviews* (USEPA 2001), which was designed to address questions on integrating development of CSO long-term control plans (LTCPs) with water quality standards reviews. The guidance expands on EPA's 1994 *CSO Control Policy* and provides some basic information about what a variance is and when it is appropriate in instances where waterbodies receive CSO discharges. The document is available for download at: http://nepis.epa.gov/Adobe/PDF/20004DL6.PDF.

Region 7 has developed procedural guidelines for variances to WQS in their region (USEPA n.d.). The guidelines provide basic background on EPA's variance provision and information about variance submittal, review, and tracking. The guidelines also provide a submittal checklist, as well as an internal checklist for EPA use. The Region 7 guidance is attached as Appendix G of this compendium. Note that the document is Region 7's guidance and does not necessarily reflect how other regions handle variances.

The Great Lakes Water Quality Guidance (40 CFR 132, Appendix F, Procedure 2) provides information about variance procedure requirements for WQS for point sources for Great Lakes states or tribes. Additional detailed information is available at: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=f8231f888f7f6a3fe3714c80efd26020&rgn=div9&view=text&node=40:21.0.1.1.19.0.16.7.25&idno=40.

Readers interested in learning more about variances can explore a module from EPA's WQS Academy, which provides a basic introduction to variances, including what they are, their purpose, legal basis, factors supporting variances, and cautions for use (USEPA 2007). Access the module at: http://water.epa.gov/learn/training/standardsacademy/upload/2007_11_15_standards_academy_basic_course_15-variances-11-15-07.pdf.

Another useful source of information is the example variance approval letters provided in Appendix E.

Who originates a variance?

In many cases, a discharger will approach the state requesting a variance. The state may work with the discharger to prepare the appropriate information to support the variance or require the discharger to provide all necessary supporting information. Each state has its own legal and administrative procedures for revising WQS. Once a state has gone through its internal process (including opportunity for public comment), the state submits a variance package to EPA for review and approval. EPA must approve a variance before it becomes effective. Many states approach EPA early in the process, sometimes as soon as a discharger has begun to ask about variances. Such early involvement provides an opportunity for EPA to ask clarifying questions, to ensure the data and information necessary to support the variance application are available and compelling, and for EPA to have input on whether a variance is appropriate for the particular circumstance. It also provides an opportunity for EPA to explain the variance process to a discharger and address any questions they might have.

What kind of coordination is required within EPA?

Most regions reported that once a state has decided to go forward with issuing a variance, there is ongoing communication between the WQS and NPDES permit staff at the region. Several regions

commented that this coordination is essential. Two regions noted that WQS staff may also need to obtain information beyond the WQS and NPDES programs. For instance, for variances that relate to 131.10(g) factor 6 (widespread socio-economic impact), there might also need to be involvement from a regional grants program or others with expertise in economics. For other analyses, engineering expertise might be needed.

What resources are required to develop and approve a variance?

Overall, most regions indicated that coordination among dischargers, states, and EPA regarding variances has been effective. It is not possible to provide a single estimate of the time it takes or the resources required to develop a variance, have it processed by the state, and approved by EPA. Most regions reported that the process varies on a case-by-case basis, with complex or controversial cases taking much longer than those that are straightforward or uncontroversial. The availability of adequate data can also factor into how long it takes for a variance to be developed and approved. For example, Wisconsin's guidance for copper variances recommends starting the variance process and beginning data collection 12 months prior to permit reissuance.

Several regions reported that once a state submits a WQS package that includes a variance, a variance action takes about the same amount of time as other substantive WQS submittals (e.g., a site-specific criterion, reclassification), but less time than revisions associated with a full triennial review. Two regions reported that a variance could take longer than other types of actions; a variance could require two actions—approval of the initial variance and, in the case of a renewal, a review of the actions taken and progress made.

There was general agreement among the regions that the first issuance of a variance takes more time than a renewal of an existing variance. It is important to note that states submit state-adopted variances to EPA for review and approval. In some cases, the state may realize that a variance is not approvable in a given circumstance, and the state will not approve or adopt the variance under the state process or submit it to EPA. For example, in several cases, an applicant has provided information to assess widespread economic impact, but the region or state has determined that the facility did not adequately demonstrate adverse economic impacts. One region noted that there have been instances when the supporting information for a variance request has been determined to be insufficient before submission to EPA, so the state did not submit the variance for EPA approval.

One region noted that waterbody or statewide variance processes could take a long time to complete and be resource intensive (e.g., modeling might be required to show what is achievable). As an example, one region added that in cases where a waterbody is shared by multiple states, EPA may have a greater role in development of the variance.

What type of information is needed to justify a variance?

According to EPA's *Water Quality Standards Handbook* (USEPA 1994), variances to WQS involve the same substantive and procedural requirements as removing a designated use, but specifically target and identify the applicable discharger(s), pollutant(s), and time limit. The justification should include an analysis demonstrating that one of the 131.10(g) factors for removing a designated use applies and target achievements of the highest attainable use and associated criteria for the variance period. The applicant

should provide sufficient information to show that an aspect of the WQS is not attainable based on one or more of the 131.10(g) factors. Several regions specified that the type of information to justify a variance varies on a case-by-case basis, but can involve provision of information such as toxicity tests, field work, or economic analyses.

Once a variance is approved, what happens during the variance period?

Most regions that have approved variances indicated that when a variance is implemented, the state requires monitoring or other studies to be conducted (including studies to show what is achievable). In addition, states may review the variance as part of the triennial review to see if any new information has become available indicating that the uses are attainable.

One region indicated that some facilities receive biomonitoring requirements applicable during the terms of the permit, and that the permittee must continue to meet all other limitations for other parameters. Several regions indicated that states are required to provide detailed plans of actions the permitees will take for each variance. One region has requested that the state require permitees to submit studies examining aquatic species in the waterbody where the variance for an aquatic life criterion would apply. Another region reported that a discharger must demonstrate how close they can come to meeting the existing WQS during the variance period. That region also reported that interim permit limits are included and the permit is definitive about what the permittee is required to do (e.g., conditions or milestones to address specific problems).

Another region provided examples of permit requirements, such as a requirement to assess new technologies and to develop implementation plans (on a case-by-case basis). If a state is interested in formally articulating requirements beyond what is in the state's variance standard itself in order to demonstrate progress, they may articulate those additional requirements through permit conditions or some other means.

Can variances be renewed?

Variances can be renewed. Whether a variance needs to be renewed depends on the situation and progress made toward meeting WQS. The number of times a variance is renewed can vary depending on many site-specific factors, such as if progress is continuing to be made to meet WQS, whether the conditions under which the original variance was granted continue to exist, or if sampling data could not be collected. For example, one region noted a case where an extenuating circumstance—specifically a hurricane—did not allow for collection of sufficient data. In general, issuing a variance renewal is less resource-intensive than the initial variance. However, the requirements and data collection remain the same for the initial variance.

One region indicated that one state requires the following three elements to justify a variance renewal: (1) demonstration of reasonable progress under the current permit toward meeting applicable WQS; (2) justification for a renewed variance based on one of the six factors; and (3) a plan for making reasonable progress toward meeting WQS in the future.

No region indicated that it would not allow a renewal of an existing variance. Of the nine regions interviewed, six have renewed variances. Additional information about variances that have been renewed can be found in Appendix A.

What are some issues associated with variance approval?

Regions reported that there are instances when a variance might not be appropriate, even after all questions have been answered and data have been collected and submitted. In some cases, a variance simply might not be the right tool for the water quality problem at hand (e.g., site-specific criteria might be a more appropriate option). Alternately, the data might not support granting the variance (e.g., insignificant data is provided to make a case or the provided information does not prove that attaining the use is infeasible because of one of the 131.10(g) factors). One region indicated that in at least one case, the data did not support the significant and widespread economic test needed under 131.10(g) factor 6.

Some issues with variance approval are not technical, but rather administrative. Examples include failure to provide an opportunity for public comment, failure to follow established/legally required state or tribal administrative procedures, and failure to meet the submittal requirements of 40 CFR 131.6, specially legal certification. Several regions commented that in cases where variances are not approved, the currently applicable WQS remain in effect.

Regions were asked about decision points and information gaps that have caused delays during the variance review and approval process. One region noted that sometimes EPA may have questions about whether the WQS could be attained by another approach or treatment technology that was not evaluated. Therefore, early EPA involvement can be beneficial to avoid identifying issues late in the process. Another region commented that gathering and processing economic data to support a variance under 131.10(g) factor 6 can be challenging. Technically, one hurdle to variance approval can be identifying what the facility would have to do to ensure attainment of the discharge limits necessary to comply with WQS as well as information on the cost.

How is information regarding emerging treatment techniques and technologies shared and used by involved parties?

One region noted that sharing information on emerging techniques and technologies occurs on a case-by-case basis since there is no established EPA procedure for sharing this information among states and dischargers. Information sharing is most successful when a variance includes requirements that a discharger investigate new technologies and practices to reduce the pollutant of concern. In other cases, there might not be treatment technologies to reduce the pollutant(s) of concern and efforts must be focused on source control. In this regard, one region commented that pickle production uses a process that results in high conductivity that cannot be reduced through treatment. This type of company should instead report on in-plant minimization and spill control practices before water reaches the wastewater treatment plant.

Two regions noted that information on emerging treatment technologies and techniques is not readily available to states and EPA, and they must work closely with the facilities to gain a common understanding of what emerging treatment technologies may be relevant for consideration. For example, one region commented that frequently dischargers are unclear about the state's and/or EPA's

expectations regarding alternative analyses and reaching a common understanding regarding those expectations may require EPA to make multiple communication loops before the information and analyses meet the state's and/or EPA's expectations. In addition, evaluation of emerging treatment technologies can be difficult, often requiring more work or closer scrutiny by the most knowledgeable parties.

Another region noted that it is especially important for emerging treatment techniques and technologies to be shared with all involved parties and used/put into place when the justification for the variance is based on economics. EPA desires that dischargers continue to evaluate whether they are achieving the best water quality feasible.

Have there been Endangered Species Act (ESA) consultations related to variances?

There have been ESA consultations related to variances. An ESA consultation is required if listed species are present in area where the variance applies. Two regions reported having needed to undertake ESA consultations as part of a variance approval. Other regions reported that they did not have any cases where an ESA-listed species was present at the specific site where the variance applies.

Is there existing litigation on variances?

No regions are currently engaged in any litigation related to variances, though there has been litigation in the past. While there may be some states that have NPDES permits undergoing litigation, the litigation is not specific to the change in WQS or the variance.

References

Johnson, E.L. 1985, March 15. Letter from Edwin Johnson, U.S. Environmental Protection Agency, to Water Division Directors, U.S. Environmental Protection Agency, regarding variances in water quality standards. http://water.epa.gov/scitech/swguidance/waterquality/standards/upload/2008_08_04_standards_wqsvariance.pdf. Accessed January 2011.

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Case Studies

Three case studies were developed to provide information about successfully approved variances that have been used and implemented throughout the United States to make progress toward meeting WQS. A brief overview of each case study is provided in the Table 2 below. The case studies are included after the table.

Table 2: Summary of Case Studies

Region/State	Waterbody	Pollutant	131.10(g) Justification	Type of Discharger*	Variance Renewed?
Region 3 / West Virginia	Ward Hollow of Davis Creek	Chlorides	#1 - Natural Background	Industrial (Private) Union Carbide Corp.	Yes
Region 6 / Texas	Bear Creek	Aluminum	To conduct studies (WER)	Industrial (Private) International Paper Company	Yes
Region 10 / Idaho	South Fork Coeur d'Alene River	Metals (Cadmium, lead and zinc)	#6 - Economic	Municipal (Public) Cities of Page, Mullan, and Smelterville	Yes

* All dischargers are single dischargers

Region 3 Case Study

West Virginia Variance for Chloride in Ward Hollow of Davis Creek

Background

Union Carbide Corporation (UCC) is a chemical manufacturing company located in South Charleston, West Virginia. The UCC industrial facility discharges at the head of Ward Hollow of Davis Creek through NPDES-permitted outfall 008. The sources of the discharge are site-generated stormwater, flows from an impoundment located at the facility, and intermittent discharges of non-contact cooling water (Capacasa 2006).

In 1989, a site-specific numeric criterion for chlorides in Ward Hollow of 540 µg/L was developed and adopted by the state. In the subsequent permit cycle, and to meet the revised criteria, the West Virginia Department of Environmental Protection used a new procedure to calculate a water quality-based effluent limit for chloride of 188 µg/L (monthly average), which UCC could not meet on a regular basis. Therefore, UCC requested a variance in 2002 (WVDEP 2005).

Variance Description

The basis for UCC's 2002 variance request of 310 µg/L (monthly average) was that elevated chloride levels in Ward Hollow were naturally occurring. UCC presented several lines of evidence demonstrating this assertion, including historic documentation of the presence of salt springs and wells in the area. UCC also presented conductivity data, which correlates well with chloride levels, from nearby Staunton Run. (Because UCC is located at the headwaters of Ward Hollow, upstream measurements could not be taken.) The conductivity levels in Staunton Run were higher than those in Ward Hollow downstream from the UCC outlet, indicating a source of chlorides other than the UCC discharge (Capacasa 2006).
To demonstrate that granting the variance would not cause further impairment, UCC asserted that impairments to the macroinvertebrate population in Ward Hollow were due to urban runoff and poor riparian cover, not the facility's discharges. Also, UCC evaluated several strategies to mitigate chlorides to meet water quality standards, including alternative deicing practices at the facility, rerouting flows to areas further downstream, and rerouting flows to the local wastewater treatment plant. The latter two options, however, would render Ward Hollow's flows intermittent, which UCC determined would cause further harm to the macroinvertebrate population (Capacasa 2006). Therefore, UCC is implementing alternative deicing practices.

Approval Process

The variance and other revisions to West Virginia's *Requirements Governing Water Quality Standards* were adopted by the state on July 7, 2006, and became effective on June 1, 2006. On September 26, 2006, EPA approved the variance in accordance with section 303(c)(3) of the Clean Water Act and 40 CFR Part 131 (Capacasa 2006). The West Virginia Water Quality Standards Rule Title 47 Series 2 was amended to include the variance, as follows:

> 7.2.d.19.3. A variance pursuant to 46 CSR 6, Section 5.1, based on naturally occurring pollutant concentrations, shall apply to Union Carbide Corporation's discharge to Ward Hollow of Davis Creek, which shall have the instream criteria for chlorides of 310 mg/l for Category A and C waters and for Category B1 (chronic aquatic life protection). This exception shall be in effect until action by the Secretary to revise the exception or until July 1, 2010, whichever comes first (WVDEP n.d.).

Elements of the variance that facilitated approval were clear demonstration of naturally elevated chloride levels; historic and ongoing monitoring at the UCC discharge that showed a downward trend in chloride levels (indicating that the statewide criteria may be attainable in the future); and onsite practices undertaken by UCC, specifically alternative deicing practices, to reduce chlorides in stormwater (Capacasa 2006). Because the site is an NPDES-permitted industrial facility, discharges from the site will continue to be monitored to determine progress toward meeting statewide water quality criteria.

Table 3 presents a summary of chloride criteria (EPA, statewide, and approved variance) applicable to Ward Hollow.

Table 3. EPA, Statewide, and Variance Criteria for Ward Hollow (Capacasa 2006)

	Aquatic Life Category B1: Warm Water Fisheries		Human Health	
Criteria	**Acute**	**Chronic**	**Category C: Contact Recreation**	**Category A: Public Water Supply**
Variance Criteria for Ward Hollow	860 µg/L	310 µg/L	310 µg/L	310 µg/L
West Virginia Approved Statewide Criteria	860 µg/L	230 µg/L	250 µg/L	250 µg/L
EPA Criteria	860 µg/L	230 µg/L	None	None

Lesson Learned

When UCC submitted its 2002 variance application, the West Virginia Department of Environmental Protection's Environmental Quality Board approved the request as a "site-specific numeric criterion." This constituted a critical error in wording because UCC applied for and provided documentation to support a variance, which has different requirements than a request for a change in site-specific criteria. The error resulted in EPA disapproving the variance, requiring UCC to resubmit its application package and causing significant delay. As a result, the state determined that any future variance language must (1) indicate that the variance is granted for a finite length of time and (2) specifically cite the applicable factor in 40 CFR 131.10(g) (WVDEP 2005).

Case Study References

Capacasa, J.M. 2006, September 26. Approval letter from Jon M. Capacasa, U.S. Environmental Protection Agency Region 3, to Lisa McClung, West Virginia Department of Environmental Protection, regarding approval of a chloride variance for Ward Hollow of Davis Creek.

WVDEP. 2005, March 10. *Meeting Minutes of the Environmental Quality Board*. West Virginia Department of Environmental Protection, Charleston, WV. http://www.wveqb.org/attachments/March102005EQBMeetingMinutes.pdf. Accessed December 2010.

WVDEP. No date. *Title 47 Legislative Rule Department of Environmental Protection, Water Resources Series 2, Requirements Governing Water Quality Standards*. West Virginia Department of Environmental Quality. http://www.dep.wv.gov/WWE/Programs/wqs/Documents/47-02.pdf. Accessed January 2011.

Region 6 Case Study

Texas Variance for Aluminum in Bear Creek Tributaries

Background

International Paper Corporation (now Georgia-Pacific, formerly Champion International) operates a plywood mill in Corrigan, Texas. In 1999, the Texas Natural Resource Conservation Commission (now the Texas Commission on Environmental Quality [TCEQ]) issued a wastewater discharge permit to the Corrigan Plant that discharges to unnamed tributaries upstream of Bear Creek in the Neches River Basin. As one of the discharge permit conditions, the plant was required to submit analytical data for total aluminum. According to International Paper, no aluminum chemicals are used at the Corrigan Plant, and no aluminum products are manufactured on the site. In their permit application they stated "…the only identifiable source of aluminum being discharged is the aluminum content of the soil materials (clays) found on the plant site" (Tischler 1999).

The Texas statewide criterion for aluminum is 991 µg/L. Because the source of aluminum being discharged from the Corrigan Plant was from the soil rather than from manufacturing processes, International Paper proposed a plan to develop a site-specific dissolved to total partitioning coefficient for aluminum. In 1998, a study was conducted as part of the coefficient development process. In addition to the analyses for total and dissolved fractions of aluminum, Texas also required that the facility conduct toxicity tests to verify that use of the partitioning coefficient would not harm instream aquatic life. That study concluded that aluminum found in the plant's effluent was contributed by soil particles suspended in the effluent and that aluminum in these waterbodies was less toxic to aquatic life than effluent limits calculated without use of a partitioning coefficient (Tischler 1999). Based on those results, International Paper proposed that no permit limits for aluminum were necessary, and using the information obtained in the study, they applied for a variance to conduct a Water Effects Ratio (WER) study to determine whether a site-specific criterion was appropriate. The variance was granted by EPA in 1999 and incorporated into the 1999 permit (expiration date of August 2001).

In the summer of 2000, the facility underwent significant modifications, including dredging the lower pond and rebuilding the discharge mechanism so the pond no longer discharged continuously. As a result of these modifications, the WER study was not completed in 2000 and changes to the original study plan were needed. International Paper requested that the state grant an extension of the temporary variance for aluminum (Haynes 2001).

Description of Variance and Approval Process

An extension of the variance was requested by Texas in the summer of 2002. The extension authorized a 3-year period in which the company conducted a water quality study to show whether a site-specific amendment to water quality standards was justified (Evans 2011).

For variance requests, EPA Region 6 requires documentation of public participation before taking approval action. The public notice for the extension was filed in April 2002 (Corrigan Times 2002). Public

participation was completed through the comment period on the proposed permit (TCEQ received no comments) and was deemed sufficient by EPA (Flores 2003). The variance was approved by EPA and no significant degradation of high quality receiving waters was anticipated. In December of 2002, EPA and the U.S. Fish and Wildlife Service concluded that approval of the variance to the aluminum standard was "not likely to adversely affect Federally-listed species" (Lohoefner 2002).

Although the facility had already conducted preliminary toxicity testing for the WER study it was required to update the work plan and complete the study in order to be granted the variance extension by EPA. In 2003, EPA approved the temporary variance extension. Under the conditions of this permit, the facility was required to meet monitoring and reporting requirements for aluminum, but had no technology-based or water quality-based effluent limits for aluminum. The conditions of the permit specified that if the permittee did not complete the WER study within 180 days of the permit expiration date, then effluent limitations for aluminum would be imposed immediately in a reissued permit. The limitations were to include a daily average of 1.3 mg/L of total aluminum and a daily maximum of 2.8 mg/L (TPDES Permit No. 01902).

Progress to Date

As a result of the temporary variance, demonstrable progress can be seen through the successful development of the site-specific criterion. The facility's goal was to develop a site-specific standard following EPA's WER guidance for developing site-specific standards.

From 2003 to 2004, International Paper conducted the WER study that supported the development of a site-specific aluminum criterion. In 2005, the final report *A Study to Develop a Site-Specific Acute Water Quality Criterion for Aluminum in an Unnamed Tributary of Bear Creek* was submitted to the state and then to EPA Region 6 for approval. The final WER for total recoverable aluminum from the Corrigan Mill is 5.58, calculated from four WER test events. The site-specific criterion proposed was 5.53 mg/L (Tischler 2005). This criterion was demonstrated to be appropriate to protect aquatic life. EPA approved the site-specific aluminum criterion in 2005. The 2006 (and 2010) TPDES permit included water quality-based effluent limits based on the site-specific aluminum criterion (Evans 2011).

Case Study References

Evans, Diane, USEPA Region 6. 2011, January 18. Personal E-mail Correspondence with Tetra Tech regarding Texas aluminum variance.

Flores, M. 2003. *Letter from Miguel Flores, Water Quality Protection Division USEPA Region 6, to Mark Vickery, TCEQ, regarding variance extension approval for aluminum in an unnamed tributary to Bear Creek*.

Haynes, J. 2001. *Letter from Jason Haynes, International Paper Company, to David Galindo, TNRCC, regarding International Paper Company Corrigan Facility, Permit No. 01902 – Pending Permit Application*.

Lohoefener, R. 2002. *Letter from Ren Lohoefener, US Fish and Wildlife Service, to Diane Evans, USEPA Region 6, Regarding Comments from the U.S. Fish and Wildlife Service on the application by the TCEQ for variances in aluminum and copper standards*.

Notice of Application and Preliminary Decision for Water Quality TPDES Permit Amendment for Industrial Wastewater. *The Corrigan Times*, Thursday April 18, 2002, Page 7.

Tischler, L. February 1999. *Corrigan Plant Aluminum Partitioning Coefficient Study.* Prepared for Champion International Corporation, Corrigan Texas.

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Region 10 Case Study

Idaho Variances for Metals in the South Fork Coeur d'Alene River

Background

In 2004, the wastewater treatment plants (WWTPs) of the Cities of Page, Mullan, and Smelterville, in the Silver Valley of northern Idaho were granted variances for discharges of metals (cadmium, lead, and zinc for Page and Smelterville; cadmium and zinc for Mullan) to the South Fork Coeur d'Alene River by the U.S. Environmental Protection Agency (USEPA 2004). In 2005, EPA approved Idaho's use designations adopted in 2002, which placed the authority to grant future variances with the Idaho Department of Environmental Quality (DEQ) (IDAPA 58.01.02.260.01). Thus, in 2009 DEQ considered the renewal of the Page, Mullan, and Smelterville metals variances (Idaho DEQ 2009a).

The three WWTPs are located in a region with historic mining and smelting of metals that has resulted in extensive groundwater contamination. Efforts are underway through the Superfund program to remediate groundwater contamination over the long-term; however, the WWTPs currently are faced with infiltration and inflow (I&I) of metals-contaminated groundwater into the wastewater collection system, yielding measurable loads of metals in discharges from all three WWTPs (Idaho DEQ 2009a).

Variance Description

The City of Smelterville and the South Fork Coeur d'Alene River Sewer District (SFCDRSD), which operates the Page and Mullan WWTPs, requested variances in 2004 and 2009 on the assertion that implementing metals controls more stringent than current, technology-based controls would result in substantial and widespread adverse economic and social impacts to those communities. The applicants, using the *Interim Economic Guidance for Water Quality Standards Workbook* (USEPA 1995), presented cost estimates for installing enhanced metals treatment capability on the basis of pilot studies. They demonstrated that the higher user rates necessary to fund such treatment enhancements would cause severe economic hardship on the communities served by the WWTPs, encompassing all of the communities of the Silver Valley (Idaho DEQ 2009a).

Beginning with the 2004 variances and continuing in the 2009 variances, a strategy was proposed that addresses the source of the metals in the wastewater effluent—namely I&I of contaminated groundwater into the wastewater collection system. This strategy includes inspecting, repairing, and replacing failing and poorly designed wastewater infrastructure to reduce I&I over a specified timeframe. The intent of this strategy is to reduce the amount of metals in treatment plant effluent to levels that meet water quality standards or to a level that can be treated with affordable enhancements to the WWTPs (USEPA 2004; Idaho DEQ 2009a).

In the 2004 NPDES permits, EPA required that compliance schedules be developed by the three WWTPs to identify the wastewater collection system upgrades that would be necessary to demonstrate progress toward achieving water quality standards. The communities served by the WWTPs were tasked with developing city-specific schedules to meet this requirement. In the 2009 variances, DEQ specified that progress toward implementing the compliance schedules be monitored and reported, and that alternate

treatment methods be investigated for cost-effectiveness. Also, the Smelterville variance specified that the City evaluate their WWTP flows and begin negotiations with the SFCDRSD regarding connecting into the Page WWTP (Idaho DEQ 2009a). The variance conditions specified by DEQ are expected to be incorporated as enforceable permit requirements upon renewal of the National Pollutant Discharge Elimination System (NPDES) permits by EPA.

Idaho rules (IDAPA 58.01.02.260.01.a.i) required that DEQ examine the impact of the variances on the receiving stream segment. DEQ evaluated WWTP effluent data from NPDES discharge monitoring reports with instream monitoring data from the U.S. Geological Survey to determine the effect of the WWTP effluent on metal loads and concentrations in the South Fork Coeur d'Alene River. The results of this analysis indicated that cadmium and zinc were lower in the WWTP effluent than in the stream and that lead contributions were negligible. Thus, DEQ concluded that water quality in the South Fork Coeur d'Alene River would not improve substantially if the WWTP discharges were discontinued. They asserted that attainment of water quality standards would only be achieved with control of nonpoint sources and remediation of contaminated groundwater (Idaho DEQ 2009a).

Approval Process

On June 5, 2009, DEQ approved the variances for a period of five years in accordance with IDAPA 58.01.02.260 (Idaho DEQ 2009b, 2009c, 2009d). DEQ performed a detailed statistical analysis of each WWTP's discharge monitoring data to ensure that the new limits established in the variances were at or below current concentrations and loadings of metals in the WWTP effluent (Idaho DEQ 2009a). Table 4 presents a summary of metal limits applicable to discharges from the Page, Mullan, and Smelterville WWTPs.

Table 4. Daily Maximum and Average Monthly Metal Limits for the Page, Mullan, and Smelterville WWTPs (Idaho DEQ 2009a, 2009b, 2009c, 2009d)

		Cadmium		Lead		Zinc	
		Concentration (µg/L)	Load (lb/day)	Concentration (µg/L)	Load (lb/day)	Concentration (µg/L)	Load (lb/day)
City of Page	Daily Max.	8.3	0.3	96	3.4	1,340	48
	Ave. Monthly	5.3	0.19	63	2.2	802	29
City of Mullan	Daily Max.	10.8	0.049	—	—	3,682	17
	Ave. Monthly	5.5	0.025	—	—	1,610	7.4
City of Smelterville	Daily Max.	29.8	0.30	85	0.18	3,490	7.0
	Ave. Monthly	17.5	0.19	46	0.096	1,994	4.0

Elements of the variance renewal that facilitated approval were detailed cost estimates demonstrating substantial and widespread adverse economic and social impacts of enhanced treatment controls and demonstrated and ongoing progress toward reducing metals in WWTP effluent through collection system replacement and repairs. The decision was further strengthened by evidence that contaminated groundwater was the main source of impairment from metals in the South Fork Coeur d'Alene River and given that groundwater remediation efforts were ongoing (Idaho DEQ 2009a).

Progress to Date

Each variance includes a set of actions that the applicants must complete to demonstrate reasonable progress toward achieving water quality standards, as follows:

Mullan

1. Monitor the progress made by the city of Mullan on I&I removal projects presented in the compliance schedules that were included in the Variance Request.
2. Provide annual reports to DEQ and EPA on the progress made in completing these actions and other I&I removal-related matters that may arise.

Page

1. Apply for state and tribal assistance grant (STAG) funds that will be used for sewer line replacement work in the Elizabeth Park collection system, which is owned by the SFCDRSD.
2. Work with the nearby City of Kellogg to complete a compliance schedule. Once a compliance schedule is established, monitor and report on the progress made by the City of Kellogg.
3. Monitor and report on the progress made by the neighboring Cities of Osburn and Wallace on I&I removal projects presented in the compliance schedules that were included in the Variance Request.
4. Work with DEQ on a demonstration project to determine the effectiveness of wetlands treatment for metals removal.
5. Repair at least five manholes per year to eliminate an estimated 2.5 million gallons of I&I per year per manhole.
6. Provide annual reports to DEQ and EPA on the progress made in completing these actions and other I&I removal-related activities that may arise.

Smelterville

1. Complete the replacement of a total of 88 service laterals located on private property.
2. After compiling four years of WWTP flow data, enter into negotiations with the SFCDRSD about connecting into the SFCDRSD Page WWTP.
3. Provide annual reports to DEQ and EPA on the progress made in completing these actions and other I&I removal-related activities that may arise.

The above requirements are expected to become enforceable conditions in the WWTPs' NPDES permits once they are renewed by EPA. Because each WWTP is an NPDES-permitted industrial facility, discharges from the sites will continue to be monitored as part of NPDES compliance. As was the case in 2009, discharge monitoring data can be used to determine progress toward meeting water quality standards.

Case Study References

Idaho DEQ. 2009a. *Justification for Granting of Variances from the Idaho Water Quality Standards to the Cities of Page, Mullan and Smelterville for the Discharge of Metals from their Wastewater Treatment Plants*. Idaho Department of Environmental Quality. http://www.deq.idaho.gov/water/data_reports/surface_water/monitoring/variances_justification_page_mullen_smelterville.pdf. Accessed January 2011.

Idaho DEQ. 2009b. *Variance from Idaho Water Quality Aquatic Life Criteria for Cadmium, Lead, and Zinc [for the Smelterville WWTP]*. Idaho Department of Environmental Quality. http://www.deq.idaho.gov/water/data_reports/surface_water/monitoring/variance_smelterville.pdf. Accessed January 2011.

Idaho DEQ. 2009c. *Variance from Idaho Water Quality Aquatic Life Criteria for Cadmium and Zinc [South Fork Coeur d'Alene River Sewer District, Mullan WWTP]*. Idaho Department of Environmental Quality. http://www.deq.idaho.gov/water/data_reports/surface_water/monitoring/variance_mullen.pdf. Accessed January 2011.

Idaho DEQ. 2009d. *Variance from Idaho Water Quality Aquatic Life Criteria for Cadmium, Lead, and Zinc [for the South Fork Coeur d'Alene River Sewer District, Page WWTP]*. Idaho Department of Environmental Quality. http://www.deq.idaho.gov/water/data_reports/surface_water/monitoring/variance_page.pdf. Accessed January 2011.

USEPA. 1995. *Interim Economic Guidance for Water Quality Standards Workbook*. EPA-823-B-95-002. http://water.epa.gov/scitech/swguidance/waterquality/standards/upload/2007_06_18_standards_econworkbook_complete.pdf. Accessed January 2011.

USEPA. 2004. *EPA Grants Water Quality Standards Variances to Local Communities: NPDES Permits Allow Time to Reduce Metals*. U.S. Environmental Protection Agency. http://yosemite.epa.gov/r10/WATER.NSF/NPDES+Permits/Current+ID1319/$FILE/water_var_fs_6-24-04.pdf. Last updated June 2004. Accessed January 2011.

Appendices

For additional information, please refer to the following appendices.

Appendix A: Variances by State

Appendix A provides a draft table of variances by EPA region and state, including information about the facility name requesting the variance, permit number, year the variance was granted, the parameter addressed by the variance, justification(s) for the variance, the length, and number of variance renewals.

Note that the information contained in this appendix is the best information available at the time this compendium was developed. The majority of information came from EPA's Water Quality Standards Action Tracking Application (WATA). The EPA Regions have not had sufficient time to review all of the information to determine accuracy. Also, note that no states in Region 8 have any approved variances. Two states, Montana and Colorado, use alternate tools to temporarily modify their WQS.

Appendix B: Example Variance Application Forms

Appendix B provides two examples of application forms for variances—one is for chlorides and the other is for mercury. Both examples were provided by Wisconsin (Region 5).

Appendix C: Example Memorandums of Agreement (MOAs)

Appendix C provides two examples of memorandums of agreement (MOAs) for Arizona (Region 9) and New York (Region 2).

Appendix D: Example Process Diagram of Roles and Responsibilities

Appendix D provides an example list of roles and responsibilities used in Region 7. The checklist can be used to ensure all pieces are properly submitted.

Appendix E: Example EPA Approval Letters for Variances

Appendix E provides three examples of individual approval letters for variances in Idaho (Region 10), Massachusetts (Region 1), Texas (Region 6), and Wisconsin (Region 5). These letters could be helpful for example language that EPA uses in approval letters.

Appendix F: Example Public Notices

Appendix F contains two examples of public notices for variances from Wisconsin (Region 5).

Appendix G: Example EPA Region and State Guidance Documents

Appendix G provides two guidance documents for variances. The first example is from Region 7 while the second is for the state of Colorado (Region 8).

Appendix H: Example Worksheets to Justify the Economic Factor

Appendix H provides an example of an economic analysis worksheet from Idaho (Region 10), as well as EPA's analysis of the worksheet.

Appendix I: Considerations for Use of Selected 131.10(g) Factors

Appendix I contains considerations for use of selected 131.10(g) factors. This information was prepared for the Region 7 states in order to assist in the development of Region 7's Kaizen process for WQS submissions.

Appendix A
Variances by State

The information contained in this appendix is the best information available at the time this compendium was developed. The majority of information came from WATA. The EPA Regions have not had sufficient time to review all of the information to determine accuracy. Also, note that no states in Region 8 have any approved variances. Two states, Montana and Colorado, use alternate tools to temporarily modify their WQS.

Region	State	Name of Facility Requiring Variance	Permit Number	Year Granted	Parameter(s)	Justification(s) for Variance*	Length of Variance(s)	Number of Renewals
Region 1	Connecticut	None.						
Region 1	Maine	None.						
Region 1	Massachusetts	MWRA, BWSC, City of Cambridge	MA0103284, MA0101982, and MA0101 192	1997	CSO discharge	Widespread economic and social impact	24 months	4
Region 1	Massachusetts	MWRA, Cities of Cambridge and Somerville	MA0103284, MA0101974, and MA0101982	1999	CSO discharge	Widespread economic and social impact	36 months	4
Region 1	New Hampshire	None.						
Region 1	Rhode Island	None.						
Region 1	Vermont	None.						
Region 2	New York	None.						
Region 2	New Jersey	None.						
Region 2	US Virgin Islands	None.						
Region 2	Puerto Rico	None.						
Region 3	Delaware	None.						
Region 3	District of Columbia	None.						
Region 3	Pennsylvania	None.						
Region 3	Virginia	None.						
Region 3	West Virginia	Union Carbide Corporation		2006	chlorides	Unknown	2 years	
Region 3	West Virginia	Stony River variance	Deleted from WQS because of expiration in 1998.					
Region 3	West Virginia	Catenary Coal Company		2003	aluminum			
Region 4	Kentucky	None.						
Region 4	Tennessee	None.						
Region 4	South Carolina	None.						
Region 4	North Carolina	Blue Ridge Paper Products, Inc., Canton Mill	NC0000272	First Variance: 1988, Most	Color	131.10(g)(6)	Last Color Variance Approval by EPA: 12/21/2010	5
Region 4	North Carolina	Mt. Olive Pickle Company	NC0001074	1996	Chloride	131.10(g)(6): waste minimization technique is proven technology economically feasible	(NPDES permit expires 12/31/10)	2
Region 4	North Carolina	Bay Valley Foods, LLC	NC0001970	1997	Chloride	131.10(g)(6): waste minimization is the most proven technology economically feasible	(NPDES permit expires 12/31/10)	2
Region 4	Georgia	Springs Industries, Inc.			Whole effluent toxicity	131.10(g)(6)		Discharger ceased operations and variance will be terminated
Region 4	Florida	Premier Chemicals LLC	FL00022607	2008	Acute toxicity - calcium	131.10(g)(6)	expires at expiration of NPDES permit	

Region	State	Name of Facility Requiring Variance	Permit Number	Year Granted	Parameter(s)	Justification(s) for Variance*	Length of Variance(s)	Number of Renewals
Region 4	Florida	City of Vero Beach Reverse Osmosis Facility	FL0042544-003	2007	Whole effluent toxicity	No practicable means are known or available for the adequate control of pollution in a discharge.	expires at expiration of NPDES permit	
Region 4	Alabama	None.						
Region 4	Mississippi	Tallahala Creek		1990	DO	Attainability of DO levels resulting from the City of Laurel WWTF.	Removed the variance in 2003	
Region 4	Mississippi	Escatawpa River			DO		Variance is proposed to be removed by the State	
Region 5	Illinois	None.						
Region 5	Indiana	Statewide Streamlined Mercury Variance Rule	Multiple facilities?	2005	Mercury	widespread social and economic impacts of compliance with mercury limits derived from Indiana's existing water quality criteria		
Region 5	Indiana	ArcelorMittal Burns Harbor, LLC	IN0000175	1988	Ammonia as N, Phenols, Temperature	Best available technology economically achievable requirements provided for by the federal NPDES permit requirements of the Clean Water Act pursuant to section 301(g).	renewed for a total of 22 years	1993, 1995
Region 5	Indiana	NIPSCO Michigan City Generating Station	IN0000116	4/5/2010	mercury	A recognized lack of economically viable end-of-pipe treatment options.	Submitted 1/25/2010.	
Region 5	Indiana	CARGILL INC FOOD & PHARMA SPECIALTIES	IN0000027	10/13/2010	streamlined variance for mercury	A recognized lack of economically viable end-of-pipe treatment options.		
Region 5	Michigan	Statewide Mercury Variance	Multiple facilities?	2/1/2000	Mercury	social and economic impacts	Michigan's multiple discharger variance does not alter the requirement in Michigan's rule that, "the duration of a WQS variance shall not exceed the term of the NPDES permit."	Revised for permits issued between 2005 and 2009. The MDEQ is reapplying for an MDV for mercury for NPDES permits issued in Fiscal Years (FYs) 2010-2014.
Region 5	Minnesota	Buffalo Lake Energy LLC	MN0068063	10/6/2006	Boron, Hardness, Salinity, Sodium, TDS, SpecCond, Sulfate	Minnesota Regs: 7050.0223 subp.3 , 7050.0224 subp.2, 7050.0224 subp.3		
Region 5	Minnesota	ADM Corn Processing: Marshall	MN0057037	10/24/1995	Chloride, SpecCond,TDS, Salinity, Toxicity	Minnesota Regs: 7050.0223 subp.3 , 7050.0224 subp.2, 7050.0224 subp.2, 7050.0224 subp.3, 7053.0215 subp.1		
Region 5	Minnesota	Cliffs Erie - Dunka Mining Area	MN0042579	7/25/2000	Toxicity	Minnesota Regs: 7053.0215 subp.1		
Region 5	Minnesota	Litchfield WWTP	MN0023973	1/28/1992	CBOD, Unionized Ammonia, DO	Minnesota Regs: 7053.0235, 7050.0220 subp. 3, 7050.0220 subp. 3		
Region 5	Minnesota	Lincoln-Pipestone Rural Water System	MN0064351	12/15/1998	SpecCond, TDS, Salinity	Minnesota Regs: 7050.0224 subp. 2, 7050.0224 subp. 2, 7050.0224 subp. 3		
Region 5	Minnesota	Luverne WWTP	MN0020141	3/26/1985	CBOD, Unionized Ammonia	Minnesota Regs: 7053.0235, 7050.0220 subp.3		
Region 5	Minnesota	MDNR French River Hatchery	MN0004413	11/26/1991	Temp	Minnesota Regs: 7050.0220 subp.3.A, 7050.0222 subp.2		

Region	State	Name of Facility Requiring Variance	Permit Number	Year Granted	Parameter(s)	Justification(s) for Variance*	Length of Variance(s)	Number of Renewals
Region 5	Minnesota	Maple Hill Estates MHP	MN0031127	5/19/1975	No Discharge Zone	Minnesota Regs: 7053.0265		
Region 5	Minnesota	McKinley WWTP	MN0024031	5/23/1989	Phosphorus	Minnesota Regs: 7053.0255 subp.5		
Region 5	Minnesota	Mesabi Nugget Delaware LLC & SDI	MN0067687	8/30/2005	Bicarb, hardness, TDS, Spec Cond	Minnesota Regs: 7050.0224 subp.2, 7050.0223 subp.3, 7050.0224 subp.2, 7050.0224 subp.2		
Region 5	Minnesota	Nerstrand	MN0065668	3/1/2002	DO	Minnesota Regs: 7050.0222 subp.4		
Region 5	Minnesota	Rosemount Wastewater Treatment Facility		4/1/2004	Mercury			
Region 5	Minnesota	United Taconite LLC: Thunderbird Mine	MN0044946	6/22/1999	pH	Minnesota Regs: 7050.0224 subp.2		
Region 5	Minnesota	Southern Minnesota Beet Sugar - Renville	MN0040665	12/29/2004	Bicarb, chloride, sodium%, SpecCond,	Minnesota Regs: 7050.0223 and 7050.0224		
Region 5	Minnesota	Winsted WWTP	MN0021571	2/26/1980	Phosphorus	Minnesota Regs: 7053.0255 subp.3		
Region 5	Minnesota	WLSSD	MN0049786	5/19/1994	Fecal coliform	Minnesota Regs: 7053.0215		
Region 5	Wisconsin	Shawano Specialty Papers	WI-0001341-08	5/1/2009	Mercury, Total Recoverable	substantial and widespread adverse social and economic impacts	From the effective date of the permit reissuance through the end of the permit term (3/31/2014)	
Region 5	Wisconsin	We Energies - Pleasant Prairie Power Plant	WI-0043583-06-1	8/1/2006	Mercury, Total Recoverable	substantial and widespread adverse social and economic impacts	Expiration Date: 6/30/2009	
Region 5	Wisconsin	Bethel Nursing and Rehabilitation Center	WI-0031313-07	3/4/2005	Copper	The standard, as applied to the permitte, will cause substantial and widespread social and economic impacts in the area where the permittee is located	5 years	once on 5/15/2010
Region 5	Wisconsin	Cumberland		2/10/2005	Copper			
Region 5	Wisconsin	Elkmound	WI-0023914-08	12/9/2003	Copper			
Region 5	Wisconsin	Marshfield		6/24/1905	Copper			
Region 5	Wisconsin	Oakdale		5/8/2006	Copper			
Region 5	Wisconsin	Oshkosh		1/8/2007	Mercury			
Region 5	Wisconsin	Phelps		5/31/2007	Copper			
Region 5	Wisconsin	Three Lakes		3/27/2006	Copper			
Region 5	Wisconsin	Devil's Lake State Park	WI-0060241-05	10/21/2007	Mercury			
Region 5	Wisconsin	Dairyland Power Coop Genoa	WI-0003239-8	4/22/2008	Mercury			
Region 5	Wisconsin	City of Waukesha	WI0029971-07-0	5/5/2008	Mercury			
Region 5	Wisconsin	City of Merrill	WI0020150-08	5/5/2008	Mercury			
Region 5	Wisconsin	City of Watertown	WI-00028541-07	8/24/2008	Mercury	substantial and widespread adverse social and economic impacts		

Region	State	Name of Facility Requiring Variance	Permit Number	Year Granted	Parameter(s)	Justification(s) for Variance*	Length of Variance(s)	Number of Renewals
Region 5	Wisconsin	City of Antigo	WI-0022 144-08	12/5/2008	Mercury			
Region 5	Wisconsin	Neenah Menasha Sewerage Commission (NMSC)	WI-0026085-08	2/15/2009	Mercury			
Region 5	Wisconsin	Arcadia Wastewater Treatment Facility (AWTF)	WI-0023230-08	3/22/2009	Mercury	Substantial and widespread adverse social and economic impacts. (NR 106.145(1)(a)) This finding is based on, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," prepared in 1997 by the Ohio Environmental Protection Agency		
Region 5	Wisconsin	Chippewa Falls Wastewater Treatment Facility	WI-0023604-08	3/22/2009	Mercury	Substantial and widespread adverse social and economic impacts. (NR 106.145(1)(a)) This finding is based on, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," prepared in 1997 by the Ohio Environmental Protection Agency	12/31/2013	
Region 5	Wisconsin	Wisconsin Rapids Wastewater Treatment Plant (WRWTP)	WI-0025844-08	5/26/2009	Mercury	Substantial and widespread adverse social and economic impacts. (NR 106.145(1)(a)) This finding is based on, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," prepared in 1997 by the Ohio Environmental Protection Agency		
Region 5	Wisconsin	Whitewater Treatment Plant	WI-0020001-08	5/26/2009	Mercury			
Region 5	Wisconsin	City of Burlington	WI-00229 26-08	6/19/2009	Mercury			
Region 5	Wisconsin	City of Rice Lake Wastewater Treatment Plant (RLWTP)	WI-0021865-08	7/25/2009	Mercury	Substantial and widespread adverse social and economic impacts. (NR 106.145(1)(a)) This finding is based on, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," prepared in 1997 by the Ohio Environmental Protection Agency		
Region 5	Wisconsin	Grand Chute-Menasha West Sewerage Commission (GCMWSC)	WI-0024686-07	7/25/2009	Mercury	Substantial and widespread adverse social and economic impacts. (NR 106.145(1)(a)) This finding is based on, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," prepared in 1997 by the Ohio Environmental Protection Agency		

Region	State	Name of Facility Requiring Variance	Permit Number	Year Granted	Parameter(s)	Justification(s) for Variance*	Length of Variance(s)	Number of Renewals
Region 5	Wisconsin	City of Menomonie	WI-0024708-08	8/8/2009	Mercury	Technically and economically infeasible (NR 106.145(1)(a)) This finding is based on, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," prepared in 1997 by the Ohio Environmental Protection Agency		
Region 5	Wisconsin	Cascades Tissue Group Wisconsin Inc. (CTG)	WI-0003077-08	11/10/2009	Mercury	Substantial and widespread adverse social and economic impacts. (NR 106.145(1)(a)) This finding is based on, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," prepared in 1997 by the Ohio Environmental Protection Agency		
Region 5	Wisconsin	City of La Crosse	WI-0029581-08-0	11/29/2009	Mercury			
Region 5	Wisconsin	City of Beloit	WI-0023370-08	12/1/2009	Mercury	Substantial and widespread adverse social and economic impacts. (NR 106.145(1)(a)) This finding is based on, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," prepared in 1997 by the Ohio Environmental Protection Agency		
Region 5	Wisconsin	Madison Metropolitan Sewerage District (MMSD)	WI-0024597-08	12/1/2009	Mercury			
Region 5	Wisconsin	Packaging Corporation ofAmerica (PCA)	WI-0002810-08-0	2/2/2010	Mercury			
Region 5	Wisconsin	Wisconsin Pulic Service Corporation	WI-0042765-07	3/8/2010	Mercury	Technically and economically infeasible (NR 106.145(1)(a)) This finding is based on, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," prepared in 1997 by the Ohio Environmental Protection Agency	12/31/2014	
Region 5	Wisconsin	Village of Cleveland's Wastewater Treatment Facility (WTF)	WI-0030848-08	4/9/2010	Arsenic	substantial adverse economic impact to the Village of Cleveland		
Region 5	Wisconsin	City of River Falls	WI0029394-08-0	5/8/2010	Mercury	Substantial and widespread adverse social and economic impacts. (NR 106.145(1)(a)) This finding is based on, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," prepared in 1997 by the Ohio Environmental Protection Agency		

Region	State	Name of Facility Requiring Variance	Permit Number	Year Granted	Parameter(s)	Justification(s) for Variance*	Length of Variance(s)	Number of Renewals
Region 5	Wisconsin	City of Peshtigo	WI-0030651-07	7/2/2010	Mercury	Substantial and widespread adverse social and economic impacts. (NR 106.145(1)(a)) This finding is based on, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," prepared in 1997 by the Ohio Environmental Protection Agency	Less than 5 years until 6/30/2014	
Region 5	Wisconsin	Lake Delton Sewerage Commission	WI-0032402-06	7/5/2010	Mercury	Substantial and widespread adverse social and economic impacts. (NR 106.145(1)(a)) This finding is based on, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," prepared in 1997 by the Ohio Environmental Protection Agency		
Region 5	Wisconsin	Prairie du Chien		7/9/2010	Mercury			
Region 5	Wisconsin	City of Hudson	WI-0024279-08	7/23/2010	Mercury	Substantial and widespread adverse social and economic impacts. (NR 106.145(1)(a)) This finding is based on, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," prepared in 1997 by the Ohio Environmental Protection Agency	5 years/life of permit	
Region 5	Wisconsin	Thilmany LLC		7/23/2010	Mercury			
Region 5	Wisconsin	Nelson Dewer Power Generating Station		8/1/2010	Mercury			
Region 5	Wisconsin	Western Racine County Sewerage District	WI-0028754-08-0	8/3/2010	Mercury	substantial and widespread adverse social and economic impacts." (NR 106.145(1)(a» This fmding is based on a report prepared in 1997 by the Ohio Envjronmental Protection Agency, Foster Wheeler Environmental Corporation and DRIIIMcGraw-Hill in support of the multiple discharger variance adopted by the State of Ohio		
Region 5	Wisconsin	Heart of the Valley MSD		8/13/2010	Mercury			
Region 5	Wisconsin	City of Jefferson POTW		8/29/2010	Mercury			
Region 5	Wisconsin	City of Appleton		9/11/2010	Chloride			
Region 5	Wisconsin	City of Appleton Wastewater Treatment Facility (Appleton)	WI-0023221-07	9/14/2010	Mercury			
Region 5	Wisconsin	Trega Foods		10/1/2010	Chloride			
Region 5	Wisconsin	NewPage Wisconsin System, Inc.		11/22/2010	Mercury			

Region	State	Name of Facility Requiring Variance	Permit Number	Year Granted	Parameter(s)	Justification(s) for Variance*	Length of Variance(s)	Number of Renewals
Region 5	Wisconsin	LSP-Whitewater	WI-0049069-04-0	11/26/2010	Mercury	Substantial and widespread adverse social and economic impacts. (NR 106.145(1)(a)) This finding is based on, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," prepared in 1997 by the Ohio Environmental Protection Agency	5 years/life of permit	
Region 5	Wisconsin	Kieler Sanitary District #1		11/27/2010	Chloride			
Region 5	Wisconsin	City of Chilton		11/27/2010	Chloride			
Region 5	Wisconsin	Village of Potter		11/27/2010	Chloride			
Region 5	Wisconsin	Madison Metropolitan Sewarage District		11/27/2010	Mercury			
Region 5	Wisconsin	Village of Kewaskum		11/27/2010	Chloride			
Region 5	Wisconsin	City of Brillion		11/27/2010	Chloride			
Region 5	Wisconsin	City of New Holstein		11/27/2010	Chloride			
Region 5	Wisconsin	Village of Dickeyville		11/27/2010	Chloride			
Region 5	Wisconsin	Pell Lake SD		11/27/2010	Chloride			
Region 5	Wisconsin	Wausau Water Works POTW	WI-0025739-08	12/20/2010	Mercury	Substantial and widespread adverse social and economic impacts. (NR 106.145(1)(a)) This finding is based on, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," prepared in 1997 by the Ohio Environmental Protection Agency		
Region 5	Wisconsin	Rib Mountain Metropolitan Sewage District	WI0035581-06	12/20/2010	Mercury	Substantial and widespread adverse social and economic impacts. (NR 106.145(1)(a)) This finding is based on, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," prepared in 1997 by the Ohio Environmental Protection Agency	4 years and 10 months (life of the permit)	
Region 5	Wisconsin	CelluTiossue City Forest LLC	WI-0003204-08	1/15/2011	Mercury	Substantial and widespread adverse social and economic impacts. (NR 106.145(1)(a)) This finding is based on, "Assessing the Economic Impacts of the Proposed Ohio EPA Water Rules on the Ohio Economy," prepared in 1997 by the Ohio Environmental Protection Agency		
Region 5	Wisconsin	City of Marshfield	WI-0021024-07-0	2/4/2011	Copper			

Region	State	Name of Facility Requiring Variance	Permit Number	Year Granted	Parameter(s)	Justification(s) for Variance*	Length of Variance(s)	Number of Renewals
Region 5	Ohio	Statewide Mercury Variance	Multiple facilities?	4/1/2007	Mercury			
Region 6	Louisiana	NA - Sauls Canal		9/19/2003	Chlorides			
Region 6	New Mexico	None.						
Region 6	Oklahoma	None.						
Region 6	Arkansas	None.						
Region 6	Texas	ConocoPhillips	01064	9/11/2006	Selenium	Facility conducted a study to evaluate whether site-specific aquatic life criteria are appropriate and what values would be protective. Study results indicate that site-specific criteria may not be appropriate and any request for variance extension will likely not be approved.	3 years	
Region 6	Texas	TXU Electric	00945	7/3/2001	Copper	The TXU Electric Company (Permit No. 00945) developed site-specific aquatic life criteria for copper, which were later approved by EPA	3 years	
Region 6	Texas	Lamar Power Project	04127	1/14/2003	Aluminum	Facility initiated a WER study for aluminum, but subsequently developed a site-specific partitioning coefficient for aluminum following TCEQ permitting procedures (i.e., no revisions to WQS or requests for variance extensions).	3 years	
Region 6	Texas	SWEPCO	01811	1/14/2000 and 11/6/2003	Aluminum	Southwestern Electric Power Company developed a site-specific aquatic life criterion for aluminum, which was later approved by EPA.	3 years	1
Region 6	Texas	City of Mount Pleasant	10575	4/4/2006	Copper	The City of Mount Pleasant developed site-specific criteria for copper, which were later approved by EPA.	3 years	
Region 6	Texas	City of Kilgore	10201	7/3/2001	dissolved oxygen	A UAA was conducted to evaluate the aquatic life use and dissolved oxygen criteria. Use and criteria revisions were later approved by EPA.	3 years	
Region 6	Texas	Honeywell International, Inc.	00670	6/24/2003	Copper	Honeywell developed site-specific criteria for copper, which were later approved by EPA.	3 years	
Region 6	Texas	International Paper	01902	1/14/2003	Aluminum	International Paper developed a site-specific criteria for aluminum which was later approved by EPA	3 years	

Region	State	Name of Facility Requiring Variance	Permit Number	Year Granted	Parameter(s)	Justification(s) for Variance*	Length of Variance(s)	Number of Renewals
Region 6	Texas	Bevil Oaks MUD	11551	6/17/2003 and 10/6/2006 renewal	Dissolved Oxygen	A UAA has been initiated for Pine Island Bayou and is estimated to take two to three years to complete. The variance extension was requested and approved because sampling was delayed during several years due to hurricanes and other storm events	3 years	1
Region 6	Texas	City of Kountze	10203	6/17/2003	Dissolved Oxygen	A UAA to evaluate site-specific dissolved oxygen criteria for this water body was conducted. No revisions to uses or criteria were made.	3 years	
Region 6	Texas	City of Nederland	10483	7/5/2000	Dissolved Oxygen	A UAA was conducted to evaluate site-specific dissolved oxygen criteria, which were later approved by EPA.	expired 11/11/02	
Region 6	Texas	City of Crockett	10154	9/26/2001, 3/24/2004, and 10/16/2007	Dissolved Oxygen	Receiving water assessments for these water bodies have demonstrated that both Town Branch and Hurricane Bayou can only support intermediate aquatic life uses with corresponding dissolved oxygen criteria of 4 mg/l. A use attainability analysis is under development and site-specific standards will be considered for adoption in the next triennial revision.	3 years	2
Region 6	Texas	Texas Utilities Steam Electric	01251	1/14/2000	Aluminum, Copper	Texas Utilities Electric Company is developed site-specific criteria for copper, which were later approved by EPA. Aluminum may have been addressed with a partitioning coefficient. Facility has since gone offline.	3 years	
Region 6	Texas	TXU Electric	00555	2/7/2000	Copper	TXU developed site-specific criteria for copper, which were later approved by EPA.	3 years	

Region	State	Name of Facility Requiring Variance	Permit Number	Year Granted	Parameter(s)	Justification(s) for Variance*	Length of Variance(s)	Number of Renewals
Region 6	Texas	City of Newark	11626	9/26/2006	Dissolved Oxygen	The TCEQ reviewed dissolved oxygen data from other backwater areas of Eagle Mountain Reservoir that resemble the Derrett Creek arm but do not receive domestic wastewater discharges. These data indicate that the current dissolved oxygen criterion of 5.0 mg/l is not always met, even in those areas that do not have municipal point-source inputs. A study to evaluate site-specific dissolved oxygen criteria for the Derrett Creek arm of the reservoir will be conducted during the three-year variance.	3 years	
Region 6	Texas	Upper Trinity Regional Water District	14323	1/24/2008	Copper	UTRWD developed site-specific criteria for copper, which are "approvable" once public participation process is completed.		
Region 6	Texas	Trinity River Authority	13457	9/24/2007	Dissolved Oxygen	TCEQ is currently conducting a statewide study on dissolved oxygen levels in transition zones of creeks and reservoirs. EPA will review any recommended revisions to the aquatic life uses and dissolved oxygen criteria upon submittal of the study.	3 years	
Region 6	Texas	City of Grapevine	10486	10/5/2007	Dissolved Oxygen	TCEQ is currently conducting a statewide study on dissolved oxygen levels in transition zones of creeks and reservoirs. In addition, the City of Grapevine may conduct a separate study of Morehead Cove.	3 years	
Region 6	Texas	City of Weatherford	10380	6/19/2007	Dissolved Oxygen	A use attainability analysis has been conducted which indicates that an intermediate aquatic life use is appropriate for Town Creek. The intermediate aquatic life use will be included in TCEQ's next triennial revision.	3 years	

Region	State	Name of Facility Requiring Variance	Permit Number	Year Granted	Parameter(s)	Justification(s) for Variance*	Length of Variance(s)	Number of Renewals
Region 6	Texas	City of Corsicana	10402	3/22/2005 and 7/8/2008	Dissolved Oxygen	In its request for the original variance (2005), the City conducted a preliminary water quality study in backwater areas of segment 0836, including Post Oak Creek. The data collected indicated that backwater areas in the Richland-Chambers Reservoir may not support the dissolved oxygen criterion of 5.0 mg/l. This water body is also part of an ongoing state-wide study to refine dissolved oxygen criteria in the transition zones of reservoirs.	3 years	1
Region 6	Texas	Oxy Vinyls L.P.	01539	1/31/2007	Nickel	Oxy Vinyls L.P developed site-specific criteria for nickel, which are "approvable" once public participation process is completed (anticipated spring 2011).	3 years	
Region 6	Texas	Rohm & Haas	00458	9/26/2001	Copper	Facility developed site-specific criteria for copper, which were later approved by EPA.	3 years	
Region 6	Texas	Reliant Energy	01031	9/26/2001	Copper	Facility developed site-specific criteria for copper, which were later approved by EPA.	3 years	
Region 6	Texas	San Jacinto River Authority	12597	1/14/2003	Copper	Facility developed site-specific criteria for copper, which were later approved by EPA.	3 years	
Region 6	Texas	Richfield Investment Corp.	13636	3/25/2004	Dissolved Oxygen	TCEQ conducting UAA to evaluate aquatic life use and dissolved oxygen criteria.	3 years	
Region 6	Texas	Faulkey Gully MUD	11832	9/26/2001	Dissolved Oxygen	TCEQ conducting UAA to evaluate aquatic life use and dissolved oxygen criteria.	3 years	
Region 6	Texas	Harris County MUDs	12209, 12809, 12834	3/6/2000	Dissolved Oxygen	A UAA was conducted to evaluate the aquatic life use and dissolved oxygen criteria. Use and criteria revisions were later approved by EPA.	3 years	
Region 6	Texas	Tex-Sun Parks, L.C	12189	12/11/2000	Dissolved Oxygen	A UAA was conducted to evaluate the aquatic life use and dissolved oxygen criteria. Use and criteria revisions were later approved by EPA.	3 years	
Region 6	Texas	W. Harris County MUD No. 15	12223	9/26/2001	Dissolved Oxygen	A UAA was conducted to evaluate the aquatic life use and dissolved oxygen criteria. Use and criteria revisions were later approved by EPA.	3 years	

Region	State	Name of Facility Requiring Variance	Permit Number	Year Granted	Parameter(s)	Justification(s) for Variance*	Length of Variance(s)	Number of Renewals
Region 6	Texas	Mayde Creek MUD	11969	9/26/2001	Dissolved Oxygen	A UAA was conducted to evaluate the aquatic life use and dissolved oxygen criteria. Use and criteria revisions were later approved by EPA.	3 years	
Region 6	Texas	Westlake	11284	9/26/2001	Dissolved Oxygen	A UAA was conducted to evaluate the aquatic life use and dissolved oxygen criteria. Use and criteria revisions were later approved by EPA.	3 years	
Region 6	Texas	Rolling Creek Utility District	12841	9/26/2001	Dissolved Oxygen	A UAA was conducted to evaluate the aquatic life use and dissolved oxygen criteria. Use and criteria revisions were later approved by EPA.	3 years	
Region 6	Texas	TX Dept. of Criminal Justice	13804	8/9/2007	Dissolved Oxygen	Use of site-specific flows evaluated and later approved. (Variance also included in 2004 permit.).	3 years	1
Region 6	Texas	City of Clute	10044	10/28/2005	Dissolved Oxygen	TCEQ is conducting a study to evaluate whether or not a lower aquatic life use and dissolved oxygen criterion for Flag Lake Drainage Canal are-appropriate. (Variance also included in 2008 permit).	3 years	1
Region 6	Texas	City of Graham	10487	1/27/2010	Dissolved Oxygen	A UAA is under development to evaluate aquatic life use and dissolved oxygen criteria.	3 years	
Region 6	Texas	City of Cleburne	10006	2/2/2007 and 7/10/2010	Chlorides, Sulfates, TDS	Site-specific criteria were developed and adopted by TCEQ. WQS revisions have been submitted to EPA.	3 years	1
Region 6	Texas	TXU Electric	00954	2/7/2000	Copper	Facility developed site-specific criteria for copper, which were later approved by EPA.	3 years	
Region 6	Texas	City of Corpus Christi	10401	11/6/2002	Dissolved Oxygen	A UAA was conducted to evaluate the aquatic life use and dissolved oxygen criteria. Use and criteria revisions were later approved by EPA.	3 years	
Region 6	Texas	City of San Benito	10473	7/5/2000	Dissolved Oxygen	A UAA was conducted to evaluate the aquatic life use and dissolved oxygen criteria. Use and criteria revisions were later approved by EPA.	3 years	
Region 6	Texas	Natural Gas Odorizing, Inc.	01385	6/2/2006	Zinc	Natural Gas Odorizing, Inc. is conducting a study for site-specific aquatic life criteria.	3 years	
Region 6	Texas	City of Alvin	10005	9/21/2004	Dissolved Oxygen	A UAA was conducted to evaluate the aquatic life use and dissolved oxygen criteria. Use and criteria revisions were later approved by EPA.	3 years	

Region	State	Name of Facility Requiring Variance	Permit Number	Year Granted	Parameter(s)	Justification(s) for Variance*	Length of Variance(s)	Number of Renewals
Region 6	Texas	McAllen	10633	7/3/2001	Dissolved Oxygen	A UAA was conducted to evaluate the aquatic life use and dissolved oxygen criteria. Use and criteria revisions were later approved by EPA.	3 years	
Region 7	Iowa	None.						
Region 7	Kansas	None.						
Region 7	Missouri	None.						
Region 7	Nebraska	None.						
Region 8	Colorado	None.						
Region 8	Utah	None.						
Region 8	Montana	None.						
Region 8	Wyoming	None.						
Region 8	North Dakota	None.						
Region 8	South Dakota	None.						
Region 9	Arizona	Central and Camelback WQARF Registry Site	AZ0024848	Approved 2/12/2008, Permit issued 2/2/08	Boron	Naturally occurring boron levels. ADEQ contends that the installation and operation of each ofthe available discharge technologies to achieve compliance with the water quality standard would result in substantial economic impact to ADEQ's WQARFprogram.	Length of the Permit (5 years); reviewed every 3 years as part of Arizona's triennial review	
Region 9	Arizona	Canyon Creek Fish Hatchery	AZ0021229	Preliminary approval: 6/03/2010; Final approval not yet issued.	Total N and Total P	Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place.	Length of the Permit (5 years); reviewed every 3 years as part of Arizona's triennial review	
Region 9	Arizona	City of Show Low		Under review; preliminary approval not yet issued.	Selenium	Economic Variance	Length of the Permit (5 years); reviewed every 3 years as part of Arizona's triennial review	
Region 9	Arizona	North Gila Sanitation District	AZ0020117	Under review; preliminary approval not yet issued.	Total N and Total P	Economic Variance	Length of the Permit (5 years); reviewed every 3 years as part of Arizona's triennial review	
Region 9	Arizona	Pinetop Lakeside	AZ 0025437	Variance approved December 2006, permit issued January 2007	Phosphorus (limit 0.16 mg/L)	Discharge to constructed and bermed wetlands	Length of the Permit (5 years); reviewed every 3 years as part of Arizona's triennial review	

Region	State	Name of Facility Requiring Variance	Permit Number	Year Granted	Parameter(s)	Justification(s) for Variance*	Length of Variance(s)	Number of Renewals
Region 9	Arizona	Lake Roosevelt	AZ23787	Variance approved 11/19/2007; Permit issued 10/18/2007	Total N, Total P: Variance from Total N (0.3 mg/L) and Total P (0.03 mg/L) limits	Economic Variance	Length of the Permit (5 years); reviewed every 3 years as part of Arizona's triennial review	
Region 9	Arizona	Flagstaff Meadows		6/6/2008	N & P	Economic Variance	Length of the Permit (5 years); reviewed every 3 years as part of Arizona's triennial review	
Region 9	Arizona	Houston Creek Landing WWTP	AZ0025305	Approved 5/28/2008, variance issued 6/2/2008	Total N and Total P	Economic Variance	Length of the Permit (5 years); reviewed every 3 years as part of Arizona's triennial review	
Region 9	Arizona	Cottonwood		Approved 4/22/2009	N & P	Economic Variance	Length of the Permit (5 years); reviewed every 3 years as part of Arizona's triennial review	
Region 9	Arizona	Jerome	AZ0021804	Preliminary approval: 7/27/2007; permit issued 10/23/2007	Total N and Total P		Length of the Permit (5 years); reviewed every 3 years as part of Arizona's triennial review	
Region 9	California	None.						
Region 9	Hawaii	None.						
Region 9	Nevada	None.						
Region 10	Oregon	None.						
Region 10	Washington	None.						
Region 10	Idaho	City of Smelterville	ID-002011-7	2004	Cd, Zn, Pb	high levels of metals entering treatment plants through inflow and infiltration, utility cannot meet discharge limits, negative widespread socioeconomic impact	8/1/2004 - 8/1/2009; renewed expires 7/30/2014	1
Region 10	Idaho	Page WWTP	ID-002130-0	2004	Cd, Zn, Pb	high levels of metals entering treatment plants through inflow and infiltration, utility cannot meet discharge limits, negative widespread socioeconomic impact	8/1/2004 - 8/1/2009; renewed expires 7/30/2014	1
Region 10	Idaho	Mullen WWTP	ID-002129-6	2004	Cd, Zn	high levels of metals entering treatment plants through inflow and infiltration, utility cannot meet discharge limits, negative widespread socioeconomic impact	8/1/2004 - 8/1/2009; renewed expires 7/30/2014	1
Region 10	Alaska	None.						

* Note for Region 6: Justification in application for variance was: (1) preliminary round of toxicity testing for WER study if request applied to aquatic life criteria for metals; (2) documentation of field observations if request applied to dissolved oxygen criteria; or (3) other information for requests on minerals or selenium.

Appendix B
Examples: Variance Application Forms

Example Chloride Variance Application for Wisconsin

State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Chloride Variance Application

Notice: Information requested is required for the Department to determine whether or not to grant a variance under the provisions of sections NR 106.80 through 106.96, Wis. Adm. Code. Failure to provide all of the requested information may result in denial of your application. Personal information collected will be used to administer the watershed program and may be provided to requesters as required by Wisconsin's Open Records law [ss. 19.31-19.39, Wis. Stats.]

Applicant Information

Company Name			Contact Name	
WPDES Permit No.			Street Address	
Facility Name			City	State / ZIP Code
Street Address			Telephone Number (include area code)	FAX Number
City	State	ZIP Code	E-mail Address	
Receiving Water			Average Discharge Flow Rate	

Capital Cost

Have you done a study to determine the capital cost of end-of-pipe chloride removal for your facility?

☐ Yes - Please include the information with this worksheet or mail it with the signature portion of the permit application.

☐ No - Please complete this estimate of relative capital cost:

Chloride Removal Capital Cost:

$1.125 x Annual Average Design Flow (in MGD) X 1,000,000 = _____

Chloride Removal as a Percentage of Annual Capital Cost:

$$\frac{\text{Chloride Removal Capital Cost } \textit{(from above)}}{\text{Capital Cost of Current Wastewater Facility}} \times 100 = \_\_\_\_\_\ \%$$

Operational (O&M) Cost Based on the Cost Estimate

Have you done a study to determine the annual O & M cost of end-of-pipe chloride removal for your facility?

☐ Yes - Please include the information with this worksheet or mail it with the signature portion of the permit application.

☐ No - Please complete this estimate of relative O&M cost:

Chloride Removal O&M Cost:

($1.00 x Annual Average Design Flow (in MGD) x 1000 x 365) = _____

Chloride Removal as a Percentage of Annual O&M Cost:

$$\frac{\text{Chloride Removal O\&M Cost } \textit{(from above)}}{\text{O\&M Costs of Current Wastewater Facility}} \times 100 = \_\_\_\_\_\ \%$$

Treatment Facility Information

Do you know of a facility that could accept for treatment the concentrated brine solution that would result from end-of-pipe chloride treatment? ☐ Yes ☐ No	If yes, Name of Facility

The information in the following questions is requested to assist the permittee and the Department in determining appropriate effluent values or limitations, compliance schedules and source reduction measures.

Sample Information

Have you sampled at least eleven effluent samples for chloride over the course of at least a year? ☐ Yes ☐ No

For Municipalities Only	Yes	No
a) Have you identified industrial contributors of chloride to your sewer system?		
b) Have you requested voluntary reductions of chloride from any industrial users to your sewer system?		
c) Have you instituted sewer use ordinances regulating or limiting the discharge of chloride from significant industrial users?		
d) Does your community have centralized softening of source water through a water utility?		
e) Have you determined typical concentrations of chloride from domestic users of your sewer system?		
f) Does your community implement a public information program on proper maintenance and improved efficiency of residential softeners?		
g) Have you implemented local ordinances to mandate the use of efficient softeners?		

For Industry Only	Yes	No
a) Is privately softened water, use of brine, or use of salt integral to your production process?		
b) Do you operate a private softener for your industrial process?		
c) Have you optimized operation of your water softener (adjustment of regeneration interval, salt dosage, replacement of backwash controller)?		
d) Have you determined which industrial processes can be run without softened water?		
e) Have you implemented practices to reduce or reuse any brine solutions or softened water in your industrial process?		
f) Have you implemented housekeeping practices to reduce spillage of any brine solutions, or to minimize the contribution of salt to the wastewater treatment system?		

Additional Information or Comments

Certification

Based on the information provided, I believe that attainment of the applicable water quality standards for chloride may cause substantial and widespread adverse social and economic impacts in the area where this discharge is located. I understand that, as a condition of the variance, the Department and the permittee will need to agree upon an interim effluent limitation, a target value or target limitation, and a compliance schedule to implement source reduction. I understand that these conditions will be included in the WPDES permit issued to this facility.

I certify that the information provided is true, accurate and complete.

Individual Submitting Request (Individual must be an Authorized Representative)	Title

Signature of Official	Date Signed

Example Mercury Variance Application for Wisconsin

State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Mercury Variance Application

Form 3400-192 (R 4/06)

Notice: Information requested is required for the Department to determine whether or not to grant a variance under the provisions of section NR 106.145, Wis. Adm. Code. Failure to provide all of the requested information may result in denial of your application. Personal information collected will be used to administer the watershed program and may be provided to requesters as required by Wisconsin's Open Records law [ss. 19.31-19.39, Wis. Stats.]

Applicant Information

Company Name			Contact Name	
WPDES Permit No.			Street Address	
Facility Name			City	State / ZIP Code
Street Address			Telephone Number (include area code)	FAX Number
City	State	ZIP Code	E-mail Address	
Receiving Water		Source of Water Supply		Average Discharge Flow Rate

Alternatives

What are the primary sources of mercury to your facility?

What feasible actions (e.g. pollution prevention or installation of treatment) have you taken and could you take to reduce mercury discharge levels sufficiently to meet, or make progress toward meeting, the water quality based effluent limit?

What types of waste materials or byproducts would be produced by these steps and what would be the ultimate means of disposal of those wastes?

What are the estimated costs of these actions?	How do these costs compare with current costs?
Capital $_____	
Annual Operational $_____	

If this is a new discharge, what danger to public health or welfare would this variance help alleviate?

Pollutant Minimization Program (PMP)

If you have not previously submitted a PMP plan, submit it with this application or provide an explanation of why you cannot submit it now. If you have already submitted the plan or have begun to implement the PMP program, provide an update on your actions and success implementing the PMP.

Other Information

Supply any other information that you believe may be relevant to your request.

Test Data: Supply mercury data on page 2 of this form.

Certification

Based on the information provided, I believe that attainment of the applicable water quality standards for mercury may cause substantial and widespread adverse social and economic impacts in the area where this discharge is located. I understand that, as a condition of the variance, the Department and the permittee will need to agree upon an alternative effluent limitation and specific language incorporating the PMP. I understand that these conditions will be included in the WPDES permit issued to this facility.

I certify that the information provided is true, accurate and complete.

Individual Submitting Request (Individual must be an Authorized Representative)	Title
Signature of Official	Date Signed

Mercury Data to Support Variance Request or Determination of Reasonable Potential

Make additional copies if necessary.

Sample Date	Sample Type*	Laboratory Results of Testing (express all results in ng/L)						Laboratory Name
		Treatment System Influent (if tested)	Intake (if water supply is surface water)	Effluent to Surface Water	Field Bank	Limit of Detection (LOD)	Limit of Quantitation (LOQ)	

*Describe sample type as composite or grab for all samples.

Appendix C
Examples: Memorandums of Agreement (MOAs)

Arizona MOA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

MEMORANDUM

DATE: **REVISED June 1, 2010**

SUBJECT: **Guidelines for EPA review and approval of water quality standards variances issued by the Arizona Department of Environmental Quality**

FROM: **Karin Graves, USEPA Region 9, Standards and TMDLs Office**

TO: **Debra Daniel, Arizona Department of Environmental Quality**

A water quality standards variance may be issued to allow a short-term exemption from meeting certain otherwise applicable water quality standards (WQS).

EPA authorizes States and Tribes to include variances in their water quality standards. (see 40 CFR 131.13). Agency guidance on variances identifies what the Agency believes to be the essential elements of a variance. EPA may approve the use of variances when the state demonstrates that the following items are fulfilled:

- the variance is subject to the same public review as other changes in WQS (the variance may be public noticed for review and comment with the draft permit);
- a variance should be granted only where there is a demonstration that one of the use removal factors (40 CFR 131.10(g)) has been satisfied;
- a variance is granted to an individual discharger for a specific pollutant(s) and does not otherwise modify the standards;
- a variance identifies and justifies the numerical criteria that will apply during the existence of the variance;
- a variance is established as close to the underlying numerical criteria as is possible;
- a variance is reviewed every three years, at a minimum, and extended only where the conditions for granting the variance still apply;
- upon expiration, of the variance, the underlying numerical criteria have full regulatory effect;
- a variance does not exempt the discharger from compliance with applicable technology or other water quality-based limits, and advanced treatment and alternative effluent control strategies have been considered; and
- a variance does not affect effluent limitations for other dischargers. (65 FR 129 p 36759, July 8, 1998).

ADEQ has incorporated variance provisions into the State's water quality standards at R18-11-122 that meet EPA requirements.

In order to review and approve water quality variances issued by ADEQ, EPA Region IX proposes the following steps:

1. ADEQ will send EPA a variance package including: A letter from ADEQ with technical justification for the variance and demonstration that it meets the items listed above, the request for variance submitted by the permittee (consistent with the requirements of R18-11-222 E) and a draft permit fact sheet.
2. EPA will review the variance application and raise any concerns to ADEQ prior to public notice. EPA will review the variance for consistency with meeting the provisions of Arizona water quality standards, consistency with 131.10(g) factors, and the extent of risk to human health and the environment resulting from variance approval.
3. EPA will review the variance application for potential effects to endangered species that would be likely to jeopardize the continued existence of any endangered or threatened species listed under Section 4 of the Endangered Species Act (ESA) or result in the destruction or adverse modification of such species' critical habitat. If necessary, EPA will prepare a biological evaluation for the Fish & Wildlife Service and obtain concurrence for EPA approval.
4. If applicable, EPA will provide preliminary approval of the variance.
5. ADEQ will public notice the draft permit with justification for the variance contained in the Fact Sheet.
6. After the close of the comment period, ADEQ will provide EPA with: a final permit fact sheet with the variance language included, public notice document, any comments received on the variance, and response to comments received on the variance.
7. EPA will issue letter of approval for the variance, if appropriate.
8. ADEQ will issue the final NPDES permit, as appropriate.

New York MOA

III. Variances

1. The NYSDEC has revised its regulations at 6 NYCRR '702.17 to enable the State to grant variances similar to those allowed in 40 C.F.R. Part 132, Appendix 6, Procedure 2 of the GLWQG. To ensure that any variance granted pursuant to 6 NYCRR '702.17 is consistent with and as protective of water quality as variances that would be issued under 40 C.F.R. Part 132 Appendix 6, Procedure 2, EPA and NYSDEC agree as follows:

2. Upon receipt of a complete SPDES application in accordance with 6 NYCRR 621, which includes a request for a variance, NYSDEC shall submit a copy of such request to Region II.

3. If NYSDEC determines that the variance request should be issued in accordance with the requirements of 6 NYCRR Part 702.17, it shall submit a draft permit and explanation of how the variance, if issued, will be as protective as a variance issued in accordance with 40 C.F.R. Part 132 Appendix 6, Procedure 2, to EPA Region II on or before the date it notices said permit and variance request in the State=s Environmental Notice Bulletin.

4. EPA Region II shall be granted at least 30 days, but no longer than the public comment period, to review and comment on NYSDEC=s explanation that the variance would be as protective as a variance issued in accordance with the GLWQG.

5. In the event that EPA provides comments on the proposed application, NYSDEC shall consider EPA=s comments to the explanation and proposed variance and prepare a written response to EPA=s comments.

6. Upon submission of NYSDEC=s response to EPA Region=s comments on the explanation, EPA shall have 30 days to provide additional comments.

7. Nothing in this MOA obviates the NYSDEC=s obligations to conform with the public notice, comment and hearing requirements contained in its regulations at 6 NYCRR Parts 621 and 624.

8. If EPA determines that the explanation provided by NYSDEC does not demonstrate that the granting of a variance pursuant to 6 NYCRR Section 702.17 would be as protective as that which would be required by 40 C.F.R. Part 132, Appendix F, Procedure 2, it may object to the issuance of such variance in the permit as being outside the guidelines and requirements of the Act. If EPA determines that the explanation supporting the issuance of the variance demonstrates the variance is as protective as that which would be required by 40 C.F.R. Part 132, Appendix F, Procedure 2, EPA will not object to the issuance of the permit or modification based solely on the grounds that the permit contains a variance to a water quality-based effluent limit.

9. In accordance with the Environmental Benefit Permit Strategy (EBPS), NYSDEC will give priority review for any permit containing a variance granted under 6 NYCRR Section 702.17 to assess whether there is new information which indicates that the standard in question is achievable.

Appendix D
Example: Process Diagram of Roles and Responsibilities

(The following is an excerpt from EPA Region 7's guidance for variances for water quality standards. The guidance reflects Regional suggestions and is not intended to reflect national policy.)

SUBMITTAL CHECKLIST

Item	Description	Date Sent by State (mm/dd/yyyy)	Date EPA-R7 Received (mm/dd/yyyy)	Complete? (Y/N)	If not complete, date notified (mm/dd/yyyy)	In not complete, date resubmitted (mm/dd/yyyy)	Additional Comments
a	Submittal letter						
b.i	131.10(g) factor						
b.ii	Designated use and supporting criteria						
b.iii	Advanced treatment and alternatives considered						
b.iv	Reasonable and necessary time period						
b.v	Interim milestones, if applicable						
b.vi	Triennial review statement						
c.i	Variance application						
c.ii	Permit cover page						
c.iii	Effluent limitations						
c.iv	Variance language in permit conditions						
d.i	Notice of draft permit						
d.ii	Relevant state approval documents						
d.iii	Public notice affidavit						
d.iv	Comments and responses						
d.v	Fulfilled public participation						
e.i	Purpose/intent						
e.ii	Uses and criteria rationale						
e.iii	Monitoring and assessment tracking						

EPA INTERNAL CHECKLIST

The EPA Water Quality Standards Coordinator scans copies of all the information and place it in the Variance folder on the shared network drive for the Water, Wetlands, and Pesticides Division, and notifies the NPDES Permits Coordinators (Region and state) that a variance package has been received. The Water Quality Standards Coordinator notes submittal dates on the Submittal Checklist (see attached) and maintains a copy in the folder on the shared network drive. (H:\WQMB\Water Quality Standards\Variances\[State Name])

Description	**Date Completed (mm/dd/yyyy)**	**Additional Comments**
Submittal copied to H: drive		
Submittal sent to USFWS		
Regional and state Permits Coordinators notified		
Review comments received from Permits Coordinators		
Biological evaluations submitted to USFWS		
Response received from USFWS		Concurrence? Y / N
Response to state and reviewed by Permits Coordinators		
Response to state sent		

Appendix E
Examples: EPA Approval Letters for Variances

Example EPA Approval Letter for Discharges of Metals from the Cities of Page, Mullan, and Smelterville Wastewater Treatment Plants in Idaho

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF
WATER AND WATERSHEDS

JUL 22 2009

Mr. Barry Burnell, Administrator
Water Quality Programs
Idaho Department of Environmental Quality
1410 North Hilton
Boise, Idaho 83706-1255

Re: Approval of Idaho's Granting of Renewed Variances to Idaho's Water Quality Standards for the Discharges of Metals from the Cities of Page, Mullan and Smelterville Wastewater Treatment Plants, Docket 58-0000-0903

Dear Mr. Burnell:

Pursuant to its authority under Section 303(c) of the Clean Water Act (CWA) and the implementing regulations at 40 CFR Part 131, the United States Environmental Protection Agency has reviewed Idaho's Docket 58-000-0903 granting variances from Idaho's water quality standards to the wastewater treatment facilities of the cities of Page, Mullan and Smelterville. In accordance with these authorities, EPA approves Idaho's granting of renewed variances from the freshwater aquatic life criteria for cadmium, lead and zinc for Page and Smelterville and from the freshwater aquatic life criteria for cadmium and zinc for Mullan.

Background

Consistent with Idaho's variance policy contained in IDAPA 58.01.02.260., by letter dated January 30, 2009, the South Fork Coeur d'Alene River Sewer District (SFCDRSD), which operates the Page and Mullan wastewater treatment plants (WWTP), provided Idaho Department of Environmental Quality (IDEQ) with a request for a renewal of the variance granted by EPA in 2004. By letter dated February 19, 2009, IDEQ received a separate request from the City of Smelterville, for renewal of the variance granted to the Smelterville WWTP by EPA in 2004.

IDEQ reviewed these requests and determined that the facilities demonstrated that renewal of the respective variances was justified and consistent with Idaho's variance policy and proposed to grant these variances. Draft variances were prepared and a public notice was published in the Idaho Administrative Bulletin on April 1, 2009, informing the public of IDEQ's preliminary decision, the availability of the draft variances and supporting documentation, and initiated a 30-day public comment period. By letter dated April 30, 2009, EPA provided comments to IDEQ regarding the proposed variances. In those comments EPA stated that EPA staff were generally supportive of IDEQ's tentative determination, and believed that IDEQ's decision was consistent with Idaho's Water Quality Standards. However, a written justification and any supporting documentation is a required part of IDEQ's submission of the renewed variances to EPA for review and action. Therefore, EPA encouraged IDEQ to develop a justification document and provided suggestions for information to include. In addition, EPA commented that although the SFCDRSD and Smelterville

did make a demonstration regarding the "substantial" part of the economic analysis they did not include a substantive analysis of "widespread" adverse impacts. EPA stated that the facilities must provide a substantive analysis to support its assertion of widespread adverse impacts, as indicated in Chapter 4 of the Interim Economic Guidance for Water Quality Standards Workbook (EPA-823-B-95-002, March 1995).

On June 12, 2009, EPA received for review and action, IDEQ's letter dated June 8, 2009, which contained variances IDEQ granted to the wastewater treatment facilities of Page, Mullan and Smelterville. Contained in the submission were copies of the revised requests from the facilities, individual variances for each facility with proposed effluent limitations, as well as variance conditions, a detailed justification describing IDEQ's review and the State of Idaho attorney general's certification that the variances were prepared in accordance with state law.

EPA Review

Section 303(c)(2) of the CWA requires States and authorized Tribes to submit new or revised WQS to EPA for review. Under Section 303(c) of the CWA and its implementing regulations found at 40 CFR 131, EPA is to review these WQS to ensure the adopted water quality standards are consistent with the CWA and the State has followed its own procedures for adopting such standards.

The Federal water quality standards regulations at 40 CFR 131.13, authorizes States to include variances in their water quality standards and provides that States may include general policies in their State standards affecting their application and implementation. Such policies are required to be submitted to EPA for review and approval.

In summary, States have the discretion to include variance policies in their water quality standards regulation. Such policies are subject to EPA review and approval. In addition, States must include individual variances as part or their water quality standards and each variance is subject to public review. Each individual variance represents a temporary downgrade in water quality standards. Therefore, individual variances are a change to water quality standards and States and Tribes are required to submit them to EPA for review and approval/disapproval. Variances are not effective for Clean Water Act purposes until approved by EPA. As with all water quality standards submitted to EPA for review, the minimum requirements for water quality standards submissions include appropriate supporting justification and certification by the State Attorney General that the variance is legal according to state law (40 CFR 131.6).

IDEQ's variance policy is contained in IDAPA 58.0102.260 of Idaho's water quality standards regulations. The majority of section 260 was approved by EPA in 1997. Subsections 01.a.i. and ii, were added in 2002 and approved by EPA on July 7, 2006. Subsections 01.a.i. and ii., establish an administrative procedure whereby IDEQ grants variances through a formal process which includes public comment and submission to EPA for approval. However, this administrative process does not require action by the Idaho Board of Environmental Quality or the Idaho State Legislature.

Consistent with Idaho's variance policy at IDAPA 58.01.02.260.a.ii., IDEQ is required to maintain a list of variances which is available to the public. In this particular case, since Idaho's

variance procedures no longer require adoption of each variance into the water quality standards regulations, it is important that IDEQ ensure that the public and the regulated community are aware of all variances to water quality standards that have been granted by IDEQ and approved by EPA. As it now exists, we believe it is unclear to the public and regulated community the entire list of the effective variances when currently there are variances in the rules and other variances out side the rules. Given that IDEQ already has a section of your rules which houses specific variances (IDAPA 58.01.02.260.02), EPA recommends that during the next water quality standards rulemaking IDEQ include these current variances for the South Fork Coeur d'Alene River for Page, Mullan and Smelterville WWTPs in section 58.01.02.260.02.

EPA reviewed IDEQ's submission package, granting renewed variances to the facilities for both consistency with EPA guidance on variances and with Idaho's variance policy and procedures as described in IDAPA 58.01.02.260. This package included the following:

- Cover letter
- Copy of the public notice bulletin
- Individual Variances for Page, Mullan and Smelterville
- IDEQ's Variance Justification document,
- Idaho Attorney General Certification Letter
- Copies of the revised requests from SFCDRSD and the City of Smelterville and supporting information which accompanied these requests
- Page, Mullan and Smelterville metals effluent data
- Summary of Alternate Metals Limits analysis
- Metals Load Concentration Comparisons
- Metals Load Comparison Summary
- Idaho Variance Procedure

EPA Determination

Based on our review of the materials contained in IDEQ's submission package, as listed above, EPA has determined that IDEQ's granting of renewed variances for the Page, Mullan and Smelterville WWTPs is consistent with Idaho' variance policy and procedures as described in Idaho's Water Quality Standards at IDAPA 58.01.02.260. In addition, IDEQ's granting of these variances is consistent with CWA Section 303(c), the implementing federal water quality standards regulations at 40 CFR 131.13 and EPA guidance on variances as described in the Water Quality Standards Handbook: Second Edition (EPA 1994). The granting of these renewed variances is based on IDEQ's review that the facilities demonstrated that controls more stringent than technology-based effluent limitations would result in substantial and widespread economic and social impacts. This is consistent with Idaho's variance policy at IDAPA 58.01.02.260.01.b.vi., and EPA guidance.

The details of EPA's review are discussed in the enclosed document titled "Justification for EPA's Approval of Idaho's Granting of Renewed Variances to Idaho's Water Quality Standards for the Discharges of Metals from the Cities of Page, Mullan and Smelterville Wastewater Treatment Plants." It is clear from our review IDEQ performed a thorough analysis and developed appropriate

documentation demonstrating that a renewal of the variances was justified and legally valid. EPA congratulates IDEQ on a comprehensive and expeditious approach to the granting of these variances.

If you have further questions, please feel free to contact Lisa Macchio, Idaho Water Quality Standards Coordinator, at (206) 553-1834.

Sincerely,

Michael A. Bussell, Director
Office of Water and Watersheds

Enclosure:

cc: Michael McIntyre, IDEQ
Don Essig, IDEQ
John Tindall, IDEQ

July 20, 2009

JUSTIFICATION
for
EPA's Approval of Idaho's
Granting of Renewed Variances to Idaho's Water Quality Standards
for the Discharges of Metals from the
Cities of Page, Mullan and Smelterville Wastewater Treatment Plants
Idaho Docket No. 58-0000-0903

Background

In 1997, EPA promulgated a federal rule which established water quality standards applicable to specific waters in the State of Idaho (40 CFR Part 131.33, Federal Register Vol. 62, No. 147, July 31, 1997). As part of this rule making EPA promulgated a cold water biota beneficial use designation for the South Fork Coeur d'Alene River. This rule also set forth requirements and a procedure for EPA to grant variances to the water quality standards for the South Fork Coeur d'Alene River (40 CFR Part 131.33(d), Federal Register Vol. 62, No. 147, July 31, 1997 page 41188).

On June 24, 2004, EPA issued variances from water quality standards to the Page and Mullan wastewater treatment plants (WWTPs) of the South Fork Coeur d'Alene River Sewer District (SFCDRSD) and the City of Smelterville for their discharge of cadmium, lead and zinc to the South Fork Coeur d'Alene River. A water quality standard variance applies only to the permittee requesting the variance and only to the pollutant(s) specified in the variance for a specific time; the underlying water quality standard otherwise remains in effect. Maintaining the underlying standard rather than changing it assures that reasonable further progress is made towards improving water quality and eventually attaining the water quality standard. Since water quality standards are implemented within National Pollutant Discharge Elimination System (NPDES) permits, reasonable progress toward meeting the standards was required within the permit. These variances will expire at midnight on August 1, 2009.

On August 19, 2008 EPA proposed removing its federal use designation for the South Fork Coeur d'Alene River. The removal of the federal use designation became final on November 5, 2008. As a result of the withdrawal of the federal rule, the State of Idaho now has the authority to grant variances to water quality standards in the South Fork Coeur d'Alene River.

Consistent with Idaho's variance policy contained in IDAPA 58.01.02.260., by letter dated January 30, 2009, SFCRSD, which operates the Page and Mullan WWTPs, provided Idaho Department of Environmental Quality (IDEQ) with a request for a renewal of the variances granted by EPA in 2004. By letter dated February 19, 2009, IDEQ received a separate request from the City of Smelterville for renewal of the variance that was granted to their facility by EPA in 2004.

IDEQ reviewed these requests and determined that the facilities demonstrated that renewal of the respective variances was justified and consistent with Idaho's variance policy and proposed to grant these variances. Draft variances were prepared and a public notice was published in the Idaho Administrative Bulletin on April 1, 2009 informing the public of IDEQ's preliminary decision, the availability of the draft variances and supporting documentation. This notice initiated a 30-day public comment period.

By letter dated April 30, 2009, EPA provided comments to IDEQ regarding the proposed variances. In those comments EPA stated that EPA staff were generally supportive of IDEQ's tentative determination, and believed that IDEQ's decision was consistent with Idaho's Water Quality Standards. However a written justification and any supporting documentation is a required part of IDEQ's submission of the renewed variances to EPA for review and action. Therefore, EPA encouraged IDEQ to develop a justification document and provided suggestions for what to include. In addition, EPA commented that the SFCRSD and City of Smelterville did demonstrate that complying with the water quality standards would impose substantial adverse economic impacts, the SFCRSD and City of Smelterville did not include a substantive analysis of widespread adverse impacts with their submissions to IDEQ. EPA stated that the facilities must provide a substantive analysis to support their assertions of widespread adverse impacts. EPA referred IDEQ to Chapter 4 of EPA's Interim Economic Guidance for Water Quality Standards Workbook (EPA 1995) which contains a discussion of a recommended analysis for addressing widespread adverse impacts.

On June 12, 2009, EPA received IDEQ's letter dated June 8, 2009, in which IDEQ provided to EPA, for review and action, the variances which IDEQ had granted to the Page, Mullan, and Smelterville WWTPs. Contained in the submission were copies of the revised requests from the SFCRSD and the City of Smelterville; the individual variances, dated June 5, 2009, for each facility with proposed effluent limitations as well as variance conditions; a detailed justification describing IDEQ's review of the requests; a 'proposed procedures document' for reviewing the variance requests, and the State of Idaho attorney general's certification that the variances were prepared in accordance with state law.

IDEQ's Process and Criteria for Granting Variances

The procedures for granting variances to the SFCRSD and the Smelterville WWTP are described in Idaho's water quality standards regulations at IDAPA 58.01.02.260. The regulations provide that a variance may be granted if the applicant demonstrates to IDEQ that meeting the standard is unattainable based on one or more of the following reasons:

1. Naturally occurring pollutant concentrations prevent the attainment of the standard; or

2. Natural, intermittent, or low flow conditions or water levels prevent the attainment of the standard; or

3. Human caused conditions or sources of pollution prevent the attainment of the standard and cannot be remedied or would cause more environmental damage to correct than to leave in place; or

4. Dams, diversions or other types of hydrologic modifications preclude the attainment of the standard, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in attainment of the standard; or

5. Physical conditions related to the natural features of the water body, unrelated to water quality, preclude attainment of the standard; or

6. Controls more stringent than technology-based effluent limitations would result in substantial and widespread economic and social impacts.

In addition, the discharger must submit to IDEQ documentation that treatment more advanced than required by technology-based effluent limitation has been considered and that alternative effluent control strategies have been evaluated (IDAPA 58.01.02.260.01.c.). Lastly, with respect to requests for renewal of a variance IDEQ will require the discharger to demonstrate reasonable progress towards meeting the standard (IDAPA 58.01.02.260.01.d.ii.)

IDEQ's variance policy is contained in IDAPA 58.0102.260 of Idaho's water quality standards regulations. Idaho's initial variance policy was approved by EPA in 1997. Subsections 01.a.i. and ii, were added in 2002 and approved by EPA by letter to IDEQ dated July 7, 2006. Subsections 01.a.i and ii establishes an administrative procedure for granting variances. It is similar to the formal rulemaking process but does not require action by the Idaho Board of Environmental Quality or the Idaho State Legislature.

EPA Review

Section 303(c) (2) of the CWA requires that States and authorized Tribes submit new or revised WQS to EPA for review. Under Section 303(c) of the CWA and its implementing regulations found at 40 CFR 131, EPA is to review these WQS to ensure the adopted water quality standards are consistent with the CWA and the State has followed its own procedures for adopting such standards.

The Federal water quality standards regulations at 40 CFR 131.13, authorizes States to include variances in their water quality standards and provides that States may include general policies in their State standards affecting their application and implementation. Such policies are required to be submitted to EPA for review and approval.

In 1983, EPA amended the Water Quality Standards Regulation to explicitly

address certain requirements in State standards and other legal and programmatic issues (48 FR 51400, November 8, 1983). The 1983 Preamble to these regulations clarifies EPA's position regarding variances. It states that "EPA has approved State-adopted variances in the past and will continue to do so if: each individual variance is included as part of the water quality standard, subject to the same public review as other changes in water quality standards... EPA will review for approval individual variances, not just an overall State variance policy" (48 FR 51403).

In summary, States have the discretion to include variance policies in their water quality standards regulation. Such policies are subject to EPA review and approval. In addition, States must include individual variances as part or their water quality standards and each variance is subject to public review. Each individual variance represents a temporary downgrade in water quality standards. Therefore, individual variances are a change to water quality standards and States and Tribes are required to submit them to EPA for review and approval or disapproval. Variances are not effective for Clean Water Act purposes until approved by EPA. As with all water quality standards submitted to EPA for review, the minimum requirements for water quality standards submissions include appropriate supporting justification and certification by the State Attorney General that the variance is legal according to state law (40 CFR 131.6).

EPA guidance on variances provides that EPA will approve state variances if:

1. the justification submitted includes documentation that treatment more advanced than that required by sections 301(b)(1)(b) and 306 of the Clean Water Act has been carefully considered and that alternative effluent control strategies have been evaluated
2. the State demonstrates that meeting the standard is unattainable based on one or more of the factors in 131.10 (g)
3. reasonable progress is being made toward meeting the standards
4. a clear description is provided of the impact of the variance upon achieving water quality standards in the affected stream segment.
5. the variance was subjected to public notice and opportunity for comment
6. the variance was granted for a specific period of time.

1. Advanced Treatment is Necessary for Removal of Metals for the Discharge

In 2004, EPA granted variances to the WWTP of Page, Mullan and Smelterville based on the facilities demonstration that controls more stringent than technology-based effluent limitations would result in substantial and widespread economic and social impacts to the communities. The following information was extracted from EPA's justification for the 2004 variances. This information is still accurate and describes the unusual circumstances which have caused and contributed to the high levels of metals in the discharges from these facilities:

The Page and Mullan wastewater treatment plants are operated by the SFCRSD. The City of Smelterville operates a separate wastewater treatment plant. These three

facilities treat domestic sewage from the communities of Kellogg and Mullan. A substantial portion of the infrastructure in the communities of Kellogg and Mullan is built upon historically-deposited tailings materials, which originated from the mining activity of Idaho's Silver Valley. This includes the collection systems for the sewage treatment plants.

Page, Mullan and Smelterville have unusually high levels of metals in their effluent when compared to a typical sewage treatment plant in the region. Influent data for these facilities indicates that there is a high concentration of metals flowing into these facilities. This is most likely a result of two circumstances. The first being the nature of the surrounding material the collection system piping was constructed in. In many areas the piping was built amongst and in packed historical mine tailings deposits. Metals in these tailings materials leach out with groundwater and subsurface flow of water through this tailings material. The second is the condition of the collection system piping. This system is old and believed to be cracked in places. As a result of these two conditions, the water which naturally seeps through the surrounding tailings deposits picks up dissolved metals. Subsequently, this metals contaminated water enters the cracked collection system piping and is carried as influent to the treatment plant along with the domestic untreated sewage entering the system also as influent. This suggests that the inflow and infiltration problem is likely a significant contribution of the metals loading into the treatment plants. Without additional controls for metals removal, the effluent from the facilities would not meet the water quality-based NPDES permit limits.

In order to meet water quality-based NPDES permit limits, Page, Mullan, and Smelterville would need to reduce the metals concentrations by approximately 83% to 98%. In order to accomplish these reductions, expensive metals removal treatment along with corrections to the piping system would need to be installed at each facility. The most cost-effective method of attaining the water quality standards for metals would most likely involve additional controls in the form of both improvements to the collection system to reduce seepage into the pipes, which would be followed by an assessment of whether and or what kind of additional treatment technology would be needed.

2. Demonstration that 131.10 (g) (6), Controls more Stringent than Technology-Based Effluent Limitations would Result in Substantial and Widespread Economic and Social Impacts.

EPA reviewed both the SFCRSD's and Smelterville's justification for a variance. The facility's submission contained the necessary information in providing a demonstration that controls more stringent than technology-based effluent limitations would result in substantial and widespread adverse economic and social impacts.

SFCRSD (Page and Mullan)

EPA's Senior Economist, Elliot Rosenberg, reviewed the economic information contained in SFCRSD's submission. The worksheets for determining substantial economic adverse impacts were reviewed and found to be accurate. In addition, the conclusions were appropriate. This review was performed assuming the treatment cost

estimates were appropriate and reasonable.[1]

According to SFCRSD's analyses regarding the source and quantity of metals in the discharge, the needed control requirements include both a reduction in infiltration and inflow (I/I) and additional treatment technology for metals removal from the discharge stream from the wastewater treatment plants of Page and Mullan. An analysis of the collection system improvements and I/I analyses for the Cities of Kellogg, Mullan, Osburn and Wallace was developed by JUB Engineers and presented in several reports (JUB 2004, 2002a, 2008, 2002b). In addition, estimated costs for addressing the I/I problems were developed by JUB Engineers in these same reports and were part of the total treatment costs for the SFCRSD. In summary, the total estimated costs for meeting Idaho's water quality criteria for cadmium, lead and zinc, include the addition of metals removal treatment technology and remedies correcting the I/I problems identified in the JUB analyses.

The estimated metals removal treatment costs were derived from a pilot study for the Page wastewater treatment plant entitled "Metals Removal Pilot Study for the Page Wastewater Treatment Plant" (Pilot Study), prepared by JUB Engineers (JUB 2006). As explained in SFCRSD's submission, the least cost alternative for metals removal was selected and used as a basis in the economic worksheet calculations.

EPA environmental engineer, Ben Cope, reviewed the estimated metals removal treatment costs and relevant portions of the Pilot Study. Based on EPA's review of the Pilot Study, the treatment technology selected to remove metals from the municipalities effluent is an appropriate treatment technology. However, EPA found that the Pilot Study did not provide an engineering judgment on the potential range of capital costs for treatment and the estimate included a contingency of 25% on top of the capital cost estimate. Although cost estimates of this nature are inherently uncertain, EPA staff recommended subtraction of the 25% contingency cost from the treatment cost so that the estimated metals removal treatment costs were somewhat more conservative. [2]

In light of Ben Cope's recommendation, EPA chose to verify whether or not the facilities' would still meet the requirements demonstrating substantial adverse economic impacts if the metals treatment costs were reduced by 25%. Therefore, Elliot Rosenberg prepared a revised economic analysis based on a reduction of the metals treatment costs by 25%. EPA concluded that the SFCRSD would likely incur substantial adverse economic impacts by implementing the appropriate treatment even with a reduction of the 25% to the treatment cost.[3]

In addition, EPA determined that the qualitative issues enumerated in the

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[1] Memos from Elliot Rosenberg, EPA, Senior Economist, to Lisa Macchio, EPA Water Quality Standards Coordinator, June 23, 2009.

[2] Memo from Ben Cope, environmental engineer, Office of Environmental Assessment, EPA, Region 10, to Lisa Macchio, Idaho Water Quality Standards Coordinator, Office of Water, EPA, Region 10, July 13, 2009.

[3] Memos from Elliot Rosenberg, EPA, Senior Economist to Lisa Macchio, EPA Water Quality Standards Coordinator, July 20, 2009.

SFCRSD's submissions further supported the conclusion that there would be widespread adverse social and economic impacts if the Page and Mullen WWTP's have to implement the proposed metals treatment and reduce infiltration and inflow into the system in order to comply with the water quality criteria. This qualitative discussion included a review of the relative magnitudes of a number of indicators, for example: levels of unemployment in the community compared to the state level, losses to the local economy, decreases in tax revenues, and how increased water treatment fees adversely impact public and private entities.

EPA has evaluated these costs and related socioeconomic information based on the guidance put forth in EPA's "Interim Economic Guidance for Water Quality Standards Workbook", (EPA 1995). Based on this review, EPA determined that the SFCRSD's facilities of Page and Mullan have demonstrated that installing controls more stringent than technology-based effluent limitations would result in substantial and widespread adverse economic and social impacts to the affected and surrounding communities.

Smelterville

EPA's Senior Economist, Elliot Rosenberg, reviewed the economic information contained in Smelterville's submission. The worksheets for determining substantial economic adverse impacts were reviewed and found to be accurate. In addition, the conclusions were appropriate. This review was performed assuming the treatment cost estimates were appropriate and reasonable.[4]

The Smelterville submission to IDEQ included capital cost estimate for metals removal that was based in part on the Pilot Study prepared by JUB for the Page WWTP. The capital treatment cost estimates for Smelterville was derived by multiplying the capital cost estimate for the Page WWTP by the ratio of the City of Smelterville flows to the Page flows. This approach is commonly used in estimating treatment requirements; therefore EPA considered this a reasonable approach for estimating the cost of metals removal treatment for the City of Smelterville. Smelterville's cost estimates for meeting Idaho's water quality criteria for cadmium, lead and zinc, included only the addition of metals removal treatment technology. The estimate did not include any I/I remedies.

As discussed previously, EPA environmental engineer, Ben Cope recommended subtraction of the 25% contingency cost from the treatment cost so that the estimated metals removal treatment costs were somewhat more conservative.[5] Consistent with EPA's decision to verify whether or not the would still meet the requirements demonstrating substantial adverse economic impacts if the metals treatment costs were reduced by 25%; Elliot Rosenberg prepared a revised economic analysis based on a

[4] Memos from Elliot Rosenberg, EPA, Senior Economist, to Lisa Macchio, EPA Water Quality Standards Coordinator, June 23, 2009.

[5] Memo from Ben Cope, environmental engineer, Office of Environmental Assessment, EPA, Region 10, to Lisa Macchio, Idaho Water Quality Standards Coordinator, Office of Water, EPA, Region 10, July 13, 2009.

reduction of the metals treatment costs by 25%. EPA concluded that Smelterville would likely incur substantial adverse economic impacts by implementing the appropriate treatment even with a reduction of the 25% to the treatment cost.[6]

In addition, EPA has determined that the qualitative issues enumerated in the facilities' submissions further supported the conclusion that there would be widespread adverse social and economic impacts if the Smelterville WWTP has to implement the proposed metals treatment in order to comply with the water quality criteria. This qualitative discussion included a review of the relative magnitudes of a number of indicators, for example: levels of unemployment in the community compared to the state level, losses to the local economy, decreases in tax revenues, and how increased water treatment fees adversely impact public and private entities.

EPA has evaluated these costs and related socioeconomic information based on the guidance put forth in EPA's "Interim Economic Guidance for Water Quality Standards Workbook", (EPA, March 1995). Based on this review, EPA determined that the City of Smelterville has demonstrated for its WWTP that installing controls more stringent than technology-based effluent limitations would result in substantial and widespread economic and social impacts to the surrounding communities.

3. Determination of Reasonable Progress Towards Meeting the Water Quality Standards

The SFCRSD and Smelterville submission to IDEQ included documentation of the progress made toward correcting the infiltration and inflow (I/I) problems. The measures included inspections and actual construction to replace and repair portions of the waterwater collection systems.[7] In 2004, EPA issued NPDES permits to each of these facilities that contained specific conditions related to the variance EPA granted in 2004. The facilities' submissions included a detailed discussion of each these conditions and the actions completed to address each condition.

IDEQ evaluated SFCRSD's compliance with their permit conditions and in the technical justification IDEQ determined that all conditions with the exception of a provision requiring them to develop compliance schedules for the surrounding municipalities of Osburn, Wallace, Kellog and Mullan had been achieved. With respect to the compliance schedule condition, Osburn and Wallace adopted compliance schedules in September 2005 while Kellog and Mullan have yet to adopt compliance schedules. However, the SFCRSD continues to work with Kellogg and Wallace to address I/I as these communities construct other infrastructure improvements such as road replacement. Mullan continues to annually upgrade the wastewater collection system without a compliance schedule. Lastly, the Silverton work which included replacing the sanitary sewer collectors and services was completed and included replacement of all main lines and reconstruction of services to property lines.

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[6] See Memo from Elliot Rosenberg, Senior Economist, to Lisa Macchio, Water Quality Standards Coordinator, July 20, 2009.

[7] See pgs. 2-7 in the SFCRSD submission and pgs. 1-2 in the Smelterville submission for more details.

EPA has reviewed IDEQ's technical justification along with the SFCRSD's submission to determine if the facilities have made reasonable progress in correcting the I/I problem. Although EPA found that most the conditions of the previous variance had been completed, all compliance schedules had not been completed. However, it appears the facilities are making reasonable progress in addressing the problems associated with I/I without compliance schedules. Therefore, EPA has determined that the SFCRSD has made reasonable progress towards reducing the I/I problem and thus towards reducing the metals levels in the discharge with the ultimate goal of meeting Idaho's water quality criteria for cadmium, lead and zinc.

Smelterville's submission also included a detailed discussion of the NPDES permit variance conditions and what actions had been taken to address this condition. According to Smelterville's statements, a thorough I/I investigation was performed on the collection system and a report was submitted to EPA and IDEQ. The sewer main and lateral were replaced by 2008. All service connections were inspected in the Silver King area and three were found in need of replacement. At this time, that replacement has not yet been completed. However, Smelterville is planning to give the owners one year to replace their connections. In addition there were 88 other service connections which were determined to be defective and have yet to be replaced or repaired. Smelterville stated that these will be replaced by spring 2010. Once this has been completed Smelterville will need time to monitor and evaluate and analyze the results from reducing the I/I problem. Smelterville also stated that their intent is to ultimately connect with the SFCRSD for treatment of their wastewater. Smelterville proposed that by January 2013 it will begin negotiations with SFCRSD in hopes that they connect by the end of 2013.

EPA has reviewed IDEQ's technical justification along with Smelterville's submission to determine if the facility has made reasonable progress in correcting the I/I problem. EPA has determined that Smelterville has made reasonable progress towards reducing the I/I problem and thus reducing the metals levels in the discharge with the ultimate goal of meeting the Idaho water quality criteria for cadmium, lead and zinc.

4. Impact of Variances to Water Quality of the South Fork Coeur d'Alene River

Consistent with Idaho's variance policy, IDEQ examined the impact of the variances on the receiving stream segment of the South Fork Coeur d'Alene River. All three facilities discharge within 22 miles of each other. EPA reviewed IDEQ's analysis and found it to be an accurate analysis. EPA concurs with IDEQ's determination that the impact of the discharges on the receiving stream water quality is very small and the marginal impact of the variances even smaller.[8]

5. The Variance was Subjected to Public Notice and Opportunity for Comment

[8] Memo from Brian Nickel, EPA, NPDES Unit to Lisa Macchio, Water Quality Standards Unit, June 29, 2009.

Consistent with Idaho's variance policy, IDEQ provided notice to the public that the State was proposing to grant variances to the WWTP of Page, Mullan and Smelterville. The public comment period was opened for 30 days from April 1, 2009 to April 30, 2009. IDEQ received public comment as well as comments from EPA. A copy of the bulletin noticing the public comment period was provided in IDEQ's variance submission package to EPA. Additional information regarding public comment is discussed in IDEQ's Justification document. [9]

6. The Variance is Granted for a Specific Period of Time

Consistent with Idaho's variance policy, IDEQ has established a 5 year time period for the variances. Included in IDEQ's submission package were separate notices of the variance for each facility. The documents state that each variance will expire on July 30, 2014.

Proposed NPDES Alternate Metals Limits and Variance Conditions

IDEQ developed proposed alternate effluent limitations which were provided to EPA in the submission package. Because EPA has retained the authority to issue NPDES permits in Idaho, EPA will consider these when re-issuing the NPDES permits for these facilities.

During the term of the variance the WWTPs are expected to maintain their current performance. Therefore, the proposed effluent limits developed by IDEQ were based on current performance. EPA reviewed IDEQ's calculations used to develop alternate effluent limitations for metals for each of the facility's wastewater discharge. The derivation of these limits was based on the procedures in EPA's Technical Support Document for Water Quality-Based Toxics Control (TSD) (EPA 1991). This is the same approach used by EPA when staff developed alternate effluent limits for these facilities in their current NPDES permits.

Brian Nickel of EPA's NPDES Permits Unit reviewed IDEQ's justification document along with IDEQ's effluent files which were included in IDEQ's submission package to EPA. [10] EPA staff found IDEQ's analysis of metals loads, basis for alternate metals limits and the calculations to be sound and consistent with EPA's approach. Therefore, EPA has determined that IDEQ's calculations of the alternate metals limits for these facilities are accurate and reasonable. EPA has determined that these proposed alternate effluent limitations are established at levels that require the facilities to maintain the current levels of discharge and that this is reasonable while the facilities make further progress on addressing infrastructure corrections and if needed, investigate additional

[9] Justification for Granting Variances from the Idaho Water Quality Standards to the Cities of Page, Mullan and Smelterville for the Discharge of Metals from their Wastewater Treatment Plants, prepared by the Idaho Department of Environmental Quality, March 28, 2009.

[10] See Mullan Effluent, Page Effluent, and Smelterville Effluent pdf files contained on compact disk provided with IDEQ's submission package

treatment options as a remedy.[11]

EPA has reviewed IDEQ's proposed variance conditions for the facilities, as described on pages 12-13 of IDEQ's Justification document, and has determined that these conditions are consistent with actions needed to be taken by the facilities to demonstrate further progress in ultimately attaining Idaho's water quality standards in the South Fork Coeur d'Alene River.

[11] Memo from Brian Nickel, EPA, NPDES Unit to Lisa Macchio, Water Quality Standards Unit, June 29, 2009.

List of References

EPA 1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001, March 1991.

EPA 1995. Interim Economic Guidance for Water Quality Standards. Workbook. EPA-823-B-95-002, March 1995.

JUB 2002 a. City of Mullan Collection System Capital Improvement Plan and Infiltration and Inflow (I/I) Analysis for the South Fork of the Coeur d'Alene River Sewer District. January 2002. 75 pgs.

JUB 2002 b. City of Wallace Collection System Capital Improvement Plan and Infiltration and Inflow (I/I) Analysis for the South Fork of the Coeur d'Alene River Sewer District. February 2002. 111 pgs.

JUB 2004. City of Kellogg Collection System Capital Improvement Plan and Infiltration and Inflow (I/I) Analysis for the South Fork of the Coeur d'Alene River Sewer District. December 2004. 179 pgs.

JUB 2006. Metals Removal Pilot Study for the Page Wastewater Treatment Plant. Study Results for the South Fork of the Coeur d'Alene River Sewer District. April 2006. 482 pgs.

JUB 2008. City Osburn Infiltration and Inflow Analysis for South Fork of the Coeur d'Alene River Sewer District and the City of Osburn. November 2008. 114 pgs.

Example EPA Approval Letter for Charles River and Alewife Brook/Mystic River CSO Variances in Massachusetts

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
ONE CONGRESS STREET SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

July 29, 2008

Laurie Burt, Commissioner
Massachusetts Department of Environmental Protection
One Winter Street
Boston, MA 02108

Re: Charles River and Alewife Brook/Mystic River CSO Variances

Dear Commissioner Burt:

This letter responds to your letter of July 8, 2008, whereby the Massachusetts Department of Environmental Protection (MassDEP) submitted adopted combined sewer overflow (CSO) variances to the Environmental Protection Agency (EPA) for review. The variances are for CSO discharges by the Massachusetts Water Resources Authority (MWRA), the City of Somerville, and the City of Cambridge to Alewife Brook/Upper Mystic River and for CSO discharges by the MWRA, the City of Cambridge, and Boston Water & Sewer Commission to the Lower Charles River/Charles Basin. MassDEP issued the variances for terms of three years on August 30, 2007 with effective dates of September 1, 2007 and October 1, 2007 for the Alewife Brook/Upper Mystic River and the Lower Charles River Basin, respectively. On July 15, 2008, MassDEP's General Counsel certified the variances as having been duly adopted pursuant to Commonwealth law. By today's letter, EPA approves these variances.

EPA reviews variances under Section 303 of Clean Water Act (CWA), which addresses EPA consideration of, and action on, state water quality standards. A variance typically is a short-term revision to an otherwise applicable water quality standard. 63 FR 36742, 36759 (July 7, 1998). EPA generally will only approve a state's variance where there is a demonstration that one of the factors that would justify removal of a designated use or establishment of a subcategory of use has been satisfied, specifically the factors published at 40 C.F.R. 131.10(g). Id. In addition, a variance typically applies to individual dischargers and for a specific pollutant(s) and does not otherwise modify the applicable water quality standards. Id. Under Section 303(c)(1) of the CWA and 40 C.F.R. 131.20(a), a variance should be reviewed, at a minimum, every three years, and extensions are warranted only where the conditions for granting the variance still apply. Id. Upon expiration of the variance, the underlying numerical criteria have full regulatory effect. Id.

Consistent with these considerations and based on review of the materials submitted, pursuant to Section 303(c)(3) of the Clean Water Act (CWA) and 40 C.F.R. 131.21, I hereby approve the variances for the City of Somerville and the City of Cambridge to Alewife Brook/Upper Mystic River and the variances for the City of Cambridge and Boston Water & Sewer Commission to the Lower Charles River/Charles Basin, and the variances for the MWRA.

On March 14, 2006, EPA approved variances MassDEP submitted to EPA on March 13, 2006, for the MWRA's CSO discharges to the Alewife Brook/Upper Mystic River and the Lower Charles River Basin. EPA's action approved triennial reissuance of the variances through the year 2020, subject to conditions specified in EPA's March 14, 2006 letter. While EPA's 2006 approval action was intended to approve MassDEP's anticipated reissuance of the MWRA variances every three years through 2020, EPA by today's action has decided to take a separate approval action on MassDEP's 2007 reissuance of the variances for MWRA. EPA would anticipate taking future actions on MassDEP's reissuance of the variances for MWRA. In addition to determining that the variances satisfy the relevant CWA and regulatory requirements, EPA also has confirmed that MassDEP's reissuance of the variances for MWRA on August 30, 2007, was consistent with the conditions set forth in EPA's 2006 approval.

In accordance with the variances, CSO discharges from permitted outfalls are not required to meet effluent limits based on the Massachusetts Class B bacteria criteria during events when flow in the collection system exceeds the collection system conveyance capacity as a result of precipitation or snow melt. The bacteria variances require continued implementation of CSO long term control measures consistent with MWRA's 1997 Final CSO Facilities Plan, as amended, for Alewife Brook /Upper Mystic River and the Lower Charles River Basin (the Long Term Control Plan) and do not in any way delay the pace of implementation that would occur without the variances. Rather, the projects that are to be implemented during the term of these variances will improve water quality in associated waters.

Numerous analyses have been completed since the late 1980s evaluating alternatives for eliminating combined overflows from the collection system tributary to the Deer Island Treatment Plant. Among these are the 1997 CSO Facilities Plan and Environmental Impact Report; the 2001 Notice of Project Change for the Long Term Control Plan for Alewife Brook; the July 1, 2003 MWRA Final Variance Report for the Alewife Brook /Upper Mystic River; and the January 2004 Cottage Farm CSO Facility Assessment Report. Based on these analyses, MassDEP determined that proceeding at this time with controls necessary for full attainment of the applicable Class B bacteria criteria and associated recreational use would result in substantial and widespread economic and social impact as those terms are used in 40 C.F.R. 131.10(g)(6). EPA's independent analysis of these impacts confirms MassDEP's demonstration regarding the regulatory criteria. EPA agrees that it is not feasible to fully attain the Class B bacteria criteria and associated recreational use within the three year term of the variances. Therefore, EPA approves these MassDEP CSO variances for the MWRA, the City of Somerville, the City of Cambridge, and Boston Water & Sewer Commission, which revise the water quality criteria for bacteria by rendering them inapplicable to the identified permittees for CSO discharges into the identified receiving waters during specified wet weather events.

We look forward to continued cooperation with Massachusetts in the development, review, and approval of water quality standards pursuant to our responsibilities under the Clean Water Act. If you have any questions, please contact Bill Beckwith (617-918-1544) or Michael Wagner (617-918-1735).

Sincerely,

Stephen S. Perkins, Director
Office of Ecosystem Protection

cc: Glenn Haas, MassDEP
Marcia Sherman, MassDEP
Vernon Lang, USF&WS
Mary Colligan, NOAAF
Peter Colossi, NOAAF
Danielle Fuligni, EPA SSB

Example EPA Approval Letter for Dissolved Oxygen Standards for Salt Creek in Texas

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

JAN 27 2010

Ms. L'Oreal Stepney, P.E., Deputy Director
Office of Water (MC-158)
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087

Dear Ms. Stepney:

The Environmental Protection Agency (EPA) has completed its review of the request for a temporary variance to the Texas Water Quality Standards (TX WQS) [§307, Texas Surface Water Quality Standards, adopted July 26, 2000], which was submitted by letter dated January 20, 2010, to EPA for review and approval, as required by 40 CFR §131.20. The variance applies to the dissolved oxygen standards for Salt Creek (unclassified perennial stream in segment 1208 - Brazos River above Possum Kingdom Lake).

The City of Graham's wastewater treatment facility (TPDES #10487-001) discharges treated domestic wastewater to an unclassified drainage ditch; thence to Salt Creek, thence to segment 1208 of the Brazos River Basin. The drainage ditch has no significant aquatic life use. Salt Creek has a presumed high aquatic life use with a corresponding dissolved oxygen criterion of 5 mg/l. The designated uses for segment 1208 are high aquatic life use and contact recreation. A receiving water assessment has demonstrated that Salt Creek is affected by several impoundments and that the high aquatic life use may not be attainable. A use attainability analysis (UAA) is under development and site-specific standards may be considered for adoption in a future triennial revision. EPA will review any recommended revisions to the aquatic life uses and dissolved oxygen criteria upon submittal of the UAA.

The proposed permit for the City of Graham facility includes a variance to standards for dissolved oxygen and interim requirements. During the variance period, the permittee will be required to meet water quality-based limits for carbonaceous biochemical oxygen demand, total suspended solids and ammonia nitrogen, as issued in previous permits. The facility will also conduct acute and chronic biomonitoring tests. If standards changes for Salt Creek are not adopted by the Texas Commission on Environmental Quality (TCEQ) and approved by EPA, the permittee will be required to submit an amendment application for authorization to dispose of treated effluent via irrigation.

The Endangered Species Act 7 states that "all Federal agencies shall...utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered and threatened species" and "each Federal agency shall

insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species." EPA has determined that approval of a temporary variance to the dissolved oxygen criteria will have no effect on federally-listed threatened and endangered species or critical habitat.

The State Attorney General has previously certified that the variance provision in the TX WQS was duly adopted pursuant to State law. Public participation was completed through the comment period on the proposed permit. The federal regulation for public participation (40 CFR §25.5(b)) states that public notification must occur 45 days prior to the date of a hearing. It also states that the notification period may be reduced to 30 days when EPA determines that there are no complex or controversial matters to be addressed. EPA has decided that the 30-day notification period is sufficient for this variance request. No comments were received during the public comment period on the proposed permit and variance. If TCEQ adopts standards changes based on the UAA, an opportunity for public comment will be provided when the revised standards are proposed.

EPA considers the issuance of the variance, in conjunction with the public review and comment process completed by TCEQ, to be consistent with and satisfy, the procedural requirements of 40 CFR §131.20. EPA is hereby approving the variance identified above, pursuant to §303(c) of the Clean Water Act and the implementing regulations at 40 CFR Part 131.

If you or your staff have any questions in this matter, please contact me at (214) 665-7101 or call Diane Evans of my staff at (214) 665-6677.

Sincerely,

Miguel I. Flores
Director
Water Quality Protection Division

cc: Lori Hamilton, TCEQ - Standards Group (MC-234)
Kent Trede, TCEQ - Wastewater Permits Section (MC-148)

Example EPA Review and Approval Letter for Arsenic Variance for Village of Cleveland's Wastewater Treatment Facility in Wisconsin

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

APR 07 2010

REPLY TO THE ATTENTION OF: WQ-16J

Todd L. Ambs, Administrator
Division of Water
Wisconsin Department of Natural Resources
PO Box 7921
Madison, Wisconsin 53707-7921

Dear Mr. Ambs:

Thank you for your letter of February 2, 2010, submitting Wisconsin's proposed variance from the water quality standards for arsenic for the Village of Cleveland's Wastewater Treatment Facility (WTF), WPDES Permit Number WI-0030848-08, to U.S. Environmental Protection Agency for review under section 303(c) of the Clean Water Act (CWA). The proposed action would grant the Village of Cleveland's WTF a variance from Wisconsin's water quality criteria for arsenic and establish a variance-based effluent limit for the Village of Cleveland's WTF discharge to Lake Michigan of 4.5 ug/L, expressed as a daily maximum.

Consistent with section 303(c) of the CWA and federal regulations at 40 CFR 131.21, EPA is required to review and approve state water quality standards. EPA has reviewed the information submitted in support of the proposed variance and hereby approves the proposed variance pursuant to section 303(c) of the CWA and federal regulations at 40 CFR 131.21.

As required under section 7 of the Endangered Species Act (ESA) and federal regulations at 50 CFR Part 402, EPA is required to consult with U.S. Fish and Wildlife Service (FWS) on any action that may affect federally-listed threatened and endangered species. EPA is not required to consult with FWS on approval of this variance, as this arsenic variance is for a human health criterion. Standards related to human health protection are not subject to ESA consultation since EPA lacks control or discretion under the CWA to modify its action based on other endpoints, such as impacts to federally-listed threatened or endangered species.

If you or your staff has any questions regarding this approval, please contact Francine Norling of my staff at (312) 886-0271.

Sincerely,

Tinka G. Hyde
Director, Water Division

cc: Robert Masnado, WDNR
Jim Schmidt, WDNR
Richard Sachs, WDNR
Louise Clemency, USFWS

EPA's Review of the Wisconsin Department of Natural Resources (WDNR) Request for Approval of a Variance from Arsenic Water Quality Standards (Village of Cleveland Wastewater Treatment Facility, WPDES Permit No. WI-0030848-08) Under Section 303(c) of the Clean Water Act (CWA) WQSTS # WI2010-345

Date: APR 07 2010

I. Summary

A. Date received by EPA: February 2, 2010

B. Submittal History:
On February 2, 2010, WDNR submitted a request to EPA for approval of a water quality standard (WQS) variance for discharge by the Village of Cleveland's Wastewater Treatment Facility (WTF), WPDES Permit No. WI-0030848-08 in southeast Manitowoc County.

C. Documents included in the submittal:
- Transmittal letter from WDNR to EPA, dated February 2, 2010.
- Certification Statement for Approval of a Variance to Water Quality Standards, Village of Cleveland's WTF, WPDES Permit No. WI-0030848-08, dated January 8, 2010.
- Recommendation for Tentative Decision on Variance Request, dated October 20, 2009.

D. **Other supporting documents:**
- Public Notice of Intent to Reissue the Permit, dated November 30, 2009.
- Notice of Final Determination to Reissue a WPDES Permit.
- Draft WPDES Permit.
- Permit Fact Sheet dated November 17, 2009.
- Water Quality Based Effluent Limitation (WQBEL) Evaluation Document, dated November 30, 2006.
- Revised WQBEL Recommendations for Cleveland's WTF, dated December 8, 2008.
- Arsenic variance application form for municipal permittees, dated September 2, 2009.
- Median Household Incomes (MHIs) of Wisconsin Municipalities, Adjusted to 2006, dated August 2008.
- Village of Cleveland Water and Sewer Utility Rates, dated March 26, 2010.
- Economic Analysis Spreadsheet: Village of Cleveland's annual WQS compliance costs as a percent of MHI, prepared by EPA, March 29, 2010.

E. Description of Action:
WDNR proposes to grant the Village of Cleveland's WTF a variance from Wisconsin's water quality criteria for arsenic applicable to Lake Michigan in southeast Manitowoc County of up to 4.5 ug/L as a daily maximum discharge concentration. In the absence of this variance, the most stringent applicable water quality criterion for arsenic would be 0.2 ug/L for protection of human health (applicable at the intake location for any Public Water Supply withdrawal). Under the conditions of the proposed variance, the limit in the permit is set equal to 4.5 ug/L as a daily maximum. Pursuant to NR 106 of the Wisconsin Administrative Code, the permit limit equals

the upper 99th percentile of the representative daily discharge concentration of arsenic. In addition to the limit, the permittee must also conduct quarterly effluent monitoring for arsenic.

WDNR has waived the requirement to prepare a Pollutant Minimization Plan (PMP), including further investigation of alternate water supplies, as allowed under S.283.15(5)2.a, Stats. WDNR concluded that neither source reduction nor obtaining an alternate water supply is reasonably within the economic capability of the permittee.

F. Basis of Action:

The available data show that the arsenic concentration in the effluent from the Village of Cleveland's WTF is greater than the level needed to comply with the most stringent applicable water quality criterion of 0.2 ug/L.

Based on this information, WDNR concluded that:

- The source of the elevated arsenic level in the Outfall 001 discharge (P99 value of 4.5 ug/L) is naturally occurring arsenic in the Village's water supply. Data on Cleveland's municipal water suppy show that between 2002 and 2009, arsenic in the municipal wells ranged from 5.1 to 5.8 ug/L in one well, and 2.4 to 3.4 ug/L in a second well.
- The Village of Cleveland's WTF is properly operated and maintained.
- Additional end-of-pipe treatment would be necessary to comply with a 2.2 ug/L WQBEL.
- The expense of building and operating an alternate water supply to comply with a 2.2 ug/L WQBEL would result in substantial adverse economic impact to the Village of Cleveland, allowing the facility to seek a variance consistent with s. 283.15, Wis. Stats. and federal regulations at 40 CFR 131.10(g). The cost of connecting to an existing water system that draws water from Lake Michigan (Manitowoc or Sheboygan) is estimated to be between $10 million to $20 million. The cost of installing the village's own intake is estimated to be close to $20 million. The Village of Cleveland is a small municipality (population 1,374 from the 2000 census).

II. Areas Affected and Environmental Impacts

A. Area Affected:

The area affected by this variance is Lake Michigan in southeast Manitowoc County, Wisconsin, which is designated as a coldwater fishery and public water supply. The discharge from the WTF is from Outfall 001, located approximately 500 feet off the shore, in the "Sevenmile and Silver Creeks Watershed." The average treated discharge rate at Outfall 001 is approximately 0.239 million gallons per day (MGD.)

B. Environmental Impacts:

1. Aquatic Life

The variance will have no effect on exposed aquatic life. The proposed effluent limitation of 4.5 ug/L is significantly less than both the acute and chronic criteria to protect aquatic life. Wisconsin's aquatic life criteria for arsenic are: Acute Arsenic Criterion = 339.8 ug/L and Chronic Arsenic Criterion = 148 ug/L. Because the discharge concentration of arsenic in the

effluent will be limited by the variance to 4.5 ug/L, both the acute and chronic aquatic life criteria will be met at the point where the effluent enters Lake Michigan.

2. Human Health

As a condition of the proposed variance, the discharge concentration is limited in the permit to 4.5 ug/L as a daily maximum effluent concentration. This concentration is less than EPA's and Wisconsin's current Maximum Contaminant Level of 10 µg/L for mercury in drinking water. EPA established this limit after determining that treatment of drinking water systems below that level was not cost-effective. EPA made this determination under the authority of Section 1412(b)(6) of the Safe Drinking Water Act (66 FR 6976, Jan. 22, 2001). Therefore, the MCL of 10 ug/l maximizes public health risk reduction at a cost justified by the benefits.

In addition, there are no municipal surface water supply intakes near the Village of Cleveland's discharge to Lake Michigan. It can be assumed that the concentration of arsenic in Lake Michigan water will decrease within a short distance from the discharge point, due to the large volume of water in Lake Michigan. Therefore, it is unlikely that human health will be negatively affected by the Village of Cleveland's arsenic discharge.

III. CWA Sections 101(a)(2)/303(c)(2)/118(c)(2)/40 CFR 131 and 132 Review

A. EPA's authority under section 303(c)(2) of the CWA

WQS requirements of CWA Sections 101(a)(2) and 303(c)(2) are implemented through federal regulations contained in 40 CFR 131; WQS requirements of CWA Section 118, specific to waters of the Great Lakes System, are implemented through federal regulations contained in 40 CFR 132. Federal regulations at 40 CFR 131.21 require EPA to review and approve or disapprove state-adopted WQS. In making this determination, EPA must consider the following requirements of 40 CFR 131.5:

- whether state-adopted uses are consistent with CWA requirements;
- whether the state has adopted criteria protective of the designated uses;
- whether the state has followed legal procedures for revising its standards;
- whether state standards are based on appropriate technical and scientific data and analyses; and
- whether the state's submission includes certain basic elements as specified in 40 CFR 131.6.

Section 101(a)(2) of the CWA specifies that designated uses "provide for the protection and propagation of fish, shellfish, and wildlife and provide for recreation in and on the water." Section 303(c)(2) of the CWA requires that standards shall protect the public health and shall take into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational, agricultural, industrial, and navigational purposes.

EPA is required to review and approve new and revised WQS submitted by States and Tribes. Possible EPA actions include:

- **Approval** (where EPA has concluded that approval of certain revisions will have no effect on listed species, or is otherwise not subject to ESA consultation),
- **Approval subject to ESA consultation** (where EPA has concluded that certain revisions may effect listed species (including beneficial effects)),
- **Disapproval** (where EPA has concluded that certain revisions do not meet the requirements of the CWA or federal regulations and guidance), and
- **No EPA action** (where EPA has concluded that certain revisions are not revisions to the State's or Tribe's WQS and, therefore, do not need to be reviewed under Section 303(c) of the CWA.

Consistent with federal regulations at 40 CFR 131.21, new or revised WQS do not become effective for CWA purposes until they are approved by EPA.

B. Public Participation, Comments, and Issues Raised on WDNR's draft variance determination

WDNR issued a public notice for the permit and variance request on November 30, 2009. The only comments WDNR received were from the facility. In response to those comments, WDNR revised the permit language to reduce the frequency of the proposed ammonia and pH monitoring requirements. WDNR did not receive any other comments from the public.

EPA did not review the draft version of this variance determination.

C. EPA's Review of WDNR's Final Mercury Variance Determination

1. Review of Submittal for Completeness

Regulatory Requirement:	**Village of Cleveland's WTF:**
Use designations consistent with the provisions of section 101(a)(2) and 303(c)(2) of the Act **(40 CFR 131.6(a))**	The designated uses for Lake Michigan are coldwater fishery and public water supply.
Methods used and analyses conducted to support WQS revisions **(40 CFR 131.6(b))**	Documents submitted by WDNR in support of this variance include all items listed above under submittal history.
Water quality criteria sufficient to protect the designated use "cold water fish community and public water supply" **(40 CFR 131.6(c))**	Under the conditions of the variance, the applicable water quality criterion is the arsenic effluent concentration currently achievable (expressed as a 1-day P99 concentration,) 4.5 ug/L. TheWisconsin criteria to protect aquatic life are 339.8 ug/L acute and 148 ug/L chronic. The WQBEL to protect human health is 2.2 ug/L, based on Wisconsin's human health criterion of 0.2 ug/L. There are no municipal water supply intakes near the Village of Cleveland's discharge to Lake Michigan.
An antidegradation policy consistent with §131.12 **(40 CFR 131.6(d))**	Not applicable. This variance does not affect Wisconsin's existing antidegradation policy.

Regulatory Requirement:	**Village of Cleveland's WTF:**
Certification by the State Attorney General or other appropriate legal authority within the State that the WQS were duly adopted pursuant to State law. **(40 CFR 131.6(e))**	WDNR's General Counsel certified the variance in a letter from Michael Lutz to Tinka Hyde dated January 8, 2010.
General information which will aid the Agency in determining the adequacy of the scientific basis of the standards which do not include uses specified in section 101(a)(2) of the Act as well as information on general policies applicable to State standards which their application and implementation. **(40 CFR 131.6(f))**	The information submitted by WDNR and the Village of Cleveland is described above. The Village of Cleveland operates a WTF with a average discharge rate of approximately 0.239 MGD.
Variance not applicable to new/recommencing discharges **(40 CFR 132, Appendix F, Procedure 2.A.1)**	The Village of Cleveland WTF is an existing facility.
Variance does not jeopardize federally-listed threatened/endangered species **(40 CFR 132, Appendix F, Procedure 2.A.2)**	The variance for arsenic is for a human health criterion. Standards related to human health protection are not subject to Endangered Species Act consultation since EPA lacks control or discretion under the CWA to modify its action based on other endpoints, such as impacts to federally-listed threatened or endangered species.
WQS cannot be attained by implementing treatment requirements of sections 301 and 306 of the CWA **(40 CFR 132, Appendix F, Procedure 2.A.3)**	The facility is currently meeting its secondary treatment requirements. Regarding non-point source controls, there are no applicable cost-effective and reasonable best management practices, as the source of arsenic in the Village of Cleveland's wastewater treatment system is not agricultural runoff. (Source is naturally-occurring pyrite, based on geologic logs from WDNR.)
Duration of the variance is five years or the life of the permit, whichever is less **(40 CFR 132, Appendix F, Procedure 2.B)**	As proposed the variance duration is five years, from April 1, 2010 through the end of the permit term, March 31, 2015.
Variance is based on one of the six conditions **(40 CFR, Appendix F, Procedure 2.C)**	Variance is based on condition "f", substantial and widespread social and economic impacts that would occur if the facility were required to comply with WQS.
Variance conforms with State antidegradation policy **(40 CFR 132, Appendix F, Procedure 2.C.2.a)**	Granting this variance does not remove an existing use.
Any increased risk to human health or the environment is consistent with the protection of public health, safety, and welfare **(40 CFR 132, Appendix F, Procedure 2.C.2.b)**	Given the substantial estimated costs of obtaining alternative source water supplies, and the lack of treatment technologies capable of reducing arsenic effluent concentrations to achieve a 2.2 ug/L water quality-based effluent limitation, granting a variance in this situation is consistent with the protection of the public health, safety and welfare because of the substantial public health and safety benefits of providing wastewater treatment, and the limited impact of the elevated effluent concentration.

Regulatory Requirement:	Village of Cleveland's WTF:
Submittal of a variance application by the permittee demonstrating that attaining WQS is not feasible and showing compliance with the requirements of section C.2. of Procedure 2. **(40 CFR 132, Appendix F, Procedure 2.D)**	The Village of Cleveland's variance application was submitted to WDNR on September 2, 2009.
Submittal to EPA, including permittee's application, public comments and hearing records (if held), final decisions, NPDES permit with conditions, consistent with 2.F **(40 CFR 132, Appendix F, Procedure 2.I)**	WDNR provided all the required information.

2. EPA action on the final variance determination submitted by WDNR:

The information provided by WDNR meets the substantive requirements for a WQS submittal of 40 CFR 131.6. Based on this information, EPA has made the following determinations for the Village of Cleveland's wastewater treatment facility:

- The arsenic level in the effluent (1-day P99 value of 4.5 ug/L, as determined by WDNR) exceeds the 2.2 ug/L WQBEL calculated by WDNR to protect public water supply use in Lake Michigan (based on a default 10x dilution, using the CWA water quality criterion of 0.2 ug/L human cancer criterion for public water supply receiving waters). Considering the distance from the discharge and the nearest PWS intake (which is where the WQS applies), this default dilution factor is an extreme under estimate.
- The source of arsenic is the groundwater public water supply for the Village of Cleveland, and is naturally-occurring (contaminant of pyrite, based on WDNR geologic logs).
- The arsenic concentration in the public water supply (5.4 ug/L in Well #1 and 3.1 ug/L in Well #2) is in compliance with EPA's MCL of 10 ug/L. The wastewater treatment plant's permitted discharge to Lake Michigan of 4.5 ug/L is also in compliance with EPA's MCL of 10 ug/L.
- The most reasonable option for compliance with WQSI is to construct a public water supply from Lake Michigan.
- Building a Lake Michigan water intake and treatment plant could cost up to $20 million dollars, based on WDNR estimates.
- Current wastewater treatment costs/household are approximately 1% of the MHI for the Village of Cleveland.
- The added cost of building and operating a Lake Michigan water intake would increase the cost/household of compliance with WQS to approximately 4% of the MHI (EPA Economic Analysis Spreadsheet).
- EPA considers costs that exceed 2% of the MHI to be likely to cause widespread adverse social and economic impacts in the community.
- Therefore, WDNR's final arsenic variance determination is consistent with the CWA, 40 CFR 131.10(g)(6), and federal regulations and guidance.

Based on the information listed above, EPA approves WDNR's final arsenic variance determination for the Village of Cleveland's WTF.

IV. Documents Considered by EPA

Arsenic in Drinking Water Rule (66 FR 6976, Jan.22, 2001)

V. Endangered Species Act Requirements

Consistent with section 7 of the ESA and federal regulations at 50 CFR Part 402, EPA is required to consult with U.S. Fish and Wildlife Service (FWS) on any action taken by EPA that may affect federally-listed threatened and endangered species or their designated critical habitat.

In the case of this action, EPA is not required to consult with FWS. This arsenic variance is for a human health criterion. Standards related to human health protection are not subject to ESA consultation since EPA lacks control or discretion under the CWA to modify its action based on other endpoints, such as impacts to federally-listed threatened or endangered species. In addition, the approved variance concentration is not expected to have any adverse impacts on aquatic life (see aquatic life environmental impact discussion above).

Appendix F
Examples: Public Notices

Example Public Notice of Intent to Reissue a Variance in Wisconsin

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES
PUBLIC NOTICE OF INTENT TO REISSUE WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM (WPDES) PERMIT No. WI-0001341-08-0

Permittee and Facility Where Discharge Occurs: Little Rapids Corporation, Shawano Specialty Papers, W7575 Poplar Road, Shawano, WI 54166

Receiving Water and Location: Shawano Specialty Papers discharges to the Wolf River, Middle Wolf River Watershed (WR 14) in the Wolf River Basin.

Brief Facility Description: Shawano Specialty Papers produces approximately 180 tons per day of specialty papers from virgin market pulps and pre- and post-consumer pulp substitutes. This activity results in the average discharge of 66,000 gallons per day of noncontact cooling water and 2.4 million gallons per day of treated process wastewater. Shawano Specialty Papers also land applies an average of 2,000 dry tons of wastewater treatment system sludge per year on application sites located in Shawano County.

Summary of Proposed Changes: All proposed changes are listed in the fact sheet, which is available by contacting the permit drafter or basin engineer. Significant changes proposed include the addition of an effluent limit for mercury and increased dioxin monitoring requirements for wastewater treatment system sludge.

Permit Drafter: Michael Hammers, DNR, 101 S Webster St., PO Box 7921, Madison, WI 53707-7921, (608) 267-7640, mike.hammers@wisconsin.gov

Basin Engineer: Bruce Oman, DNR, 101 N Ogden Road, Peshtigo, WI 54157-1708, (715) 582-5012, bruce.oman@wisconsin.gov

The Department has tentatively decided that the above specified WPDES permit should be reissued. Limitations and conditions which the Department believes adequately protect the receiving water are included in the proposed permit. Land application of waste shall be done in accordance with permit conditions and applicable codes. All land application sites shall be approved prior to their use. To receive a list of approved sites, or to be notified of potential approvals, contact the basin engineer.

The Department has determined that a water quality-based effluent limitation (WQBEL) of 1.3 ng/L expressed as a monthly average is needed for mercury to protect wildlife and human health in the above-named receiving water. The permittee has submitted an application for an alternative mercury effluent limitation (AMEL). The application included a pollutant minimization program (PMP) plan for mercury as required under s. NR 106.145(8), Wis. Adm. Code. The Department concludes that the permittee has qualified for a variance based on the information submitted, information on file and the findings provided in s. NR 106.145(1), Wis. Adm. Code. The Department and the permittee have mutually agreed upon an AMEL of 3.7 ng/L expressed as a daily maximum, continued effluent monitoring, and permit language requiring implementation of the PMP. The Department proposes to grant the AMEL, which represents a variance to the water quality standard used to derive the WQBEL, as provided for under s. NR 106.145(6), Wis. Adm. Code. The designated use of the receiving water will not change as a result of the variance.

Persons wishing to comment on or object to the proposed permit action, or to request a public hearing, may write to the Department of Natural Resources at the permit drafter's address. All comments or suggestions received no later than 30 days after the publication date of this public notice will be considered along with other information on file in making a final decision regarding the permit. Anyone providing comments in response to this public notice will receive a notification of the Department's final decision when the permit is issued. The U.S. Environmental Protection Agency is allowed up to 90 days to submit comments or objections regarding this permit determination. If no comments are received on the proposed permit from anyone, including U.S. EPA, the permit will be issued as proposed.

The Department may schedule a public informational hearing if requested by any person and shall schedule a public informational hearing if a petition requesting a hearing is received from five or more persons or if response to this notice indicates significant public interest pursuant to s. 283.49, Stats. Requests for a public informational hearing shall state the following: the name and address of the person(s) requesting the hearing; the interest in the proposed permit of the person(s) requesting the hearing; the reasons for the request; and the issues proposed to be considered at the hearing.

Information on file for this permit action, including the draft permit and fact sheet, may be inspected and copied at the permit drafter's or basin engineer's office, Monday through Friday (except holidays), between 9:00 a.m. and 3:30 p.m. Please call the permit drafter or basin engineer for directions to their office location, if necessary. Information on this permit action may also be obtained by calling the permit drafter at (608) 267-7640 or by writing

to the Department. Reasonable costs (usually 20 cents per page) will be charged for copies of information in the file other than the public notice and fact sheet. Permit information is also available at: http://dnr.wi.gov/org/water/wm/ww/drafts/pubnot.htm. Pursuant to the Americans with Disabilities Act, reasonable accommodation, including the provision of informational material in an alternative format, will be made to qualified individuals upon request.

PUBLISHING NEWSPAPER: Shawano Leader, PO Box 416, Shawano, WI 54166-0416
Date Notice Issued: February 4, 2009

Example Public Notice of the Final Determination to Reissue a Variance in Wisconsin

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES

NOTICE OF FINAL DETERMINATION TO REISSUE WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM (WPDES) PERMIT No. WI-0001341-08-0

Permittee and Facility Where Discharge Occurs: Little Rapids Corporation, Shawano Specialty Papers, W7575 Poplar Road, Shawano, WI 54166

Receiving Water: Shawano Specialty Papers discharges to the Wolf River, Middle Wolf River Watershed (WR 14) in the Wolf River Basin.

Brief Facility Description: Shawano Specialty Papers produces approximately 180 tons per day of specialty papers from virgin market pulps and pre- and post-consumer pulp substitutes. This activity results in the average discharge of 66,000 gallons per day of noncontact cooling water and 2.4 million gallons per day of treated process wastewater. Shawano Specialty Papers also land applies an average of 2,000 dry tons of wastewater treatment system sludge per year on application sites located in Shawano County.

Permit Drafter's Name, Address, Phone and e-Mail: Michael Hammers, Wisconsin DNR, 101 S. Webster St., PO Box 7921, Madison, WI 53707-7921, (608) 267-7640, mike.hammers@wisconsin.gov

Basin Engineer's Name, Address, Phone and e-Mail: Bruce Oman, Wisconsin DNR, 101 N. Ogden Road, Peshtigo, WI 54157, (715) 582-5012, bruce.oman@wisconsin.gov

Date Permit Signed/Issued:

Date of Effectiveness: May 1, 2009

Date of Expiration: March 31, 2014

Following the public notice period the Department has made a final determination to reissue the WPDES permit for the above-named permittee for this existing discharge. The permit application, information from the WPDES permit file, comments received on the proposed permit, and applicable Wis. Adm. Codes were used as a basis for this final determination.

The Department has the authority to issue, modify, suspend, or revoke WPDES permits and to establish effluent limitations and permit conditions under ch. 283, Stats.

Following is a summary of significant comments and changes that have been made in the terms and conditions set forth in the draft permit as public noticed:

Permit Changes

The effective date of the public noticed permit was changed from April 1, 2009 to May 1, 2009 in recognition of the time required to process the variance from water quality standards for mercury. Such variances must be approved by the U.S. Environmental Protection Agency (EPA) following the close of the public comment period.

Comments Received from EPA or Other Government Agencies

Neither EPA nor other government agencies submitted comments on the public noticed permit.

Comments Received from the Applicant, Individuals or Groups

The permittee requests permit language stating that a mercury limit exceedance would not be considered a violation when the permittee can show the exceedance was related to a high level of mercury in the mill's intake water.

The Department did not change the public noticed permit in response to the permittee's requested. Such an approach for evaluating exceedances of water quality-based effluent limits is not authorized by Wisconsin's water quality standards.

As provided by s. 283.63, Stats., and ch. 203, Wis. Adm. Code, persons desiring further adjudicative review of this final determination may request a public adjudicatory hearing. A request shall be made by filing a verified petition for review with the Secretary of the Department of Natural Resources within 60 days of the

date the permit was signed (see permit signature date above). Further information regarding the conduct and nature of public adjudicatory hearings may be obtained by contacting the Department of Natural Resources, Bureau of Watershed Management, WPDES Permits, Box 7921, Madison, Wisconsin 53707 and by review of ch. NR 203, Wis. Adm. Code, s. 283.63 Stats., and applicable code law.

Information on file for this permit action may be inspected and copied at either the above named permit drafter's address or the above named basin engineer's address, Monday through Friday (except holidays), between 9:00 a.m. and 3:30 p.m. Information on this permit action may also be obtained by contacting the permit drafter at (608) 267-7640 or mike.hammers@wisconsin.gov or by writing to the Department. Reasonable costs (usually 20 cents per page) will be charged for copies of information in the file other than the public notice and fact sheet. Pursuant to the Americans with Disabilities Act, reasonable accommodation, including the provision of informational material in an alternative format, will be made to qualified individuals upon request.

Appendix G
Examples: EPA Region and State Guidance Documents

EPA Region 7
Variances to Water Quality Standards
Procedural Guidelines

(The guidance reflects Regional suggestions and is not intended to reflect national policy)

Environmental Protection Agency (EPA), Region 7
Variances to Water Quality Standards
Procedural Guidelines

Background on EPA's Variance Provision

A variance is a temporary modification to the designated use and associated water quality criteria that would otherwise apply. It is based on a use attainability demonstration and targets achievement of the highest attainable use and associated criteria during the variance period. Modifying the use through a variance process allows the state (in this document, state refers to states and authorized Tribes) to limit the applicability of a specific criterion and to identify an alternative designated use and associated criteria to be met during the term of the variance. The variance may be written to address a specified geographical coverage, a specified pollutant or pollutants, and/or a specified pollutant source. All other applicable water quality standards (WQS) not specifically modified by the variance remain applicable (e.g., any other criteria adopted to protect the designated use). A typical variance modifies the use as it pertains to discharge of a single pollutant from a single source for a period of three to five years – although it may be of longer duration.

EPA explained its position on approving variances in its *Water Quality Standards Handbook* (Second Edition, 1994) and reiterated this position in the 1998 Advanced Notice of Proposed Rulemaking (63 FR No. 129, July 7, 1998). The legal basis for granting a variance is that the state has fulfilled the same regulatory requirement for removing a designated use (the complete legal history is found in Section 5.3 of EPA's Water Quality Standards Handbook, 1994). As such, a variance is a revised WQS that must be supported on the basis of one of the factors specified in 40 CFR § 131.10(g), and requires EPA review and approval before it can be effective for Clean Water Act (CWA) purposes (40 CFR § 131.21(c)). Federal regulations (40 CFR §§ 131.6(a) and (c), 131.10 and 131.11) require states to specify uses and criteria to support those uses in a water body at all times. As such, the variance must identify the designated use and associated criteria to be in place for at least the term of the variance to ensure the highest level of water quality is attained. In addition, every 3 years, the state must consider whether there is any new information that may indicate that a 101(a) use is attainable (assuming the variance does not retain a 101(a) use), and if so, revise the WQS accordingly (40 CFR § 131.20(a)). EPA expects states to address each of these items in their submittal, discussed in greater detail below.

For further background information please refer to EPA's Advanced Notice of Proposed Rulemaking (63 FR No. 129, July 7, 1998); EPA's *Water Quality Standards Handbook* Section 5–3 (1994); Memorandum from EPA's Office of Water, "Variances in Water Quality Standards," March 15, 1985; 48 FR 51400, 51403 (Nov. 8, 1983); and Decision of the General Counsel No. 58, In Re Bethlehem Steel Corporation, March 29, 1977.

Submittal

Variances are often implemented through a two-step process: first, a general authorizing provision is adopted into state WQS which describes the purpose for and under what circumstances the state may grant a variance; and second, individual applications of the variances are adopted as WQS pursuant to the general authorizing provision. In this way, adoption and approval of individual variances may be streamlined because the general authorizing provision is already in place. EPA's regulations at 131.6(e) identify a minimum submission requirement that certification by the state Attorney General (AG), or other appropriate legal authority within the state, that the WQS were duly adopted pursuant to state law. In the case of variances, if a state first adopts a general authorizing provision into their WQS (all requirements for submission to EPA are met, including AG certification) and EPA approves that provision, then the state could submit individual variances without the AG certification because EPA has approved the authorizing provision that was certified by the AG. To be effective for CWA purposes, EPA must review and approve both the general authorizing provision and individual applications of variances as new or revised state WQS.

EPA has approved the use of variances when the state demonstrates that the following items are fulfilled: 1) the individual variance is included in WQS, 2) the variance is subject to the same public review as other changes in WQS, 3) that meeting the standard is unattainable based on one or more of the factors listed in 40 CFR § 131.10(g) for removing a designated use, 4) the variance secures the highest level of water quality attainable short of achieving the standard, and 5) that advanced treatment and alternative effluent control strategies have been considered.

1) Variances to Water Quality Standards and Triennial Review

By using variances to WQS, states can write National Pollutant Discharge Elimination System (NPDES) permits such that reasonable progress is made toward attaining the standards without violating Section 402(a)(1) of the Act, which states that NPDES permits must meet the applicable WQS. Variances are granted for a specific period of time (typically 3 years), which should be specified in the variance submittal. To be effective for CWA purposes, such as NPDES permitting, variances must be reviewed and approved by EPA.

Because variances are changes to WQS, states must review the variance on a triennial basis to consider any new information and to determine whether or not the variance is still justified, as is required under Section 303(c) of the CWA for WQS. If the triennial review of the variance indicates that more stringent criteria are attainable, then the state should revise the permit variance and WQS accordingly. If, however, the discharger makes a new demonstration that WQS are unattainable and the state believes that additional time is warranted, then the state should make the necessary revisions to the permit variance and WQS, and resubmit it to EPA for review. EPA understands that in some circumstances it may be warranted to grant a variance that extends beyond 3 years based on the initial demonstration made by the discharger. In these cases, the state should justify the proposed timeframe and include interim milestones in the permit to ensure that reasonable progress is made toward meeting the standards (*EPA Water Quality Standards Handbook*, Second Edition, 1994).

2) Public Participation

Section 303(c)1 of the CWA and the applicable federal regulations at 40 CFR § 131.20 describe the states' requirement to hold a public hearing for the purpose of reviewing WQS, and notes that the information should be made available to the public prior to the hearing. It is EPA's belief that variances, to be approved as changes to WQS, require the same opportunity for public review and comment.

3) 40 CFR § 131.10(g) Demonstration

As described in Section 5.3 of the *EPA Water Quality Standards Handbook* (Second Edition, 1994), variances to WQS involve the same substantive and procedural requirements as removing a designated use, but specifically identify the applicable discharger(s), pollutant(s), and time limit. The substantive and procedural requirements include a use attainability demonstration identifying one of the factors listed in federal regulations (40 CFR § 131.10(g)) for removing a designated use and target achievement of the highest attainable use and associated criteria during the variance period. The state must demonstrate that meeting the current WQS is unattainable based on one or more of these factors and submit the variance to EPA as a change to WQS.

4) Highest Level of Water Quality Attainable

Federal regulations require states to designate uses and adopt water quality criteria to protect those uses (40 CFR §§ 131.6(a) and (c), 131.10 and 131.11). As such, the variance must identify the designated use and associated criteria to be in place for at least the term of the variance to ensure that the highest attainable level of water quality is maintained. The state should demonstrate that the variance is protective of the aquatic life community that is expected in the receiving stream, paying particular attention to any threatened or endangered species and their critical habitat that may be affected by a change in the WQS.

5) Consideration of Advanced Treatment and Alternatives

The state's justification for the variance should include documentation that treatment more advanced than that required by Sections 303(c)(2)(A) and (B) of the CWA has been carefully considered, and that alternative effluent control strategies have been evaluated.

Once the variance is approved by the state staff, the state should send the following information to EPA-Region 7 (Water Quality Standards Coordinator) after the public comment period has ended*:

a. Submittal Letter – Letter from state with an official request for EPA to review the variance as a change to WQS.

b. Regulatory Documentation
    i. Demonstration that meeting the standard is unattainable based on one or more of the factors listed in 40 CFR § 131.10(g) for removing a designated use.
    ii. Demonstration that the variance secures the highest level of water quality attainable short of achieving the standard, which includes specifying the designated use to be supported by the alternate criteria applicable during the time of the variance and an explanation as to why the alternate criteria are protective of the designated use.
    iii. Demonstration that advanced treatment and alternative effluent control strategies have been considered.
    iv. An explanation as to why the specified time period is reasonable and necessary.
    v. If the variance request is for longer than 3 years, interim milestones should be included in the permit.
    vi. A statement of state's intent to review the variance on a triennial basis, as is required for WQS under Clean Water Act section 303(c)(1).
c. Permit Information
    i. A copy of the variance application from the permittee
    ii. A copy of the cover page of the permit
    iii. A copy of the effluent limitations
    iv. A copy of the variance language included as conditions in the permit
d. Public Participations Information
    i. Copy of the notice of draft permit published by the state
    ii. Copies of relevant state, commission, and/or rulemaking documents approving the variance
    iii. Copy of the Affidavit of publication of notice
    iv. Copy of all public comments received on the proposed variance and draft permit, and responses to those comments
    v. A brief explanation as to how the state fulfilled its state and the federal public participation requirements for WQS
e. Technical Justification
    i. Purpose/intent of the variance
    ii. Rationale for including interim uses and criteria (see considerations below)
    iii. Monitoring provisions and assessment protocols to track progress

    Considerations based on purpose/intent:

    - Interim numeric criteria - Variances intended to provide relief in cases where meeting one or more criteria to protect the designated use is not feasible under current conditions, but could be feasible if circumstances change, should specify interim numeric water quality criteria that are achievable. For example, circumstances that are used to justify a variance based on 40 CFR 131.10(g) factor 6 (meeting standards would result in substantial and widespread economic and social impact) could change if less expensive pollution control technology is developed.

- Narrative criteria – Variances intended to provide time to implement controls and a mechanism to oversee and track progress where attaining the designated use might ultimately be feasible, but will take considerable time and effort, may include a narrative criterion as the basis for permit limits to drive increased controls. The variance should include a description of how the narrative criteria will be translated (e.g., numeric translators).
- Site-specific criteria – Variances intended to provide time to develop site-specific criteria should include a detailed timeline with specific data collection and analysis milestones. In addition, the state's submission to EPA should include a summary of preliminary testing that justifies the development of a site-specific standard.
- Highest attainable use – In cases where the highest attainable use may be unknown, the variance should include a description of the efforts to make as much progress as feasible.
- Long-term attainability – For variances intended to provide time to complete studies to determine what is attainable in the longer term (but only in cases where an analysis shows that standards are not attainable in the short term based on one or more factors listed in 40 CFR § 131.10(g)), then this type of variance should include a detailed timeline with specific data collection and analysis milestones. This procedure is not intended to support long-term open-ended evaluations.

*Region 7 encourages states to coordinate with the Region early in the variance review process. If the state chooses to initiate coordination prior to the permit public notice, the state can send their submittal in two parts. The official request (Item a) and technical information (Items b and e) may be submitted early to EPA along with draft versions of the permit information listed under Item c. After the public notice closes, the state should submit a final copy of the permit information (Item c) with the public participation information (Item d). The official request (Item a) may also be submitted with the final permit and public participation information (Items c and d). All items must be submitted to EPA before a final decision can be made on the variance.

Review

EPA will evaluate the variance package and determine whether or not the documentation supports the proposed variance. The EPA Water Quality Standards and Permit Coordinators will review the variance. Section 7(a)(2) of the Endangered Species Act (ESA) requires that federal agencies, in consultation with the United States Fish and Wildlife Service (USFWS), ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened or endangered species or result in the destruction or adverse modification of designated critical habitat of such species. If EPA finds the variance approvable, EPA will submit a biological evaluation to USFWS, when necessary. If EPA receives concurrence from USFWS, EPA will send an approval letter to the state. If EPA does not agree that the variance is appropriate, then EPA will respond in writing to the state. If the variance is approved and after 3 years the permittee cannot meet the WQS, then the state must consider any new information and reinitiate the variance review process.

Tracking

EPA tracks the approved variances and expiration dates on the EPA Water Quality Standards Repository to ensure that the information is readily available to the public.

The state should track the approved variances and expiration dates on the state Department's (e.g., Department of Environmental Quality, Department of Natural Resources) Water Quality Standards website and NPDES Permits website to ensure the information is readily available to the public.

References

EPA's Water Quality Standards Handbook, Second Edition. 1994.
http://www.epa.gov/waterscience/library/wqstandards/handbook.pdf

Advanced Notice of Proposed Rulemaking, Federal Register, Vol. 63, No. 129 (July 7, 1998)

48 Federal Register 51400, 51403 (Nov. 8, 1983)

Memorandum from EPA's Office of Water, "Variances in Water Quality Standards," March 15, 1985

Decision of the General Counsel No. 58, In Re Bethlehem Steel Corporation, March 29, 1977.

SUBMITTAL CHECKLIST

Item	Description	Date Sent by State (mm/dd/yyyy)	Date EPA-R7 Received (mm/dd/yyyy)	Complete? (Y/N)	If not complete, date notified (mm/dd/yyyy)	In not complete, date resubmitted (mm/dd/yyyy)	Additional Comments
a	Submittal letter						
b.i	131.10(g) factor						
b.ii	Designated use and supporting criteria						
b.iii	Advanced treatment and alternatives considered						
b.iv	Reasonable and necessary time period						
b.v	Interim milestones, if applicable						
b.vi	Triennial review statement						
c.i	Variance application						
c.ii	Permit cover page						
c.iii	Effluent limitations						
c.iv	Variance language in permit conditions						
d.i	Notice of draft permit						
d.ii	Relevant state approval documents						
d.iii	Public notice affidavit						
d.iv	Comments and responses						
d.v	Fulfilled public participation						
e.i	Purpose/intent						
e.ii	Uses and criteria rationale						
e.iii	Monitoring and assessment tracking						

EPA INTERNAL CHECKLIST

The EPA Water Quality Standards Coordinator scans copies of all the information and place it in the Variance folder on the shared network drive for the Water, Wetlands, and Pesticides Division, and notifies the NPDES Permits Coordinators (Region and state) that a variance package has been received. The Water Quality Standards Coordinator notes submittal dates on the Submittal Checklist (see attached) and maintains a copy in the folder on the shared network drive. (H:\WQMB\Water Quality Standards\Variances\[State Name])

Description	**Date Completed (mm/dd/yyyy)**	**Additional Comments**
Submittal copied to H: drive		
Submittal sent to USFWS		
Regional and state Permits Coordinators notified		
Review comments received from Permits Coordinators		
Biological evaluations submitted to USFWS		
Response received from USFWS		Concurrence? Y / N
Response to state and reviewed by Permits Coordinators		
Response to state sent		

EPA Contacts:

Management

Pradip Dalal, Chief, Wastewater & Infrastructure Management Branch
John DeLashmit, Chief, Water Quality Management Branch

Regional Coordinator

Ann Lavaty, Regional Water Quality Standards (WQS) Coordinator

State Coordinators

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Kansas

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Jodi Bruno, NPDES Permits Coordinator

Missouri

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Mark Matthews, NPDES Permits Coordinator

Nebraska

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Fact Sheet: Colorado Temporary Modifications

Fact Sheet: Colorado Temporary Modifications

Updated December 2010 to Describe Latest Revisions to
Colorado's General Policy (Regulation #31, Section 31.7(3))

What is a Temporary Modification?

- Site-specific WQS revision subject to EPA review and triennial review.
- Recognizes significant uncertainty and provides time to resolve a WQS issue.
- A protective numeric criterion is adopted/retained. Often this is a CWA 304(a) criterion. Referred to as the "underlying standard."
- A temporary (less stringent) narrative or numeric standard is also adopted; normally the temporary standard is based on maintaining and protecting existing water quality.
- An expiration date is adopted based on the time needed to execute the plan for resolving the WQS issue. Barring action by the Commission to adopt a different numeric standard, the underlying standard becomes effective upon expiration of the temporary modification (inspiring stakeholders to develop a defensible alternative).

How Do Temporary Modifications Affect WQS-Based Decisions?

- CWA 303(d) listing decisions are based on the protective underlying standard and representative water quality data. Temporary modifications are <u>not</u> a basis for de-listing.
- TMDL may be a low priority until the WQS uncertainty is resolved; however, TMDL might be high priority if there is interest in using TMDL Program expertise and resources.
- NPDES compliance schedules (to achieve WQBELs based on the underlying standards) are held in abeyance until the uncertainty is resolved. However, permits may require actions intended to eliminate the WQS uncertainty (e.g., field study requirements), and include requirements to protect the temporary standard.

Types of Temporary Modifications

- *Type A - Significant uncertainty regarding WQS necessary to protect current and/or future uses*. Covers situations where there are compelling reasons to doubt that the current WQS is appropriate, including water effect ratio and copper toxicity issues, recalculation issues, and cases where UAAs are needed. The justification may or may not describe a valid attainability question – e.g., the justification may focus on evidence that the criterion needs to be modified, but contain little or no evidence that WQBELs are infeasible. Temporarily postpones need to issue a compliance schedule to achieve WQBELs based on significantly uncertain WQS. See examples below.
- *Type B - Significant uncertainty regarding the extent to which existing quality is the result of natural or irreversible human-induced conditions.* Covers situations where the underlying standard may be infeasible to achieve, but additional studies are needed to derive a defensible numeric standard. The justification must reference an attainability issue related to natural and/or anthropogenic sources. Provides time to develop a site-specific criteria study and/or UAA; however, the focus is usually on reviewing the criterion. Retaining the present designated use serves as a reminder that conditions may be correctable and may increase priority for funding to attain the classified use. See examples below.
- *Type C* - Significant uncertainty regarding the timing of implementing attainable source controls or treatment (this is a new type adopted in 2010 but Region 8 submitted comments during the rulemaking process that it would recommend EPA disapproval).

Conditions for Granting a Temporary Modification

1) Significant uncertainty (see types of temporary modifications above); and
2) Non-attainment of underlying standard demonstrated or predicted; and
3) An existing permitted discharge has a demonstrated or predicted WQBEL compliance problem; and
4) Adequate supporting information is submitted, including a justification for the interim narrative or numeric value, raw data describing effluent and ambient quality, a plan for eliminating the need for the temporary modification, and a justification for the proposed expiration date; and
5) Expiration date based on how soon resolving the issues is deemed feasible.

Annual Review Process

An annual rulemaking hearing is held to review temporary modifications that expire within two years. As a result of the hearing, the Commission may, for example:

- Delete the temporary modification and allow the underlying standard to go into effect, or
- Delete the temporary modification and adopt a revised underlying standard.

Site-Specific Examples

- *Total Ammonia – McElmo Creek, La Plata River Segment 7a, Aquatic life Warm Class 1, Regulation #34.* Current type A temporary modification. Uncertainty regarding whether discharger (e.g., Vista Verde Village Mobile Home Park, a 0.015 mgd aerated lagoon facility) can comply with WQBELs (economic impact issue). Colorado does not yet have a fully developed discharger-specific variance program. Uncertainty regarding whether table value standard is appropriate for the expected aquatic community (recalculation issue). The portion of McElmo Creek receiving the mobile home park discharge has low flows; additional data are needed to characterize expected aquatic life and explore possible recalculation. State staff are evaluating options with EPA participation. Underlying standard = table values (EPA 1999 Update). Temporary standard = Previous (less stringent) table values for un-ionized ammonia. Expires 12/31/2012.

- *Dissolved Copper – Monument Creek, Fountain Creek Segment 6, Aquatic Life Warm Class 2, Regulation #32*. Current type A temporary modification. Uncertainty regarding whether hardness-dependent table value standard is appropriate given ameliorating effects of site water characteristics including influence of the Tri-Lakes WWTF. Studies to date show that there is a WER. Uncertainty regarding how far downstream an adjusted numeric standard should apply. Uncertainty regarding how a site-specific standard should be derived from biotic ligand model instantaneous results. Uncertainty regarding whether a "translator" adjustment is appropriate for purposes of calculating WQBELs, and if so, what translator adjustment is appropriate. EPA has supported use of the biotic ligand model, including tasking Hydroqual with developing the fixed monitoring benchmark (FMB) approach. Underlying standard = hardness-dependent table values. Temporary standard = "current condition." Expires 12/31/2012.

- *Total Recoverable Iron – Dry, Sage, and Grassy Creeks, Yampa River Segments 13d and 13e, Aquatic Life Warm Class 2, Regulation #33*. Current type B temporary modification. Uncertainty regarding whether elevated iron concentrations are due to natural or irreversible man-induced sources. Seneca Coal Company discharges at multiple locations along these creeks. As part of the annual review process, a rulemaking action currently is underway to consider adoption of site-specific standards based on pre-mining water quality data. Underlying standard = 1,000 µg/L as a 50th percentile. Temporary standard = "existing quality." Expires 5/31/2011.

- *Dissolved Selenium – Toll Gate Creek, Upper South Platte River Segment 16h, Aquatic Life Warm Class 2, Regulation #38*. Type B temporary modification (now deleted). There was uncertainty regarding whether elevated selenium concentrations are due to natural or irreversible man-induced sources. The City of Aurora discharges to this segment. The USGS was contracted to do the study. In 2009, site-specific selenium criteria were adopted based on evidence that the existing ambient concentrations are due to natural groundwater flow associated with bedrock, and the temporary modification was deleted.

- *Temperature – San Miguel River Segment 4b, Aquatic Life Cold Class 2, Regulation #35*. Current type B temporary modification. Uncertainty regarding appropriate ambient temperature standard for this section of the San Miguel River, which supports a mixed aquatic community in a transition zone between cold and warm water habitats. Uncertainty regarding the extent to which Tri-State Generation and Transmission's cooling water discharge is affecting stream temperature and aquatic life. Uncertainty regarding effects of upstream water diversions on aquatic life and temperature, and whether effects are reversible. Uncertainty regarding thermal requirements of expected community (e.g., mottled sculpin, a cold water species). Uncertainty regarding the appropriate aquatic life use sub-category. As part of the annual review process, a rulemaking action currently is underway to consider adoption of site-specific WQS revisions based on a UAA and site-specific criteria study. Underlying standard = None. Temporary standard = 26.3°C as a maximum weekly average during June-Sept. Expires 5/31/2011.

- *Dissolved Zinc – Eagle River Segments 5a, 5b, and 5c, Aquatic Life Cold Class 1, Regulation #33.* Type A and Type B combo temporary modification (now deleted). There was uncertainty regarding whether the much improved (but still somewhat elevated) zinc levels downstream of the Eagle Mine CERCLA site were natural or man-induced rreversible. There was uncertainty regarding whether the table value standard is appropriate for the expected aquatic community (recalculation issue). There was uncertainty regarding whether the aquatic community within the CERCLA site is significantly different compared to upstream control sites. These sources of uncertainty were studied under the temporary modification while the remedial action was underway (remedial actions were <u>not</u> postponed to allow time for resolution of the WQS issues). In 2008, based on all three lines of evidence, site-specific zinc criteria were adopted (requiring a small additional improvement in zinc levels) and the temporary modification was removed.

Appendix H
Examples: Worksheets to Justify the Economic Factor

Example Economic Analysis Worksheet from Idaho

(8)

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

2110 Ironwood Parkway • Coeur d'Alene, Idaho 83814-2648 • (208) 769-1422

Dirk Kempthorne, Governor
C. Stephen Allred, Director

April 11, 2001

MEMORANDUM

TO: Ben Cope, EPA Region X, Seattle

FROM: John C. Tindall, DEQ, Coeur d'Alene J. T.

RE: **South Fork Coeur d'Alene River Sewer District**, Proposed TMDL Metal Limits and Revised Socioeconomic Impact Evaluation

Enclosed is the most current documentation I generated on the socioeconomic impacts to the Page and Mullan WWTPs if the current TMDL metal limits become NPDES Permit limits. This revised version includes the modifications we discussed in January 2001 and modifies the analysis I sent to you 11/28/00. In evaluating these impacts, I followed the procedure presented in the EPA document titled "Interim Economic Guidance for Water Quality Standards Workbook", March 1995.

The major modification from the 11/28/00 version is that the selected metals removal alternative is sulfide precipitation and microfiltration, as you suggested. The capital and O&M cost estimates were provided by the Sewer District's consultant (see enclosed cost estimate table for the Page and Mullan facilities.

Using these revised cost, the annual cost per residential user for wastewater treatment, including metals removal, would equate to 2.84% of the median household income for Shoshone County. According to the criteria in the "Workbook", this is considered a "large financial impact".

In conclusion, the end result of following the procedure outlined in the "Workbook" still demonstrates that financial impact would be "large" and their would be "widespread socioeconomic impacts" if the metals removal facilities were required to be constructed now. This variance is being requested to allow the District time to deal with the I/I problem first in the hopes that after they remove enough I/I, it will be less costly to handle the metal limits. It may be that the cost for metals removal, after the I/I projects are completed, still has a significant impact on the annual residential user costs and I guess we will have to deal with that at the time.

I have evaluated the impacts to the South Fork Coeur d'Alene River Sewer District (SFCRSD) implementing the proposed TMDL metal limits at both the Page Wastewater Treatment Plant (WWTP) and the Mullan WWTP. I used, in performing the evaluation.

Based on my evaluation completed in accordance with this guidance, the impacts from immediately complying with the TMDL metal limits at both WWTPs would be **substantial** and **widespread**. The SFCRSD has proposed to initiate an aggressive infiltration/inflow (I/I) removal program throughout the collection systems located in the contributing cities as an alternative to constructing metal removal systems at each WWTP. It appears that when I/I is contributing significant flow to the systems, the metal concentrations increase probably due to the high metal concentrations in the soils. Reducing the I/I could also reduce the metal loads to the WWTPs. It may take 10 years to complete the comprehensive I/I removal program but it is more cost effective to try this strategy rather than immediately constructing metal removal systems.

enc.
c: Chris Mebane, DEQ State Office, Boise (enc.)

The following is a very rough estimate of potential I/I reduction and approximate costs for upgrades to existing treatment facilities including performance and proposed TMDL improvements. These data are no more than order of magnitude estimates to be used to assess future funding requirements and have very limited analysis behind them. These data should not be used for specific project planning without significant field and bench scale work. A number of the data used for treatment cost estimates were developed from existing treatment data developed for mine water treatment. Applicability to domestic wastewater must be verified.

Page Facility

		Estimated I/I reduction	quantity	unit	unit cost	total cost
I/I improvements[1]						
Wallace		-1.0 mgd				
	Collectors		26400	ft	$ 50	$ 1,320,000
	Laterals		13200	ft	$ 30	$ 396,000
	Manholes		66	ea	$ 2,500	$ 165,000
Silverton		-0.25 mgd				
	Collectors		7000	ft	$ 50	$ 350,000
	Laterals		3500	ft	$ 30	$ 105,000
	Manholes		18	ea	$ 2,500	$ 45,000
Osburn		-0.2 mgd				
	Collectors		7920	ft	$ 50	$ 396,000
	Laterals		3960	ft	$ 30	$ 118,800
	Manholes		20	ea	$ 2,500	$ 50,000
Kellogg		-0.9 mgd				
	Collectors		31680	ft	$ 50	$ 1,584,000
	Laterals		15840	ft	$ 30	$ 475,200
	Manholes		79	ea	$ 2,500	$ 197,500
Resulting peak flow= 7.5 mgd					Total	$ 5,202,500 ←

Treatment plant upgrades

Peak flow = 7.5 mgd Average flow = 2.0 mgd

General upgrades recommended in draft Facility plan (9/19/99) 5,193,000 ←

Metals removal (4 options)[4]	capital cost	Annual O&M cost
sulfide precipitation[2] (NO FILTRATION)	$ 10,000,000	$ 200,000
Post iron Co-ppt/microfiltration[5] →	$ 18,000,000	$ 374,000 ←
filtration/ion exchange	$ 24,000,000	$ 660,000
evaporation/crystallization	$ 72,000,000	$ 2,060,000
GEM CORE'S SELECTED ALTERNATIVE → SULFIDE PRECIP. W/MICRO-FILTRATION	$17,750,000	$ 420,000
Nutrient removal (2 options)		
West Page Swamp	$ 200,000	$ 20,000
alum ppt[3]	$ 1,500,000	$ 200,000

$28,395,500 FOR METALS, I/I & UPGRADE USING STEVE'S ALTERNATIVE

$28,145,000 ← USING GEM'S METAL REMOVAL ALTERNATIVE

Notes

1. I/I is based on 100% replacement of Wallace, 25% of Silverton and Osburn, and 50% of Kellogg
2. Sulfide ppt was recommended by USEPA. However, it is unlikely that it will meet the proposed TMDL
3. This cost does not include sludge management for the facility
4. Costs based on January 1999 Bunker Hill Mine Water Presumptive Remedy
5. Based on new TMDL limits, option 3b (Post iron Co-precipitation + Microfiltration) appears to be viable.

Mullan Facility

		Estimated I/I reduction	quantity	unit	unit cost	total cost
I/I improvements[6]						
Mullan		-1.0 mgd				
	Collectors		26400	ft	$ 50	$ 1,320,000
	Laterals		13200	ft	$ 30	$ 396,000
	Manholes		66	ea	$ 2,500	$ 165,000
Resulting peak flow=		1.15 mgd			total	$ 1,881,000
Treatment plant upgrades						
Peak flow =		1.15 mgd				
Average flow =		0.2 mgd				
General upgrades recommended in draft Facility plan (9/19/99)						$ 1,655,000

Metals removal (3 options)	capital cost	Annual O&M cost
sulfide precipitation[7] (NO FILTRATION)	$ 2,100,000	$ 38,000
filtration/ion exchange[9]	$ 3,700,000	$ 50,000
evaporation/crystallization	$ 11,000,000	$ 155,000
	$ 3,250,000	$ 66,000
Nutrient removal (1 option)		
alum ppt[8]	$ 230,000	$ 20,000

BEN COPE'S SELECTED ALTERNATIVE → SULFIDE PRECIP. W/MICROFILTRATION

$7,236,000 FOR METALS, I/I + UPGRADE USING STEVE'S ALTERNATIVE

$6,786,000 ← USING BEN'S METALS REMOVAL ALTERNATIVE

Notes

6. I/I is based on 50% replacement of Mullan system
7. Sulfide ppt was recommended by USEPA. However, it is unlikely that it will meet the proposed TMDL
8. This cost does not include sludge management for this facility
9. Based on new TMDL limits, option 5 (Media filtration + ion Exchange) appears to be viable.

SUBSTANTIAL IMPACTS

Worksheet A

Pollution Control Project Summary Information

	PAGE WWTP	MULLAN WWTP
Current Capacity of the Pollution Control System	≤ 10 MGD	0.6 MGD
Design Capacity of the Pollution Control System	12.5 MGD	2.3 MGD
Current Excess Capacity	0	0 %
Expected Excess Capacity after Completion of Project	1.4	1.4 %
Projected Groundbreaking Date	5/01	5/03
Projected Date of Completion	11/01	11/03

Please describe the pollution control project being proposed below. (Attach additional page if necessary).
BOTH THE PAGE & MULLAN WWTPS WOULD CONSTRUCT METAL REMOVAL SYSTEMS. AS SHOWN ON THE ATTACHED BREAKDOWN, THE PAGE WWTP NEEDS A POST IRON CO-PRECIPITATION W/ MICROFILTRATION SYSTEM & THE MULLAN WWTP NEEDS A FILTRATION/ ION EXCHANGE SYSTEM. BOTH FACILITIES WILL REQUIRE UPGRADES TO THE EXISTING SYSTEMS & I/I REMOVAL PROJECTS THAT ARE NEEDED EVEN IF METALS REMOVAL WAS NOT GOING TO BE REQUIRED.

Please describe the other pollution control options considered, explaining why each option was rejected. (Attach additional page if necessary).
THE ATTACHED BREAKDOWN SHOWS THE OPTIONS FOR METAL REMOVAL CONSIDERED. THE LEAST COST OPTION WHICH COULD MEET THE ANTICIPATED METAL LIMITS WHERE SELECTED. NUTRIENT REMOVAL WAS NOT CONSIDERED IN THIS COST ANALYSIS.

ALTERNATIVE ANALYSIS USING SULFIDE PRECIPITATION W/ MICROFILTRATION AT BOTH THE PAGE & MULLAN WWTP

Worksheet B

1/10/01

Calculation of Total Annualized Project Costs

A. Capital Costs PAGE + MULLAN PROJECTS COMBINED

Capital Cost of Project	$34,931,000
Other One-Time Costs of Project (Please List, if any):	
_____	$
_____	$
_____	$ -
Total Capital Costs (Sum column)	$34,931,000 (1)
Portion of Capital Costs to be Paid for with Grant Monies (ID Community Development Block Grant)	$ 1,500,000 (2)
Capital Costs to be Financed [Calculate: (1) - (2)]	$33,431,000 (3)
Type of financing (e.g., G.O. bond, revenue bond, bank loan)	DEQ SRF LOAN + PRIVA
Interest Rate for Financing (expressed as decimal)	0.05 (i)
Time Period of Financing (in years)	20 (n)
Annualization Factor = $\frac{i}{(1+i)^n - 1} + i$ (or see Appendix B)	0.08024 (4)
Annualized Capital Cost [Calculate: (3) x (4)]	2,682,503 (5)

B. Operating and Maintenance Costs

Annual Costs of Operation and Maintenance (including but not limited to: monitoring, inspection, permitting fees, waste disposal charges, repair, administration and replacement.) (Please list below)

PAGE WWTP - METALS	$ 420,000
MULLAN WWTP - METALS	$ 66,000
UPGRADE O+M COST INCREASES	$ 48,800
_____	$
_____	$
Total Annual O & M Costs (Sum column)	$ 534,800 (6)

C. Total Annual Cost of Pollution Control Project

Total Annual Cost of Pollution Control Project [(5) + (6)]	$3,217,303 (7)

ALTERNATIVE (CONT.)

Worksheet C

Calculation of Total Annual Pollution Control Costs Per Household

A. Current Pollution Control Costs:

Total Annual Cost of Existing Pollution Control	$ 666,017	(1)
Amount of Existing Costs Paid By Households	$ 559,839	(2)
Percent of Existing Costs Paid By Households	84	%(3)
Number of Households*	4,546	(4)
Annual Cost Per Household [Calculate: (2)/(4)]	$ 123	(5)

* Do not use number of hook-ups.

B. New Pollution Control Costs

Are households expected to provide revenues for the new pollution control project in the same proportion that they support existing pollution control? (Check a, b **or** c and continue as directed.)

☒ a) Yes [fill in percent from (3)] — 84 percent.(6a)

☐ b) No, they are expected to pay _____ percent.(6b)

☐ c) No, they are expected to pay based on flow. (Continue on Worksheet C, Option A)

Total Annual Cost of Pollution Control Project [Line (7), Worksheet B]	$ 3,217,303	(7)
Proportion of Costs Households Are Expected to Pay [(6a) or (6b)]	84	(8)
Amount to Be Paid By Households [Calculate: (7) x (8)]	$ 2,702,535	(9)
Annual Cost per Household [Calculate: (9)/(4)]	$ 594	(10)

C. Total Annual Pollution Control Cost Per Household

Total Annual Cost of Pollution Control Per Household (5) + (10)	$ 717	(11)

ALTERNATIVE (CONT.)

Worksheet D

Municipal Preliminary Screener

The Municipal Preliminary Screener indicates quickly whether a public entity will not incur any substantial economic impacts as a result of the proposed pollution control project. The formula is as follows:

$$\frac{\textit{Total Annual Pollution Control Cost per Household}}{\textit{Median Household Income}*} \times 100$$

A. Calculation of The Municipal Preliminary Screener

Total Annual Pollution Control Cost Per Household [Worksheet C, (11) or Worksheet C, Option A (10)]	$ 717	(1)
Median Household Income*	$ 25,277	(2)
Municipal Preliminary Screener (Calculate: [(1)/(2)] x 100)	2.84 %	(3)

B. Evaluation of The Municipal Preliminary Screener

If the Municipal Preliminary Screener is clearly less than 1.0%, then it is assumed that the cost will not impose an undue financial burden. In this case, it is not necessary to continue with the Secondary Test. Otherwise, it is necessary to continue.

Benchmark Comparison:

Little Impact	Mid-Range Impact	Large Impact
Less than 1.0%	1.0% - 2.0%	Greater than 2.0%

Indication of no substantial economic impacts → 2.84 %

Proceed to Secondary Test

* 1990 Census adjusted by CPI inflation rate if necessary.

Worksheet E

Data Used in the Secondary Test

Please list the following values used in determining the Secondary Score. Potential sources of the data are indicated.

A. Data Collection

Data	Potential Source	Value
Direct Net Debt	Community Financial Statements Town, County or State Assessor's Office	$ 599,230 (1)
Overlapping Debt	Community Financial Statements Town, County or State Assesor's Office	$ NOT AVAILABLE (2)
Market Value of Property	Community Financial Statements Town, County or State Assessor's Office	$ 564,274,458 (3)
Bond Rating	Standard and Poors or Moody's	NOT AVAILABLE (4)
Community Unemployment Rate	1990 Census of Population Regional Data Centers	10.2 % (5)
National Unemployment Rate	Bureau of Labor Statistics (202) 606-6392	3.9 % (6) 11/3/00
Community Median Household Income	1990 Census of Population	$ 24,541 (7) 2/99
State Median Household Income USCB 1997-1999	1990 Census of Population 3YR. AVG.	$ 36,023 (8)
Property Tax Collection Rate	Community Financial Statements Town, County or State Assessor's Office	90.5 ~~.0042580097~~ % (9)
Property Tax Revenues	Community Financial Statements Town, County or State Assessor's Office	$ 2,402,701.52 (10)

Worksheet E, Continued

B. Calculation of Indicators

1. Overall Net Debt as a Percent of Full Market Value of Taxable Property

Overall Net Debt (Calculate: (1) + (2)) $599,230 (11)

Overall Net Debt as a Percent of Full Market Value of Taxable Property (Calculate: [(11)/(3)] x 100) 0.11 % (12)

2. Property Tax Revenues as a Percent of Full Market Value of Taxable Property

Property Tax Revenues as a Percent of Full Market Value of Taxable Property (Calculate: [(10)/(3)] x 100) 0.43 % (13)

Worksheet F

Calculating The Secondary Score

Please check the appropriate box in each row, and record the corresponding score in the final column. Then, sum the scores and compute the average. Remember, if one of the debt or socioeconomic indicators is not available, average the two financial management indicators and use this averaged value as a single indicator with the remaining indicators.

	Secondary Indicators			
Indicator	Weak*	Mid-Range**	Strong***	Score
DEBT IND. Bond Rating Worksheet E, (4)	Below BBB (S&P) Below Baa (Moody's) ☐	BBB (S&P) Baa (Moody's) ☐	Above BBB (S&P) or Baa (Moody's) ☐	2
" " Overall Net Debt as Percent of Full Market Value of Taxable Property Worksheet E, (12)	Above 5% ☐	2%-5% ☐	Below 2% ☒	3
SOCIOECONOMIC Unemployment Worksheet E, (5)& (6)	Above National Average ☒	National Average ☐	Below National Average ☐	1
SOCIOECONOMIC Median Household Income Worksheet E, (7) & (8)	Below State Median ☒	State Median ☐	Above State Median ☐	1
FIN. MGT. IND Property Tax Revenues as a Percent of Full Market Value of Taxable Property Worksheet E, (13)	Above 4% ☐	2%-4% ☐	Below 2% ☒	3
" " Property Tax Collection Rate Worksheet E, (9)	< 94% ☒	94% - 98% ☐	> 98% ☐	1

AVG. OF 2 FINANCIAL MGT. INDICATORS

* Weak is a score of 1 point

** Mid-Range is a score of 2 points

*** Strong is a score of 3 points

SUM 11

AVERAGE 1.83

Widespread Socioeconomic Impacts

Geographical Area

Shoshone County, Idaho is located to the west of the Idaho-Montana border. The South Fork Coeur d'Alene River Sewer District (SFCRSD) encompasses an area in Shoshone County from the community of Cataldo east to the city of Mullan along the I-90/South Fork of the Coeur d'Alene River corridor. Sewer service to most of the populated areas in Shoshone County is provided by the SFCRSD. Wastewater treatment and disposal occurs either at the Page Wastewater Treatment Plant (WWTP) located near the community of Page, between the cities of Pinehurst and Smelterville or the Mullan WWTP located at the city of Mullan.

Discussion of Impacts

The economy of the area has been depressed due to the loss of over 6,000 mining jobs in the last 20 years. Efforts are being made to recruit businesses to the area but if the metal limits from the TMDL are imposed this would result in a very high monthly sewer charge and could potentially causes businesses to not consider locating to the area. The monthly cost for an equivalent resident would be $59/month if the metal limits were imposed compared to $26/month without the metal removal facilities. The SFCRSD hopes through the removal of infiltration/inflow (I/I) into the collection system that a large amount of the metals entering the WWTPs can be eliminated which could impact the type of metals treatment system installed at the WWTPs. This I/I removal could take up to 10 years to fully implement and the cost for this work is included in the $26/ER/month estimate.

If businesses do not decide to locate in Shoshone County due to the high cost of sewer service, the median household income (MHI) is unlikely to rise and the unemployment rate is not likely to decrease. The MHI ($24,541 for Shoshone County) is already considerably below the State MHI ($36,023) and the unemployment rate of 10.2% is higher than the national average of 3.9%.

More disposable income would be needed to pay for the higher monthly user fees, which has a ripple effect through the community businesses. Less money would be available to purchase goods within the local community and businesses would be less profitable.

The overall net debt as a percentage of the full market value of taxable property would increase. As described in Worksheet 'M', this would change the community rating from "strong" to "mid-range" for this factor based on Worksheet 'F'.

The high user fees would negatively impact potential commercial development. Not only would businesses have to pay a high fee for wastewater treatment but the work force relocating to the area would also find the high user fees to consume a large part of their income. Businesses may find it difficult to hire a good work force when the jobs pay less than $15/hour.

The value of property within the area may fall due to the decreased demand for housing. The higher user fees will negatively impact the influx of people moving into the area for new jobs and property values could fall or remain stagnant.

Summary

It does appear that requiring the SFCRSD to treat for metals in accordance with the TMDL will have a widespread socioeconomic impact on the communities with Shoshone County. The area is currently economically depressed and this high user fee would not improve the economic health of the area. Attempts are being made to bring economic development to the area and this could be a factor in making the area not attractive for new businesses.

The SFCRSD would propose to reduce the metal loads leaving the WWTPs by reducing the I/I entering the collection systems. If successful the WWTPs may not need to construct any metal removal systems and the cost of the estimated I/I removal is much less than the metal removal systems. Water quality limits would be met but the potential negative financial and socioeconomic impacts to the community are greatly reduced.

Worksheet M

Qualitative Description of Estimated change in Socioeconomic Indicators due to Pollution Control Costs

Estimated change in Median Household Income (MHI)

Estimated change in the unemployment rate

Estimated change in overall net debt as a percent of full market value of taxable property

DEBT WOULD GO UP BY $34,131,500 FROM $599,230. THE COST OF THE METALS REMOVAL SYSTEMS IS $21,700,000 OF THIS $34,131,500 COST. NET DEBT AS A % OF VALUE OF TAXABLE PROPERTY WOULD GO FROM 0.11% TO 3.95% DUE TO THE METAL REMOVAL SYSTEMS COSTS ("STRONG" TO "MID-RANGE" AS A "DEBT INDICATOR" ON WORKSHEET F).

Estimated change in % of households below the poverty line

Impact on commercial development potential

COMMERCIAL DEVELOPMENT WOULD PAY $59/ER/MONTH INSTEAD OF $26/ER/MONTH IF THE CURRENT METAL LIMITS ARE TO BE MET. THIS COULD IMPACT COMMERCIAL PROPERTY DEVELOPMENT POTENTIAL DUE TO THE HIGH COST FOR SEWER SERVICE.

Impact on Property Values

2.5 Assess Where the Community Falls in The Substantial Impacts Matrix

The results of the two tests are considered jointly in determining whether the community is expected to incur substantial impacts due to the proposed pollution control project.

In the following matrix, the cumulative assessment score for the community is combined with the estimated household burden. The combination of factors establishes whether impacts can be expected to be substantial. In the example of Community XYZ, their screener equaled 2.3 percent and their cumulative assessment score equaled 2. They are, therefore, in the middle cell in the far right column and thus have a rating of "X" in the matrix presented below (Table 2-2).

In the matrix, "X" indicates that the impact is likely to be substantial. The closer the community is to the upper right hand corner of the matrix, the greater the impact. Similarly, "✓" indicates that the impact is not likely to be substantial. The closer to the lower left hand corner of the matrix, the smaller the impact. Finally, the "?" indicates that the impact is unclear.

Table 2-2
Assessment of Substantial Impacts Matrix

Secondary Score	Municipal Preliminary Screener		
	Less than 1.0 Percent	Between 1.0 and 2.0 Percent	Greater than 2.0 Percent
Less than 1.5	?	X	X
Between 1.5 and 2.5	✓	?	X
Greater than 2.5	✓	✓	?

For communities that fall into the "?" category, if the results of both the Secondary Test and the Municipal Preliminary Screener are borderline, then the community should move into the category closest to it. Take, for example, a community that falls into the center box, with a cumulative assessment score of between 1.5 and 2.5 and a percent of median household income (MHI) between 1.0 and 2.0. If the cumulative score was 1.6 and the percent of MHI was 1.8, then the community should be considered to fall into one of the adjacent "X" categories. If results are not borderline, other factors such as the impact on low or fixed income households, the presence of a failing local industry, and other projects the community would have to forgo in order to comply with water quality standards should be considered. Relevant additional information might include information collected from interviews with municipal financial officers, special reports on industry trends that may affect local employers, and specific financial and economic indicators. The State/discharger should provide any additional information they feel is relevant. This additional information will be critical where the matrix results are not conclusive.

EPA will interpret a "✓" rating to mean that the community is not expected to incur substantial impacts as

Example EPA Analysis of Idaho's Economic Analysis Worksheet

(12)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

March 20, 2002

Reply To
Attn of: OEA-095

MEMORANDUM

SUBJECT: Review of Significant and Widespread Economic and Social Impacts Analysis, re: South Fork Coeur d'Alene River Sewer District ~~TMDL~~ Variance Request for Page and Mullen WWTPs

FROM: Elliot Rosenberg
Regional Economist

TO: Lisa Macchio
Water Quality Standards Coordinator

SUMMARY

In determining whether an entity should be granted a variance to the Idaho Water Quality Standards for metals, an analysis is performed to determine whether that entity and its constituents would face substantial and widespread economic and social impacts ("SWESI") by having to comply with the water quality criteria. A methodology for performing this SWESI analysis is contained in EPA's *Interim Economic Guidance for Water Quality Standards Workbook*[1] (" the EPA Guidance.")

A variance to water quality criteria is being requested of EPA by the South Fork Coeur d'Alene River Sewer District ("SFCRSD") at its Page and Mullan Wastewater Treatment Plants ("WWTPs").[2](see attached) The SFCRSD submission includes a SWESI analysis using the EPA Guidance and worksheets to support its request for a variance.

In its submission, the SFCRSD concludes that the

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[1] EPA-823-B-95-002, March 1995.

[2] SFCRSD letter dated (received by EPA) December 21, 2001; Ross Stout to L. John Iani.

.... financial impact would be large and there would be "widespread socioeconomic impacts" if the metals removal facilities were required to be constructed.[3]

The information presented in its submission supports this conclusion. Restated, it can be said that substantial and widespread economic and social impacts will occur if the SFCRSD has to comply with the water quality standards. I concur with that conclusion.

MY REVIEW

Substantial Impacts

I reviewed the worksheets and table enclosed with SFCRSD's submission. These worksheets and tables are provided in the EPA Guidance, and in addition the SFCRSD included supporting documents that are necessary to complete the worksheets and the analysis.

Accuracy and Consistency

I first checked the SFCRSD's worksheets and table for accuracy (e.g., calculations) and consistency (e.g., transposing figures from supporting documents to worksheets and from one worksheet to the next worksheet or table.) I found two errors, neither one having any affect on the SFCRSD's subsequent conclusion.

Error #1 - Page Facility Estimate of Potential I/I Reduction and Approximate Costs - page 1 of 2

The total capital costs for the Page facility are shown as:

I/I improvements	$ 5,202,500
Treatment plant upgrades	5,193,000
Sulfide precip. w/micro-filtration	17,750,000
Total Capital Cost Estimate for the Page Facility:	$28,145,500

However, towards the bottom of this page and just above the footnotes, the SFCRSD shows a (handwritten and) incorrect figure of $28,145,000. This is $500 less then the correct figure of $28,145,500m as shown above.

The first line of Worksheet B requires the Capital Costs of Project, which is the sum of the Page and Mullan capital

[3] Ibid. Third paragraph, first page following the SFCRSD cover letter.

costs. The first line of Worksheet B and numbered line (1) of Worksheet B show a figure of $34,931,000; this should correctly read $34,931,500. The use of the incorrect total capital cost figure (i.e., the omission of the additional $500) has no bearing on the outcome of the analysis.

Error #2 - Table 2-2 Assessment of Substantial Impacts Matrix

In order to locate the appropriate column in the Municipal Preliminary Screener ("MPS") matrix part of the table, it is necessary to bring forward the MPS value that was calculated in Worksheet D. In that worksheet the SFCRSD (correctly) calculated the MPS to be 2.84%. However, Table 2-2 shows a (handwritten) figure of 2.89%. Since both the correct MPS value (2.84%) and the incorrect MPS value (2.89%) would indicate by a substantial margin that either value would fall into the third column (i.e., this column includes an MPS value *Greater than 2.0 Percent*), the error caused by not bringing forward the correct MPS value of 2.84% therefore has no material affect on the outcome.

Table 2-2 - Assessment of Substantial Impacts Matrix (p.2-29)

As its title suggests, by completing this table the user can assess if the community is expected to incur substantial adverse impacts as a result of complying with the Water Quality Standards.

As mentioned in the preceding section, the third column of the Municipal Preliminary Screener matrix in the table has already been identified using the MPS value of 2.84%. As part of this assessment process it is also necessary to find the applicable row in that matrix, and then the user can determine from the resultant box found by the row-column intersection what is the expected magnitude of the impacts.

To find the relevant row in Table 2-2, the cumulative assessment or Secondary Score found from the calculations in Worksheet F, in this case a value of 1.83, is brought forward to the left-hand side of Table 2-2. Since this value falls within the range *Between 1.5 and 2.5*, this indicates the second row.

The box found by the intersection of the second row and third column contains an 'X'. This 'X' "...indicates that the impact is likely to be substantial."(EPA Guidance p.2-28)

Widespread Impacts

A 'Widespread Impact' analysis requires a more qualitative approach, though there are three estimates in Worksheet E that are also relevant, namely Median Household Income, the Community Unemployment Rate, and Overall Net Debt as a Percent of Full Market Value of Taxable Property.

The SFCRSD submission discusses relevant issues, particularly as they relate to the geographic area, e.g.,

- a depressed economy in the area;
- added costs to doing business in the area through higher sewer rates if the permit limits are to be met, thereby making it more difficult to attract new business or retain existing businesses;
- without new businesses entering the area's marketplace, income and unemployment figures are not likely to improve;
- compliance with the permit limits would further increase net debt as a percentage of full market value of taxable property, thereby changing the community's Worksheet F rating from 'strong' to 'mid-range', and
- a continuing weak local economy could cause property values to fall due to a decrease in the demand for housing.

The SFCRSD submission demonstrated that the geographic area may be adversely affected in a number of relevant ways including detrimental impacts to economic development and employment. This could lead to prospective increases in state compensation for unemployment and social services. The SFCRSD conclusion is that,

> "... requiring the SFCRSD to treat for metals in accordance with the TMDL will have a widespread socioeconomic impact on the communities with Shoshone County. The area is currently economically depressed and this high user fee would not improve the economic health of the area. Attempts are being made to bring economic development to the area and this could be a factor in making the area not attractive for new business."(Widespread Socioeconomic Impacts page of submission.)

In reviewing Worksheet F - Calculating The Secondary Score, six indicator values are used that were derived from Worksheet E. While two indicators are rated as 'strong',[4] these two indicators are counterbalanced by other indicators that I believe weigh more heavily in assessing a small rural community's social and economic health, namely the Unemployment Rate and Median Household Income. In the analytical worksheets these two indicators are rated as 'weak'. This weak rating does not adequately reflect the community's long term social and economic health. For example, unemployment levels remain considerably

[4] Overall Net Debt as Percent of Full Market Value of Taxable Property and Property Tax Revenues as a Percent of Full Market Value of Taxable Property.

above the state and national levels while income levels remain well below the state and national average.[5] These are indications of structural issues affecting these communities, issues that have not improved over time.

Taking into consideration this information and the qualitative statements provided in the submission, I concur with the SFCRSD that there could be widespread socioeconomic impacts of it has to comply with the water quality standards.

Supplemental Engineering Cost Data

The last four pages of the SFCRSD submission include cost estimates for new metal treatment components at the Page and Mullen WWTPs. These cost estimates were developed by EPA staff.

I performed a separate significance analysis by substituting this new cost data for that provided in the SFCRSD analysis. Using the EPA cost data, I derived a Municipal Preliminary Screener (MPS) value of 2; this compares to the MPS value of 2.84 calculated by the SFCRSD.

Transposing the MPS value of 2.0 and the Secondary Score value of 1.84 to Table 2-2, the relevant box represents the intersection of the second row and center or second column of the Municipal Preliminary Screener. This box shows a '?' which the EPA Guidance interprets this to mean that the impact is unclear.(EPA Guidance, p.2-28) The EPA Guidance also says that "if the results of both the Secondary Test and the Municipal Preliminary Screener are borderline, then the community should move into the category closest to it."(p. 2-29) Given that the MPS value of 2.0 is borderline, i.e., it falls next to the third column's minimum value (*Greater than 2.0 Percent*), then the new box would represent the intersection of the second row and third column. This box shows an "X", indicating that the impact is likely to be substantial.

Considering that many of the values used are estimates and that the calculated Secondary Score is 1.83, this score could be considered relatively close to the lower limit value for the second row (i.e., 1.5); it's borderline. Moving to the first row where the Secondary Score would be moved since the first row is for scores *Less than 1.5*, the derives the box representing the intersection of the first row and second column in the Municipal Preliminary Screener. This box contains an 'X' indicating the impact is likely to be substantial.

Using an MPS of 2.0 places the two scores in the box representing

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[5] Country Profiles of Idaho. 1999. Idaho Department of Commerce, Economic Development Division.

the first row, second column where we find an 'X', again representing the impact is likely to be substantial. An alternative would be to follow through from the conclusion of the previous paragraph where the MPS value is moved to the third column because the MPS value is borderline. The box representing the intersection of the first row and third column also shows an 'X', i.e., the impact is likely to be substantial.

Considering both the Secondary Score of 1.84 and the MPS value of 2.0 to be borderline and moving these scores to their respective borderline row and column, the new box is found by the intersection of the first row and third column, again showing an 'X'.

CONCLUSION

The errors I refer to do not materially change the SFCRSD's analysis and conclusion.

Given the available information provided in the SFCRSD's submission, I find that its analysis is acceptable and I concur with its conclusion that there would be significant and widespread (adverse) economic and social impacts if the SFCRSD has to comply with the water quality standards.

Incorporating the alternate engineering cost estimates developed by EPA into the SFCRSD worksheets did change the MPS to a lower but borderline value (i.e., from 2.84 to 2.0). However, when the borderline value of the MPS and the Secondary Score are evaluated within Table 2-2, the conclusion remains the same, i.e., that the economic and social impacts are likely to be substantial.

Taking into account the qualitative issues enumerated in the SFCRSD's submission further supports the conclusion that there would be widespread economic and social impacts if the Page and Mullen Wastewater Treatment Plants had to implement the proposed TMDL metals treatment to comply with the NPDES permit limits. I concur with that conclusion.

for: PAGE & MULLAN

ER WORKSHEET
USING EPA DEVELOPED COSTS.

Worksheet B

Calculation of Total Annualized Project Costs

see 8/26/02 memo from Ben Cope

$4,897,588 M
$16,490,042 P.

A. Capital Costs

Capital Cost of Project	$ 21,387,630
Other One-Time Costs of Project (Please List, if any):	
_____	$
_____	$
_____	$
Total Capital Costs (Sum column)	$ 21,387,630 (1)
Portion of Capital Costs to be Paid for with Grant Monies	$ 1,500,000 (2)
Capital Costs to be Financed [Calculate: (1) - (2)]	$ 19,887,630 (3)
Type of financing (e.g., G.O. bond, revenue bond, bank loan)	
Interest Rate for Financing (expressed as decimal)	0.05 (i)
Time Period of Financing (in years)	20 (n)

Annualization Factor = $\frac{i}{(1+i)^n - 1}$ + i (or see Appendix B)

0.08024 (4)

Annualized Capital Cost [Calculate: (3) x (4)]

1,595,783 (5)

B. Operating and Maintenance Costs

Annual Costs of Operation and Maintenance (including but not limited to: monitoring, inspection, permitting fees, waste disposal charges, repair, administration and replacement.) (Please list below)

PAGE	$279,925
MULLAN	$ 70,187
UPGRADE O&M COST INCREASE	$ 48,800
_____	$
_____	$
Total Annual O & M Costs (Sum column)	$398,912 (6)

C. Total Annual Cost of Pollution Control Project

Total Annual Cost of Pollution Control Project [(5) + (6)]	$1,994,695 (7)

SAME AS SFCRSD (we've not shown)

Worksheet C

Calculation of Total Annual Pollution Control Costs Per Household

A. Current Pollution Control Costs:

Total Annual Cost of Existing Pollution Control	$	(1)
Amount of Existing Costs Paid By Households	$	(2)
Percent of Existing Costs Paid By Households	%	(3)
Number of Households*	4,546	(4)
Annual Cost Per Household [Calculate: (2)/(4)]	$ 123	(5)

* Do not use number of hook-ups.

B. New Pollution Control Costs

Are households expected to provide revenues for the new pollution control project in the same proportion that they support existing pollution control? (Check a, b **or** c and continue as directed.)

☐ a) Yes [fill in percent from (3)] 84 percent.(6a)

☐ b) No, they are expected to pay _____ percent.(6b)

☐ c) No, they are expected to pay based on flow. (Continue on Worksheet C, Option A)

Total Annual Cost of Pollution Control Project [Line (7), Worksheet B]	$ 1,994,695	(7)
Proportion of Costs Households Are Expected to Pay [(6a) or (6b)]	.84	(8)
Amount to Be Paid By Households [Calculate: (7) x (8)]	$ 1,675,544	(9)
Annual Cost per Household [Calculate: (9)/(4)]	$ 369	(10)

C. Total Annual Pollution Control Cost Per Household

Total Annual Cost of Pollution Control Per Household (5) + (10) $ 492 (11)

Worksheet D SAME AS SFCRSD

Municipal Preliminary Screener

The Municipal Preliminary Screener indicates quickly whether a public entity will not incur any substantial economic impacts as a result of the proposed pollution control project. The formula is as follows:

$$\frac{\textit{Total Annual Pollution Control Cost per Household}}{\textit{Median Household Income}*} \times 100$$

A. Calculation of The Municipal Preliminary Screener

Total Annual Pollution Control Cost Per Household [Worksheet C, (11) or Worksheet C, Option A (10)]	$ 492	(1)
Median Household Income*	$25,277	(2)
Municipal Preliminary Screener (Calculate: [(1)/(2)] x 100)	2.00 %	(3)

B. Evaluation of The Municipal Preliminary Screener

If the Municipal Preliminary Screener is clearly less than 1.0%, then it is assumed that the cost will not impose an undue financial burden. In this case, it is not necessary to continue with the Secondary Test. Otherwise, it is necessary to continue.

Benchmark Comparison:

Little Impact	Mid-Range Impact	Large Impact
Less than 1.0%	1.0% - 2.0%	Greater than 2.0%

Indication of no substantial economic impacts	→ Proceed to Secondary Test

* 1990 Census adjusted by CPI inflation rate if necessary.

Table 2-2
Assessment of Substantial Impacts Matrix

Secondary Score	Municipal Preliminary Screener		
	Less than 1.0 Percent	Between 1.0 and 2.0 Percent	Greater than 2.0 Percent
Less than 1.5	?	X	X
Between 1.5 and 2.5	✓	?	X
Greater than 2.5	✓	✓	?

For communities that fall into the "?" category, if the results of both the Secondary Test and the Municipal Preliminary Screener are borderline, then the community should move into the category closest to it. Take, for example, a community that falls into the center box, with a cumulative assessment score of between 1.5 and 2.5 and a percent of median household income (MHI) between 1.0 and 2.0. If the cumulative score was 1.6 and the percent of MHI was 1.8, then the community should be considered to fall into one of the adjacent "X" categories. If results are not borderline, other factors such as the impact on low or fixed income households, the presence of a failing local industry, and other projects the community would have to forgo in order to comply with water quality standards should be considered. Relevant additional information might include information collected from interviews with municipal financial officers, special reports on industry trends that may affect local employers, and specific financial and economic indicators. The State/discharger should provide any additional information they feel is relevant. This additional information will be critical where the matrix results are not conclusive.

EPA will interpret a "✓" rating to mean that the community is not expected to incur substantial impacts as

Appendix I
Considerations for Use of Selected 131.10(g) Factors

ATTACHMENT A

CONSIDERATIONS FOR USE OF SELECTED 131.10(g) FACTORS

This list of considerations and the brief discussion of application are intended to be illustrative not definitive. It is not necessarily comprehensive.

Factor 1 – Naturally occurring pollutant concentrations prevent the attainment of the use.

Potential Components of Demonstration: water quality assessment for all relevant parameters, biological assessment (as an indicator of water quality), appropriate reference condition for comparison (if available), land usage/watershed characteristics, characterization of point and non-point source pollutant sources upstream of water body, characterization of natural sources, water quality modeling (as necessary to confirm effects from natural pollutant sources), assessment of possible groundwater contamination from human activities as the source of surface water pollutant levels, stream bank stability (including upstream stability if natural siltation is suspected), tidal influences (i.e., for estuarine dissolved oxygen).

Factor 1 may be used in situations where, for example, natural shale deposits cause elevated levels of trace metals or where naturally occurring low dissolved oxygen levels predominate (possibly in conjunction with considerations for factor 1 and factor 5). A "natural condition" is a condition without human-caused changes. Because it is difficult (if not impossible) to find a completely "natural" water body that is free from influence from any human activity, the "natural condition" is typically determined using conditions least affected by human activities as the point of reference, as long as those least affected conditions are believed to be a reasonable approximation of the natural condition. Waters where activities such as urbanization, agricultural practices, hydrologic modification, and atmospheric deposition have a significant measurable or predicted effect on the designated use should not be used as a natural point of reference.

Factor 2 – Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met.

Potential Components of Demonstration: volume and velocity of flow, depth, range of flow conditions (including highs and lows as well as more generally representative conditions not influenced by drought or recent precipitation), presence of pools within the water body channel, precipitation and snowmelt patterns, presence of riparian vegetation (as an indicator of pattern of flow and water levels), depth of water table (to distinguish ephemeral from intermittent if necessary), biological assessment (as necessary to confirm flow or water level limitation if physical evidence is unclear), recreational use safety and access, potential use by children.

Factor 2 is most commonly applied to situations where the ephemeral character of a water

body precludes certain types of aquatic life uses or where low flow conditions that are associated with a depth that is not conducive to swimming predominate. Although there is no formal guidance on what depth precludes recreation, many states have developed protocols that have led to acceptable use refinements (e.g., Colorado, Oklahoma, Kansas). More recently, this factor has been considered relevant for situations where high flows make it unsafe for recreation under certain situations. However, the wording of factor 2 in the regulation only lends itself to application where high flow conditions are natural. The last phrase of the factor ("unless those conditions…") means that the factor is not relevant to situations where a discharger creates permanent flow in an otherwise ephemeral stream or where a discharger creates sufficient depth for recreation in a stream that would otherwise be too shallow.

Factor 3 – Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place.

Potential Components of Demonstration: water quality (and sediment and tissue quality as necessary) assessment for all relevant parameters, biological assessment (as an indicator of water quality), appropriate reference condition for comparison (if available), land usage/watershed characteristics, characterization of human caused condition and its relationship to water quality and/or the use in question, identification of currently available remedies and assessment of their potential efficacy and feasibility, demonstration of application of technology-based requirements and cost effective and reasonable BMPs (as appropriate) or forecast of water quality conditions once implemented (e.g., using water quality modeling), assessment of potential damage caused by potential remedies.

Factor 3 is likely most applicable to watershed scale impacts, where there are a mix of pollutant sources and conditions, and the degree of human activity cannot be reconciled with certain water quality or designated use expectations. Application of this factor is very closely tied to the particular aspects of a given situation and not easily generalized. A good example is removal of contaminated sediment from a harbor that would cause more damage by disruption than the damage caused by leaving it in place.

Factor 4 – Dams, diversions, or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use.

Potential Components of Demonstration: water quality assessment for all relevant parameters, biological assessment (as an indicator of water quality), appropriate reference condition for comparison (if available), land usage/watershed characteristics, characterization of hydrologic modification and its relationship to water quality and/or the use in question, identification of currently available restoration and/or operation methods and assessment of their potential efficacy and feasibility, societal value of the hydrologic modification.

Factor 4 has been used to examine dam operation and consider potential use modifications. The potential applications for this factor are related to those associated with Factor 3. As with factor 3, application of this factor is very closely tied to the particular aspects of a given situation and not easily generalized.

Factor 5 - Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses.

Potential Components of Demonstration: physical habitat characterization of the water body, natural hydrologic patterns, sediment grain size, bathymetry, biological assessment (as necessary to confirm physical habitat limitation if physical evidence is unclear).

Factor 5 is often cited in conjunction with factor 1 and factor 2 for situations where, for example, natural physical conditions contribute to naturally low dissolved oxygen levels. This factor would also be relevant for situations where the natural substrate is not conducive to certain aquatic life uses (e.g., where a high "percent fines" in the sediment and lack of gravel preclude salmonid spawning). Natural physical conditions are also occasionally cited as a contributing factor to situations where human activity has also played a large role in modifying water body conditions (e.g., a combination of factor 3 and factor 5). For example, in a southeastern stream, it was the combination of the effects of urbanization and naturally sluggish hydrology that made attainment of a use infeasible.

Note: The phrase "unrelated to water quality" in Factor 5 does not preclude an examination of water quality. This is particularly important when evaluating a waterbody below a WWTP discharge[1]. A demonstration that the downstream conditions are *natural* may require a quantitative examination of the water quality in the waterbody above and below the WWTP to determine the effects of the discharge on the downstream condition. It is possible that the discharged WWTP effluent could directly impact the available habitat and aquatic life through the exposure of suspended solids, biological oxygen demanding substances, ammonia and other pollutants toxic to aquatic life which could limit the attainability of the use.

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[1] A task of the UAA is to identify receiving water bodies, in which the use(s) is not attained for reasons other than those specified above (natural conditions**),** that are water quality-limited (impaired) and will require water quality-based controls. Water quality-limited segments are specifically defined by EPA as:

> "…those segments that do not or are not expected to meet applicable water quality standards even after the application of technology-effluent limitations required by sections 301(b) and 306 of the Act."
>
> According to sections 301(b) and 306, technology-based controls include, but are not limited to, "best available technology economically achievable (BAT)" for industrial point sources and secondary treatment for publicly owned treatment work, as well as reasonable and cost-effective BMPs for diffuse sources that have an assurance of being implemented.

Factor 6 - Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact

Potential Components of Demonstration: water quality assessment for all relevant parameters, biological assessment (as an indicator of water quality), identification of currently available control technologies and assessment of their potential efficacy, characterization of the costs of controls and their potential for financing over a period of years, characterization of the ability to pay for the affected entities, opportunity costs, evaluation of equity and distribution, environmental justice, identification of the community and characterization of its financial health.

Factor 6 has primarily been applied to single discharger situations where the surrounding community is experiencing economic hardship. It is often used in conjunction with a variance rather than a use removal. EPA's 1995 *Interim Economic Guidance for Water Quality Standards: Workbook* provides guidance on using this factor.